From: Dante Nomellini, Jr. <dantejr@pacbell.net>
Sent: Sunday, July 27, 2014 6:37 PM
To: BDCP.comments@noaa.gov
Cc: Dante John Nomellini Sr.
Subject: DJN_Sr Part Two CDWA Comments on Draft BDCP Plan & EIR_EIS
Attachments: DJN_Sr Part Two CDWA Comments on Draft BDCP Plan & EIR_EIS.pdf

Attached hereto please find the following document entitled:

"DJN_Sr Part Two CDWA Comments on Draft BDCP Plan & EIR_EIS" (approx. 2 MB).

Please reply to this email acknowledging receipt of that document.

Thank you,
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July 27, 2014

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Re: Draft Bay Delta Conservation Plan and
Draft Bay Delta Conservation Plan EIR/EIS
DJN Sr. Part Two

This is Part Two of my submittal. It includes submittal on behalf of both Central Delta Water Agency and South Delta Water Agency of Additional Analysis and Comments Set One, 271 pages, and Additional Analysis and Comments Set Two, 19 pages.

Yours very truly,

DANTE JOHN NOMELLINI, SR.

CDWA & SDWA

Additional Analysis and Comments
Set One, 271 Pages

BDCP HCP/NCCP and EIR/S Public Draft Comments		
Document Section	**Issue**	**Comment**
HCP/ NCCP		
	All comments on the HCP/NCCP are also to be applied to the EIR/S Proposed Project/Proposed Action and each of the alternatives.	All comments on the EIR/S Proposed Project/Proposed Action are to also be applied to the HCP/NCCP.
	Because of the unreasonably large document size and too brief a period for the public to reasonably review and comment, our comments have been almost exclusively oriented to the HCP/NCCP and EIR/S Proposed Action.	If after the Public Draft EIR/S, the Federal Lead agencies select a different alternative than the Proposed Project, the document needs to be reissued to the public so that it can comment on this other project. The Federal Lead Agencies are allowed to select their preferred project prior to the final EIR/S, but due to the extreme burden on the public from the large document size and too brief a review period, the Public Draft should be reissued after the Federal Lead Agencies have selected their preferred project so that the public can focus their review and comments on that alternative.
	The BDCP made a commitment for no new water supplies being delivered as a part of the objectives of the project.	Since the project says that it will not result in any additional quantities of water being diverted, it should make a commitment in the Joint Operating Agreement and Joint Operating Authority that the facility will never be modified to increase the amount of water that is being diverted and delivered beyond the amount addressed in this project. If the BDCP will not make this commitment then it is clear that it intends to do just that which is peicemealing.
	Public funding should not be used to create facilities that will result in profits for private parties.	Since a large part of the project is proposed be paid for by public funds (habitat restorations) and without those public funds the project would not be permitable, the project should commit within its document, Joint Operating Agreement and Joint Operating Authority that the project will never wheel water or deliver water that is sold for a private entity profit. If the BDCP will not make this commitment then it is clear that it intends to do just that which is using public funds to subsidize private party profits.
	Habitat restoration actions that are part of the No Action condition are included as Conservation Actions in the BDCP proposed project.	Habitat restoration actions that are required from the 2009 OCAP BOs are included in the description and scope of the Proposed Project Conservation Measures. Almost 5 years after the Reasonable and Prudent Actions (RPAs) of the OCAP BOs became the law, DWR and Reclamation have made no tangible progress at all in implementing these measures - see related comments. The BDCP has correctly included some of the RPAs into their No Action definition, but left other RPAs out, e.g. reoperate Shasta flood reserve and fish passage at all dams - see related comments. The BDCP definition of their conservation measures includes the scope of some of the RPA, e.g. CM2 and CM5. The scopes of these conservation measures are inclusive of the requirements of the RPAs, but are not the same as the RPAs. The BDCP has muddied the comparison of the Proposed Project to the No Action by incorporating No Action restorations into the Proposed Project. To make a clean and appropriate comparison, the BDCP should have excluded the RPAs from their Proposed Project. The BDCP should have made a category of "Current Project Obligations Not Yet Implemented". This way the No Action impacts could be clearly separated from the Proposed Project Impacts. The way the BDCP has done their comparison, the impacts from the No Action RPAs are included in both the No Action and the Proposed Project. The impacts from the No Action RPAs cancel out, but their inclusion makes the identification of the magnitude of the Proposed Project less clear and not correctly isolated for comparison and analysis. The current inclusion of the No Action RPAs in the Proposed Project makes it difficult to determine the magnitude of benefits to the species that are attributable to the Proposed Project as opposed to those that occur with the No Action. Since the No Action are existing obligations for the CVP/SWP operations, the cost to implement those actions should not be borne by the taxpayer as is proposed by the BDCP - see related comments. The BDCP should redo the project analysis with the No Action RPAs separate from the Proposed Project so the impacts from the project are correctly identified, characterized, quantified and disclosed.
	The BDCP impact analysis does not include the CVP/SWP reservoir operational impacts.	The BDCP Proposed Project does result in a reoperation of the CVP/SWP reservoirs, so the impact analysis that omits those effects is incomplete and deficient. further, because of this omission, the incidental take permits and covered activities should not cover reservoir operations, maintenance or their related impacts.

	The limited and artificially constrained geographic scope of the BDCP does not match the CVP/SWP impacts to the proposed covered species.	The geographic scope of the potential actions by the BDCP should extend to the entire geographic range of the species that are affected by the project.
	The BDCP never provides any rationale for the inclusion of terrestrial species in their proposed covered species for a project that is all about water.	Covered species should not include terrestrial species as the CVP/SWP project and operations do not materially affect these species. Any impact to these species from construction footprint should just be mitigated.
	The 75940 Federal Register / Vol. 78, No. 240 / Friday, December 13, 2013 states that the covered activities are only "in the Sacramento-San Joaquin Delta (Delta) and vicinity."	Either the BDCP covered activities are only in the Sacramento-San Joaquin Delta (Delta) and vicinity or the BDCP is in direct conflict with the Federal Register Notice. The CVP/SWP conveyance and facilities in the San Joaquin Valley, Central Coast, South Sierra Foothills and Tehachapi's and south cannot be considered in the vicinity of the delta and therefore the proposed covered BDCP activities do not address the maintenance and operations in these areas. Without coverage for operations and maintenance activities in these areas, the BDCP will still be in violation of the permitting requirements for the project. The lead and responsible agencies should not issue permits for the CVP/SWP for operations and maintenance in these service areas that are specifically excluded in the covered activities area according to the Federal Register Notice.
	Take permits should only be issued for geographic areas in which the effects analysis was conducted.	Since the effects analysis does not include the CVP/SWP reservoir operational impacts from the BDCP, the take permits and covered activities should not cover reservoir operations, maintenance or their related impacts.
	The proposed permit duration is too long.	A 50 year duration for the ITPs is too long given the level of certainty of the conservation measures, climate change and other sources of impacts to these species that could substantially alter their conditions and the relative needs for conservation from this project.
	The Biological Goals and Objectives are not specific enough to support the use of adaptive management.	The ISRP identifies this repeatedly in their phase 3 report.
	Methods proposed to measure habitat and species population conditions are not accurate enough to measure the improvements that are set in the biological goals and objectives.	The ISRP identifies this repeatedly in their phase 3 report. As an example, you can't measure with a statistically defensible reliability, a 75% fish survival from salvage operations or a 2% increase in juvenile salmonid escapement.
	The project is implementing a number of conservation measures simultaneously that are intended to benefit the same species that the project proposes to adaptively manage.	Even if the project could measure the biological performance of these measures, how does it propose to determine which of the conservation measures are working and which ones have failed and are not contributing to conservation and recovery?

	Intertidal habitat restoration plan level of detail is insufficient as to depth, channel complexity, turbidity, food base, hydraulic characteristics of tidal interchange, time requirements for habitat functionality and hydraulic complexity development (habitats are not immediately functional and channel and vegetation equilibrium will not be reached for years or even decades) to allow meaningful assessment as to the environmental impacts (e.g. methylization of Hg and other water quality impacts) or the value of these actions toward conserving each proposed covered species.	The ISRP identifies this repeatedly in their phase 3 report.
	The timing, sequence and combination of potential habitat restoration has been left too vague to be functional to determine impacts or benefits to specific species. As an example, if all of the intertidal habitat restoration were to occur in the Cache Slough complex all at one time, it would have a very different impact on water quality and value to specific species than if the same amount of intertidal habitat was implemented in the eastern delta.	The ISRP identifies this repeatedly in their phase 3 report.
	ITPs should be issued with specific expectations about the timing, magnitude, location and characteristics of habitat restorations.	If the implementation of the project does not conform to the scenario of habitat restoration that was analyzed and the impacts disclosed for, then the agencies would not be justified in the issuance of take permits.
Conservation Measure Implementation Schedule	All of the BDCP proposed near-term habitat restoration conservation measure actions are actually existing CVP/SWP obligations from the current NMFS and FWS OCAP BO RPAs.	The OCAP BO RPAs for 8,000 acres of intertidal and 17,000 acres of flood plain should not be identified as contributory to species conservation as they are part of the baseline. Since all of the BDCP near-term conservation measures are fulfillment of existing obligations of the CVP/SWP, these actions cannot be considered to contribute to species conservation as compared to the No Action condition. Once the environmental analysis separates the fulfillment of existing obligations from new actions that actually have the potential to contribute to species conservation it becomes clear that the BDCP project does not actually start contributing to species conservation for a number of years. I would be more specific in my comment, but the BDCP has not even committed to a detailed timeline of when the next increments of habitat restoration after the near-term would occur in which these first actions contributing towards conservation would occur nor the type, quantity, location or even target species that are supposed to benefit from these undefined actions. It is clear that the BDCP intends that these restoration actions that would be the first real contributions to conservation of species would not be implemented prior to the completion of the conveyance. How long is it before the first project element that is identified as contributory to conservation is completed and functional? ITPs should not be issued until the first real net positive contributions to conservation (above the existing obligations) are realized by the BDCP and the conveyance construction should not be allowed to be initiated until a magnitude of contribution to recovery has been achieved that is at least sufficient to offset the impacts of the construction of the conveyance are completed. Otherwise the BDCP would result in a net negative amount and quality of habitat and species condition than under the No Action condition and that would certainly not warrant issuance of ITPs or construction-related permits.

	It is not reasonable for the ITPs to be effective until a targeted amount of species conservation and recovery have been accomplished and documented for the project.	If the project does, then the agencies would not be justified in the issuance of take permits.
	Top agency representatives in charge of the preparation of the BDCP EIR/EIS do not believe the project will achieve the habitat restoration goals in the delta.	Jerry Meral, DNR (in charge of the BDCP EIR for DNR and directing DWR in the preparation of the EIR/EIS) has been quoted in the Sacramento Bee as saying, the Bay Delta Conservation Plan "is not about, and has never been about saving the Delta. The Delta cannot be saved." – Stokely says: “Meral, the guy in charge of the BDCP HCP/NCCP, does not believe the plan will accomplish its dual goals.” So the top state official in charge of the project says that the project is not to save the delta which is one supposedly co-equal goals of the project. So if that is not goal of the project then the project is only about, and has only ever been about, a water grab for selected parties benefit.
	At no time should the project be allowed to degrade or reduce the amount or quality of habitat or reduce species populations in the course of the implementation of the project.	The document does not address the timing of development of species benefits on a timescale that is useful to assess whether or not the overall species habitat availability/quality ever is reduced below the level that existed prior to the implementation of the project. The analysis needs to be revised to include a realistic temporal accounting of the destruction and creation of habitat and provide an analysis that demonstrates that at no time does the project result in less habitat than the no action or existing conditions. Until it can provide this assurance, the BDCP should not be awarded any permits.
	The BDCP plan materially conflicts with other habitat conservation plans (HCPs) that are in various planning and implementation phases in the same locations/areas and same terrestrial species that BDCP proposes.	The BDCP is proposing to restore many of the same lands that are currently part of HCPs being developed by the delta counties: Sacramento, San Joaquin, Yolo, Contra Costa and Solano. The BDCP's plan is in direct and significant conflict with these other local and regional plans. These other HCPs were initiated first, are more developed/further along the approval process, have more specific plans (not just the nebulous and programmatic undefined future to be defined later proposals of the BDCP) and are closer in timing to implementation and contribution to the conservation of these species. The BDCP is disrupting the efforts and plans of these other HCPs to protect and conserve the many of the same terrestrial species as the BDCP proposed covered species. Because of this BDCP direct conflict with the other plans, the BDCP is actually reducing the overall near- and mid-term conservation of these species. This conflict with other HCPs and the resulting reduction in conservation for the BDCP proposed covered species was not adequately discussed or disclosed in the BDCP EIR/S. This significant direct impact to habitat that would have otherwise been created and implemented by these other HCPs was not identified, quantified, characterized, or disclosed in the BDCP EIR/S. These significant impacts from the BDCP proposed project have not had measures implemented to avoid, minimize or mitigate them and therefore the current BDCP EIR/S is incomplete and deficient. The BDCP EIR/S document should be revised to provide a detailed accounting of the locations, quantity and types of habitat restoration conflict with existing and in-progress local and regional plans and policies. This revision would be a material change that would require the BDCP recirculate the EIR/S for an additional round of public comment. The BDCP can avoid this conflict by dropping the terrestrial species from the proposed covered species. The Purpose and Need statement does not provide any justification for including the terrestrial species anyway - see related comments. If the BDCP does not drop the terrestrial species from the covered species list, in order to minimize this significant impact on the other pre-existing HCPs, the BDCP Proposed Project needs to include a plan/commitment not to implement restorations on any of the areas/locations previously identified by the other HCPs. Given the conflict between the BDCP and the plans of other pre-existing HCPs, there is also a reasonable doubt of sufficient remaining suitable lands for the BDCP proposed conversion to specific species habitat restoration. As an example, once San Joaquin, Sacramento and Yolo and Solano counties have implemented their planned habitat conservation for Giant Garter Snake (GGS), there will be little suitable habitat available for the 3:1 habitat loss mitigation and habitat restoration as a contribution to conservation for the BDCP to implement. This scarcity of suitable GGS habitat to conserve and/or restore is illustrative of the conflict of the BDCP with the other pre-existing conservation plans and also calls into question the ability of the BDCP to fulfill its habitat conservation goals in the future. The limitations on available habitat to convert in competition with the other HCPs demonstrates the level of uncertainty of the BDCP achieving conservation goals and therefore the BDCP should not be awarded incidental take permits with this level of uncertainty.

	The conveyance facilities and operations should not be called a "conservation measure" unless they actually contribute to conservation.	The document does not conclude that the conveyance and operations result in a reduction in take, so it does not seem to meet the test of what should be called a conservation measure.
	Some of the other stressor conservation measures would be implemented by third parties.	Since the BDCP cannot guarantee the function, overall funding or even future existence of these third parties, the CMs implemented by these third parties do not meet the test of certainty and the potential benefits from these CMs should not be relied upon in determining contribution to conservation and justification for issuance of the ITPs.
	Habitat restorations are the majority contributor to the conservation of the species that justify the take permits that are the objective of the project and allow the SWP to operate.	The beneficiaries of the project, the SWP water contractors should have to pay for the habitat restoration project, not the public through the public trust resource agencies.
	The timing, sequence and combination of potential habitat restoration has been left too vague to be functional to determine impacts or benefits to specific species.	As an example, if all of the intertidal habitat restoration were to occur in the Cache Slough complex all at one time, it would have a very different impact on water quality and value to specific species than if the same amount of intertidal habitat was implemented in the eastern delta. In order for an adequate evaluation of the impacts of the proposed project aquatic habitat restorations, to characterize the effects on and interactions with those restorations on CVP/SWP operations and determine the temporal distribution of contributions to conservation by species, the BDCP EIR/S document is deficient, should be revised to include and analyze this level of detail and should be recirculated after these material changes have been made.
	ITPs should be issued with specific expectations about the timing, magnitude, location and characteristics of habitat restorations.	If the implementation of the project does not conform to the scenario of habitat restoration that was analyzed and the impacts disclosed for, then the agencies would not be justified in the issuance of take permits.
	The ITPs should not be effective until a targeted amount of species conservation and recovery have been implemented and the function and contribution to recovery verified through monitoring and evaluation of the project.	A commitment by the BDCP does nothing to actually benefit the species until the related actions are implemented and verified as successful in contributing at their planned level of contribution to conservation of the proposed covered species. the OCAP BO RPA's for the CVP/SWP (not yet implemented by DWR and Reclamation) are designed to avoid jeopardy for the current CVP/SWP project and operations. Until the BDCP delivers the actual planned conservation benefits to the proposed covered species, there is no justification for the agencies issuing ITPs.
Adaptive Management	The Biological Goals and Objectives are not specific enough to support the use of adaptive management and there are no specific quantitative threshold condition triggers for adaptive management changes.	The BDCP proposes goals for various conservation measures and monitoring programs, but there are no meaningful or functional triggers for adaptive management either to end a program, modify a program or escalate a program. The goals the BDCP proposes, such as juvenile salmonid escapement improvements or improvements in reduction of predation related to the south delta operations are levels of improvement and survival that are not practical to monitor at a level of accuracy that is scientifically defensible. There is not a single study that has ever been published on juvenile escapement survival that is statistically defensible to a population or survival rate within a margin of error of plus or minus 10% or less. Yet BDCP goals and adaptive management program criteria are proposed for levels of improvement that are less than this - see following comment. These BDCP adaptive management proposals are unimplementable at the level of detail, resolution and statistical defensibility. The BDCP should revise their conservation measure goals and adaptive management triggers such that they are practicably monitorable in a statistically defensible and accurate manner so that there is some level of certainty in the success of the conservation measures and in the function of adaptive management. Without these, the level of success of the conservation measures is unknown, uncertain and adaptive management remains nebulous, unfunctional and unreliable in its ability to provide any certainty of contribution to conservation.

	Methods proposed to measure habitat and species population conditions are not accurate enough to measure the improvements that are set in the biological goals and objectives.	As an example, it is infeasible to measure with a statistically defensible reliability, a 75% fish survival from salvage operations or a 2% increase in juvenile salmonid escapement.
	The project is implementing a number of conservation measures simultaneously that are intended to benefit the same species that the project proposes to adaptively manage.	Even if the project could measure the biological performance of these conservation measures, how does it propose to determine which concurrently implemented conservation measures are working and which ones have failed and are not contributing to conservation and recovery? Unless this question can be answered, the BDCP cannot successfully adaptively manage the proposed project actions and therefore the credit attributed to the adaptive management of these actions for contribution to conservation should be discounted and not contribute to the justification for the issuance of ITPs.
	Adaptive management of conservation actions has been repeatedly identified by the BDCP as a (false) assurance of an conservations measures construction to conservation.	The potential adaptive management changes to the conservation measures were not sufficiently defined as allow analysis of those contingencies nor did the BDCP EIR/S include an analysis of the impacts of those adaptive management programs. Near term habitat restoration conservation measures are proposed by the BDCP and they seek construction level permits to implement them, but they do not analyze the potential adaptive management impacts of those actions. This means these near-term actions have not been fully analyzed and do not warrant issuance of construction level permits. Since the adaptive management measures are core to the BDCP assurances of achieving contribution to conservation, the adaptive management measures should not be subject to analysis in a subsequent environmental document unless the permits related to implementing the conservation measure are also dependent upon that subsequent environmental document. In order to remedy this deficiency of the current document, the BDCP should provide adequate level of detail of adaptive management measures for these near and mid-term habitat restoration conservation measures and fully analyze, characterize, quantify and disclose the impacts associated with them.
	The BDCP proposed project is unclear on if a conservation measure fails to meet objective if the program is terminated or not.	There are environmental impacts from continuing programs and there are losses of benefits from discontinuing programs even if they are only partially successful. The BDCP has not defined how, when, why or any other details regarding the cessation of conservation measures that are purportedly adaptively management. The BDCCP does not define how (what methods of measurement or analytical tools), why (what metrics or performance measures) or when (duration, rate of improvement, etc.) that would define when a program would or would not be terminated or adapted so none of the required elements for adaptive management have been defined in the BDCP plan. Saying there is adaptive management without defining any of the required components to implement adaptive management is not a plan and these measures should not given any credit for contributing to conservation or providing any level of assurance of performance of the proposed conservation measures.
	The level of detail (and lack thereof) describing potential adaptive management actions and specific triggers (and lack thereof) for adaptive management implementation do not provide a sufficient level of certainty sufficient to support permitting.	The BDCP proposed project does make it possible for them to cancel many of the proposed conservation measures even though they failed to provide clear triggers for this. With the possible cancelation of so many of the proposed conservation measures the agencies must evaluate how much contribution to recovery would remain for each proposed covered species if the BDCP were to terminating all of the conservation measures that the plan would allow them to do. If they were to cancel all of the conservation measures the BDCP proposed project allows them to there would be little remaining to contribute to species conservation and no justification for the agencies to issue ITPs. Since this is a possible or even likely outcome given the uncertainties of the performance of the proposed conservation measures and the limitations to the accuracies of the proposed performance monitoring methods, the agencies cannot be justified in issuing the ITPs.

	The level of certainty of funding is insufficient to justify the agencies issuing permits on the project.	The BDCP sources of funding for large parts of the project (bond issuance from each of the water agencies for the construction and operations of the conveyance, and funding from tax payers and public resource agencies for habitat restorations) are uncertain and unreliable. Their has been no tax proposed or funding source identified for the public resource agencies to pay for the habitat restorations. If any of the water agency or public resource agency funding sources fail, then the project will fail to meet its commitments and a level of species conservation that would warrant issuance of incidental take permits will not occur. Given the number of water agencies and public resource agencies involved in the funding and each one critically responsible, there will be at least 50 opportunities for funding to not be successful. Only if all of the funding efforts were successful would the BDCP fulfill its commitments. Given this simple math, it is far more likely that the BDCP will fail to raise all the funding to implement the project as planned than it is that they will be 100% successful. The BDCP has not even proposed contingency funding back-up plans such as the water agencies guaranteeing that if public or resource agency funding is not successful that they will fill in the capital shortfalls. Given the lack of reasonable certainty of funding, the agencies should not issue incidental take, environmental or construction permits for the BDCP plan as it is currently planned to be funded. Any change in the funding plan at this stage of the environmental review would be a material change that would warrant recirculation of the documents.
	"The Jarvis group, in its letter, asked the state to produce a detailed financing plan, specifying how much individual water agencies would have to pay to support the project. The taxpayers group also wants the state to specify how costs would be reallocated, or how the project would be redesigned, if water users are unwilling to bear their share of the costs and to clarify who bears the financial risk for project shortfalls. Nancy Vogel, director of public affairs for California's Department of Water Resources, says it's too early to delve into that level of detail. "The financing plan comes later. We're trying to get (environmental) permits first," she says. "Those questions are premature."" http://www.businessweek.com/articles/2014-04-18/californias-governor-wants-water-tunnels-dot-antitax-group-want-to-know-who-pays	Reasonable assurances of funding are a requirement that must be satisfied before ITPs can be issued. DWR Director Vogel's comments are incorrect and misleading. The funding must be reasonably assured before permits can be issued and as Director Vogel indicated, as of April 18, 2014 they have not been done yet. Therefore, the wildlife agencies cannot issue take permits in the absence of these reasonable assurances of funding.
	Funding for BDCP Conservation Actions that are existing obligations of the CVP/SWP through the still in full force and affect OCAP BO RPAs should be paid for by the water contractors as part of the costs of water delivery.	Almost all of the habitat improvement conservation actions included in the BDCP Proposed Project are existing obligations of the CVP/SWP under the OCAP BO RPAs for the on-going operation of the CVP/SWP to avoid jeopardy to listed species. The BDCP proposes that the habitat improvements conservation actions should be funded by the public. Since these conservation actions are current obligations of the CVP/SWP project that are a result of historical and on-going project are the only component of the Proposed Project that contribute to conservation, the water rate payers should be financially responsible for these habitat conservation actions. The facilities and operations do not contribute to conservation of the proposed covered species, so why should BDCP get a take permit out of this project unless they are the ones who pay for the habitat improvements. Since the OCAP BO RPAs (and costs implement and maintain them) are to mitigate affects of the current water deliveries, Water Code 11912 determines that the costs of these actions should be paid for by the CVP/SWP water rate payers, not the public as is currently proposed.

	Natural resource agencies don't have funding identified or authorization for the habitat restoration component of the project costs.	The habitat restorations are the majority contributor to the conservation of the species that would justify the take permits that are the objective of the project and allow the SWP to operate. The beneficiaries of the project, the SWP water contractors, should have to pay for the habitat restoration project, not the general public through the public trust resource agencies.
	Funding requirements to close out the project at the end of the 50 year project period has not been defined by the BDCP or provided for in the funding plan.	BDCP failed to provide a plan and funding for how the facilities and habitat restorations are disposed of at the end of the 50 year program. Levees constructed by the BDCP need to either be removed and land restored or the levees maintained in perpetuity. Facilities not utilized after the 50 year period cannot just be abandoned to be public nuisance. The BDCP must provide a plan as to how the facilities, infrastructure, land physical modifications and land use modifications are restored at the end of the project period. The BDCP cannot just assume the project will be approved for additional time periods after the project period permitted based on the EIR/S 50 year period. The BDCP must not only provide the project close down plan, but also the funding for the removal of these project artifacts or guarantee (and provide evidence of) their maintenance funding in perpetuity.
	Adaptive management is incompletely described and is not functional in this current form.	Adaptive management as described in the HCP does not provide an adequate level of certainty that the species benefits from the plan will be achieved and maintained over the life of the project.
	Funding assurances are inadequate.	Funding as described in the HCP does not provide an adequate level of certainty as to the funding sources and their reliability to fund the plan implementation, maintenance and on-going program costs over the life of the project.
	The environmental planning process has already cost more than thirteen times more than originally budgeted and the planning process is only at the public draft stage.	If the state and federal agencies can't do an accurate estimate for the cost of the planning stage, why should we believe any cost estimates for the construction of the conveyance facilities and habitat restorations. Given the project's cost estimation performance to date, it would be necessary to multiple the costs estimates provided by the project by at least thirteen times in order to have a reasonable assurance that costs would be in a range. Funding assurances for this cost variance need to be provided by the project before there is reasonable certainty for the agencies to base an issuance of a permit upon.
	The BDCP document claims construction costs would only be $25 Billion	Westlands Water District (a project proponent) has reported that the true cost of the facilities will be between $51 to $67 Billion. See San Jose Mercury news article by Paul Rogers dated 12/26/13 - http://www.mercurynews.com/politics-government/ci_24795356/delta-tunnels-plans-true-price-tag-much-67
	Mark Cowin, DWR Director says, "We're going to have to add a lot more detail to our finance plan".	See San Jose Mercury news article by Paul Rogers dated 12/26/13 - http://www.mercurynews.com/politics-government/ci_24795356/delta-tunnels-plans-true-price-tag-much-67 Cowin says that he does not know when additional budget details will be forthcoming so there is definitely insufficient certainty of funding as a basis for the agencies to issue permits on this plan.
	Water agencies are expected to pay for approximately 70% of the plan, but the water agencies have not made any commitments to issue revenue bonds that would be needed for their funding.	See San Jose Mercury news article by Paul Rogers dated 12/26/13 - http://www.mercurynews.com/politics-government/ci_24795356/delta-tunnels-plans-true-price-tag-much-67 Since the majority of the project budget does not have commitments for funding from the water agencies, so there is definitely insufficient certainty of funding as a basis for the agencies to issue permits on this plan.
	The Cost Benefit Analysis conducted by the BDCP should be re-evaluated based on the $51-$65 Billion Cost estimated by Westlands Water District in their November 20, 2013 District Workshop presentation .	This cost results in water that costs $238 - $337/AF. At this cost, the cost of water will be uneconomic for most farm crops. Where is the benefit in a water supply that is too expensive for the intended beneficiaries to use? The cost/benefit analysis must be redone with consideration of the real cost of water from the proposed project and how it will benefit those parities that can economically afford to use the water at those costs.

	Assuming that all current water rights the BDCP is supposed to fulfill will or can be fully exercised at the projected cost of water that will result from the BDCP project is a fundamental flaw in the logic of the size of the BDCP facilities required.	As pointed out in the preceding comments, the water costs resulting from the BDCP are too expensive for most agricultural crop producer water rights holders to use the BDCP water supplies. These uneconomic water rights that are currently calculated as part of the total water supply that would be put through the BDCP facilities need to be corrected to omit those volumes that will no longer be economically viable at the BDCP costs of water. Once the future demand is corrected for the water rights that can be supplied by the cost of water that the BDCP will provide, the size of the facilities will be proportionately reduced and the construction and operational impacts will need to be reanalyzed. The alleged need for the proposed project will be eliminated. The BDCP EIR/S document must be revised to reflect the decreased demand for water from the water contractors due to the increased cost of water supply resulting from the BDCP costs.
	The independent science panel is not independent.	All of the members of the panel are paid either by the state or federal government which are the project proponents. Input from this group should therefore be tempered as potentially biased and greater reliance should be placed on the utilization of the preponderance of relevant published literature.
	Security lighting at the intakes and tunnel headworks facility will confuse greater sandhill cranes that are found in high population concentrations at the immediately adjacent to the east Stone Lakes National Wildlife Refuge.	With the increase in fog from the intermediate forebay reducing visibility and the new hazard of the power lines installed for the intake and tunnel headwork pumps and facilities in combination with the navigational hazard of the security lighting, an increase in the take of this species should have been anticipated by the project.
	The Tunnel headworks platform and forebay will redirect flood impacts.	Under existing conditions, if there is a levee breach anywhere upstream on the tract that is just south of the town of Hood and north of Pierson Tract, the flood waters would be directed toward the lower elevations at the southern end of the tract and the flood waters would breach the levee near the confluence of Railroad Cut and Snodgrass Slough. The flood waters would then most likely be carried in whole or in their majority down Snodgrass Slough were the flood pressures would be dissipated and naturally distributed. The downstream secondary breaching of a flooded island is the normal way that flood pressure is released from inside of an island and the location and orientation of Snodgrass Slough is a result of the fluvial geomorphic processes from the flood pressure release process I described above. The BDCP places large elevated forebay levees that block this natural release of flood pressures and redirects those impacts to the west so that the flood pressures would breach into Pearson Tract and Randall Island. Those redirected flood impacts will inundate thousands of acres of land that may have otherwise been spared had the natural flood pressure release down Snodgrass Slough not been disrupted by the project. Included in those thousands of acres at much higher risk of flooding with the implementation of the project include, the town of Courtland (population 600+), hundreds of additional rural residences, Highway 160, Bates Elementary School, Courtland Fire Department, a regional telephone switching center, microwave communication relays, 2 regional TV transmission towers, natural gas wells and pipelines, both of the only local cold storage plants for refrigerating pears and apples (the loss of these would affect all of the pear and apple production in the delta), all three pear and apple packing houses in the delta (the loss of these would affect all of the pear and apple production in the delta), the only regional scale hay storage and transshipping facility (loss would affect forage production in all of northern California) and numerous other businesses.

	Fortification of so much of the east side levees of the Sacramento River in the intake reach (estimated at 35-40% of the levee length in this reach) above the current standards reduces the risk of failure of the levees on the east side of the river.	A reduction in the flood risk of the east side of the river results in an increase in the flood risk on the west side of the same reach of the river (especially with backwater affects from the intakes). Increased risk of flooding on the west side of the Sacramento River in the intake reach includes Merritt Island, Netherlands and New Holland Tracts (including the town of Clarksburg 600+ residents), hundreds of rural residents, Clarksburg Elementary, Delta High School, Clarksburg Fire Department, a dozen wineries and other local businesses and the tracts upstream of Netherlands affected by intake #1. Since there is no flood cutoff from Netherlands to the upstream tract and breach anywhere in this area would flood the entire area from West Sacramento where Jefferson Rd comes down the Sacramento Deep Water Ship Channel to the Freeport Bridge and from Elk and Sutter Sloughs across to the deep water ship channel all the way down past Courtland Rd to Minor Slough on the south end. This area of increased flood risks from the redirected flood impacts of the project comprises a significant portion of the entire area of the statutory delta.
	Intake 3 takes out the historic building, Rosebud Mansion.	Intake 5 either takes out of significantly compromises the setting and aesthetic values of the Hemly Victorian manor at the head end of Randall Island. These two delta landmarks are the most prominent, visible and well maintained examples of early delta heritage and the project takes out both of them. This impact will greatly adversely affect the character of the community.
	Highway 160 is designated a California Scenic Highway.	With 3 large intake facilities that destroy the rural ambiance, no one could argue that this reach of the scenic highway would be designated scenic after the project is implemented.
	Intakes 1 - 3 are on sections of the river that would naturally have the thalwag of the river against the bank at the location selected for the intake.	Juvenile emigrating fish follow the thalwag flow of the river when actively emigrating, so the location of those intakes puts the fish population at greater exposure to the fish screens and their associated elevated predation rates than if the intakes were located outside of the thalwag of the river.
	All of the intake screens are depicted as encroaching on the channel cross section of the Sacramento River.	Any reduction of the cross channel of the river from the construction of the intakes will result in a backwater effect which will raise the stage elevation of the water upstream of those facilities. An increase of stage elevation during flood flow conditions of just an inch can make the difference of an island flooding or not. This localized reduction in flood flow capacity and redirected flood impact is unacceptable and should not be permitted.
	All of the intakes are located at sections of the river either at or in close proximity to bends in the river.	These locations are hydraulically complex with lack of uniform velocities through the water column and across the river cross section. These location river velocities are particularly complex and dynamic during approaching tidal slack flows and reverse flows. Since the intakes are supposed to be operated to maintain a minimum sweeping velocity, the complex, dynamic, and un-uniform flow velocities make it uncertain that the facilities will uniformly comply with maintaining criteria sweeping velocities during operations. The BDCP failed to perform 2D or 3D modeling of velocities in the vicinity of the screens. This deficiency of the analysis which is required in order to understand the project specific impacts of the intakes on listed fish species, must be rectified.
	The fish screen intakes are too close in proximity to each other to allow for adequate fish recuperation prior to exposure to the next screen.	Failure to consider reductions in swimming performance of fish from inadequate rest between screens means that fish impingement on the screens and take will be larger than calculated in the analysis.
	Reverse tidal flows in the area where the fish screen intakes are located will carry fish upstream repeatedly past the same screens.	Instead of being exposed to however many number of screens are included in the project scenario, emigrating juvenile fish or resident fish could be exposed to the screens multiple times. The analysis showing just a single exposure of a fish to a screen and calculating the level of take from that is clearly under counting the true fish exposure to the screens and therefore the true level of take from the screens.

	The maps show areas designated "reusable tunnel materials".	The plan does not disclose the exact composition of the tunnel spoil materials. Geotechnical boring samples have not been conducted along the entire length of the planned tunnel route, so the evaluation does not really know what the nature of the tunnel spoil material will be and its suitability for "reuse". Selenium, Mercury and Arsenic are endemic materials that have been deposited in areas of the delta from upstream tributaries, marine sediments and local soil parent materials. As an example, Cache Slough is one of the largest naturally occurring Mercury sources in the state and Mercury from that drainage has been transported into the delta from that source since the Coastal Range was formed geologically. Selenium has been also been transported into the delta from the San Joaquin River system since the Coastal Range was formed geologically. The size, shape and drainage patterns in the delta have changed dramatically since the geologic formation of the Coastal Range so it is very possible that those two specific sources of toxics could have deposited substantial contaminant loads in the areas that the tunnels are planned to excavate. Until the project has completed sufficiently dense geotechnical borings over the entire length of the planned tunnel route, the environmental document conclusion that the tunnel spoils will be reusable (and not a Class 1 hazardous material) is unsupported conjecture. If there are concentrations of contaminants in the tunnel spoils there will be substantial impacts that the document has failed to disclose. Large amounts of class 1 tunnel spoil material could shorten the useful lifespan of the Kettleman City Dump (the only Class 1 material dump site in California).
	The tunnel spoil disposal area on Andrus Island disrupts the main Reclamation District drainage and irrigation supply ditch.	These ditches are GGS habitat.
	The BDCP still lacks its Implementing Agreement, leaving major gaps in project implementation, mitigation and responsibility for costs.	Public comment on BDCP and its EIR-EIS should not close without a meaningful opportunity to study the IA and comment on its consequences. Elements of the IA will affect the reliability of the implementation of conservation measures as well as management and implementation of monitoring, mitigation and adaptive management plans. The pubic must be provided the opportunity to comment on the EIR/S regarding IA interdependencies and affects on the assurances provided in the EIR/S document.
EIR/S Global Comments		
	All comments which refer to the Proposed Project apply to all alternatives.	All comments provided are to be interpreted as specific to the Proposed Project, but also apply to each of the other alternatives.
	All comments on the EIR/S Proposed Project and Proposed Action are to also be applied to all of the other EIR/S alternatives and the HCP/NCCP and its alternatives to take.	All comments on the HCP/NCCP are also to be applied to the EIR/S Proposed Action and each of the alternatives.
	The unreasonable size of the EIR/S document forced the public review to select what sections of the document they would have time and resources to review.	Because of the unreasonably large document size and too brief a period for the public to reasonably review and comment, our comments have been almost exclusively oriented to the HCP/NCCP and EIR/S Proposed Action. If after the Public Draft EIR/S, the Federal Lead agencies select a different alternative than the Proposed Project, the document needs to be reissued to the public so that it can comment on this other project. The Federal Lead Agencies are allowed to select their preferred project prior to the final EIR/S, but due to the extreme burden on the public from the large document size and too brief a review period, the Public Draft EIR/S should be reissued after the Federal Lead Agencies have selected their preferred project so that the public can focus their review and comments on that alternative.
	The public invested large amounts of time and resources in reviewing the administrative draft EIR/S.	Since the document is so large, it would be very expeditious for the public that spent time reviewing the ADEIR/S to be able to review a red-line-strikeout version tracking for changes from the ADEIR/S to the PDEIR/S. The BDCP missed a clear opportunity to facilitate public review and comment by not providing a red-line-strike-out version of the public draft to show what changes had been made since the release of the administrative draft. The BDCP should still release this red-line-strikeout version so the public can see the magnitude and import of changes that were made between these two milestone representations of the project.

	The size, number and severity of comments made in this EIR/S public review should be interpreted by the BDCP as evidence of the level of incompleteness and the amount of errors and omissions in the draft document. If it takes longer for the BDCP to revise the EIR/S from draft to final than the public review period, then the BDCP should reissue the document as a revised public draft.	The comments following are nearing 400 pages in this format. Even with the extended public review time, there is no lack of new problems being discovered and understood in the review of the draft EIR/S. If the review period were doubled, then this would become 800 pages of comments. The volume of our comments is limited by the comment period duration and our personnel resource availability, not by the absence of additional substantive issues and problems with the EIR/S and HCP/NCCP to comment on. Our comments herein are sincere, constructive, specific, and none of them are without substance or merit. You may think that these 400 pages of comments are substantial to have to review and respond to, but they represent only 1% of the volume of the EIR/S, HCP/NCCP and related documents that the pubic had to review in the comment period. In the current process, the EIR/S gets the privilege of deciding how much time it is going to take to respond to public comment before it issues the final EIR/S. If the time period between the BDCP receipt of public comments to the issuance of the final EIR/S is longer than the public review period was, then it is obvious that the BDCP has given itself a grossly unfair advantage over the public in the environmental review process. The length of time for the revision from draft to final is indicative of how flawed and incomplete the draft document was. If the BDCP takes longer between the end of the public review period to the issuance of the final EIR/S than the public review period was, then the BDCP should issue the revised document as a revised public draft and not as a final EIR/S.
	The organization of the document is poor.	There are several topics introduced out of sequence so that later materials are introduced and discussed in preceding sections, e.g. water quality discussed in water supply and water supply coming before surface water. The document should be reorganized to a more logical sequence of introduction of topics.
	The document includes substantial amounts of material that are redundant or not necessary to include in the document.	This makes the document much larger and harder to get through. The inclusion of these redundant and unnecessary materials is so prevalent, it is potentially a strategy of the project to make the environmental document too large and onerous for the public to get through and comment on.
	The current review period of 180 days is too short.	At approximately 40,000 pages of materials to review, the 180 day public review period requires a person to review and comment (with supporting analyses, references, etc.) on over 220 pages a day including weekends and holidays. There are 6 holiday days during the review period and over 45 days that are weekends, so excluding those a person would need to review and comment on 310 pages per day. This pace of public review opportunity does not stand the test of reason. CEQA guidance says a large complex project EIR should be less than 300 pages. At the estimated 40,000 pages the BDCP documents are over 130 times larger than CEQA guidance recommends. A 300 page document and a standard 60 day review period per CEQA guidance result in an average of 50 pages per day for review and comment. 50 pages per day for review and comment is what we are requesting from the BDCP to allow an appropriate opportunity for public comment. 50 pages/working day (excluding weekends and holidays) for review and comment is the maximum that could be considered reasonable and not exclusive of the opportunity for the public to participate. At the current 40,000 pages and 50 pages per day review (excluding weekends and holidays), the public review and comment period should be well over 1,100 days.
	The BDCP EIR/S has obviously taken on the strategy to baffle the public with unnecessary and distracting content and drown them in redundant and unnecessary ridiculously excessively large volumes of materials that they are hoping it will result in the public not being able to make substantive and comprehensive comments on the document and therefore they can get their deficient document through the environmental review process and their project implemented.	Given the size of the document, it is shocking how many important topics have not been identified, evaluated, quantified or disclosed in this document - see related comments below (over a couple hundred) that identify these omissions. In these cases where the EIR/S has failed to address these significant impacts, there are also no corresponding measures to avoid, minimize or mitigate these significant impacts. The BDCP EIR/S is incomplete and deficient.

	The BDCP is seeking take permits which include coverage of the existing CVP/SWP operations and on-going impacts as "covered activities".	These covered activities impacts of the current CVP/SWP operations and on-going impacts are part of the No Action condition. The reason that the BDCP is seeking permits for these covered activities of the No Action condition is that DWR and Reclamation have been operating the CVP/SWP without the necessary permits. By seeking permits for these covered activities under the BDCP proposed project, the BDCP has incorporated the No Action condition operating activity and on-going impacts of the CVP/SWP as part of the proposed project. Permit coverage of these current and on-going operational activities is one of the primary needs identified in the EIR/S for the BDCP project. This is fine, except the BDCP has not included any analysis of on-going impacts from the continued existence and operations of the CVP/SWP facilities which the BDCP is seeking coverage for. The BDCP also failed to identify avoidance, minimization or mitigation measures for any of the significant impacts that are occurring due to the current operations and on-going impacts of the CVP/SWP. The BDCP Proposed Project impact analysis is incomplete in it's scope and does not address the No Action impacts in the Proposed Project. Some of the on-going impacts that the BDCP should have evaluated, but failed to include are (but are not limited to): CVP/SWP reservoir operations impacts on reservoir fisheries (spawning success from dewatering of nests, blockage of upstream habitat from sediment wedge exposure as a fish passage barrier, and coldwater fisheries coldwater pool habitat quantity and quality), reduction in reservoir water supply and flood control storage from sediment accumulation; reservoir capture of upstream contributions of sediment, gravel and large woody debris and subsequent starvation of downstream reaches of these resources; alteration of the downstream food base from the dominance of different plankton types in reservoir vs. riverine habitats, altered downstream water temperature affects on fish habitat quality and quantity, altered flow affects on bank erosion and habitat (e.g. bank swallow); reduced downstream sediment load affects on nutrient availability, geomorphic process such as bench formation, disruption of downstream geomorphic processes (bench formation and scour hole formation) from reduced upstream large woody debris contributions, increased predation rates from reduced cover and habitat complexity, on-going blockage of the CVP/SWP dams of migratory fish to upstream habitat, on-going loss of genetic integrity of wild fish stocks from blockage of upstream habitat use which causes wild and hatchery fish to compete for spawning habitat, interbreeding or wild and hatchery and between different runs (e.g. spring-run and fall-run introgression, and superimposition causing productivity losses on earlier spawners, e.g. spring-run Chinook; soil and groundwater salt accumulation in CVP/SWP service areas, groundwater overdraft in CVP/SWP service areas resulting from CVP/SWP variations in water supply deliveries, as examples of a few of the on-going impacts that the BDCP EIR/S should have evaluated in order to justify issuance of take and other permits which purportedly would cover those impacts.
	The BDCP is seeking take permits which include coverage of the existing CVP/SWP operations and on-going impacts as "covered activities" - comment continued.	There are comments provided on most of these identified on-going impacts for further information and clarification of this comment. The EIR/S document is deficient for not identifying and incorporating reasonable and feasible avoidance, minimization and mitigation measures for these significant impacts of the No Action/Proposed Project covered activities and on-going significant impacts of the CVP/SWP.
	There are many sections of the document, especially the affected environment/environmental settings, that use materials from other sources, e.g. reservoir capacities, that are not referenced.	It is clear that the authors did not do the original work (in this example to measure the size of the reservoirs), so clearly a reference to the source document is called for. If so many elements of the description of the project are not referenced, ability to check the accuracy of these representations in the public comments is dramatically diminished. Omission of these reference materials is a strategy of the BDCP to make the environmental document review and comment more onerous on the public.

	The public draft EIS/EIR fails to utilize the best available science. See related comments under Aquatic Resources.	The administrative draft EIS/EIR describes the water operations of the proposed project as being complex and dynamic with tidal interactions. The more complex the ecosystem interactions and the more profound the potential operational impacts on environmental resources, the more important the use of the best available analytical tools and application of rigorous and well supported modeling assumptions. CALSIM II is the mass balance system-wide hydrologic water supply modeling tool currently being utilized as the basis (input for other impact models) for many impact analyses in the EIS/EIR. The CALSIM II model output temporal resolution is monthly. Many of the operational changes proposed as part of the BDCP do not even show up as a statistically relevant change in the model results at this course model output temporal resolution. As an example, intertidal water operations at the intakes or water flows diverted to the Yolo Bypass for habitat do not show up on this model's results. CALSIM III, CALSIM IIs replacement, has been in progress for years (under development since at least 2004), has effectively been completed and is ready for use. CALSIM III has a 15 minute model output temporal resolution that is absolutely required to understand and fairly evaluate the effects of proposed operations. CALSIM III represents the best available science for evaluating the mass balance system-wide hydrologic effects of the project. Another critical tool not employed by the BDCP environmental analysis that also fails the test of applying the best available science in the EIS/EIR is the use of Dissolved Oxygen (DO) models. The administrative draft EIS/EIR identifies low DO as an existing condition water quality impairment in many parts of the delta and acknowledges that the proposed water operations will alter the flow patterns and rate of water turnover in the delta. The administrative draft EIS/EIR states that DO (and other important water quality constituents such as nutrients (e.g. N and P) and heavy metals) will only be qualitatively addressed in the environmental analysis (Section 8.3.1, page 123, line 27). There is an existing and accepted DO model for the Stockton Deep Water Ship Channel that is available and ready to use. There are other DO models that exist that are capable of modeling the entire delta, they just have not been calibrated to the delta using historical delta DO observations. DO models have been prepared and used successfully on similarly complex hydrologic systems including the Puget Sound, Mississippi River, Colorado River, Florida Everglades and others. The BDCP has already set the precedent on fisheries models that they can and will invest time and resources in developing and completing a model so that it can be utilized in the BDCP analysis. Since DO is an important habitat suitability characteristic for fish and the project will likely adversely alter designated critical habitat for listed fish species, it is imperative that the BDCP apply the best available science and utilize one of the existing quantitative DO models to evaluate this critical water quality parameter rather than just qualitatively waving a hand at it. DWR should ensure that the EIS/EIR utilizes the best available science and incorporates the use of CALSIM III and DO models in the affects evaluations.
	Reclamation has not followed its own project development and approval procedures for authorization and initiation of a project.	We do not believe that Reclamation has completed the Feasibility Study that is a prerequisite for authorization to initiate a project. Reclamation should have completed this feasibility study and secured authorization prior to dedicating funds, resources and personnel to the BDCP/DHCCP. Additional authorizations are required for Reclamation to fund engineering design for a project. DHCCP is engaging in engineering design activities which Reclamation should not be contributing funding towards without specific authorizations. Reclamation should withdraw from the BDCP project and request reimbursement for unauthorized and expropriated funds spent on the BDCP to date.
	Since the project says that it will not result in any additional quantities of water being diverted, it should make a commitment in the Joint Operating Agreement and Joint Operating Authority that the facility will never be modified to increase the amount of water that is being diverted and delivered beyond the amount addressed in this project.	If the BDCP will not make this commitment to not increase the capacity of the conveyance in the future then it is clear that it intends to do just that which would show clear intent to piece meal the environmental impacts and EIR/S process which is illegal.

	Since a large part of the project is proposed be paid for by public funds (habitat restorations) and without those public funds the project would not be permitable, the project should commit within its document, Joint Operating Agreement and Joint Operating Authority that the project will never wheel water or deliver water that is sold for a private entity profit.	If the BDCP will not make this commitment to wheel water for private parties then it is clear that it intends to do just that which is using public funds to subsidize private party profits.
	The geographic scope of the potential actions by the BDCP should extend to the entire geographic range of the species that are affected by the project.	The current scope of the project impact analysis only addresses a small portion of geographic extent of many of the proposed covered species. Without addressing the entire range of their habitat conditions and life cycle, the BDCP cannot assess their overall contribution to conservation of those species. The BDCP analysis of species impacts and contributions to conservation must encompass the entire geographic range of all proposed covered species. Anything less is incomplete, deficient and cannot be relied upon for conclusions regarding conservation of the species.
	CA Fish and Wildlife is only identified as a responsible agency for the BDCP project.	CA Fish and Wildlife as the primary permitting authority for the NCCP therefore should be the State lead agency on the BDCP instead of DWR. DWR is proposed to be a part of the operating entity of the BDCP, but it will issue no permits for the project. CA Fish and Wildlife has the superior need from the EIR/S document to support their permit decision making and therefore should have been the state lead agency, not DWR. The EIR/S should be revised with CA Fish and Wildlife directing the document. CA Fish and Wildlife was not part of the agency review and selection of the current EIR/S contractor and the contracting process for the consultant selected to prepare the EIR/S should be redone by CA Fish and Wildlife. Once the contractor has been selected and engaged, CA Fish and Wildlife would direct the preparation of the EIR portions of the document.
	Top agency representatives in charge of the preparation of the BDCP EIR/EIS do not believe the project will achieve the habitat restoration goals in the delta.	Jerry Meral, DNR (in charge of the BDCP EIR for DNR and directing DWR in the preparation of the EIR/EIS) has been quoted in the Sacramento Bee as saying, the Bay Delta Conservation Plan "is not about, and has never been about saving the Delta. The Delta cannot be saved." – Stokely says: “Meral, the guy in charge of the BDCP HCP/NCCP, does not believe the plan will accomplish its dual goals.”
	The EIR/S contractor is not preparing the EIR/S under the direction of the Federal lead agencies.	DWR and the State Water Contractors and their representatives have dominated the direction and oversight of the development of the EIS. Letters from NMFS, FWS and Reclamation providing feedback on the Administrative Draft EIR/S make it clear that they had major problems with the analysis and presentation of materials and their conclusions at that stage of document development. Very little changed between the Administrative Draft and Public Draft of the EIR/S, so obviously the contractor preparing the document is not taking direction from the Federal Agencies. How many meetings does the contractor have with the state agencies vs. how many with the federal agencies? The Federal Agencies have a requirement to oversee the EIS and if they are not providing that oversight, they are failing to meet their responsibilities as the federal lead agencies. If the federal lead agencies cannot demonstrate that they have participated equally in directing and overseeing the development of the EIS, then they cannot approve the document and cannot rely upon it as support for decision making in issuing permits.

	Summary of impacts for Alternative 4 as compared to the No Action.	In order for a project to be successful or desirable to implement, there must be a clear superiority of the Proposed Project over the No Action alternative. There is considerably greater risk and uncertainty in the outcome of the proposed project than there is with the No Action, so this is an additional consideration in the desirability of a proposed project as compared to the no action. Many of the criticisms of the Independent Science Review Panel phase 2 and 3 reports were directed at the magnitude of uncertainties of the impacts and benefits of the proposed project. The No Action is just a continuation of the current condition trends and policies so there is little guesswork and uncertainty in the outcome of the No Action. If there is not a clear superiority of the Proposed Project over the No Action condition then the significant impacts that remain from the Proposed Project after mitigation are not justifiable. Comparing the impacts of the No Action to the Proposed Project in the Executive Summary, it is clear that the No Action has more benefits and less Unavoidable Significant impacts than the Proposed Project. This superiority of the No Action over the Proposed Project becomes even more significant if the significant impact call errors on the No Action are corrected - see related comments. given the clear superiority of the No Action as compared to the Proposed Project, the No Action alternative must be selected as the Least Environmentally Damaging Alternative (LEDPA).
	If a Proposed Project does not provide identifiable benefits related to the Purpose and Need identified as the justification for the project, then the project has failed and should be terminated.	One of the primary purposes and needs identified in Chapter 2 is to improve water supply reliability (impact WS2). The impact summary table in the executive summary indicates that the improvement to water supply deliveries for the CVP/SWP is "No Determination". That means that the lead agencies cannot determine if there is a benefit or impact to the water supply from the proposed project. The BDCP has spent years and tens of millions of dollars on developing the project, operations and modeling and impact analysis of this very question. The significance of the failure of the BDCP to successfully address the primary purpose of the project cannot be overstated. Unless there is a resounding water supply improvement from the project then why on earth would anyone agree to all of the impacts that the project would create. The improvement of water supply would be the only possible offsetting rationale that the project, and all of its other adverse impacts, could be in the greater public good and interest. Without this clear and definitively supported benefit the BDCP project is a failure and should be immediately terminated.
	Section 15126.2(b) of the CEQA Guidelines requires that an EIR describe significant environmental impacts that cannot be avoided, including those effects that can be mitigated but not reduced to a less-than-significant level.	Many of the impacts identified by the BDCP Proposed Project that were "Significant Unavoidable" are actually fully mitigatable given a sufficient level of effort and commitment of resources - see related comments. The BDCP avoidance, minimization and mitigation measures need to be completely over-hauled and given a much more substantial level of effort at avoiding, minimizing and mitigating impacts. Until the BDCP can meet the test that no significant avoidable impacts can be mitigated any further to achieve and less-then-significant impact, the document will remain deficient and non-compliant with CEQA. See related comments in each chapter for examples of significant unavoidable impacts which are on identified by the BDCP to be unavoidable only because the BDCP has not applied sufficient resources to mitigate to the practicable extent to achieve a less-than-significant impact.
	The BDCP EIR/S document is incomplete; flawed; incorrect; does not identify or disclose significant impacts; and does not provide any measures to feasibly avoid, minimize or mitigate some of its significant impacts. Once the document materially revised to address these deficiencies, must be recirculated for another opportunity for public comment.	Even with the ridiculously sized document and inadequate duration of review time, we have managed to contribute over 1,200 substantive comments on the deficiencies of the BDCP EIR/S document. None of these comments are without substance or merit and none are on trivial issues such as grammatical errors. All of these comments address deficiencies of the document and contain requests for the BDCP to provide material improvements to the environmental analysis and to address feasible mitigations. The volume and weight of our comments should be adequate evidence of the deficiency of the BDCP EIR/S and HCP documents. When the documents are materially revised to address these new issues not previously addressed by the document and other substantive comments, the document must be recirculated for public comment.

	There are numerous significant impacts from the Proposed Project that the BDCP EIR/S has failed to identify or implement reasonable and feasible measures to avoid, minimize and mitigate significant project impacts.	Public Resources Code 21000 et seq. states that public agencies are prohibited from approving projects "if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects." There are a number of Proposed Project Significant and Significant Unavoidable impact calls that have no proposed measures to avoid, minimize or mitigate the project impacts. This is clearly in violation of the aforementioned code. The BDCP needs to identify, develop, evaluate, quantify and disclose the impacts that occur from these avoidance, minimization and mitigation measures. There should be no adverse impacts that do not have a full faith attempt to avoid, minimize and mitigate those impacts. Until the BDCP develops avoidance, minimization and mitigation measures for all of these impacts, the BDCP EIR/S will remain deficient, should not be approved and should not be used as a decision support document by the agencies.
	There are numerous significant impacts from the No Action that the BDCP EIR/S has failed to identify or implement reasonable and feasible measures to avoid, minimize and mitigate significant project impacts.	Public Resources Code 21000 et seq. states that public agencies are prohibited from approving projects "if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects." The BDCP is seeking permits to cover current activities of the existing facilities. These current unpermitted activities that the BDCP seeks permit coverage for are part of the No Action Condition. The BDCP project is unusual in that every other project has already avoided, minimized and mitigated the impacts associated with the No Action. The BDCP therefore must identify, develop, and propose avoidance, minimization and mitigation measures for No Action impacts as well as for the Proposed Project. There are a number of No Action Significant and Significant Unavoidable impact calls that have no proposed measures to avoid, minimize or mitigate the project impacts. This is clearly in violation of the aforementioned code. The BDCP needs to identify, develop, evaluate, quantify and disclose the impacts that occur from these avoidance, minimization and mitigation measures for the No Action impacts. There should be no adverse impacts that do not have a full faith attempt to avoid, minimize and mitigate those impacts. Until the BDCP develops avoidance, minimization and mitigation measures for all of these No Action impacts, the BDCP EIR/S will remain deficient, should not be approved and should not be used as a decision support document by the agencies.
	Funding requirements to close out the project at the end of the 50 year project period has not been defined by the BDCP or provided for in the funding plan.	BDCP failed to provide a plan and funding for how the facilities and habitat restorations are disposed of at the end of the 50 year program. Levees constructed by the BDCP need to either be removed and land restored or the levees maintained in perpetuity. Facilities not utilized after the 50 year period cannot just be abandoned to be public nuisance. The BDCP must provide a plan as to how the facilities, infrastructure, land physical modifications and land use modifications are restored at the end of the project period. The BDCP cannot just assume the project will be approved for additional time periods after the project period permitted based on the EIR/S 50 year period. The BDCP must not only provide the project close down plan, but also the funding for the removal of these project artifacts or guarantee (and provide evidence of) their maintenance funding in perpetuity.
Executive Summary		
ES-61 through ES-132.	The executive summary impact table (starting page ES-61) demonstrate that the No Action is superior in reduced impacts to all of the project alternatives, including specifically the Proposed Project (Alt 4). Following are comparisons of the No Action and Alt 4.	Beneficial (before mitigation) - NAA=8, Alt 4=73 - As you would expect, most of the beneficial impacts for Alt 4 are from Aquatic and Biological resources. The comparative score, however, is very misleading. First, Aquatic incorrectly uses different significance criteria for evaluating impacts of the No Action Alternative than for Alt 4. Using different significance criteria for NAA vs. alternatives impacts is grossly incorrect procedure - see related comments. If Aquatic impacts for No Action had the same impact criteria used as it should have, then most of the benefits would have been identified for the No Action Alternative as most of the aquatic habitat restoration actions are part of the mandated baseline condition from the OCAP BO RPAs - see related comments. By the time appropriate credit is given to improvement in aquatic conditions from existing obligation/legal requirement aquatic habitat improvements that are part of the NAA, very few if any beneficial impacts for the Alternative 4 would remain. The rest of the beneficial impacts for Alt 4 are for biological resources and are largely correct as there are few if any existing OCAP BO RPA obligations for terrestrial habitat improvements.

ES-61 through ES-132.	The executive summary impact table (starting page ES-61) demonstrate that the No Action is superior in reduced impacts to all of the project alternatives, including specifically the Proposed Project (Alt 4). Following are comparisons of the No Action and Alt 4.	No Impact (before mitigation) - NAA=159, Alt 4=59 - You can see from this score that the NAA affects many less resources than the highly disruptive Alternative 4.
ES-61 through ES-132.	The executive summary impact table (starting page ES-61) demonstrate that the No Action is superior in reduced impacts to all of the project alternatives, including specifically the Proposed Project (Alt 4). Following are comparisons of the No Action and Alt 4.	No Determination (before mitigation) - NAA=2, Alt 4=2 - "No Determination" is not a legitimate or accepted NEPA or CEQA impact call - see related comments. The "No Determination" impact calls are for SW-2: Change in CVP/SWP water deliveries and SW-3: Change in reverse flow conditions in Old and Middle Rivers. The No Determination impact call for the No Action is a copout and a farce. With this impact call, the BDCP, DWR and Reclamation are saying that they are unable to determine if water supplies, under the existing conditions with the continuation of existing plans and policies, increase or decrease or stay the same. There is nothing more fundamental to the planning and operations of the CVP/SWP than being able to determine water deliveries under current plans and potential scenarios. If DWR and Reclamation cannot make this core determination for the results of the No Action operation of the CVP/SWP then all impact analyses done from the modeling for the BDCP cannot be trusted and their validity is in serious question. Many impact analyses rely upon the CALSIM output on CVP/SWP water deliveries as input for subsequent modeling. These CVP/SWP water delivery dependent models include: groundwater, water supply, economics (e.g. IMPLAN), and others. Obviously none of the results from these CVP/SWP water delivery dependent models can be utilized as they are based on model results that cannot successfully determine if there is an increase or decrease in CVP/SWP water deliveries. The second "no determination" impact call is for reverse flows on old and middle rivers. This is also an indicator of a fundamental flaw in the BDCP modeling as an important CVP/SWP operating criteria are constraints on Old and Middle River reverse flows (Judge Wanger mandated limitations on reverse flow magnitudes at various times of year). The frequency, magnitude and duration of exceedances of limitations on reverse flow criteria are an important impact assessment of the ability of the No Action and proposed project (Alt 4). Because reverse flow constraints are a driving (and often limiting factor in operations), the standard processing outputs of the models include exceedance plots of reverse flows on O&M River. The fact that the BDCP is claiming that they cannot make a determination on this important criteria, even though the data to do the analysis is readily available, is not credible and is obviously an attempt to hide impacts and operations criteria violations that are occurring both under the No Action and Proposed Project (Alt 4) scenarios.
ES-61 through ES-132.	The executive summary impact table (starting page ES-61) demonstrate that the No Action is superior in reduced impacts to all of the project alternatives, including specifically the Proposed Project (Alt 4). Following are comparisons of the No Action and Alt 4.	Less-than-significant (before mitigation) - NAA=159, Alt 4=327 - The No Action has significantly less than half as many instances of impacts before mitigation than Alt 4.
ES-61 through ES-132.	The executive summary impact table (starting page ES-61) demonstrate that the No Action is superior in reduced impacts to all of the project alternatives, including specifically the Proposed Project (Alt 4). Following are comparisons of the No Action and Alt 4.	Significant (before mitigation) - NAA=92, Alt 4=161 - Alternative 4 has almost twice as many significant impacts before mitigation than the No Action Alternative.

ES-61 through ES-132.	The executive summary impact table (starting page ES-61) demonstrate that the No Action is superior in reduced impacts to all of the project alternatives, including specifically the Proposed Project (Alt 4). Following are comparisons of the No Action and Alt 4.	Beneficial (after mitigation) - NAA=19, Alt 4=144 - As you would expect, most of the beneficial impacts for Alt 4 are from Aquatic and Biological resources. The comparative score, however, is very misleading. First, Aquatic incorrectly uses different significance criteria for evaluating impacts of the No Action Alternative than for Alt 4. Using different significance criteria for NAA vs. alternatives impacts is grossly incorrect procedure - see related comments. If Aquatic impacts for No Action had the same impact criteria used as it should have, then most of the benefits would have been identified for the No Action Alternative as most of the aquatic habitat restoration actions are part of the mandated baseline condition from the OCAP BO RPAs - see related comments. By the time appropriate credit is given to improvement in aquatic conditions from existing obligation/legal requirement aquatic habitat improvements that are part of the NAA, very few if any beneficial impacts for the Alternative 4 would remain. The change in NAA beneficial impacts prior to mitigation from 8 to 19 after mitigation indicates that some of the NAA significant impacts became beneficial after mitigation. This improvement is good, but nowhere in the document did we see any mitigation being proposed for No Action impacts. This was a serious criticism of ours of the EIR/S document as the BDCP is seeking permit coverage for on-going impacts and operations and yet had proposed no mitigations to address impacts that had never been mitigated under any previous environmental review process.
ES-61 through ES-132.	The executive summary impact table (starting page ES-61) demonstrate that the No Action is superior in reduced impacts to all of the project alternatives, including specifically the Proposed Project (Alt 4). Following are comparisons of the No Action and Alt 4.	No Impact (after mitigation) - NAA=158, Alt 4=60 - You can see from this score that the NAA affects many less resources than the highly disruptive Alternative 4. There is one more No Impact call for after mitigation for both the No Action and Alt 4. This makes no sense as you don't mitigate for No Impact. The BDCP needs to explain how the number of No Impact calls changed from before to after mitigation.
ES-61 through ES-132.	The executive summary impact table (starting page ES-61) demonstrate that the No Action is superior in reduced impacts to all of the project alternatives, including specifically the Proposed Project (Alt 4). Following are comparisons of the No Action and Alt 4.	No Effect (after mitigation) - NAA=138, Alt 4=38 - The No Action has three and a half times more resources which are not affected by the project than Alt 4.
ES-61 through ES-132.	The executive summary impact table (starting page ES-61) demonstrate that the No Action is superior in reduced impacts to all of the project alternatives, including specifically the Proposed Project (Alt 4). Following are comparisons of the No Action and Alt 4.	No Determination (after mitigation) - NAA=3, Alt 4=20 - "No Determination" is not an impact call - see preceding and related comments. The majority of the increase in the No Determination (non-) impact calls after mitigation as compared to before mitigation are for Alt 4 for aquatic resources (the rest are for biological resources). This increase in no determination impact calls after mitigation are because the EIR/S cannot determine if the mitigations will work or not. Given this high degree of uncertainty as to the function of these mitigations, the EIR/S and the public trust resource agencies are obligated to take the more conservative approach that if there is not certainty of benefit or function of the mitigations, that the agencies and the EIR/S must assume that they will not function as proposed and reassign these uncertain impacts to "Adverse" and "Significant" or "Less-than-Significant".
ES-61 through ES-132.	The executive summary impact table (starting page ES-61) demonstrate that the No Action is superior in reduced impacts to all of the project alternatives, including specifically the Proposed Project (Alt 4). Following are comparisons of the No Action and Alt 4.	Not Adverse (after mitigation) - NAA=165, Alt 4=382 - Not Adverse is a NEPA impact call. Not Adverse is not as good as "Beneficial" or "No Effect" NEPA calls which the No Action outscores Alt 4 handily.

ES-61 through ES-132.	The executive summary impact table (starting page ES-61) demonstrate that the No Action is superior in reduced impacts to all of the project alternatives, including specifically the Proposed Project (Alt 4). Following are comparisons of the No Action and Alt 4.	Less-Than-Significant (after mitigation) - NAA=147, Alt 4=415 - Here again the No Action is clearly vastly superior to the Proposed Project (Alt 4). This is despite the fact that the BDCP proposed no measures to avoid, minimize or mitigate the No Action Alternative impacts. The BDCP must propose measures to avoid, minimize and mitigate the impacts of the un-permitted operations of the CVP/SWP. The BDCP is seeking permits to cover the existing operations and impacts, but has utterly failed to propose avoidance, minimization and mitigation measures for the current and on-going impacts of the existing CVP/SWP operations and maintenance. If the BDCP wants permit coverage for the existing facilities operations and maintenance then they must include mitigations for the No Action impacts. If the BDCP were to have correctly included these No Action impacts mitigations, the less-than significant, significant, adverse and significant unavoidable impacts of the No Action would be significantly reduced and make the No Action even more superior as compared to Alt 4.
ES-61 through ES-132.	The executive summary impact table (starting page ES-61) demonstrate that the No Action is superior in reduced impacts to all of the project alternatives, including specifically the Proposed Project (Alt 4). Following are comparisons of the No Action and Alt 4.	Significant (after mitigation) - NAA=87, Alt 4=22 - The NAA significant after mitigation impacts went down by 5 compared to before mitigation. It is clear that a few (very few) mitigations were included for some of the NAA significant impacts or this score could not otherwise have gone down. Looking at the impact summary table, no mitigations were identified for NAA significant impacts - see related comments. What is clear is that the BDCP failed to provide avoidance, minimization and mitigation measures for most (87 out of 92) of the significant impacts of the NAA. The BDCP must propose and include avoidance, minimization and mitigation measures for all of the significant impacts of the NAA - see related comments. This inconsistency in the treatment of significant impacts of the NAA is yet another example of how poorly executed and deficient the BDCP EIR/S document is. Once the BDCP EIR/S is revised to provide avoidance, minimization and mitigation measures for NAA Significant impacts, the NAA will become even more superior as compared to the Proposed Project (Alt4).
ES-61 through ES-132.	The executive summary impact table (starting page ES-61) demonstrate that the No Action is superior in reduced impacts to all of the project alternatives, including specifically the Proposed Project (Alt 4). Following are comparisons of the No Action and Alt 4.	Adverse (after mitigation) - NAA=96, Alt 4=122 - Here again the No Action is clearly superior to the Proposed Project (Alt 4). This is despite the fact that the BDCP proposed only a few measures to avoid, minimize or mitigate the No Action Alternative impacts. The BDCP must propose measures to avoid, minimize and mitigate the impacts of the un-permitted operations of the CVP/SWP. The BDCP is seeking permits to cover the existing operations and impacts, but has failed to consistently propose avoidance, minimization and mitigation measures for the current and on-going impacts of the existing CVP/SWP operations and maintenance. If the BDCP wants permit coverage for the existing facilities operations and maintenance then they must include mitigations for the No Action impacts. If the BDCP were to have correctly and consistently included these No Action impacts mitigations, the less-than significant, significant, adverse and significant unavoidable impacts of the No Action would be significantly reduced and make the No Action even more superior as compared to the impacts of Alt 4.
ES-61 through ES-132.	The executive summary impact table (starting page ES-61) demonstrate that the No Action is superior in reduced impacts to all of the project alternatives, including specifically the Proposed Project (Alt 4). Following are comparisons of the No Action and Alt 4.	Significant Unavoidable (after mitigation) - NAA=8, Alt 4=52 - Here is another example of the clear superiority of the No Action Alternative to the Proposed Project (Alt 4). These types of impacts are not only still significant after mitigation, but their very nature makes their impacts so severe that theoretically mitigation is not possible. There are often catastrophic types of impacts which cause wholesale changes in resources rather than just impacts or degradations in conditions. If the NAA were to have been mitigated as it should have been, there would be none or only a couple significant unavoidable impacts. In the case of the BDCP Alt 4, the number of significant unavoidable impacts could have been substantially reduced with a significant application of level of effort and commitment of resources and funding that were commensurate with the scope, scale and costs of the proposed project - see related comments.

	The economic impact calls (ECON-1 - ECON-18) in the EIR/S do not stand any test of reason or logic.	ECON-1 impact call claims that there is No Impact on temporary regional economics during construction of the conveyance. The CEQA impact call before mitigation is no impact and then the BDCP proposes to mitigate that non-impact and yet the NEPA impact call is adverse. These calls are clearly in conflict. Obviously construction traffic, noise, no-boating zones, housing conflicts or construction workers with availability of housing for migrant farm workers and other delta population will have an affect on delta economics during conveyance construction. The CEQA impact calls have no creditability nor do they stand up to even the most cursory examination. ECON-2 CEQA impact call on alt4 claims no impact on delta housing during construction of the conveyance. The BDCP must be guaranteeing that none of the construction workers will reside in the delta during project construction or their impact call is bogus. ECON-3 impact call claims no impact and Adverse/Beneficial on changes in community character. These impact calls are also bogus. According to the BDCP, installing three 5 story tall half mile long intake facilities that are as noisy as a jet engine and have bright security lighting in a very rural area and scenic highway supposedly has no impact. The NEPA impact call of beneficial is also fallacious as the number of jobs created for maintaining the conveyance will not be nearly as many jobs as have been displaced by the conveyance and the labor skill sets are different, so the people getting the jobs would not be the same people as the ones displaced by the project. There would be a handful of new jobs for people that are outside of the delta community and thousands of jobs lost by residents from the delta. This can hardly be considered overall beneficial by anyone's accounting, no matter how biased. ECON-4 are claimed by the BDCP EIR/S as no impact even though thousands of acres will no longer be paying local and regional taxes because they have been converted from tax paying and tax revenue generating entities to state and federal properties that do not pay or generate those revenues. ECON-5 the EIR/S falsely claims no impact on recreation economics from construction of the conveyance even though there will be no boating zones in recreation areas for barge loading, in-water work and conveyance water crossings. ECON-6 is also falsely claimed as no impact on agricultural economics from construction of the conveyance even though thousands of acres will be converted from prime, unique and regionally important farmland into construction staging, construction footprint, forebay, pumping plant and other conveyance facilities. ECON-8, 9, and 10 - same comments as ECON-2, 3 and 4. ECON-11, same comment as ECON-5. ECON-12, same comment as ECON-6. ECON-13, same comment as ECON-3. ECON-14, same comment as ECON-2. ECON-15, same comment as ECON-3. ECON-16, same comment as ECON-4. ECON-17, same comment as ECON-4. ECON-18, same comment as ECON-6. The BDCP must change these grossly inaccurate and unsupportable impact calls.
	Many of the impact calls in the BDCP EIR/S document are incorrect.	The BDCP EIR/S impact calls consistently incorrectly identify the No Action Alternative as having less-than-significant, significant and adverse impacts associated with Conservation Measures 1-22 even though the NAA does not include those actions. Examples of these erroneous impact calls include (but are not limited to): WQ-1 - WQ-31, Soils-1 - SOILS-4, SOILS-6 - SIOLS-9, AQUA-NAA1, AQUA-NAA8, AQUA-NAA9, AQUA-NAA16, BIO-1, BIO-4, BIO-6, BIO-9, BIO-12, BIO-15, BIO-18, BIO-21, BIO-24, BIO-27, BIO-29, BIO-34, BIO-37, BIO-40, BIO-50A, BIO-58, BIO-64, BIO-68, BIO-70, BIO-73, BIO-77, BIO-82, BIO-84, BIO-88, BIO-90, BIO-92, BIO-96, BIO-97, BIO-99, BIO-101, BIO-105, BIO-106, BIO-110, BIO-114, BIO-118, BIO-122, BIO-126, BIO-131, BIO-135, BIO-139, BIO-143, BIO-149, BIO-162, BIO-169, BIO-170, BIO-174, BIO-176, BIO-177, BIO-178, BIO-179, BIO-180, BIO-181, BIO-182, BIO-185, LU-1 - LU-6, AG-1 - AG-4, REC-1 - REC-12, AES-1 - AES-6, CUL-1 - CUL-7, TRANS-1 - TRANS-7, TRANS-10, UT-1 - UT-8, AQ-1 - AQ-9, AQ-14 - AQ-19, NOI-1 - NOI-4, HAZ-1 - HAZ-4, HAZ-7, PH-1, PH-3, PH-4, PH-5, PH-6, PH-7, MIN-1 - MIN-12, PALEO-1, and PALEO-2. This is a total of 194 impact calls that the BDCP has incorrectly determined that there would be impacts under the No Action Alternative for project components that do not occur under the No Action Alternative condition. When comparing the other alternatives to the NAA, the NAA must have these erroneous impact calls corrected.

	The BDCP has aggregated many different actions into single impact calls, e.g. CM2 - CM22.	By combining the impacts from so many BDCP actions, e.g. CM2 - CM22, into a single impact call on a resource, the BDCP EIR/S obscures the differences in the magnitude of impacts and the sources of the impacts. As an example, the BDCP EIR/S makes many LTS, S and A impact calls on the No Action Alternative for the implementation of CM1 and CM2 - CM22 - see preceding comment. The No Action may incorporate some small elements of activities that may correlate to one or two of the concepts that are incorporated into CM1 or CM2-CM22, but the magnitude and scope of those activities would be miniscule and only encompass a small portion of the actions the significance criteria is supposed to disclose. In these cases where there is some element of a CM in the No Action, it is misleading of the EIR/S to imply that the scope and magnitude of an LTS of the No Action is the same as for the other alternatives which would have all of the impacts from the entire proposed scope from all of the CMs. The BDCP must clarify the EIR/S disclosure by separating each of the impact calls by each conservation measure, i.e. WQ-2 CM4 separate from each other CM. By adopting this explicit CM by CM disclosure approach the EIR/S would avoid the current misrepresentation of the magnitude of impacts and would disclose the sources of the impacts. In this way, the best alternative with the least environmentally damaging impacts can be identified more clearly. The way impacts are currently represented in the EIR/S, almost all of the alternatives have exactly the same impacts for most of the impact calls. This lack of impact call differentiation for some very different alternatives is a clear indication that the way the BDCP EIR/S has approached the impact calls and aggregation of impacts has failed to appropriately disclose the project impacts. If there is an impact call for each CM, then there will be clear differentiation of the alternatives, the document would meet disclosure requirements and would provide the raw materials to do the LEDPA analysis.
	The BDCP EIR/S treats the NAA impacts the same as the alternative impacts	Impacts of the project alternatives are supposed to be compared to the No Action condition. The BDCP's impact summary tables treat the NAA impacts the same as the alternative impacts. In a correct comparison, the EIR/S should have presented that the impacts of the alternatives are in addition to those which occur under the No Action condition. When the impacts of the alternatives are put into the correct perspective that the impacts are in addition to those which occur under the No Action, it is even more clear that the project alternative impacts are much worse for the proposed project (Alt 4) than under the No Action condition.
	Many of the NEPA and CEQA impact calls in the BDCP EIR/S document are in conflict	Some combinations of CEQA and NEPA impact calls are inherently in conflict. As an example, CEQA often has a less-than-significant impact after mitigation and NEPA has an Not Adverse impact call. So CEQA is saying something adverse is resulting as an impact with a LTS call and NEPA is saying that there is no adverse impact. These are clearly in conflict and there are dozens of impact calls with this specific conflict. See related comments.

	The BDCP EIR/S makes many impact calls that are "Significant and Unavoidable" that are significant impacts, but they are avoidable.	The EIR/S is required to propose mitigations for significant project impacts. The BDCP has repeatedly claimed that there are no feasible mitigation measures to propose. Following are some examples of Significant impacts that the BDCP has not mitigated, but there are easy and feasible mitigation opportunities the BDCP has failed to propose. GW-8 - The BDCP could mitigate this impact by providing alternative water supplies to disrupted wells and could implement groundwater injection wells to mitigate for disruption of groundwater recharge. , GW-9 - Groundwater quality can be protected by treating water prior to discharge to groundwater and affected groundwater can be pumped out, treated and then reinjected into the groundwater aquifer. There are many precedents for treating groundwater quality and reinjecting it into the groundwater. An example of this is the San Fernando Valley treatment of MTBE polluted groundwater. WQ-13 - Settling basins can be used to capture mercury and aeration to reduce methylization of mercury. WQ-14 - same as WQ-13. WQ-17 - the BDCP proposal to coordinate with other agencies is not a mitigation. A real mitigation is to 1) do water aeration (same as Stockton Deep Water Ship Channel DO restoration project), 2) not reduce water turnover rates from BDCP operations, and 3) water being discharged into the delta can be treated prior to discharge to reduce nutrient loading. WQ-21 - Same as WQ-17 2 and 3. WQ-22 - IPM has been implemented for 30 years, so the BDCP proposed mitigation is meaningless. WQ-25 - Developing a model is not a mitigation. Sources of Selenium can be treated and the BDCP operations can be modified such that Selenium concentration increases can be avoided and minimized. AQUA-NAA4 - There are all sorts of potential mitigations for this 1) increase amount of spawning habitat through gravel supplementation, 2) riparian vegetation plantings to increase streamside shading (same as is being down on the lower Feather River for Lake Oroville), and 3) controlled shutters on the dam intake to select and blend water from different strata of the reservoir to achieve water temperature objectives while conserving coldwater pool (same as is being implemented on Folsom Reservoir). AQUA-67 - The BDCP could have proposes restoration of lamprey rearing habitat. AQUA-202 - The BDCP could have proposed a threadfin shad hatchery as mitigation. AQUA-203 - Same as AQUA-202. BIO-185 - The BDCP could mitigate this by creating wildlife corridors as part of their proposed habitat restoration plans. REC-1 - The BDCP could have proposed to replace the affected recreation facilities and avoid those recreation facilities through design and planning. CUL-1 - CUL-7 - The BDCP should have proposed the same mitigation measure for the NAA as for the other alternatives.
	Comment continued	AQ-11 - The minimization measure is to do construction over a longer period and the mitigation is to use electric equipment rather than diesel equipment. AQ-13 - Same as AQ-11. AQ-17 - The BDCP could implement more efficient pumps to minimize this impact, pump on off-peak hours so they can use cleaner electricity sources and can mitigate by planting trees to absorb extra CO2 generated by the pumping. AQ-18 and 19 - A mitigation that is to develop a mitigation plan is not in and of itself a mitigation. The BDCP must propose mitigations for significant impacts. There are feasible measures to avoid, minimize and mitigate these impacts
	The BDCP EIR/S has a number of No Action Significant Impacts without any proposed mitigation.	The BDCP is seeking permits to cover the currently uncovered activities for existing facilities and operations. BDCP impacts of the NAA must have mitigations included for them if the BDCP can cover existing and future no project impacts with new permits based on this EIR/S document. NAA significant impacts identified by the BDCP EIR/S that must have mitigations added include: San Joaquin Basin Flow, Tulare Basin Flow, Other portions of export service areas, WQ-11, SOILS-2, SOILS-7, AQUA-NAA5, BIO-4, BIO-6, BIO-9, BIO-12, BIO-15, BIO-18, BIO-21, BIO-24, BIO-29, BIO-31, BIO-32, BIO-35, BIO-38, BIO-46, BIO-49, BIO-52, BIO-55, BIO-57, BIO-62, BIO-69, BIO-70, BIO-72, BIO-75, BIO76, BIO-80, BIO-83, BIO-84, BIO-87, BIO-88, BIO-90, BIO-91, BIO-95, BIO-96, BIO-99, BIO-100, BIO-104, BIO-105, BIO-106, BIO-109, BIO-113, BIO-117, BIO-121, BIO-122, BIO-125, BIO-130, BIO-134, BIO-138, BIO-139, BIO-142, BIO-148, BIO-152, BIO-155, BIO-158, BIO-160, BIO-162, BIO-164, BIO-169, BIO-170, BI0O-171, BIO-172, BIO-173, BIO-175, BIO-176, BIO-177, BIO-178, BIO-179, BIO-180, BIO-181, BIO-184, AG-1 - AG-4, CUL-1 - CUL-7, AQ-1 - AQ-4, AQ-9 - AQ-13, AQ-15, AQ-17 - AQ-19, PALEO-1, and PALEO-2. This is a total of 102 Significant impacts in the No Action that were not minimized, avoided or mitigated in the BDCP EIR/S that must be addressed if the BDCP is to pursue permits to cover existing facilities and operations. When the BDCP mitigates these significant impacts then there will be 102 less significant impacts after mitigation for the No Action than the BDCP represented in the Executive Summary Impact Summary table.

	Some of the impact calls in the summary table are just amazing in terms of their bias and inability to stand up to any level of scrutiny or logic.	Here's a few examples of ludicrous BDCP EIR/S impact calls - there are many more than just these examples. The EIR/S AQ-1 impact call finds the No Action has having Significant air quality impacts from the construction of the conveyance. The conveyance is not constructed in the No Action, so there cannot be any air quality impact. What is even more egregious is at the same time, they are saying all of the other alternatives that do have large amounts of construction activity will only have a less-than-significant impact. Here's another, the BDCP EIR/S says HAZ-3 AND MIN-1 NAA is LTS while alternative 4 (and others) that actually have a construction footprint planned, have No Impact. So to paraphrase the BDCP EIR/S impact call on MIN-1, constructing a set of tunnels through a large natural gas well production and pipeline transmission area will have "No Impact" while not constructing any conveyance facilitates in the No Action would have a "less-than-significant impact". With impact calls that are so unbelievable as these, this document and the agencies and contractors that put it out have no credibility at all. When these and other clearly erroneous impact calls are fixed in the revision to the EIR/S, the superiority of the No Action compared to any of the other project alternatives will become even more significant and clear that the No Action the Least Environmentally Damaging Alternative.
Chapter 1 - Introduction		
	The impact summary table is misleading in how it represents the impacts of the Proposed Project and Alternatives in comparison to the No Action.	What this impact summary table misrepresents is that for the NEPA impact call, the Proposed Project is compared to the No Action so the Proposed Project impacts are in addition to (not equivalent to) the No Action impacts. If the impacts were the same in the Proposed Project as the No Action, even if there were impacts in the No Action, the Proposed Project impact would be No Impact and No Effect.
Chapter 2 - Project Objectives and Purpose and Need		
	Does the Purpose statement wrongly and predecisionally attempts to constrain actions to the "Planning Area".	USACE Guidance Papers for NEPA and Section 404 (February 1994) directs that the purpose and need "should not be made so specific that the range of alternatives is artificially constrained." The BDCP has artificially constrained the alternatives of the project to the "Planning Area", but the BDCP EIR/S has not provided any justification for this constraint in the purpose and need. Further, the USACE Guidance says, "it is important to guard against premature specificity such that the range of alternatives considered becomes artificially limited." The BDCP was prematurely specific in assuming that a new conveyance was the only type of alternative that could address the needs identified. In reality, additional upstream and/or downstream storage and/or a significant reengineering/fish screening of the existing south delta pumps would have addressed all the "needs" identified (see related comments). If these other alternatives were not precluded by the artificial and unsupported constraints of the purpose and need and if the alternatives defined not so narrow and predecisional in scope, the other alternatives for upstream and downstream storage would have easily been identified as the Least Environmentally Damaging Alternative (LEDPA) as they would impact a significantly less number of acres of the waters of the U.S than the current proposed BDCP conveyance and restoration actions. The BDCP has not provided any documentation or rationale that these other alternatives (upstream and downstream storage and south delta replumbing - see related comments) that equally (and in some cases, better) meet the purpose and need of the project (once the artificial constraints are removed and the unnecessary and predecisional specificity is removed) have any overriding severe environmental impacts which would warrant their dismissal from further consideration. The BDCP EIR/S purpose and need must be revised to remove these artificial and predecisional constraints that biased the development, screening and formulation of project alternatives. Once these inappropriate constraints are removed, the alternatives development and scoping process must be redone, the alternatives reevaluated and the EIR/S recirculated.

	FWS can't issue ITP on endangered plants, only DFG can do this under the NCCP.	The purpose and need as well as the descriptions of regulatory roles and responsibilities in issuing permits did not correctly represent this issue with regards to permits for endangered plant species. The EIR/S must be revised to correct this misrepresentation.
	The Purpose predecisionally concludes that new facilities are required in order to get a take permit.	New facilities are not necessarily the only alternative to justifying a take permit. The through delta (armored levees) alternative does not count as it modified channels in ways that predictably precipitated impacts that make the alternative environmentally unviable. The BDCP should have put forward an alternative with no conveyance modification, with south delta intake improvements for fish protections (see related comments); with upstream, in-delta, and/or south of delta storage, existing CVP/SWP canal and reservoir earthquake vulnerability engineering upgrades, and in-delta and out of delta habitat restorations as a project alternative. This alternative would have met all of the legitimate purposes and needs in the EIR/S, but would have had less impact than the current proposed project.
	The EIR/S objective says, "protect" ecosystem health, not "improve" and therefore "recovery" is not an objective.	This is supposed to be a "habitat conservation project". Conserving species is not the same as to "protect" ecosystem health. The BDCP purpose should state that it is to "improve" and "restore" and "recover" species and habitat. By making none of these objectives or needs of the project, the BDCP makes it clear that the project is not about restoring the delta and species, it is about grabbing water supply.
	From the BDCP EIR/S: 2.5.2 "Water Supply Reliability - The distribution of precipitation and water demand in California is unbalanced. Most of the state's precipitation falls in the north, yet substantial amounts of water demand are located south and west of the Delta, including irrigation water for southern Central Valley agriculture, and municipal and industrial uses in southern California and the Bay Area. This supply/demand imbalance led to development of two major water projects: the SWP and the CVP."	The imbalance of the distribution of water supply in location of sources vs. location needs is in large part a result of the CVP/SWP projects.
	The BDCP purpose focuses on the term "reliability" with regards to water supply, but never bothers to define what reliability is.	The definition of "reliability" is: "able to be trusted; predictable or dependable". The project that the BDCP has proposed fails to address the most important aspects of water supply reliability. The BDCP mistakenly focuses on reliability as reducing risk against catastrophic engineering failure and from regulatory constraints to protect endangered species which conflict with water supply operations of the CVP/SWP. That is only a small part of the issue of water supply reliability. The real issue of water supply reliability that the BDCP did not deal with and the proposed project makes even worse than the No Action condition is the variation in precipitation and water supply storage from year to year that result in large variations on CVP/SWP water supply deliveries. The BDCP proposed project results in more water supply delivery in wet and above average water year types and even less water supply deliveries in below normal, dry and critical dry water year types. In this way, the BDCP proposed project has made the water supply even less reliable than it currently is or would be under the No Action. The BDCP must evaluate this other and more critical aspect of water supply reliability as a significance criteria in their impact analysis and disclose that the Proposed Project has significant adverse affects on this central project purpose. The hydrologic record for California shows that last 150 years were anomalously wet (lots of supporting literature is readily available on this topic). If California reverts to historical hydrologic norm in the next 50 years (during the project period) the proposed project will not result in "reliability" of water supply. The BDCP should have included alternatives that addressed having a consistent water supply delivery across water year types and under changing hydrologic conditions. The BDCP alternatives must be redefined to address this critical aspect of water supply reliability.

	Some EIR/S "Objectives" presented are actually predecisional desired outcomes of the project proponents.	As an example of an inappropriate predecisional solution being presented as a project objective, moving intakes to north delta is a mode of potential action, it is not a project objective. North delta intakes are one of the potential ways to achieve the other project objectives and purposes, but it is not an objective and should not have been represented as one. Here is a correct example for contrast. The objective of a hypothetical project is for a highway to cross a river. There are several alternatives to achieve this objective, a bridge, a ford, a ferry. The bridge obviously is a good alternative, but it is not the objective of the project, that would be predecisional. In this analogy, the BDCP has incorrectly and predecisionally identified a bridge as the project objective. The BDCP EIR/S must be revised to remove this predecisional bias to the project scope and alternatives. By the BDCP incorrectly identifying north delta intakes as an objective, the BDCP has thwarted due consideration of other means to achieve the project objectives. This resulted in inadequate consideration of other options which could have better met the real project objectives and these include upstream and downstream storage - see related comments.
	The purpose predecisionally concludes the way to reduce effects of water diversions is to relocate the intakes.	Reducing effects of intakes can be accomplished many other ways than by just moving them. - screening, seasonal operational changes, increased upstream or downstream storage that allow operational changes, etc. By not giving these other options equal treatment in their presentation in the purpose and needs statement and in the alternatives screening, development and formulation, the BDCP has clearly demonstrated their biases towards a predetermined solution. This is clearly in direct conflict with NEPA and CEQA requirements - see related comments.
	The Purpose predecisionally concludes that adverse species effects can be addressed by where water is diverted.	Diversion affects on listed species can also be reduced by reducing the amount of diversion, modifying existing diversion facilities or utilizing alternative water supplies - see related comments. The omission of the identification of these other methods to reduce species impacts from water diversions also demonstrates the level of predecisional and bias of the EIR/S. This predecisional bias must be removed from the EIR/S and the revised document recirculated to the public for comment.
	The Purpose mistakenly implies that full contract amounts would be delivered on average.	In order to get full contract amounts on average, you would have to deliver full contracts every year. This has never happened and never would happen. The document is clearly in error here as this stated purpose is not even physically possible and is in direct conflict with numerous other statements in the document regarding the quantities of water supply deliveries under the proposed project.
Delta Ecosystem Health and Productivity	This section is entirely redundant with the Existing Conditions.	This superfluous content is a good example of why the EIR/S document is so needlessly long. This useless materials and other sections like it that are repeated verbatim in multiple sections of the document must be removed to make the document more readable and reasonably accessible to the public.
Water Supply Reliability	The document identifies that the state water supply source are north of the delta and water supply demand geographic distribution south of the delta are out of balance.	These are correct statements. The logical solution to this identified imbalance between location and quantity of water supply and location and quantity of water demand would be for additional storage, not replumbing the delta. Upstream and downstream storage would address this identified need better than replumbing the delta, yet these alternatives were not considered due to the artificial constraint on the project scope placed by the BDCP with no supporting rationale.
	The EIR/S document "incorporate by reference" the draft BDCP HCP/NCCP.	The EIR/S has incorporated by reference a draft document. The information incorporated by reference will change when the BDCP HCP/NCCP is revised for the final. Therefore, important content in the EIR/S will be defacto revised by the revised BDCP HCP/NCCP document revision. This means that important content that is the basis for the BDCP EIR/S will be different than what the public had the opportunity to review. The revision on the HCP/NCP content that the EIR/S incorporated by reference constitutes a material change and therefore the EIR/S must be recirculated after the HCP/NCCP final revision or the content may not be incorporated by reference.

	The EIR/S document refers to the CVP functioning under congressional authorizations.	The CVP (and SWP) was never completed as authorized (e.g. San Luis Drain and Trinity) which has in large part caused the problems the BDCP proposes to address. The EIR/S document must disclose what elements of the original authorization have not been implemented and how the failure to fully implement the original authorization affects the existing environment. As an example, the water supply delivery amounts in the current CVP contractor water contracts originally assumed that a large part of the water supply that would have come from the Trinity system would be completed. Those parts of the authorization were never completed, so the associated water supply never materialized. The lack of this water supply is part of the water supply problem that the BDCP proposes to address. The failure of the BDCP to address the cause of the water supply reliability problem is a significant and material omission and terminal flaw of the EIR/S environmental review. If those portions of the originally authorized project had been implemented, then the current BDCP proposed project would not be needed. The BDCP needs to prove that this assertion is not the case in order to have any legitimacy to move forward as a real project, otherwise, the BDCP project must be to evaluate the implementation of the current authorized CVP (and SWP) project.
	The OCAP Biological Opinion RPAs are obligations and requirements of the project to implement to avoid jeopardy.	To date, none of mandated OCAP BO RPAs have been implemented nor can DWR or BOR demonstrate even a good faith effort to implement them at this time. DWR and BOR are in violation of the law for not implementing the OCAP BO RPAs. Since the RPAs are existing requirements/obligations of the project to avoid jeopardy, DWR may not claim these same actions as contributions to recovery of the species to justify issuing of take permits through the HCP.
	The EIR/S refers to the water rights from the SWRCB.	This paragraph is regulatory framework, not project need. The project needs to conform to these requirements/obligations, but never says that.
	The EIR/S refers to the Coordinated Operating Agreement (COA) as meeting the joint beneficial uses of the CVP/SWP.	This statement establishes that the reservoir operations are critical to protecting beneficial uses. Reservoir operations are severely constrained by capacity, so a project need that has been established here is that the consideration of additional upstream (and downstream) storage is within the scope of the project that should be considered. Please see related comments on the inclusion of upstream and downstream storage in project alternatives.
	The COA is supposed to have 5-year reviews, but those have not occurred since 1986.	The COA is grossly out of date and must be updated as part of the BDCP process. Some agencies that currently are allocated water from the operations may "opt out" of the BDCP project or may not be able to raise the bond funding to participate in the BDCP and therefore operations related to their allocations would need to change which would in turn affect all other COA allocations. If the BDCP does not update the COA and the COA is revised as a result of the changes in water deliveries, water operations and allocations between the participating parties, then the BDCP has clearly piece-mealed the project which is a NEPA and CEQA violation. Piece-mealing a project to avoid recognizing the full extent of environmental impacts of a larger project is illegal.
	The BDCP assumption that water contracts that will expire before the project would be fully constructed will be renewed with the same terms as current is flawed and unsupported.	From the statement in the EIR/S it is more logical to assume that water contract amounts would be adjusted to what can be reliably delivered and which incorporate conditions to protect beneficial uses under a broad range of conditions that include changes in assumptions from climate change, reversion to pre-western development historical hydrology patterns (see related comments), sea level rise and on-going affects of continued water deliveries (e.g. water quality violations, degradation of other beneficial uses, etc). If contract amounts were adjusted to reflect what the system is able to sustainably and reliably deliver then environmental impacts of operations on the listed species would be greatly reduced and the need for the project significantly reduced or eliminated all together. The EIR/S must be revised to address all of these issues.
	Reclamation has no reason or authorization to conduct a project with the purpose to improve the delta ecosystem.	Another purpose identified in the administrative draft EIS/EIR is to "2. Improve the ecosystem of the Delta by implementing the actions listed below." Which include, "a. Providing for the conservation and management of covered species through actions within the BDCP Planning Area that will contribute to the recovery of the species. b. Protecting, restoring, and enhancing certain aquatic, riparian, and associated terrestrial natural communities and ecosystems. c. Reducing the adverse effects on certain listed species due to diverting water." The justification for this purpose, provided in that same section, is the "Sacramento–San Joaquin Delta Reform Act of 2009" which is a California state senate bill which does not obligate the CVP or Reclamation in any way. Reclamation only obligation is to comply with the still in force and full affect OCAP BO RPAs to avoid jeopardy of the aquatic species and that is their only current requirement or authorization to improve delta fisheries habitat and species conditions.

	System reliability from earth quakes is identified as a project need.	The BDCP proposed project does not address existing CVP/SWP canals and reservoir operational reliability vulnerability to earthquakes. This is a critical omission of the proposed project in meeting the stated project need as the San Luis Reservoir has a fault that is 5x more active than the delta. If the existing CVP/SWP conveyance canals or downstream of delta reservoirs are compromised by a seismic event, the BDCP project will have failed to improve system reliability from earthquakes. Seeing as the earthquake vulnerabilities of the CVP/SWP canals is much higher than the risks in the delta, the BDCP must be revised to address this issue or the document needs must be revised to omit this project objective. See http://www.restorethedelta.org/keep-your-eye-on-the-ball-2/, Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist
	The BDCP proposes to restore and conserve "grassland; vernal pool complex; alkali seasonal wetland complex; managed seasonal wetland; nontidal perennial emergent wetland and nontidal perennial aquatic; and cultivated lands."	There is no "purpose" identified in the EIR/S for the project to include these types of habitats in the restoration plans. The CVP/SWP projects do not affect these habitats with their operations and therefore there is no "need" to get a take permit for these species. Any affect on these habitat types would be from the conveyance construction or from conversion to aquatic habitat types should be avoided and minimized to the extent possible and mitigated for their impacts (which does not require an ITP). Unnecessary inclusion of these habitat types in the restoration plans only increases the impacts of the project. There should be at least some of the alternatives considered in the EIR/S that do not include these habitat types so that the impacts for including an aspect of the project in the scope that does not address an identified need or purpose can be quantified and isolated.
	The identification of facilities as a purpose of the project is predecisional. The purpose states, “b. The construction and operation of facilities and/or improvements for the movement of water entering the Delta from the Sacramento Valley watershed to the existing SWP and CVP pumping plants located in the southern Delta.”	This project purpose is stated as a subset of the purpose to get an incidental take permit. As stated in issue #3 above, there are many approaches to the needs identified that do not require construction of new facilities, the proposed facilities have been determined in the administrative draft EIS/EIR to not benefit the proposed covered species, and to identify “construction of facilities” as a purpose to get an incidental take permit that Reclamation does not need is unsupportable and is clearly predecisional on the part of DWR and the lead federal agencies.
	The purpose and need identifies an objective to make the CVP/SWP water system more reliable from earth quakes.	The BDCP does not address existing CVP/SWP canals and reservoirs outside of the delta as also being vulnerable to earthquakes. Instead it only focuses on system reliability in the delta which is only a small part of the overall CVP/SWP water supply and water delivery system. In order to achieve the BDCP stated objective to increase CVP/SWP reliability from earthquakes, it needs to focus its efforts and proposals to address where the greatest earthquake risks are that threaten the system. As an example, the fault at San Luis Reservoir is 5 times more active than the faults in the western-most part of the delta that the BDCP identifies as making the CVP/SWP water system vulnerable to earthquakes (http://www.restorethedelta.org/keep-your-eye-on-the-ball-2/). A "San Luis II" reservoir built to withstand the potential magnitude earthquake from the fault that is under the current San Luis reservoir (which is not built to that standard) would be a more important focus than the delta in terms of system reliability from earthquakes. The SWP California Aqueduct is built on a series of fills across drainages in the hills south and west of Tracy. These "fill" sections have cracked linings and leak from settling of the fill materials. Water logging of the fill materials from the aqueduct leaks makes these segments of the canal extremely vulnerable to liquefaction and additional settling from an earthquake. Loss of San Luis Reservoir and/or several sections of the California Aqueduct would be as devastating or more to CVP/SWP reliability than any hypothetical (and less likely to occur) scenario the BDCP has presented for earthquake-caused system reliability in the delta. Strengthening the delta to be resilient from an earthquake does not accomplish the BDCP objective if the south of delta delivery canals and reservoirs are compromised in an earthquake. In addition to improving the south of delta system reliability from earthquakes, a greater reliance on local water supplies in the service areas also improves water delivery reliability in the event of an earthquake. The BDCP has failed to encompass a full scope of alternatives which would address the BDCP stated objective to increase system reliability from earthquakes.

	The administrative draft EIS/EIR Project Objectives and the Purpose and Need Statement identifies a “Planning Area”, but the project objectives, purpose and need do not define or support the definition.	The planning area is described in the project description as the statutory delta (with the addition of the Yolo Bypass and Suisun Marsh), but there is nothing in the project objectives, purpose or need that supports a constraint on that geographic scope of potential action for the BDCP. The February 13, 2009 Notice of Preparation, specifically identifies that “it may be necessary for the BDCP to include conservation actions outside of the statutory delta…”. BDCP has already established a precedent for including conservation actions outside of the statutory delta by inclusion of conservation actions in Suisun Marsh and Yolo Bypass upstream of Highway 80 that are outside of the statutory delta. Proposed project operations for Conservation Measure 1 - the proposed conveyance - change CVP/SWP reservoir releases and downstream flows snd these actions of the proposed project occur outside of the "Planning Area". The geographic range of many of the proposed covered species for the BDCP extend, not just in the “planning area”, but also into the upstream operations and downstream service areas of the CVP/SWP project area. The project directly (and in some cases significantly) affects different life stages or populations of these same proposed covered species in the upstream operations and downstream service areas. The most obvious and pressing example of the disconnect between the artificially and insupportably geographically constrained BDCP “planning area” to the proposed covered species are the salmonids. The only life stages of the proposed covered salmonid species which occur in the planning area are adult immigration and juvenile emigration. The CVP/SWP operations do affect these life stages of the proposed covered salmonid species in the currently proposed planning area, but the duration of exposure is on the order of approximately one week out of a three year life cycle. The BDCP, with the inclusion of these proposed actions that are outside of the planning area, must also include consideration of inclusion of other potential project alternatives that are outside of the planning area.
	comment continued…	Even of these life stages, more than half life of these life stages occurs in upstream portions of the tributaries that are currently excluded from the planning area. Far more important to the recovery of these salmonid species are the adult holding, spawning, initial rearing and juvenile rearing life stages that occur in the tributaries upstream of the currently constrained planning area. The success of these life stages is much more critical to the recovery of these species than the adult immigration and juvenile emigration life stages. Additionally, the duration of exposure of these other critical life stages in the upstream tributaries to the CVP/SWP operational affects can be as much as one-third of their life cycle in the case of steelhead. The needs identified in the administrative draft EIS/EIR identify do support and justify that the planning area should be inclusive of the full geographic extent of the effects of the project on the proposed covered species. The geographic extent of the planning area needs to be redefined, not only because the project needs identified do not support or justify the current definition limited to the delta, but because the administrative draft EIS/EIR has identified such small and tenuous benefits of the BDCP to many of the proposed covered species. The project needs to extend the planning area to include any location to which it could take actions which would benefit those species to demonstrate contribution to recovery to justify the incidental take permits. As an example, inclusion of the upstream tributaries in the planning area would allow for spawning and rearing conservation actions for sturgeon and salmonids which could make more direct and tangible enhancements to their habitat and measurable benefits for those species. Since fish passage at the terminal dams is part of the SWP existing RPA obligations from the current OCAP BOs, this upstream geographic scope would include the upstream extent of the range of those species into the reservoir headwaters. The BDCP planning area definition should therefore be revised to include the upstream extent of salmonid (steelhead) habitat in the upstream tributaries above Shasta, Oroville, Folsom, and New Melones reservoirs, the tributaries below these reservoirs, the delta, the CVP/SWP service areas downstream of delta, and the drainage basins of the CVP/SWP service areas downstream of the delta.

	The BDCP is seeking permit coverage for the existing CVP/SWP facilities, operations and maintenance. This encompasses a geographic area that would include the upstream tributary dams (to the high water mark), tributaries that are downstream of the dams, the existing diversions from the delta, the existing south of delta conveyance canals and the CVP/SWP service areas.	Even though the project is seeking permits for facilities, operations and maintenance that covers the entire existing CVP/SWP, the BDCP is excluding the majority of that geographic area from potential actions that would be the basis of merit for issuing those permits. The BDCP must not be issued permits on the entire CVP/SWP unless the potential geographic scope of action encompasses this same geographic range. The BDCP's self imposed and unsupported geographic constraint on the action area of the project precludes from consideration in the project alternatives many possible actions that would benefit the species proposed for conservation. This kind of pre-limitation of potential reasonable scope and action is expressly prohibited in the NEPA and CEQA scoping process.
	The purpose and need attempts to limit the geographic scope of project actions to the "Plan Area"	Since the BDCP imposes an artificial constraint on where the project actions that can occur that are intended to benefit and conserve the species covered under the proposed HCP/NCCP, the geographic scope of any take permits issued based on this project should also be limited to this same "Plan Area" geographic scope. Since actions are precluded by the BDCP in the majority of the geographic area the permits are intended to cover and the BDCP cannot and will not directly address existing CVP/SWP operations and maintenance impacts in these areas outside of the "Plan Area" then the BDCP cannot be awarded permits which cover these areas. In other words, since the BDCP will not implement any upstream conservation measures, the BDCP should not be awarded ITPs that cover the upstream tributaries or the CVP/SWP operations in these areas.
	The BDCP's proposed project includes changes to reservoir operations and flows in the tributaries downstream from the terminal dams in combination with CM1.	The BDCP's alteration of reservoir operations as part of CM1 sets a precedent that project actions are not limited to the "Plan Area". Since the BDCP has inconsistently applied the constraint of not considering alternatives or alternative components outside of the "Plan Area", the BDCP must include for full analysis and consideration in the EIR/S all alternative concepts that were excluded from consideration, in whole or in part, because they fell outside of the plan area.
	The EIR/S identifies a need to increase the reliability of current CVP/SWP conveyance.	The upstream tributary and delta levees are an integral and essential component of the current CVP/SWP conveyance system, so with this BDCP stated project need, levee improvements by default must be within the scope of potential project actions. The BDCP failed to consider improvements to levee systems upstream of the delta to improve CVP/SWP system reliability. The BDCP must address this critical aspect of system reliability that was not considered in the scoping and development of BDCP project alternatives. Previous comments have addressed the completely unsupported, arbitrary, capricious and predecisional constraint of potential project actions to the delta action area. The critical component of the upstream tributary levee conveyance to CVP/SWP system reliability is a good demonstration as to why the artificially constrained geographic scope of potential actions in the BDCP are inappropriate and contrary to the achievement of the stated purpose and need for the BDCP project.
P&N support for alt dev. screening criteria	There is nothing in this chapter that would preclude conservation or alternative water supplies as an alternative to meeting the Need, Purpose or Objectives.	Screening criteria based on the project purpose and need cannot exclude conservation or alternative water supplies as a viable set of concepts for full consideration as alternatives in the EIR/S and yet these alternatives were inappropriately dismissed the EIR/S from further consideration. The BDCP must clearly and with consistently applied screening criteria that are based on the purpose and needs disclosed in the EIR/S, show why and how these alternatives were dismissed from full consideration.
	There is nothing in this chapter that would preclude upstream or downstream storage as an alternative to meeting the Need, Purpose or Objectives stated in the EIR/S.	The most direct way to for the BDCP to protect against the risk of water supply disruption is to increase downstream storage. A downstream storage alternative could end up being the LEDPA alternative which the USACE and EPA would have to adopt for the purposes of their permits. The BDCP goes to great lengths to try to dismiss consideration of storage as an alternative. When those arguments are considered, the only real statement the BDCP made (over and over again) was that "it was not compelled to consider storage as an alternative". Within the context of the BDCP HCP/NCCP this is a correct statement, but within the context of the EIR/S which these materials were included in Appendix 1B, the statement is grossly incorrect. Within the context of the EIR/S, the project needs to consider "reasonable alternatives that are practical and feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant". (Council on Environmental Quality, March 16, 1981. "Questions and Answers About the NEPA Regulations.") The EIR/S has failed to comply with this requirement and its dismissal of upstream and downstream storage alternatives or components of alternatives is directly in conflict with these requirements.

	The BDCP has unjustifiably excluded upstream and downstream storage improvements from the scope of the potential BDCP actions.	One of the major premises of the BDCP proposed project is to alter CVP/SWP operations by changing the conveyance system of the CVP/SWP to reduce the effects of project operations on the proposed covered species. The administrative draft EIS/EIR Appendix 1B.1 states, "While water storage is a critically important tool for managing California's water resources, it is not a topic that must be addressed in the EIR/EIS for the BDCP. This is because the BDCP, as a proposed habitat conservation plan and natural community conservation plan, does not, and need not, propose storage as a project component". This is an incorrect assertion by the BDCP EIS/EIR and does not support elimination of storage as a potential component of an alternative in the EIS/EIR. Screening criteria must be consistently and reasonably applied to all of the concepts identified in the scoping process to develop the reasonable range of alternatives for evaluation in the EIS/EIR. Storage was certainly identified as part of the scoping process because CVP/SWP operations are dictated for significant portions of the year by upstream water supply, reservoir cold water pool availability, downstream storage availability and service area demand dynamics. It is true the project proponent can elect to include or exclude components (including storage) from their Proposed Project/Action, but for the EIS/EIR to exclude upstream and downstream storage capacity and reservoir cold water pool related conservation or enhancement actions from the scope of the BDCP EIR/EIS without reason or rationale is absolutely unsupportable. Increases of upstream or downstream storage capacities dramatically affect operational characteristics of the CVP/SWP (e.g. cold water pool availability in upstream reservoirs is often the limiting factor in fall operations). If significant additional downstream storage (e.g. San Luis II) were available, the CVP/SWP would be able to fill this reservoir during the peak flows in the winter that have few operational conflicts with and affects on listed aquatic species in the delta. The BDCP never evaluated or gave due consideration or equal treatment to these clearly viable project alternatives, especially in context of combining storage with other potential project components.
	comment continued…	As a result of the shift to winter exports from the delta, the magnitude of delta exports in the spring and summer, which currently contribute most of the adverse affects on the listed aquatic species would be significantly reduced. Reductions in spring and summer exports from the delta (while still meeting water supply needs) would also improve upstream conditions in the fall from increased upstream reservoir cold water pool availability. Given those changes in seasonal operations resulting from additional downstream storage, there would not even be a need for other BDCP actions to conserve these proposed covered aquatic species and warrant the take permit that is the objective of the BDCP. Based on even this cursory discussion, downstream storage actually addresses the Needs identified by the project more thoroughly and beneficially than the current proposed project facilities. We believe that several upstream storage projects (e.g. Shasta Lake Water Resources Investigation, Raise Folsom and North of Delta Off-Stream Storage (NODOS)) and downstream storage projects (e.g. San Luis Reservoir Low Point Improvement Project) have draft environmental documents that have been completed through administrative draft but not publicly released. The environmental documents on these projects should be released and included as alternatives in the BDCP and operational assumptions. The BDCP should include a project alternative with substantial additional upstream and/or downstream storage (e.g. San Luis II). The administrative draft environmental analysis demonstrates that the Proposed Project, as it currently stands, does not substantially benefit the proposed covered species and therefore the range of what should be considered within the scope conservation actions needs to be expanded to include upstream and downstream storage to address the constraints of the operations which limit the benefits of the proposed project. The BDCP proposes to "fix" the delta and then proceeds to only analyze alternatives that are closely related to the current constrained system. If the BDCP were earnest in their desire to fix the delta then alternatives that are very different from the currently constrained operations and physical system should be developed and fully considered rather than them being blown off by an inconsistently applied screening criteria.

	The range of alternatives selected in the BDCP EIR/S are inadequate to consider a reasonable range of alternatives as all of the BDCP alternatives selected were closely related derivatives of each other.	There were some variations in the physical location of the alternative conveyances, some had different conveyance capacities, and mostly the alternatives had the same operations. Most of the alternatives had all the same north delta intake locations and intake facility capacities, all the same habitat restoration actions with only a couple minor differences in the quantity of restoration. One of the alternatives constituted an armoring of the levees of the No Action condition. The selected alternatives that had few material differences between them do not constitute a reasonable range of alternatives. The BDCP should have included storage, both upstream, downstream and combinations of them (see preceding comments) as part of there reasonable range of alternatives.
	Some alternatives identified in Public Scoping of the BDCP EIS/EIR were dismissed from further consideration without sufficient justification.	"The purpose of an EIR's discussion of alternatives is to identify ways to reduce or avoid a project's significant environmental effects. Thus, potential alternatives are reviewed to determine whether they (i) can substantially reduce significant environmental impacts, (ii) can attain all or most of the basic project objectives, (iii) are potentially feasible, and (iv) are reasonable and realistic." (SUPERIOR COURT OF CALIFORNIA COUNTY OF SACRAMENTO CENTRAL DELTA WATER AGENCY, et al. v.CALIFORNIA DEPARTMENT OF WATER RESOURCES, et al. Case Number: 34-2010-80000561, January 31, 2014) Some alternative project concepts introduced in the scoping process were eliminated from further consideration in the alternatives development process with insufficient justification and inconsistently applied screening rationale - see related comments. These project alternatives introduced in the scoping process that were incorrectly dropped from further consideration by the BDCP include (but are not necessarily limited to): additional upstream and downstream storage, completion of the originally authorized CVP and SWP facilities (see issue below) Yolo Bypass and/or the Sacramento Deep Water Ship Channel as part of the conveyance, distributed intakes (north, central, west and east), alternative alignments of the tunnel and associated facilities, and alternative combinations and sequences of aquatic habitat restoration. Since the NOP needs to be reissued, and therefore public scoping revisited, we request that these and other alternatives be given full and due consideration and consistent treatment with the screening process rationale provided to the other project alternatives. If DWR determines it will not reissue the NOP, we request that these alternatives be addressed in a revised public draft EIS/EIR as these were dismissed from the analysis without sufficient consideration or consistent with screening rationale provided to the other project alternatives that were carried forward into the administrative and initial public draft EIS/EIR.
	The CVP and SWP were never completed as originally authorized.	The CVP and SWP were both originally proposed with larger water supplies and other supporting facilities (e.g. drainage systems) that were never completed. The originally agreed upon amounts of water supply delivery contracted depended on the completion of the water supply build out as they were authorized. If the water supply had been built out as authorized or the water supply delivery contracts were limited to the amounts supported by the water supplies that were actually built out, there would be no (or at least very significantly reduced) CVP/SWP operational impacts to listed aquatic species. With the reduced or eliminated impacts of the CVP/SWP on listed species from the reduced water deliveries to reflect the CVP and SWP water supply availability as they currently exist, the need for the BDCP would either be eliminated or significantly reduced in scope and magnitude.

	The BDCP assumes that CVP/SWP water delivery contracts will be renewed under their current terms, conditions and delivery quantities.	Water delivery contracts for the CVP and SWP will expire prior to even half of the BDCP proposed project implementation period. The BDCP modeling and affects analysis assumes that these water delivery contracts will be renewed in the future without modification. The administrative draft section 2.5.2 states, "the State Water Board presented information indicating that quantities totaling several times the average annual unimpaired flows in the Delta watershed could be available to water users based on the face value of water permits already issued." Given the BDCP's identification that water supply allocations are currently grossly oversubscribed based on what is potentially available, it is not reasonable to assume the CVP and SWP water delivery contracts would be renewed under the existing terms, conditions and quantities without modification to reflect available supplies. Additionally, as identified in issue #9 above, the CVP and SWP were never built out as authorized. The original water delivery contract amounts assumed that the system water supply would be built out prior to the water delivery contract demand occurring and therefore the system would have the capability to support those deliveries. Renewing the water delivery contracts without modification also would fail to reflect the substantial changes in regulatory setting and requirements (e.g. OCAP BOs, CV SALTS, Long-term ILRP to name just a few), climate change assumptions and interagency agreements on water sharing and water exchanges since the previous contract renewals. Further, renewal of the contracts will need to address on-going environmental effects of the operation of the CVP/SWP, including but not limited to: degradation of genetic characteristics of salmonids from downstream of terminal dam conditions and associated hatchery operations, reductions in downstream sediment load and large woody debris contributions, geomorphology changes to fish habitat attributable to altered tributary flows from operations, water quality, salinity accumulation in soils, and many others. All of these changes in water supply availability, regulatory setting, operational requirements and agreements, climate change, and on-going environmental effects of CVP/SWP operations (which have not been mitigated by any preceding projects), have profound implications to the water delivery contract renewals. It should also be noted that the current water supply contracts specifically identify that continued water supply quantities are not guaranteed in subsequent contract renewals. Reclamation and DWR need to adjust the water delivery contracts of the water contractors to reflect the quantity of water that is available for delivery from the current system with its current regulatory constraints and not continue to provide quantities of water supply that are based on systems that were never completed. BDCP assumptions that the water delivery contracts are renewed at the current contract levels is unsupportable. The BDCP environmental analysis should not presume that contracts will be renewed with the existing water supply quantities and should instead assume that those contracts are renewed with water supply quantity terms that reflect the reality of current water supply availability.
	Top agency representatives in charge of the preparation of the BDCP EIR/EIS do not believe the project will achieve the habitat restoration goals in the delta.	Jerry Meral, DNR (in charge of the BDCP EIR for DNR and directing DWR in the preparation of the EIR/EIS) has been quoted in the Sacramento Bee as saying, the Bay Delta Conservation Plan "is not about, and has never been about saving the Delta. The Delta cannot be saved." – Stokely says: "Meral, the guy in charge of the BDCP HCP/NCCP, does not believe the plan will accomplish its dual goals."
	The 75940 Federal Register / Vol. 78, No. 240 / Friday, December 13, 2013 states that, "Reclamation may also make decisions regarding wheeling CVP water through new Delta conveyance facilities…"	There is no mention of Reclamation wheeling water in the EIR/S in the project description, Purpose and Need or in the alternatives. This is a critical omission from the document. If Reclamation wheels water through the facilities, it will not have ownership of the facilities or need Incidental Take Permits. If Reclamation is only wheeling water through the facilities, what justifies Reclamation's role as a co-lead Federal Agency and more importantly for being a cost share partner in the environmental planning process (estimated at over $110 million to date and counting)?
	The 75940 Federal Register / Vol. 78, No. 240 / Friday, December 13, 2013 states that, "Reclamation may also make decisions regarding... implementing habitat restoration and monitoring actions proposed by the BDCP that are consistent with Reclamation's regulatory requirements, programs, authorities, and appropriations."	This Federal Notice statement is unclear and implies that the actions Reclamation may take may or may not be the same as the BDCP. The Purpose and Need and alternatives of the EIR/S does not address potential variations in the level of Reclamation's participation in the habitat restorations. Reclamations role in the BDCP as the EIR/S defines it is as a full and equal partner in the project funding, operations and resource commitments. The Federal Register clearly identifies a very different role and expectation stated from Reclamation. These two scenarios are completely different and incompatible in terms of their representation as well as project impacts. The BDCP EIR/S must be revised to clarify Reclamation's role, level of commitment and participation in operations in the proposed BDCP. The differences between these two scenarios are fundamental and represent material changes in the EIR/S and not only must be addressed, but the document recirculated for public comment once these issues have been clarified and corrected.

	The 75940 Federal Register / Vol. 78, No. 240 / Friday, December 13, 2013 states that, "take authorization of covered listed species would be effective at the time of permit issuance."	This statement is predecisional. The take permits do not necessarily have to be effective upon issuance. In fact, the effectiveness of the permits should only occur after the BDCP has been documented as achieving implementation milestones and biological performance goals. Reclamation has declared in the federal register, an outcome of the project before even the public review of the environmental document has been completed. Reclamation has no authority to dictate the outcome and terms of the permits to the permit issuing agencies, USFWS and NMFS. Reclamation must retract this predecisional statement and reissue the federal register notice.
	The 75940 Federal Register / Vol. 78, No. 240 / Friday, December 13, 2013 states that, "...Reclamation's (Reclamation's) proposed Federal action is to change operation of Central Valley Project (CVP) facilities in the Delta consistent with the BDCP"	Since this notice is to also announce the EIS availability for review, isn't the statement that the Federal agencies propose to change the CVP operations consistent with the BDCP predecisional. The EIS requires that the Federal agencies also consider alternatives to the proposed HCP. Reclamation must retract this predecisional statement and reissue the federal register notice.
	Reclamation has not completed the Feasibility Study that is required before it spends any money on developing a project.	If the Feasibility Study that is required prior to Reclamation's authority to participate in the project has been completed, why has it not been publicly been disclosed? Please provide a copy of the Feasibility Study and the associated authorization to participate in the BDCP project as a partial response to this comment.
	Reclamation should publicly disclose their cost sharing agreements for the environmental planning process and documents detailing it's cost share payments on the project to date.	Authorizations are required for Reclamation to commit any money or resources to a project. The cost sharing agreement should reference these authorizations that to date have not been disclosed by Reclamation.
	The 75940 Federal Register / Vol. 78, No. 240 / Friday, December 13, 2013 states that, "The Plan also intends to… reducing future risks to the Delta from earthquakes, levee failure and climate change."	Nowhere in the HCP/NCCP or the EIR/S does the project proposes to reduce "future risks to the delta from earthquakes, levee failure, and climate change". The project proposes to address those issues for the CVP/SWP conveyance, but it does nothing for the delta on those issues. The BDCP project does increase the risk of levee failure to the delta by altering existing levees and adding new ones. The project also increases risks to the delta from future climate change as the aquatic habitat restorations increase the volume of intertidal exchange. Increases in the volume of intertidal exchange will degrade water quality, increase the velocities of tidal surges and increase the magnitude of tidal surge stage elevations. So is the BDCP proposing to reduce earthquake, levee failure and climate change risk in the delta or is the Federal Register notice incorrect such that it should be revised and reissued?
	Reclamation does not require the take permits that are the stated objective of the HCP and none of the other stated purposes apply to Reclamation, so Reclamation has no nexus for participation in the BDCP as a lead agency or as a cost share partner.	Please provide supporting documentation of Reclamation's authorization to participate in the BDCP project. The documentation must include rationale for Reclamation's participation in light of the fact that it has no need for the stated BDCP purpose to obtain take permits.
	In public meetings with upstream stakeholders in the BDCP process on November 18, 2013, Reclamation representatives Sue Fry and David Murillo reported that Reclamation: may or may not be a BDCP permitee, operator or owner of any portion of the BDCP tunnels; is uncertain if CVP water will be moved through the proposed facilities; if CVP water is moved through the tunnels it would be through a wheeling agreement with DWR; and is currently (as of 11/18/13) trying to determine whether BDCP will result in a CVP benefit.	These are all issues that should have been addressed and evaluated in the Feasibility Study that Reclamation is required to conduct before engaging in a project. Reclamation's role in the project in the BDCP EIR/S is represented very differently than how the BDCP has portrayed it in the EIR/S than the statements made at the November 18, 2013 meeting.

	The Federal Register notice from December 13, 2013 indicates that Reclamation may or may not wheel water through the proposed facilities.	If Reclamation is considering wheeling water through the facilities, then they are considering not being an owner or co-operator of the facilities. The role of Reclamation in the project as described in EIR/S is inconsistent and misrepresentative of the role as Reclamation describes it in the Federal Register Notice. The Federal Register Notice and Reclamation's level and types of participation in the BDCP must be reconciled, both in a revised Federal Register Notice and a significant revision to the EIR/S.
Chapter 3 - Alternatives	Note: To be submitted under a separate file.	
Chapter 4 - Analytical Approach		
	The BDCP proposed analytical time periods are insufficiently justified.	The BDCP must implement numerous mitigation and habitat restoration actions prior to the initiation of the conveyance facilities operations. These actions implemented prior to the conveyance operation initiation have significant potential impacts to water quality and water supplies from intertidal interactions - see related comments. The BDCP proposes to do these actions and implement the conveyance operations and then evaluate the project impacts. This BDCP proposed time increment to assess the project impacts is flawed and hides conveyance operations impacts. The appropriate temporal increment for the analysis is just prior to and just after the conveyance operation initiation. In this way, the impacts of the conveyance operation can be isolated and disclosed. Further, for subsequent time periods for impact assessment, rather than the arbitrary and unsupported current proposed early and late long term time periods, the BDCP should conduct an impact analysis just prior to and just after each significant proposed aquatic habitat restoration action. Using this incremental time step for the implementation of the project and the impact analysis, the impacts of the habitat restoration actions can be understood, quantified and disclosed. This proposed analytical time step for the EIR/S is logical and represents the best available science. The only excuse for the BDCP to use their current arbitrary and unrepresentative analytical time steps is that it is less work and they don't actually know what will be implemented where, when, or how.
	The BDCP proposed analytical time steps do not reflect a required period for the BDCP proposed aquatic habitat restorations to develop to full function.	Aquatic habitat restorations require years, if not tens of years, to come to functional and hydraulic equilibrium - see related comments and references. The BDCP proposes to do a single snapshot in two periods of project implementation which completely obscure and ignore this life-cycle of habitat development and succession. In reality, the aquatic habitats the BDCP proposes to implement will continue to change for years after their implementation, which will affect their water quality interactions and therefore CVP/SWP water project operations (driven by water quality constraints). The BDCP must analyze aquatic habitat restoration actions several times during their implementation and maturation period in order to identify, characterize, quantify and disclose the project impacts and interactions with other resources, e.g. water quality, fisheries, and water supply. As an example, the BDCP proposed aquatic habitat restoration in the southeast delta is shallow water habitat that will have a large evaporative component in the early stages of implementation that will concentrate water quality problems - see related comments. A few years later this same area will be choked out with tulles and have very different hydraulic and intertidal exchange characteristics. This final succession habitat (resulting from the nutrient load from the San Joaquin and low water exchange) of a tulle monoculture will result in a similar boom-bust cycle of growth and necrosis of tulles as the Florida Everglades which periodically releases toxins and high levels on Phosphorus and Nitrogen into the aquatic environment.

Level of analysis	Tunnel muck is treated at a programmatic level of analysis.	Tunnel muck disposal is a direct consequence of the construction of the proposed tunnel conveyance that the document cites as being evaluated at a project level of detail in pursuit of construction-related permits. The tunnel muck disposal is not developed anywhere near a project level of detail. Various sections of the BDCP EIR/S cite different quantities of tunnel muck volume. In multiple places in the document and in the recently (March 2014) "REUSABLE TUNNEL MATERIAL TESTING REPORT" the project identifies a number of possible uses of the tunnel muck - levee repair/upgrade, fill for habitat restoration, fill for subsided islands, and potentially to a landfill. Each of these fates of tunnel muck has substantially different environmental consequences that were not evaluated in the EIR/S at a project level of detail. Each fate of tunnel muck has different impacts on soils and geology, flood risk, environmental contaminant and human health, air quality from different transportation distances and types, air quality from wind erosion, water quality from water erosion, traffic impacts from different transportation, conversion of land use, impacts to habitat values (potentially both positive and negative), and a number of other potential impacts. The BDCP EIR/S failed to specifically quantify the volume of tunnel muck, reliably characterize the physical and chemical characteristics of the tunnel muck by (see related comments), or determine the volumes of material by location that would be used in specific applications and locations. The analysis of the tunnel muck does not even meet the standards of level of completeness of disclosure of a programmatic analysis as there are many fundamental components of how the tunnel muck could be treated that are not identified or described in the EIR/S. This is demonstrated by how many aspects of the treatment of tunnel muck that are introduced for the first time in the REUSABLE TUNNEL MATERIAL TESTING REPORT. The BDCP needs to analyze the tunnel muck disposal at a project level of detail, which will require substantial additional characterization of the materials in a sampling that is defensibly statistically representative of the entire tunnel alignment as well as a much more specific and definitive description of how the volumes of discharges at each access port would be treated and used.
Study Area	The document needs a Study Area map.	It is ridiculous not to even have a map that defines these areas.
	The BDCP defined the study area does not include all areas affected by the CVP/SWP system.	The BDCP Study Area is not inclusive of all direct and indirect affects. As an example, the BDCP proposed operations would alter reservoir operations, but the BDCP EIR/S does not analyze the impacts of changes in reservoir fluctuations as a result of the BDCP operations. Reservoir fluctuations also impact reservoir and upstream tributary fisheries interactions so the BDCP impacts extend upstream of the reservoirs at least as far as the first upstream impassable fish barriers. DWR used this geographic scope in it's environmental analyses for it's recent FERC relicensing of the Oroville Facilities. The BDCP EIR/S impact analyses also does not include drainages downstream from CVP/SWP service areas which are also affected by runoff and drainage from the CVP/SWP operations which are altered by the BDCP Proposed Project and Alternatives. The BDCP EIR/S analyses should be revised to correct the omissions in it's geographic scope of impacts.

	The BDCP No Action does not describe or analyze the impacts of all of the OCAP BO RPAs.	The BDCP analysis has not included existing BO RPA obligations like fish passage at all CVP/SWP terminal dams due to there being an "insufficient level of detail" available on the programs. The lack of sufficient detail on these No Action items is DWR and Reclamations own fault because they are in violation of the obligations to develop and implement the OCAP BO RPAs - see related comments. Even given the current limitations on the level of detail of those RPAs, that does not mean the BDCP environmental analysis cannot anticipate at least some of the effects of implementing these programs. The EIR/S document should disclose at least at a programmatic level what these impacts would be rather than their current approach which is to ignore these existing obligation impacts all together. By ignoring the impacts of implementing these other OACP BO RPAs, the BDCP has not disclosed all of the impacts of the No Action and Proposed Project and therefore the environmental document is deficient. Analysis of the impacts of implementing all of the existing obligations of the CVP/SWP is important as there are additional geographic areas of significant impacts that the current draft EIR/S fails to address. Examples of this include reservoir fluctuations from reoperations of the reservoirs (an OCAP BO RPA) and upstream of reservoir fisheries and habitat impacts from fish passage (an OCAP BO RPA). If the BDCP EIR/S analysis correctly included fish passage, then the study area needs to be extended to include the upstream most extent of fish passage from the upstream terminal dam reservoirs. This additional geographic area would encompass large portions of the headwaters of the reservoirs that is currently incorrectly being left out of the BDCP impacts assessment. The BDCP EIR/S needs to add analysis of all of the OCAP BO RPAs to the impact analysis and extend the geographic scope of this impact analysis accordingly. This correction of the current draft is a material change in content and scope and therefore the document will need to be recirculated.
	There are inconsistencies in rationale for what is and is not analyzed at a project level in the BDCP EIR/S document. Some project elements that are supposed to be analyzed at a project-level of detail are only analyzed at a programmatic level of detail.	The BDCP EIR/S document says that near-term actions such as the conveyance construction and the first sets of habitat restoration and mitigation will be analyzed at a project level of detail sufficient to support construction-related and other permits required for implementation. The EIR/S says that habitat restorations that occur after the near-term will be analyzed at a programmatic level of detail and will be subject to more detailed analysis in subsequent environmental document(s). No specific timeframe for these subsequent environmental documents is provided in the EIR/S. The EIR/S is inconsistent in its treatment of level of detail of analysis and several proposed near-term restoration actions are not described at a project level of detail. Three BDCP proposed near-term actions, CM2, CM4 and CM5 are specifically lacking sufficient detail to qualify as a project level of detail of analysis, yet the BDCP proposes to implement these actions based on this EIR/S. The majority of the scope of CM2, CM4 and CM5 are actions to comply with the 2009 NMFS and FWS OCAP BO RPAs, so since they are existing obligations of the CVP/SWP that have not yet been fulfilled, these actions should be completed prior to going forward with any project. CM2, CM4 and CM5 lack detailed designs (necessary for surface water flood channel capacity analysis and flood risk assessment, aesthetics - see related comments); footprint of disturbance (necessary for terrestrial species, fish stranding and agricultural impacts - see related comments); operational plans as to how, when and for how long flows would occur (necessary for operations modeling, water supply impacts, water quality impacts, agricultural impacts - see related comments); water rights for these CMs have not been secured or the process to secure them defined and analyzed (necessary for water rights impacts - see related comments); the change in beneficial uses of water of those water rights has not been identified or evaluated (necessary for water rights and water supply impacts - see related comments); permission from the USACE (owner and operator of the Fremont Weir) to modify the facilities or approval of the designs has not been secured or analyzed (proposed conservation measure is outside of the jurisdiction of the BDCP to implement - see related comments); easements for inundating land for non-flood control purposes has not been secured or the process to secure them defined and analyzed (necessary for land use impacts - see related comments); equipment used and estimated hours of operations (necessary for air quality impacts); etc. With all of this necessary project level detail to satisfy the impact analyses missing from the public draft EIR/S, these CM descriptions will either need to be revised after this draft to provide sufficient level of detail or these CMs will need to be addressed in a subsequent environmental document.

	comment continued…	If the level of detail in these CM descriptions is enhanced, then this will be a material change in the content of the document and impacts disclosed and therefore the document should be recirculated for public comment. If these CMs will not be addressed at a project level of detail until a subsequent environmental document, the BDCP should disclose the timeline for those documents. CM4 is committed to "restoring 19,150 acres within the first 10 years of implementation". Given the BDCP process to date (7+ years and the project just released the first public draft), it would be unlikely that the BDCP could complete these subsequent documents in less than 5 years after the BDCP project was approved. Then there would be another two years of detailed design, contracting, permitting, etc. Allow at least 2 years for construction as there are seasonal constraints to construction of these CMs (e.g. smelt, Chinook salmon, sturgeon avoidance and minimization measures only allow in water construction periods from about May through August and terrestrial Greater Sandhill crane presence prohibits work during other times of the year). This means the earliest construction could be completed on CM4 using a subsequent environmental document would be in year 10 of the implementation. Note that the commitment of the BDCP is that the 19,150 acres would be "restored" by year 10 (the plan does not say "implemented by year 10"). Tidal natural communities, such as described in CM4, do not magically start to provide habitat values just because water was added to a parcel of land. Water quality needs time to come into equilibrium, plant communities need time to colonize, channel complexity needs time to develop, terrestrial and aquatic species need time to colonize, etc. DWR habitat restorations in the Suisun Marsh and on Decker Island show that intertidal habitat such as CM4 can take over a decade to develop and reach any kind of functional equilibrium and habitat values. "Given the reliance on natural processes to restore marsh functions in San Pablo Bay, restoration is a process that occurs gradually, over a time frame of decades (Williams and Orr 2002)." (http://escholarship.org/uc/item/8hj3d20t#page-10) Only once all of these processes that take time have been completed and develop, can a habitat be considered to be "restored". Given the described timeline for CM4 to reach a condition that could be considered "restored habitat", the BDCP will be at least 10 years late on fulfilling their commitments if this CM is implemented using a subsequent environmental document. These CMs are core to compliance with the existing OCAP BO RPAs and they constitute the majority of contributions to conservation for the BDCP project. Thye alone should be implemented and most certainly before undertaking any major project with significant impacts to the Delta.
	A great deal of detailed project specific description of McCormack/Williamson Tract, Grizzly Slough and Dutch Slough restoration actions are available, but were not included in the BDCP description or analysis.	The BDCP had opportunities to incorporate existing available information on restoration actions that have been fully developed and mostly analyzed, but failed to include the available information in the EIR/S. Plans and alternatives for these restoration sites have been fully developed, analyzed and published. Not only has the BDCP failed to utilize the best available science in analyzing the impacts of the project, it has not even utilized the readily available information.
	The BDCP EIR/S document fails to include the service areas and downstream drainages from the service areas in its impact analysis for impacts to water quality and on-going impacts of operations, e.g. soil salt accumulation and drawdown of groundwater levels.	The BDCP environmental impact analysis geographic area should also include all of the service areas to address changes in water quality and all on-going affects of operations. Some of the rivers that are downstream of drainages from the CVP/SWP service areas include Kern, Santa Ynez, Salinas and others. Each reach of the rivers that are downstream of where CVP/SWP drainage water would be received should have been included in the BDCP EIR/S analysis. The BDCP EIR/S document needs to be revised to include an appropriate level of analysis (project level operations) on the Proposed Project effects on these rivers and reaches. Since this revision will be a material change, the document should be recirculated.
Mitigation	The BDCP identifies avoidance, minimization and mitigation as a conservation measure (CM22)	CEQA requires that avoidance, minimization and mitigation actions are implemented when significant impacts are identified by a project. Since the impacts are precipitated by the project and these actions are only to reduce the impacts of those actions, the avoidance, minimization and mitigation actions are not conservation measures and should not be credited as contributing to the conservation of species.
	The BDCP EIR/S makes impact calls of "Significant" and "Significant Unavoidable" on the Proposed Project impacts without describing any avoidance, minimization, or mitigation measures.	The BDCP EIR/S indicates a number of "Significant Unavoidable" impacts from the Proposed Project that there are no corresponding avoidance, minimization, or mitigation measures. In many of these cases, there are feasible avoidance, minimization and/or mitigation measures possible. CEQA requires that feasible avoidance, minimization and/or mitigation measures must be implemented when there are significant impacts. The BDCP has failed to identify many mitigation measures for significant impacts so the document is deficient, must be revised to include those feasible mitigation measures and must be recirculated so that these material changes to the document can be reviewed and commented upon by the public.

Models Used	Modeling diagram was incomplete as it did not show all of the models which utilize CALSIM outputs.	Modeling figure omitted economics models which get input from CALSIM, e.g. Implan.
	EIS/EIRs are held to the standard of "best available science".	There are numerous models that are available for the impact analysis that are not being used. There was inadequate rationale provided for not using some models which previously have commonly been utilized for these types of environmental analyses, e.g. MIKE 12 for hydraulic characterization of bypass flood flows. The BDCP needs to provide an overview of the analytical tools which were available and a supporting rationale for why models were or were not chosen for use. As an example of all of the models which provide information on Dissolved Oxygen, what was the rationale for the BDCP not to utilize any of them?
	Why is CALSIM III not being used?	The 1 month time step of CALSIM II is not adequate to show many of the effects of the project or its tidally driven diversion operations. For these reasons, CALSIM III with a 15 minute time step should be used. Analysis at a 15 minute time step is already being utilized for some of the modeling employed by the BDCP, e.g. DMS2 PTM is on a 15 minute time step.
	DSM2 PTM is being used to evaluate water residence time and reduction in turn over (reduced assimilative capacity) for WQ DO and fisheries habitat suitability.	Why is the Dissolved Oxygen module of the DSM2 model not being utilized? If this model was not appropriate, why was water residence time of the PTM module not utilized as a surrogate for DO? The lack of a meaningful analysis (rather than a subjective and unsupported dismissal that it is not affected) is a serious omission from the EIR/S document. DO is a critical water quality and fish habitat suitability criteria that cannot and should not be carelessly dismissed from the EIR/S analysis as it has been in the public draft EIR/S.
	The Delta Passage Model and other fisheries models were developed and calibrated specifically for the BDCP project impact analyses.	Since the BDCP can invest time, effort and money to develop this or other models, then it has set a precedent that when a model is needed for an impact assessment, it can be developed. The BDCP needs to invest the time and money to calibrate one of the many existing suitable Dissolved Oxygen (DO) models use in the BDCP impact analyses for this critical project impact. Any level of effort to develop and implement a DO model for the analysis short of those applied for the fisheries models that were developed fails to be a consistent level of effort and does not represent the best available science as per the precedent set for investing in the development of other models.
	The BDCP Bioenergetics Model was developed and calibrated specifically for the BDCP project.	This model development sets a precedent for the development and calibration of other models that are needed in order to complete a best-available-science analysis of the impacts of the BDCP project. As an example of a model that is needed to complete the analysis, the BDCP should make an equal level of effort in developing and calibrating a Dissolved Oxygen model for the assessment of the impacts of the project on this important water quality and fisheries habitat suitability parameter.
	What models were used for 3D water velocity analysis around the intakes?	The answer is none, because the BDCP did not do project-level analysis of the intakes. This 3D model level of analysis of intake structures is well established and precedented in similar documents so the BDCP EIR/S is deficient in this regard and must be revised to include this critical analysis before the project can be permitted for construction or granted ITPs.
	The BDCP impact criteria are inappropriate for the evaluation of the No Action.	The BDCP impact criteria for many impact topics are designated by conservation measure (CM) CM1 or CM2-CM22. The No Action has no conveyance construction so most of the aspects of impacts of CM1 do not apply to the No Action. Since the No Action and the Proposed Project do have impacts from the operation of their respective conveyances, the respective conveyance operational impacts should be an impact topic that is clearly separated from the conveyance construction impacts. The current BDCP EIR/S impact topics do not always separate these two different types of impacts so the environmental document does not do a good job of differentiating between the impacts associated with the No Action and Proposed Project. The No Action does not have CM2-CM22 actions. The BDCP has integrated some of the OCAP BO Reasonable and Prudent Action (RPA) requirements for the CVP/SWP into their conservation measures CM2, CM4 and CM5. The BDCP has not clearly explained what aspects of these conservation measures are already mandated and what component of them are above and beyond the current CVP/SWP obligations. The current OCAP BO RPA obligations and the BDCP CMs are not the same so the BDCP has conflated what is baseline and what is proposed project and therefore the impact analyses of these impacts are fundamentally flawed and should be redone with a clean and clearly explained No Action baseline and BDCP proposed project. The impacts of implementing the No Action RPAs and related BDCP CMs can easily be separated in the impact analysis by using an impact category for "Existing CVP/SWP Obligations Not Yet Implemented" and then defining the related BDCP CMs as only being comprised of their incremental components above and beyond the current obligations. In this way, the impacts of the No Action and Proposed Project will be clear and separate. Any other approach is deficient and conflates No Action and Proposed Project impacts.

	The BDCP EIR/S NEPA and CEQA Impact Significance Calls are often in conflict with each other.	According to the BDCP EIS, the possible NEPA calls are: "Beneficial", "No Effect", "Not Adverse", "Adverse" and "No Determination". "Beneficial" means positive things happen. "No Effect" means nothing happens (positive or negative). "Not Adverse" means nothing negative happens. "Adverse" means negative things happen. "No Determination" means that there has been no decision on what the impact is - see next comment. According to the BDCP EIR, CEQA has the following impact calls: "Beneficial", "No Impact", "Less Than Significant", "Significant", "Significant Unavoidable" and "No Determination". "Beneficial" means positive things happen. "No Impact" means nothing happens (positive or negative). "Less Thank Significant" means something negative happens but it subjectively not too large in magnitude. "Significant" means negative things happen of a subjectively large magnitude. "Significant Unavoidable" means that even after applying all feasible avoidance, minimization and mitigation measures that the impact is still negative of a magnitude that is considered significant. "No Determination" means that there has been no decision on what the impact is - see next comment. In the BDCP EIR/S there are many impact calls in which the NEPA impact and CEQA impact calls are in fundamental contradiction. The contradictory impact calls occur when the NEPA impact call is "Not Adverse" (which means nothing negative happens) and the CEQA impact call is "Less Than Significant" (which means something negative happens that is of a magnitude that is subjectively less than significant). These two impact calls cannot simultaneously both be correct on the same impact call. The NEPA impact call cannot be "nothing negative" and CEQA "something negative" at the same time and both be correct, one of them is in error. If the CEQA impact call of "Less Than Significant" is correct then the NEPA call needs to be "Adverse" to be consistent. If the NEPA impact call of "Not Adverse" is correct, then the CEQA impact calls needs to be "No Impact" or "Beneficial" in order to be consistent. The BDCP EIR/S impact calls need to be revised to correct this fundamental contradiction in impact calls. Since many impact calls will need to be changed to reconcile the current draft conflicting impact calls, the document will contain new information which will require that it be recirculated for public comment.
	The BDCP EIR/S NEPA Significance Calls of "No Determination" is not an impact call.	The dictionary definition of "determination" is to "come to a decision". "No determination" means that there has been "no decision", so it is not an impact call. The BDCP EIR/EIS has a number of impact calls of "No Determination" which is a no decision non-impact call. The EIR/S current draft document is incomplete as there are a number of important impact calls that have not had decisions or impact calls made upon them. The BDCP must revise the EIR/S document to make real impact calls. Since these impact calls would be a material change in the content of the document, the EIR/S must be recirculated for public comment.
	The portrayal of impacts in the impact summary tables in the executive summary are misleading.	The No Action impacts are often represented in the same box as the impact calls for the Proposed Project and indicate that they have the same impact calls, i.e. both NA and PP have LTS and NA impact calls. What this table misrepresents is that for the NEPA impact call, the Proposed Project is compared to the No Action so the Proposed Project impacts are in addition to (not equivalent to) the No Action impacts. If the impacts were the same in the Proposed Project as the No Action, even if there were impacts in the No Action, the Proposed Project impact would be No Impact and No Effect. This is a global comment that applies to all impact calls.
Chapter 5 - Water Supply		
	The CVP was never completed as authorized (e.g. San Luis Drain, Trinity) which has in part caused the water supply and system reliability problems that the BDCP project proposes to fix.	The EIR/S failed to review and disclose the implications of the CVP never being built out as originally authorized. CVP water contract amounts originally issued and subsequently renewed were erroneously based on contract amounts that could have only been achieved on a regular basis with the completion of the originally authorized CVP. The EIR/S must evaluate and disclose the impacts to water supply deliveries and system reliability in the Affected Environment section of the document of the CVP never being completed as authorized. This discussion must identify how unimplemented elements could have avoided need for project and if implemented could contribute to addressing the need for the project. Materials to review must include the: Rivers and Harbors Act of 1935, reauthorized in 1937 and updated in 1992 CVPIA, Trinity River Main-stem Fishery 2000 ROD, Sacramento Canals Unit (which was authorized in 1950 and consists of the Red Bluff Diversion Dam, the Corning Pumping Plant, and the Corning and Tehama-Colusa Canals).

	The BDCP proposes to purchase upstream water rights and transfer that water through the BDCP conveyance for water supply and to satisfy environmental flow requirements, but the BDCP EIR/S failed to disclose this water transfer and did not evaluate the impacts of the water transfer. This is an egregious omission in the environmental document.	The BDCP EIR/S needs to include the requisite analysis of the impacts of a water transfer and comply with the California State laws regarding environmental analysis of water transfers. "The California legislature has adopted numerous statutes to protect water right holders, the environment, and the source basin economy. The statutory requirements establish three basic rules: (1) that the transfer causes "no injury" to any legal user of water (California Water Code, §§ 170, 1706, 1727, 1736, 1810 (2009)); (2) that it must not result in any "unreasonable effects" to fish or wildlife (California Water Code, §§1727, 1736, 1810 (2009)); and (3) that if it is water from the State Water Project, the transfer must have "no unreasonable economic impacts" to the overall economy of the county from which the water is transferred (California Water Code, § 1810 (2009)). (Arthur Baggett Jr., Legal, ecological, water quality and water rights considerations in interbasin water transfers, On the Water Front, pg 34. file:///C:/Users/Dave%20Olson/Documents/Water%20Business/DN/Public%20Draft%20EIR-S%20Comments/Water%20Supply/On%20the%20Water%20Front%20Art%20Baggett.pdf) The BDCP EIR/S has not 1) evaluated the potential injury to other parties, 2) has not included analysis of the affects of the transfer on fisheries resources, and 3) has not conducted the requisite economic impact analysis associated with these proposed water transfers.
	CVP/SWP operations do not always conform to the water year type hydrologic conditions that occur. Operating rules for water year types are changed by agency requests for waivers, executive order and "emergency" legislation.	An example of the CVP/SWP operating to a different water year type than the hydrologic conditions that occurred, transpired in 2013 (Letter and exhibits from CDWA to Felicia Marcus, SWRCB dated 8/13/13 re: 2013 CVP and SWP violations of D1641; and Letter and exhibits from CDWA to Felicia Marcus, SWRCB dated 9/9/13 re: 2013 CVP and SWP violations of D1641 - see attachments). Reclamation and DWR established a precedent in 2013 by operating the CVP/SWP to set of operating rules (and therefore impacts) which did not conform to the hydrologic conditions that actually occurred. These hydrologic condition non-conforming operations were in violation of D1641 operating rules. As current example, there is currently "emergency legislation" to alter CVP/SWP operations to deviate from D1641 and Remand operations for 2014. The BDCP environmental impact analysis erroneously assumes that the CVP/SWP operations will conform to the CVP/SWP operating rules established for each water year type. The BDCCP EIS/EIR impact analysis are conducted by running the operations models on the hydrologic period of record. These observed hydrologic conditions (that are classified into the water year types), are run against the proposed alternative operations. The resulting conditions from the operations (from the proposed alternative operating characteristics and rules) are then compared to the baseline scenarios (No Action and No Project). The differences between the alternative operations and the baseline (positive or negative) are interpreted for their impacts for each of the resources, e.g. water supply, water quality, fisheries, etc. The impacts are synthesized by water year type (which represents a set of operating rules). When Dry and Critical Dry water year types occur, there are always impacts.
	comment continued…	These impacts are written off in the environmental documents because, 1) there are impacts in the baseline condition, and, 2) because the impacts are unavoidable and the operating rules for those hydrologic conditions have done what they can to minimize those impacts. The differences in the proposed project/ action and alternatives outcomes as compared to the baseline conditions by water year type are then synthesized into an overall impact call for each resource for each of the alternative operations. The EIS/EIR determines impacts based on the assumption that CVP/SWP operations adhere to water year type hydrologic conditions. Since DWR and Reclamation have demonstrated that they sometimes operate the project to a drier water year type than the hydrologic conditions that actually occur, the BDCP environmental analysis is systematically under estimating the actual operational impacts that would occur. In the example of 2013, a water year type that would have been analyzed and reported in the impact modeling as a Dry Year, would actually have the impacts of a Critically Dry year. EIR and EIS guidelines do not permit the environmental analysis to assume that the project will violate the law, in this case D1641. The impacts that occurred in 2013 were avoidable and would not have occurred in the baseline condition (and therefore would tend to create impacts that were determined to be "significant"). The incidences in which the CVP/SWP operations did not conform to the D1641 operating rules (for whatever the reason) must be disclosed in the Environmental Settings description in the EIS/EIR document. Based on that frequency of operations that do not conform with D1641 water year operating rules, the BDCP must reinterpret the modeling results and adjust the alternatives impact analysis to represent the actual impacts of the project.

	The EIS/EIR refers to the current water contract amounts as being the basis for future water delivery quantities. The current water contracts expire 20+ years before the proposed BDCP project would be fully implemented and the current contracts specifically identify that future water contract delivery quantities are not guaranteed under contract renewals.	The BDCP's assumption that water contracts that will expire before the project would be fully implemented will be renewed with exactly the same terms and quantities as the current water contracts is flawed and unsupported. The BDCP assumption of contract renewal at the current contract water delivery quantities fails to take into account a number of factors. First and foremost of these omissions is that the current water contract amounts are never met under existing conditions operations. How many years of the hydrologic period of record under the No Action/No Project operating condition does the modeling show that all water contracts received their full contract allotment? The answer is none. Since the projects never deliver the full contract amount to all the contractors under any of the hydrologic conditions that have occurred during the hydrologic period of record it is illogical and unsupportable for the project to assume it would commit in the future to have the objective to deliver a quantity of water that it has proven it cannot fulfill. Secondly, the assumption of future water deliveries at current contract quantities fails to take into account changes in assumptions in conditions for future contracts as compared to the current conditions. The changes in conditions for future contracts that are different from the conditions in the preceding water contracts arise from climate change, sea level rise and on-going affects of continued water deliveries (e.g. water quality violations, degradation of other beneficial uses, soil salinity accumulation in service areas, groundwater depletion in service areas, etc). Until the contract renewals have successfully completed the environmental review and have been funded, they do not meet the criteria of being reasonably foreseeable for inclusion in the future No Action condition. Since the renewal of contracts at the current delivery quantities fail to take into account the changes in conditions, have not met their previous contract targets and do not meet the criteria for a reasonably foreseeable project, the BDCP should not assume the contracts are renewed in the future. The No Action condition should therefore assume that there are no water deliveries after the current contracts have expired.
	Water contract delivery amounts were originally based on a complete build-out of the CVP and SWP as originally authorized.	Neither water supply system was completed as authorized so the conditions and assumptions under which the water contract delivery quantities was established was never fulfilled. "The original long-term water supply contracts contemplated that additional SWP facilities would be constructed and that at full build-out the SWP would deliver about 4.2 million acre-feet (MAF) of water per year. However, because the additional facilities were not constructed, actual, reliable water supply from the SWP actually is in the vicinity of 2 to 2.5 MAF of water annually, which is only about one-half the 4.2 MAF contemplated by the contracts. DWR never reduced the original Table A Amounts to reflect the fact that the SWP was not fully built out." (SUPERIOR COURT OF CALIFORNIA COUNTY OF SACRAMENTO - CENTRAL DELTA WATER AGENCY, et al. v.CALIFORNIA DEPARTMENT OF WATER RESOURCES, et al. Case Number: 34-2010-80000561, January 31, 2014) This, among other reasons, is why the CVP/SWP has always chronically under-delivered on the contracted water delivery amounts. The BDCP must evaluate the water supply impacts of the CVP/SWP facilities that were never completed as authorized and must subtract that capacity from any potential future water delivery supply contracts. Reclamation and DWR should complete the build out of the CVP/SWP as authorized before embarking on the BDCP project.

	The BDCP EIR/S Needs Statement identifies a need for a more reliable water supply. To meet this project need for increased water delivery reliability, the BDCP should define what reliability is. A dictionary definition of "reliability" is: "Yielding the same or compatible results under a range of different conditions and inputs".	If water contract renewal water delivery quantities are adjusted to reflect what the system is able to sustainably and reliably deliver (see preceding comment) then environmental impacts of operations on the listed species would be greatly reduced and the need for and scale of the BDCP project would be significantly reduced. The BDCP should use the modeling results to identify the maximum amount of water that it can deliver under all combinations of conditions and add to that amount the quantity that the service area can supply sustainably through alternative water supplies. At this quantity of contracted water delivery amount, the service area will have the maximum quantity of reliable and sustainable water supply. Any additional quantity of water delivery commitment above this amount actually reduces water supply reliability and sustainability and is in fundamental conflict with the Project Needs Statement for reliability. It is more reasonable to assume that future water contract amounts would be adjusted to what can be reliably, consistently and repeatably be delivered rather than assuming that the water supply contracts will be renewed at their current unreliable and unsustainable contract delivery amounts. The Monterey Amendment to SWP long-term water supply contracts provides a precedent for how the SWP water entitlements would be addressed under water shortages, "In the event of a permanent shortage in water supply, Article 18(b) provided that, with certain exceptions, the entitlements of all SWP contractors would be reduced proportionately so that the sum of entitlements would be equal to the SWP's reduced water supply (or "yield")." (SUPERIOR COURT OF CALIFORNIA COUNTY OF SACRAMENTO - CENTRAL DELTA WATER AGENCY, et al. v.CALIFORNIA DEPARTMENT OF WATER RESOURCES, et al. Case Number: 34-2010-80000561, January 31, 2014). The Monterey Agreement later amended this article so that this proportionate reduction in water entitlements would occur in any shortage, temporary or permanent.
	Current variations in water supply delivery amounts are creating unsustainable conditions in the water supply service areas.	By definition, in order for a system to be reliable it also must be sustainable. Anything not sustainable certainly does not meet the definition of reliable. As a result of the CVP/SWP variations in water supply deliveries, the groundwater resources as an alternative and supplementary water supply in the service areas are being severely over drafted. This overdraft of groundwater as a result of variations in CVP/SWP water supply deliveries is not sustainable and therefore is ultimately unreliable. The amount of water that the CVP/SWP delivers must not cause variability in deliveries and therefore over-utilization of alternative groundwater supplies to the extent that groundwater resource withdrawals exceed their sustainable groundwater recharge rates. The BDCP should calculate the amount of future water delivery contract amounts based on the variation in water supply deliveries (shortfall from contract amounts) that a service area can sustain with alternative water supplies.
	Variations in CVP/SWP surface water deliveries are causing service areas to severely overdraft their groundwater. Comments quoted are from: "Groundwater Overdraft in California's Central Valley: Updated CALVIN Modeling Using Recent CVHM and C2VSIM Representations", Hiedi Chou, University of California, Berkeley, 2012	"Ending overdraft increases water shortages statewide because there is not enough available surface water to meet all demands if groundwater is not over drafted. As expected, the No Overdraft case has nearly double the water scarcity of the Base case…" (page 65-66) The BDCP's proposed project would result in an acceleration of this groundwater overdraft as an alternative supplemental water supply. This exacerbation of the rate of groundwater overdraft in CVP/SWP service areas from the BDCP proposed project as compared to the No Action condition is due to the BDCP proposed project increasing the amount of water deliveries in wet and above normal water year types and reducing water deliveries in below normal, dry and critically dry water year types. It is the magnitude in variation in water supply deliveries that causes the groundwater overdrafts as a substitute water supply. The BDCP proposed project increases the magnitude of these water supply delivery variations and therefore very predictably will accelerate the groundwater overdraft in the CVP/SWP service areas. According to the paper, the groundwater in the CVP/SWP service area is currently being over drafted by 1.2MAF/year. (page 67) "Although it may be more economical in the short term to continue over-pumping groundwater, continued overdraft of groundwater basins will eventually increase pumping costs due to higher depths to groundwater as well as environmental problems." (page 70) The BDCP EIR/S fails to acknowledge this impact of the current CVP/SWP operations and to evaluate the impacts of the proposed project making these overdrafts even more severe. Figure 5.3 shows that the San Joaquin Basin (mostly in the CVP/SWP service area), the current baseline overdraft is significantly higher than the "high overdraft" scenario. This means that the San Joaquin basin baseline is a hyper-overdraft in comparison to just a high overdraft scenario. The baseline overdraft is clearly not sustainable and the BDCP proposed project makes it even worse, but fails to identify this impact or propose mitigations for it.

	comment continued…	"Overall system and operating costs were lowest for the highest overdraft scenario, suggesting that being able to pump more groundwater is the more economical option, which agrees with current, real practices." (page 81) "Additional artificial recharge evens out surface water availability, allowing for more surface water to be used and for more consistent deliveries between wet and dry years. However, unless there are direct, immediate benefits to the water users or policies that require less over-pumping or more recharge, it is unlikely that water users will take it upon themselves to pay more for a benefit that they don't immediately see." "Currently, over drafting groundwater is common, with lower costs. However, with groundwater availability decreasing, pumping costs likely increasing, and environmental effects of overdraft worsening, overdraft will be an increasing problem in the future and may have other costs associated with it not included in CALVIN. Options to mitigate overdraft include: increasing recharge use and capacities (artificial and natural), increase in water reuse, more conjunctive use, more surface water use, and decrease in water use and demands. Although there are many possible solutions, many solutions have higher immediate costs and the long-term benefits are unclear or unknown. Unless policies require water users to follow these solutions, groundwater overdraft will likely continue to be a problem in the years to come." (page 82) This statement is correct and it captures the rationale as to why the BDCP should have included groundwater storage and recharge as a component of their project alternatives. Unless there is
	The EIR/S document refers to the CVP functioning under congressional authorizations.	The CVP (and SWP) was never completed as authorized (e.g. San Luis Drain and Trinity) which has in large part caused the problems the BDCP proposes to address. The EIR/S document must disclose what elements of the original authorization have not been implemented and how the failure to fully implement the original authorization affects the existing environment. As an example, the water supply delivery amounts in the current CVP contractor water contracts originally assumed that a large part of the water supply that would have come from the Trinity system would be completed. Those parts of the authorization were never completed, so the associated water supply never materialized. The lack of this water supply is part of the water supply problem that the BDCP proposes to address. The failure of the BDCP to address the cause of the water supply reliability problem is a significant and material omission and terminal flaw of the EIR/S environmental review. If those portions of the originally authorized project had been implemented, then the current BDCP proposed project would not be needed. The BDCP needs to prove that this assertion is not the case in order to have any legitimacy to move forward as a real project, otherwise, the BDCP project must be to evaluate the implementation of the current authorized CVP (and SWP) project.
	The Cost Benefit Analysis conducted by the BDCP should be re-evaluated based on the $51-$65 Billion Cost estimated by Westlands Water District in their November 20, 2013 District Workshop presentation .	This cost results in water that costs $238 - $337/AF. At this cost, the cost of water will be uneconomic for most farm crops. Where is the benefit in a water supply that is too expensive for the intended beneficiaries to use? The cost/benefit analysis must be redone with consideration of the real cost of water from the proposed project and how it will benefit those parties that can economically afford to use the water at those costs.
	Assuming that all current water rights the BDCP is supposed to fulfill will or can be fully exercised at the projected cost of water that will result from the BDCP project is a fundamental flaw.	As pointed out in the preceding comments, the water costs resulting from the BDCP are too expensive for most agricultural crop producer water rights holders to use the BDCP water supplies. These uneconomic water rights that are currently calculated as part of the total water supply that would be put through the BDCP facilities need to be corrected to omit those volumes that will no longer be economically viable at the BDCP costs of water. Once the future demand is corrected for the water rights that can be supplied by the cost of water that the BDCP will provide, the size of the facilities will be proportionately reduced and the construction and operational impacts will need to be reanalyzed.
	The increased water supply cost resulting from the BDCP would degrade current beneficial uses.	Water supply costs estimated by Westlands Water District at $238 - $337/AF is an uneconomic cost for growing most agricultural crops in the Central Valley. The majority of the water supply demand for the CVP/SWP is from the Central Valley water districts for agricultural water use. The majority beneficial water use in these areas, per the Central Valley Regional Water Quality Control Plan, is for agriculture. The BDCP will make the water too expensive for these designated beneficial uses. This increase in water supply costs to a point where the identified beneficial use of the water is no longer economic on a broad scale is a significant impairment of this beneficial use. The SWRCB and CVRWQCB should not issue 401 permits for the BDCP until this impairment of beneficial use is addressed by the BDCP. The BDCP document did not identify, characterize, quantify or evaluate this impact and the document is therefore deficient. The BDCP did not identify any measures to avoid, minimize or mitigate this impact.

	BDCP modeling did not take into account reduced water demand from increased water costs.	Water demand and water use is driven by the marginal economics of water supply costs. When water supply becomes too expensive to grow certain crops, the water is either reallocated or is used on a crop that has better economics and/or less water use (lower overall water costs). With additional water supply costs of $238/AF - $337/AF, a number of large water consumption crops such as cotton and alfalfa, will either rotate to other lower water use and higher water value crops or be sold/transferred to other water uses. This will have an overall impact on the amount and location of water demand. The BDCP has failed to take into account the reduced water demand in the future from the increased cost of water from the BDCP project. The future water demand forecast and water modeling must be redone to take into account this future decrease in water demand and the commensurate changes in water use environmental, economic, and social/community impacts.
	Several environmental documents on projects with significant implications to the BDCP project have been completed, but they have not been released, e.g. Shasta Enlargement, Folsom Dam Raise, Enlarge Los Vaqueros, North of Delta Off Stream Storage (NODOS), Temperance Flats Dam and Reclamation Remand EIS.	The lead agencies (same ones as for BDCP) are holding these environmental documents back so as to not change the baseline and future operating assumptions of the BDCP project. These projects would significantly alter the operational characteristics of the existing, proposed and alternative project operations and the resulting water supplies, habitat quality and water quality. If the Reclamation Remand EIS was completed on the schedule originally required by the court, the BDCP would have had an improved and more consistent No Action definition. By delaying the completion of the Remand EIS, the quality and completeness of the BDCP EIS/EIR is compromised, there is risk of inconsistency between the documents and at the very least, duplicative efforts and costs have been wasted. Reclamation should immediately release the Remand EIS so that the public can compare it's characterization of the existing conditions to the BDCP No Project. All of the other projects identified under this issue either increase upstream water supply or downstream of delta storage. Upstream water supply and downstream storage are factors that determine CVP/SWP operations, are resources to avoid and minimize environmental affects of the project, and determine resulting water supplies. These other projects, if implemented, could meet almost all of the project objectives and needs identified in the BDCP Purpose and Needs Statement. These other projects could even obviate the need for the BDCP project. These other projects could be used as the mechanism to justify incidental take permits for the state.
	MBK Engineers produced a summary presentation on their review of the BDCP CALSIM modeling titled "BDCP Operations Modeling Review" dated January, 17, 2014. DWR and Reclamation have been provided copies of this presentation.	Following are comments and expansions of points made in the MBK PowerPoint presentation. Page 11 - BDCP modeling reports total exports of Alt 4 vs. the No Action Alternative as 537TAF. The independent modeling by MBK done in coordination and cooperation with DWR and Reclamation modelers, reports total exports of the Alt 4 vs. NAA at 756TAF. This means that the BDCP modeling underreports the increase in water exports of Alt 4 as compared the NAA by 40%. This is a huge benefit of Alt 4 that is being downplayed by the BDCP as they said the project would result in "no new water". The total exports of water by the CVP/SWP was a water supply significance criteria and the BDCP impact call was "no determination". How can a 756TAF increase in CVP/SWP water exports be called a no determination impact? It is clear that the Alt 4 is beneficial to increasing water exports. even if the BDCP only acknowledges the 537TAF improvement their modeling shows, how can the BDCP claim "no determination" on water supply deliveries? Clearly the EIR/S and the impact calls are attempting to hide and downplay this project benefit.
	MBK Engineers produced a summary presentation on their review of the BDCP CALSIM modeling titled "BDCP Operations Modeling Review" dated January, 17, 2014. DWR and Reclamation have been provided copies of this presentation.	Following are comments and expansions of points made in the MBK PowerPoint presentation. Page 11 - BDCP modeling reports the through delta exports of Alt 4 vs. the No Action Alternative as 2.1MAF. The independent modeling by MBK done in coordination and cooperation with DWR and Reclamation modelers, reports the through delta exports of the Alt 4 vs. NAA at 2.5MAF. This means that the BDCP modeling underreports the decrease in south delta water exports of Alt 4 as compared the NAA by 20%. This is a huge impact to south delta water quality from a reduced amount of water flowing through it from the south delta CVP/SWP operations. This impact on south delta water quality of Alt 4 is being purposely downplayed by the BDCP as the impacts even with the 20% overestimation of south delta exports are significant and severe. Similarly, North delta diversion volumes of Alt 4 are significantly understated. BDCP modeling reports north delta diversion volumes for alt 4 at 2.6MAF. The independent modeling shows they are actually 3.3MAF. This 25% understatement of the BDCP on the volumes of north delta diversions is also hiding central and south delta water quality impacts that result from these BDCP caused reductions in refreshing north delta flows. The BDCP must revise their modeling and dependent impact analyses to disclose the true impacts of the Alt 4 operations.

	MBK Engineers produced a summary presentation on their review of the BDCP CALSIM modeling titled "BDCP Operations Modeling Review" dated January, 17, 2014. DWR and Reclamation have been provided copies of this presentation.	Following are comments and expansions of points made in the MBK PowerPoint presentation. Page 12 shows changes in CVP/SWP deliveries by CVP North of Delta water contractors, CVP South of Delta water contractors and SWP contractors. BDCP modeling reports the South of Delta deliveries at 94TAF while the independent modeling shows that the actual South of delta CVP deliveries are 262TAF. This represents a BDCP underreporting of South of delta CVP deliveries of 275%. This is not a small error and there are significant impacts from this BDCP modeling error that are not being analyzed or disclosed in the EIR/S document as a result. Similarly, the SWP is underreporting water deliveries and impacts by 10%. The BDCP must revise their modeling and dependent impact analyses to disclose the true impacts of the Alt 4 operations.
	MBK Engineers produced a summary presentation on their review of the BDCP CALSIM modeling titled "BDCP Operations Modeling Review" dated January, 17, 2014. DWR and Reclamation have been provided copies of this presentation.	Following are comments and expansions of points made in the MBK PowerPoint presentation. Page 12 shows changes in CVP/SWP deliveries by CVP North of Delta water contractors, CVP South of Delta water contractors and SWP contractors. What is evident both from BDCP's modeling and the independent modeling from MBK is that the proportions of the water delivered under Alt 4 of the BDCP change between all the participants. This is important as the proportion of water delivered by CVP North of delta, CVP South of delta and the SWP determines the amount of benefit each of those entities is getting from the CVP and SWP respectively. The Coordinated Operating Agreement (COA) is in place to ensure that the proportions of benefits from the CVP and SWP are distributed proportionately to the cost shares that each of these entities is bearing for their part and obligations to the CVP and SWP. The change in proportion of deliveries from the BDCP (Alt4 and all the other alternatives) makes the current COA out of date, unfunctional, unfair and obsolete. The BDCP must revise the COA so that costs for the CVP and SWP borne by these entities is proportional to the benefits (water deliveries) these entities are receiving from the CVP/SWP. Once the COA has been renegotiated, the BDCP must remodel the water operations for the BDCP and rerun the dependent impact analyses to disclose the true impacts of the BDCP and Alt 4 operations.
	MBK Engineers produced a summary presentation on their review of the BDCP CALSIM modeling titled "BDCP Operations Modeling Review" dated January, 17, 2014. DWR and Reclamation have been provided copies of this presentation.	Following are comments and expansions of points made in the MBK PowerPoint presentation. Page 12 shows changes in CVP/SWP deliveries by CVP North of Delta water contractors, CVP South of Delta water contractors and SWP contractors. Comparing the BDCP and independent modeling of the North of delta CVP water deliveries there is a huge discrepancy in all water year types except wet. As an example, in a Critical Dry water year type, the BDCP modeling says the North of Delta SWP will get 33TAF and the independent modeling shows 4TAF. There are huge implications to the impacts for these two different water deliveries. The BDCP must remodel the water operations for the BDCP and rerun the dependent impact analyses to disclose the true impacts of the BDCP and Alt 4 operations.
	MBK Engineers produced a summary presentation on their review of the BDCP CALSIM modeling titled "BDCP Operations Modeling Review" dated January, 17, 2014. DWR and Reclamation have been provided copies of this presentation.	Following are comments and expansions of points made in the MBK PowerPoint presentation. Page 13 shows net delta outflows. Comparing the BDCP and independent modeling of net delta outflows there is a huge discrepancy in all water year types. The BDCP modeling shows an average outflow decrease of -567TAF and the independent modeling shows an average of -759TAF. This BDCP discrepancy in the net delta outflow volumes explains where the extra water came from for the additional CVP/SWP delta export water supply deliveries. This BDCP modeling error means the BDCP is underreporting the net delta outflow by nearly 35%. This underreporting of reductions in net delta outflows has huge implications to the systematic underreporting of the impacts analysis that are dependent upon the accuracy of the CALSIM model results. EIR/S impact analyses that are affected by the CALSIM errors include, but are not limited to: fisheries, irrigation water quality, water supply, agriculture, land use, recreation, human health drinking water quality, and other impact categories. This is a major flaw in the BDCP analysis and a failure to disclose the impacts of the alt 4 project. The BDCP must remodel the water operations for the BDCP and rerun the dependent impact analyses to disclose the true impacts of the BDCP and Alt 4 operations.

	MBK Engineers produced a summary presentation on their review of the BDCP CALSIM modeling titled "BDCP Operations Modeling Review" dated January, 17, 2014. DWR and Reclamation have been provided copies of this presentation.	Following are comments and expansions of points made in the MBK PowerPoint presentation. Page 16 shows exceedance plots of Folsom Reservoir. The September exceedance plot shows that the BDCP Alt 4 would result in a dead pool condition 8% of Septembers. Dead pool means that the reservoir cannot release any water because the outlet of the reservoir is higher than the reservoir water level. This means that in one September out of 12, Reclamation will completely loose control of water temperatures and flows in the lower American River. September is the beginning of Chinook salmons spawning season so there would be 100% coldwater fisheries mortality in the lower American River. Since precipitation does not usually start in volume until November, the river would remain dead and unsuitable as coldwater fisheries habitat for September, October and most of November. This is BDCP's own modeling. The dead pool events are a result of Alt 4 increasing the rate of summer releases from Folsom, see page 14 chart upper right. Page 17 charts show the same problem with Alt4 for Shasta Reservoir.
	MBK Engineers produced a summary presentation on their review of the BDCP CALSIM modeling titled "BDCP Operations Modeling Review" dated January, 17, 2014. DWR and Reclamation have been provided copies of this presentation.	Following are comments and expansions of points made in the MBK PowerPoint presentation. Page 17 - 19 shows the independent modeling conclusions which are: Incorporation of climate change contains errors and does not incorporate adaptation measures. BDCP's "High Outflow Scenario" is not sufficiently defined for analysis. BDCP's simulated operation of the dual conveyance, coordinating proposed North Delta diversion facilities with existing south Delta diversion facilities, is inconsistent with the project description. BDCP models do not accurately reflect anticipated changes in CVP and SWP operations with BDCP. Independent modeling of the BDCP revealed differences in CVP and SWP operations and water deliveries from the analysis disclosed for the Draft EIR/EIS. And, Effects of climate change and tidal habitat should be examined by sensitivity analyses.
	MBK Engineers produced a summary presentation on their review of the BDCP CALSIM modeling titled "BDCP Operations Modeling Review" dated January, 17, 2014. DWR and Reclamation have been provided copies of this presentation.	Following are comments and expansions of points made in the MBK PowerPoint presentation. Page 14 shows exceedance plots of delta cross channel and Georgiana Slough flows in selected months. The delta cross channel and Georgiana Slough flows are important as these flows from the Sacramento River freshen the water quality in the central and south delta. Decreases in these flows will directly result in reductions in central and south delta water quality. Let's compare the July BDCP and independent modeling exceedance plots of the delta cross channel and Georgiana Slough flows. The BDCP says that there is a 50% probability of a 11% reduction as compared to the No Action and the independent modeling shows a 50% probability that there will be a 23% reduction as compared to the No Action. This is a huge discrepancy as the BDCP is underreporting the change in flows by 100%. This underreporting of reductions in refreshing flows from the Sacramento River to the central and south delta has huge implications to the systematic underreporting of the impacts analysis that are dependent upon the accuracy of the CALSIM model results. EIR/S impact analyses that are affected by these CALSIM errors include, but are not limited to: fisheries, irrigation water quality, water supply, agriculture, land use, recreation, human health drinking water quality, and other impact categories. This is a major flaw in the BDCP analysis and a failure to disclose the impacts of the alt 4 project. The BDCP must remodel the water operations for the BDCP and rerun the dependent impact analyses to disclose the true impacts of the BDCP and Alt 4 operations.
	Covered activities do not include maintenance of all facilities that the BDCP will have to take responsibility for project actions for the life of the project and for mitigations in perpetuity.	The BDCP has proposed a number of actions that will require them taking over responsibility for facilities maintenance for the life of the project. In other cases, mitigations are responsibilities of the project in perpetuity. These obligations of the project to maintain facilities for the life of the project or in perpetuity include: relocated diversions of other affected surface water rights holders (e.g. Barker Slough and other Cache Slough intakes proposed to be relocated, surface water diversions on the Sacramento River that are moved or replaced due to the footprint of the intake facilities, maintenance of fish screens that are installed on surface water diversions (CM), and replumbed delta Reclamation Districts that have their water supply and drainage ditches disrupted by BDCP conveyance, tunnel muck disposal and habitat restorations (e.g. Andrus Island). The BDCP has failed to identify, characterize, quantify or disclose these needed covered activities for maintenance of other facilities. The BDCP document is incomplete and deficient. Once these glaring omissions have been rectified, these will be material changes to the document that will warrant it being recirculated for public comment.

	The BDCP EIR/S incorrectly states that DWR operates their Oroville facility to the 1983 DFG Operating Agreement.	Current and No Action Oroville operations conform to the FERC Relicensing Negotiated Settlement Agreement, the SWRCB 401 certification Mandatory Conditioning Authorities and the NMFS and FWS BOs. FERC assumes license submitted in a negotiated settlement is operated to in the interim period between license submittal and final license issuance, so DWR should be operating to the new license terms even though the final relicense has not yet been issued. There are differences between the DFG 1983 Operating Agreement and the FERC Relicensing, 401 MCAs and NMFS and FWS BO operating requirements. If BDCP has modeled the Oroville Facility No Action/No Project based on the 1983 agreement, then the Oroville operations portion of the modeling is incorrect and needs to be rerun in order to get correct and useful modeling results.
	The Affected Environment project facility descriptions have lots of very specific detail: storage capacity, basin average flows, etc. but no credit is given in the document as to the original sources of this information.	Did the BDCP EIR/S authors measure all these project facility metrics themselves or are they just egregiously forgetting to site their sources? Without the references provided for these and other important project description metrics, the public is denied the opportunity to assess the potential accuracy of these sources.
	Previous CVP/SWP related environmental documents have utilized more comprehensive significance criteria to evaluate project impacts than were used in the BDCP EIR/EIS. Other recent CVP/SWP and habitat restoration related environmental documents establish precedent for how the State and Federal agencies should evaluate the BDCP impacts.	These agency precedent setting environmental documents include: CALFED Bay-Delta EIS/EIR (Federal agencies: Reclamation, FWS, NMFS, BLM, USGS, USACE, US EPA, USDA, USFS, NRCS, and WAPA; State agencies: DWR, DFG, Reclamation Board, Cal EPA, CDFA, Delta Protection Commission and SWRCB), South Delta Improvement Project EIS/EIR (Federal Lead Agency: Reclamation; State Lead Agency: DWR; Responsible Agencies: SWRCB and DFG; Cooperating Agency: USACE), Salton Sea Restoration Program EIS/EIR (Federal Lead Agency: USACE; State Lead Agency: California Natural Resources Agency; Prepared by: DWR and DFG), Lower Yuba River Accord EIS/EIR (Federal Lead Agency: Reclamation; Responsible Agencies: DWR, DFG, and SWRCB; and Cooperating Agencies: NMFS and FWS), Oroville Facilities FERC Relicensing EIR (State Lead Agency: DWR), and Monterey Agreement EIR (State Lead Agency: DWR). The same agencies that produced and approved these other recent and similar scope project environmental documents are the same agencies involved in the BDCP. The BDCP's agency roles for the environmental documents are similar to these other projects - Federal Leads: Reclamation, NMFS and FWS; State Lead: DWR; Responsible Agencies: DFG and SWRCB; and, Cooperating Agencies: USEPA and USACE. These documents establish a precedent for the significance criteria that should be used in evaluating the resource impacts of the BDCP project. If the BDCP does not utilize these same significance criteria as these other similar projects, then BDCP must provide a supporting justification for their departure from previous agency policies and practices. BDCP should revise the document to include all aspects of the significance criteria for their impact evaluations that were established as agency precedents in these other recent and similar documents. Subsequent comments identify these missing criteria.
	There would be a significant impact if the alternatives would: Substantially alter an existing drainage pattern of the site or area, including alteration of the course of a stream or river, or a substantial increase in the rate or amount of surface runoff in a manner that would result in flooding on or off-site. Create or contribute to runoff water exceeding the capacity of existing or planned storm water drainage systems or provision of substantial additional sources. (Oroville Sig Criteria)	The BDCP has failed to include this significance criteria in its impact calls. The BDCP project (and all of its alternatives) would alter the course of a river, so based on this criteria, the BDCP has a significant impact that must be avoided, minimized and/or mitigatated. The BDCP has not proposed any of measures to reduce these impacts.

	Significant effects on water level during the irrigation season of April to October are defined to be any reductions below the assumed minimum operating level for agricultural water supply pumps and siphons, of 0.0 feet msl. (SDIP sig criteria)	The BDCP EIS/EIR states, "At flows below 5,000 cfs at Wilkins Slough, diverters have reported increased pump cavitation as well as greater pumping head requirements. Diverters are able to operate for extended periods at flows as low as 4,000 cfs at Wilkins Slough, but pumping operations become severely affected and some pumps become inoperable at flows lower than this." The BDCP should use both this and the related SDIP significance criteria in their impacts analysis. Surface water diversions in the delta are senior water rights to the CVP and SWP. It is illegal and a violation of water rights for the CVP/SWP operations to disrupt water diversion operations of senior water rights holders in the delta. Any CVP/SWP project operation that impacts senior water rights is a significant impact that must be avoided, minimized and/or mitigated. This impact can be avoided by making operating rules for the CVP/SWP that do not create these conditions. This impact can be minimized and/or mitigated by modifying the intakes that are sensitive to water elevations to draw water from a lower stage elevation and/or providing the affected senior water rights holders with alternative water supplies.
	A reduction in water surface elevation, relative to the basis of comparison, of sufficient frequency and magnitude that it adversely affects south Delta water users' abilities to divert water. (Yuba Accord Sig Criteria)	See preceding comment.
	Water levels at Old River near Tracy Road Bridge and Grant Line Canal near Tracy Road Bridge less than 0.0 feet above msl. (Yuba Accord Sig Criteria)	See preceding comment.
	Water levels at Middle River near the Undine Road Bridge less than 0.3 feet above msl. (Yuba Accord Sig Criteria)	See preceding comment.
	Reduces the quality of a water supply such that it is more difficult to treat to meet applicable federal or state drinking water standards for finished water or to maintain existing finished water quality. (Monterey Accord Significance Criteria)	The BDCP EIR/S Water Quality chapter identifies that there is a degradation in water quality from the Proposed Project for: Ammonia, Boron, Nitrates, Pathogens, Phosphorus, Trace Metals, and Turbidity. The BDCP EIR/S Water Quality chapter identifies that there is a significant unavoidable impact to water quality from the Proposed Project for: Bromide, Chloride, Electrical Conductivity, Mercury, Organic Carbon, Pesticides, and Selenium. These are all important drinking water supply quality parameters that will require additional water treatment from the Proposed Project impacts. The Significant Unavoidable impact calls on drinking water quality parameters that have significant human health issues is particularly alarming. The No Action impacts are often represented in the same box as the impact calls for the Proposed Project and indicate that they have the same impact calls, i.e. both NA and PP have LTS and NA impact calls. What this impact summary table misrepresents is that for the NEPA impact call, the Proposed Project is compared to the No Action so the Proposed Project impacts are in addition to (not equivalent to) the No Action impacts. If the impacts were the same in the Proposed Project as the No Action, even if there were impacts in the No Action, the Proposed Project impact would be No Impact and No Effect. Many people get their drinking water supply from the delta and it is unacceptable for a project to so significantly and unavoidable degrade drinking water quality.

	Require the construction or expansion of a water conveyance or treatment facilities or require new or expanded water supply entitlements. (SDIP Sig Criteria)	The BDCP will result in the construction of a new water conveyance so utilizing the SDIP significance criteria, this is a significant impact that needs to be avoided, minimized and/or mitigated. The BDCP will also likely end up needing a water treatment facility to deal with water that has sat in the tunnels long enough for it to go anoxic and septic (see other comments regarding water quality problems associated with periods of low or no operations in the tunnels). According to the SDIP significance criteria, the water treatment facilities would be a significant impact that must be avoided, minimized and/or mitigated. The Yolo bypass diversion flows for floodplain habitat will require either new water rights or transfer of existing water rights to a new location with a new water use specified to accommodate the use of the water for environmental purposes instead for water supply purposes. BDCP aquatic and intertidal habitat restorations also need water rights as water will be consumed by these through transpiration and evaporation. The BDCP document did not identify the source of water rights for these applications. These new or expanded water rights would be a significant impact according to the SDIP significance criteria that need to be avoided, minimized and/or mitigated.
	The BDCP purpose focuses on the term "reliability" with regards to water supply, but never bothers to define what reliability is.	The definition of "reliability" is: "able to be trusted; predictable or dependable". The project that the BDCP has proposed fails to address the most important aspects of water supply reliability. The BDCP mistakenly focuses on reliability as reducing risk against catastrophic engineering failure and from regulatory constraints to protect endangered species which conflict with water supply operations of the CVP/SWP. That is only a small part of the issue of water supply reliability. The real issue of water supply reliability that the BDCP did not deal with and the proposed project makes even worse than the No Action condition is the variation in precipitation and water supply storage from year to year that result in large variations on CVP/SWP water supply deliveries. The BDCP proposed project results in more water supply delivery in wet and above average water year types and even less water supply deliveries in below normal, dry and critical dry water year types. In this way, the BDCP proposed project has made the water supply even less reliable than it currently is or would be under the No Action. The BDCP must evaluate this other and more critical aspect of water supply reliability as a significance criteria in their impact analysis and disclose that the Proposed Project has significant adverse affects on this central project purpose. The hydrologic record for California shows that last 150 years were anomalously wet (lots of supporting literature is readily available on this topic). If California reverts to historical hydrologic norm in the next 50 years (during the project period) the proposed project will not result in "reliability" of water supply. The BDCP should have included alternatives that addressed having a consistent water supply delivery across water year types and under changing hydrologic conditions. The BDCP alternatives must be redefined to address this critical aspect of water supply reliability.

	The BDCP EIR/S utilizes CALSIM II for CVP/SWP system-wide mass balance hydrologic modeling. CALSIM 3 should now be available if Reclamation and DWR were not holding back its release. DWR's website states that the CALSIM 3 model was ready for release almost 5 years ago, "The next application generation, CalSim 3 is under development and is expected to be released shortly (as of March 1, 2009)." (http://baydeltaoffice.water.ca.gov/modeling/hydrology/CalSim/Future/index.cfm)	The CALSIM II model used in the BDCP analysis has a monthly time step output which is inadequate to evaluate the types of affects anticipated with the operations and features of the BDCP project. As an example, the diversion of flows for habitat inundation in the Yolo Bypass, which is major reoperation of flows in the delta, is not even detectable (a statistically significant difference in flows) on the CALSIM II monthly time scale. The Yolo Bypass flows are a big flow-related operation and yet the primary modeling tool chosen by the BDCP project is not even adequate to detect it, let alone evaluate the impacts of it. The BDCP needs to use the CALSIM 3 model for its analysis of the project affects. The 15 minute output time step of the CALSIM 3 model is an important level of analytical temporal resolution for the analysis of the intertidal operations of the diversions and intertidal affects of the massive intertidal habitat restoration proposed by the BDCP. The BDCP has already established the precedent of investing in developing and completing models for use in the fisheries analysis. Almost all of the other modeling done in the environmental analysis are dependent upon the output of CALSIM. All of these other dependent model results would also be improved by the use of the superior CALSIM 3 model instead of the CALSIM II model being used by the BDCP analysis. The CALSIM 3 model has been nearly ready for 5 years, so the incremental time and cost to complete the model and utilize it in the final EIS/R should be highly feasible with any reasonable effort applied by the BDCP to make it available and ready for use in the project analysis. Lead agency concerns regarding the management of the large volumes of data that would be produced by the CALSIM 3 model is not an adequate excuse for not utilizing the best available science. If the BDCP does not utilize the CALSIM 3 model for the final EIR/S analysis it is clearly not utilizing the best available science. If the CALSIM 3 model is utilized in the ESA consultations, the BDCP Biological Assessment or the BDCP Biological Opinions, then it will be obvious the CALSIM 3 model was ready to be used in the EIR/S, but the agencies just chose not to use it because they thought there were too many alternatives to evaluate utilizing this tool.
	CALSIM II modeling only utilized an 82 year period of record for the BDCP EIR/S analysis.	The hydrologic period of record that is available and was available at the time of the BDCP EIR/S analysis and was agreed to and accepted by the regulatory agencies (DWR, FWS, Reclamation, DFG, NMFS) is over 100 years long now. There is no defensible reason for the BDCP to have utilized the inferior and less representative shorter period than what was available as best available science. The BDCP should redo the analysis utilizing the correct 100+ year period of hydrologic record.
	The BDCP proposed north delta intakes need an operations model the same as all of the other operational components of the CVP/SWP.	All of the operational facilities of the CVP/SWP have operations models that disaggregate the CALSIM monthly operations into daily and hourly operations of the facilities. These models are important for the analysis of the impacts of the project and for evaluating facility operational compliance with environmental regulations, e.g. water quality and water temperatures. Facilities operations models of the reservoirs are an important interaction of managing how water operations are implemented. CALSIM identifies monthly operations for each facility (e.g. Shasta, Oroville, Folsom, delta pumps, etc.). Operations models for each facility disaggregate the monthly CALSIM target and determine how the facility will be operated to meet the CALSIM target. The operations models then go into an iterative loop with operations constraining models such as water temperature and water quality requirements. Daily and hourly facilities operations are iteratively modified until the constraining model requirements reach compliance with regulations, e.g. water quality and water temperature requirements. The BDCP has failed to develop an operations model for how the north delta diversions would be operated and how they would comply with operational requirements. North delta diversions are located in reaches of the river that are tidally influenced. Water velocities at the intake screens are dynamic, not only based on daily and diurnal variations in tributary flow volumes, but also tidal influence on velocities (accelerated, decelerated and reverse flows).

	comment continued…	Downstream proposed BDCP intakes are deeper in the tidally influenced reaches of the river and will have a greater magnitude and duration of tidally influenced flow volumes and velocities than the proposed intakes that are farther upstream. BDCP north delta diversion operations are supposed to adhere to a set of rules proposed by the BDCP. These north delta diversion operating rules include maximum diversion volumes for ranges of tributary flows, maximum screen approach velocity (salmonid and smelt criteria) and minimum sweeping velocities across the screens. Each of these proposed operating rules for the north delta intakes have important functions in protecting downstream water quality, tributary stage elevation for maintaining water supply availability, attraction flows for fish, and protection of fish from harm from impingement and entrainment in the intake screens. Without a north delta diversion operations model, the BDCP cannot disclose how the operations are implemented and evaluate the facility compliance with the operating rules that were proposed to protect the environment, fish species and beneficial uses of water. The BDCP must develop and disclose the operations model that will demonstrate how the north delta diversion operations will be run under all of the conditions that will occur at those facilities during operation. Without the north delta diversion operations model, a very important component of the impact analysis is missing and the environmental analysis of the affects of the proposed project are incomplete and inadequate. Without analysis and confirmation of the north delta diversion operations conformance with the fisheries and environmental protection measure compliance, the fisheries agencies do not have adequate information to justify issuance of incidental take permits for the BDCP project.
	The BDCP EIR/S document failed to describe and disclose the location and methods for measuring tributary flows for intake operations.	The BDCP did not disclose how the tributary flows and velocities will be monitored in real time for operational management of the proposed north delta intakes. Monitoring stage elevation at location with a known cross section and discharge relationship can measure flows and average water velocities in a freely flowing river, but not in a tidally influenced river. The reach where the proposed BDCP intakes are located is tidally influenced so this must be taken into account when managing facilities based on operating rules for flows and velocities. In a tidally influenced river high tide would show an increase in stage elevation, but instead of increased flow volumes and velocities that would be associated with an increased stage elevation in a freely flowing river, a tidally influenced river reach increased stage elevation occurring due to high tide would result in a reduced flow and velocity, no flow and velocity or even a negative flow and velocity. Given the north delta intake operating rules proposed by the BDCP for the north delta intakes, the intakes cannot be operated to a daily average of flow volume and velocity. If north delta intakes were operated to the daily average of flows, as it looks like the BDCP EIR/S analysis has done, then the operations would be in violation of the operating rules for half of the tidal cycle each day.

	Cross sections and stage discharge relationships to estimate tributary flow change over time, can be influenced by other environmental factors such as wind, and have inherent limitations on the accuracy of flow estimate.	There is a margin of error in methods to estimate flows and velocities in tributaries. Tributary flows are estimates, not measurements. The flow is estimated by measuring the channel cross section and monitoring/measuring river stage. Through a series of observations at the cross section at different flows, a stage discharge curve is developed. Once the stage discharge curve is established for that location in the river, the measured river stage is used to estimate flow. Even in freely flowing condition (not tidally influenced), the accuracy of measuring flow in a large and complex channel such as the main stem Sacramento River, flow estimate errors can be greater than plus or minus 10%. The accuracy of flow volume estimate is significantly reduced when measuring a tidally influenced river reach, see comment above. There are many sources of error in flow estimates. Some of these include stage height measurement (sensor accuracy, water is not flat, wind and tide can stack up water), channel roughness, channel cross section, backwater affects from in stream structures (e.g. the BDCP intakes). Channel cross sections and stage discharge relationships change over time and create a further source of error in flow estimates. The BDCP did not describe or disclose how frequently the cross sections and stage discharge relationships would be updated during the project period. The BDCP operations are dependent upon the accuracy of the river flow data and, as described above, there are significant limitations to the accuracy of the river flow estimates that must be taken into account when utilizing that data. The BDCP EIR/S analysis has not included a safety margin in their analysis of flow-related affects to reflect the limitations of the accuracy of the flow estimate. The modeling of the impacts of the project must reflect the real life limitations of the data that will be used to operate the project on a day to day basis. The lack of a safety margin in the modeling of the project means that in some cases the impacts of the project are over reported - that is that impacts are stated to be worse than would actually occur. This is OK and appropriate for an environmental document as it should always be conservative to make sure that impacts are disclosed. What is not OK, is there are periods where the model, because of lack of appropriate assumptions on the limitations of the accuracy of flow estimate data, will under report impacts. This means that the frequency (and most likely) magnitude of impacts are not appropriately identified, characterized and disclosed in the document. The BDCP should do an evaluate of the factors that affect the accuracy of the flow estimates for the river reaches and conditions in the proposed intake reach. Once these flow estimate accuracy factors have been identified and evaluated, a reasoned factor to adjust the modeled flow data can be integrated into the operations modeling. As an example from above, if it is determined that the flow estimates are plus of minus 10% of actual flows, the modeled flows should have 10% subtracted from them to ensure that the model and operations are not under reporting the project impacts.
	Is each successive intake downstream taking into account the reduced flows from the diversions of the upstream intakes?	As an example, if all 5 intakes were operating at full capacity, the downstream-most intake would have 12,000 cfs less flow approaching it than the upstream-most intake. The BDCP operations modeling has not taken this into account and therefore the operations modeling and all the impact analysis that are dependent upon them are inaccurate and should be rerun once a correct BDCP north delta intake operations model has been developed and integrated into the CVP/SWP operations modeling.
	The BDCP has not applied for nor has it been given authorization from the SWRCB to move part of DWRs water rights from Hood to the Fremont Weir nor has it addressed the change in the water supply beneficial use of the diverted water .	The State Board needs to approve the transfer of the location of water rights diversion for DWR to provide a water supply for the Yolo Bypass inundation conservation measures and for the OCAP BO RPAs for flood plain creation and enhancement. Further, the Water Board needs to approve the change in water use from water supply to environmental uses which is an entirely different beneficial use than the current Hood water rights provide. In order for DWR to secure the change in water use, DWR will need to estimate the consumptive use of the water (evaporation, groundwater recharge, transpiration) so that the net flow contribution back into the Sacramento River system from the Yolo bypass drainage into Cache Slough. Additionally, the BDCP did not analyze the degradation of the water quality of the water discharged from the bottom of the Yolo Bypass. The Cache Creek and Putah Creek areas contain contaminants (Pb, Hg, DDT, etc.) that the Yolo Bypass inundation flows mobilize and degrade water quality compared to the No Action condition in which the magnitude, frequency and duration of these flows do not occur. The BDCP has not applied for, received or done the analysis to support moving the point of diversion from Hood to the Fremont Weir or to support the change in water rights use. The BDCP EIR/S is incomplete and deficient for not including the information regarding change in location for water diversions, change in water beneficial uses of that water right and the consumptive use resulting from that beneficial use. Until the BDCP completes these analyses, the SWRCB should not agree to move DWRs water right point of diversion or the change in beneficial use.

	The water BDCP proposed to be diverted into the Yolo Bypass was not correctly held against the bypass flows for diversions operations.	Since the operating rules of the Yolo Bypass inundation flows are incomplete to the point that they cannot be modeled, the flows that should be subtracted from Sacramento River flows for the intake bypass rules cannot be correctly represented. As a result, the impact of Yolo Bypass inundation operations are not correctly represented or disclosed on water supply and water quality impacts.
	The Inundation of the Yolo Bypass is not a flood operation, it is a discretionary environmental action.	The current flood easement agreements with Yolo Bypass land owners do not cover the discretionary inundation of their properties for environmental enhancement purposes. The BDCP fails to describe the process to reconcile this lack of permissions and the level of uncertainty of implementation due to this lack of authorization.
	There are over a dozen other water user surface water diversions in the BDCP proposed north delta intake reach of the river, e.g. RD 150. These intakes can cumulatively divert several hundred cfs from the river when in operation.	Do the models of the BDCP analysis of the north delta intake operations take these flow reductions for other diverters into account in their operations modeling and affects analysis? If not, then the BDCP needs to assume that these diversions are all running at full capacity during the entire period for the analysis. This will ensure that there is a conservative approach taken to the environmental analysis will not under estimate the affects of the project.
	Average water column velocities can be calculated based on tributary flows and channel cross sections. The north delta diversion intake screens are "on bank" type, which will be well out of the thalwag (higher velocity flows) of the river. The location of the intakes on the bank will mean the velocity of water passing the screens will be well below the average velocity of the water in the river.	Average water velocities estimated from an estimated average tributary flow is not adequate to evaluate flow velocities at the face of the intake screen to ensure compliance with operating criteria. BDCP has not conducted 2D or 3D modeling of water velocities at the locations of the proposed intakes for all operational conditions (flow ranges, tidal conditions, wind, barometric pressures and intake operational configuration (i.e. some pumps on and others off and various permutations of those pump operations options)). Without the appropriate 2D and/or 3D modeling of water velocities at the intake screen face under these ranges of conditions and the integration of those model results as constraints (under various conditions) for the intake operations, then the impacts to water supply, downstream resources and compliance with screen operations criteria (salmonid and smelt) cannot be determined and the environmental analysis and disclosure is incomplete and invalid. The fisheries agencies do not have sufficient evidence of protection of fish unless these types of analyses are conducted and therefore should not issue the BDCP project any incidental take permits on the basis of this EIR/S document.
	Modeling assumptions of hydraulic characteristics of intertidal and sub-tidal habitat restorations are flawed and unsupported.	The current BDCP modeling assumptions treat the aquatic habitat restorations like an open water body with no hydraulic complexity. Hydraulic complexity also will change in these intertidal and subtidal habitat restorations over time, which need to be reflected in the modeling. The size and location of levee breaches into aquatic habitat dominate their hydraulic tidal exchange characteristics and water quality interactions. The BDCP has not defined the levee breach locations or size, so the water quality modeling cannot accurately affect the impacts of these proposed habitat restorations. The water operations, that are modeled at a project level of detail with the intent that the current EIR/S will support permitting for construction, are interdependent upon the water quality interactions of the aquatic habitats. Because the habitat restoration level of detail is not even programmatic (no sets of general rules as to how they will be designed, implemented, or develop over time), the project level analysis of water operations if fundamentally flawed and therefore should be redone with an appropriate level of detail on the aquatic habitat restorations such that it would support issuance of construction permits. Since this level of detail in description of the habitat restorations is new information, the document should be recirculated for public comment following these revisions.
	Many model runs have been conducted in the process of developing the Proposed Project.	In the interest of full disclosure and access of the public to information that was developed at their expense, all model runs should be disclosed and shared in the modeling technical appendix, not just the ones used in the final document. By disclosing all model runs conducted, the public will have the opportunity to evaluate what did and did not work in previous operational and project alternative formulation analysis.

	The BDCP has assumed only one scenario for intertidal and sub-tidal habitat restoration implementation for their hydrologic impact modeling.	The BDCP says they do not know exactly where, when or in what sequence/combination these aquatic restorations would be developed and implemented. If the BDCP proceeds with their project as they currently have modeled, the permits issued based on this environmental document should only cover a habitat implementation scenario that is exactly as they have defined it in their analysis. If the BDCP wants more latitude in the location, size, design characteristics, sequence and combination of aquatic habitat restoration then the environmental document needs to include a number of analyses of scenarios of combinations of locations, scales, restoration designs, implementation sequences, and variations in expectations for the development of hydraulic complexity as the habitat matures. Once these sensitivity analyses of the aquatic habitat implementation scenarios has been completed, then the BDCP would be justified in selecting a couple of scenarios that represent the extremes of conditions to base their EIS/EIR assessment on and that would give them the flexibility to get permits to cover the range of potential project actions. Until the BDCP environmental analysis includes an analytical scope that matches the BDCP desired flexibility for habitat implementation, the BDCP should not be issued take permits as the implementation of the conservation measures is uncertain as the environmental document would not give the BDCP coverage for their implementation.
	The No Action definition of the BDCP does not include the NMFS BO RPA for reoperating Shasta.	The NMFS BO RPA for reoperating Shasta is an existing obligation of the CVP and therefore should have been considered part of their existing condition and No Action/Project. This assumption needs to be included in the modeling and the model runs and analyses reconducted. Without this addition to the No Action, the impact analysis is inaccurate and deficient.
	Reclamation identified in their December 13, 2013 Federal Register Notice that their sole role in the BDCP project may only be to wheel water through the BDCP facilities.	The BDCP EIR/S has not addressed this substantial change in the CVP role in the project. The BDCP has not completed or initiated a Warren Act Contract analysis on the impacts of this proposed water wheeling. Reclamation's proposed change in role is fundamental and the project should be taken back to scoping as a number of the Purpose and Needs for the BDCP project change with Reclamation's change in project role.
	The Coordinated Operating Agreement is out of date under the Existing Conditions.	Changes in operations and water deliveries with a BDCP tunnel (operated either isolated or in conjunction with south delta intakes) definitely will change how the COA needs to be operated. Since the COA is already out of date and the BDCP will precipitate even a greater need to redo the COA, the revision of the COA needs to be incorporated into the BDCP process or the project will be piece-mealing an integral part of the project. The California Supreme Court has considered how to interpret the word "project" and concluded that CEQA is to be interpreted in such manner as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language. (Tuolumne County Citizens for Responsible Growth, Inc. v. City of Sonora (2007) 155 Cal.App.4th 1214, 1222, quoting Friends of Mammoth v. Board of Supervisors (1972) 8 Cal.3d 247, 259.) This broad interpretation ensures that the requirements of CEQA cannot be avoided by chopping a large project into many little ones or by excluding reasonably foreseeable future activities that may become part of the project. (See Rio Vista Farm Bureau Ctr. v. County of Solano (1992) 5 Cal.App.4th 351, 370.) A complete description of a project must describe the whole of the action that is being approved, including all components of the project, all phases of the project, and future activities that are reasonably anticipated to become part of the project. (Communities for a Better Environment v. City of Richmond (2010) 184 Cal.App.4th 70, 82,100-101; Laurel Heights Improvement Assn. v. Regents of the Univ. of California (1988) 47 Cal.3d 376, 396; Cal. Code Regs., tit. 14, § 15126.)If Reclamation ends up only wheeling water through the new facilities as they identified in the Federal Notice of Availability, then the current COA will be even more obsolete and unrepresentative of what the BDCP coordinated operations would actually be. Without an updated COA, the BDCP modeling is misrepresents the actual amount of water that the project will deliver once the COA is updated.
	The BDCP proposes changes to reservoir carryover to increase potential available water for environmental applications and water supply.	BDCP's proposed more aggressive water operations means the reservoirs will deliver more water in normal years when water will have been released for environmental and water supply purposes. It results in reduced carryover storage in most years. The BDCP proposed reduced reservoir carryover means there will be even less water available in critical dry water year types than under current operations reservoir carryover operations. Increasing CVP/SWP water supplies in normal years is not worth the increased impacts that will occur in dry and critically dry water year types.

	BDCP aquatic habitat restorations will generate aquatic weeds and biomass which will tidally and by flow will move around the delta and disrupt water supply intake operations.	The BDCP Proposed Project will increase the magnitude, duration, frequency and geographic extent of biofouling of water supply intakes. This is a significant impact to water supplies and operations and maintenance requirements of water supply intakes in the delta. The BDCP needs to incorporate avoidance, minimization and mitigation measures to address this significant impact. The BDCP can avoid a portion of this impact by appropriate aquatic habitat design to minimize aquatic vegetation generation. The BDCP can minimize this impact by employing crews to remove aquatic vegetation that has escaped the habitat restoration area. The BDCP can mitigate this impact by providing alternative water supplies, intakes that are less prone to biofouling and providing operations and maintenance support and funding to affected surface water diverters.
	SWP operations of the tunnel wheeling water for CVP cannot be identical to what the BDCP has analyzed in their Proposed Project operations where Reclamation was a co/owner and co/operator of the facilities.	Wheeling water only occurs when there is available un-utilized capacity. A Warren Act contract analysis is required. The need for a Warren Act contract with Reclamation was not disclosed. Since Reclamation's operations would be different if they were wheeling water on a basis of available capacity vs. as a facility co owner/operator, then the operations assumptions used for the modeling and analysis of the BDCP are flawed and need to be rerun so that the actual operations under a water wheeling Reclamation project can be evaluated for the environmental affects.
	Since Reclamation operations in the project facility will not be the same if they are wheeling water vs. being a co owner/operator, then the facility capacity rationale are changed from the assumptions that have been used.	As an example, the 15,000 cfs capacity alternatives no longer meet the purpose of the project if Reclamation is just wheeling water through the facilities.
	BDCP changes in available or unutilized water conveyance capacity creates the opportunity for and therefore promotes private water transfers from north of delta water sources to south of delta water purveyors and users.	A BDCP increase in water conveyance capacity (two 40' tunnels) and a reduction in the current operational constraints of the CVP/SWP creates an opportunity for third party water transfers above and beyond that of the current CVP/SWP system and operations. By creating additional capacity and opportunity, BDCP is encouraging transfer of water supplies from northern California water sources to water purveyors and consumers south of the delta. As an example, under existing conditions the Lower Yuba River Accord, YCWA is able to transfer only a small portion of the water it has available for sale and transfer. Sales and transfers can currently only occur under a very narrow range of operational and hydrologic conditions. With the BDCP facilities and reduced operational constraints, the opportunity for those transfers would be greatly increased. In anticipation of this capacity available for transfer through the new BDCP facilities, several northern California water districts have been purchased by southern California interests. The BDCP must include in their environmental analysis and disclosure what the quantity of available capacity would be in the proposed facilities and operations and compare that to the existing and future no action/no project conditions. The change in available water transfer capacity should then be evaluated for its growth inducing and other impacts (e.g. socioeconomics, agriculture, water supply, water quality, environmental justice, groundwater, fisheries, etc.) The BDCP can avoid this impact by adding to the operational charter for the facilities and as part of the joint operations agreement, that the facilities will not be used for private water transfers. Since the BDCP is largely being paid for with public funding, private entities should not be allowed to profit from it.
	The tunnels are currently proposed by the BDCP to be gravity flow.	Gravity flow implies slower water velocities in the tunnel. There are sediment traps to separate sediment from water diverted from the river before it goes into the upstream forebay. The forebay is not proposed by the BDCP to be a lined basin. Wind will create turbulence and erosion in the north forebay that will create a suspended sediment load. Without sufficient velocities in the tunnels (over approximately 5-6'/second), there will be sediment accumulation in the tunnel. This will lead to reduced flow capacities and contributions to the anaerobic and anoxic problems with the water quality.

	If the facilities are retrofitted with pumps instead of the current gravity flow tunnels, the capacity of the system could be significantly expanded.	If the BDCP later adds pumps to the facilities to expand the capacity it will be clear that this was the intention of the project from the beginning and that the BDCP piece-mealed the project to make approvals of the expansion of water supplies easier. The California Supreme Court has considered how to interpret the word "project" and concluded that CEQA is to be interpreted in such manner as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language. (Tuolumne County Citizens for Responsible Growth, Inc. v. City of Sonora (2007) 155 Cal.App.4th 1214, 1222, quoting Friends of Mammoth v. Board of Supervisors (1972) 8 Cal.3d 247, 259.) This broad interpretation ensures that the requirements of CEQA cannot be avoided by chopping a large project into many little ones or by excluding reasonably foreseeable future activities that may become part of the project. (See Rio Vista Farm Bureau Ctr. v. County of Solano (1992) 5 Cal.App.4th 351, 370.) A complete description of a project must describe the whole of the action that is being approved, including all components of the project, all phases of the project, and future activities that are reasonably anticipated to become part of the project. (Communities for a Better Environment v. City of Richmond (2010) 184 Cal.App.4th 70, 82,100-101; Laurel Heights Improvement Assn. v. Regents of the Univ. of California (1988) 47 Cal.3d 376, 396; Cal. Code Regs., tit. 14, § 15126.)
	WS-1: Changes in SWP/CVP water deliveries during construction	This impact category is incomplete and another impact analysis and impact call needs to be added to the EIR/S for disruption of water supplies for non-CVP/SWP water rights holders. As an example, tunnel construction and tunnel muck disposal will disrupt water supply and drainage ditches on Andrus Island. When the Lisbon weir and Putah Creek are reconfigured, surface water supplies will be disrupted for non-CVP/SWP water rights holders. Habitat restoration actions when Yolo Bypass is inundated from BDCP proposed restoration flows, surface water rights holders will not be able to physically access and use their pumps, so that non-CVP/SWP water rights holder group would have their water supplies disrupted by the BDCP construction and operations. The farmer's surface water pumps are off of the Toe Drain canal which is the first area to be inundated with flows from the BDCP. When the BDCP is implementing their bypass flows, the farmers will not be able to physically access their pumps to irrigate the lands that are not inundated. When the BDCP install fish screens on surface water diversions in the delta, those non-CVP/SWP water rights holders will have their water supplies disrupted. This brief list of non-CVP/SWP water supply disruptions from the BDCP is not comprehensive, but it certainly exposes how incomplete and inadequate the BDCP analysis and disclosure of impacts has been in the EIR/S. This category of impacts and impact calls for water supply disruptions both during construction and during BDCP operations must both be added to the EIR/S analysis.
	WS-2: Change in SWP and CVP deliveries had a "No Determination" impact call.	The dictionary defines "determination" as "the act of coming to a decision". The "No Determination" impact call is not an impact call it is a lack of an impact call. The BDCP EIR/S spent millions of dollars in modeling and analysis of the project and alternatives operations to evaluate impacts of operations on resources and water supplies. The EIR/S has clearly made impact calls on affects of operations on other resources, but has failed to make an impact call on the affect on CVP/SWP water deliveries. This "No Determination" non-impact call is clearly a dodge to not disclose the impacts of the project and to admit that the project does result in an increase in water deliveries to the water contractors. If there is no determination on this significance criteria, then the EIR/S is either incomplete or a failure as the reliability of water deliveries is one of the two main objectives of the entire project. If this impact call is changed, then this revision would constitute a material change between the draft and final version of the document which the public has the right to comment on so the document would have to be rereleased as a revised draft and not a final. The EIR/S needs to make an impact call on this important resource. If the BDCP cannot prove a benefit to this core project objective, then the project either needs to be terminated or taken back to public scoping to identify an alternative which will meet the core purpose of the project to improve CVP/SWP water deliveries. Any change in impact calls is a material change in the document that warrants recirculation.

	WS-3: Effects of water transfers on water supply	One of the stated objectives/purposes of the BDCP project is to increase the reliability of water supplies, yet the EIR/S determined that the project had no impact and no effect. If the project were successful in achieving the stated objectives and purpose of the project, the increased reliability of the water supply and operational flexibility from removal of No Action operational constraints, the BDCP should have resulted in a increase in the opportunity for water transfers. If this impact call is changed, then this revision would constitute a material change between the draft and final version of the document which the public has the right to comment on so the document would have to be rereleased as a revised draft and not a final.
	WQ-3: Effects on boron concentrations resulting from facilities operations and maintenance (CM1)	The BDCP EIR/S impact calls on the No Action are incorrect. CM1 does not exist in the No Action, therefore there would be No Impact. Any increase in Boron concentration is significant to the suitability of water supply for agricultural irrigation beneficial uses. This impact should be changed to significant.
	WQ-4: Effects on boron concentrations resulting from implementation of CM2–CM22	The magnitude of impacts from the implementation of the No Action OCAP BO mandated habitat restorations are vastly smaller than those of the proposed project. (i.e. 8,000 ac No Action vs. 165,000 ac Proposed Project) The EIR/S does not describe the differences in magnitude in their significance calls. Any increase in Boron concentration is significant to the suitability of water supply for agricultural irrigation beneficial uses. This impact should be changed to significant.
	WQ-5: Effects on bromide concentrations resulting from facilities operations and maintenance (CM1)	The "Significant Unavoidable" and "Adverse" increase in bromide after mitigation as compared to the "Less-Than-Significant" impact of the No Action Alternative is an unacceptable degradation of the beneficial uses of water in the delta. Bromide is an important water quality constituent for drinking water and represents a well documented and severe health risk to humans and animals. A project that has this kind of "Significant Unavoidable" and "Adverse" impact should not be allowed to be implemented, especially when the impact is not precipitated in the No Action condition.
	WQ-7: Effects on chloride concentrations resulting from facilities operations and maintenance (CM1)	The "Significant Unavoidable" and "Adverse" increase in chloride after mitigation as compared to the "Less-Than-Significant" impact of the No Action Alternative is an unacceptable degradation of the beneficial uses of water in the delta. Chloride is an important water quality constituent for drinking water and represents a well documented and severe health risk to humans and animals. A project that has this kind of "Significant Unavoidable" and "Adverse" impact should not be allowed to be implemented, especially when the impact is not precipitated in the No Action condition.
	WQ-11: Effects on electrical conductivity concentrations resulting from facilities operations and maintenance (CM1)	The No Action operations are required to comply with delta water quality standards that protect water quality and beneficial uses. These water quality standards include limits on electrical conductivity (EC) that are designed to protect sensitive resources from EC impacts. The No Action significant impact determination is correct as the current CVP/SWP operations routinely exceed these standards, see Affect Environment. The No Action would continue to violate these water quality protections and therefore the significant impact call by the BDCP EIR/S is warranted. The Proposed Project impacts are even worse than the No Action. Since the current and No Action CVP/SWP operations are in violation of water quality requirements and the Proposed Project results in a degradation of that condition, the project should not be awarded any permits as the project is in violation of the law. Any increase in EC concentration from the Proposed Project is significant to the suitability of water supply for agricultural irrigation beneficial uses.
	WQ-12: Effects on electrical conductivity (EC) concentrations resulting from implementation of CM2–CM22	The magnitude of impacts from the implementation of the No Action OCAP BO mandated habitat restorations are vastly smaller than those of the proposed project. (i.e. 8,000 ac No Action vs. 165,000 ac Proposed Project) The EIR/S does not describe the differences in magnitude in their significance calls. Evaporation from the aquatic habitat restorations will result in a concentration of the EC levels, so this should be a significant impact. Any increase in EC concentrations is an unacceptable degradation of the beneficial uses of water in the delta. EC is an important water quality constituent for irrigation water and results in reduced yields, increase accumulation of salts in the soil, increased water use (for leaching irrigation component), soils that are unsuitable for production of salt sensitive crops and ultimately with continued accumulation of salts a soil that is unsuitable for any kind of agricultural production. Any increase in EC concentration from the Proposed Project is significant to the suitability of water supply for agricultural irrigation beneficial uses.
	WQ-14: Effects on mercury concentrations resulting from implementation of CM2–CM22	The magnitude of impacts from the implementation of the No Action OCAP BO mandated habitat restorations are vastly smaller than those of the proposed project. (i.e. 8,000 ac No Action vs. 165,000 ac Proposed Project) The EIR/S does not describe the differences in magnitude in their significance calls. A Proposed Project that has this severity of an impact on water quality, especially compared to the No Impact/No Effect of the No Action, should not be implemented.

	WQ-15: Effects on nitrate concentrations resulting from facilities operations and maintenance (CM1)	The No Action impact call is incorrect. There is no change in the No Action for operations that affect nitrate concentrations, so the correct impact call would be "No Impact" and "No Effect". The Not Adverse and Less-Than-Significant impact calls are in conflict. Less-Than-Significant is an impact call for an adverse impact of small magnitude or significance. Not Adverse is an impact call for an impact that includes conditions that are both positive and negative, but on the balance are not negative. Therefore the NEPA Not Adverse impact call is incompatible with the CEQA Less-Than-Significant impact call. If the CEQA call of Less-Than-Significant is correct, then the NEPA call can't be Not Adverse, it must be Adverse.
	WQ-16: Effects on nitrate concentrations resulting from implementation of CM2–CM22	The magnitude of impacts from the implementation of the No Action OCAP BO mandated habitat restorations are vastly smaller than those of the proposed project. (i.e. 8,000 ac No Action vs. 165,000 ac Proposed Project) The EIR/S does not describe the differences in magnitude in their significance calls. The Not Adverse and Less-Than-Significant impact calls are in conflict. Less-Than-Significant is an impact call for an adverse impact of small magnitude or significance. Not Adverse is an impact call for an impact that includes conditions that are both positive and negative, but on the balance are not negative. Therefore the NEPA Not Adverse impact call is incompatible with the CEQA Less-Than-Significant impact call. If the CEQA call of Less-Than-Significant is correct, then the NEPA call can't be Not Adverse, it must be Adverse. Since nitrate concentrations in drinking water supply pose significant human health risks, any degradation of nitrate water quality should be considered significant and significant impacts must be mitigated.
	WQ-17: Effects on organic carbon concentrations resulting from facilities operations and maintenance (CM1)	The No Action impact call is incorrect. There is no change in the No Action for operations that affect nitrate concentrations, so the correct impact call would be "No Impact" and "No Effect". The Not Adverse and Less-Than-Significant impact calls are in conflict. Less-Than-Significant is an impact call for an adverse impact of small magnitude or significance. Not Adverse is an impact call for an impact that includes conditions that are both positive and negative, but on the balance are not negative. Therefore the NEPA Not Adverse impact call is incompatible with the CEQA Less-Than-Significant impact call. If the CEQA call of Less-Than-Significant is correct, then the NEPA call can't be Not Adverse, it must be Adverse. Since dissolved organic carbon concentrations is an important parameter to drinking water supply suitability, any degradation of organic carbon water quality should be considered significant and significant impacts must be mitigated.
	WQ-18: Effects on organic carbon concentrations resulting from implementation of CM2–CM22	The magnitude of impacts from the implementation of the No Action OCAP BO mandated habitat restorations are vastly smaller than those of the proposed project. (i.e. 8,000 ac No Action vs. 165,000 ac Proposed Project) The EIR/S does not describe the differences in magnitude in their significance calls. A Proposed Project that has this severity of an impact on water quality, especially compared to the No Impact/No Effect of the No Action, should not be implemented.

	Increased saltwater intrusion into the delta from the BDCP operations will increase groundwater salinity in large portions of the delta from drain tile operations on the islands.	See comments regarding BDCP degradation of surface water quality and the resulting degradation of shallow groundwater quality in the delta. This comment builds of off concepts and impacts described in those other related comments. Due to the shallow groundwater tables in the delta, many open ground fields and most permanent crop plantings utilize drain tile to maintain groundwater levels and keep groundwater moving to protect their crops and the productivity of the soils. Most permanent crop plantings are adjacent to the levees due to their higher elevation, better drainage and better soils. This means that the drain tiles that are under most of permanent crops planted in the delta are right next to the tributaries. Drain tiles are typically installed at 6 to 10 feet deep, depending on soil type, crop type, groundwater table elevations and topography (drainage). The drain tile function is to reduce the groundwater table elevations, creating a localized groundwater table depression to protect the soil and crops from groundwater elevations that are too shallow. The groundwater collected from the drain tile is transported via drainage pipes to the lower elevation drainage ditches that are located near the center of the islands and tracts. This necessary drain tile function creates the same increased hydraulic gradient from the island groundwater table from the surrounding tributaries as described in the preceding two comments on use of groundwater substitution water supplies and the resulting groundwater cone of depression and the Reclamation District pumping of drainage ditches to maintain groundwater table elevations. The impacts from the degraded groundwater quality from the BDCP operations will occur even more quickly with drain tile operation interactions than the impacts to shallow groundwater quality described in the two preceding comments. Degraded surface water quality from the BDCP operations will be pulled into the shallow groundwater table where the drain tiles are functioning in the same manner as described in the previous two comments. The drain tiles will collect this degraded quality groundwater and drain the water to the main drainage ditches. These drainage ditches are also water supply ditches that are pumped out of to irrigate other fields. These central drains/water supply ditches is how water supply is delivered to most fields that are in the interior of the islands and tracts. Through the function of the drain tile and drainage of those systems into the water supply ditches in the middle of the islands and tracts, the degraded shallow groundwater from BDCP operations have now been translated back into additional impacts to water quality of surface water supplies for the interior fields. The BDCP EIR/S failed to identify, characterize, evaluate, quantify, or disclose this serious and significant impact of the proposed project and alternatives.
	comment continued…	As mentioned previously, because of the proximity of the drain tiles to the tributaries and the function of the drain tile to translocate the drainage water to the main ditches, this mode of impact could occur very quickly, e.g. the first year of degraded surface water quality from the BDCP operations. The geographic scope and magnitude of this impact is not small either. Most of the islands and tracts, with the exception of some of the most interior delta and lowest elevation islands, are ringed by permanent crop plantings at their outside edges. Cumulatively, these represent several hundred miles of tributary length that have drain tiles installed adjacent to them. The BDCP failed to identify, evaluate, quantify or disclose the significant impacts of degraded shallow groundwater quality in the delta and the translation of that shallow groundwater quality degradation into a subsequent degradation of additional surface water supply water quality that would be caused by the BDCP proposed operations. The BDCP can avoid this significant impact to groundwater quality by adopting operations that do not degrade the surface water quality. The BDCP can minimize this significant impact to groundwater quality (and surface water supplies water quality that are supplied by the drain tile drain water) by building toe drains at the base of the levees surrounding the affected islands and providing for and maintaining drainage operations that intercept and prevent the movement of degraded surface water quality into the island's groundwater. The BDCP can further minimize this significant impact by providing for and maintaining sump pumps for the tail water coming out of the drain tile systems. The sump pump would discharge the drain tile water back into the tributary rather than letting the degraded shallow groundwater contaminating the surface water supplies at the main drain/water supply ditches. The use of sump pumps on drain tile systems is a common practice in the southern central valley as the topographic gradients are not sufficient to allow drain tile function without the sump pumps. Because the use of sump pumps on drain tile systems is common practice in the CVP/SWP service areas, the BDCP cannot claim that there are no feasible, practicable measures to avoid, minimize or mitigate this significant impact of the BDCP proposed operations.

Chapter 6 - Surface Water		
	The 75940 Federal Register / Vol. 78, No. 240 / Friday, December 13, 2013 states that, "The Plan also intends to… reducing future risks to the Delta from earthquakes, levee failure and climate change." Where does the project propose to reduce "future risks to the delta from earthquakes, levee failure, and climate change"?	The project proposes to address those issues for the CVP/SWP conveyance, but it does nothing for the delta on those issues. The project does increase the risk of levee failure to the delta by altering existing levees and adding new ones. The project also increases risks to the delta from future climate change as the aquatic habitat restorations by increasing the volume of intertidal exchange (see related comments). Increases in the volume of intertidal exchange will degrade water quality, increase the velocities of tidal surges and increase the magnitude of tidal surge stage elevations. So is the BDCP proposing to reduce earthquake, levee failure and climate change risk in the delta or is the Federal Register notice incorrect such that it should be revised and reissued?
	The BDCP EIR/S repeatedly refers to coordinated SWP/CVP operations, but does not include analysis of the impacts of the BDCP Proposed Project on the CVP/SWP Coordinated Operating Agreement (COA).	The COA is an essential set of operating rules for how the CVP/SWP is run. The COA is currently out of date and has been out of date at least since D1641 was issued. The COA operations would be profoundly altered by the BDCP proposed replumbing and reoperations of the CVP/SWP. As an example of the BDCP Proposed Project CVP/SWP operations impacts on COA, the Oroville reservoir (a SWP facility and water supply source) is reoperated to support the bulk of spring releases and Shasta reservoir (a CVP facility) is reoperated to provide the bulk of summer and fall releases. These reoperations of the respective CVP and SWP facilities from the BDCP Proposed Project changes the timing of water supply deliveries to the respective state and federal water contractors as well as alters which facilities and water supplies are fulfilling various environmental commitments, e.g. B2 water, net outflow requirements, X2, etc. The quantity of releases from the various facilities, the timing of releases, the allocation of water storage to compliance with common environmental compliance requirements, and the timing and amounts of water supply deliveries are all fundamental components of the COA and are all fundamentally altered by the BDCP Proposed Project operations. If Reclamation's only role on the BDCP project were to be water wheeling through the new BDCP facilities as stated as a possible outcome in the December 13, 2013 Federal Register, then the entire set of relationships of CVP/SWP water operations and allocation of water to environmental compliance and allocation of water for deliveries to various water contractors would be fundamentally altered. The revision of the COA needs to be part of the scope of the BDCP project or the operating rules, impacts of the project and the analysis of the water supply deliveries and their impacts in the BDCP EIR/S will be incorrect, misleading and incomplete. If the BDCP does not include the revision of the COA as part of the scope of the BDCP, the COA will have to be revised immediately following the BDCP Notice of Determination and Record of Decision.
	comment continued…	The revision of the COA immediately after the BDCP approval would again change how the CVP/SWP system was operated and the impacts of the BDCP. Since COA is integral to the CVP/SWP operations and would be so profoundly affected by the BDCP that it will have to be substantially revised as a result of the BDCP then if the BDCP does not include the revision of the COA as part of the BDCP project and analyses the BDCP would clearly be piece-mealing the project which is illegal. The California Supreme Court has considered how to interpret the word "project" and concluded that CEQA is to be interpreted in such manner as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language. (Tuolumne County Citizens for Responsible Growth, Inc. v. City of Sonora (2007) 155 Cal.App.4th 1214, 1222, quoting Friends of Mammoth v. Board of Supervisors (1972) 8 Cal.3d 247, 259.) This broad interpretation ensures that the requirements of CEQA cannot be avoided by chopping a large project into many little ones or by excluding reasonably foreseeable future activities that may become part of the project. (See Rio Vista Farm Bureau Ctr. v. County of Solano (1992) 5 Cal.App.4th 351, 370.) A complete description of a project must describe the whole of the action that is being approved, including all components of the project, all phases of the project, and future activities that are reasonably anticipated to become part of the project. (Communities for a Better Environment v. City of Richmond (2010) 184 Cal.App.4th 70, 82,100-101; Laurel Heights Improvement Assn. v. Regents of the Univ. of California (1988) 47 Cal.3d 376, 396; Cal. Code Regs., tit. 14, § 15126.)

	The BDCP EIR/S refers to the CVP/SWP Coordinated Operating Agreement (COA) operations of reservoirs are used to meet the joint beneficial uses and environmental obligations of the CVP/SWP.	This BDCP EIR/S statement establishes that the CVP/SWP COA operations and reservoir operations are critical to protecting beneficial uses and CVP/SWP meeting environmental compliance requirements. COA is integral to the operations of the CVP/SWP operations. The BDCP will change COA water delivery relationships of the water agencies so COA will need to be revised as a result of the BDCP project -see related comments. The COA has been out of date for a couple decades due to D1641 and other water management decisions and delivery constraints - see related comments. The COA needs to be revised as a part of the BDCP project or the environmental effects from the project will have been piece-mealed which is illegal under both NEPA and CEQA. Reservoir operations are integral to COA operations and to meeting the beneficial uses and environmental requirements of the CVP/SWP. Reservoir operations are severely constrained by capacity, so a project need that has been established here is the consideration of additional upstream (and downstream) storage in the scope of the project - see related comments. Changes in reservoir operations have environmental impacts, see DWR Oroville Facilities Relicensing EIR and EIS documents. The BDCP Proposed Project operations changes CVP and SWP reservoir operations, but the BDCP EIR/S document does not identify, characterize, quantify or disclose the significant impacts from those reservoir reoperations - see related comments. The BDCP EIR/S document is incomplete and deficient and needs to incorporate impact analyses of reservoir reoperations and from updating the COA.
	The BDCP EIR/S cites the water contract amounts being the basis for water delivery quantities, but water contract renewal does not meet the tests of a reasonably foreseeable project to include in the No Action condition.	The BDCP assumption that CVP/SWP water contracts that will expire before the project would be fully constructed will be renewed with the same terms as the current contracts is flawed and unsupported. The water contracts have an article in them that says very clearly that contracts may not be renewed and that quantities of future water deliveries are not guaranteed in future contracts. Since the water contracts state that future water quantities are not guaranteed, then the BDCP cannot assume that contract renewal and renewal for the same quantities of water deliveries is a continuation of current policy. The SWP water contract renewals will require an EIR. Since an EIR has not been completed and renewal of contracts is not guaranteed, then the contract renewals do not meet the test of a reasonably foreseeable project to include in the No Action condition. If no action is taken to renew the contracts there would not be water deliveries. Rather than the BDCP assuming contract renewals at the current contract amounts that the CVP/SWP rarely fulfills, it is much more logical for the BDCP to assume that water delivery amounts in future contracts would be adjusted to what can be reliably delivered and which incorporate conditions to protect beneficial uses under a broad range of conditions that include changes in assumptions from climate change, sea level rise and on-going affects of continued water deliveries (e.g. water quality violations, degradation of other beneficial uses, etc). If contract amounts were adjusted to reflect what the CVP/SWP system is able to sustainably deliver then environmental impacts of CVP/SWP operations on the listed species would be greatly reduced and the need for the project significantly reduced. The BDCP should change it's No Action assumption regarding CVP/SWP future water deliveries are quantities that the CVP/SWP are capable of delivering on a consistent and reliable basis under the future conditions with no actions other than those that meet the test of being reasonably foreseeable.
	Reclamation's June 23, 2009 petition to the State Water Board Division of Water Rights for an extension of time to complete use of full water rights is not compliant with the State Water Board's requirements.	The Reclamation petition for extension of time for compliance of the CVPs water rights and beneficial uses deferred environmental compliance to the BDCP EIR. The petition promised that the BDCP EIR would be completed and available for use as environmental compliance for the extension request by late 2009 or early 2010. We are now in mid-2014 and Reclamation still has not provided the CEQA document required to support the petition for extension. The State Water Board, as the lead CEQA agency for this petition, has failed to complete the required EIR and Reclamation is 5 years and counting late with their promised BDCP EIR. The Water Board should rescind the water rights not fully implemented by the CVP as they have not complied with the water rights requirements, the timeline extension process requirements or proven beneficial use of the unused water rights.
	The Purpose and Need identifies the BDCP project objective to increase the reliability of current conveyance by reducing its risk to seismic events levee failures.	The upstream tributary and delta levees are part of the current conveyance system, so levee improvements should be within the scope of potential project actions. Levees upstream of the delta to the CVP/SWP reservoirs are part of the water conveyance in all project alternatives considered and delta levees are still part of the conveyance for all alternatives using dual conveyance. therefore, levee improvement, both upstream of the delta and in the delta, should have been considered as an alternative component in BDCP alternatives for analysis in the EIR/S.

	CVP/SWP export water quality currently relies on the integrity of the delta levees.	The BDCP Proposed Project identifies one benefit of the project is increased water supply reliability from reduced risks of levee failure. One consequence of the reduced vulnerability of the CVP/SWP water supply from levee failures that is not identified, characterized, quantified or disclosed is that with the BDCP conveyance reduced vulnerability to levee failure there will be a reduced public interest in funding levee protection and flood control in the delta. This is a real and significant impact of the BDCP project which needs to have measures to avoid, minimize and mitigate. The current BDCP EIR/S document is incomplete and deficient for not addressing this issue. The BDCP could minimize this impact by including obligations of the projects to continue funding levee protection and flood control support at current or increased levels.
	The EIR/S identifies a need to increase the reliability of current CVP/SWP conveyance.	The upstream tributary and delta levees are an integral and essential component of the current CVP/SWP conveyance system, so with this BDCP stated project need, levee improvements by default must be within the scope of potential project actions. The BDCP failed to consider improvements to levee systems upstream of the delta to improve CVP/SWP system reliability. The BDCP must address this critical aspect of system reliability that was not considered in the scoping and development of BDCP project alternatives. Previous comments have addressed the completely unsupported, arbitrary, capricious and predecisional constraint of potential project actions to the delta action area. The critical component of the upstream tributary levee conveyance to CVP/SWP system reliability is a good demonstration as to why the artificially constrained geographic scope of potential actions in the BDCP are inappropriate and contrary to the achievement of the stated purpose and need for the BDCP project.
	Covered activities do not include maintenance of all facilities that the BDCP will have to take responsibility for in perpetuity.	The BDCP has proposed a number of actions that will require them taking over responsibility for facilities maintenance for the life of the project. In other cases, mitigations are responsibilities of the project in perpetuity. These obligations of the project to maintain facilities for the life of the project or in perpetuity include: relocated diversions of other affected surface water rights holders (e.g. Barker Slough and other Cache Slough intakes proposed to be relocated, surface water diversions on the Sacramento River that are moved or replaced due to the footprint of the intake facilities, maintenance of fish screens that are installed on surface water diversions (CM), and replumbed delta Reclamation Districts that have their water supply and drainage ditches disrupted by BDCP conveyance, tunnel muck disposal and habitat restorations (e.g. Andrus Island). The BDCP has failed to identify, characterize, quantify or disclose these needed covered activities for maintenance of these mitigation facilities. Because of this omission and others, the BDCP EIR/S document is incomplete and deficient. Once these glaring omissions have been rectified, these will be material changes to the document that will warrant it being recirculated for public comment.
	Previous CVP/SWP related environmental documents have utilized more comprehensive significance criteria to evaluate project impacts than were used in the BDCP EIR/EIS. Other recent CVP/SWP and habitat restoration related environmental documents establish precedent for how the State and Federal agencies should evaluate the BDCP impacts.	These agency precedent setting environmental documents include: CALFED Bay-Delta EIS/EIR (Federal agencies: Reclamation, FWS, NMFS, BLM, USGS, USACE, US EPA, USDA, USFS, NRCS, and WAPA; State agencies: DWR, DFG, Reclamation Board, Cal EPA, CDFA, Delta Protection Commission and SWRCB), South Delta Improvement Project EIS/EIR (Federal Lead Agency: Reclamation; State Lead Agency: DWR; Responsible Agencies: SWRCB and DFG; Cooperating Agency: USACE), Salton Sea Restoration Program EIS/EIR (Federal Lead Agency: USACE; State Lead Agency: California Natural Resources Agency; Prepared by: DWR and DFG), Lower Yuba River Accord EIS/EIR (Federal Lead Agency: Reclamation; Responsible Agencies: DWR, DFG, and SWRCB; and Cooperating Agencies: NMFS and FWS), Oroville Facilities FERC Relicensing EIR (State Lead Agency: DWR), and Monterey Agreement EIR (State Lead Agency: DWR).The same agencies that produced and approved these other recent and similar scope project environmental documents are the same agencies involved in the BDCP. The BDCP's agency roles for the environmental documents are similar to these other projects - Federal Leads: Reclamation, NMFS and FWS; State Lead: DWR; Responsible Agencies: DFG and SWRCB; and, Cooperating Agencies: USEPA and USACE. These documents establish a precedent for the significance criteria that should be used in evaluating the resource impacts of the BDCP project. If the BDCP does not utilize these same significance criteria as these other similar projects, then BDCP must provide a supporting justification for their departure from previous agency policies and practices. BDCP should revise the document to include all aspects of the significance criteria for their impact evaluations that were established as agency precedents in these other recent and similar documents. Subsequent comments identify these missing criteria.
	Place within a 100-year flood hazard area structures that would impede or redirect flood flows. (SDIP Sig Criteria)	The intake structures, tunnel headworks forebay and pumps and tunnel access portals will be built on land fills above the 100 year floodplain and will therefore redirect any flooding impacts that occur in these locations. The BDCP EIR/S did not identify, analyze, quantify, characterize or disclose these redirected flood impacts of these facilities.

	There would be a significant impact if the alternatives would: Substantially alter an existing drainage pattern of the site or area, including alteration of the course of a stream or river, or a substantial increase in the rate or amount of surface runoff in a manner that would result in flooding on or off-site. Create or contribute to runoff water exceeding the capacity of existing or planned storm water drainage systems or provision of substantial additional sources. (Oroville Sig Criteria)	The upstream forebay, tunnel headworks platform, intake ring levees, new habitat restoration levees, tunnel muck disposal, construction and disposal over drainage and water supply ditches, increases in groundwater elevations from aquatic and floodplain habitat restorations, dewatering discharges and other BDCP proposed project constructed features all have significant impacts on drainage patterns and drainage capacities. See the related comments for descriptions of these impacts. The BDCP has failed to evaluate this impact criteria consistent with previous and related scope environmental documents. The EIR/S has failed to identify, evaluate, quantify and disclose some of these significant impacts and to include measures to avoid, minimize and mitigate these significant impacts. The BDCP EIR/S should be revised to include these omitted and deficiently addressed impact analyses and recirculate the document after these material changes have been made.
	Increased flooding potential is deemed significant if it increases the 100- year flood zone or if it could result in increased potential for injury, loss of life, or damage to existing structures or property. (Salton Sea sig Criteria)	All of the BDCP's proposed facilities and habitat restorations are in the 100 year flood zone. Any levee beach or flooding that occurs as a result of the BDCP will inundate the entire land area to the extent of that impounded area. This puts all of the people and property on islands, tracts and districts in which the BDCP has proposed activities at significant increased risk of injury, loss of life and property damage. See the related comments for descriptions of these impacts. The BDCP has failed to evaluate this impact criteria consistent with previous and related scope environmental documents. The EIR/S has failed to identify, evaluate, quantify and disclose some of these significant impacts and to include measures to avoid, minimize and mitigate these significant impacts. The BDCP EIR/S should be revised to include these omitted and deficiently addressed impact analyses and recirculate the document after these material changes have been made.
	Expose people or structures to a significant risk or loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam. (SDIP Sig Criteria)	BDCP new forebays and aquatic and riparian habitat restorations all expose the public to increased risk of levee failure from additional miles of levees and new impoundments. Additionally, emergency operations in the event of a tunnel failure could result in the discharge of as much as 10,000 acre feet of water from one of the tunnel access ports which could cause localized flooding that would not occur under the No Action condition. See the related comments for descriptions of these impacts. The BDCP has failed to evaluate this impact criteria consistent with previous and related scope environmental documents. The EIR/S has failed to identify, evaluate, quantify and disclose some of these significant impacts and to include measures to avoid, minimize and mitigate these significant impacts. The BDCP EIR/S should be revised to include these omitted and deficiently addressed impact analyses and recirculate the document after these material changes have been made.
	Seepage, levee settlement, wind erosion. Flood stage hazards - (CALFED Sig Criteria)	BDCP proposed new water impoundments from project forebays and aquatic and riparian habitat restorations increase the opportunity for seeps. Large open water areas from BDCP aquatic habitat restorations increase wind and wave erosion on adjacent levees. There are a number of BDCP actions and operations that impact levees settlement. See the related comments for descriptions of these impacts. The BDCP has failed to evaluate this impact criteria consistent with previous and related scope environmental documents. The EIR/S has failed to identify, evaluate, quantify and disclose some of these significant impacts and to include measures to avoid, minimize and mitigate these significant impacts. The BDCP EIR/S should be revised to include these omitted and deficiently addressed impact analyses and recirculate the document after these material changes have been made.
	Scour, sedimentation, subsidence adjacent to levees (CALFED Sig Criteria)	Reduced channel cross sections from the project intakes increases water velocities and localized scour. The discharge of BDCP aquatic habitat restorations on outgoing tides can create scour. BDCP aquatic habitat restorations can be sediment contributors or sinks, but the description of these proposed activities is inadequate to evaluate the impact of these actions even though they are interactive with water quality which affects BDCP proposed project operations which this EIR/S document is seeking to provide coverage to construct. BDCP proposes construction on subsidence prone soils and dewatering operations which can cause collapse of water bearing soil structures which cause subsidence. See the related comments for descriptions of these impacts. The BDCP has failed to evaluate this impact criteria consistent with previous and related scope environmental documents. The EIR/S has failed to identify, evaluate, quantify and disclose some of these significant impacts and to include measures to avoid, minimize and mitigate these significant impacts. The BDCP EIR/S should be revised to include these omitted and deficiently addressed impact analyses and recirculate the document after these material changes have been made.

	Decrease Channel capacity (CALFED Sig Criteria)	Backwater affect from BDCP Proposed Project on bank intakes increases the stage elevation of flood flows from the reduced channel cross section of the project intakes which reduce channel capacity. See the related comments for descriptions of these impacts. The BDCP has failed to evaluate this impact criteria consistent with previous and related scope environmental documents. The EIR/S has failed to identify, evaluate, quantify and disclose some of these significant impacts and to include measures to avoid, minimize and mitigate these significant impacts. The BDCP EIR/S should be revised to include these omitted and deficiently addressed impact analyses and recirculate the document after these material changes have been made.
	Actions are significant impacts if they substantially raise flood stage elevations (CALFED Sig Criteria)	See the related comments for descriptions of these impacts. The BDCP has failed to evaluate this impact criteria consistent with previous and related scope environmental documents. The EIR/S has failed to identify, evaluate, quantify and disclose some of these significant impacts and to include measures to avoid, minimize and mitigate these significant impacts. The BDCP EIR/S should be revised to include these omitted and deficiently addressed impact analyses and recirculate the document after these material changes have been made.
	Actions are significant impacts if they increase the frequency of flooding (CALFED Sig Criteria)	See the related comments for descriptions of these impacts. The BDCP has failed to evaluate this impact criteria consistent with previous and related scope environmental documents. The EIR/S has failed to identify, evaluate, quantify and disclose some of these significant impacts and to include measures to avoid, minimize and mitigate these significant impacts. The BDCP EIR/S should be revised to include these omitted and deficiently addressed impact analyses and recirculate the document after these material changes have been made.
	Actions are significant impacts if they have the potential to cause seepage, levee settlement, wind erosion. (CALFED Sig Criteria)	See the related comments for descriptions of these impacts. The BDCP has failed to evaluate this impact criteria consistent with previous and related scope environmental documents. The EIR/S has failed to identify, evaluate, quantify and disclose some of these significant impacts and to include measures to avoid, minimize and mitigate these significant impacts. The BDCP EIR/S should be revised to include these omitted and deficiently addressed impact analyses and recirculate the document after these material changes have been made.
	Actions are significant impacts if they have the potential to cause scour, sedimentation, subsidence adjacent to levees (CALFED Sig Criteria)	See the related comments for descriptions of these impacts. The BDCP has failed to evaluate this impact criteria consistent with previous and related scope environmental documents. The EIR/S has failed to identify, evaluate, quantify and disclose some of these significant impacts and to include measures to avoid, minimize and mitigate these significant impacts. The BDCP EIR/S should be revised to include these omitted and deficiently addressed impact analyses and recirculate the document after these material changes have been made.
	Impact on the levee system is considered potentially significant if a Program action would substantially decrease any of the following: Levee stability, inspection, maintenance, or repair capabilities, levee slope protection, emergency response capabilities, channel capacity or the ability of levees to withstand seismic loading. (CALFED Sig Criteria)	See the related comments for descriptions of these impacts. The BDCP has failed to evaluate this impact criteria consistent with previous and related scope environmental documents. The EIR/S has failed to identify, evaluate, quantify and disclose some of these significant impacts and to include measures to avoid, minimize and mitigate these significant impacts. The BDCP EIR/S should be revised to include these omitted and deficiently addressed impact analyses and recirculate the document after these material changes have been made.
	Economic criteria can be used to judge the significance of physical changes to the environment. Costs and expected benefits are described for each alternative and quantified where possible. Changes that exceed 10% in either costs of flood control or expected benefits are considered potentially significant (adverse and beneficial, respectively) for this analysis. (CALFED Sig Criteria)	See the related comments for descriptions of these impacts. The BDCP has failed to evaluate this impact criteria consistent with previous and related scope environmental documents. The EIR/S has failed to identify, evaluate, quantify and disclose some of these significant impacts and to include measures to avoid, minimize and mitigate these significant impacts. The BDCP EIR/S should be revised to include these omitted and deficiently addressed impact analyses and recirculate the document after these material changes have been made.

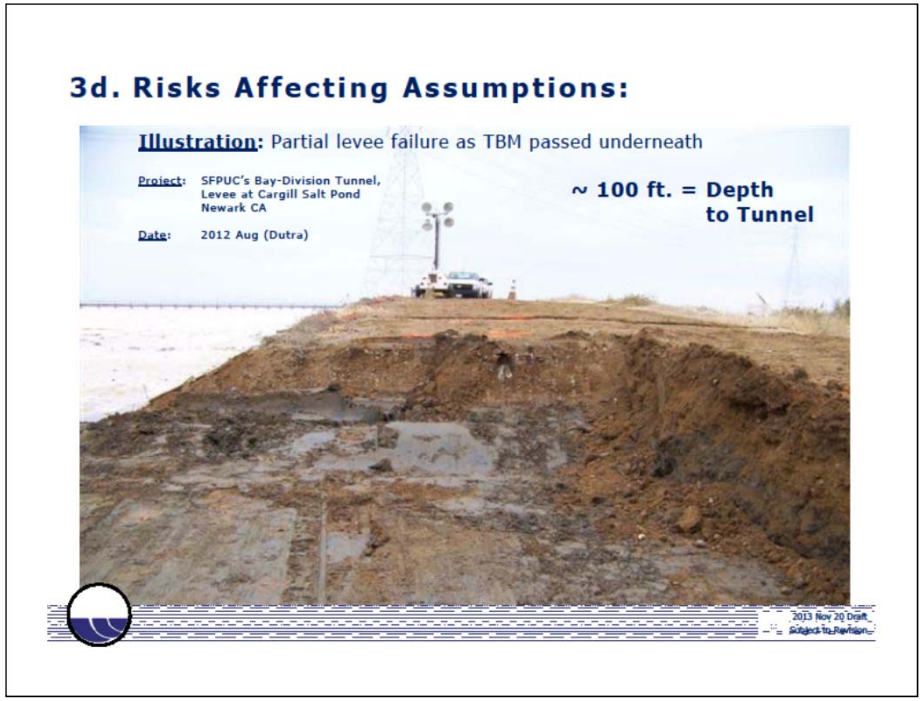
	Actions are significant impacts if they place within a 100-year flood hazard area structures that would impede or redirect flood flows. (SDIP Sig Criteria)	See the related comments for descriptions of these impacts. The BDCP has failed to evaluate this impact criteria consistent with previous and related scope environmental documents. The EIR/S has failed to identify, evaluate, quantify and disclose some of these significant impacts and to include measures to avoid, minimize and mitigate these significant impacts. The BDCP EIR/S should be revised to include these omitted and deficiently addressed impact analyses and recirculate the document after these material changes have been made.
	Actions are significant impacts if they expose people or structures to a significant risk or loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam. (SDIP Sig Criteria)	See the related comments for descriptions of these impacts. The BDCP has failed to evaluate this impact criteria consistent with previous and related scope environmental documents. The EIR/S has failed to identify, evaluate, quantify and disclose some of these significant impacts and to include measures to avoid, minimize and mitigate these significant impacts. The BDCP EIR/S should be revised to include these omitted and deficiently addressed impact analyses and recirculate the document after these material changes have been made.
	The BDCP results in increased flood risks in the delta.	The BDCP Proposed Project includes many components that increase the opportunity for and risks of flooding. These BDCP project components which increase delta flood risks include: new levees (aquatic habitat restoration levees, new riparian habitat setback levees, new Forebay levees); changes in tributary channel and floodway flow capacities (Yolo Bypass change in flow capacity from restoration structures and vegetation, intake encroachment on a channel, dewatering impoundments during construction of intakes, intake levee setbacks, riparian habitat restoration levee setbacks); altered flow velocities and flow vectors (BDCP aquatic habitat restorations will discharge water from inundated areas during tidal ebbs causing flows from those inundated lands to be discharge directly at the adjacent levee); structural alteration and disruption of structural integrity of levees (intake construction, dewatering impoundments during construction of intakes, tunnel and pipeline boring under levees, construction of facilities within 200 feet (both horizontal and vertical distance) of a levee (this is a USACE 4040 permit criteria)); encroachment on and construction in a FEMA floodplain (all of the BDCP proposed facilities are in FEMA floodplain, habitat restoration structural features and vegetation alter flood flows in a floodplain); redirected flood risks and flood flows (the BDCP alters channel capacities - see above, the North Delta Forebay blocks flood flows in the event of a levee breach and redirects those flood flows to different islands, tracts and districts - see related comment); increases in population levels and geographic distribution of burrowing animals from the BDCP habitat restoration (burrowing animal holes and burrows in levees are attributed to most if not all blue sky levee failures); reduction in depth of localized water tables from BDCP aquatic habitat restorations (saturated soils increase the risk of levee failure from liquefaction in an earthquake event). The BDCP EIR/S has failed to identify, characterize, quantify and disclose some of these BDCP caused significant risks and potential impacts to flood risks in the delta. The BDCP EIR/S failed to identify feasible measures to avoid, minimize and mitigate these significant impacts. For these omissions, the BDCP EIR/S is incomplete and deficient and should be revised and recirculated.
REUSABLE TUNNEL MATERIAL TESTING Report -Table 2.1	From the table we can calculate the Plastic Limit is 21%. (Liquid Limit - Plasticity Index)	The Liquidity Limit is 44%, the moisture content is 33% and the Plastic Limit is 21%. These numbers are averages of all the cores and there is no standard deviation analysis done from the individual cores. The average moisture content is closer to the Liquidity Limit (11%) than the Plastic Limit (12%). This means the average soil is closer to liquefaction than it is a solid soil. It is likely, given variation in conditions and from sample to sample, that some of the tunnel alignment soil conditions are already in or very near a liquefaction condition. If the TBM construction disturbs the current subsurface conditions and equilibrium this data shows that their could be a soil liquefaction event. The TBM's are not set up to function in liquefied soils and a liquefaction of subsurface conditions could easily result in a TBM failure and surface subsidence and loss of levee integrity. The BDCP EIR/S has not done any of the appropriate level of analysis of this risk even though it has some of the data available to conduct these important and prudent analyses. These analyses must be completed, with a much larger and more representative sample size, in order for the BDCP EIR/S to meet the test of best available science or conducting a project-level analysis that would warrant issuance of any construction-related permits. The EIR/S should be revised to include this information and analyses and should be recirculated for public comment once this material new information is included.

	Intake designs proposed by the BDCP pierce USACE project levees and did not provide adequate consideration to other designs with lower risk of levee failure.	The BDCP did not consider "up and over" intake designs that do not directly disrupt levee integrity and structure as the current BDCP proposed designs do. A good recent precedent for the up and over intake design can be found at the Anderson Cottonwood diversion project. The BDCP should provide supporting rationale as to why this alternative lower risk intake design was not considered and should include this alternative intake design in their alternatives analyses.
	The BDCP levee and floodway modifications redirect flood risks.	The BDCP Proposed Project components both increase and decrease flow capacities and alter the location, nature and degree of flood risks - see above comment. In locations that the BDCP project has reduced flow capacities, it has increased the risk of flooding at that location. In this case, the BDCP has redirected a flood risk to this location that would have under existing and No Action conditions occurred farther downstream. In locations where the BDCP project has increased flow capacities, it has redirected the flood risk that would have occurred at that location and shifted that risk to locations further downstream as compared to the existing and No Action conditions. The BDCP has large structures (e.g. North Delta Forebay, South Delta Forebay, intake protective ring levees (both temporary during construction and permanent), and habitat restoration levees) built in the floodplain that in the event of a flood would redirect those flood flows to locations that would not have had the same level of flood risk under the existing and No Action conditions. See the related detailed comment on the redirected flood risk and impacts from the BDCP proposed North Delta Forebay. These redirected flood risks are an unacceptable significant impact of the BDCP project. The BDCP has failed to fully identify, characterize, quantify and disclose the sources and degrees of redirected flood impacts from the BDCP project. The BDCP has also failed to incorporate designs and provisions to avoid, minimize and mitigate these significant redirected flood impacts. As an example, a simple relocation and redesign of the North Delta Forebay would avoid and minimize the redirected flood risks from the redirecting of flood flows to other tracts, islands and districts. The USACE should not issue permits for a project with redirected flood impacts.
	Inundation flows of the Yolo Bypass proposed by the BDCP will reduce flow capacity of the floodway and result in redirect flood impacts.	The increased frequency and duration of inundation of the bypass from the BDCP project will contribute to the sediment deposition that occurs as suspended sediment falls out of suspension as water velocities slow in the bypass. Sedimentation of the bypass that is reducing flow capacity is already occurring. "Deposits forming at the entrance to Colusa and Yolo Bypasses increase stage thresholds for flows entering the floodway, exacerbating flood risk in the main channel downstream of the entrance." "In addition to decreasing flow capacity, these deposits promote colonization of vegetation, which, in turn, increases roughness and decreases flood conveyance." (Status of the Lower Sacramento Valley Flood-Control System within the Context of Its Natural Geomorphic Setting." Nat. Hazards Rev. 9, SPECIAL ISSUE: Flooding in the Central Valley, 104–115.) Through these two factors (plus others - see related comments) the inundation flows proposed by the BDCP will reduce flow capacity of the bypass and therefore redirect flood impacts downstream of the bypass on the Sacramento River and it's distributaries. Inundation flows will carry weed seeds with it and increase weed pressure and maintenance requirements in areas that are inundated by BDCP flows. If BDCP inundation of farmland is frequent enough, the land will be abandoned (not cultivated) so weeds, shrubs and trees will colonize these areas and reduce flood flow capacities. The BDCP EIR/S did not propose a vegetation management plan to address these issues. The BDCP EIR/S did not identify, evaluate, characterize, quantify or disclose this impact of the BDCP proposal. The BDCP EIR/S did not describe the maintenance activities and their impacts associated with the increased frequency, magnitude and duration of the BDCP proposed Yolo Bypass inundation.
	The BDCP Proposed Project includes new levees for the north and south Forebays, levee setbacks for habitat restoration, north delta intakes and for the aquatic habitat restorations.	According to the USACE, a Levee is a structure that only infrequently holds back water and a Dam is a structure that holds back water most of the time. Technically, almost all of the levees proposed by the BDCP are actually dams as they would function to hold back water all of the time. These new BDCP structures should be constructed to USACE dam structural specifications. The BDCP EIR/S did not address the USACE impoundment types (levee vs. dam) or the structural and construction requirements for them respectively. The BDCP cost calculations did not address the costs of building levees to USACE dam structural criteria.

	The BDCP did not define who would be responsible for decision making for operations of the Fremont Weir flow bypass operations.	If the facility is operable, who will operate it? Who will make decisions about maintenance of the facilities and carry out the maintenance activities? Until these responsibilities are made clear, the document is incomplete. Without knowing who is responsible, the agencies cannot hold anyone or any agency accountable. Without the ability for the agencies to determine accountability, they cannot have reasonable assurance of the implementation and success of the project achieving the species protections and contributions to conservation. Without these assurances, the agencies cannot approve this document, use as it for decision support or issue permits based upon it.
	The BDCP proposed modifications to Lisbon Weir are unclear.	The BDCP EIR/S does not identify the owner of the weir, describe the nature of the proposed modifications or disclose how those modifications would affect the function, access or maintenance requirements of the facility. These deficiencies in the project description and impacts must be rectified and the EIR/S revised to address these issues.
	BDCP project aquatic habitat restorations increase the risk of levee failure and maintenance requirements of levees on lands adjacent to them.	BDCP aquatic habitat restorations will discharge water from inundated areas during tidal ebbs causing flows from those inundated lands to be discharged directly at the adjacent levee. This flow directed at the adjacent levee will increase the risk of levee failure and increase the levee maintenance and monitoring required at these locations. The BCDP has not identified, characterized, quantified or disclosed this significant impact nor has it proposed any measures to avoid, minimize or mitigate these significant impacts. Any assurances from the BDCP that the subsequent environmental documents it proposes to complete prior to implementing these actions will address these significant impacts are inadequate given that the approval of the conveyance project is contingent upon the habitat function and contributions to recovery from these restorations and the operations of the facilities are profoundly affected by the water quality impacts that would occur with these undefined habitat restorations. The project-level design of these aquatic habitat restorations provides an opportunity for the BDCP to minimize these significant impacts to adjacent levees, but the BDCP has deferred addressing these significant impacts to a subsequent later date as yet undetermined and disclosed. "In order to avoid negative impacts to neighboring islands and Delta water quality, the project must be designed to largely maintain the current configuration of levees around the Dutch Slough parcels. To allow for tidal restoration, the levees must necessarily be breached, but these breaches should be relatively small and engineered so that they do not expand over time. Partial or complete removal of the levees would increase wave fetch and potentially increase wave erosion on neighboring Delta islands. Increased erosion of levees on neighboring islands would increase levee maintenance costs for neighboring landowners and could result in levee failure on neighboring islands. Partial or complete removal of the levees could alter Delta hydrodynamics and potentially increase salinity levels in drinking water exported from the Delta." (Dutch Slough Tidal Marsh Restoration Project Preliminary Opportunities and Constraints Report, Natural Heritage Institute February 20, 2004 - http://www.n-h-i.org/dutchslough/Documents/AMWG%20Docs/Opportunities_and_Constraints_Final_Report.pdf) The BDCP could have anticipated these impacts and proposed at this time in this document measures to avoid, minimize and mitigate this significant impact. As an example of a feasible mitigation measure, the BDCP could have proposed to pay for upgrading, increased maintenance and increased monitoring of those adjacent levees. The BDCP did not propose these common sense feasible mitigations and also failed to include those costs in their cost estimates for the project. The BDCP EIR/S also did not identify, characterize, quantify or disclose the impacts that would occur with the implementation of this common sense and feasible mitigation. The BDCP EIR/S document is incomplete and deficient on this entire impact topic.
	Clifton Court Forebay does not meet DSOD safety standards.	Clifton Court Forebay does not meet Division of Safety of Dams (DSOD) structural requirements. Since Clifton Court is part of the BDCP Proposed Project and will be modified by the project, Clifton Court should be brought up to all appropriate and applicable safety standards. The BDCP EIR/S failed to disclose in the Environmental Settings the current safety deficiencies of the current Clifton Court Forebay facility. The BDCP EIR/S impact analysis failed to evaluate the risks of the Clifton Court safety deficiencies. The BDCP Proposed Project modifications to Clifton Court failed to identify how the forebay would be modified to meet DSOD safety standards. The BDCP did not identify the costs or funding sources for bringing the Clifton Court Forebay up to safety standards. Each of these omissions by the EIR/S document are serious and material deficiencies. Once these material deficiencies are corrected, the document should be recirculated for another round of public comment.

	Yolo Bypass conservation measure diversion operations and inundation were not defined sufficiently such that they could be incorporated in modeling for the surface water and water quality impact analyses.	The BDCP lack of definition of Yolo Bypass conservation flow rules for how much, when and under what conditions supplemental inundating flows would be released by the BDCP into the bypass to not provide detail to include in modeling (water supply, surface water and water quality impacts) or in land use impact analysis (agriculture and recreation). Yolo bypass operations were not defined sufficient to include in CALSIM modeling assumptions and CALSIM II has an inadequate analytical output temporal resolution to be of sufficient detail to evaluate the impacts of Yolo Bypass diversion flows. Timing, duration and magnitude of BDCP Yolo Bypass inundation flows are required in order for impacts on agriculture need to be defined enough to evaluate the magnitude, frequency, duration and geographic extent of impacts. Until the BDCP provides the detailed operating rules for the Yolo Bypass conservation measure inundation operations, the BDCP EIR/S impact analysis will remain incomplete and deficient with undisclosed impacts.
	Large expanses of open water from subtidal and intertidal habitat restorations create new opportunities for wave erosion and wind fetch.	The BDCP is proposing 65,000 acres of aquatic habitat restoration. This represents over 100 square miles of open water that can generate large waves that create erosion of levees, mobilize sediments (with methylated Mercury, DDT and other contaminants), and create boating and fishing recreation hazards. As a current example, Liberty Island flooding and resulting wave action has nearly destroyed large sections of the western levee of the Sacramento deep water ship channel. Once the western levee is completely destroyed, the waves will begin to erode the eastern levee which will put additional areas at risk of flooding, e.g. Prospect Island and Egbert Tract in this example. As another example, Franks Tract is a small flooded island just south of the San Joaquin River. Franks Tract is a notorious boating hazard in the delta for large waves during high wind events (common in the Central delta) and has been responsible for swamping and damaging many recreational boats. Waves from Franks Tract can impede and even prohibit navigation in the area (including the San Joaquin Deep Water Ship Channel) for any vessel smaller than an ocean going boat. The BDCP proposes aquatic habitat restoration areas of open water that are many times the size of Liberty Island and Franks Tract. BDCP must avoid and minimize this problem created by their proposed aquatic habitat restorations by providing specific aquatic habitat restoration designs to avoid, minimize and mitigate these significant impacts. These avoidance and minimization measures could include barrier islands to break up open areas and absorb wind and waves and armoring levee in and adjacent to the restorations. In high water conditions, wind can stack water and overtop levees where the normal high water elevations would not have overtopped the levees. There are several locations in the delta that already have this well document phenomenon occur, e.g. Twitchel Island and Sherman Island. The BDCP aquatic restorations would increase the magnitude, duration and frequency of this wind fetch levee overtopping affect. BDCP should have analyzed this impact and proposed measures to avoid and minimize this affect. Some of those should have included the previously mentioned mitigations as well as to raise levees and provide back side of levee erosion protection in areas that are vulnerable to levee overtopping from wind fetch.
	BDCP proposes to utilize a "gassy tunnel protocol" for the boring machines. This is because of methane and natural gas that is naturally occurring in the areas where the tunnel boring is proposed. The protocols are to reduce the risks of explosions from these gasses.	The BDCP acknowledges that there is a risk of explosion during the tunnel boring process by adopting the gassy tunnel drilling protocol. The BDCP EIR/S document fails to disclose what impacts would occur in the event of a TBM or tunnel explosion. The BDCP EIR/S document fails to provide a description of the emergency operations that it would implement in the event of a TBM or tunnel explosion. The BDCP EIR/S document fails to identify the types and potential magnitude of impacts that would occur with a TBM or tunnel explosion and from the resulting emergency response action plan. The BDCP fails to disclose the level of risk of explosion that remains after the protocols have theoretically reduced the risk of explosion during construction. The EIR/S also fails to disclose what level of risk there is from explosion from gas accumulation during operation and non-operation periods of the tunnels. There is a human health risk to the workers and residents from a potential explosion and an explosion could cause levees to fail either from direct impact or indirectly through vibration and liquefaction. These risks were not identified, characterized or disclosed in the EIR/S. This risk can be avoided by utilizing surface canals or by alternatives that modify south delta facilities or utilize upstream and/or downstream storage as an alternative to north delta diversions and tunnels.

	Tunnel boring machines may encounter gas and water well casings that were not documented and the BDCP EIR/S has not disclosed the risks of TBM operations problems or impacts from rescue operations.	Many gas wells have been drilled and abandoned in the delta over the last 100 years or so. Some gas well records have been lost or are incomplete (omissions) and some records include incorrect identification, status and/or location (errors). There are no comprehensive databases of all the wells that have been drilled. The databases that do exist are a collection and compilation of data that was available. Well drilling companies are competitive with each other so they are typically not willing to share their company databases. No one in the natural gas industry will purport to have a database that does encompass all of the wells that have been drilled in the delta. Given the preceding, it is a virtual certainty that the information that the BDCP is using on well locations it is in error and is incomplete. When the BDCP tunnel boring machines hit these active or inactive gas wells, there are hazards for rapid gas accumulation in the tunnel, explosions, disruption to gas production and transmission lines, and damage to the tunnel boring machine that can require rescue operations and delays to construction schedules as disclosed in the BDCP EIR/S. Recently, a tunnel boring machine in Seattle was stopped and had to be rescued after hitting an undocumented pipe. http://en.wikipedia.org/wiki/Bertha_(tunnel_boring_machine) - "On December 6, 2013, the machine's progress was halted by an unexpected impediment.[4] After a month's investigation, WSDOT announced the machine's cutting blades encountered a 8 in (200 mm) diameter, 119 ft (36 m) long steel pipe, one of several well casings left over from previous drilling"... This experience would indicate that the TBM would also be vulnerable to running into operating and abandoned water wells. There are many of those in the delta and there is little to no documentation available on them. The risk of the BDCP tunneling machine encountering a gas or water well is not slight and the impacts of it not inconsequential. The BDCP EIR/S document fails to identify, characterize, and disclose these hazards. In the event of an gas explosion or a boring machine rescue operation from running into a well, there are additional risks to construction personnel, adjacent residents and workers, and to levee integrities. The BDCP has not proposed any measures to avoid, minimize or mitigate these risks. The BDCP has failed to even describe the methods that would be used in a TBM rescue that could occur and the risks that process engages and impacts that process precipitates. Modern natural gas exploration utilizes strings of acoustic transponders to map vibration and seismic charge waves reflectance's off of subsurface structures. The BDCP could feasibly reduce and minimize the risk of running into gas and water wells by using this same existing and generally accepted subsurface mapping tool to map shallow depths (0-200' working depths of the TBM and related facilities, e.g. dewatering rings around TBM access shafts) to detect these unmapped, unaccounted for and incorrect locations of existing and abandoned gas and water wells. The BDCP has not included the costs of the mapping to detect water and gas wells along the conveyance corridor to minimize these significant impacts and has not included any contingency costs for potential TBM rescues nor avoidance, minimization or mitigation measures for the impacts of those TBM rescue operations.

	TBM destabilization of levees from vibration and liquefaction.	SFPUC TBM caused failure in the SF Bay Cargill Salt Pond levee - see article. The risk of levee failure during tunnel boring is real, see "SFPUC Tunnel Boring Machine caused failure in the SF Bay Cargill Salt Pond levee". The risks of levee failure (a water conveyance) from BDCP Proposed Project is significant. The BDCP did not propose any measures to avoid, minimize or mitigate these impacts. 
	BDCP will dewater groundwater around intake, tunnel headworks and tunnel access construction sites which will collapse water bearing strata in the soil which will result in subsidence.	Once clay soil water bearing strata are collapsed, they do not recover their structure, water holding capacity or their previous soil volume. This collapse results in a permanent subsidence of the ground surface, which can damage structures and levees, alter drainage patterns and groundwater depth. Inadequate drainage from subsidence and elevated water tables alter the suitability of soil for agriculture and its productivity. This alteration of drainage and productivity will cause a reclassification of a prime productivity soil to a lower rating which is a significant impact of the project. Changes of soil ratings at the construction dewatering sites was not identified, evaluated or disclosed in the BDCP EIR/S document. The BDCP also failed to propose mitigation measures to address this significant impact. Mitigations could include, but are not limited to: fill dirt for subsided areas, coffer dams to limit the amount of groundwater dewatering that has to be done, groundwater injection to restore affected groundwater depression cones, etc.
	The BDCP proposed project result in increased risk of levee failure from altered water tables from construction dewatering.	The BDCP dewatering of construction areas adjacent to or near tributaries increases the groundwater hydraulic gradient from the tributary to the land. This increase in hydraulic groundwater gradient will increase the flow of water under and through the levee from the tributary to the BDCP construction dewatering caused groundwater level depression. The increase of flow of water under and through the levee from the BDCP dewatering will result in reduced levee integrity (increase levee fragility curves) from increased levee saturation, increase risk of subsidence and levee slumping.. The BDCP EIR/S fails to adequately identify, characterize, quantify and disclose this significant impacts to potential levee failures from BDCP dewatering operations.

	The BDCP proposed project results in increased risk of levee failure of adjacent levees from potential failures of BDCP levees.	If the BDCP constructed levees for the conveyance or habitat restorations fail for any reason either during construction or for the duration of the 50 year project period, the failure would result in channel scour, redirected flows and flow velocities, potential damage from scour of adjacent levee toe structures, erosion of adjacent levees from BDCP levee breach redirected flows and flow velocities, and cascading levee failures. "Exit scours also commonly occurred at the downstream ends of leveed parts of the floodplain" (Gregg K. Schalk, Robert B. Jacobson, Missouri. Dept. of Natural Resources, Geological Survey (U.S.) U.S. Dept. of the Interior, U.S. Geological Survey, 1997 - Nature - 72 pages). Cascading levee failures are a well documented occurrence in the delta, particularly on the McKoulumne River where one levee failure results in the water exiting the flooded island and eroding and breaching the next downstream island.
	The BDCP has not proposed any measures to decommission their facilities or address the ongoing impacts to the delta at the end of the planned and permitted project period.	The levees constructed for the conveyance and habitat restorations need to be deconstructed at the end of the 50 year project period or the BDCP needs to include provisions and guarantees of maintenance and protection of these facilities and mitigations for their significant and on-going impacts in perpetuity. The BDCP proposals have not included any provisions or costs for addressing the on-going liabilities or maintenance required either decommission their facilities at the end of the project period or to avoid, or identified actions to avoid, minimize or mitigate the ongoing significant impacts and risks from these facilities.
	The BDCP has proposed fisheries attraction flows.	The BDCP proposed fisheries attraction flows provide an incremental amount of flow on naturally occurring higher flow events. The BDCP has failed to identify, characterize, quantify and disclose the affect of these additional flow increments of high flow events on levee saturation. Once levees are saturated they are prone to slumping and potential failure if flow levels are brought down too rapidly. The BDCP has failed to analyze the level of risk the additional BDCP flow increment on fisheries attraction flows pose to levee saturation and they have not defined the ramp down flow criteria of these events to avoid, minimize and mitigate the significant impacts on levee integrity from the fisheries attraction flows. The BDCP EIR/S document is incomplete and deficient for not considering and disclosing these effects of the BDCP project.
	The BDCP proposed project results in increased risk of levee failure from backwater effects of intake structures.	The BDCP intake design encroaches on the existing Sacramento River channel cross section. The backwater effect of the north delta intake reduction in channel cross-section results in a backwater effect that increases the stage elevation of water upstream of the BDCP facility installations. The increase in stage elevation of the Sacramento River from the BDCP intakes increases levee overtopping risk and hydraulic head differential with the land side of the levee groundwater elevations (see related comment for implications of the increase in the hydraulic gradient from the river to the land side groundwater level). Both of these backwater effects from the BDCP are significant impacts on the local levee integrity and flood risks. The increase in flood risk at these locations is also a redirected flood impact - see related comments on redirected flood impacts. The BDCP EIR/S failed to adequately identify, characterize, quantify and disclose these impacts from the BDCP proposed project and alternatives. In order to meet the requirements for project-level impact analyses that would warrant issuance of construction-related permits for the BDCP, the BDCP analysis should include 2D modeling of the backwater effects of each of the proposed intake locations. The currently proposed BDCP intake locations were insufficiently justified and were not adjusted to avoid, minimize and mitigate significant impacts, so even if the requisite bathometric mapping of the intake locations and backwater effects modeling had been conducted, they will need to be redone when the intake locations are appropriately revised.
	The BDCP proposed project result in increased risk of levee failure and impacts from dredging.	Some of the BDCP proposed project habitat restorations and facilities will require dredging and the BDCP has not adequately identified, evaluated, quantified or disclosed the level of risks from this high impact and high risk activity. As an example, the channel approach from the Sacramento River to the BDCP Proposed Project fishway modifications at Fremont Weir will require periodic dredging to maintain connectivity and fish access. The BDCP has not developed dredging plans for the location, method, frequency, extent of disturbance, seasonal timing of operations. The dredging would have to occur right up to the flood control facilities, so the risks are not slight that there could be an accident that would compromise the structural integrity of this important flood control facility. Dredging would also expose the structural footings of the facility to potential hydraulic undermining and seepage which could also threaten the integrity of the structure. The BDCP has not developed any avoidance, minimization or mitigation measures for the significant impacts from dredging activity. Dredging may also be required to develop and maintain some of the aquatic habitat restorations, but the BDCP has not disclosed those impacts either.

	The BDCP proposed project result in increased risk of levee failure from barge loading areas.	Barge loading areas would impede commercial and recreational navigation, increase risk of levee breaches from barge collisions and levee structural integrity disruption. The BDCP EIS/R has failed to identify, characterize, quantify and disclose the risks and significant impacts from barge loading areas for the proposed project. The BDCP EIR/S is incomplete and deficient for these omissions.
	Backwater affects of intake #3 encroachment on the Sacramento River cross section would increase the frequency, magnitude and duration of flooding of the Merritt Island Park and Boat Launch.	This redirected flow impact reduces recreational opportunities in the area. See related comments on backwater effects of intakes.
	All of the intakes are located at sections of the river either at or in close proximity to bends in the river which result in complex and dynamic water velocities at the fish screen face for managing criteria sweeping velocities.	The proposed intake locations near bends in the river are hydraulically complex with lack of uniform velocities vertically through the water column and horizontally across the river cross section. These near river bend proposed intake location water velocities are particularly complex and dynamic during approaching tidal slack flows and reverse flows as the positive flow thalwag will cease and then form in different locations in the cross section of the river under reverse flows. As an example of the complexity of intake location, bends in the river, thalwag, and flow velocities; intake #1 just upstream of Scribner Bend is on the outside of a curve where the thalwag will be located during normal downstream flows. The intake extends downstream to just upstream of where Scribner Bend starts. Scribner Bend is a sharp bend in the river and the thalwag switches sides of the river about the mid-point of where the proposed screens would be located. Sweeping velocities might be adequate at the upstream end of the screen, but not meet sweeping criteria in the mid- or downstream sections of the screen. The downstream-most end of the intake screen experiences near bank reverse flow circulation under positive flow conditions as a result of sharpness of the river curve and the strength of the thalwag switching sides of the river. We do not need published literature citations to validate these flow phenomenon in this location as the thalwag is readily visible under most conditions and fishing at that location with a bobber will demonstrate the reverse flow circulation described. Since the intakes are supposed to be operated to maintain a minimum sweeping velocity, the complex, dynamic, and un-uniform flow velocities make it uncertain that the facilities will uniformly comply with maintaining criteria sweeping velocities during operations. Site bathymetry and 2D modeling of water velocities under different flow, tidal and diversion operations were inadequate to reflect the range of conditions the BDCP proposes to operate under. Site specific bathymetry and modeling should be done for each of the proposed intake locations and analyses and diversion operating rules developed and tested to ensure that fish screen criteria sweeping velocities are met. Until this level of analysis of the proposed facilities is conducted, the BDCP EIR/S document is incomplete and deficient in the analysis of project-level impacts and therefore should not be issued construction- or environmental-related permits (e.g. ITPs).

	The Tunnel headworks platform and forebay redirect flood impacts.	It is well documented and commonly known in the delta that floodwaters that breach any part of an island will break out of the island at the downstream-most end (which is lower elevation) of the island. "... the levees surrounding McCormack-Williamson Tract tend to either overtop or fail, flooding the island. When this happens, a 'surge' of floodwaters continues south through the island, threatening adjacent islands. In 1986, levee breaches occurred on both Dead Horse Island and Staten Island as a result of the surge from McCormack-Williamson Tract, flooding both Dead Horse and Staten Islands. The 'surge' caused significant damage to Wimpy's Marina and the New Hope Bridge, and flooded portions of Interstate 5." (North Delta Flood Control and Ecosystem Restoration Project EIS/R, Department of Water Resources). "When a levee was breached, the force of the water usually caused a levee break on the opposite side of the island, where the wave of water first hit the opposite levee head on. They all knew that the broken levee could easily surge across the main channel and dash against the levee of Lambert Island, which is where they stood, a domino effect, wiping out the levee they stood on..." ("Two Sloughs", Sally Small, iUniverse September 30, 2008). Under existing conditions, if there is a levee breach anywhere upstream on the tract (RD 813) that is just south of the town of Hood and north of Pierson District, the flood waters would be directed toward the lower elevations at the southern end of the tract and the flood waters would breach the levee near the confluence of Railroad Cut and Snodgrass Slough. The flood waters would then most likely be carried in whole or in their majority down Snodgrass Slough were the flood pressures would be dissipated and naturally distributed.
	comment continued…	The downstream secondary breaching of a flooded island is the normal way that flood pressure is released from inside of an island or tract and in this case, the location and orientation of Snodgrass Slough is a result of the fluvial geomorphic processes from the flood pressure release process described above. The BDCP proposed project places large elevated forebay levees that block this pathway for natural release of flood pressures and redirects those impacts to the west side of the tract so that the flood pressures would breach into Pierson District and Randall Island. With the construction of the proposed project, in the event a levee failure in the tract in which the proposed forebay is located, the flood waters would be redirected into Pierson District and Randall Island. The BDCP proposed project redirected flood impacts will inundate thousands of acres of land that would have been spared under the no action/no project condition had the pathway for natural flood pressure release down Snodgrass Slough not been physically blocked by the project. Included in those thousands of acres at much higher risk of flooding with the implementation of the project on Randall Island and Pierson District include, the town of Courtland (population 600+), hundreds of additional rural residences, State Highway 160, Bates Elementary School, Courtland Fire Department, a regional telephone switching center, microwave communication relays, 2 regional TV transmission towers, numerous natural gas wells and pipelines, both of the only local cold storage plants for refrigerating pears and apples (the loss of these would affect all of the pear and apple production in the region), three of the four pear and apple packing houses in the delta (the loss of these would affect all of the pear and apple production in northern California), the only regional scale hay storage and trans-shipping facility (loss would affect forage production in all of northern California) and numerous other businesses.
	Fortification of so much of the east side levees of the Sacramento River in the intake reach (estimated at 35-40% of the levee length in this reach) above the current levee construction standards reduces the risk of failure of the levees on the east side of the river.	A reduction in the flood risk of the east side of the river results in an increase in the flood risk on the west side of the same reach of the river (especially with backwater affects from the intakes - see related comments). Increased risk of flooding on the west side of the Sacramento River in the intake reach includes Merritt Island, Netherlands and New Holland Tracts (including the town of Clarksburg 600+ residents), hundreds of rural residents, Clarksburg Elementary, Clarksburg Charter School, Delta High School, Clarksburg Fire Department, a dozen wineries and other local businesses and the tracts upstream of Netherlands affected by intake #1. Since there is no flood cutoff from Netherlands to the upstream tract and a breach or levee overtopping anywhere in this area would flood the entire area from West Sacramento where Jefferson Rd comes down the Sacramento Deep Water Ship Channel to the Freeport Bridge and from Elk and Sutter Sloughs across to the deep water ship channel all the way down past Courtland Rd to Minor Slough on the south end. This area of increased flood risks from the redirected flood impacts of the project comprises a significant portion of the entire area of the statutory delta. The BDCP EIR/S has failed to identify, evaluate, quantify and mitigate this significant impact. The BDCP proposed project results in a redirected flood risk and impact and should not be issued 404 permits from the USACE until these redirected flood impacts are completely mitigated.

	The BDCP Proposed Project impacts results in significant impacts to delta levee fragility rating curves which could result decertification of levees by the USACE.	The BDCP Proposed Project and alternatives significantly impact levee integrity in a number of ways, including: increase of water tables and soil saturation in locations with aquatic habitat restorations; levee saturation from water on both sides of a levee from aquatic habitat restorations; increase in the rate and severity of levee slumping from increased water surface elevations from fisheries attraction flow operations and backwater effects from intake structure river cross section reductions; increase in the frequency, magnitude and duration of levee overtopping from backwater effects from intakes and large open water areas that create the opportunity for increased wind velocities and increased wind fetch; increased opportunity for under levee seeps and boils from aquatic habitat restorations onto adjacent lands; disrupted levee integrity and continuity from construction of new levees, integration of on bank intakes into levees, and conjunction of new and setback levees with existing levees; construction of facilities within 200 feet of an existing levee; vibration of levees during construction, tunnel boring, and operations; intertidal and subtidal aquatic habitat restoration tidal exchange flow velocity scour and flow impacts on adjacent levees; and dewatering of groundwater during construction and operations that cause an increased hydraulic gradient from the adjacent tributary to the depressed groundwater level on the land side. See related comments on each of these BDCP significant impacts for additional detail and description. The BDCP EIR/S document has failed to identify, evaluate, quantify and disclose the significant impacts of the BDCP degradation of the levee fragility curve ratings and the implications and impacts of derating of the levees by the USACE. The BDCP has proposed no measures to avoid, minimize or mitigate these significant impacts. The BDCP EIR/S document is incomplete and deficient and should not be issued 404, 402 or 303 permits on the basis of this document. The document should be revised to address these impacts and recirculated after these material changes.
	comment continued…	The BDCP could avoid, minimize and mitigate these impacts by brining all of the levees in the delta to the same standard as those created at the intake sites, to design the intakes such that they do not cause any backwater effects (the EIR/S needs a detailed design and analysis, not just assurances that the design won't result in a backwater effect), develop ramp-down rules for fisheries attraction flows that avoid increasing the risk of levee slumping, by improving levees vulnerable to overtopping, by incorporating wind and wave breaks into their habitat restorations, by providing detailed designs of tidal and subtidal habitat restoration levee breaches so that design features to avoid scouring and flow impacts on adjacent levees can be incorporated into the project description and evaluated, avoiding citing aquatic habitat restorations where both sides of a levee would be wetted, by constructing slurry walls in levees where the hydraulic gradient from the tributary to the land side groundwater levels would be affected by project dewatering, by incorporating emergency response teams and resources to address boils and seeps in the delta as part of the BDCP, by not constructing within 200 feet of an existing levee, by constructing and tunnel boring only during periods where water elevations are at or below normal levels to avoid these vibrations when levees are more saturated by water and more prone to liquefaction from the BDCP construction-related vibrations, provide free flood insurance for residences and businesses that have increased flood risks due to BDCP impacts, provide compensation in perpetuity for maintenance for levees that are decertified by the USACE.
	The BDCP changes the rate of siltation, deposition, and erosion that will modify channel morphology.	The intakes remove sediment load from the river during diversion operations. The amount and texture of suspended sediment load in the river is an important component in channel morphology. With the reduced sediment load in the river from the BDCP project diversions, scour holes can form in the channel where they otherwise would not have formed. These scour holes can compromise the toe of the levee, reduce the structural integrity of the levee, increase the risk of levee failure and cause levee failures in locations where they would not have occurred without the project removal of sediment from the river. The BDCP has provided some estimates as to the quantities of sediments removed from the river by the diversion operations, but the BDCP EIR/S has failed to evaluate and characterize the impact to the river geomorphology and levee integrity from the sediment removal. The project can minimize this impact by putting the sediment that it separates out from the diverted water back into the river. This avoidance and minimization action has the added benefit of avoiding the impacts from land disposal of the sediments collected from the diversions.

	SW-1: Changes in SWP or CVP reservoir flood storage capacity	The EIR/S significance calls indicate a "less than significant" impact call both prior to and after avoidance, minimization and mitigation measures and a "Not Adverse" call for NEPA after mitigation. These impact calls are incorrect and inconsistent with each other. The NEPA Not Adverse call indicates there is some effect, but CEQA indicates it is negative, this is an inconsistent impact call. The NEPA call for Not Adverse indicates that there is a change in storage, but it is not Adverse, no effect or beneficial. Any change in flood storage capacity cannot be a change and yet not have a positive or negative affect so the Not Adverse NEPA impact call in this case is impossible and therefore incorrect. Any changes in carryover storage that exceed the USACE flood storage reserve requirements increase flood risk. Any change in a risk with the magnitude of potential consequences as flooding is not less than significant. How can a reduction in flood storage capacity be defined as not adverse? More storage for flood is clearly beneficial and less storage is clearly adverse. This impact call should clearly be corrected to be "adverse". The USACE should not provide permits to a project that violate flood control objectives or erodes the flood control protections provided by the CVP/SWP reservoirs. Any change in impact calls is a material change to the document and requires that the document be recirculated for another opportunity for public comment.
	SW-2: Changes in Sacramento and San Joaquin River flood flows	The EIR/S significance calls for the Proposed Project indicate a "less than significant" impact call both prior to and after avoidance, minimization and mitigation measures and a "Not Adverse" call for NEPA after mitigation. These impact calls are incorrect. Any changes in carryover storage that exceed the USACE flood storage reserve requirements increase flood risk. Any change in a risk with the magnitude of potential consequences as flooding is not less than significant. How can a reduction in flood storage capacity be defined as not adverse? More storage for flood is clearly beneficial and less storage is clearly adverse. This impact call should clearly be corrected to be "adverse". The USACE should not provide permits to a project that violate flood control objectives or erodes the flood control protections provided by the CVP/SWP reservoirs. Any change in impact calls is a material change to the document and requires that the document be recirculated for another opportunity for public comment.
	SW-4: Substantially alter the existing drainage pattern or substantially increase the rate or amount of surface runoff in a manner that would result in flooding during construction of conveyance facilities	The EIR/S has incongruous impact calls on No Action and Proposed Project. The NEPA call for this resource is "not adverse", but the CEQA call indicates an adverse "less than significant" impact. The Not Adverse and Less-Than-Significant impact calls are in conflict. Less-Than-Significant is an impact call for an adverse impact of small magnitude or significance. Not Adverse is an impact call for an impact that includes conditions that are both positive and negative, but on the balance are not negative. Therefore the NEPA Not Adverse impact call is incompatible with the CEQA Less-Than-Significant impact call. If the CEQA call of Less-Than-Significant is correct, then the NEPA call can't be Not Adverse, it must be Adverse. The No Action has less impact before mitigation than Proposed Project. Since the Proposed Project only achieves a similar level of impact with mitigation as the No Action does without mitigation, with regard to these resources, they would be better off under the NA than the PP. With regards to these resources, the No Action should be selected as the project rather than the Proposed Project. The incongruous impact call between NEPA and CEQA needs to be reconciled. Any change in impact calls is a material change in the document that warrants recirculation.
	SW-5: Substantially alter the existing drainage pattern or substantially increase the rate or amount of surface runoff in a manner that would result in flooding during construction of habitat restoration area facilities	The No Action has less impact before mitigation than Proposed Project. Since the Proposed Project only achieves a similar level of impact with mitigation as the No Action does without mitigation, with regard to these resources, they would be better off under the NA than the PP. With regards to these resources, the No Action should be selected as the project rather than the Proposed Project.
	SW-6: Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff.	The No Action has less impact before mitigation than Proposed Project. Since the Proposed Project only achieves a similar level of impact with mitigation as the No Action does without mitigation, with regard to these resources, they would be better off under the NA than the PP. With regards to these resources, the No Action should be selected as the project rather than the Proposed Project.

	SW-7: Expose people or structures to a significant risk of loss, injury or death involving flooding due to the construction of new conveyance facilities	The EIR/S has incongruous impact calls on No Action and Proposed Project. The NEPA call for this resource is "not adverse", but the CEQA call indicates an adverse "less than significant" impact. The No Action has less impact before mitigation than Proposed Project. Since the Proposed Project only achieves a similar level of impact with mitigation as the No Action does without mitigation, with regard to these resources, they would be better off under the No Action than the Proposed Project. With regards to these resources, the No Action should be selected as the project rather than the Proposed Project. The incongruous impact call between NEPA and CEQA needs to be reconciled. Any change in impact calls is a material change in the document that warrants recirculation.
	SW-8: Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding due to habitat restoration	The EIR/S has incongruous impact calls on No Action and Proposed Project. The NEPA call for this resource is "not adverse", but the CEQA call indicates an adverse "less than significant" impact. The No Action has less impact before mitigation than Proposed Project. Since the Proposed Project only achieves a similar level of impact with mitigation as the No Action does without mitigation, with regard to these resources, they would be better off under the No Action than the Proposed Project. With regards to these resources, the No Action should be selected as the project rather than the Proposed Project. The incongruous impact call between NEPA and CEQA needs to be reconciled. Any change in impact calls is a material change in the document that warrants recirculation.
	SW-9: Place within a 100-year flood hazard area structures which would impede or redirect flood flows, or be subject to inundation by mudflow	The EIR/S has incongruous impact calls on No Action and Proposed Project. The NEPA call for this resource is "not adverse", but the CEQA call indicates an adverse "less than significant" impact. Both of the NEPA and CEQA impact calls Proposed Project are incorrect as the project redirects flood impacts that are not mitigated. The intermediate forebay and adjacent intake block flood flows, that in the event of an upstream levee breach on the tract on which they are located, from breaching out the bottom end of that tract into Snodgrass Slough as it would have done under the No Action condition. The BDCP Proposed Project would redirect these flood flows onto Randall Island and Pierson District. See the earlier comment related comment on redirected flood impacts from the BDCP Proposed Project in this chapter. The incorrect impact call for NEPA and CEQA needs to be corrected to a significant and adverse impact respectively. The mitigation measure identified in the EIR/S does not address redirected flood impacts. Additional mitigation measures are required to avoid, minimize and mitigate this significant redirected flood impact. Any change in impact calls is a material change in the document that warrants recirculation.
	Private lands which are publicly condemned for the BDCP facilities and habitat restorations will no longer pay fees to the local Reclamation Districts.	Reclamation Districts are funded by assessments on their service area land owners. When the BDCP takes land away from the land owners it is also taking revenue from the Reclamation Districts. Although economic impacts are not considered in the environmental analysis, the impacts of the loss of funding on levee maintenance and other real physical impacts of the reduction in funding are within the scope of what the environmental document is supposed to evaluate under NEPA and CEQA. This impact was not identified, characterized, quantified or disclosed in the BDCP EIR/S and therefore the document is incomplete and deficient.
REUSABLE TUNNEL MATERIAL TESTING Report -section 3.1.3	The water permeability of the polymer treated samples is much lower than the untreated samples.	The water infiltration rate of the treated tunnel much is much lower than the untreated materials. The analysis should also have included a comparison to the infiltration rates of the soils that would be covered by the tunnel much disposal to determine the impacts to soil suitability for agriculture, habitat, groundwater recharge, surface erosion, cumulative drainage, and surface water drainage quantity and quality. The BDCP EIR/S failed to conduct these assessments on the impacts of the infiltration rates of the tunnel muck disposal.
Chapter 7 - Groundwater		

	Continued variability in CVP/SWP service area deliveries (rather than consistent deliveries that are based on a sustainable system) are causing groundwater overdrafts.	The variability in water supply delivery from the CVP/SWP is results in groundwater overdrafts as a substitute water supply in water short years. The groundwater overdraft in the CVP/SWP service area results in surface and groundwater quality degradation (salts, etc.) and subsidence which is damaging infrastructure (canal capacities, drainage, roads). The BDCP Proposed Project operations do not do anything to reduce the year-to-year variability in water supply deliveries which causes the over-reliance on groundwater as a substitute water supply. This on-going impact of the CVP/SWP has never been mitigated and needs to be addressed on order for the CVP/SWP existing operations to be covered by this EIR/S and subsequent permits. As expressed in other related comments, the BDCP Proposed Project must meet its stated "water supply reliability" purpose by only promising (contracting) an amount of water that it can consistently deliver such that it does not result in the current constant overdraft of groundwater.
	Variations in CVP/SWP surface water deliveries are causing service areas to severely overdraft their groundwater. Comments quoted are from: "Groundwater Overdraft in California's Central Valley: Updated CALVIN Modeling Using Recent CVHM and C2VSIM Representations", Hiedi Chou, University of California, Berkeley, 2012	"Ending overdraft increases water shortages statewide because there is not enough available surface water to meet all demands if groundwater is not over drafted. As expected, the No Overdraft case has nearly double the water scarcity of the Base case…" (page 65-66) The BDCP's proposed project would result in an acceleration of this groundwater overdraft as an alternative supplemental water supply. This exacerbation of the rate of groundwater overdraft in CVP/SWP service areas from the BDCP proposed project as compared to the No Action condition is due to the BDCP proposed project increasing the amount of water deliveries in wet and above normal water year types and reducing water deliveries in below normal, dry and critically dry water year types. It is the magnitude in variation in water supply deliveries that causes the groundwater overdrafts as a substitute water supply. The BDCP proposed project increases the magnitude of these water supply delivery variations and therefore very predictably will accelerate the groundwater overdraft in the CVP/SWP service areas. According to the paper, the groundwater in the CVP/SWP service area is currently being over drafted by 1.2MAF/year. (page 67) "Although it may be more economical in the short term to continue over-pumping groundwater, continued overdraft of groundwater basins will eventually increase pumping costs due to higher depths to groundwater as well as environmental problems." (page 70) The BDCP EIR/S fails to acknowledge this impact of the current CVP/SWP operations and to evaluate the impacts of the proposed project making these overdrafts even more severe. Figure 5.3 shows that the San Joaquin Basin (mostly in the CVP/SWP service area), the current baseline overdraft is significantly higher than the "high overdraft" scenario. This means that the San Joaquin basin baseline is a hyper-overdraft in comparison to just a high overdraft scenario. The baseline overdraft is clearly not sustainable and the BDCP proposed project makes it even worse, but fails to identify this impact or propose mitigations for it.
	comment continued…	"Overall system and operating costs were lowest for the highest overdraft scenario, suggesting that being able to pump more groundwater is the more economical option, which agrees with current, real practices." (page 81) "Additional artificial recharge evens out surface water availability, allowing for more surface water to be used and for more consistent deliveries between wet and dry years. However, unless there are direct, immediate benefits to the water users or policies that require less over-pumping or more recharge, it is unlikely that water users will take it upon themselves to pay more for a benefit that they don't immediately see." "Currently, over drafting groundwater is common, with lower costs. However, with groundwater availability decreasing, pumping costs likely increasing, and environmental effects of overdraft worsening, overdraft will be an increasing problem in the future and may have other costs associated with it not included in CALVIN. Options to mitigate overdraft include: increasing recharge use and capacities (artificial and natural), increase in water reuse, more conjunctive use, more surface water use, and decrease in water use and demands. Although there are many possible solutions, many solutions have higher immediate costs and the long-term benefits are unclear or unknown. Unless policies require water users to follow these solutions, groundwater overdraft will likely continue to be a problem in the years to come." (page 82) This statement is correct and it captures the rationale as to why the BDCP should have included groundwater storage and recharge as a component of their project alternatives. Unless there is
	Covered activities do not address all of the current CVP/SWP system (upstream tributaries, existing canals, on-going affects of water deliveries, etc).	The BDCP EIR/S did not address impacts from the current CVP/SWP operations from leaks, salt accumulation, erosion loss of habitat, degradation of beneficial uses, disposal of contaminants, greenhouse gas contributions, etc. Since this EIR/S document does not address the on-going impacts of the CVP/SWP and existing facilities maintenance, the BDCP project should not be awarded any permits which cover these activities.

	Previous CVP/SWP related environmental documents have utilized more comprehensive significance criteria to evaluate project impacts than were used in the BDCP EIR/EIS. Other recent CVP/SWP and habitat restoration related environmental documents establish precedent for how the State and Federal agencies should evaluate the BDCP impacts.	These agency precedent setting environmental documents include: CALFED Bay-Delta EIS/EIR (Federal agencies: Reclamation, FWS, NMFS, BLM, USGS, USACE, US EPA, USDA, USFS, NRCS, and WAPA; State agencies: DWR, DFG, Reclamation Board, Cal EPA, CDFA, Delta Protection Commission and SWRCB), South Delta Improvement Project EIS/EIR (Federal Lead Agency: Reclamation; State Lead Agency: DWR; Responsible Agencies: SWRCB and DFG; Cooperating Agency: USACE), Salton Sea Restoration Program EIS/EIR (Federal Lead Agency: USACE; State Lead Agency: California Natural Resources Agency; Prepared by: DWR and DFG), Lower Yuba River Accord EIS/EIR (Federal Lead Agency: Reclamation; Responsible Agencies: DWR, DFG, and SWRCB; and Cooperating Agencies: NMFS and FWS), Oroville Facilities FERC Relicensing EIR (State Lead Agency: DWR), and Monterey Agreement EIR (State Lead Agency: DWR). The same agencies that produced and approved these other recent and similar scope project environmental documents are the same agencies involved in the BDCP. The BDCP's agency roles for the environmental documents are similar to these other projects - Federal Leads: Reclamation, NMFS and FWS; State Lead: DWR; Responsible Agencies: DFG and SWRCB; and, Cooperating Agencies: USEPA and USACE. These documents establish a precedent for the significance criteria that should be used in evaluating the resource impacts of the BDCP project. If the BDCP does not utilize these same significance criteria as these other similar projects, then BDCP must provide a supporting justification for their departure from previous agency policies and practices. BDCP should revise the document to include all aspects of the significance criteria for their impact evaluations that were established as agency precedents in these other recent and similar documents. Subsequent comments identify these missing criteria.
	Alter water levels in a groundwater basin sufficiently to substantially increase pumping costs or cause land subsidence. (Monterey Accord Sig Criteria)	See related comments on the existing condition CVP/SWP groundwater overdraft in the service areas from year to year variations in water supply deliveries and similar comments on the BDCP proposed project operations failure to address these on-going impacts.
	Substantially deplete groundwater supplies or cause substantial interference with groundwater recharge, such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level. (Oroville Sig Criteria)	As identified in related comments, the existing CVP/SWP and the BDCP Proposed Project operations result in and continue to result in an over-reliance upon groundwater supplies as an alternative water supply when water supply deliveries from the CVP/SWP vary.
	Evaluation of impacts on ground water resources should be more comprehensive and should have included changes in ground water quality, changes in the quantity of ground water available for existing or potential beneficial uses, changes in the depth to ground water and the magnitude and direction of the hydraulic gradient.	Adverse groundwater impacts should be judged to be significant if they do not comply with regulatory standards, plans, or policies. The impact significance should also be based on the degree of harm the impacts may cause to humans or the environment. Any degradation of water quality that may reduce the existing or potential beneficial uses of the water should be considered significant. The reduction in the quantity and quality of ground water available for beneficial uses can occur based on the aerial extent, seasonal timing compared to changes in sensitivity of resources (i.e. agricultural production sensitivity to groundwater quality is typically higher in the spring as compared to fall), duration of occurrence, frequency of occurrence, and permanence of the groundwater quality or quantity available. The BDCP EIR/S significance criteria failed to encompass the scope of potential groundwater impacts as described above.
	During construction BDCP will dewater groundwater around intake, tunnel headworks and tunnel access construction sites (dewater to 100') which will dewater local groundwater wells and permanently collapse water bearing strata in the soil.	Local groundwater wells that are in the cone of depression of groundwater levels from the BDCP dewatering will either go dry or have to pull water from deeper (incurring reduced water production and increased operating energy costs). Once clay soil water bearing strata are collapsed, they do not recover their structure, water holding capacity or their previous soil volume. This groundwater aquifer collapse results in a permanent reduction is available groundwater resources. Changes of groundwater resources and availability at the construction dewatering sites and areas that are groundwater hydraulically connected to them was not identified, evaluated or disclosed in the BDCP EIR/S document. This impact can be minimized and mitigated by BDCP providing alternative water supplies in perpetuity for the groundwater resources that may be affected by the project.

	The executive summary of impact calls have deviated from using the same significance criteria for the No Action as compared to those used to evaluate impacts for the Proposed Project and other alternatives.	The No Action has several significant impacts that are not addressed for mitigation. These unmitigated significant impacts include San Joaquin Basin Flows, Tulare Basin groundwater levels; and Other Portions of the Export Service Areas–Groundwater supplies, recharge, and local groundwater table levels. Since the No Action covered activities are included as part of the Proposed Project (see related comment under "Global EIR/S comments") for the issuance of permits, the Proposed Project needs to incorporate measures to avoid, minimize and mitigate these No Action significant impacts. The Proposed Project does not include any measures to avoid, minimize and mitigate these impacts, so the Proposed Project is deficient and does not meet NEPA and CEQA requirements. The BDCP EIR/S can address this deficiency by including avoidance, minimization and mitigation measures to the No Action significant impacts which are part of the BDCP Proposed Project covered activities. Inclusion of these measures will constitute a material change to the environmental document which will warrant recirculation of the EIR/S for another round of public comment.
	Groundwater impact calls in the executive summary did not include impacts for the No Action. The BDCP is seeking take permits which include coverage of the existing CVP/SWP operations and on-going impacts. These impacts of the current CVP/SWP operations and on-going impacts are part of the No Action condition.	The BDCP EIR/S executive summary of impact calls incorrectly represented the impacts of the No Action by not including impact calls of the No Action on the GW1 - GW10 impact calls. Instead the No Action is represented in impact calls that do not correspond to the impact calls made for the Proposed Project and Alternatives. The impact calls for the No Action correctly identify the significant impacts of the CVP/SWP operations on groundwater in the Tulare basin (flows and levels) and for other areas of the CVP/SWP service areas for groundwater levels, supplies, and recharge. The Proposed project is incorrectly identified as having less than significant impacts before and after mitigation for these same operational impacts, see comment on GW-10.
	Groundwater impact calls in the executive summary did not clearly indicate which impact calls were for which Conservation Measures.	It is difficult to interpret the summary without an indication of which impacts are attributable to which conservation measures.
	GW-1: During construction, deplete groundwater supplies or interfere with groundwater recharge, alter local groundwater levels, or reduce the production capacity of preexisting nearby wells	The BDCP EIR/S does not explain why this impact is still Significant and Unavoidable after mitigation. All of these significant impacts are practical to mitigate by the project with a sufficient level of effort. The scale and level of effort for the avoidance, minimization and mitigation measures must be commensurate with the scale and cost of the proposed project. If the BDCP had put sufficient effort into avoiding, minimizing and fully mitigating impacts of the proposed project, there would be significantly less impact in scope, type and severity. The BDCP needs to develop appropriate mitigations to reduce this impact to less than significant after avoidance, minimization and mitigation measures are applied.
	GW-2: During operations, deplete groundwater supplies or interfere with groundwater recharge, alter local groundwater levels, or reduce the production capacity of preexisting nearby wells	The BDCP forebays will raise water tables in properties adjacent to them. Water tables that are elevated into the root zones of the crops creates water logging, a reduction in soil oxygen exchange, adds service load to drain tile systems and wicks salts into the root zone. If water tables are raised into the root zone of crops for more than a few weeks during the dormant season or for any duration any other time of year, the permanent crop will not longer be viable in that location. If salt wicking from the raised water table increases soil Electrical Conductivity (EC) sufficiently, yield losses will occur. If EC values are raised to a higher level, certain salt sensitive crops will no longer be viable to grow on that land. If EC values are raised to an even higher level, the land may not be suitable to grow any crop and is therefore effectively converted from agricultural production to non-agricultural land uses which is a significant impact. Water table increase impacts from BDCP aquatic and wetland habitat restorations can be avoided, minimized and mitigated by: using geotechnical fabrics on habitat levees to reduce seepage to adjacent properties, using slurry walls in levees to prevent and reduce groundwater migration, use of toe drains outside of habitat restoration levees and install shallow groundwater wells in areas with increased water tables. The toe drains and shallow groundwater wells would need to be pumped out to draw down the water tables on the affected lands.
	GW-3: Degrade groundwater quality during construction and operation of conveyance facilities	These are clearly two very different types of impacts and they should not be lumped together into a single impact call. Other significance criteria used by other disciplines make separate impact calls for construction vs. operational impacts and the groundwater section should separate them to be consistent and provide adequate disclosure. Presumably construction-related impacts are temporary and operating impacts presumably are for the 50 year lifespan of the project or perhaps in perpetuity. The BDCP EIR/S does not distinguish the duration, scope, or magnitude of this impact such that these can be differentiated.

	GW-4: During construction of conveyance facilities, interfere with agricultural drainage in the Delta	The NEPA call of "Not Adverse" after mitigation is incorrect. Even if drainages are replumbed as mitigation prior to disruption by construction there is still an operational disruption to the drainage during mitigation construction. The correct call should be "Adverse".
	GW-5: During operations of new facilities, interfere with agricultural drainage in the Delta. The BDCP EIR/S executive summary of mitigation actions says, "Deplete groundwater supplies or interfere with groundwater recharge, alter local groundwater levels, reduce the production capacity of preexisting nearby wells, or interfere with agricultural drainage as a result of implementing CM2–CM22".	The BDCP EIR/S determined that the remaining impacts after mitigation is significant and unavoidable. In reality, the entirety of the impact can be mitigated with sufficient effort, so the BDCP is just trying to avoid spending money to fix the problems that the project created. All of these significant impacts are practical to mitigate by the project with a sufficient level of effort. As an example, toe drains at the base of the levees to intercept seepage water are highly practical and widely utilized. The scope and costs of implementing this simple and direct minimization measure is small in comparison to the scope and cost of the BDCP project. The BDCP needs to develop appropriate mitigations to reduce this impact to less than significant.
	GW-6: Deplete groundwater supplies or interfere with groundwater recharge, alter local groundwater levels, reduce the production capacity of preexisting nearby wells, or interfere with agricultural drainage as a result of implementing CM2–CM22	The BDCP aquatic and wetland habitat restorations will raise water tables in properties adjacent to them. Water tables that are elevated into the root zones of the crops creates water logging, a reduction in soil oxygen exchange, adds service load to drain tile systems and wicks salts into the root zone. If water tables are raised into the root zone of crops for more than a few weeks during the dormant season or for any duration any other time of year, the permanent crop will not longer be viable in that location. If salt wicking from the raised water table increases soil Electrical Conductivity (EC) sufficiently, yield losses will occur. If EC values are raised to a higher level, certain salt sensitive crops will no longer be viable to grow on that land. If EC values are raised to an even higher level, the land may not be suitable to grow any crop and is therefore effectively converted from agricultural production to non-agricultural land uses which by CEQA guidance on significance criteria is a significant impact. Water table increase impacts from BDCP aquatic and wetland habitat restorations can be avoided, minimized and mitigated by: using geotechnical fabrics on habitat levees to reduce seepage to adjacent properties, using slurry walls in levees to prevent and reduce groundwater migration, use of toe drains outside of habitat restoration levees and install shallow groundwater wells in areas with increased water tables. The toe drains and shallow groundwater wells would need to be pumped out to draw down the water tables on the affected lands.
	GW-8: During operations, deplete groundwater supplies or interfere with groundwater recharge, alter groundwater levels, or reduce the production capacity of preexisting nearby wells	The EIR/S document claim that there is "no feasible mitigation for this impact" is incorrect. The BDCP can do injection wells to restore depleted groundwater levels and groundwater interception wells for increased groundwater elevations. DWR uses groundwater interception wells adjacent to the Thermalito Afterbay at its Oroville facilities to mitigate for increases in local groundwater elevations.

	GW-10: Result in groundwater level-induced land subsidence	The BDCP EIR/S impact call of "less than significant" both before and after mitigation is incorrect. The No Action is correctly indicated as having a significant impact for this resource. These two impact calls are in direct contradiction with each other. Variations in water supply deliveries in the No Action and in the Proposed Project result in over utilization of ground water as an alternative water supply in the service areas. Overdraft of groundwater in the service areas has historically caused land subsidence (over 40' in some areas), is continuing to cause additional land subsidence under the current conditions and will cause additional land subsidence under the No Action and Proposed Project future condition. These impacts are definitely not less than significant. Subsidence has collapsed water bearing strata and permanently reduced the groundwater supply potential. Groundwater depths have been increased which has increased groundwater pumping costs. Subsidence has and will continue to disrupt infrastructure, including water conveyance and drainage capacity, roads, pipelines, fiber optic lines, telephone and power lines, and levee integrity and fragility. The BDCP can mitigate the impact of variable quantities of water deliveries on groundwater level-induced land subsidence by not committing to deliver more water than it can reliably and consistently deliver. In the up-coming water delivery contract renewals, the contracted delivery amounts should be based on a sustainable and consistent delivery quantity that the CVP/SWP can deliver. Once contract amounts have been adjusted down to these levels, land use and water supply expectations will adapt to the new amount of available water. Groundwater will not continue to be depleted under these contract amounts, because use of groundwater supply on a consistent basis will be understood to be un-economic and unsustainable and therefore will not be drawn upon at all or above what is determined to be sustained by groundwater recharge.
	Increased saltwater intrusion into the delta from the BDCP operations will increase groundwater salinity in large portions of the delta and use of groundwater as a substitute water supply during periods of BDCP degraded surface water quality will poison the soils and crops.	The BDCP EIR/S has identified a significant and unavoidable degradation of water quality in the delta from increased saltwater intrusion from BCDP proposed operations. The BDCP EIR/S has failed to adequately evaluate how these significant surface water quality impacts effect groundwater quality. When surface water quality is reduced in the delta due to BDCP operations, growers will utilize groundwater as a substitution for their BDCP compromised senior surface water rights and diversions. This increased reliance upon groundwater as a substitution water supply during periods of BDCP degraded surface water quality will result in increased groundwater withdrawals and increased hydraulic gradient from the tributary to the groundwater basin. The BDCP caused increase in hydraulic gradient from the tributary to the groundwater will pull water from the BDCP degraded water quality in the tributary into the adjacent groundwater profile. The lower quality (higher EC and Boron) water from the tributary will flow in on top of the deeper groundwater with little to no mixing with better quality deeper groundwater. The deeper groundwater quality may not be significantly affected for some time as it approaches the wellhead groundwater cone depression, but it will be degraded over time. The more immediate affect of the higher EC and Boron layer degraded water quality of near surface groundwater will occur nearly immediately. Groundwater tables are near the soil surface and in the crop root zone in most of the delta in portions if not the entire year.

	comment continued…	Salts wick up through the soil from shallow groundwater by capillary action with soil particle interstitial spaces. Even though the salts from the tributaries may not reach the wellheads for several years, the near surface migration of salts from the tributary recharge of the BDCP depressed groundwater cone will start affecting the salinity of the root zones of the crops near the edges of the islands in the first season or two. Once salts have been pulled into the shallow groundwater as described above, it will be nearly impossible for the grower to manage the salts. In areas of deeper groundwater (e.g. Southern Central Valley), a grower can flush salts down and out of the root zone. In the delta, because of the shallow groundwater table, irrigations to flush salts out of the root zone will only raise the water table and cause the salts to wick higher into the root zone. The leaching irrigation has nowhere to go so it will only slightly dilute the salts, but again the salts will wick up through the soil. Even a thin layer of degraded groundwater quality that occurs in or near the root zone could make larger portions of the delta unfarmable in a matter of just a few years. This BDCP impact converts the farmland to a different land use (non-farming) which by CEQA significance criteria is a significant impact. The BDCP failed to identify, evaluate, quantify or disclose the significant impacts of reduced shallow groundwater quality in the delta that would be caused by the BDCP proposed operations. The BDCP can minimize this significant impact by actually complying with the current water quality requirements instead of frequently violating them as the current CVP/SWP operations do. The BDCP can mitigate this impact by providing alternative water supplies to areas of degraded surface water supplies so that the growers do not have to rely upon groundwater as an alternative supply.
	Increased saltwater intrusion into the delta from the BDCP operations will increase groundwater salinity in large portions of the delta from reclamation district operations to draining the islands.	This comment builds off of the impacts described in the preceding comment regarding BDCP degradation of surface water quality and the resulting degradation of shallow groundwater quality in the delta. Many islands in the delta have land elevations that are at, near or below the water levels of their surrounding tributaries. The only way the islands are maintained from becoming flooded by seepage from the tributaries is to nearly continuously pump water out from the drainage ditches in the Reclamation District back into the tributary. By the Reclamation District pumping the water off of the island or tract, the groundwater levels are maintained to levels that are farmable (3 to 8 foot minimum depending on crop type and season). The amount of shallow groundwater pumping and rate of turnover of shallow groundwater recharge from the tributary is dependent upon several factors. The more porous the levees and soils, the faster the movement of tributary water into the shallow groundwater. The larger the difference between the tributary water elevation and the groundwater height (hydraulic gradient), the faster the movement of tributary water into the shallow groundwater. Even a thin layer of degraded groundwater quality that occurs in or near the root zone could make large portions of the delta unfarmable in a matter of just a few years. This BDCP impact of surface water quality degradation that causes shallow groundwater quality degradation will result in a conversion of farmland to a different land use (non-farming) which according to CEQA guidance significance criteria is a significant impact. The BDCP failed to identify, evaluate, quantify or disclose the significant impacts of degraded shallow groundwater quality in the delta that would be caused by the BDCP proposed operations. The BDCP can avoid this significant impact to groundwater quality by adopting operations that do not degrade the surface water quality. The BDCP can minimize this significant impact to groundwater quality by building toe drains at the base of the levees surrounding the affected islands and providing for and maintaining drainage operations that intercept and prevent the movement of degraded surface water quality into the island's groundwater. This minimization measure would need to be complemented by the BDCP also providing an alternative surface water supply of non-degraded quality for the farmers to use as an alternate water supply. These suggested avoidance and minimization measures are practical, feasible, well tested and accepted and are small in scale in comparison to the scope and cost of the overall BDCP proposal.

	Increased saltwater intrusion into the delta from the BDCP operations will increase groundwater salinity in large portions of the delta from drain tile operations on the islands.	This comment builds off of the impacts described in the preceding two comments regarding BDCP degradation of surface water quality and the resulting degradation of shallow groundwater quality in the delta. Due to the shallow groundwater tables in the delta, many open ground fields and most permanent crop plantings utilize drain tile to maintain groundwater levels and keep groundwater moving to protect their crops and the productivity of the soils. Most permanent crop plantings are adjacent to the levees due to their higher elevation, better drainage and better soils. This means that the drain tiles that are under most of permanent crops planted in the delta are right next to the tributaries. Drain tiles are typically installed at 6 to 10 feet deep, depending on soil type, crop type, groundwater table elevations and topography (drainage). The drain tile function is to reduce the groundwater table elevations, creating a localized groundwater table depression to protect the soil and crops from groundwater elevations that are too shallow. The groundwater collected from the drain tile is transported via drainage pipes to the lower elevation drainage ditches that are located near the center of the islands and tracts. This necessary drain tile function creates the same increased hydraulic gradient from the island groundwater table from the surrounding tributaries as described in the preceding two comments on use of groundwater substitution water supplies and the resulting groundwater cone of depression and the Reclamation District pumping of drainage ditches to maintain groundwater table elevations. The impacts from the degraded groundwater quality from the BDCP operations will occur even more quickly with drain tile operation interactions than the impacts to shallow groundwater quality described in the two preceding comments. Degraded surface water quality from the BDCP operations will be pulled into the shallow groundwater table where the drain tiles are functioning in the same manner as described in the previous two comments. The drain tiles will collect this degraded quality groundwater and drain the water to the main drainage ditches. These drainage ditches are also water supply ditches that are pumped out of to irrigate other fields. These central drains/water supply ditches is how water supply is delivered to most fields that are in the interior of the islands and tracts. Through the function of the drain tile and drainage of those systems into the water supply ditches in the middle of the islands and tracts, the degraded shallow groundwater from BDCP operations have now been translated back into additional impacts to water quality of surface water supplies for the interior fields. As mentioned previously, because of the proximity of the drain tiles to the tributaries and the function of the drain tile to translocate the drainage water to the main ditches, this mode of impact could occur very quickly, e.g. the first year of degraded surface water quality from the BDCP operations. The scope of this impact is not small either.
	comment continued…	Most of the islands and tracts, with the exception of some of the most interior delta and lowest elevation islands, are ringed by permanent crop plantings at their outside edges. Cumulatively, these represent several hundred miles of tributary length that have drain tiles installed adjacent to them. The BDCP failed to identify, evaluate, quantify or disclose the significant impacts of degraded shallow groundwater quality in the delta and the translation of that shallow groundwater quality degradation into a subsequent degradation of additional surface water supply water quality that would be caused by the BDCP proposed operations. The BDCP can avoid this significant impact to groundwater quality by adopting operations that do not degrade the surface water quality. The BDCP can minimize this significant impact to groundwater quality by building toe drains at the base of the levees surrounding the affected islands and providing for and maintaining drainage operations that intercept and prevent the movement of degraded surface water quality into the island's groundwater. The BDCP can further minimize this significant impact by providing for and maintaining sump pumps for the tail water coming out of the drain tile systems. The sump pump would discharge the drain tile water back into the tributary rather than letting the degraded shallow groundwater contaminating the surface water supplies at the main drain/water supply ditches. The use of sump pumps on drain tile systems is a common practice in the southern central valley as the topographic gradients are not sufficient to allow drain tile function without the sump pumps. Because the use of sump pumps on drain tile systems is common practice in the CVP/SWP service areas, the BDCP cannot claim that there are no feasible, practicable measures to avoid, minimize or mitigate this significant impact of the BDCP proposed operations.

REUSABLE TUNNEL MATERIAL TESTING Report -section 3.1.3	The water permeability of the polymer treated samples is much lower than the untreated samples.	The water infiltration rate of the treated tunnel much is much lower than the untreated materials. The analysis should also have included a comparison to the infiltration rates of the soils that would be covered by the tunnel much disposal to determine the impacts to soil suitability for agriculture, habitat, groundwater recharge, surface erosion, cumulative drainage, and surface water drainage quantity and quality. The BDCP EIR/S failed to conduct these assessments on the impacts of the infiltration rates of the tunnel muck disposal.
Chapter 8 - Water Quality		
	The 75940 Federal Register / Vol. 78, No. 240 / Friday, December 13, 2013 states that, "The Plan also intends to… reducing future risks to the Delta from earthquakes, levee failure and climate change." Show me where the project proposes to reduce "future risks to the delta from earthquakes, levee failure, and climate change".	The project proposes to address those issues for the CVP/SWP conveyance, but it does nothing for the delta on those issues. The project does raise the risk of levee failure to the delta by altering existing levees and adding new ones. The project also increases risks to the delta from future climate change as the aquatic habitat restorations increase the volume of intertidal exchange. Increases in the volume of intertidal exchange will degrade water quality, increase the velocities of tidal surges and increase the magnitude of tidal surge stage elevations. So is the BDCP proposing to reduce earthquake, levee failure and climate change risk in the delta or is the Federal Register notice incorrect such that it should be revised and reissued?
	The Regional Water Quality Control Board's revision to the Basin Plan are not covered by the scope of the BDCP EIR/S.	The BDCP EIR/S document does not address the environmental impacts of revising the basin plan standards. The basin plan is being revised so that it can set standards that the BDCP project can meet as the water board cannot issue a 401 permit on a project that will consistently violate the water quality standards. Rather than the project having to be designed and operated such that it complies with the current water quality standards in the current basin plan to protect the beneficial uses of water as they are currently defined, the basin plan is being revised to lower the bar so that the project can degrade water quality without being in violation of the standards and therefore can be issued a 401 permit. The BDCP EIR/S did not do an analysis of the impacts of the changes in the water quality standards in the revised basin plan, so the BDCP EIR/S does not provide environmental coverage for that revision. The water board needs to do its own CEQA document to evaluate the impacts of the revisions to the basin plan.
	The BDCP EIR/S states, "Until FERC issues the new license for the Oroville Project, DWR will not substantially change the operations of the facilities."	This statement is incorrect. There are some of the elements of the SWRCB 401 Mandatory Conditioning that are more restrictive and the Oroville project has to operate to the negotiated new license terms pending the license issuance.
	Under BDCP proposed operations, the Oroville facilities no longer complies with the OCAP BO, 1983 DFG Operating Agreement or the FERC Negotiated Settlement Agreement.	The BDCP reoperates Oroville to provide additional water supply in the spring and reduces exports during the summer to end up with a similar amount of storage at the end of September reservoir carryover storage. Reducing exports during the summer denies the Oroville facilities an important downstream water temperature control action, increased flows. Increased flows in the summer (which the Oroville Facilities are now less capable of doing under the BDCP proposed operations) carries release water temperatures farther downstream than lower flows. The increase in flow velocity and the increased volume of water to warm means that the same water temperature at facilities release will result in compliance with water temperature requirements farther downstream. The Oroville facilities have water temperature compliance requirements from the FWS and NMFS OCAP BOs, SWRCB 401 Certificate, 1983 Operating Agreement with DFG, and from the Negotiated FERC Settlement Agreement that due to the BDCP proposed operations would be in violation of these requirements on a more frequent basis than under the No Action condition.

	The BDCP EIR/S states, “This covered activity would also include improvements and routine maintenance of the Fremont Weir and Yolo Bypass…”	The BDCP description of covered activities of these facilities is incomplete, misleading and is inadequate in level of detail to merit issuance of coverage under permits based on this environmental document. The BDCP proposes these improvements as a "near-term" activity which it plans to implement based on the environmental analysis in its current EIR/S. As an example of undisclosed impacts, the BDCP document does not identify, characterize, quantify or disclose the amount, timing, type, frequency and locations of dredging to maintain the channel approach to the fish ladders from the river and for the channels leading from the bypass to the fish ladders. High flows can regularly erase these channels that are required for fish passage to be functional and dredging could be required on an annual or even more frequent basis. Dredging is a high impact activity and the BDCP provides no detailed description of these activities sufficient to allow any meaningful analysis or disclosure. Further, the BDCP provides no measures to avoid, minimize, or mitigate the significant impacts that always occur with dredging. The BDCP EIR/S is incomplete in its analysis and disclosure, is deficient and requires this additional analysis, should be recirculated after this analysis is completed and should not be provided with coverage of these activities without the additional level of detail and disclosure. An accurate, stable, and finite project description is the *sine qua non* of an informative and legally sufficient EIR. (County of Inyo v. City of Los Angeles (1977) 71 Cal.App.3d 185, 193.) An adequate project description is necessary to ensure that CEQA's goals of providing information about a project's environmental impacts will not be rendered useless. The description of a project in an EIR must be sufficient to provide public agencies and the public with detailed information about the effects the proposed project is likely to have on the environment. (Dry Creek Citizens Coalition v. County of Tulare (1999) 70 Cal.App.4th 20, 26.)
	Previous CVP/SWP related environmental documents have utilized more comprehensive significance criteria to evaluate project impacts than were used in the BDCP EIR/EIS. Other recent CVP/SWP and habitat restoration related environmental documents establish precedent for how the State and Federal agencies should evaluate the BDCP impacts.	These agency precedent setting environmental documents include: CALFED Bay-Delta EIS/EIR (Federal agencies: Reclamation, FWS, NMFS, BLM, USGS, USACE, US EPA, USDA, USFS, NRCS, and WAPA; State agencies: DWR, DFG, Reclamation Board, Cal EPA, CDFA, Delta Protection Commission and SWRCB), South Delta Improvement Project EIS/EIR (Federal Lead Agency: Reclamation; State Lead Agency: DWR; Responsible Agencies: SWRCB and DFG; Cooperating Agency: USACE), Salton Sea Restoration Program EIS/EIR (Federal Lead Agency: USACE; State Lead Agency: California Natural Resources Agency; Prepared by: DWR and DFG), Lower Yuba River Accord EIS/EIR (Federal Lead Agency: Reclamation; Responsible Agencies: DWR, DFG, and SWRCB; and Cooperating Agencies: NMFS and FWS), Oroville Facilities FERC Relicensing EIR (State Lead Agency: DWR), and Monterey Agreement EIR (State Lead Agency: DWR). The same agencies that produced and approved these other recent and similar scope project environmental documents are the same agencies involved in the BDCP. The BDCP's agency roles for the environmental documents are similar to these other projects - Federal Leads: Reclamation, NMFS and FWS; State Lead: DWR; Responsible Agencies: DFG and SWRCB; and, Cooperating Agencies: USEPA and USACE. These documents establish a precedent for the significance criteria that should be used in evaluating the resource impacts of the BDCP project. If the BDCP does not utilize these same significance criteria as these other similar projects, then BDCP must provide a supporting justification for their departure from previous agency policies and practices. BDCP should revise the document to include all aspects of the significance criteria for their impact evaluations that were established as agency precedents in these other recent and similar documents. Subsequent comments identify these missing criteria.
	Reduce stream flow in any natural water body sufficiently to substantially impair designated beneficial uses or violate water quality objectives. (Monterey Agreement Sig Criteria)	The BCDP EIR/S should use the same significance criteria as these other previous and related precedent setting documents.

	Violate any water quality standards or waste discharge requirements. (Oroville Sig Criteria)	The BCDP EIR/S should use the same significance criteria as these other previous and related precedent setting documents. It is illegal for the state water resource control board to issue permits to a project that they know will be in violation of water quality and waste discharge requirements. The BDCP must analyze this exact impact criteria, not only to be consistent with previous agency precedent setting documents, but also so the SWRCB can assess the project for compliance with current and pending regulations which have bearing on the issuance of 401, discharge permits and other permits. Without this exact impact assessment in the EIR/S, the SWRCB should not issue permits to the BDCP. The SWRCB also must not lower water quality requirements to accommodate the BDCP operational conditions so they would not be in violation of the revised lower water quality requirements. The current water quality requirements have been established to protect and conserve the beneficial uses of the waters of the state. The level of protection must not be eroded to accommodate the political will of the proponents of the BDCP. Any relaxation of water quality requirements to accommodate the BDCP will be challenged in court.
	Substantially alter an existing drainage pattern of the site or area, including alteration of the course of a stream or river, in a manner that would result in substantial erosion, siltation on- or off-site. (Oroville Sig Criteria)	The BCDP EIR/S should use the same significance criteria as these other previous and related precedent setting documents. The BDCP must analyze and disclose this exact impact criteria, not only to be consistent with previous agency precedent setting documents, but because the BDCP proposed project precipitates these exact same types of impacts on a very large scale with very significant impacts - see related comments on these impact topics.
	Impacts on water quality are considered significant if: Beneficial uses of the water are adversely affected, existing regulatory standards are exceeded, or an undesirable effect on public health or environmental receptors is produced. (Oroville Sig Criteria)	The BCDP EIR/S should use the same significance criteria as these other previous and related precedent setting documents - see related comments on these impact topics.
	The impact significance criteria for water quality variables that have regulatory objectives or numerical standards, such as those contained in the 1995 WQCP, are developed from the following general considerations: Numerical water quality objectives have been established to protect beneficial uses, and therefore represent concentrations or values that should not be exceeded; violation of the limits would be significant. Natural variability caused by tidal flows, river inflows, agricultural drainage, and biological processes in the Delta channels is sometimes quite large relative to the numerical standards or mean values of water quality variables. Changes in water quality variables that are greater than natural variations, but are within the limits established by numerical water quality objectives, may cause significant impacts; criterion for determining significant monthly changes is necessary. (SDIP Sig Criteria)	The BCDP EIR/S should use the same significance criteria as these other previous and related precedent setting documents - see related comments on these impact topics.

	Increases in EC values that result in exceedance of the maximum objective at specified locations in the Delta are considered to be significant water quality impacts. Monthly changes in EC values are also considered to be significant if they exceed 10% of the applicable objective. (SDIP Sig Criteria)	The BCDP EIR/S should use the same significance criteria as these other previous and related precedent setting documents - see related comments on these impact topics.
	EC objectives (i.e., X2) specified in the 1995 WQCP are applicable at Chipps Island during several months (February–June of most years). The maximum EC objective at Chipps Island is about 2,640 µS/cm (corresponding to a 2-ppt salinity at Chipps Island) and must be satisfied for a specified number of days each month, depending on the previous month's runoff. For Chipps Island, the threshold of 10% change is equivalent to an allowable increase of 264 µS/cm when the 2,640-µS/cm estuarine objective is applicable (as long as the EC objective is not exceeded). (SDIP Sig Criteria)	The BCDP EIR/S should use the same significance criteria as these other previous and related precedent setting documents - see related comments on these impact topics.
	Agricultural objectives for EC, ranging from 450 µS/cm to 2,200 µS/cm, are applicable at Jersey Point from April through August 15. Similar EC objectives are applicable at Emmaton. At Emmaton and Jersey Point, the threshold of 10% change is equivalent to an allowable increase of 45 µS/cm when the 450-µS/cm EC objective is applicable. Both locations have 30-day moving average EC objectives of 1,000 µS/cm. The threshold of a 10% change is equivalent to an allowable increase of 100 µS/cm at the south Delta compliance locations. (SDIP Sig Criteria)	The BCDP EIR/S should use the same significance criteria as these other previous and related precedent setting documents - see related comments on these impact topics.
	There are objectives of 250-mg/l Cl– concentration at the four south Delta export locations (CCWD Rock Slough, CCWD Old River, SWP Banks, and CVP Tracy). The CCWD at Rock Slough chloride is also subject to a 150-mg/l objective for about half of each calendar year (5 months in critical year, 8 months in wet years). (SDIP Sig Criteria)	The BCDP EIR/S should use the same significance criteria as these other previous and related precedent setting documents - see related comments on these impact topics.

	Increases in monthly export Dissolved Organic Carbon (DOC) of more than 10% of the mean DOC concentration (assumed to be about 4 mg/l), or about 0.4 mg/l, are considered to be significant water quality impacts. (SDIP Sig Criteria and Yuba Accord)	The BCDP EIR/S should use the same significance criteria as these other previous and related precedent setting documents - see related comments on these impact topics.
	The minimum DO objectives in the Stockton DWSC are 5 mg/l from December through August and 6 mg/l from September through November (to protect adult migration of Chinook salmon). Any monthly estimated DO concentration less than the applicable objective is considered to be a significant impact. Any reduction in a monthly estimated DO concentration that is more than 10% of the applicable objective (0.5 mg/l) is also considered to be a significant impact. (SDIP and Yuba Accord Sig Criteria)	The BCDP EIR/S should use the same significance criteria as these other previous and related precedent setting documents - see related comments on these impact topics.
	Reduces the quality of an agency's SWP water supply or another agency's Delta water supply such that it is more difficult to treat to meet applicable federal or state drinking water standards for finished water or to maintain existing finished water quality. (Monterey Agreement Sig Criteria)	The BCDP EIR/S should use the same significance criteria as these other previous and related precedent setting documents - see related comments on these impact topics.
	The current CVP/SWP operations are frequently in violation of the current water quality requirements.	The BDCP seeks a relaxation of water quality requirements from a revised Regional Water Quality Control Board Basin Plan Standards so that it can operate without violating the water quality requirements. The Water Board should not reduce the stringency of water quality compliance requirements just so the CVP/SWP can continue to cause these significant impacts without also being in violation of the law. The Water Board should not revise the Basin Plan standards or issue a 401 Certification for the CVP/SWP or the BDCP until the project completely and consistently complies with current water quality standards.

	Aquatic habitat restoration plan level of detail is insufficient to allow any meaningful analysis of water quality effects or understanding of interactions of these actions with the BDCP proposed CVP/SWP operations.	The BDCP does not describe or disclose the proposed aquatic habitat characteristics in a level of detail sufficient to support the evaluation of the nature and magnitude of impacts from these actions. An accurate, stable, and finite project description is the sine qua non of an informative and legally sufficient EIR. (County of Inyo v. City of Los Angeles (1977) 71 Cal.App.3d 185, 193.) An adequate project description is necessary to ensure that CECA's goals of providing information about a project's environmental impacts will not be rendered useless. The description of a project in an EIR must be sufficient to provide public agencies and the public with detailed information about the effects the proposed project is likely to have on the environment. (Dry Creek Citizens Coalition v. County of Tulare (1999) 70 Cal.App.4th 20, 26.) The BDCP description of these actions does not disclose water depth, substrate, in-situ and mobilized sediments, channel complexity, turbidity, food base, hydraulic characteristics of tidal interchange, time requirements for habitat functionality to develop after implementation, and hydraulic complexity development. Without these specific descriptions of the proposed aquatic habitat restorations, there cannot be an appropriate evaluation of methylization of Hg, turbidity, DO, concentration of salts and other water quality constituents from evaporation and transpiration, habitat type and quality, contribution to species conservation, and other water quality impacts. Water quality impacts from these proposed BDCP aquatic habitat restorations affect compliance with water quality standards that are CVP/SWP operating requirements. The water quality impact from these BDCP proposed habitat restorations are intensely interactive with the CVP/SWP operations. Without sufficient detail on the habitat restorations, the impacts of their water quality changes on CVP/SWP operations cannot be determined. The BDCP description of the proposed aquatic habitat restorations and their analysis of them are deficient and are insufficient to support issuance of incidental take permits fro the proposed CVP/SWP operations, the conveyance or restoration actions. The BDCP should provide adequate level of detail such that an appropriate environmental analysis of these proposed aquatic habitat restorations can be evaluated, characterized, quantified and disclosed. Once that is done then avoidance, minimization and mitigation measures can be proposed by the BDCP for the significant impacts from these proposed actions.
	There is insufficient information on the design, function, size, location, timing, sequence of implementation and combinations of habitat restoration actions to evaluate the effects on species even at a programmatic level.	As an example of the deficiency of the description of the proposed aquatic habitat restorations, the current descriptions do not identify and are insufficient to determine if the aquatic habitat restorations would be sediment sinks or sources. The locations and sizes of the levee breaches on lands to be inundated for the aquatic habitat restorations to determine if the restorations would be sediment contributors or sinks and the BDCP did not disclose the location or sizes of proposed aquatic habitat restorations. This is an important water quality impact determination, so without this necessary level of detail, the potential impact of the proposed aquatic habitat restorations cannot be determined. There are additional deficiencies in the description of the aquatic habitat restorations that do not describe the depth of water and rates circulation. This information is required to evaluate if the aquatic habitat restorations would promote mercury methylization or export Dissolved Organic Carbon (DOC) impacts. Since these impacts can't be determined, even at a programmatic level based on the level of description of the habitat restoration measures provided by the BDCP, the agencies cannot justify issuing permits on the BDCP project or credit these habitat restorations with contributions to conservation.

	The BDCP EIR/S impact analyses did not include sediment transport models, sediment and contaminant fate and associated contaminant mobilization from Yolo bypass inundation flows or other habitat restorations.	Since the BDCP proposed project did not have specific operating rules for the magnitude, frequency and duration of Yolo Bypass inundation flows, it is not currently possible for the project to have done the necessary sediment transport, contaminant mobilization, and sediment and contaminant fate analysis that are a prerequisite for a project-level analysis that would be required for construction-related permits for this action. The Yolo Bypass will have a number of contaminants in the soil from historical agricultural practices, endemic soil characteristics and from upstream contaminants that have settled in the bypass that would all be at risk of being mobilized and increased in the magnitude duration and frequency of mobilization as compared to the existing condition and No Action condition by the BDCP proposed bypass inundation operations. Known water quality factors and contaminants in the Yolo bypass inundation analysis should have included, but are not necessarily limited to: DDT and its derivative products, Hg, Pb, Se, Fe, salts and Dissolved Organic Carbon. In order to complete a project-level of analysis, the BDCP would need to: use detailed topographic mapping of the Yolo bypass (DWR has high resolution LIDAR mapping of the bypass but didn't use it in the analysis); include detailed designs for the modifications to Fremont Weir (the BDCP did not include); include detailed designs for Yolo Bypass modifications (the BDCP did not include) to channel flows and to minimize fish stranding; include vegetation management plans (the BDCP did not include) and models that would estimate vegetative impairments to bypass flow capacities and redirections of flow velocities; include detailed operating rules for inundation flows (the BDCP did not include) including the conditions under which inundation flows would occur, the magnitude of flows under those conditions, and the durations of flows under those conditions; and ramping rates for both increasing and decreasing inundation flows. Once the project has those requisite project level descriptions of this action, the EIR/S could utilize the best available science to conduct sediment and contaminant mobilization, transport and fate analyses. The BDCP proposes to implement this restoration action based on the analysis in this BDCP EIR/S, but the omissions in the plan detail and omissions in the analysis result in a document that is inadequate to support construction-related permitting. The BDCP EIR/S document is clearly incomplete and deficient to support project-level construction-related permitting to implement this proposed restoration action. If the BDCP EIR/S is not revised and recirculated to support this project-level of analysis, this restoration action will require a subsequent environmental document. The BDCP's proposed project assumes the Yolo bypass will be implemented in the near-term so unless the current EIR/S document is revised and recirculated, the BDCP will fail to meet the implementation schedule for this conservation measure. If this and other near-term restoration actions will be addressed in subsequent environmental documents, the BDCP will not meet it's implementation timeline - see related comments. If the BDCP does subsequent environmental documents for restoration actions that are planned to be implemented temporally coincident/concurrent with the construction of the conveyance would clearly be piece-mealing the environmental process.
	Periodic dredging to maintain BDCP facilities would have similar impacts as their initial construction activities.	The BDCP proposed project has not defined or disclosed a schedule and plan for dredging maintenance of proposed facilities. As an example, the Fremont Weir fish passage will require periodic dredging of the channel to connect the river to the fish ladder and the fish ladder to the channel that connects it to the Tule Drain. The BDCP has provided no estimates of the volume and frequency of dredge material excavation, disposal of dredge spoils, the water quality impacts, or habitat impacts that would occur from these operations. The BDCP EIR/S should include a dredging plan and environmental analysis at least equivalent in level of detail and specificity as the Initial Draft Study of the Sacramento Weir Sediment Removal Project, dated March 12, 2009 prepared by DWR Division of Flood Management. The impacts of the dredging maintenance of the facilities are similar to those of the original construction impacts, including: air quality, water quality, traffic, fisheries, terrestrial species, aesthetics, recreation, etc. The BDCP has not developed dredging plans for the location, method, frequency, extent of disturbance, seasonal timing of operations. The BDCP has not developed any avoidance, minimization or mitigation measures for the significant water quality impacts from dredging activity. Dredging may also be required to develop and maintain some of the aquatic habitat restorations, but the BDCP has not disclosed those significant water quality impacts either.

	Section 404 guidelines state at 40 CFR 230.10(b) that "No discharge of dredged or fill material shall be permitted if it: (1) Causes or contributes to violations of any applicable State water quality standard."	Tunnel spoils from the BDCP proposed conveyance will be disposed as fill material. The tunnel spoils will contain contaminants that are endemic to the delta, e.g. Hg, Se, Pb, etc. - see related comments. The BDCP has proposed no measures to prevent the tunnel spoil material from erosional deposition (wind and water) into waters of the U.S. The deposition of the contaminated soils into the waters of the U.S. will cause and/or contribute to violations of water quality standards and therefore, the BDCP project should not be awarded either a 401 or 404 permit. The water quality degradation also impairs the habitat quality of essential habitat for the Endangered Giant Garter Snake which inhabits the ditches that are adjacent to BDCP proposed tunnel spoil disposal areas.
	The BDCP analysis of water quality violations does not take into account the duration, frequency, magnitude and timing of water quality violations.	The BDCP analysis compares the number of water quality violations of the proposed project and alternatives to the baselines, but does not adequately evaluate the differences in the timing, magnitude and duration of water quality exceedances and the implications of those characterizations on impacts to other resources. As an example, salinity exceedances are important to agriculture, but the impacts of water quality salinity standards in the spring and early summer would be much more damaging than violations that occur in the late fall after the irrigation season in the delta has largely been completed - see related comments. Analyzing the magnitude, timing and duration of water quality exceedances is more important than the analysis of the number of exceedances in determining the impacts of the project and full and proper disclosure of impacts in the BDCP EIR/S. The document must be revised to characterize these important missing evaluations and impacts and recirculated to address these missing impacts and disclosures.
	The BDCP EIR/S did not provide any rationale or supporting references to justify assumptions regarding the rate of increase in hydraulic complexity of maturing aquatic habitat restorations in their water quality modeling.	DSM2 BDCP model runs had no assumption for channel complexity development over time on intertidal and subtidal aquatic habitat restorations. The DSM2 model runs assumed that the water just sloshed in and out of these habitat restorations like a bathtub without any channel roughness or complexity from development of dendridic channels or vegetation. As restored intertidal and subtidal habitat matures and begins to function, drainage channels form and tulles and other aquatic vegetation and riparian vegetation that encroaches into the seasonally inundated channel margins develop. "Given the reliance on natural processes to restore marsh functions in San Pablo Bay, restoration is a process that occurs gradually, over a time frame of decades (Williams and Orr 2002)." "Channels form through differential deposition and tidal scour as the mudflats accrete, and are further defined as vegetation becomes established (French 1993; Beeftink and Rozema 1988; French and Stoddart 1992)." "Channels in restored marshes are expected to evolve toward a configuration of dynamic equilibrium with tidal flows." "Restored channels may change rapidly when their initial configuration is out of balance with equilibrium processes. For example, personal observations of an oversized excavated channel at inner (west) Muzzi Marsh indicate that the channel filled in with sediment significantly within the first decade." "Hydraulic modeling and equilibrium channel metrics developed for the San Francisco Estuary (e.g., Williams and others 2002; Simenstad and others 2000; PWA and others 1995; Grossinger 1995) can be used to assess the potential for rapid initial change of a restored channel." (http://escholarship.org/uc/item/8hj3d20t#page-10) The preceding quote demonstrates that there are analytical tools available and suitable for characterizing the rate of change of hydraulic complexity, but the BDCP did not utilize these or other tools and did not apply the best available science to address this important characterization of their proposed aquatic habitat restorations. The real rate of tidal interchange from BDCP aquatic habitat restorations would be dramatically different from the current flawed BDCP assumption of zero resistance to tidal exchange. There are large implications to the usefulness of the BDCP environmental analysis with this fundamentally flawed and unsupported BDCP assumption of no channel complexity or change in complexity over time.

	comment continued…	Water quality and fisheries impact assessments are impacted by these analytical flaws. Channel and hydraulic complexity affect the speed and completeness of water turnover in tidal exchanges. The difference in the speed of the flows will affect fish habitat (velocity suitability) and mobilization of sediments and contaminants. The difference in the completeness of water turnover means that the restored habitat with the greater hydraulic complexity would not be as refreshed by new outside water as the current flawed BDCP assumption of no hydraulic complexity. The reduced water turnover from the actual hydraulic complexity of the restored habitat will result in a degradation of water quality from a build up of contaminant loads from evaporation and transpiration in the restored habitat as compared to what the BDCP analysis determined and disclosed. The build up water quality problems that would occur in a habitat with hydraulic complexity include increased Electrical Conductivity, Bo, Br, Se, Methylated Hg, DOC, and Pb concentrations and Dissolved Oxygen sags at a much greater rate than the current BDCP assumption with no hydraulic complexity of habitat with greater tidal exchange and more frequent turnover of the water. Water quality problems from BDCP habitat restorations directly affect CVP/SWP operations for water quality compliance. The unsupported and flawed assumption by the BDCP of no hydraulic complexity of aquatic habitat restorations and incorrect analyses of water quality impacts from the aquatic habitat restorations creates a fundamental flaw in the CVP/SWP water operations modeling and impact analysis. Once the water exchange characteristics of the BDCP aquatic habitat restorations have been corrected, there will be fundamental changes in CVP/SWP operations from constraints previously undisclosed by water quality impacts. The BDCP has used unsupported and incorrect assumptions on aquatic habitat hydraulic complexity and those flawed assumptions result in a significant understatement of impacts in the BDCP EIR/S. The BDCP has used incorrect assumptions and failed to utilize best available science and as a result, the current conclusions of the CM1 operations impact analysis are significantly flawed and systematically under-report significant impacts.
	BDCP used some generic assumptions regarding how and where intertidal and subtidal habitats would be connected to adjacent water bodies.	The size and location of levee breaches makes a big difference on how much and what quality of water is tidally exchanged. As an example, there was a series of habitat restoration designs done on breaching some islands in the Suisun Marsh. They modeled a number of scenarios regarding the location and size of levee breaches. The breaches that were on the "upstream" side turned the habitat restorations into sediment sinks and the "downstream" breaches into sediment sources. Location of breaches makes a difference on the volume of water tidal exchanged and size will make a difference in the rate of exchange and both will affect development of habitat drainage channels. The BDCP EIR/S did not do any sensitivity analysis to justify their generic assumptions and therefore, the EIR/S cannot determine the water quality impacts, impacts of these water quality degradations on proposed CVP/SWP operations or the type, quantity or value of habitat created.
	BDCP previously only modeled one generic scenario for the size, timing, and combination of tidal and intertidal aquatic habitat restorations.	The size, combination and sequence of aquatic habitat restoration implementation could make substantial differences in the intermediate time period analyses, especially for water quality. As a gross example, if all of the eastern or western aquatic restorations were done at once, they would have very different influences on tidal interactions from each other. The BDCP did not present any sensitivity analysis of multiple aquatic habitat restoration implementation scenarios. Without analyses of a range of these scenarios, the BDCP has provided no justification or support for their assumption that the one scenario that they did analyze in their EIR/S is in any way representative of the impacts that could and would occur from the implementation of the habitat restorations in the range of implementation scenarios the BDCP has described in the proposed project and alternatives. How, when, where, in what combination and in what design specifics (size, habitat type, water depth, tidal exchange characteristics, etc.) habitat is implemented has large water quality impacts and those water quality impacts drive water operations of the CVP/SWP. The water conveyance facilities and associated operations this EIR/S seeks permits to build and implement are based on this document, not on subsequent documents. The environmental analysis only discloses the impacts that occur under the one generalized habitat restoration implementation scenario and therefore the permits that are issued based on this analysis should only accommodate this one exact implementation assumption and specifically not provide the BDCP justification for implementing any habitat scenario that is any different than was included in the BDCP EIR/S analysis.

	The BDCP analysis of CM1, the proposed CVP/SWP conveyance facilities and operations, are purportedly analyzed at a project level of detail, but are interdependent with water quality interactions of aquatic habitat restorations that were only analyzed at a programmatic level of detail.	Since water quality impacts from these restorations affect CVP/SWP operations, and CVP/SWP operations are supposed to be evaluated at a project level of detail in the EIR/S, a project level of detail on the habitat restorations and their impacts on water quality constraints on operations is required in order for the EIR/S analysis of CVP/SWP operations to meet the test of project level of detail. The aquatic habitat restorations are not described and evaluated at a project level of detail and therefore the analysis of the CVP/SWP operations only qualifies as a programmatic analysis. The programmatic level of analysis of the CVP/SWP operations in the current EIR/S will require a subsequent environmental document with analyses at a project level of detail before construction-related or incidental take permits should be issued for the BDCP project.
	BDCP aquatic habitat restorations in the delta increase the magnitude of total tidal exchange with the bay.	The BDCP proposes 65,000 acres of tidal habitat restoration in CM4. Most of the areas proposed by the BDCP for this restoration action are deep in the central and west delta which have the largest tidal influence from the bay. Even a very conservative assumption of an average of 2' of tidal range (+1' to minus 1') in these areas that would result in a 130,000 Acre Feet or 5.66 million Cubic Feet of additional tidal exchange that is in addition to the amount of current tidal exchange. This is a large increase in tidal exchange and represents a sizable fraction of the total current tidal exchange volume. This additional amount of tidal exchange will be even greater than this amount under the future increase in sea level rise assumptions utilized by the BDCP. The increase in the magnitude of tidal exchange will not only impact water quality and CVP/SWP operations, but also increase: channel scour and levee destabilization, sediment and contaminant mobilization, navigation hazards, fish movement and straying; and alter the quality, quality and distribution critical fisheries habitat for endangered fish species. The BDCP failed to evaluate a range of assumptions regarding the location, size, depth, and implementation sequence/combinations of aquatic habitat restoration on water quality conditions or disclose the potential impacts of these variations in aquatic habitat restoration implementation.
	In 2013, the CVP/SWP was operated to a drier year set of operating rules than the hydrologic conditions that actually occurred. Water volumes in 2013 met the criteria for a "Dry" water year type, but the water operations were administratively changed to a "Critical Dry" water year type - see the letter and documentation from Central Delta Water Agency to Felicia Marcus, Chairman of the State Water Resource Control Board dated September 9, 2013. It is now in the record that the CVP/SWP operations do not always conform to the water year type hydrologic conditions that occur and therefore impacts from water operations sometimes occur in water year types that they otherwise wouldn't.	The BDCCP EIS/EIR impact analysis are conducted by running the operations models on the hydrologic period of record. These observed hydrologic conditions (that are classified into the water year types), are run against the proposed alternative operations. The resulting conditions from the operations (from the proposed alternative operating characteristics and rules) are then compared to the baseline scenarios (No Action and No Project). The differences between the alternative operations and the baseline (positive or negative) are interpreted for their impacts for each of the resources, e.g. water supply, water quality, fisheries, etc. The impacts are synthesized by water year type (which represents a set of operating rules). When you get to Dry and Critical Dry water year types, there are always impacts. These impacts are written off in the environmental documents because 1) there are impacts in the baseline condition, and, 2) because the impacts are unavoidable and the operating rules for those hydrologic conditions have typically done what they can to minimize those impacts. The differences in outcomes (compared to the baseline conditions) by water year type are then synthesized into an overall impact call for each resource for each of the alternative operations. The precedent the CVP/SWP established in 2013 by operating the CVP/SWP to a set of operating rules (and therefore impacts) which did not conform to the hydrologic conditions that actually occurred, corrupts the integrity of the analysis that the BDCP has done in the BDCP EIS/EIR. The EIS/EIR analysis will determine project impacts based on operations that mistakenly assume the project operations adhere to water year type hydrologic conditions that occur. If in some of those water years, the future operation impacts would actually be for a water year type other than the impacts were disclosed in the document, then the BDCP EIR/S has systematically understated the impacts. In the example of 2013, a water year type that would have in the impact modeling have been analyzed and reported as a Dry Year, would actually have the operational impacts of a Critically Dry year. This is important as not only does the document therefore systematically under-report impacts, but the impacts that occurred were avoidable and would not have occurred in the baseline condition. Because the actual operations of the project would not conform to water year type, as demonstrated by the 2013 CVP/SWP non-conformance, the entire premise of comparison of operations by water year type is corrupted and invalidated as a useful and accurate analytical process for the BDCP EIR/S.

	The BDCP modeling assumptions do not provide any supporting justification for the BDCP assuming that the water delivery contracts will be renewed at the current contract volumes.	The BDCP's assumption that the existing water delivery contracts that will expire before the BDCP project would be fully implemented will be renewed with the same terms as current water delivery contract is flawed and unsupported - see related comments. From the purpose and need statement in the BDCP EIR/S, it is more logical for the project to assume that water contract amounts would be adjusted to what the CVP/SWP can be reliably delivered. Reliability of water supply is one of the primary purposes of the BDCP project according to the BDCP EIR/S purpose and need. In order for the CVP/SWP to achieve water supply reliability in the future, the future contracts will have to incorporate consideration of future conditions to protect beneficial uses from climate change, sea level rise and on-going affects of continued water deliveries (e.g. water quality violations, degradation of other beneficial uses, etc). Climate change, sea level rise and ongoing impacts of water deliveries (see related comments) were not included as factors of consideration for water delivery contract amounts in the previous contracts, but will be required considerations in the EIR/Ss that will be required for the water delivery contract renewals. With the required considerations of climate change, sea level rise and on-going impacts of water deliveries it is more foreseeable to assume that contract renewal water delivery amounts will be reduced in the future as compared to the current water delivery contract amounts. If water delivery contract amounts were adjusted down to reflect what the system is able to sustainably and reliably deliver then environmental impacts of operations on the listed species would be greatly reduced and the need for the project significantly reduced. Water quality impacts from the CVP/SWP operations would also be reduced. The BDCP EIR/S needs to provide a solid rationale for the quantities that should result in the contract renewal process and incorporate those supported assumptions in the future operations and modeling impact analysis. As the EIR/S document currently stands, the assumption of renewed contracts at the current water delivery levels is unsupported and it is more reasonable in light of the requirements to incorporate climate change, sea level rise and on-going impacts of water delivery will result in a reduction in water supply delivery amounts in future contract renewals.
	The BDCP ADEIR/S stated that the Oroville Facilities were operated to the 1983 FWS Ops Agreement which is incorrect.	FERC assumes license submitted in a negotiated settlement is operated to in the interim period between license submittal and final license issuance, so DWR should be operating to the new license terms under the existing condition as well as the No Action/No Project.
	The BDCP EIR/S states that changes in salinity intrusion have occurred since the development of the delta.	The BDCP is conflating temporal coincidence with cause and affect relationships. True, the changes in distribution of salinity in the delta occurred during a time period in which development occurred in the delta, but that is not what caused the changes in salinity distribution in the delta. The change in delta salinity distribution is due to CVP and SWP changes in upstream hydrology from dams, from increased upstream riparian diversions, and from groundwater overdrafts adjacent to the upstream tributaries. These all have resulted in a profoundly altered hydrologic pattern and reduction of flows through the delta. The magnitude of hydrologic changes have not been proportionately distributed among the flow contributing tributaries. Historically, the San Joaquin River was subject to large flushing flows during winter storms. This type of event rarely occurs now due to the upstream CVP storage, reduced groundwater tables adjacent to the river which absorb most of the tributary flows and due to clogged channels which developed as a result of the lack of these large flow events. These historic large flows were responsible for flushing salts and contaminants out of the system. The lack of these flushing flows and reduced overall flows through the delta from impairment of the upstream hydrology is what has caused the change in salinity distribution in the delta. This impact to the delta from the upstream CVP/SWP operations is another reason that the geographic scope of the BDCP planning area should not have been artificially constrained to exclude these upstream locations as they are the origin of the problems in the delta the BDCP proposes to fix.
	Increased water temperatures would also cause decreased dissolved oxygen concentrations in water and would likely increase production of algae and some aquatic weeds (DWR 2006).	Reduced rates of water turnover in large parts of the delta from the BDCP will result in increased water temperatures in those areas. As determined by DWR in their 2006 Oroville Relicensing water quality report, increased water temperatures result in decreased DO and an increase in rate of production of algae and aquatic weeds. Increases in water temperature and reductions in DO degrade fisheries habitat quality and suitability in areas of the delta that are designated as critical habitat for endangered species. Degradation of this critical habitat is an adverse modification of essential fish habitat for several endangered species (delta smelt, steelhead, sturgeon, spring-run Chinook salmon, etc. Degradation of this habitat also violates the beneficial uses of water as designated by the Central Valley Basin Plan, including: cold water fisheries, warm water fisheries, contact recreation, non-contact recreation, agriculture irrigation, drinking water and others.

	Under proposed operations, the Oroville facilities no longer complies with the OCAP BO, 1983 DFG Operating Agreement or the FERC Negotiated Settlement Agreement.	The BDCP reoperates Oroville to provide additional water supply in the spring and reduces exports during the summer to end up with a similar amount of storage at the end of September reservoir carryover storage. Reducing exports during the summer denies the Oroville facilities an important downstream water temperature control function, increased flows. Increased flows in the summer (which the Oroville Facilities are now less capable of doing under the BDCP proposed operations) carries release water temperatures farther downstream than lower flows. The increase in flow velocity and the increased volume of water to warm means that the same water temperature at facilities release will result in compliance with water temperature requirements farther downstream. The Oroville facilities have water temperature compliance requirements from the FWS and NMFS BOs, SWRCB 401 Certificate, 1983 Operating Agreement with DFG, and from the Negotiated FERC Settlement Agreement that due to the BDCP proposed operations would be in violation of these requirements on a more frequent basis than under the No Action condition. The degradation of water temperatures in the lower Feather River in the summer and early fall from the BDCP proposed operations will degrade salmonid holding and spawning habitat quality and quantity and increase salmonid prespawn mortality rates.
	Impacts of water quality have not been adequately addressed in the EIS/EIR. Complex and dynamic temporal and spatial distribution of a gradient of water quality constituent concentrations that affect water quality and designated beneficial uses requires that the entire model run results be used - all time series and all output nodes. The current analysis just looks at averaged data at a few specific compliance points.	The actual impacts to beneficial uses that the environmental document must evaluate and disclose occur across the entire area that the models address, not just some sample "compliance" nodes that may not be representative of what would actually occur. The BDCP project is massive and complex and its impacts are geographically distributed across the entire delta. The impacts of the project cannot possibly be reasonably represented by evaluating water quality changes at a dozen or so compliance locations. The best available science requires that the output (all time series and all output nodes) from the water quality models be integrated into a GIS and analyzed to determine the frequency, duration and magnitude of water quality exceedances. All of the data to conduct this analysis as described is readily available. The output node locations of the water quality model need to be entered into the GIS spatial database and the unique identifiers of the node be coded the same as the model output so the databases can be joined. Once the water quality model has been linked to the GIS spatial database, a simple query of will show what locations and quantify the amount of area in the delta that exceed water quality standards, in specific geographic locations and distribution, for what periods of the year and by how much. A comprehensive impact analysis that does meet the test of best available science can easily be done using the method described and this type of approach is well documented in other environmental analysis. The DWR Oroville Facilities Relicensing studies utilized a strategy of using the entire water temperature model output to determine the suitability of coldwater fisheries habitat on the entire Feather River using the model output linkage to GIS approach described above so there is precedent for utilizing this more comprehensive use of model output data for environmental analysis for water projects with DWR as the State Lead Agency. The DWR reports utilized an index approach to characterize the quantity and quality of suitable fish habitat by species over time to evaluate and compare project alternatives. This approach represents the best available science, is accepted, has precedent use, was well accepted by the project participants and scientists and can readily be conducted with the data and resources that the BDCP already has so there is no excuse for them not to use this best available science to more accurately and comprehensively characterize the impacts of the BDCP project.
	The BDCP EIR/S does not address the impact on Dissolved Oxygen levels in the delta from the other stressor conservation measure to remove invasive aquatic plants.	The conservation measure will result in an increase in the herbicide spraying of aquatic weeds. The decay of large amounts of aquatic vegetation resulting from the conservation measures will increase biochemical oxygen demand and inorganic and organic nutrient supply. This will cause an increase in the severity, magnitude, geographic extent and frequency of DO deficiencies in the delta. This reduction in DO quality will impair or make unsuitable water quality for ESA species critical habitat. The BDC EIR/S needs to be revised to identify, characterize, quantify and disclose this significant impact.

	BDCP aquatic habitat inundation in the delta will increase the Dissolved Organic Carbons (DOC) contaminants in water that is diverted for drinking water.	"Some forms of DOC play an important role in the formation of a variety of chemicals referred to as disinfection byproducts (DBPs), which are suspected carcinogens. These compounds are formed when water is disinfected in drinking water treatment plants. There are various forms of DOC, and some of them are more prone to forming DBPs than others (Fram 1999)." "A review of Jassby et al. (1993) indicates that restored tidal wetlands will export organic carbon to adjacent deep-water habitats..." "Some fraction of the DOC exported from tidal wetlands will likely be very reactive in formation of DBPs, but it is uncertain how large this source amount and reactivity would be compared to other sources of DOC. The amount and types of DOC created by a particular wetland restoration project may vary depending on construction methods used to restore the wetland." (http://www.n-h-i.org/dutchslough/Documents/AMWG%20Docs/Opportunities_and_Constraints_Final_Report.pdf) These references make it clear that the type, location, design and implementation of habitat restorations make potentially significant impacts on drinking water quality. Some of the BDCP proposed habitat restorations are in close physical proximity to drinking water intakes for significant metropolitan diversions, including, Stockton, Tracy, Byron, Antioch, Brentwood, Fairfield, Vacaville and most of the rest of Contra Costa and Solano counties. Increasing the carcinogenic levels of drinking water supplies for such a large population is not an impact that should be brushed off by the BDCP project as "significant and unavoidable". The BDCP did not even identify reasonable, prudent and feasible mitigations to avoid, minimize and mitigate these significant impacts. An example of an easy and feasible method to minimize DOC impacts of aquatic habitat restorations is found in the Dutch Slough habitat restoration analysis, "Agricultural land opened to tidal action for wetland restoration might export more organic carbon than agricultural land that is covered with clean dredge spoils as part of project construction."
	The CVP/SWP water diversions are operated seasonally. There are typically one to several months of the year that no or very little diversion occurs. The two 40' tunnels that are 35 miles long represents a volume of over 10,000 AF. Diversions of 500cfs will take over a week to move through the tunnel.	Water diverted from the Sacramento River has a high Biological Oxygen Demand (BOD), is largely photosynthetic and aerobic based microbial population ecology, and is nutrient loaded. Without sunlight and oxygen in the tunnels, the volume of water in the tunnels will quickly go anaerobic and anoxic. If zebra or quaga mussels were to colonize the tunnel, that would make the DO problem even worse and more persistent. This anaerobic and anoxic condition creates taste and odor problems that make water unsuitable for drinking water supply or requires very expensive water treatment. Separating the contaminated water would be difficult and instead of this water volume being water supply, it becomes a hazardous material disposal problem - see related comments on tunnel contaminated water treatment.
	The BDCP EIR/S does not address how contaminated water from water stored in tunnels during nonoperational periods would be disposed.	With the large nutrient load and Biological Oxygen Demand (BOD) of water diverted from the Sacramento River and stored in the tunnel for weeks or even months during periods of low to no tunnel operations will result in anaerobic and anoxic water quality conditions - see related comments. The BDCP has not disclosed how the contaminated water will be treated and disposed of. With as much as 10,000 acre feet (see related comment) of contaminated water, treatment and disposal will have environmental consequences - power, water flows, water tables, water quality, habitat suitability, etc.
	The tunnels are now designed to be gravity flow.	Gravity flow implies slower water velocities in the tunnel, but the BDCP did not disclose the anticipated water velocities in the tunnel. There are sediment traps to separate sediment from water diverted from the river before it goes into the upstream forebay. The forebay will not be a lined basin. Any wind will create turbulence that will create a suspended sediment load. Without sufficient velocities in the tunnels (over approximately 5-6'/second), there will be sediment accumulation in the tunnel. This will lead to reduced flow capacities and contributions to the anaerobic and anoxic problem described above.
	Methylation of Mercury from BDCP proposed aquatic habitat restorations has not been adequately evaluated in the EIR/S.	Cache Creek is one of the largest if not the largest source for Mercury contamination in the delta. The BDCP has proposed several large scale aquatic habitat restoration programs that are downstream of this large and ongoing Mercury contamination source, including Calhoun Cut, Liberty Island, Little Holland Tract, Prospect Island, Egbert Tract, Hastings Island, Ryer Island, Grand Island, Decker Island, Twitchel Island, Three Mile Slough, and others. Aquatic habitat restoration conditions can convert mercury into methylated mercury which is much more readily assimilated into the food chain and bioacumulated. The BDCP aquatic habitat restoration conditions have not been described in sufficient detail to determine at what rate the methylation of mercury would occur and the BDCP has failed to identify, characterize, quantify or disclose this significant impact. The BDCP EIR/S needs to provide greater detail on the aquatic habitat restoration water depths, water turnover rates, dissolved oxygen conditions, mercury deposition, mobilization rates and methylization rates. Further, the BDCP has failed to propose avoidance, minimization and mitigation measures to address this significant impact.

	DSM2 model runs had no assumption for aquatic habitat restoration channel complexity development over time.	The DSM2 model assumes that water just sloshes in and out of the aquatic habitat restorations like a reservoir or an open channel without any channel complexity or roughness. With these flawed assumptions of the rate of water movement in and out of the aquatic habitat restorations, the water quality-related impact assessments which utilized the DSM2 model output would therefore be completely inaccurate and misleading. This DSM2 modeling assumption error would result in an over estimation of the rate of turnover/refreshment of water in the aquatic habitat restorations. This error in the model output would under-estimate the degradation of water quality in the aquatic habitat as there would be a lower assimilative capacity of the water in the habitat restoration and increased concentrations of contaminants from evaporation and transpiration consumptive use than the DWM2 model output currently indicates. Due to this error and deficiency in the DSM2 model, the BDCP EIR/S analysis has under estimated the water quality impacts of the aquatic habitat restorations.
	Updates to the DSM2 model prior to use in the BDCP analysis were incomplete and biased.	DSM2 was updated for delta channel bathymetry and to reflect the flooding of Liberty Island prior to the BDCP analyses. DSM2 was not updated for Delta Island consumptive use and drainage. The significantly out of date data on delta consumptive use and related flow and water quality issues is a significant area of uncertainty and a significant limitation on the accuracy of the model results. The DSM2 model should be rerun with updated delta consumptive use and drainage information to get a more accurate characterization of the conditions in the delta and the impacts of the BDCP project.
	DSM 2-QUAL output was used as the input for several other models, including: Gilbert Food Web Regression, Pyrethroid, ammonia, Cu, Hg, Se, and other water quality constituent loading.	DSM2 inaccurately represented water exchange in the aquatic habitat restorations (see above comments), so all models that utilized DSM2 output as input for subsequent modeling are biased and their results are based on flawed input data. Once the deficiencies of the DSM2 model have been addressed, the DSM2 model should be rerun and the subsequent dependent models also rerun and reanalyzed.
	DSM 2-QUAL has a Dissolved Oxygen (DO) data output.	Why was DSM2 DO model output not used in the BDCP impacts analysis? There is DO data available to calibrate this model (or to calibrate other available DO models). BDCP paid to developed and/or calibrate numerous other models for the impact analyses (e.g. Delta Passage Model, Interactive Object-Oriented Salmon Simulation, OBAN, Sac EFT, Screening Effectiveness Analysis, Fry-rearing benefits for Yolo bypass, Habitat Suitability Indexes, Maunder-Deriso Delta Smelt Lifecycle Model, Kimmer X-2 Abundance Regression, Gilbert Food web Regression, etc.). Since the BDCP set the precedent to develop and calibrate these other models, why did the BDCP not also develop (or calibrate and existing model) a DO model to evaluate the impacts of DO on the delta? As identified in the BDCP EIR/S, the project operations of the isolated or joint facility will significantly change water flow patterns and the rate of turnover of water (refreshment) in the delta. "... operations will result in a reduction of the assimilative capacity in the delta". Since rate of turnover and assimilative capacity are drivers of the magnitude, duration and frequency of DO events and suitable DO is an essential component of fisheries habitat quality and quantity, DO must be more thoroughly evaluated and the impacts of the project disclosed. By developing and calibrating these other models listed above, the BDCP set the precedent that the best available science includes development and calibration of models that were not currently available at the time of the analysis. Since DO is equally or more important to understand the impacts of the BDCP project, the same level of effort and best available science should be applied to DO as well.
	If the DO output of DSM 2-QUAL was not considered adequate or appropriate for use in the environmental analysis, the BDCP could have easily developed a suitable DO model from DSM 2-QUAL outputs.	DO modeling components are very similar to these other models which use output from the DSM 2-QUAL model. The Gilbert Food web regression estimates total chlorophyll in the water (algae) which is a component of a DO model. The ammonia model also provides a critical input for a DO model. Add water temperatures from the DSM 2 model output to these other components and you have all the elements for a functional DO model. Even if this DO model could not be calibrated to an absolute scale, it would still be functional to evaluate the relative level of risk/impact in a comparative analysis (as most all of our other modeling tools are used).

	The BDCP has said it has not done a Dissolved Oxygen quantitative analysis because there are no suitable models to use and therefore they conducted an inadequate qualitative and subjective discussion of DO impacts.	First, there are many suitable DO models available, e.g. SWAT (Soil and Water Assessment Tool), SIMCAT, TOMCAT, QUAL2E, QUASAR, MIKE-11, CE-QUAL-ICM and ISIS. These models have been successfully utilized in large complex aquatic systems including, Chesapeake Bay, Florida Everglades, Puget Sound, Mississippi Delta and others around the world. Second, even in the absence of available models there are other analytical tools commonly utilized to assess dissolved oxygen. If a complete DO modeling tool could not legitimately be utilized for some reason, a proxy index for DO potential could easily be developed from existing model outputs. These readily available inputs for a DO potential index would include: water temperature, nutrient loading (Phosphorus), and algal model output that the BDCP is already utilizing - see related comments. To compliment the interpretation of model output related to DO, the spatial and temporal distribution of algal blooms can easily be mapped and correlated to on the ground conditions. Once an algal bloom has been completed, we know that DO values crash. The launch of NASA's EO-1 Hyperion sensor in November 2000 marked the establishment of VNIR/SWIR spaceborne imaging spectrometer mapping capabilities. Hyperion is a satellite sensor covering the 0.4 to 2.5 micrometer spectral range with 242 spectral bands at approximately 10nm spectral resolution and 30m spatial resolution from a 705km orbit (Pearlman et al., 2003). Hyperion is a pushbroom instrument, capturing 256 spectra each with 242 spectral bands over a 7.5km-wide swath perpendicular to the satellite motion along an up to 160km path length. The system has two grating spectrometers; one visible/near infrared (VNIR) spectrometer (approximately 0.4 – 1.0 micrometers) and one short-wave infrared (SWIR)) spectrometer (approximately 0.9 – 2.5 micrometers). Hyperion data are available for purchase from the U. S. Geological Survey (USGS E0-1 Website: http://eo1.usgs.gov/) and dozens of images of the delta over the years have been acquired and are available. Thousands of Hyperion scenes have been acquired for a variety of disciplines and the use of these data sets for evaluation of algal blooms is well established and accepted. The EO-1 Science Validation Team has evaluated and validated the instrument. Selected results have been published in various venues (Asner and Green, 2001; Hubbard and Crowley, 2001; Kruse et al., 2003). Also see Ungar (2003) for a summary along with associated papers. http://www.tandfonline.com/doi/abs/10.1080/01431160500419311#.UmPlgVBwp8F – paper on correlation of TM image algorithm to r2 = 0.95) between the ground-based measurements of Chl a, and yield considerable detail of lake phytoplankton distributions. http://earthexplorer.usgs.gov/ The BDCP should at least attempt a qualitative (non-subjective) assessment of DO and algal bloom impact analyses and utilize this readily available best available science.
	Dissolved Oxygen (DO) is another water quality impairment which the document did not adequately address.	The DO impairment in the delta has gotten worse over the last few years and it is predictable that the proposed replumbing of the delta will make the DO problem even worse yet the environmental analysis does not even address the current DO nor affects of the proposed project on it. Further impairment of the DO conditions in the delta would adversely modify critical habitat for listed species (e.g. steelhead, Chinook and delta smelt) and is therefore illegal. The BDCP's generalized qualitative treatment of such an important habitat suitability factor is a level of effort that falls far below what is required and to meet the test of best available science.
	There is a Dissolved Oxygen (DO) model of the Stockton deep water ship channel.	DO models that are applicable to the entire delta do exist; they just have not been calibrated. Therefore, use of DO models for the entire delta arguably does meet the test of best available science. The project will substantially change flow patterns, water turnover, nutrient loading and water temperatures in large parts of the delta. The dead end sloughs off of Potato Slough should be particularly affected. This is in close proximity to the new Stockton water supply intake. DO is a critical habitat suitability factor and algal blooms can be a human health issue for contact recreation and water supply. DO will be one of the biggest impacts the project will have on the interior delta. DSM2 model particle tracking that the project is using can be used to prove the point that the project will dramatically alter the residence time of water in some parts of the delta and that this is not an issue they can sidestep just because the available DO models aren't ready-to-use. The DO model for the Stockton Deep Water Ship channel has been utilized in other environmental assessments, but the BDCP did not even bother to use it.

	The BDCP EIR/S analysis of changes in the frequency, magnitude and duration of algal blooms was inadequate. This topic was only qualitatively discussed (incompletely and incorrectly) when the BDCP could have applied the best available science to evaluate the changes in algal conditions in the delta.	DSM 2-QUAL output was used as the input for several other models, including: Gilbert Food web Regression and ammonia loading. The BDCP could have easily developed a suitable algal bloom model from DSM 2-QUAL outputs. Algal bloom modeling components are very similar to these other models which use output from the DSM 2-QUAL model. The Gilbert Food web regression estimates total chlorophyll in the water (algae) which is a component of a model. The ammonia model also provides a critical input for an algal model. Add water temperatures from the DSM 2 model output to these other components and you have all the elements for a functional algal bloom model. Even if this algal bloom model could not be calibrated to an absolute scale, it would still be functional to evaluate the level of risk/impact in a comparative analysis (as most all of our other modeling tools are used).
	WQ-1: Effects on ammonia concentrations resulting from facilities operations and maintenance (CM1)	The impact call of "Less-Than-Significant" is incorrect. The No Action and BDCP Proposed Project south delta operations continue to draw higher than background levels of ammonia concentrations from the Sacramento Regional Waste Water Treatment Plant discharges across the delta, exposing a larger area of the delta to elevated ammonia concentrations than would occur without the project. The disruption to the food chain in the delta and its affects on listed fish species from elevated ammonia concentrations is a significant impact. The Proposed Project tunnels will outgas ammonia which is a greenhouse gas emission.
	WQ-2: Effects on ammonia concentrations resulting from implementation of CM2–CM22	The magnitude of impacts from the implementation of the No Action OCAP BO mandated habitat restorations are vastly smaller than those of the proposed project. (i.e. 8,000 ac No Action vs. 165,000 ac Proposed Project) The EIR/S does not describe the differences in magnitude in their significance calls.
	WQ-3: Effects on boron concentrations resulting from facilities operations and maintenance (CM1)	The BDCP EIR/S impact calls on the No Action are incorrect. CM1 does not exist in the No Action, therefore there would be No Impact/No Effect. Any increase in Boron concentration is significant to the suitability of water supply for agricultural irrigation beneficial uses. This impact should be changed to significant.
	WQ-4: Effects on boron concentrations resulting from implementation of CM2–CM22	The magnitude of impacts from the implementation of the No Action OCAP BO mandated habitat restorations are vastly smaller than those of the proposed project. (i.e. 8,000 ac No Action vs. 165,000 ac Proposed Project) The EIR/S does not describe the differences in magnitude in their significance calls. Any increase in Boron concentration is significant to the suitability of water supply for agricultural irrigation beneficial uses. This impact should be changed to significant.
	WQ-5: Effects on bromide concentrations resulting from facilities operations and maintenance (CM1)	The "Significant Unavoidable" and "Adverse" increase in bromide after mitigation as compared to the "Less-Than-Significant" impact of the No Action Alternative is an unacceptable degradation of the beneficial uses of water in the delta. Bromide is an important water quality constituent for drinking water and represents a well documented and severe health risk to humans and animals. A project that has this kind of "Significant Unavoidable" and "Adverse" impact should not be allowed to be implemented, especially when the impact is not precipitated in the No Action condition.
	WQ-6: Effects on bromide concentrations resulting from implementation of CM2–CM22	The magnitude of impacts from the implementation of the No Action OCAP BO mandated habitat restorations are vastly smaller than those of the proposed project. (i.e. 8,000 ac No Action vs. 165,000 ac Proposed Project) The EIR/S does not describe the differences in magnitude in their significance calls. Evaporation from the aquatic habitat restorations will result in a concentration of the Bromide levels, so this should be a significant impact. Any increase in Bromide concentrations is an unacceptable degradation of the beneficial uses of water in the delta. Bromide is an important water quality constituent for drinking water and represents a well documented and severe health risk to humans and animals. A project that has this kind of "Significant Unavoidable" and "Adverse" impact should not be allowed to be implemented, especially when the impact is not precipitated in the No Action condition.
	WQ-7: Effects on chloride concentrations resulting from facilities operations and maintenance (CM1)	The "Significant Unavoidable" and "Adverse" increase in chloride after mitigation as compared to the "Less-Than-Significant" impact of the No Action Alternative is an unacceptable degradation of the beneficial uses of water in the delta. Chloride is an important water quality constituent for drinking water and represents a well documented and severe health risk to humans and animals. A project that has this kind of "Significant Unavoidable" and "Adverse" impact should not be allowed to be implemented, especially when the impact is not precipitated in the No Action condition.

	WQ-8: Effects on chloride concentrations resulting from implementation of CM2–CM22	The magnitude of impacts from the implementation of the No Action OCAP BO mandated habitat restorations are vastly smaller than those of the proposed project. (i.e. 8,000 ac No Action vs. 165,000 ac Proposed Project) The EIR/S does not describe the differences in magnitude in their significance calls. . Evaporation from the aquatic habitat restorations will result in a concentration of the Chloride levels, so this should be a significant impact. Any increase in Chloride concentrations is an unacceptable degradation of the beneficial uses of water in the delta. Chloride is an important water quality constituent for drinking irrigation water and represents a well documented and severe health risk to humans and animals. A project that has this kind of "Significant Unavoidable" and "Adverse" impact should not be allowed to be implemented, especially when the impact is not precipitated in the No Action condition.
	WQ-9: Effects on dissolved oxygen resulting from facilities operations and maintenance (CM1)	The BDCP EIR/S impact calls on the Proposed Project are wrong. The Proposed Project operations reduces the rate of turnover of water in the delta and reduces assimilative capacity (a conclusion from the Water Quality Chapter). Reduced rate of refreshment of water in the delta from the Proposed Project operations is further evidenced by the results of the DSM2 Particle Tracking Model. Increased nutrient loads and water temperatures that occur from the reduced refreshing of water in the delta from the Proposed Project will result in an increase in the frequency, magnitude, duration and geographic extent of algal blooms. When algal blooms die off, they cause DO crashes. The BDCP aquatic habitat restorations will also cause in increase nutrient concentrations and water temperatures and which result in an increase in the rate and severity of algal blooms and therefore also significantly adversely impact DO.
	WQ-10: Effects on dissolved oxygen resulting from implementation of CM2–CM22	The BDCP EIR/S impact calls on the Proposed Project are wrong. The Proposed Project operations reduces the rate of turnover of water in the delta and reduces assimilative capacity. Increased nutrient loads and water temperatures that occur from the reduced refreshing of water in the delta from the Proposed Project will result in an increase in the frequency, magnitude, duration and geographic extent of algal blooms. When algal blooms die off, they cause DO crashes. The BDCP aquatic habitat restorations will also cause in increase nutrient concentrations and water temperatures and which result in an increase in the rate and severity of algal blooms and therefore also adversely impact DO. The BDCP analysis incorrectly considers these separate impacts when they are interactive and multiplicative in their effects. The increased DO problem from CM makes the impact from CM2-22 much worse.
	WQ-11: Effects on electrical conductivity concentrations resulting from facilities operations and maintenance (CM1)	The No Action operations are required to comply with delta water quality standards that protect water quality and beneficial uses. These water quality standards include limits on electrical conductivity (EC) that are designed to protect sensitive resources from EC impacts. The No Action significant impact determination is correct as the current CVP/SWP operations routinely exceed these standards, see Affect Environment. The No Action would continue to violate these water quality protections and therefore the significant impact call by the BDCP EIR/S is warranted. The Proposed Project impacts are even worse than the No Action. Since the current and No Action CVP/SWP operations are in violation of water quality requirements and the Proposed Project results in a degradation of that condition, the project should not be awarded any permits as the project is in violation of the law. Any increase in EC concentration from the Proposed Project is significant to the suitability of water supply for agricultural irrigation beneficial uses.
	WQ-12: Effects on electrical conductivity (EC) concentrations resulting from implementation of CM2–CM22	The magnitude of impacts from the implementation of the No Action OCAP BO mandated habitat restorations are vastly smaller than those of the proposed project. (i.e. 8,000 ac No Action vs. 165,000 ac Proposed Project) The EIR/S does not describe the differences in magnitude in their significance calls. Evaporation from the aquatic habitat restorations will result in a concentration of the EC levels, so this should be a significant impact. Any increase in EC concentrations is an unacceptable degradation of the beneficial uses of water in the delta. EC is an important water quality constituent for irrigation water and results in reduced yields, increase accumulation of salts in the soil, increased water use (for leaching irrigation component), soils that are unsuitable for production of salt sensitive crops and ultimately with continued accumulation of salts a soil that is unsuitable for any kind of agricultural production. Any increase in EC concentration from the Proposed Project is significant to the suitability of water supply for agricultural irrigation beneficial uses.

	WQ-13: Effects on mercury concentrations resulting from facilities operations and maintenance (CM1)	The BDCP proposed operations have been determined by the BDCP impact analysis to result in a reduction in the rate of water turnover in the central and south delta. The BDCP EIR/S has failed to adequately analyze the impact of this reduction in the rate of water turnover in combination with the water in their proposed aquatic habitat restorations, nor has the EIR/S evaluated the combination of these effects on the rate of methylization of mercury. The BDCP must provide a complete project description of the aquatic habitat restorations so this important and consequential impact analysis can be completed utilizing the best available science. With the BDCP's current level of aquatic habitat restoration project description, this important impact is evaluated in the EIR/S with a bunch of unsupported, incomplete conjecture and biased so called professional opinion. What the BDCP has done on this topic is the scientific equivalent to waving your hands in the air.
	WQ-14: Effects on mercury concentrations resulting from implementation of CM2–CM22	The magnitude of impacts from the implementation of the No Action OCAP BO mandated habitat restorations are vastly smaller than those of the proposed project. (i.e. 8,000 ac No Action vs. 165,000 ac Proposed Project) The EIR/S does not describe the differences in magnitude in their significance calls. A Proposed Project that has this severity of an impact on water quality, especially compared to the No Impact/No Effect of the No Action, should not be implemented.
	WQ-15: Effects on nitrate concentrations resulting from facilities operations and maintenance (CM1)	The No Action impact call is incorrect. There is no change in the No Action for operations that affect nitrate concentrations, so the correct impact call would be "No Impact" and "No Effect". The Not Adverse and Less-Than-Significant impact calls are in conflict. Less-Than-Significant is an impact call for an adverse impact of small magnitude or significance. Not Adverse is an impact call for an impact that includes conditions that are both positive and negative, but on the balance are not negative. Therefore the NEPA Not Adverse impact call is incompatible with the CEQA Less-Than-Significant impact call. If the CEQA call of Less-Than-Significant is correct, then the NEPA call can't be Not Adverse, it must be Adverse. Since nitrate concentrations in drinking water supply pose significant human health issues, any degradation of nitrate water quality should be considered significant and significant impacts must be mitigated.
	WQ-16: Effects on nitrate concentrations resulting from implementation of CM2–CM22	The magnitude of impacts from the implementation of the No Action OCAP BO mandated habitat restorations are vastly smaller than those of the proposed project. (i.e. 8,000 ac No Action vs. 165,000 ac Proposed Project) The EIR/S does not describe the differences in magnitude in their significance calls. The Not Adverse and Less-Than-Significant impact calls are in conflict. Less-Than-Significant is an impact call for an adverse impact of small magnitude or significance. Not Adverse is an impact call for an impact that includes conditions that are both positive and negative, but on the balance are not negative. Therefore the NEPA Not Adverse impact call is incompatible with the CEQA Less-Than-Significant impact call. If the CEQA call of Less-Than-Significant is correct, then the NEPA call can't be Not Adverse, it must be Adverse. Since nitrate concentrations in drinking water supply pose significant human health risks, any degradation of nitrate water quality should be considered significant and significant impacts must be mitigated.
	WQ-17: Effects on organic carbon concentrations resulting from facilities operations and maintenance (CM1)	The magnitude of impacts from the implementation of the No Action OCAP BO mandated habitat restorations are vastly smaller than those of the proposed project. (i.e. 8,000 ac No Action vs. 165,000 ac Proposed Project) The EIR/S does not describe the differences in magnitude in their significance calls. The Not Adverse and Less-Than-Significant impact calls are in conflict. Less-Than-Significant is an impact call for an adverse impact of small magnitude or significance. Not Adverse is an impact call for an impact that includes conditions that are both positive and negative, but on the balance are not negative. Therefore the NEPA Not Adverse impact call is incompatible with the CEQA Less-Than-Significant impact call. If the CEQA call of Less-Than-Significant is correct, then the NEPA call can't be Not Adverse, it must be Adverse. Since dissolved organic carbon concentrations is an important parameter to drinking water supply suitability, any degradation of organic carbon water quality should be considered significant and significant impacts must be mitigated.
	WQ-18: Effects on organic carbon concentrations resulting from implementation of CM2–CM22	The magnitude of impacts from the implementation of the No Action OCAP BO mandated habitat restorations are vastly smaller than those of the proposed project. (i.e. 8,000 ac No Action vs. 165,000 ac Proposed Project) The EIR/S does not describe the differences in magnitude in their significance calls. A Proposed Project that has this severity of an impact on water quality, especially compared to the No Impact/No Effect of the No Action, should not be implemented.

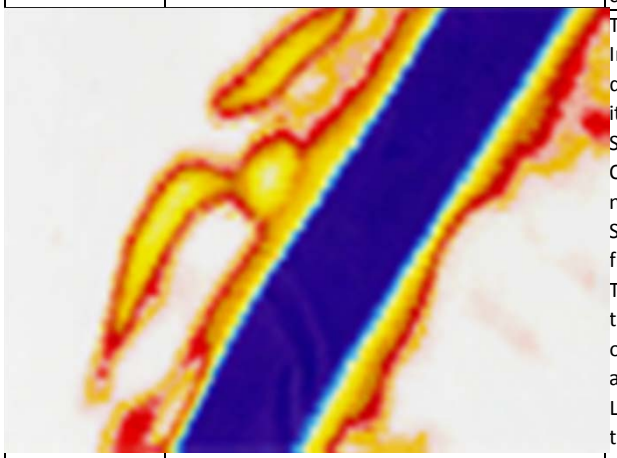
	WQ-19: Effects on pathogens resulting from facilities operations and maintenance (CM1)	The BDCP EIR/S impact calls on the Proposed Project are wrong. The Proposed Project operations reduces the rate of turnover of water in the delta and reduces assimilative capacity (a conclusion from the Water Quality Chapter). Reduced rate of refreshment of water in the delta from the Proposed Project operations is further evidenced by the results of the DSM2 Particle Tracking Model. Increased nutrient loads (e.g. phosphates) and water temperatures that occur from the reduced refreshing of water in the delta from the Proposed Project will result in an increase in the frequency, magnitude, duration and geographic extent of algal blooms. Excess carbon and nitrogen, which the previous impact discussions have disclosed the Proposed Project increases, also contribute to algal blooms (http://en.wikipedia.org/wiki/Algal_bloom). The increase in the magnitude, duration, frequency and geographic extent of harmful algal blooms (HAB) will be significantly increased under the Proposed Project operations due to reduced refreshing of water in the delta and the resulting increase in nutrient loading. The HAB creates toxins that are poisonous to humans through water supply and contact recreations. HAB is also harmful to fish and aquatic bird species. The BDCP aquatic habitat restorations will also cause in increase nutrient concentrations and water temperatures and which result in an increase in the rate and severity of algal blooms and therefore also significantly adversely impact DO. The impacts on algal blooms from the Proposed Project operations and aquatic habitat restorations act in combination together, so the impacts will be worse than the additive impacts of each. This is a significant and adverse impact and the impact call should be changed to reflect this. Any impact call change is a material change to the document and therefore the draft document should be recirculated.
	WQ-20: Effects on pathogens resulting from implementation of CM2–CM22	The BDCP EIR/S impact calls on the Proposed Project are wrong. The Proposed Project operations reduces the rate of turnover of water in the delta and reduces assimilative capacity (a conclusion from the Water Quality Chapter). Reduced rate of refreshment of water in the delta from the Proposed Project operations is further evidenced by the results of the DSM2 Particle Tracking Model. Increased nutrient loads (e.g. phosphates) and water temperatures that occur from the reduced refreshing of water in the delta from the Proposed Project will result in an increase in the frequency, magnitude, duration and geographic extent of algal blooms. Excess carbon and nitrogen, which the previous impact discussions have disclosed the Proposed Project increases, also contribute to algal blooms (http://en.wikipedia.org/wiki/Algal_bloom). The increase in the magnitude, duration, frequency and geographic extent of harmful algal blooms (HAB) will be significantly increased under the Proposed Project operations due to reduced refreshing of water in the delta and the resulting increase in nutrient loading. The HAB creates toxins that are poisonous to humans through water supply and contact recreations. HAB is also harmful to fish and aquatic bird species. The BDCP aquatic habitat restorations will also cause in increase nutrient concentrations and water temperatures and which result in an increase in the rate and severity of algal blooms and therefore also significantly adversely impact DO. The impacts on algal blooms from the Proposed Project operations and aquatic habitat restorations act in combination together, so the impacts will be worse than the additive impacts of each. This is a significant and adverse impact and the impact call should be changed to reflect this. Any impact call change is a material change to the document and therefore the draft document should be recirculated.
	WQ-21: Effects on pesticide concentrations resulting from facilities operations and maintenance (CM1)	The Proposed Project reduction in refreshment rate of water in the delta will reduce the assimilative capacity (per BDCP EIR/S water quality chapter conclusions). The reduced assimilative capacity will result in an increase in the magnitude, duration, frequency and geographic extent of water quality requirement (e.g. TMDL) exceedances. Since these water quality parameters are already in violation, the contribution of the Proposed Project operations will exacerbate these conditions. It is not the BDCP that will be fined and have further operational constraints placed upon them for these water quality violations, it will be the local farmers. The BDCP Proposed Project contribution to this problem is significant and adverse and therefore must be mitigated.

	WQ-22: Effects on pesticide concentrations resulting from implementation of CM2–CM22	The Proposed Project reduction in refreshment rate of water in the delta will reduce the assimilative capacity (per BDCP EIR/S water quality chapter conclusions). The reduced assimilative capacity will result in an increase in the magnitude, duration, frequency and geographic extent of water quality requirement (e.g. TMDL) exceedances. The aquatic habitat restorations create additional area and opportunity for pesticide spray drift to get into the water. The evaporation from the aquatic habitat restorations will further increase the pesticide concentrations. Since these water quality parameters are already in violation, the contribution of the Proposed Project operations will exacerbate these conditions. It is not the BDCP that will be fined and have further operational constraints placed upon them for these water quality violations, it will be the local farmers. The BDCP Proposed Project contribution to this problem is significant and adverse and therefore must be mitigated. A project that precipitates such a significant adverse impact when the No Action has no impact and no effect is a project that should not be implemented.
	WQ-23: Effects on phosphorus concentrations resulting from facilities operations and maintenance (CM1)	The Proposed Project reduction in refreshment rate of water in the delta will reduce the assimilative capacity (per BDCP EIR/S water quality chapter conclusions). The reduced assimilative capacity will result in an increase in the magnitude, duration, frequency and geographic extent of water quality requirement (e.g. TMDL) phosphorus exceedances. Since these water quality parameters are already in violation, the contribution of the Proposed Project operations will exacerbate these conditions. It is not the BDCP that will be fined and have further operational constraints placed upon them for these water quality violations, it will be the local farmers. The BDCP Proposed Project contribution to this problem is significant and adverse and therefore must be mitigated. A project that precipitates such a significant adverse impact when the No Action has no impact and no effect is a project that should not be implemented.
	WQ-24: Effects on phosphorus concentrations resulting from implementation of CM2–CM22	The Proposed Project reduction in refreshment rate of water in the delta will reduce the assimilative capacity (per BDCP EIR/S water quality chapter conclusions). The reduced assimilative capacity will result in an increase in the magnitude, duration, frequency and geographic extent of water quality requirement (e.g. TMDL) phosphorus exceedances. The evaporation from the aquatic habitat restorations will further increase the phosphorus concentrations. Since these water quality parameters are already in violation, the contribution of the Proposed Project operations will exacerbate these conditions. It is not the BDCP that will be fined and have further operational constraints placed upon them for these water quality violations, it will be the local farmers. The BDCP Proposed Project contribution to this problem is significant and adverse and therefore must be mitigated. A project that precipitates such a significant adverse impact when the No Action has no impact and no effect is a project that should not be implemented.
	WQ-25: Effects on selenium concentrations resulting from facilities operations and maintenance (CM1)	The Proposed Project reduction in refreshment rate of water in the delta will reduce the assimilative capacity (per BDCP EIR/S water quality chapter conclusions). The reduced assimilative capacity will result in an increase in the magnitude, duration, frequency and geographic extent of water quality requirement (e.g. TMDL) exceedances for selenium. Since these water quality parameters are already frequently in violation, the contribution of the Proposed Project operations will exacerbate these conditions. It is not the BDCP that will be fined and have further operational constraints placed upon them for these water quality violations, it will be the upstream farmers that discharge selenium in their ag drain water. The BDCP Proposed Project contribution to this problem is significant and adverse and therefore must be mitigated.
	WQ-26: Effects on selenium concentrations resulting from implementation of CM2–CM22	The Proposed Project reduction in refreshment rate of water in the delta will reduce the assimilative capacity (per BDCP EIR/S water quality chapter conclusions). The reduced assimilative capacity will result in an increase in the magnitude, duration, frequency and geographic extent of water quality requirement (e.g. TMDL) selenium exceedances. The evaporation from the aquatic habitat restorations will further increase the selenium concentrations. Since these water quality parameters are already in violation, the contribution of the Proposed Project operations will exacerbate these conditions. It is not the BDCP that will be fined and have further operational constraints placed upon them for these water quality violations, it will be the upstream farmers that discharge selenium in their ag drain water. The BDCP Proposed Project contribution to this problem is significant and adverse and therefore must be mitigated. A project that precipitates such a significant adverse impact when the No Action has no impact and no effect is a project that should not be implemented.

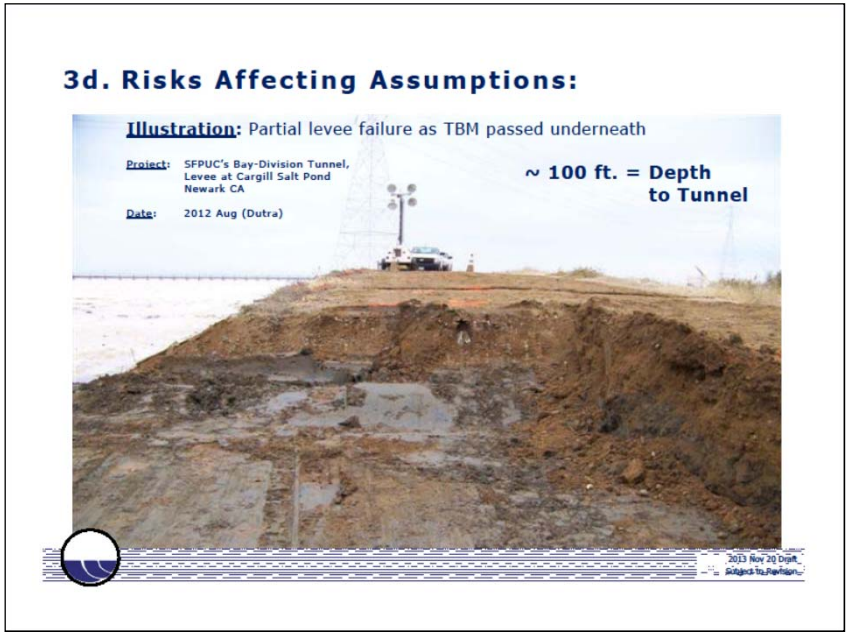
	WQ-27: Effects on trace metal concentrations resulting from facilities operations and maintenance (CM1)	The Proposed Project reduction in refreshment rate of water in the delta will reduce the assimilative capacity (per BDCP EIR/S water quality chapter conclusions). The reduced assimilative capacity will result in an increase in the magnitude, duration, frequency and geographic extent of water quality requirement (e.g. TMDL) exceedances for trace metals. Since these water quality parameters are already frequently in violation, the contribution of the Proposed Project operations will exacerbate these conditions. It is not the BDCP that will be fined and have further operational constraints placed upon them for these water quality violations, it will be the upstream farmers and M&I dischargers. The BDCP Proposed Project contribution to this problem is significant and adverse and therefore must be mitigated.
	WQ-28: Effects on trace metal concentrations resulting from implementation of CM2–CM22	The magnitude of impacts from the implementation of the No Action OCAP BO mandated habitat restorations are vastly smaller than those of the proposed project. (i.e. 8,000 ac No Action vs. 165,000 ac Proposed Project) The EIR/S does not describe the differences in magnitude in their significance calls. The Not Adverse and Less-Than-Significant impact calls are in conflict. If the CEQA call is correct, then the NEPA call can't be Not Adverse, it must be Adverse.
	WQ-29: Effects on TSS and turbidity resulting from facilities operations and maintenance (CM1)	Climate change and sea level rise should have no affect on TSS concentrations as related to CVP/SWP operations, so the impact call should be No Impact/No Effect. The Not Adverse and Less-Than-Significant impact calls are in conflict. If the CEQA call is correct, then the NEPA call can't be Not Adverse, it must be Adverse.
	WQ-30: Effects on TSS and turbidity resulting from implementation of CM2–CM22	The magnitude of impacts from the implementation of the No Action OCAP BO mandated habitat restorations are vastly smaller than those of the proposed project. (i.e. 8,000 ac No Action vs. 165,000 ac Proposed Project) The EIR/S does not describe the differences in magnitude in their significance calls. The Not Adverse and Less-Than-Significant impact calls are in conflict. If the CEQA call is correct, then the NEPA call can't be Not Adverse, it must be Adverse. Since the NEPA impact call is in comparison to the No Action, any impact of the Proposed Project is in addition to those impacts identified in the No Action (they are not equivalent impacts). The impact call is incorrect as the increase in turbidity from the aquatic restoration actions is significant (65,000 acres of intertidal and subtidal habitat that mostly are sediment generators, not sediment sinks). This significant impact needs to have avoidance, minimization and mitigation measures developed. These measures could include habitat restoration design elements to make them sediment mobilization and capture neutral. These elements could include the size and location of levee breaches and water depth to which habitat was inundated.
	WQ-31: Water quality impacts resulting from construction-related activities (CM1–CM22)	The magnitude of impacts from the implementation of the No Action OCAP BO mandated habitat restorations are vastly smaller than those of the proposed project. (i.e. 8,000 ac No Action vs. 165,000 ac Proposed Project) The EIR/S does not describe the differences in magnitude in their significance calls. Dewatering of ditches and groundwater around construction sites will require discharge of that water. The water quality of that discharge water will require treatment to meet waste water discharge water quality standards and therefore this is a significant and adverse impact from the Proposed Project.
	Increased saltwater intrusion into the delta from the BDCP operations will increase groundwater salinity in large portions of the delta and use of groundwater as a substitute water supply during periods of BDCP degraded surface water quality will poison the soils and crops.	The BDCP EIR/S has identified a significant and unavoidable degradation of water quality in the delta from increased saltwater (EC) intrusion from BCDP proposed operations. The BDCP EIR/S has failed to adequately evaluate how these significant surface water quality impacts effect groundwater quality. When surface water quality is reduced in the delta due to BDCP operations, growers will utilize groundwater as a substitution for their BDCP compromised senior surface water rights and diversions. This increased reliance upon groundwater as a substitution water supply during periods of BDCP degraded surface water quality will result in increased groundwater withdrawals and increased hydraulic gradient from the tributary to the groundwater basin. The BDCP caused increase in hydraulic gradient from the tributary to the groundwater will pull water from the BDCP degraded water quality in the tributary into the adjacent groundwater profile. The lower quality (higher EC and Boron) water from the tributary will flow in on top of the deeper groundwater with little to no mixing with better quality deeper groundwater. The deeper groundwater quality may not be significantly affected for some time as it approaches the wellhead groundwater cone depression, but it will be degraded over time. The more immediate affect of the higher EC and Boron layer degraded water quality of near surface groundwater will occur nearly immediately. Groundwater tables are near the soil surface and in the crop root zone in most of the delta in portions if not the entire year. Salts wick up through the soil from shallow groundwater by capillary action with soil particle interstitial spaces. Even though the salts from the tributaries may not reach the wellheads for several years, the near surface migration of salts from the tributary recharge of the BDCP depressed groundwater cone will start affecting the salinity of the root zones of the crops near the edges of the islands in the first season or two.

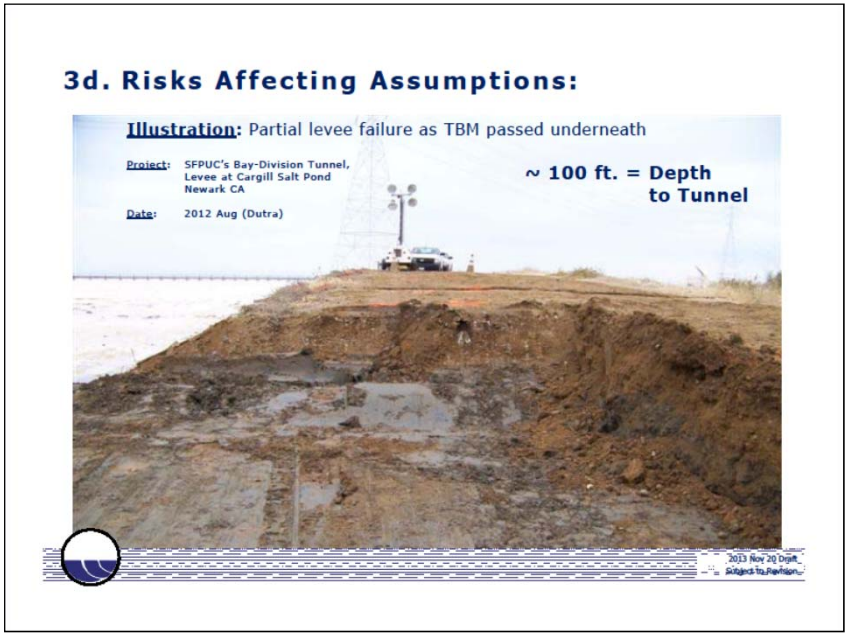
	comment continued…	Once salts have been pulled into the shallow groundwater as described above, it will be nearly impossible for the grower to manage the salts. In areas of deeper groundwater (e.g. Southern Central Valley), a grower can flush salts down and out of the root zone. In the delta, because of the shallow groundwater table, irrigations to flush salts out of the root zone will only raise the water table and cause the salts to wick higher into the root zone. The leaching irrigation has nowhere to go so it will only slightly dilute the salts, but again the salts will wick up through the soil. Even a thin layer of degraded groundwater quality that occurs in or near the root zone could make large portions of the delta unfarmable in a matter of just a few years. This BDCP impact converts the farmland to a different land use (non-farming) which by CEQA significance criteria is a significant impact. The BDCP failed to identify, evaluate, quantify or disclose the significant impacts of reduced shallow groundwater quality in the delta that would be caused by the BDCP proposed operations and their degradation of surface water quality. The BDCP can minimize this significant impact by actually complying with the current water quality requirements instead of frequently violating them as the current CVP/SWP operations do. The BDCP can mitigate this impact by providing alternative water supplies to areas of degraded surface water supplies so that the growers do not have to rely upon groundwater as an alternative supply.
	Increased saltwater intrusion into the delta from the BDCP operations will increase groundwater salinity in large portions of the delta from reclamation district operations to draining the islands.	This comment builds off of the impacts described in the preceding comment regarding BDCP degradation of surface water quality and the resulting degradation of shallow groundwater quality in the delta. Many islands in the delta have land elevations that are at, near or below the water levels of their surrounding tributaries. The only way the islands are maintained from becoming flooded by seepage from the tributaries is to nearly continuously pump water out from the drainage ditches in the Reclamation District back into the tributary. By the Reclamation District pumping the water off of the island or tract, the groundwater levels are maintained to levels that are farmable (3 to 8 foot minimum depending on crop type and season). The amount of shallow groundwater pumping and rate of turnover of shallow groundwater recharge from the tributary is dependent upon several factors. The more porous the levees and soils and the higher the hydraulic gradient from the tributary to the groundwater, the faster the movement of tributary water into the shallow groundwater. The larger the difference between the tributary water elevation and the groundwater height (hydraulic gradient), the faster the movement of tributary water into the shallow groundwater. Even a thin layer of degraded groundwater quality that occurs in or near the root zone could make large portions of the delta unfarmable in a matter of just a few years. This BDCP impact of surface water quality degradation that causes shallow groundwater quality degradation will result in a conversion of farmland to a different land use (non-farming) which according to CEQA guidance significance criteria is a significant impact. The BDCP failed to identify, evaluate, quantify or disclose the significant impacts of degraded shallow groundwater quality in the delta that would be caused by the BDCP proposed operations. The BDCP can avoid this significant impact to groundwater quality by adopting operations that do not degrade the surface water quality. The BDCP can minimize this significant impact to groundwater quality by building toe drains at the base of the levees surrounding the affected islands and providing for and maintaining drainage operations that intercept and prevent the movement of degraded surface water quality into the island's groundwater. This minimization measure would need to be complemented by the BDCP also providing an alternative surface water supply of non-degraded quality for the farmers to use as an alternate water supply. These suggested avoidance and minimization measures are practical, feasible, well tested and accepted and are small in scale in comparison to the scope and cost of the overall BDCP proposal.

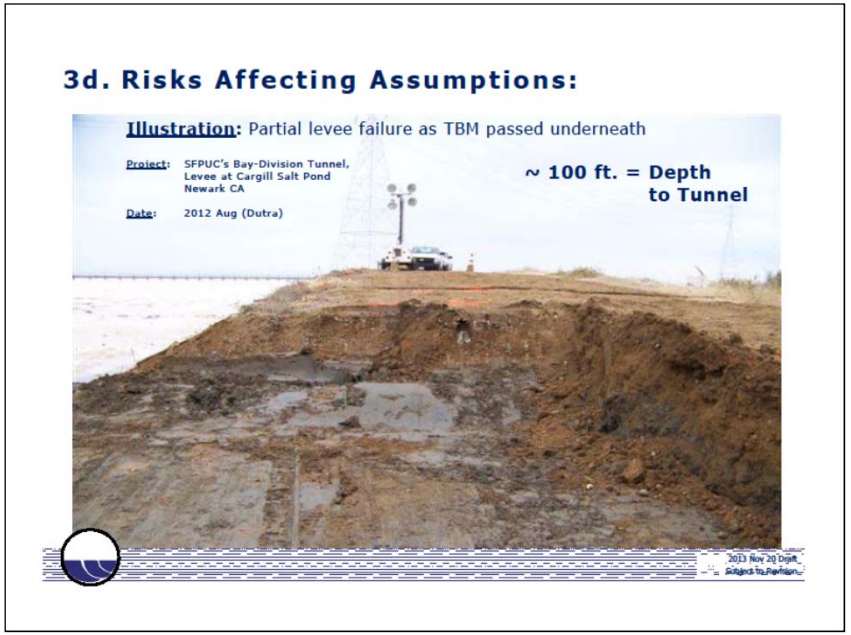
	Increased saltwater intrusion into the delta from the BDCP operations will increase groundwater salinity in large portions of the delta from drain tile operations on the islands.	This comment builds off of the impacts described in the preceding two comments regarding BDCP degradation of surface water quality and the resulting degradation of shallow groundwater quality in the delta. Due to the shallow groundwater tables in the delta, many open ground fields and most permanent crop plantings utilize drain tile to maintain groundwater levels and keep groundwater moving to protect their crops and the productivity of the soils. Most permanent crop plantings are adjacent to the levees due to their higher elevation, better drainage and better soils. This means that the drain tiles that are under most of permanent crops planted in the delta are right next to the tributaries. Drain tiles are typically installed at 5 to 10 feet deep, depending on soil type, crop type, groundwater table elevations and topography (drainage). The drain tile function is to reduce the groundwater table elevations, creating a localized groundwater table depression to protect the soil and crops from groundwater elevations that are too shallow. The groundwater collected from the drain tile is transported via drainage pipes to the lower elevation drainage ditches that are located near the center of the islands and tracts. This necessary drain tile function creates the same increased hydraulic gradient from the island groundwater table from the surrounding tributaries as described in the preceding two comments. The impacts from the degraded groundwater quality from the BDCP operations will occur even more quickly with drain tile operation interactions than the impacts to shallow groundwater quality described in the two preceding comments. Degraded surface water quality from the BDCP operations will be pulled into the shallow groundwater table where the drain tiles are functioning in the same manner as described in the previous two comments. The drain tiles will collect this degraded quality groundwater and drain the water to the main drainage ditches. These drainage ditches are also water supply ditches that are pumped out of to irrigate other fields. These central drains/water supply ditches is how water supply is delivered to most fields that are in the interior of the islands and tracts. Through the function of the drain tile and drainage of those systems into the water supply ditches in the middle of the islands and tracts, the degraded shallow groundwater from BDCP operations have now been translated back into additional impacts to water quality of surface water supplies for the interior fields. As mentioned previously, because of the proximity of the drain tiles to the tributaries and the function of the drain tile to translocate the drainage water to the main ditches, this mode of impact could occur very quickly, e.g. the first year of degraded surface water quality from the BDCP operations. The geographic scope and magnitude of this impact is not small either.
	comment continued…	Most of the islands and tracts, with the exception of some of the most interior delta and lowest elevation islands, are ringed by permanent crop plantings at their outside edges. Cumulatively, these represent several hundred miles of tributary length that have drain tiles installed adjacent to them. The BDCP failed to identify, evaluate, quantify or disclose the significant impacts of degraded shallow groundwater quality in the delta and the translation of that shallow groundwater quality degradation into a subsequent degradation of additional surface water supply water quality that would be caused by the BDCP proposed operations. The BDCP can avoid this significant impact to groundwater quality by adopting operations that do not degrade the surface water quality. The BDCP can minimize this significant impact to groundwater quality by building toe drains at the base of the levees surrounding the affected islands and providing for and maintaining drainage operations that intercept and prevent the movement of degraded surface water quality into the island's groundwater. The BDCP can further minimize this significant impact by providing for and maintaining sump pumps for the tail water coming out of the drain tile systems. The sump pump would discharge the drain tile water back into the tributary rather than letting the degraded shallow groundwater contaminate the surface water supplies at the main drain/water supply ditches. The use of sump pumps on drain tile systems is a common practice in the southern central valley as the topographic gradients are not sufficient to allow drain tile function without the sump pumps. Because the use of sump pumps on drain tile systems is common practice in the CVP/SWP service areas, the BDCP cannot claim that there are no feasible, practicable measures to avoid, minimize or mitigate this significant impact of the BDCP proposed operations.

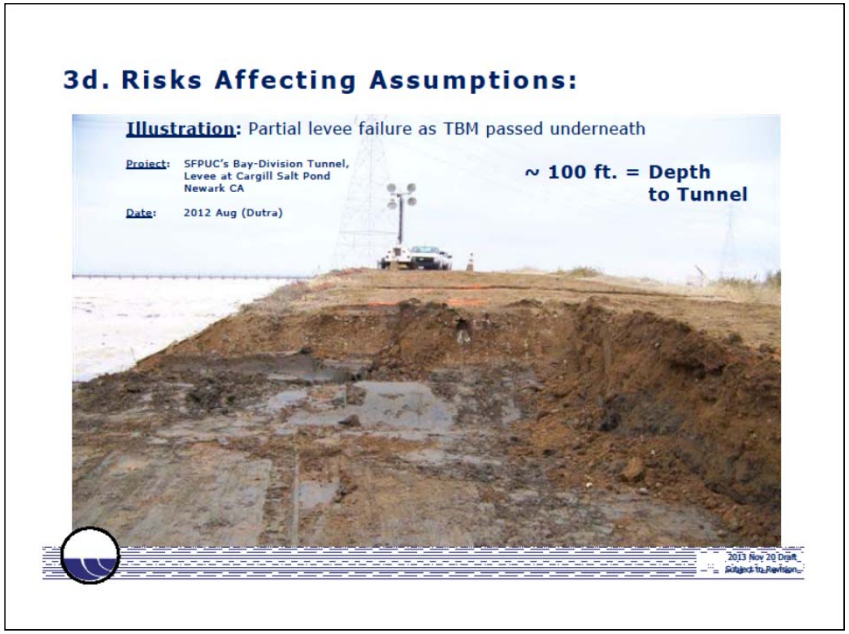
REUSABLE TUNNEL MATERIAL TESTING Report -section 2.3.1	Environmental testing did not include all of the relevant compounds that should have been tested for.	As an example, the tests had a category for "soluble metals". This is such a broad category as to be useless in a meaningful environmental analysis. The samples should have been tested for a broad panel that encompassed all of the drinking water quality standards so that the impacts of tunnel muck disposal that resulted in water or wind erosion deposition in water could be evaluated. Testing panels should have also included compounds which can be bioacumulated in fish and other species so those impacts could have been evaluated and disclosed. The testing of the samples should be redone to include these other important constituents and the EIR/S revised to evaluate, quantify, disclose and mitigate for the impacts associated with the chemical constituent impacts of the tunnel muck materials proposed by the BDCP.
REUSABLE TUNNEL MATERIAL TESTING Report -section 3.1.3	The water permeability of the polymer treated samples is much lower than the untreated samples.	The water infiltration rate of the treated tunnel much is much lower than the untreated materials. The analysis should also have included a comparison to the infiltration rates of the soils that would be covered by the tunnel much disposal to determine the impacts to soil suitability for agriculture, habitat, groundwater recharge, surface erosion, cumulative drainage, and surface water drainage quantity and quality. The BDCP EIR/S failed to conduct these assessments on the impacts of the infiltration rates of the tunnel muck disposal.
Chapter 9 - Geology and Seismicity		
	The 75940 Federal Register / Vol. 78, No. 240 / Friday, December 13, 2013 states that, "The Plan also intends to… reducing future risks to the Delta from earthquakes, levee failure and climate change."	Where in the proposed project does the BDCP reduce “future risks to the delta from earthquakes, levee failure, and climate change”. The project proposes to address those issues for the CVP/SWP conveyance, but it does nothing for the Delta on those issues. The project does raise the risk of levee failure to the Delta by structurally altering existing levees and adding new ones. The project also increases risks to the delta from future climate change as the aquatic habitat restorations increase the volume of intertidal exchange. Increases in the volume of intertidal exchange will degrade water quality, increase the velocities of tidal surges and increase the magnitude of tidal surge stage elevations. So is the BDCP proposing to reduce earthquake, levee failure and climate change risk in the delta or is the Federal Register notice incorrect such that it needs to be revised and reissued?
		The BDCP does not address existing CVP/SWP canals and reservoirs outside of the delta as also being vulnerable to earthquakes. Instead it only focuses on system reliability in the delta which is only a small part of the overall CVP/SWP water supply and water delivery system. In order to achieve the BDCP stated objective to increase CVP/SWP reliability from earthquakes, it needs to focus its efforts and proposals to address where the greatest earthquake risks are that threaten the system. As an example, the fault at San Luis Reservoir is 5 times more active than the faults in the western-most part of the delta that the BDCP identifies as making the CVP/SWP water system vulnerable to earthquakes (http://www.restorethedelta.org/keep-your-eye-on-the-ball-2/). A new/additional "San Luis II" reservoir built to withstand the potential magnitude earthquake from the fault that is under the current San Luis reservoir (which is not built to that standard) would be a more important focus than the delta in terms of system reliability from earthquakes. The SWP California Aqueduct is built on a series of fills across drainages in the hills south and west of Tracy. These "fill" sections have cracked linings and leak from settling of the fill materials. The image on the left is of the SWP aqueduct in the hills south of Tracy. The blue is the water in the canal and the yellow areas are leaks from the canal from cracking in the lining of the aqueduct from settling of the fill sections and from earthquake damage. Water logging of the fill materials from the aqueduct leaks makes these segments of the canal extremely vulnerable to liquefaction and additional settling from an earthquake. Loss of San Luis Reservoir and/or several sections of the California Aqueduct would be as devastating or more to CVP/SWP reliability than any hypothetical (and less likely to occur) scenario the BDCP has presented for earthquake-caused system reliability in the delta. Strengthening the delta to be resilient from an earthquake does not accomplish the BDCP objective if the south of delta delivery canals and reservoirs are compromised in an earthquake. In addition to improving the south of delta system reliability from earthquakes, a greater reliance on local water supplies in the service areas also improves water delivery reliability in the event of an earthquake. The BDCP has failed to encompass a full scope of alternatives which would address the BDCP stated objective to increase system reliability from earthquakes.

	The BDCP purpose and need identifies a need to increase the reliability of current conveyance.	The upstream tributary and delta levees are part of the current conveyance system, so levee improvements should be within the scope of potential project actions.
	Previous CVP/SWP related environmental documents have utilized more comprehensive significance criteria to evaluate project impacts than were used in the BDCP EIR/EIS. Other recent CVP/SWP and habitat restoration related environmental documents establish precedent for how the State and Federal agencies should evaluate the BDCP impacts.	These agency precedent setting environmental documents include: CALFED Bay-Delta EIS/EIR (Federal agencies: Reclamation, FWS, NMFS, BLM, USGS, USACE, US EPA, USDA, USFS, NRCS, and WAPA; State agencies: DWR, DFG, Reclamation Board, Cal EPA, CDFA, Delta Protection Commission and SWRCB), South Delta Improvement Project EIS/EIR (Federal Lead Agency: Reclamation; State Lead Agency: DWR; Responsible Agencies: SWRCB and DFG; Cooperating Agency: USACE), Salton Sea Restoration Program EIS/EIR (Federal Lead Agency: USACE; State Lead Agency: California Natural Resources Agency; Prepared by: DWR and DFG), Lower Yuba River Accord EIS/EIR (Federal Lead Agency: Reclamation; Responsible Agencies: DWR, DFG, and SWRCB; and Cooperating Agencies: NMFS and FWS), Oroville Facilities FERC Relicensing EIR (State Lead Agency: DWR), and Monterey Agreement EIR (State Lead Agency: DWR). The same agencies that produced and approved these other recent and similar scope project environmental documents are the same agencies involved in the BDCP. The BDCP's agency roles for the environmental documents are similar to these other projects - Federal Leads: Reclamation, NMFS and FWS; State Lead: DWR; Responsible Agencies: DFG and SWRCB; and, Cooperating Agencies: USEPA and USACE. These documents establish a precedent for the significance criteria that should be used in evaluating the resource impacts of the BDCP project. If the BDCP does not utilize these same significance criteria as these other similar projects, then BDCP must provide a supporting justification for their departure from previous agency policies and practices. BDCP should revise the document to include all aspects of the significance criteria for their impact evaluations that were established as agency precedents in these other recent and similar documents. Subsequent comments identify these missing criteria.
	Substantial removal, filling, grading, or disturbance of soils. (CALFED EIS/R significance criteria)	The BDCP proposed project tunnel will result in a very large amount of removal, filling, grading and disturbance of soils. Removal will be from excavation of soils which are not geotechnical suitable to build on and for tunnel muck. This amounts to tens of thousands of cubic yards of material. BDCP grading will be for building, staging, habitat restoration and other actions and amounts to over a thousand acres of grading. Disturbance of soils will result from grading and tunnel muck disposal will result in thousands of acres of disturbance. These significant impacts can be avoided by reducing the size of the facilities, locating facilities only where soils are geotechnical suitable to build on, by building at grade rather than on raised platforms, by minimizing land sculpting in habitat restorations, and sale of tunnel muck as top soil for landscaping.
	Releases of toxic materials from soils or sediments (CALFED EIS/R significance criteria)	Tunnel muck disposed may contain contaminants which are endemic in the delta (e.g. Hg, Pb, Se, As) - see related comments. Sediment captured and disposed of from the intakes will contain contaminants that adhere to sediment particles (e.g. pyrethroids, DDT and DDT derivative breakdown products). Both of these sources of contaminants from BDCP disposals can release these otherwise biologically sequester materials and mobilize them through surface water and wind erosions and percolation into groundwater through drainage. Once the BDCP releases and mobilizes these contaminants then other sensitive receptors are vulnerable to exposure - endangered species, local residents and workers, downwind communities and schools, bioaccumulation in the food web, etc.
	The CVP and SWP management of flows downstream of their respective reservoirs contributes to erosion from operations flows.	The Emerald Ranch on the lower Feather River successfully sued DWR for erosion of their property from Oroville facility operations. During the Oroville Relicensing project, DWR settled the suit by compensating the owner for the loss of land and by paying for levee protection at the erosion site. BDCP has failed to identify, characterize, quantify or disclose the on-going impact on erosion of the operations of the CVP and SWP. Changes in operations and continuation of operations from the BDCP will continue to alter erosion and geomorphic processes that must be avoided, minimized and mitigated by the BDCP.

	CVP/SWP reservoirs are sediment traps that starve the tributaries downstream of these facilities from their natural upstream sediment contributions and the BDCP intake sediment removal exacerbates this condition.	The BDCP changes the rate of siltation, deposition, and erosion that will modify channel morphology. The upstream reservoirs have an on-going impact on downstream sediment load. The intakes remove sediment load from the river. The amount and texture of suspended sediment load is an important component in channel morphology. With a reduced sediment load from the project, scour holes can form in the channel where they otherwise would not have formed. These scour holes can compromise the toe of the levee, reduce the structural integrity of the levee, increase the risk of levee failure and cause levee failures in locations where they would not have occurred without the project removal of sediment from the river. The Twitchel Island setback levee project was in response to the erosion of the toe of a levee and levee instability caused by a scour hole caused by upstream sediment starvation. The project can easily reduce this on-going CVP/SWP and new BDCP impacts by putting the sediment that it separates out from the diverted water back into the river as well as increasing levee maintenance in areas where scour holes occur. DWR and Reclamation could also replace the sediment intercepted in the tributaries upstream of their facilities by doing sediment augmentation downstream of their facilities. This avoidance and minimization action has the added benefit of avoiding the impacts from land disposal of the sediments from the intakes.
	BDCP construction-related traffic will significantly increase heavy truck traffic and construction staff commuter traffic on delta levee roads.	Heavy truck traffic can cause vibrations that increase the risk of levee liquefaction or slumping during high tributary flow periods when the levee soils are saturated. This impact can be minimized by not running trucks during high tributary flow periods.
	GEO-1: Loss of property, personal injury, or death from structural failure resulting from strong seismic shaking of water conveyance features during construction	The NEPA call on the No Action is incorrect, it should be "No Effect" seeing as the No Action does not include construction of conveyance features. The Not Adverse and Less-Than-Significant impact calls are in conflict. If the CEQA call is correct, then the NEPA call can't be Not Adverse, it must be Adverse. The risk of levee failure during conveyance construction is real, see "SFPUC Tunnel Boring Machine caused failure in the SF Bay Cargill Salt Pond levee". The risks of levee failure (a water conveyance) from BDCP Proposed Project tunnel boring machine vibration is significant and with mitigation (safety precautions, temporary protection levees, etc.) could be a less than significant and adverse impact. 

	GEO-2: Loss of property, personal injury, or death from settlement or collapse caused by dewatering during construction of water conveyance features	The NEPA call on the No Action is incorrect, it should be "No Effect" seeing as the No Action does not include dewatering during construction of conveyance features. The Not Adverse and Less-Than-Significant impact calls are in conflict. If the CEQA call is correct, then the NEPA call can't be Not Adverse, it must be Adverse. The risk of collapse from dewatering during conveyance construction is real. The risks of settlement or collapse caused by BDCP Proposed Project construction site dewatering is significant and only with mitigation (safety precautions, surface elevation monitoring, dewatering impoundments, etc.) would they be less than significant and adverse.
	GEO-3: Loss of property, personal injury, or death from ground settlement during construction of water conveyance features	Finally, here is an example of an impact call that is made correctly relative to the No Action. The correct answer is that since the No Action does not include construction of conveyance features there is "No Effect". The Not Adverse and Less-Than-Significant impact calls are in conflict. If the CEQA call is correct, then the NEPA call can't be Not Adverse, it must be Adverse. The risk of levee failure during conveyance construction is real, see "SFPUC Tunnel Boring Machine caused failure in the SF Bay Cargill Salt Pond levee". The risks of levee failure (a water conveyance) from BDCP Proposed Project tunnel boring machines is significant and with mitigation (safety precautions, temporary protection levees, etc.) could be less than significant and adverse. 

	GEO-4: Loss of property, personal injury, or death from slope failure during construction of water conveyance features	The Not Adverse and Less-Than-Significant impact calls are in conflict. If the CEQA call is correct, then the NEPA call can't be Not Adverse, it must be Adverse. The risk of levee failure during conveyance construction is real, see "SFPUC Tunnel Boring Machine caused failure in the SF Bay Cargill Salt Pond levee". The risks of slope failure of a levee (a water conveyance) from BDCP Proposed Project tunnel boring machines is significant and with mitigation (safety precautions, temporary protection levees, etc.) could be less than significant and adverse. 

	GEO-5: Loss of property, personal injury, or death from structural failure resulting from construction-related ground motions during construction of water conveyance features	The Not Adverse and Less-Than-Significant impact calls are in conflict. If the CEQA call is correct, then the NEPA call can't be Not Adverse, it must be Adverse. The risk of levee failure during conveyance construction is real, see "SFPUC Tunnel Boring Machine caused failure in the SF Bay Cargill Salt Pond levee". The risks of slope failure of a levee (a water conveyance) from BDCP Proposed Project tunnel boring machines is significant and with mitigation (safety precautions, temporary protection levees, etc.) could be less than significant and adverse. 
	GEO-6: Loss of property, personal injury, or death from structural failure resulting from rupture of a known earthquake fault during operation of water conveyance features	The Not Adverse and Less-Than-Significant impact calls are in conflict. If the CEQA call is correct, then the NEPA call can't be Not Adverse, it must be Adverse. A Proposed Project that precipitates such a significant adverse impact when the No Action has no impact and no effect is a project that should not be implemented.
	GEO-7: Loss of property, personal injury, or death from structural failure resulting from strong seismic shaking during operation of water conveyance features	The Not Adverse and Less-Than-Significant impact calls are in conflict. If the CEQA call is correct, then the NEPA call can't be Not Adverse, it must be Adverse. A Proposed Project that precipitates such a significant adverse impact when the No Action has no impact and no effect is a project that should not be implemented.
	GEO-8: Loss of property, personal injury, or death from structural failure resulting from seismic-related ground failure (including liquefaction) during operation of water conveyance features	The Not Adverse and Less-Than-Significant impact calls are in conflict. If the CEQA call is correct, then the NEPA call can't be Not Adverse, it must be Adverse. A Proposed Project that precipitates such a significant adverse impact when the No Action has no impact and no effect is a project that should not be implemented.
	GEO-9: Loss of property, personal injury, or death from landslides and other slope instability during operation of water conveyance features	The Proposed Project takes this impact from a Benefit in the No Action to a Adverse and less than significant impact in the Proposed Project. Why would anyone want to do a project that so obviously results in a worse condition for so many resources as compared to the No Action?

	GEO-10: Loss of property, personal injury, or death from seiche or tsunami during operation of water conveyance features	The Proposed Project takes this impact from a Benefit in the No Action to a Adverse and less than significant impact in the Proposed Project. Why would anyone want to do a project that so obviously results in a worse condition for so many resources as compared to the No Action?
	GEO-11: Ground failure caused by increased groundwater surface elevations from unlined canal seepage as a result of operating the water conveyance facilities	The Not Adverse and Less-Than-Significant impact calls are in conflict. If the CEQA call is correct, then the NEPA call can't be Not Adverse, it must be Adverse. A Proposed Project that precipitates such a significant adverse impact when the No Action has no impact and no effect is a project that should not be implemented.
	GEO-12: Loss of property, personal injury, or death resulting from structural failure caused by rupture of a known earthquake fault at Restoration Opportunity Areas	The Not Adverse and Less-Than-Significant impact calls are in conflict. If the CEQA call is correct, then the NEPA call can't be Not Adverse, it must be Adverse. A Proposed Project that precipitates such a significant adverse impact when the No Action has no impact and no effect is a project that should not be implemented.
	GEO-13: Loss of property, personal injury, or death from structural failure resulting from strong seismic shaking at Restoration Opportunity Areas	The Not Adverse and Less-Than-Significant impact calls are in conflict. If the CEQA call is correct, then the NEPA call can't be Not Adverse, it must be Adverse. A Proposed Project that precipitates such a significant adverse impact when the No Action has no impact and no effect is a project that should not be implemented.
	GEO-14: Loss of property, personal injury, or death from structural failure resulting from seismic-related ground failure (including liquefaction) beneath Restoration Opportunity Areas	The Not Adverse and Less-Than-Significant impact calls are in conflict. If the CEQA call is correct, then the NEPA call can't be Not Adverse, it must be Adverse. A Proposed Project that precipitates such a significant adverse impact when the No Action has no impact and no effect is a project that should not be implemented.
	GEO-15: Loss of property, personal injury, or death from landslides and other slope instability at Restoration Opportunity Areas	The Proposed Project takes this impact from a Benefit in the No Action to a Adverse and less than significant impact in the Proposed Project. Why would anyone want to do a project that so obviously results in a worse condition for so many resources as compared to the No Action?
	GEO-16: Loss of property, personal injury, or death from seiche or tsunami at Restoration Opportunity Areas as a result of implementing the conservation actions	The Proposed Project takes this impact from a Benefit in the No Action to a Adverse and less than significant impact in the Proposed Project. Why would anyone want to do a project that so obviously results in a worse condition for so many resources as compared to the No Action?
Chapter 10 - Soils		
	Previous CVP/SWP related environmental documents have utilized more comprehensive significance criteria to evaluate project impacts than were used in the BDCP EIR/EIS. Other recent CVP/SWP and habitat restoration related environmental documents establish precedent for how the State and Federal agencies should evaluate the BDCP impacts.	These agency precedent setting environmental documents include: CALFED Bay-Delta EIS/EIR (Federal agencies: Reclamation, FWS, NMFS, BLM, USGS, USACE, US EPA, USDA, USFS, NRCS, and WAPA; State agencies: DWR, DFG, Reclamation Board, Cal EPA, CDFA, Delta Protection Commission and SWRCB), South Delta Improvement Project EIS/EIR (Federal Lead Agency: Reclamation; State Lead Agency: DWR; Responsible Agencies: SWRCB and DFG; Cooperating Agency: USACE), Salton Sea Restoration Program EIS/EIR (Federal Lead Agency: USACE; State Lead Agency: California Natural Resources Agency; Prepared by: DWR and DFG), Lower Yuba River Accord EIS/EIR (Federal Lead Agency: Reclamation; Responsible Agencies: DWR, DFG, and SWRCB; and Cooperating Agencies: NMFS and FWS), Oroville Facilities FERC Relicensing EIR (State Lead Agency: DWR), and Monterey Agreement EIR (State Lead Agency: DWR). The same agencies that produced and approved these other recent and similar scope project environmental documents are the same agencies involved in the BDCP. The BDCP's agency roles for the environmental documents are similar to these other projects - Federal Leads: Reclamation, NMFS and FWS; State Lead: DWR; Responsible Agencies: DFG and SWRCB; and, Cooperating Agencies: USEPA and USACE. These documents establish a precedent for the significance criteria that should be used in evaluating the resource impacts of the BDCP project. If the BDCP does not utilize these same significance criteria as these other similar projects, then BDCP must provide a supporting justification for their departure from previous agency policies and practices. BDCP should revise the document to include all aspects of the significance criteria for their impact evaluations that were established as agency precedents in these other recent and similar documents. Subsequent comments identify these missing criteria.

	Increased potential for soil erosion by wind, waves, or currents. (CALFED significance criteria)	Tunnel muck disposal sites will be subject to significant wind and water erosion as plants will be slow to successfully colonize the radically altered soil texture that results from the tunneling soil conditioner. The delta areas proposed by the BDCP for tunnel muck disposal are windy. As an example, one of the biggest wind farms in California is in the Montezuma Hills by Rio Vista which is immediately upwind of the majority of the BDCP proposed tunnel muck disposal sites. BDCP intertidal and subtidal habitat restorations and riparian habitat restorations and their impoundment levees will create significant amounts of wave and current erosion than the existing and no action/no project condition. Changes in upstream tributary flows from the BDCP will alter erosion patterns. As an example, the DWR Oroville Facility FERC Relicensing ended up having to mitigate erosion that occurred at Emerald Farms on the Feather River due to project operations flow-related impacts. The BDCP failed to identify, evaluate or disclose flow- and wind-related impacts on erosion of soil-related resources.
	Disruption of natural or favorable soil profiles and horizons. (CALFED significance criteria)	The BDCP tunnel muck disposal will bury native soils and alter the natural soil profiles and horizons. Tunnel spoils will change soil type, drainage, range of usage and productivity of the soil. This impact is avoidable by burying the muck under the natural surface soils by excavating 10-15 feet of the top soil, placing a 3-4 deep layer of tunnel muck and then replacing the original top soil. The productivity of the soil would be preserved and the elevations of some of the subsided islands in the delta could be raised.
	Result in substantial soil erosion or the loss of topsoil. (Monterey Agreement Sig Criteria)	BDCP disposal of tunnel muck and sediment from sediment traps and settling ponds at the intakes will bury the topsoil such that it is equivalent to loss. In aquatic habitat restorations that are either eroded by current or wave action or have sediment deposition due to inundation and accumulation, the soil top soil will either be directly lost or buried such that it is effectively lost. The BDCP failed to identify, evaluate or disclose flow-related impacts on erosion of soil-related resources.
	Compaction on BDCP construction staging areas would permanently impair soil structure.	Compaction and deflocculating of soil structure will permanently impair the productivity and drainage of areas utilized for construction staging for the BDCP. Permanent impairment of soil resources at the construction staging sites was not identified, evaluated or disclosed in the BDCP EIR/S document.
	During construction BDCP will dewater groundwater around intake, tunnel headworks and tunnel access construction sites (dewater to 100') which will collapse water bearing strata in the soil.	Once clay soil water bearing strata are collapsed, they do not recover their structure, water holding capacity or their previous soil volume. This collapse results in a permanent subsidence of the ground surface, which can damage structures and levees, alter drainage patterns and groundwater depth. Inadequate drainage from subsidence and elevated water tables alter the suitability of soil for agriculture and its productivity. This alteration of drainage and productivity will cause a reclassification of a prime productivity soil to a lower rating which is a significant impact of the project. Changes of soil ratings at the construction dewatering sites was not identified, evaluated or disclosed in the BDCP EIR/S document.
	SOILS-1: Accelerated erosion caused by vegetation removal and other soil disturbances as a result of constructing the proposed water conveyance facilities	The No Action does not include construction of conveyance facilitates, therefore there would be No Impact/No Effect. The Proposed Project tunnel construction would result in hundreds of acres being used as disposal sites for tunnel muck. The tunnel muck buries the vegetation and ground cover at those sites and leaves exposed bare soils so this would result in a significant source of erosion. Construction sites and staging areas are also areas of significant potential contribution to erosion, but these could be mitigated to less than significant. The BDCP did not propose any mitigation for this impact so these sources would also remain significant and adverse.
	SOILS-2: Loss of topsoil from excavation, over covering, and inundation as a result of constructing the proposed water conveyance facilities	The No Action does not include construction of conveyance facilities, therefore there would be No Impact/No Effect. A project that precipitates such a significant adverse impact when the No Action has no impact and no effect is a project that should not be implemented.
	SOILS-3: Property loss, personal injury, or death from instability, failure, and damage from construction on or in soils subject to subsidence as a result of constructing the proposed water conveyance facilities	The Proposed Project takes this impact from a Benefit in the No Action to a Adverse and less than significant impact in the Proposed Project. Why would anyone want to do a project that so obviously results in a worse condition for so many resources as compared to the No Action? The Not Adverse and Less-Than-Significant impact calls on the Proposed Project are in conflict. If the CEQA call is correct, then the NEPA call can't be Not Adverse, it must be Adverse. A project that precipitates such a significant adverse impact when the No Action has beneficial impact is a project that should not be implemented.

	SOILS-4: Risk to life and property as a result of constructing the proposed water conveyance facilities in areas of expansive, corrosive, and compressible soils	The No Action does not include construction of conveyance facilities, therefore there would be No Impact/No Effect. The Not Adverse and Less-Than-Significant impact calls on the Proposed Project are in conflict. If the CEQA call is correct, then the NEPA call can't be Not Adverse, it must be Adverse. The Proposed Project impact calls are also incorrect. Some of the construction and staging areas selected in the Proposed Project conveyance footprint are on montmorillonite clay soils which shrink and expand with moisture. Some of the tunnel access ports in the mid- and south-delta are on peat soils which are compressible. These are significant impacts that can be mitigated with specific geotechnical design and construction work. The BDCP did not propose any mitigation for these impacts so these impacts would be significant and adverse. A project that precipitates such a significant adverse impact when the No Action has beneficial impact is a project that should not be implemented.
	SOILS-5: Accelerated bank erosion from increased channel flow rates as a result of operations	Climate change and sea level rise should have no discernible affect on channel flows as related to CVP/SWP operations, so the impact call should be No Impact/No Effect. The BDCP Proposed Project increases release flows from the Oroville Facilities during the spring when bank soils are saturated and are more prone to erosion from tributary flows. DWR has already acknowledged that their operations impact erosion on the Feather River with their settlement for damages with the Jewel Ranch. The BDCP Proposed Project emphasis on spring Oroville facility releases will exacerbate this existing impact. This is a significant impact, not only for farmland subject to erosion but also to the bank swallow nesting habitat that has also suffered from accelerated erosion from Oroville operations. The impacts to the swallows from the Oroville operations are documented in the Oroville Facility Relicensing Study reports on terrestrial species (Dave Boegner DWR April 2004, SP-T1: Effects of Project Operations and Features on Wildlife and Wildlife Habitat). This is a significant impact that can be mitigated with specific geotechnical design and construction work. The BDCP did not propose any mitigation for this impact so these sources would also remain significant and adverse. A project that precipitates such a significant adverse impact when the No Action has no impact/no effect is a project that should not be implemented.
	SOILS-6: Accelerated erosion caused by clearing, grubbing, grading, and other disturbances associated with implementation of proposed conservation measures CM2–CM11, CM18 and CM19	The magnitude of impacts from the implementation of the No Action OCAP BO mandated habitat restorations are vastly smaller than those of the proposed project. (i.e. 8,000 ac No Action vs. 165,000 ac Proposed Project) The EIR/S does not describe the differences in magnitude in their significance calls. The impacts of clearing vegetation from 65,000 acres of land for aquatic habitat inundation is a significant impact. This impact can be mitigated, but since the BDCP did not propose any mitigations, the impact after mitigation remains significant and adverse.
	SOILS-7: Loss of topsoil from excavation, over covering, and inundation associated with restoration activities as a result of implementing the proposed conservation measures CM2–CM11	The magnitude of impacts from the implementation of the No Action OCAP BO mandated habitat restorations are vastly smaller than those of the proposed project. (i.e. 8,000 ac No Action vs. 165,000 ac Proposed Project) The EIR/S does not describe the differences in magnitude in their significance calls.
	SOILS-8: Property loss, personal injury, or death from instability, failure, and damage from construction on soils subject to subsidence as a result of implementing the proposed conservation measures CM2–CM11	Peat soils are subject to subsidence. A large portion of the Proposed Project habitat restoration is proposed to occur on peat soils. The conversion of lands from current land uses to habitat is a property loss so the Proposed Project has a significant impact that is not mitigated. Intertidal and sub-tidal habitat restorations are Proposed in areas with peat soils. These habitat restorations require the construction of new levees to impound the water in the habitat restoration. These new levees would be built upon peat soils and so have a greater chance of failure resulting in loss of human life than construction of levees in other areas. Since the BDCP has not described the measures to avoid, minimize and mitigate the risks included in their habitat restoration levees, the impact call should be significant and adverse.

	SOILS-9: Risk to life and property from construction in areas of expansive, corrosive, and compressible soils as a result of implementing the proposed conservation measures CM2–CM11	The No Action impact call is incorrect. The implementation of the OCAP BO RPAs that are (mistakenly) incorporated into the BDCP Conservation Measures 2-22 occur in the Yolo bypass. Construction of the No Action OCAP BO RPAs would not risk lives as there are no residences in the Yolo Bypass flood plain and property would not be affected as properties in the bypass are already subject to flood easement agreements. Therefore the No Action impact call should be No Impact and No Effect. The BDCP Proposed Project habitat restorations occur on a much larger scale and are spread over a large part of the delta that includes not only compressible peat soils but also montmorillonite clay soils which are highly expandable when wetted and shrink when dried. The BDCP has thousands of acres of habitat restoration and miles of levees and other facilities proposed to be constructed on these unstable soils. The BDCP proposed activities on these soils is a significant impact and risk and one that they have not proposed any avoidance, minimization or mitigation measures for. Given these impacts, risks and lack of mitigation, the correct impact call for the Proposed Project for this impact is Significant and Adverse.
	Increased saltwater intrusion into the delta from the BDCP operations will increase groundwater salinity in large portions of the delta and use of groundwater as a substitute water supply during periods of BDCP degraded surface water quality will poison the soils and crops.	The BDCP EIR/S has identified a significant and unavoidable degradation of water quality in the delta from increased saltwater intrusion from BCDP proposed operations. The BDCP EIR/S has failed to adequately evaluate how these significant surface water quality impacts effect groundwater quality. When surface water quality is reduced in the delta due to BDCP operations, growers will utilize groundwater as a substitution for their BDCP compromised senior surface water rights and diversions. This increased reliance upon groundwater as a substitution water supply during periods of BDCP degraded surface water quality will result in increased groundwater withdrawals and increased hydraulic gradient from the tributary to the groundwater basin. The BDCP caused increase in hydraulic gradient from the tributary to the groundwater will pull water from the BDCP degraded water quality in the tributary into the adjacent groundwater profile. The lower quality (higher EC and Boron) water from the tributary will flow in on top of the deeper groundwater with little to no mixing with better quality deeper groundwater. The deeper groundwater quality may not be significantly affected for some time as it approaches the wellhead groundwater cone depression, but it will be degraded over time. The more immediate affect of the higher EC and Boron layer degraded water quality of near surface groundwater will occur nearly immediately. Groundwater tables are near the soil surface and in the crop root zone in most of the delta in portions if not the entire year. Salts wick up through the soil from shallow groundwater by capillary action with soil particle interstitial spaces. Even though the salts from the tributaries may not reach the wellheads for several years, the near surface migration of salts from the tributary recharge of the BDCP depressed groundwater cone will start affecting the salinity of the root zones of the crops near the edges of the islands in the first season or two. Once salts have been pulled into the shallow groundwater as described above, it will be nearly impossible for the grower to manage the salts. In areas of deeper groundwater (e.g. Southern Central Valley), a grower can flush salts down and out of the root zone. In the delta, because of the shallow groundwater table, irrigations to flush salts out of the root zone will only raise the water table and cause the salts to wick higher into the root zone. The leaching irrigation has nowhere to go so it will only slightly dilute the salts, but again the salts will wick up through the soil. Even a thin layer of degraded groundwater quality that occurs in or near the root zone could make larger portions of the delta unfarmable in a matter of just a few years. This BDCP impact converts the farmland to a different land use (non-farming) which by CEQA significance criteria is a significant impact. The BDCP failed to identify, evaluate, quantify or disclose the significant impacts of reduced shallow groundwater quality in the delta that would be caused by the BDCP proposed operations. The BDCP can minimize this significant impact by actually complying with the current water quality requirements instead of frequently violating them as the current CVP/SWP operations do. The BDCP can mitigate this impact by providing alternative water supplies to areas of degraded surface water supplies so that the growers do not have to rely upon groundwater as an alternative supply.

	Increased saltwater intrusion into the delta from the BDCP operations will increase groundwater salinity in large portions of the delta from reclamation district operations to draining the islands.	This comment builds off of the impacts described in the preceding comment regarding BDCP degradation of surface water quality and the resulting degradation of shallow groundwater quality in the delta. Many islands in the delta have land elevations that are at, near or below the water levels of their surrounding tributaries. The only way the islands are maintained from becoming flooded by seepage from the tributaries is to nearly continuously pump water out from the drainage ditches in the Reclamation District back into the tributary. By the Reclamation District pumping the water off of the island or tract, the groundwater levels are maintained to levels that are farmable (3 to 8 foot minimum depending on crop type and season). The amount of shallow groundwater pumping and rate of turnover of shallow groundwater recharge from the tributary is dependent upon several factors. The more porous the levees and soils, the faster the movement of tributary water into the shallow groundwater. The larger the difference between the tributary water elevation and the groundwater height (hydraulic gradient), the faster the movement of tributary water into the shallow groundwater. Even a thin layer of degraded groundwater quality that occurs in or near the root zone could make larger portions of the delta unfarmable in a matter of just a few years. This BDCP impact of surface water quality degradation that causes shallow groundwater quality degradation will result in a conversion of farmland to a different land use (non-farming) which according to CEQA guidance significance criteria is a significant impact. The BDCP failed to identify, evaluate, quantify or disclose the significant impacts of degraded shallow groundwater quality in the delta that would be caused by the BDCP proposed operations. The BDCP can avoid this significant impact to groundwater quality by adopting operations that do not degrade the surface water quality. The BDCP can minimize this significant impact to groundwater quality by building toe drains at the base of the levees surrounding the affected islands and providing for and maintaining drainage operations that intercept and prevent the movement of degraded surface water quality into the island's groundwater. This minimization measure would need to be complemented by the BDCP also providing an alternative surface water supply of non-degraded quality for the farmers to use as an alternate water supply. These suggested avoidance and minimization measures are practical, feasible, well tested and accepted and are small in scale in comparison to the scope and cost of the overall BDCP proposal.

	Increased saltwater intrusion into the delta from the BDCP operations will increase groundwater salinity in large portions of the delta from drain tile operations on the islands.	This comment builds off of the impacts described in the preceding two comments regarding BDCP degradation of surface water quality and the resulting degradation of shallow groundwater quality in the delta. Due to the shallow groundwater tables in the delta, many open ground fields and most permanent crop plantings utilize drain tile to maintain groundwater levels and keep groundwater moving to protect their crops and the productivity of the soils. Most permanent crop plantings are adjacent to the levees due to their higher elevation, better drainage and better soils. This means that the drain tiles that are under most of permanent crops planted in the delta are right next to the tributaries. Drain tiles are typically installed at 6 to 10 feet deep, depending on soil type, crop type, groundwater table elevations and topography (drainage). The drain tile function is to reduce the groundwater table elevations, creating a localized groundwater table depression to protect the soil and crops from groundwater elevations that are too shallow. The groundwater collected from the drain tile is transported via drainage pipes to the lower elevation drainage ditches that are located near the center of the islands and tracts. This necessary drain tile function creates the same increased hydraulic gradient from the island groundwater table from the surrounding tributaries as described in the preceding two comments on use of groundwater substitution water supplies and the resulting groundwater cone of depression and the Reclamation District pumping of drainage ditches to maintain groundwater table elevations. The impacts from the degraded groundwater quality from the BDCP operations will occur even more quickly with drain tile operation interactions than the impacts to shallow groundwater quality described in the two preceding comments. Degraded surface water quality from the BDCP operations will be pulled into the shallow groundwater table where the drain tiles are functioning in the same manner as described in the previous two comments. The drain tiles will collect this degraded quality groundwater and drain the water to the main drainage ditches. These drainage ditches are also water supply ditches that are pumped out of to irrigate other fields. These central drains/water supply ditches is how water supply is delivered to most fields that are in the interior of the islands and tracts. Through the function of the drain tile and drainage of those systems into the water supply ditches in the middle of the islands and tracts, the degraded shallow groundwater from BDCP operations have now been translated back into additional impacts to water quality of surface water supplies for the interior fields. As mentioned previously, because of the proximity of the drain tiles to the tributaries and the function of the drain tile to translocate the drainage water to the main ditches, this mode of impact could occur very quickly, e.g. the first year of degraded surface water quality from the BDCP operations. The scope of this impact is not small either.
	comment continued…	Most of the islands and tracts, with the exception of some of the most interior delta and lowest elevation islands, are ringed by permanent crop plantings at their outside edges. Cumulatively, these represent several hundred miles of tributary length that have drain tiles installed adjacent to them. The BDCP failed to identify, evaluate, quantify or disclose the significant impacts of degraded shallow groundwater quality in the delta and the translation of that shallow groundwater quality degradation into a subsequent degradation of additional surface water supply water quality that would be caused by the BDCP proposed operations. The BDCP can avoid this significant impact to groundwater quality by adopting operations that do not degrade the surface water quality. The BDCP can minimize this significant impact to groundwater quality by building toe drains at the base of the levees surrounding the affected islands and providing for and maintaining drainage operations that intercept and prevent the movement of degraded surface water quality into the island's groundwater. The BDCP can further minimize this significant impact by providing for and maintaining sump pumps for the tail water coming out of the drain tile systems. The sump pump would discharge the drain tile water back into the tributary rather than letting the degraded shallow groundwater contaminating the surface water supplies at the main drain/water supply ditches. The use of sump pumps on drain tile systems is a common practice in the southern central valley as the topographic gradients are not sufficient to allow drain tile function without the sump pumps. Because the use of sump pumps on drain tile systems is common practice in the CVP/SWP service areas, the BDCP cannot claim that there are no feasible, practicable measures to avoid, minimize or mitigate this significant impact of the BDCP proposed operations.

REUSABLE TUNNEL MATERIAL TESTING Report	This important (flawed attempt) at characterizing the tunnel muck was issued after the release of the BDCP EIR/S even though CM-1 was supposed to be analyzed at a project level of detail.	This report and the data that supports it are seriously flawed. In order for the BDCP EIR/S to have met the criteria for a project level of analysis information included in this report should have been included in the EIR/S. This report is incomplete, flawed and late. The BDCP EIR/S should be revised to include this report and information to correct the deficiencies in this report (see subsequent comments) and that information must be analyzed at a project-level of detail in order to meet the requirements of a project-level analysis for the proposed project conveyance. This report represents material new information so the 180 day comment period on the draft should be restarted as of the release of this report on March 20, 2014 if information from this report is to be relied upon in the EIR/S.
REUSABLE TUNNEL MATERIAL TESTING Report - figure 1-1	The number and distribution of samples of geotechnical cores along the proposed tunnel alignment are substantially deficient to reliably characterize the soil physical and chemical properties of the tunnel muck.	Many of the samples taken are not on the actual proposed alignment. If this program were to meet a project-level analysis as the BDCP EIR/S states as its objective, the samples need to actually be on the alignment and the samples need to occur at a spatial frequency and distribution that represent the range of conditions that will be met in the actual construction process. this level of sampling is required to meet the definition of a project-level analysis that would warrant issuance of construction-related permits. The figure clearly shows that most of the samples are not actually on the proposed project tunnel alignment. The samples are also not evenly or representatively spatially distributed. There are large stretches of the proposed alignment that have no samples to characterize the conditions of the tunnel muck. The southern-most sample is approximately 7 miles north of Clifton Court Forebay and then there is no sample actually at Clifton Court. This leaves one sixth of the alignment with absolutely no characterization of conditions to evaluate what the quality of the tunnel muck will be in order to evaluate the suitability of the material for the BDCP EIR/S proposed disposition of those materials. The sample distribution along the alignment is grossly biased toward over water in tributary sample conditions. Of the samples that are actually on the proposed tunnel conveyance route, only 3 are over land. In no stretch of the imagination could this be considered a representative sampling, let alone a statistically defensible one. The geomorphic development of channels and soils in the delta may result in the samples under the tributaries being very different in physical and chemical properties than samples which would be found in under the land. The BDCP needs to sample under the land portions of the conveyance alignment at an equal level of sample density as the tributary proportion of the conveyance alignment in order to avoid this bias in their sample base and interpolation of sample results. If you analyze the proportion of the conveyance alignment that occurs under tributaries vs. under land, you will find that 90+% of the conveyance is over land. The sample distribution is of the data presented in the report is 90% over tributaries. This under land vs. under tributary sample bias distorts the usability and representativeness of the samples. The samples are only 150 or so feet deep so under land or under tributary will likely be very different conditions.
	comment continued…	As the sampling is currently distributed, the BDCP data cannot prove that their under tributary samples are representative of the under land conditions and they cannot prove the conditions between the two are not substantively different in character such that they would substantially alter the suitability of the materials for the BDCP proposed uses of the tunnel muck. In order to meet a project-level analysis, the sample distribution needs to randomly distributed in a deep enough number of samples to achieve and statistically confident result. Variables that need to be included in the sample randomized stratification would include proportion of land vs. water, by soil type, by depth of construction, as well as other variables such as available geotechnical seismic logs, etc. The BDCP should utilize the best available science which is commonly accepted and utilized in similar environmental and project level impact analysis in which subsurface conditions need to be characterized to a defensible level of statistical confidence in order to meet a project level analysis. The BDCP subsurface soil condition survey and interpolation of those samples should adhere to the well established and accepted protocols of the National Instrument (NI) 43-101 protocols for determining the distribution and statistical confidence of subsurface conditions. A project-level analysis would comply with these 43-101 standards when a sample density and consistency of results met their Proven and Probable level of statistical confidence. Mines are not permitted for construction until the project meet these standards and the BDCP EIR/S proposed project excavation and tunnel muck disposition and disposal should not be approved until the project meets the equivalent project-level standards.

REUSABLE TUNNEL MATERIAL TESTING Report - figure 1-2	The decision tree in the figure demonstrates that the project does not know the characteristics of the disposal materials the project will deal with so the proposed project conveyance is not analyzed at a project-level of detail and does not warrant construction related permits.	The decision tree asks, "Is the material hazardous?". In order to meet a project-level of analysis in the EIR/S, the answer to this question should already be known, characterized, evaluated, quantified, disclosed and mitigated. The decision tree then goes on to determine how the materials would be disposed if they are not chemically toxic and to "develop a material reuse plan". To develop a plan after the project is implemented is the definition of programmatic level of analysis. The current BDCP EIR/S does none of the project-level analysis required for tunnel muck disposal and even the programmatic level of detail included in this report is not included in the EIR/S. The EIR/S must be revised to include a complete project-level of analysis of tunnel muck disposal impacts and be recirculated for public comment once this material new information is made available for the public.
	Data collected that was used in the REUSABLE TUNNEL MATERIAL TESTING Report was collected in 2009 - 2012.	This important readily available information on characterizing the affected environment and existing conditions was not included in the BDCP EIR/S document. DWR collected this information themselves so they must have been aware of its availability and yet it still was not included in the document for analysis and disclosure. The BDCP EIR/S needs to be revised to include this information and recirculated for public comment once this new and material information is appropriately disclosed.
REUSABLE TUNNEL MATERIAL TESTING Report -1.3	Gorman and Wells 2000 is inappropriately cited.	The reference is misused as the Gorman and Wells document did not know where the tunnel alignment would be in 2000.
REUSABLE TUNNEL MATERIAL TESTING Report -Table 2.1	The table indicates that 56% of all cores tested had particle sizes of 200 mesh or smaller.	A 200 mesh filter is 74 microns. More than half of the material cleared this screen size so more than half of the particles are smaller than 74 microns. The physical material testing did not screen the materials any finer to determine what proportion of the material was 10 microns or smaller. Seeing as more than half the material tested was smaller than 74 microns, it stands to reason that a significant percentage of the material could be and is likely, 10 microns or smaller. PM10 is an important air quality standard that regulates particle sizes of 10 microns and smaller as they pose a significant human health and ecosystem risk. The BDCP EIR/S did not analyze what proportion of tunnel muck disposal materials that the plan has proposed to dispose of on the surface in land fills, levee construction, habitat restoration, flood response, etc. would potentially affect PM10 air quality standards and human health. DWR obviously had the materials available to do the testing, but the EIR/S failed to utilize the best available science and quantify that impact. The materials should be tested for particle size distribution to 10 and 2.5 micron sizes so these risks and impacts can be appropriately analyzed and disclosed. Once the BDCP EIR/S document has been revised to address this serious deficiency, the document should be recirculated for public comment.
REUSABLE TUNNEL MATERIAL TESTING Report -Table 2.1	From the table we can calculate the Plastic Limit is 21%. (Liquid Limit - Plasticity Index)	The Liquidity Limit is 44%, the moisture content is 33% and the Plastic Limit is 21%. These numbers are averages of all the cores (see following comment) and there is no standard deviation analysis done from the individual cores. The average moisture content is closer to the Liquidity Limit (11%) than the Plastic Limit (12%). This means the average soil is closer to liquefaction than it is a solid soil. It is likely, given variation in conditions and from sample to sample, that some of the tunnel alignment soil conditions are already in or very near a liquefaction condition. If the TBM construction disturbs the current subsurface conditions and equilibrium this data shows that their could be a soil liquefaction event. The TBM's are not set up to function in liquefied soils and a liquefaction of subsurface conditions could easily result in surface subsidence and loss of levee integrity. The BDCP EIR/S has not done any of the appropriate level of analysis of this risk even though it has some of the data available to conduct these important and prudent analyses. These analyses must be completed, with a much larger and more representative sample size, in order for the BDCP EIR/S to meet the test of best available science or conducting a project-level analysis that would warrant issuance of any construction-related permits. The EIR/S should be revised to include this information and analyses and should be recirculated for public comment once this material new information is included.

REUSABLE TUNNEL MATERIAL TESTING Report -Table 2.1	The table relied upon averaged data. The mixing of the samples for analysis is a fundamental procedural error in the analysis.	Section 2.1 - "Soil core samples were mixed together with the intention of generating uniform baseline soil samples representative of average tunnel zone material. Subsequent testing demonstrated that the baseline soil samples were uniform and classified as sandy lean clay." The mixing of the samples for analysis is a fundamental procedural error in the analysis. The document does not disclose how the samples were mixed, if there were equal volumes from each sample or how it was determined when complete mixing had occurred. Were repeated tests of the mixed materials done to evaluate if a consistent result was achieved that would indicate that a truly mixed condition was achieved? Since the document did not document the mixing process, DWR cannot defend that they correctly characterized even the average condition of the samples. Of course an average of the soil physical property conditions is not useful at all for any kind of analysis and represents the most sloppy and lazy methodology possible. These tests are for geotechnical suitability and we know that conditions and engineering solutions and the physical characteristic suitability of use of the tunnel muck materials will vary from location to location along the tunnel alignment. If the conditions were not variable, then why were multiple samples even needed? Each and every sample should be processed separately and then the conditions in each location can be evaluated for risks, engineering designed to address those risks and conditions as well as the tunnel muck suitability for reuse and disposal evaluated, disclosed and mitigated. As the EIR/S currently stands, it fails to utilize any of the available data and therefore is deficient and should be revised and recirculated.
REUSABLE TUNNEL MATERIAL TESTING Report -Table 2.1	The soil physical testing failed to identify what proportion of the soil volume was composed of organic matter.	Deep soil conditions are anaerobic (without oxygen). Organic matter trapped deep in the soil is subject to rapid oxidation once exposed to surface aerobic conditions. This rapid oxidation of tunnel muck organic matter will generate potentially large CO2 discharges which is an air quality and greenhouse gas impact which the BDCP EIR/S has failed to identify, characterize, evaluate, disclose or mitigate. DWR collected the data, but failed to apply the best available science in evaluating that data. The samples should be processed to quantify the organic matter % of the tunnel muck material by location and by volume and fate of disposal or reuse. Only then could the level of analysis be considered to meet best available science and a project-level analysis that would potentially warrant issuance of construction-related permits.
REUSABLE TUNNEL MATERIAL TESTING Report -section 2.3.1	The geotechnical testing is irrelevant when done on an "average" of all of the soils sampled.	Testing of the average geotechnical characteristic is a meaningless exercise. If, on average, the soil will not liquefy under the TBM construction conditions do not result in soil liquefaction, it is not meaningful if there are locations on the alignment that would be prone to liquefaction. Here's an easy analogy, the current BDCP approach would have a house built on an unstable slope and as long as less than half the house slid down the hill, the BDCP analysis results would indicate everything would be OK. Obviously having any portion of the house slide down the hill would be a catastrophic failure, just as any length along the tunnel alignment suffering liquefaction would be a catastrophic failure. The BDCP analysis does not come even close to providing any reasonable measure of risk. The "average" (which is probably not the average condition anyway - see preceding comments on sample mixing) may not be representative of the conditions that will be met at any location along the conveyance route. First, the number and distribution of samples was inadequate to be representative of the range of conditions, sample locations were biased (mostly over water) and samples were mostly not even on the actual BDCP proposed alignment route - see related comments. Second, the conditions that result from an average may not even exist in any of the locations to be encountered. Therefore all of the analysis based on this flawed sampling and sample treatment is not reliable nor does not even come close to meeting the test of best available science. DWR could have easily processed each of the samples separately to at least have utilized what was available properly. The analysis should be redone to make the most of what is available, the limitations of that information disclosed and the results included in a revised and recirculated BDCP EIR/S.

REUSABLE TUNNEL MATERIAL TESTING Report -section 2.3.1	Environmental testing was done only on soils mixed with polymers and was not handled appropriately for testing of compounds which volatilize.	According to this report, samples were taken from 2009 through 2012. The report does not disclose how these samples were stored. The samples were all mixed together. Then they were wetted, mixed with polymers and then dried out and more time past. Then and only then was a sample sent to a single lab for testing. First, environmental testing should be done immediately after sampling with careful handling of the materials to preserve moisture content, prevent external contamination and manage off-gassing of volatile compounds. Sample handling, chain of custody, refrigeration of samples, storage container, processing time and other requirements need to be adhered to in any rigorous and appropriate sampling and testing protocol. The document does not disclose any of these protocols and given the length of time from sampling to testing, there obviously were none. Each sample should have been processed separately so that the chemical conditions in the locations represented by each sample could be determined. Samples of each core should have been sent to more than one lab to confirm consistency of lab analysis and quality. Then and only then, would these results be useful and meet the test of best available science. As the BDCP work was done, we have a single, out of date, poorly stored, inappropriately mixed, rewetted, polymer contaminated, biodegraded, dried out, volatilized, oxidized sample that was only sent to one lab for one test. Unfortunately, even if all of the samples were now tested separately the samples are old and not representative of conditions. Most of the compounds tested are subject to change based on biodegradation, mineralization, oxidation, chemical breakdown, enzymatic breakdown, volatilization and chemical concentration gradient changes. These include: Methyl mercury, Butyltins, Ammonia, Nitrate/nitrite, soluble metals, Mercury, Soluble mercury, petroleum hydrocarbons, Chlorinated pesticides, Polychlorinated biphenyls, Herbicides, Semi-volatile organics, and organic carbon. The test results on these important chemical constituents from these BDCP tests cannot be relied upon and must be redone before the true tunnel muck contaminant risk can be determined, evaluated or disclosed. The BDCP has failed to properly evaluate these risks.
REUSABLE TUNNEL MATERIAL TESTING Report -section 2.3.1	Environmental testing did not include all of the relevant compounds that should have been tested for.	As an example, the tests had a category for "soluble metals". This is such a broad category as to be useless in a meaningful environmental analysis. The samples should have been tested for a broad panel that encompassed all of the drinking water quality standards so that the impacts of tunnel muck disposal that resulted in water or wind erosion deposition in water could be evaluated. Testing panels should have also included compounds which can be bioacumulated in fish and other species so those impacts could have been evaluated and disclosed. The testing of the samples should be redone to include these other important constituents and the EIR/S revised to evaluate, quantify, disclose and mitigate for the impacts associated with the chemical constituent impacts of the tunnel muck materials proposed by the BDCP.
REUSABLE TUNNEL MATERIAL TESTING Report -section 3.1.3	The water permeability of the polymer treated samples is much lower than the untreated samples.	The water infiltration rate of the treated tunnel much is much lower than the untreated materials. The analysis should also have included a comparison to the infiltration rates of the soils that would be covered by the tunnel much disposal to determine the impacts to soil suitability for agriculture, habitat, groundwater recharge, surface erosion, cumulative drainage, and surface water drainage quantity and quality. The BDCP EIR/S failed to conduct these assessments on the impacts of the infiltration rates of the tunnel muck disposal.
REUSABLE TUNNEL MATERIAL TESTING Report - page 263	Nitrate/Nitrite Sample Holding Time: "Samples were out of prescribed holding time upon resolution of discrepancies and were received without thermal preservation. The samples were analyzed upon client advice to proceed with the analysis."	The report admits the samples were mishandled and did not comply with proper procedures (see related comments) and that the samples were processed and results used anyway. It is nice they disclosed this profound defect in the report in an appendix on page 263. There was no mention of this severe limitation in the usefulness of the results in the data presentation and analysis in the main report. In short, none of the sample handling protocols were followed and none of these results should be relied upon for any purpose. This whole report falls woefully short of "best available", let alone "good" or even "proficient" science.
REUSABLE TUNNEL MATERIAL TESTING Report - page 252, 258, 268, and 274.	Sample handling protocols were not followed and yet the testing was conducted anyway and results used without caveats.	Same comments as above, but for Metals, Mercury, Ammonium, Hexavalent Chromium, and Total Organic Carbon.

REUSABLE TUNNEL MATERIAL TESTING Report - page 285	Cooler receipt is for 2013	Refrigerating the samples as much as 3 years after they were taken did not protect the quality of the samples or contribute to usable lab results. DWR and the BDCP violated just about every generally accepted sample handling protocol in existence.
REUSABLE TUNNEL MATERIAL TESTING Report - page 318, 326, 334, 342, 350, 358, 366, 373, 399, 404, 408, 414, 436, 444, 452, 460, 468, 476, 484, 492, 499, 508, 512, 517, 522, 525, 533, .	The reports say that the sample was processed within the proscribed holding period, but the sample receipt dates are in 2013.	The samples were one to four years old by 2013 so perhaps the samples were processed by the lab in a timely manner after their receipt, but the samples definitely were not processed in the proscribed time from the time the sample was taken. Therefore, the reports statements regarding the timely processing of the sample is grossly incorrect and purposely misleading. This comment applies to semi-volatile organics, PAH, petroleum hydrocarbons, pesticides, PCBs, herbicides, metals/mercury, ammonia, nitrate/nitrite (this and others are in direct conflict with earlier report statements that the sample processing did not comply with protocols), hexavalent chromium, and TOC. These sample results are corrupted by the delay in processing and the inappropriate storage and handling of the samples. These sample results should not be relied upon and should be redone correctly and included in the BDCP EIR/S Affected Environment/Existing Conditions and the impact analyses.
Chapter 11 - Fisheries		
Existing Conditions	Since FWS and NMFS are co-Federal Lead Agencies on the BDCP EIR/S, they should issue a report on DWR and Reclamation's compliance and performance on the current OCAP BO RPAs.	If DWR and Reclamation are fully compliant with all of the requirements and deadlines in the current OCAP BOs then there can be some level of assurance that they will implement the BDCP in a timely manner that also meets the level of commitments and goals set. If DWR and/or Reclamation are even partially out of compliance with the OCAP BO requirements then that is a strong indication that DWR and Reclamation should not be relied upon to implement the BDCP actions and that there will be an inadequate level of certainty to issue permits based only on the plan. If DWR or Reclamation are not fully compliant with the current OCAP BO then there is only an adequate level of certainty to issue permits after the BDCP actions are fully implemented and are proven successful in meeting the BDCP conservation goals as described in the HCP/NCCP and BDCP EIR/S.
	DWR and Reclamation compliance with the existing OCAP BOs from NMFS and FWS are an important part of describing the Affected Environment as many deadlines for implementation of the BOs transpired before the date of the environmental baselines.	Since these OCAP BO requirements are all also existing obligations of the project, any that have been completed or more fully developed in design or implementation since the date of the environmental baseline, should be described fully in the No Action and No Project descriptions. If there are no additional details to add to the No Action/No Project description then DWR and Reclamation have missed many deadlines as required in the OCAP BOs and are in violation of the BOs.
	Since fish passage at all the CVP/SWP dams are current obligations of the project as required in the NMFS and FWS Biological Opinions, then the existing condition should assume anadromous fish presence above the dams into their upstream tributaries to the upstream extent of natural fish passage barriers.	The upstream reservoirs and upstream tributaries to the upstream extent of potential anadromous fish distribution should be included in the definition of the "Plan Area". If it does not, then the ITPs should not cover the potential take of these species in these areas in project activities in the future as these affects were not evaluated in the EIR/S. The BDCP did not factor compliance with this mandatory fish passage in their characterization of the no action condition. Therefore the analysis of the impacts of the alternatives as compared to these No Action is fundamentally flawed and does not accurately evaluate or disclose the impacts of the proposed project and alternatives. The BDCP EIR/S should revise the description of the No Action to include the mandated fish passage and include that condition in its comparisons to evaluate the proposed project and alternatives. Once the analysis has been revised, the EIR/S should be recirculated to the public.

	The NMFS OCAP BO RPA requires the Reclamation Tracy Fish Collection Facility to achieve "whole facility overall survival is 75%" for Chinook, steelhead and green sturgeon no later than 12/31/12.	Given the date of this requirement vs. the project baseline update, this survival rate for these facilities is applicable to the Existing Condition/No Action/No Project as well as Reclamation's south delta component of Joint operations in the alternatives. The BDCP did not factor compliance with this mandatory survival rate in their characterization of the existing condition and no action alternatives. Therefore the analysis of the impacts of the alternatives as compared to these baselines is fundamentally flawed and does not accurately evaluate or disclose the impacts of the proposed project and alternatives.
	Since Reclamation was required to send a letter to USACE in response to the 2009 NMFS OCAP BO RPA I.7 requesting modification of Fremont Weir and other facilities to accommodate fish passage, the BDCP should provide a copy of the letter and the USACE response in an appendix of the report.	Confirmation of DWR/Reclamation compliance with the existing OCAP BO RPAs and confirmation of USACE's willingness to modify their Fremont Weir and other Yolo Bypass facilities and operations according to the BDCP proposals is an important factor in determining the certainty that these BDCP proposals will be implemented and achieve the contribution to conservation as asserted in the plan. If there has been no letter from DWR and Reclamation to the USACE and/or the USACE has not confirmed their willingness to comply with the BDCP proposals for modification of their facilities and operations, then there is no adequate certainty that the Fremont Weir and Yolo Bypass proposals by the BDCP will achieve their contribution to conservation and no take permits permit should be issued based on these proposed BDCP project species benefits. Further, if DWR and Reclamation have not submitted the OCAP BO RPA required to the USACE, then DWR and Reclamation are in violation of the terms of the current OCAP BO. If DWR or Reclamation are found to be violating the current OCAP BO, then there is no reasonable certainty that they will conform to and successfully implement the BDCP over a 50 year project period.
	Copies of reports documenting the improvements of fish salvage monitoring and release survival rates for the DWR and Reclamation south delta pumps in response to 2009 NMFS OCAP BO RPA IV.4.3 that were required to be completed prior to the deadline of 10/1/09 and after should be included in an appendix of the BDCP EIR/S as part of the Affected Environment and the No Action/No Project description.	These reports are important as they document the improvement in south delta fish survival rates and the level of success in fish monitoring and in adaptive management. The BDCP relies heavily on adaptive management and these programs are a good opportunity for DWR and Reclamation that they can implement, monitor, evaluate and adapt fisheries conservation programs. If DWR and Reclamation have not completed these reports, then they are in violation of the OCAP BO RPAs and is evidence that DWR and Reclamation cannot and will not conform to or successfully implement the BDCP and therefore permits should not be issued based on promises made in the plan. Further, this failure would be indicative that any adaptively management program included in the BDCP should not be attributed credit towards species conservation until the monitoring results prove it to be so. DWR and Reclamation should only be issued permits after all the plan elements have been implemented and they have proven through monitoring and reporting that the BDCP has achieved the species conservation goals.
	Since the Reclamation plan/design in response to 2009 NMFS OCAP BO RPA IV.4.1 for the secondary channel to enhance the efficiency of screening, fish survival and reduction of predation that was due to NMFS no later than 3/31/11 should be included as a part of the description for the No Action/No Project.	If Reclamation has not completed this OCAP BO requirement, then it is in violation of the BO RPAs. If it is not in compliance than it's reliability in successfully implementing the BDCP is uncertain and therefore permits should not be issued to Reclamation until all actions have been implemented and monitoring and reporting proves that the BDCP is achieving the species conservation goals.
	Since the BDCP is proposing fish predation reduction as one of their Other Stressors Conservation Actions, the BDCP should include a copy of predation reduction method report to NMFS in response to 2009 NMFS OCAP BO RPA IV.4.3 that was required to be submitted by 6/15/11 in the HCP/NCCP and EIR/S.	The BDCP EIR/S should include the proposed predation reduction plan and methods in the description of the No Action condition.

	A copy of Hatchery Genetics Management Plan (HGMP) in response to 2009 NMFS OCAP BO RPA II.6.1 that was due to NMFS by 6/11 should be included in the Affected Environment (for actions implemented prior to the environmental baseline date) and No Action/No Project description for all other HGMP actions to be implemented as these are all current obligations of the project.	Hatchery genetics impacts to the salmonid populations are an important on-going impact of the CVP/SWP facility operations and existence as a barrier to upstream fish movement. The BDCP EIR/S should have evaluated the on-going affects of the CVP/SWP on salmonid genetics and characterized the compliance plan with the OCAP BO RPAs in the No Action condition. The lack of inclusion of the HGMP in the No Action has corrupted the representativeness of the future condition by the No Action and therefore all comparisons of the Proposed Project and alternatives to this baseline are flawed and should be revised and recirculated.
	Since the BDCP is proposing fish passage of Fremont Weir and Yolo Bypass as one of their Conservation Measures, the BDCP should include a copy of Reclamation and DWR plans submitted to NMFS regarding 2009 NMFS OCAP BO RPA I.7 reduction of migratory delays and loss for salmon, steelhead and sturgeon.	These were due to be submitted by 6/30/11, so the affect of these programs should be described in the No Action analysis.
	Since the BDCP is proposing fish predation reduction as one of their Other Stressors Conservation Measures, the BDCP should include a copy of the results of fish predation studies conducted in response to 2009 NMFS	OCAP BO RPA IV.4.1 that was due to be implemented no later than 12/31/11, so the affect of these programs should be described in the No Action analysis.
	Since OCAP BOs are part of the environmental baseline, the planning and implementation documents in response to the 2009 NMFS OCAP BO RPA NF 4.4 for Reclamation to provide downstream fish passage for project facilities and reservoirs should be included in the project description in the Affected Environment and No Action/No Project definitions and analyses.	This RPA was due to be initiated by the beginning of 2012 (before 1/1/12), so the affect of these programs should be described in the No Action analysis.
	Since OCAP BOs are part of the environmental baseline, the planning and implementation documents in response to the 2009 NMFS OCAP BO RPA NF 4.1 for Reclamation to design, construct, install and operate adult fish collection, handling and transport facilities to pass fish above project facilities and reservoirs should be included in the project description in the Affected Environment and No Action/No Project definitions and analyses.	This RPA was due to be completed by the beginning of 2012, so the affect of these programs should be described in the No Action analysis.

	Since OCAP BOs are part of the environmental baseline, any documentation on the Reclamation implementation in response to 2009 NMFS OCAP BO RPA IV.4.1 for the secondary channel to enhance the efficiency of screening, fish survival and reduction of predation should be included in the project description in the Affected Environment and No Action/No Project definitions and analyses.	This RPA was to be implemented no later than 1/31/12, so the affect of these programs should be described in the No Action analysis.
	Since OCAP BOs are part of the environmental baseline, a copy of planning and implementation documents in response to the 2009 NMFS OCAP BO RPA NF 4.2 and 4.3 for Reclamation to design, construct, install and operate adult fish release facilities upstream of their facilities and juvenile salmonid release facilities downstream of project facilities and reservoirs should be included in the project description in the Affected Environment and No Action/No Project definitions and analyses.	This RPA was due to be completed by 3/12, so the affect of these programs should be described in the No Action analysis.
	Since OCAP BOs are part of the environmental baseline, a copy of reports on the performance of fish passage operations as required in the 2009 NMFS OCAP BO RPA NF 4.2, 4.3, 4.4 and 4.5 should be included in the project description in the Affected Environment and No Action/No Project definitions and analyses.	The upstream reservoirs and upstream tributaries to the upstream extent of potential anadromous fish distribution should be included in the definition of the "Plan Area". If it does not, then the ITPs should not cover the potential take of these species in these areas in project activities in the future as these affects were not evaluated in the EIR/S. The BDCP did not factor compliance with this mandatory fish passage in their characterization of the no action condition. Therefore the analysis of the impacts of the alternatives as compared to these No Action is fundamentally flawed and does not accurately evaluate or disclose the impacts of the proposed project and alternatives. The BDCP EIR/S should revise the description of the No Action to include the mandated fish passage and include that condition in its comparisons to evaluate the proposed project and alternatives. Once the analysis has been revised, the EIR/S should be recirculated to the public.
	Since OCAP BOs are part of the environmental baseline, a copy of plans and documents in response to 2009 NMFS OCAP BO RPA IV.4.1 that Reclamation is to improve the whole facility fish survival efficiency at the Tracy Fish Collection Facility to 75% for Chinook, steelhead and green sturgeon should be included in the project description in the Affected Environment and No Action/No Project definitions and analyses.	This RPA was due to be completed by 12/31/12, so the affect of these programs should be described in the No Action analysis.

	Since OCAP BOs are part of the environmental baseline, a copy of monitoring reports documenting the achievement of 75% fish survival rates at the Reclamation Tracy Fish Collection Facility in response to 2009 NMFS OCAP BO RPA IV.4.1. should be included in the project description in the Affected Environment and No Action/No Project definitions and analyses. These reports would also provide a description of fish survival monitoring program actions and their degree of accuracy.	Since the BDCP proposed project includes many fisheries adaptive management measures, the BDCP should provide evidence that DWR and Reclamation are capable of measuring survival rates to this level of accuracy. If they cannot demonstrate that these monitoring studies have been successfully implemented previously then the monitoring and adaptive management measures in the BDCP proposed project have no credibility and should not be counted in contributing towards species conservation or recovery.
	Since OCAP BOs are part of the environmental baseline, a copy of reports of fish predation rates to less than 10% in the primary channel in response to 2009 NMFS OCAP BO RPA IV.4.1 should be included in the project description in the Affected Environment and No Action/No Project definitions and analyses.	This report was due to be submitted no later than 12/31/12. These reports would also provide a description of fish survival monitoring program actions and their degree of accuracy. Since the BDCP proposed project includes many fisheries adaptive management measures, the BDCP should provide evidence that DWR and Reclamation are capable of measuring survival rates to this level of accuracy. If they cannot demonstrate that these monitoring studies have been successfully implemented previously then the monitoring and adaptive management measures in the BDCP proposed project have no credibility and should not be counted in contributing towards species conservation or recovery.
	Since OCAP BOs are part of the environmental baseline, a copy of planning and implementation documents in response to the 2009 NMFS OCAP BO RPA NF 4.5 for Reclamation to design, build and evaluate juvenile fish capture facilities upstream of their facilities should be included in the project description in the Affected Environment and No Action/No Project definitions and analyses.	This report was required to be completed by 9/13.
	Since many of the OCAP BO RPA planning and implementation deadlines have passed, we would like to see any correspondence from NMFS or FWS to Reclamation or DWR regarding OCAP BO confirming that DWR or Reclamation are in compliance with the current OCAP BO.	If DWR and Reclamation are not compliant with the current then they have demonstrated that they do not reliably fulfill their project obligations and therefore the BDCP proposed project, which includes many vague and far off in the future obligations for action from DWR and Reclamation should not be counted as reasonably certain that they will be implemented as proposed and disclosed in the environmental document. DWR and Reclamation should not be issued any permits until they are fully compliant with the existing BO.

	Since the BDCP proposed project includes conservation efforts to reduce fish predation, copies of reports on DWR's Skinner Fish Collection Facility reductions in fish predation rates in response to 2009 NMFS OCAP BO RPA IV.4.2. should be cited in the document and utilized as evidence that the project could meet its stated predation reduction goals as a contribution to species conservation.	If these documents are not available, then DWR is in violation of the current OCAP BO. Without this supporting documentation of existing successful programs in the delta to reduce predation and successfully monitor the program, then there is no certainty of the benefits from the predation reduction-related conservation actions and these actions should not be counted as reasonably certain to contribute to species conservation.
	The BDCP EIR/S and HCCP/NCCP failed to cite the predation reports to comply with the OCAP BO that could have been presented as supporting evidence that a predation reduction program is capable of achieving the stated predation reduction goals included in the proposed project.	The BDCP EIR/S and HCCP/NCCP has also failed to cite any other publication which has documented success in reducing predation to a degree that it would meet the stated goals of this conservation action. Without supporting evidence that a predation reduction program can and has reliably met the conservation measure goals, then the predation reduction conservation measure should not be counted as contributing to conservation of the species.
	The timing, sequence and combination of potential habitat restoration has been left too vague to be functional to determine impacts or benefits to specific species.	As an example, if all of the intertidal habitat restoration were to occur in the Cache Slough complex all at one time, it would have a very different impact on water quality and value to specific species than if the same amount of intertidal habitat was implemented in the eastern delta. In order for an adequate evaluation of the impacts of the proposed project aquatic habitat restorations, to characterize the effects on and interactions with those restorations on CVP/SWP operations and determine the temporal distribution of contributions to conservation by species, the BDCP EIR/S document is deficient, should be revised to include and analyze this level of detail and should be recirculated after these material changes have been made.
Conservation Measures	The BDCP will not fulfill their commitment to "restore 19,150 acres of tidal natural communities by year 10 of the project" (CM4).	The EIR/S says that habitat restorations that occur after the near-term will be analyzed at a programmatic level of detail and will be subject to more detailed analysis in subsequent environmental document(s). No specific timeframe for these subsequent environmental documents is provided in the EIR/S. CM4 lacks detailed designs (necessary for surface water flood channel capacity analysis and flood risk assessment, aesthetics - see related comments); footprint of disturbance (necessary for terrestrial species, fish stranding and agricultural impacts - see related comments); operational plans (necessary for operations modeling, water supply impacts, water quality impacts, agricultural impacts - see related comments); Maintenance plans (dredging impacts on water quality and fisheries habitat); water rights (evaporation, transpiration and groundwater recharge consumption) have not been secured or the process to secure them defined and analyzed (necessary for water rights impacts - see related comments); the change in beneficial uses of water of those water rights has not been identified or evaluated (necessary for water rights and water supply impacts - see related comments); equipment used (e.g. earthmoving, dredging, etc.) and estimated hours of operations (necessary for air quality impacts); etc. With all of this necessary project level detail to satisfy the impact analyses missing from the public draft EIR/S, the detailed description of CM4 will either need to be revised after this draft to provide sufficient level of detail or these CMs will need to be addressed in a subsequent environmental document. If the level of detail in the CM4 descriptions is enhanced, then this will be a material change in the content of the document and impacts disclosed and therefore the document should be recirculated for public comment. If CM4 is not be addressed at a project level of detail until a subsequent environmental document, the BDCP should disclose the timeline for those documents. CM4 is committed to "restoring 19,150 acres within the first 10 years of implementation".

	comment continued…	Given the BDCP process to date (7+ years and the project just released the first public draft), it would be exceedingly unlikely that the BDCP could complete a subsequent document in less than 5 years after the BDCP project was approved. Then there would be another two years of detailed design, contracting, permitting, etc. Allow at least 2 years for construction as there are seasonal constraints to construction of these CMs (e.g. smelt, Chinook salmon, sturgeon avoidance and minimization measures only allow in water construction periods from about May through August and terrestrial Greater Sandhill crane presence prohibits work during other times of the year). This means the earliest construction could be completed on CM4 using a subsequent environmental document would be in year 10 after BDCP approval. Note that the commitment of the BDCP is that the 19,150 acres would be "restored" by year 10 (the plan does not say "implemented by year 10"). Tidal natural communities, such as described in CM4, do not magically start to provide habitat values just because water was added to a parcel of land. Water quality needs time to come into equilibrium, plant communities need time to colonize, channel complexity needs time to develop, terrestrial and aquatic species need time to colonize, etc. DWR habitat restorations in the Suisun Marsh and on Decker Island show that habitat restorations such as CM4 can take over a decade to develop and reach any kind of functional equilibrium and habitat values. "Given the reliance on natural processes to restore marsh functions in San Pablo Bay, restoration is a process that occurs gradually, over a time frame of decades (Williams and Orr 2002)." (http://escholarship.org/uc/item/8hj3d20t#page-10) Only once all of these processes that take time have been completed and develop, can a habitat be considered to be "restored". Given the described timeline for CM4 to reach a condition that could be considered "restored habitat", the BDCP will be at least 10 years late on fulfilling their commitments if this CM is implemented using a subsequent environmental document. The CM4 is core to compliance with the existing OCAP BO RPAs and it constitutes a large component of contributions to conservation for the BDCP project. This alone should be implemented and most certainly beore undertaking any major project with significant impacts to the Delta.
	ITPs should be issued with specific expectations about the timing, magnitude, location and characteristics of habitat restorations.	If the implementation of the project does not conform to the scenario of habitat restoration that was analyzed and the impacts disclosed for, then the agencies would not be justified in the issuance of take permits.
	The ITPs should not be effective until a targeted amount of species conservation and recovery have been implemented and the function and contribution to recovery verified through monitoring and evaluation of the project.	A commitment by the BDCP does nothing to actually benefit the species until the related actions are implemented and verified as successful in contributing at their planned level of contribution to conservation of the proposed covered species. the OCAP BO RPA's for the CVP/SWP (not yet implemented by DWR and Reclamation) are designed to avoid jeopardy for the current CVP/SWP project and operations. Until the BDCP delivers the actual planned conservation benefits to the proposed covered species, there is no justification for the agencies issuing ITPs.
Adaptive Management	The Biological Goals and Objectives are not specific enough to support the use of adaptive management and there are no specific quantitative threshold condition triggers for adaptive management changes.	The BDCP proposes goals for various conservation measures and monitoring programs, but there are no meaningful or functional triggers for adaptive management either to end a program, modify a program or escalate a program. The goals the BDCP proposes, such as juvenile salmonid escapement improvements or improvements in reduction of predation related to the south delta operations are levels of improvement and survival that are not practical to monitor at a level of accuracy that is scientifically defensible. There is not a single study that has ever been published on juvenile escapement survival that is statistically defensible to a population or survival rate within a margin of error of plus or minus 10% or less. Yet BDCP goals and adaptive management program criteria are proposed for levels of improvement that are less than this - see following comment. These BDCP adaptive management proposals are unimplementable at the level of detail, resolution and statistical defensibility. The BDCP should revise their conservation measure goals and adaptive management triggers such that they are practicably monitorable in a statistically defensible and accurate manner so that there is some level of certainty in the success of the conservation measures and in the function of adaptive management. Without these, the level of success of the conservation measures is unknown, uncertain and adaptive management remains nebulous, unfunctional and unreliable in its ability to provide any certainty of contribution to conservation.

	Methods proposed to measure habitat and species population conditions are not accurate enough to measure the improvements that are set in the biological goals and objectives.	As an example, it is infeasible to measure with a statistically defensible reliability, a 75% fish survival from salvage operations or a 2% increase in juvenile salmonid escapement.
	The project is implementing a number of conservation measures simultaneously that are intended to benefit the same species that the project proposes to adaptively manage.	Even if the project could measure the biological performance of these conservation measures, how does it propose to determine which concurrently implemented conservation measures are working and which ones have failed and are not contributing to conservation and recovery? Unless this question can be answered, the BDCP cannot successfully adaptively manage the proposed project actions and therefore the credit attributed to the adaptive management of these actions for contribution to conservation should be discounted and not contribute to the justification for the issuance of ITPs.
	Adaptive management of conservation actions has been repeatedly identified by the BDCP as a (false) assurance of an conservations measures contribution to conservation.	The potential adaptive management changes to the conservation measures were not sufficiently defined as allow analysis of those contingencies nor did the BDCP EIR/S include an analysis of the impacts of those adaptive management programs. Near term habitat restoration conservation measures are proposed by the BDCP and they seek construction level permits to implement them, but they do not analyze the potential adaptive management impacts of those actions. This means these near-term actions have not been fully analyzed and do not warrant issuance of construction level permits. Since the adaptive management measures are core to the BDCP assurances of achieving contribution to conservation, the adaptive management measures should not be subject to analysis in a subsequent environmental document unless the permits related to implementing the conservation measure are also dependent upon that subsequent environmental document. In order to remedy this deficiency of the current document, the BDCP should provide adequate level of detail of adaptive management measures for these near and mid-term habitat restoration conservation measures and fully analyze, characterize, quantify and disclose the impacts associated with them.
	The BDCP proposed project is unclear on if a conservation measure fails to meet objective if the program is terminated or not.	There are environmental impacts from continuing programs and there are losses of benefits from discontinuing programs even if they are only partially successful. The BDCP has not defined how, when, why or any other details regarding the cessation of conservation measures that are purportedly adaptively management. If you cannot even define how, why or when a program would or would not be terminated, how can you claim you are adaptively managing it?
	The level of detail (and lack thereof) describing potential adaptive management actions and specific triggers (and lack thereof) for adaptive management implementation do not provide a sufficient level of certainty sufficient to support permitting.	The BDCP proposed project does make it possible for them to cancel many of the proposed conservation measures even though they failed to provide clear triggers for this. With the possible cancelation of so many of the proposed conservation measures the agencies must evaluate how much contribution to recovery would remain for each proposed covered species if the BDCP were to terminating all of the conservation measures that the plan would allow them to do. If they were to cancel all of the conservation measures the BDCP proposed project allows them to there would be little remaining to contribute to species conservation and no justification for the agencies to issue ITPs. Since this is a possible or even likely outcome given the uncertainties of the performance of the proposed conservation measures and the limitations to the accuracies of the proposed performance monitoring methods, the agencies cannot be justified in issuing the ITPs.
	The BDCP EIR/S states, “This covered activity would also include improvements and routine maintenance of the Fremont Weir and Yolo Bypass…”	The BDCP description of covered activities of these facilities is incomplete, misleading and is inadequate in level of detail to merit issuance of coverage under permits. As an example, the BDCP document does not identify, characterize, quantify or disclose the amount, timing, type, frequency and locations of dredging to maintain the channel approach to the fish ladders from the river and for the channels leading from the bypass to the fish ladders. High flows can regularly erase these channels that are required for fish passage to be functional and dredging could be required on an annual or even more frequent basis. Dredging is a high impact activity and the BDCP provides no detailed description of these activities sufficient to allow any meaningful analysis or disclosure. Further, the BDCP provides no measures to avoid, minimize, or mitigate the significant impacts that always occur with dredging of any level of scope. The BDCP EIR/S is incomplete in its analysis and disclosure, is deficient and requires this additional analysis, should be recirculated after this analysis is completed and should not be provided with coverage of these activities without the additional level of detail and disclosure.

Conservation Measure Implementation Schedule	All of the BDCP proposed near-term habitat restoration conservation measure actions are actually existing CVP/SWP obligations from the current NMFS and FWS OCAP BO RPAs.	The OCAP BO RPAs for 8,000 acres of intertidal and 17,000 acres of flood plain should not be identified as contributory to species conservation as they are part of the baseline. Since all of the BDCP near-term conservation measures are fulfillment of existing obligations of the CVP/SWP, these actions cannot be considered to contribute to species conservation as compared to the No Action condition. Once the environmental analysis separates the fulfillment of existing obligations from new actions that actually have the potential to contribute to species conservation it becomes clear that the BDCP project does not actually start contributing to species conservation for a number of years. I would be more specific in my comment, but the BDCP has not even committed to a detailed timeline of when the next increments of habitat restoration after the near-term would occur in which these first actions contributing towards conservation would occur nor the type, quantity, location or even target species that are supposed to benefit from these undefined actions. It is clear that the BDCP intends that these restoration actions that would be the first real contributions to conservation of species would not be implemented prior to the completion of the conveyance. How long is it before the first project element that is identified as contributory to conservation is completed and functional? First, real net positive contributions to conservation (above the existing obligations) should be realized by the BDCPbefore any ITPs are effective. Conveyance construction should not beconsidered until a magnitude of contribution to recovery has been achieved that is at least sufficient to offset the impacts of the construction of the conveyance are completed. Otherwise the BDCP would result in a net negative amount and quality of habitat and species condition than under the No Action condition and that would certainly not warrant issuance of ITPs or construction-related permits.
	High water turbidity is well documented and accepted as an important predator protection for smelt.	There have been experiments with flows to see how they protect smelt, but no experiments with increased turbidity. Increased turbidity does not cost water supply. It also might allow us to finally dredge some parts of the delta that are in critical need of it to restore flow capacity for flood protection. A component for adaptively managing turbidity and monitoring fish survival should be included in the alternative evaluated.
	Habitat restoration actions that are part of the No Action condition are included as Conservation Actions in the BDCP proposed project.	Habitat restoration actions that are required from the 2009 OCAP BOs are included in the description and scope of the Proposed Project Conservation Measures. Almost 5 years after the Reasonable and Prudent Actions (RPAs) of the OCAP BOs became the law, DWR and Reclamation have made no tangible progress at all in implementing these measures - see related comments. The BDCP has correctly included some of the RPAs into their No Action definition, but left other RPAs out, e.g. reoperate Shasta flood reserve and fish passage at all dams - see related comments. The BDCP definition of their conservation measures includes the scope of some of the RPA, e.g. CM2 and CM5. The scopes of these conservation measures are inclusive of the requirements of the RPAs, but are not the same as the RPAs. The BDCP has muddied the comparison of the Proposed Project to the No Action by incorporating No Action restorations into the Proposed Project. To make a clean and appropriate comparison, the BDCP should have excluded the RPAs from their Proposed Project. The BDCP should have made a category of "Current Project Obligations Not Yet Implemented". This way the No Action impacts could be clearly separated from the Proposed Project Impacts. The way the BDCP has done their comparison, the impacts from the No Action RPAs are included in both the No Action and the Proposed Project. The impacts from the No Action RPAs cancel out, but their inclusion makes the identification of the magnitude of the Proposed Project less clear and not correctly isolated for comparison and analysis. The current inclusion of the No Action RPAs in the Proposed Project makes it difficult to determine the magnitude of benefits to the species that are attributable to the Proposed Project as opposed to those that occur with the No Action. Since the No Action are existing obligations for the CVP/SWP operations, the cost to implement those actions should not be borne by the taxpayer as is proposed by the BDCP - see related comments. The BDCP should redo the project analysis with the No Action RPAs separate from the Proposed Project so the impacts from the project are correctly identified, characterized, quantified and disclosed. As an example, shallow water rearing habitat for juvenile salmonids will benefit the salmonids, but also increase the population of predator species that eat delta smelt. The smelt will not benefit from the shallow water rearing habitat because it is too shallow to be suitable for smelt habitat and does not generate food base for them.

	comment continued…	The smelt would incur an net negative impact from this example habitat restoration from the increased predator pressure. This example is a very real risk associated with the Yolo Bypass and Cache Slough restoration actions proposed by the BDCP as some of the highest populations of smelt have been observed in this geographic area under the current (un-BDCP restored) conditions. When aquatic habitat is first inundated, as in when a aquatic habitat restoration is first implemented, there is a net negative on fisheries conditions. This phenomenon is well documented with levee breaks and flooding of islands. The amount of potential habitat is increased with the initial inundation, but the habitat functioning has not occurred (no local food base generation, broken food chains) and water quality conditions are very poor (high turbidity, dissolved oxygen sags or crashes, mobilized contaminants, etc.). Fish that are sucked into the new inundated area are subjected to reduced quality of habitat and reduced food base. Once the newly inundated area comes to an equilibrium, after weeks, months or even years; the habitat can become functional and potentially a positive impact on some (not all) species. The BDCP has proposed many small areas for potential aquatic habitat restoration, but also some large contiguous areas (Cache Slough complex and east and south delta) of aquatic habitat restoration. Each of these areas contains BDCP proposals for thousands or even tens of thousands of acres of aquatic habitat restoration. Implementation of these could be temporarily disastrous for some fish species. In order to capture these impacts from the project, the BDCP analytical periods (No Action periods) should include just prior to, during (maximum anticipated negative impact) and after full functioning of these major aquatic habitat implementation events.
	Average water column velocities can be calculated based on tributary flows and channel cross sections. The north delta diversion intake screens are "on bank" type, which will be well out of the thalwag (higher velocity flows) of the river. The location of the intakes on the bank will mean the velocity of water passing the screens will be well below the average velocity of the water in the river.	Average water velocities estimated from an estimated average tributary flow is not adequate to evaluate flow velocities at the face of the intake screen to ensure compliance with screen sweeping velocity operating criteria. BDCP has not conducted 2D or 3D modeling of water velocities at the locations of the proposed intakes for all operational conditions (flow ranges, tidal conditions, wind, barometric pressures and intake operational configuration (i.e. some pumps on and others off and various permutations of those pump operations options)). Without the appropriate 2D and/or 3D modeling of water velocities at the intake screen face under these ranges of conditions and the integration of those model results as constraints (under various conditions) for the intake operations, then the impacts to water supply, downstream resources and compliance with screen operations criteria (salmonid and smelt) cannot be determined and the environmental analysis and disclosure is incomplete and invalid. The fisheries agencies do not have sufficient evidence of protection of fish unless these types of analyses are conducted and therefore should not issue the BDCP project any incidental take permits on the basis of this EIR/S document.

	The entire BDCP premise of the cause for fish population declines and the actions needed to address those declines is fundamentally flawed and should be redirected at the actual causes of the fish population declines.	The BDCP documents go into great detail describing how altered the delta ecosystem is with channelized tributaries and levee armoring. This is very true, but what BDCP fails to do is evaluate the timing of the habitat alteration and other actions vs. the timing of the fish population declines. As the BDCP correctly identifies, the delta tributaries and levees were mostly constructed from the 1850s - 1870s. Fish populations were large and the ecosystem strong and dynamic for over 100 years after the tributary channelization and levee construction. Fish populations began to seriously decline in only the last couple decades. The large scale habitat restoration proposed by the BDCP to "fix" the delta is like feeding vitamins to a patient that is dying of cancer. The vitamins are beneficial to the fish in this analogy, but by failing to address the core problem, the patient (the fish) will die. The real problems that must be addressed to restore the fish species are obviously things that have changed in the last couple decades. These include: the quantity and quality of waste discharge into the delta (sewage treatment plant effluent, human hormones, municipal run-off, chlorpyrifos, etc.), and increasingly aggressive CVP/SWP water operations. The BDCP should have conducted a simple regression to correlate water export quantity of the CVP/SWP and the fish populations. This analysis will show that quantity of water exports is strongly inversely correlated to fish populations (increased exports = less fish, lower exports = more fish). The SWRCB is already working on revised discharge and water quality requirements for the waste discharge into the delta with programs for municipal runoff, chlorpyrifos, minimum flows, TMDLs, etc. so this aspect of protection is already being addressed by other programs that will be implemented prior to the BDCP. The BDCP proposes to create a huge amount of habitat, which is no doubt somewhat beneficial to the fish species, but as identified earlier in this comment, the lack of this habitat (which disappeared a hundred years before the fish population decline) is not the source of the fish population decline. What the BDCP does not do is address the impacts of CVP/SWP operations to the declining fish populations. The EIR/S analysis determined that CM1, the conveyance, does not result in a reduction of fish take. Therefore we can conclude that the amount of damage from the CVP/SWP operations to the fish populations will continue under the implementation of the BDCP. The real impacts to fish populations (other than CVP/SWP operations) are already being addressed by other programs. The BDCP is implementing restoration actions to address problems that are not the cause of the fish population decline and the conveyance will not reduce the contribution of the operations to the fish population decline. As stated at the beginning of this comment, the BDCP premise for the project is fundamentally flawed and does not address the real problems creating the fish decline, therefore, the BDCP should not be issued take permits on the fish species because it fails to demonstrate that the project will result in the protection and restoration of the fish species populations.
	Previous CVP/SWP related environmental documents have utilized more comprehensive significance criteria to evaluate project impacts than were used in the BDCP EIR/EIS. Other recent CVP/SWP and habitat restoration related environmental documents establish precedent for how the State and Federal agencies should evaluate the BDCP impacts.	These agency precedent setting environmental documents include: CALFED Bay-Delta EIS/EIR (Federal agencies: Reclamation, FWS, NMFS, BLM, USGS, USACE, US EPA, USDA, USFS, NRCS, and WAPA; State agencies: DWR, DFG, Reclamation Board, Cal EPA, CDFA, Delta Protection Commission and SWRCB), South Delta Improvement Project EIS/EIR (Federal Lead Agency: Reclamation; State Lead Agency: DWR; Responsible Agencies: SWRCB and DFG; Cooperating Agency: USACE), Salton Sea Restoration Program EIS/EIR (Federal Lead Agency: USACE; State Lead Agency: California Natural Resources Agency; Prepared by: DWR and DFG), Lower Yuba River Accord EIS/EIR (Federal Lead Agency: Reclamation; Responsible Agencies: DWR, DFG, and SWRCB; and Cooperating Agencies: NMFS and FWS), Oroville Facilities FERC Relicensing EIR (State Lead Agency: DWR), and Monterey Agreement EIR (State Lead Agency: DWR). The same agencies that produced and approved these other recent and similar scope project environmental documents are the same agencies involved in the BDCP. The BDCP's agency roles for the environmental documents are similar to these other projects - Federal Leads: Reclamation, NMFS endows; State Lead: DWR; Responsible Agencies: DFG and SWRCB; and, Cooperating Agencies: USEPA and USACE. These documents establish a precedent for the significance criteria that should be used in evaluating the resource impacts of the BDCP project. If the BDCP does not utilize these same significance criteria as these other similar projects, then BDCP must provide a supporting justification for their departure from previous agency policies and practices. BDCP should revise the document to include all aspects of the significance criteria for their impact evaluations that were established as agency precedents in these other recent and similar documents. Subsequent comments identify these missing criteria.

	Harm to, harassment of, or destruction of individuals of any fish or aquatic species listed as endangered, threatened, or rare under federal or California law. (Salton Sea Sig Criteria)	Section 9 of the ESA prohibits the ''take'' of individuals of an endangered species and, by regulation, a threatened species, 16 U.S.C. 1538(a) (endangered species); 1533(d) (threatened species).The ESA defines the term ''take'' as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect listed species, or attempt to engage in such conduct. ''Harm'' includes significant habitat modification or degradation that actually kills or injures listed wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, and sheltering (50 CFR 17.3(c)). The construction of the intakes requires in-water work that will involve pile driving and impoundments that could trap endangered species fish. The BDCP has not proposed a project level plan to avoid, minimize and mitigate these forms of take. The in-water impoundment requires a detailed fish rescue plan.
	Have substantial adverse effect, either directly or through habitat modifications, on any species identified as endangered, rare, or threatened; or identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations. (Monterey Agreement Sig Criteria)	NMFS defines ''harm'' to include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding, or sheltering (50 CFR 222.102). Water quality impacts from the proposed project, specifically, Dissolved Oxygen suitability for fish habitat, is a significant and large scale impact of the BDCP - see related comments. The BDCP did not directly address this impact criteria and did not quantify or characterize the number of critical habitat acres that were adversely modified as a result of the No Action and Proposed Project and alternatives.
	Reduce the area of habitat value or critical habitat areas designated under FESA. (Monterey Agreement Sig Criteria)	Although take of listed plant species is not prohibited under the ESA, and therefore authorization under an ITP is not necessary, plant species may be included on a permit in recognition of the conservation benefits provided to them under a habitat conservation plan. These species are required to be analyzed for the NCCP.
	Interfere substantially with the movement of native resident or migratory fish (intakes, bubble curtains, operable barriers) (Oroville FERC Sig Criteria)	The increased rate of reservoir drawdown from the change in Oroville facility operations and increased spring releases will affect reservoir coldwater fish from foraging and spawning in the tributaries upstream of the reservoir pool. This exact impact was evaluated in the Oroville Facilities FERC Relicensing and the operations were not even changing. The BDCP is changing the operations and did not do the analysis or disclose these impacts. This omission of impacts must be rectified.
	Actions are significant impacts if they substantially reduce the area of habitat value or critical habitat areas designated under FESA. (CALFED, SDIP, Oroville, Monterey Agreement Sig Criteria)	The BDCP proposed project reduces the rate of water turnover and assimilative capacity of water in the central and south delta - see related comments. This reduced turnover and increase concentration of nutrients, e.g. Phosphorus, will increase algal blooms and cause subsequent dissolved oxygen crashes - see related comments. The dissolved oxygen crashes in the central and south delta resulting from the proposed project operations will alter what was suitable critical habitat under the no action condition into unsuitable critical designated endangered species habitat under the proposed project operational conditions. This adverse modification of critical habitat is an unacceptable significant impact of the BDCP project. The BDCP failed to identify, characterize, evaluate, quantify, or disclose this adverse modification of critical habitat for endangered species. The BDCP must rectify this deficiency and address this topic.
	Actions are significant impacts if they conflict with any local policies or ordinances protection biological resources. (CALFED, Oroville, Monterey Agreement Sig Criteria)	The BDCP did not use this commonly applied significance criteria. This significance criteria must be added to the EIR/S analysis in order for the document to conform with previous agency policies and procedures for evaluating the environmental impacts of these similar and precedent setting projects.
	The Aquatic Resources (Fisheries) section uses a different significance criteria for the No Action Alternative than it does for the impact assessment for the project alternatives. - See impact summary table in executive summary.	It is unfathomable why the BDCP decided to be inconsistent with the significance criteria used to evaluate the No Action Alternative as compared to the significance criteria utilized to evaluate the project alternatives for an environmental process that relies upon comparison of the alternatives to the No Action/No Project. The use of different criteria renders the entire environmental analysis meaningless and useless. None of the other 25-odd resource categories dealt with the significance criteria for the No Action differently than the alternatives, so why did the BDCP believe it was OK for the fisheries section to do it this way? The BDCP EIR/S needs to be revised to analyze the No Action with the same significance criteria as the alternatives so that they are comparable. If there is an activity related to a significance criteria that does not occur under the No Action, e.g. conveyance construction impacts, then there is No Impact/No Effect. Other sections dealt with this concept successfully. The lack of consistency between sections shows a lack of management and quality control over the document. The lead agencies obviously have not read this or if they have they should be embarrassed to have released such a poorly constructed and logically inconsistent document.

	The impact calls between NEPA and CEQA were inconsistent.	There are so many conflicts between the impact calls of NEPA and CEQA in the document I can't even reference them all individually. I will give some examples and then you can see how many times the section has made these mistakes. AQUA-NAA1-3, 6, 7, and 9-15 CEQA says "Less Than Significant" and NEPA says "Not Adverse". Both of these impact calls cannot be correct as they are mutually exclusive (see other comments for additional detail on the incompatibility of certain impact calls). AQUA-NAA4 - CEQA says "Significant Unavoidable" and NEPA says "Not Adverse". Both of these impact calls cannot be correct as they are mutually exclusive. Similarly, AQUA-NAA5 - CEQA says "Significant" and NEPA says "Not Adverse". Both of these impact calls cannot be correct as they are mutually exclusive. AQUA-NAA8 and 16 CEQA says "Less Than Significant" and NEPA says "Beneficial". Both of these impact calls cannot be correct as they are mutually exclusive. Out of the first 16 fisheries impact calls, every single one of the impact calls were in direct conflict between the NEPA and CEQA impact calls. There are 217 additional impact calls in the fisheries section and they all look to be equally inconsistent and in conflict between NEPA and CEQA impact calls as the first 16 detailed above. The BDCP EIR/S fisheries impact analyses needs to be redone so that there are not outright conflicts between NEPA and
	The NEPA No Action/CEQA No Project is the basis for comparison of the alternatives.	The impacts of the Proposed Project Alternative 4 are in addition to those which occur in the No Action Alternative, not instead of as the documents presentation format would lead the reader to believe. The water resources and fisheries models all used to analyze the impacts of alternatives by first subtracting the No Action and/or No Project results from the results of each of the alternatives. By subtracting out the No Action/Project baseline, most biases of the models can be nullified and the differences between the baseline and the alternative isolated. This approach means that the Alternative impacts are in addition to those which would have occurred under the No Action/Project. The BDCP should revise the EIR/S so that this distinction is clear.
	There are 201 more impact calls on the Proposed Project Alternative 4 than there are for the No Action Alternative.	CEQA requires an equal level of detail in the analysis of all of the alternatives. Obviously with 16 significance criteria and impact calls on the No Action Alternative and 217 on the Alternative 4 Proposed Project, the analysis is not at an equal level of detail and is in violation of CEQA requirements. The BDCP EIR/S should be revised to include all of the same significance criteria and impact calls as all the other alternatives and the document then recirculated for public comment on this material change in content.
	The No Action CEQA Significant and Significant Unavoidable calls on AQUA NAA4 and AQUA NAA3 respectively are in error.	The CEQA impact calls before mitigation they were Less Than Significant for both AQUA NAA4 and AQUA NAA3. The BDCP did not propose any mitigation measures for the No Action Alternative (see related comments on BDCP lack of mitigations for the No Action). How can the CEQA impact call of Less than Significant before mitigation become Significant or Significant Unavoidable after mitigation that BDCP did not even propose?
	The BDCP has proposed no mitigation measures for the impacts of the No Action.	The No Action condition does not have operating or incidental take permits and the BDCP seeks to have these permits granted to cover the No Action conditions under this EIR/S, so the BDCPmust propose mitigation measures for the No Action Alternative impacts. If mitigations for the No Action Alternative had been included, the impacts of the No Action Alternative would have been significantly reduced and the impacts of the Proposed Project Alternative 4 would have been greater in comparison to the No Action. Without mitigations for the No Action Alternative impacts, the BDCP should not be granted incidental take or other permits which address impacts of the No Action conditions.
	There are 14 times more No Determination calls after mitigation than before mitigation.	The increase in "No Determination" impact calls is clearly an indication that there is great scientific uncertainty as to the benefits of the mitigations proposed. Given the uncertainty of the benefits of these mitigations, the most conservative and appropriately protective interpretation at this point would be to assume that the related mitigations will not be effective. Unless there is a reasonable certainty, the agencies must take the conservative interpretation to protecting the species so any impact call that is "no determination" should be changed to Adverse or Significant. No incidental take permits or other permits should be issued based on any impact calls that include "no determination" - see related comments on no determination impact calls.
	There was not one single "adverse" call in NEPA in any of the 233 impact calls on the No Action or Alternative 4.	CEQA had 62% of its Proposed Project Alternative 4 impact calls result in a Less-Than-Significant impact after mitigation. The dictionary defines "adverse" as "unfavorable or antagonistic in purpose or effect". "Less-Than-Significant" means there is an impact, but it does not rise in magnitude to be considered significant. The Alternative 4 NEPA impact calls were "Not Adverse" 57.1% of the time. Using the previous dictionary definition of "adverse" above, "Not Adverse" would mean "favorable in purpose or effect". The NEPA and CEQA impact calls are clearly inconsistent and are in conflict in their conclusions. These impact calls must be revised to resolve their inherent contradiction and inconsistency. If the CEQA impact call is correct then all of the corresponding impact NEPA calls would need to be revised to Adverse. See related comments on the inconsistencies between the NEPA and CEQA impact calls.

	BDCP EIR/S forgot AQUA 92 in the impacts summary	The Executive Summary is the most read part of the document. The number of errors in it are alarming and in some cases the errors seem purposely misleading.
	At no time should the project be allowed to degrade or reduce the amount or quality of habitat or reduce species populations in the course of the implementation of the project.	The pace of the amount of habitat lost to conveyance construction occurs at a much faster pace than the restoration and functional development of habitat restoration CMs. The level of detail provided in the EIR/EIS does not even allow a detailed accounting of habitat loss by type (species) by year or an accounting of the type and quantity by year of fully functioning habitat restoration or mitigation, so a detailed analysis to quantify this shortfall is not even currently possible. Degradation of habitat conditions have led to the listing of the species that the BDCP proposes to cover. Since the purpose of the HCP/NCCP is to conserve and protect the covered species, the project should not be allowed to result in a net negative quantity and quality of habitat for the listed/covered species at any point in time during the BDCP project.
	The schedule and pace of early project implementation of habitat restoration is not adequate in magnitude to mitigate for the land disturbance from the initiation of the construction of the project (let alone contribute to conservation).	Mitigation must be completed prior to land disturbance in order for the endangered species conditions not to additionally degrade before they are theoretically improved by the project. Endangered species that according to the NMFS and FWS OCAP BOs are on the verge of jeopardy must not be exposed by the project to further habitat degradation prior to habitat improvements. NMFS and FWS are not justified in issuing ITPs s until such time in the implementation of the project that the BDCP has at least achieved a positive net effect on endangered species habitat and that at no time during the implementation of the project are endangered species habitat conditions and populations allowed to be reduced by the project.
	The current CVP/SWP operations ordered by Judge Wanger for limited reverse flows on Old and Middle Rivers resulted in less fish salvage at the CVP/SWP south delta pumps in 2012.	Since a simple reoperation to reduce reverse flows from CVP/SWP operations resulted in significantly reduced fish salvage which reduces the impact of the project and therefore reduces the need and justification for the BDCP project, reduced reverse flows with other complimentary modifications to the south delta facilities and operations should be an alternative included for evaluation in the EIR/S. This alternative should include reverse flow restricted operations with other physical modifications to the existing CVP/SWP south delta facilities such as, but not necessarily limited to: criteria fish screens; a controlled and reduced fish path through Clifton Court Forebay (to reduce duration of exposure of fish to predators in the forebay); fish behavioral modification devices to manage fish distribution away from the intakes (bubble curtains, acoustic and light deterrents); improved fish salvage capture, storage and release facilities and operations. This alternative could also be as a first phase of other alternatives so that there is some tangible improvement in fisheries conditions while other longer lead time alternative components are implemented. If monitoring during the near term identified that the conservation measures were adequate to protect and restore the species then the other project components would not need to be implemented.
	CVP/SWP reservoirs are sediment traps that starve the tributaries downstream of these facilities from their natural upstream sediment contributions and the BDCP intake sediment removal exacerbates this condition.	The BDCP changes the rate of siltation, deposition, and erosion that will modify channel morphology. The upstream reservoirs have an on-going impact on downstream sediment load by acting as large sediment traps. DWR's Oroville Facility FERC Relicensing studies documented that 90+% of the upstream sediment contribution is captured and sequestered by the reservoir. Other terminal dams in the CVP/SWP would have similar sediment capture rates and resulting downstream tributary starvation of sediment. These are on-going impacts of the CVP/SWP that will continue to be precipitated by the project in the No Action condition and should be mitigated. The BDCP proposed intakes also remove sediment load from the river. The amount and texture of suspended sediment load is an important component in the development and maintenance of channel morphology. Sediment is important to be captured behind large woody debris with slowed water velocities and reverse flows. Sediment deposits form in these locations that encourage new plant growth which provides important cover, refuge from predators and food forage for juvenile salmonids. With the reduced sediment load from the BDCP project, fisheries habitat quality and quantity is degraded from the reduced riparian vegetation recruitment. The BDCP project can easily minimize this on-going CVP/SWP and new BDCP impact by putting the sediment that it separates out from the diverted water back into the river and supplementing upstream sediment loads. DWR and Reclamation could also replace the sediment intercepted in the tributaries upstream of their facilities by doing sediment augmentation downstream of their facilities. This avoidance and minimization action has the added benefit of avoiding the impacts from land disposal of the sediments from the intakes.

	CVP/SWP reservoirs are gravel traps that starve the tributaries downstream of these facilities from their natural upstream gravel recruitment contributions.	The upstream reservoirs have an on-going impact on downstream gravel recruitment load by acting as large gravel traps. DWR's Oroville Facility FERC Relicensing studies documented that 90+% of the upstream sediment contribution is captured and sequestered by the reservoir. Other terminal dams in the CVP/SWP would have similar sediment capture rates and resulting downstream tributary starvation of sediment. These are on-going impacts of the CVP/SWP that will continue to be precipitated by the project in the No Action condition and should be mitigated. The BDCP proposed intakes also remove sediment load from the river. The amount and texture of suspended sediment load is an important component in the development and maintenance of channel morphology. Sediment is important to be captured behind large woody debris with slowed water velocities and reverse flows. Sediment deposits form in these locations that encourage new plant growth which provides important cover, refuge from predators and food forage for juvenile salmonids. With the reduced sediment load from the BDCP project, fisheries habitat quality and quantity is degraded from the reduced riparian vegetation recruitment. The BDCP project can easily minimize this on-going CVP/SWP and new BDCP impact by putting the sediment that it separates out from the diverted water back into the river and supplementing upstream sediment loads. DWR and Reclamation could also replace the sediment intercepted in the tributaries upstream of their facilities by doing sediment augmentation downstream of their facilities. This avoidance and minimization action has the added benefit of avoiding the impacts from land disposal of the sediments from the intakes.
	The BDCP proposed project dredging activities result in listed species disturbance, loss of critical habitat and take.	Some of the BDCP proposed project habitat restorations and facilities will require dredging and the BDCP has not adequately identified, evaluated, quantified or disclosed the water quality impacts from this activity. As an example, the channel approach from the Sacramento River to the BDCP Proposed Project fishway modifications at Fremont Weir will require periodic dredging to maintain connectivity and fish access. The BDCP has not developed dredging plans for the location, method, frequency, extent of disturbance, or seasonal timing of operations. The BDCP has not developed any avoidance, minimization or mitigation measures for the significant fisheries habitat and species impacts from dredging activity. Dredging may also be required to develop and maintain some of the aquatic habitat restorations, but the BDCP has not disclosed those significant aquatic resource impacts either.
REUSABLE TUNNEL MATERIAL TESTING Report -section 2.3.1	Environmental testing did not include all of the relevant compounds that should have been tested for.	As an example, the tests had a category for "soluble metals". This is such a broad category as to be useless in a meaningful environmental analysis. The samples should have been tested for a broad panel that encompassed all of the drinking water quality standards so that the impacts of tunnel muck disposal that resulted in water or wind erosion deposition in water could be evaluated. Testing panels should have also included compounds which can be bioacumulated in fish and other species so those impacts could have been evaluated and disclosed. The testing of the samples should be redone to include these other important constituents and the EIR/S revised to evaluate, quantify, disclose and mitigate for the impacts associated with the chemical constituent impacts of the tunnel muck materials proposed by the BDCP.
	High water turbidity is well accepted as an important predator protection for smelt.	There have been experiments with flows to see how they protect smelt, but no experiments with increased turbidity. Increased turbidity does not cost water supply. It also might allow us to finally dredge some parts of the delta that are in critical need of it to restore flow capacity for flood protection. A component for adaptively managing turbidity and monitoring fish survival should be included in the alternative evaluated.
	The BDCP EIR/S described the Barker Slough intake screens as "salmon criteria" screens.	The Barker Slough intake screens do not meet "salmon criteria" as there is no sweeping velocity in the dead end slough.

	The Independent Science Review Panel says the BDCP EIR/S analysis of impacts to fisheries and wildlife was incomplete. This comment is a summary of the ISRP's comments on the essential information needed to complete the environmental assessment of fisheries and wildlife that was missing from the BDCP EIR/S document. Until the requested materials are provided, the BDCP EIR/S document stands incomplete and deficient. All quotes are from the Delta Science Program Independent Review Panel Report BDCP Effects Analysis Review, Phase 3; March 2014.	"...Chapter 5: Effects Analysis inadequately conveys the fully integrated assessment that is needed to draw conclusions about the Plan, in part because of incomplete information on factors affecting the covered species." As a result, the impact assessment is incomplete. "...whether and how any critical life stages or attributes are being adversely affected by the BDCP is generally unclear." This is because information was missing and was poorly presented. "The approach to net effect conclusions needs to be reconsidered and revamped." If the net effects are flawed as the ISRP indicates then so are the impact calls. The flawed impact calls render the EIR/S useless and inappropriate as a decision support document for the agencies and no permits should be issued on this flawed and incomplete document. "...it does not adequately defend conclusions regarding the net effects of habitat restoration." Conclusions are unsupported and therefore should not be relied upon. "Most biological objectives for covered fishes were not fully evaluated in Chapter 5 because information was deemed to be insufficient" The ISRP says the evaluation is insufficient which is another way of saying the analysis is deficient and should be redone. "while the Effects Analysis recognizes that suspended sediment has been declining in the Sacramento River and that the new diversions would remove an additional 8-9%, all analyses used a high and constant amount with no mention of downstream sediment effects on either Suisun or San Francisco Bay." The ISRP is saying the sediment analysis has a flawed assumption regarding the sediment load and that the analysis completely ignores the downstream affects of sediment load on Suisun Bay and Marsh as well as the San Francisco Bay. The analysis of sediment is not only incomplete in its geographic scope, but is also wrong in the analysis and conclusions in the areas that the analysis was conducted. "Similarly, the uncertainty about being able to remove Egeria or other invasive species is not directly addressed in Chapter 5. Egeria is certainly poorly considered in the context of the aquatic food webs. Bivalves are not incorporated into aquatic food web analyses, although they're mentioned as 'uncertainties'." This is a major omission in the document. The BDCP has claimed species benefits from the removal of Egeria, but did not disclose or evaluate the risks and uncertainties of the success of the program. Therefore the benefits of this conservation measure have been overstated and should not be relied upon to contribute to species conservation. "No additional detail has been provided for the Restoration Opportunity Areas (ROAs), other than their general locations. There is very little mention of how they will be connected, interact or be sequenced." This is a huge omission as many comments both by the ISRP and this commenter are based around the need for critical information that was not provided by the BDCP that results in many important impact analyses being compromised in their completeness and integrity or cannot be realistically conducted at all. This important omission in the project description of the BDCP needs to be rectified and the missing analyses conducted before the EIR/S can be considered complete.

	ISRP comments on the critical missing information in the BDCP EIR/S continued.	"The current Effects Analysis does not consider the influence of shifting timing of withdrawals on San Francisco Bay circulation patterns and ecology. This is a significant omission with ecologically important implications." Another "significant omission" which must be rectified before the document could not be considered deficient. "“Forager” versus “migrant” life histories were compared and evaluated, but proportions of each life history type did not seem to be considered in the analysis of net effects. Furthermore, the relative proportion of wild versus hatchery fish contributing to each life history type was not considered." Without consideration of what proportions of the population exhibit forager vs. migrant behavior, the benefits to the species from the habitat restorations cannot be done. If most of the fish exhibit a migrant life history behavior then they will have very little if any benefit from the habitat restorations and therefore the weighting of the contribution to conservation from these habitat restorations should be heavily discounted. Not considering the difference and importance of wild vs. hatchery fish is also a critical omission in the analysis in the EIR/S. Wild fish should be what the plan is striving to conserve as we can make as many hatchery fish as we choose to. Without distinguishing between these two populations, the fisheries agencies cannot determine if the BDCP plan is conserving wild fish or perhaps might even favor hatchery fish to the detriment of the wild fish. No take permits should be issued based on this document until the hatchery vs. wild impacts to fisheries are thoroughly addressed. "While sensitivity analyses would have informed the Effects Analysis in the case of some of the biological models, this recommendation was generally not followed." With so much uncertainty in biological response to changed conditions, sensitivity analyses are critical to test the influence of assumptions utilized in the analysis to ensure that the conclusions are appropriate and reliable. "Recommendation 16: Provide more detail about the specific approaches that will be used when implementing adaptive management" The BDCP relies very heavily on adaptive management as justification of the assumption of benefits to species in the face of so much uncertainty of the conservation measures effectiveness and yet provides little substance to evaluate in terms of exactly how adaptive management would be implemented, what tools and techniques would be used, how successes would be defined, what periods of time monitoring would occur prior to management decisions being made, what alternative management decisions could be and pretty much all important and relevant information required in order to define what Adaptive Management is and will be. Until the BDCP thoroughly defines this important part of their proposed plan, the EIR/S will remain incomplete and deficient. "...metrics or success criteria have yet to be identified..." Without metrics or success criteria, the effectiveness of the conservation measures cannot be determined. The document will continue to be deficient until it provides adequate and complete information on how success will be measured and what specific goals define success.

	ISRP comments on the critical missing information in the BDCP EIR/S continued.	"...critical monitoring that would be required for effective decision making and adjustments are often relegated to research actions rather than mandated effectiveness monitoring, which presents potential lack of commitment or delay in timely resolution of critical uncertainties." Research is not adaptive management. Research may be required in order to develop and implement an adaptive management plan. Until the document can clearly distinguish between these two different elements, the adaptive management plans will continue to be incomplete and deficient. "Given the critical importance of monitoring and adaptive management to BDCP success, it would be worthwhile to have an explicit section within Chapter 5 that specifies how monitoring and adaptive management has been designed and implemented to address specific uncertainties, test critical assumptions and predictions and sequenced to improve the chance of success." Yes, the EIR/S really needs this in order to have any credibility of the contribution of the adaptive management plan in providing any improvement in the level of certainty of benefits of the proposed plan and conservation measures. If you look at the plan there is very little certainty of benefit to the species of any of the conservation measures. The BDCP has placed more importance on adaptive management than any other project ever proposed and yet provides little information on how adaptive management would be implemented. The document therefore will continue to be incomplete until this significant omission is rectified. "Other aspects of food webs in aquatic habitats are described but remain unanalyzed..." This was a reoccurring theme. The BDCP introduced lots of important information and then failed to analyze it. Until these failures to complete the analysis are rectified, the document is technically incomplete and deficient. "...integration and synthesis is lacking." This is also a reoccurring theme. Lots of information would be introduced on different types of impacts to various life stages of a species and then an impact call would be made "based on professional judgment" without any supporting or disclosed rationale as to how the information was integrated and weighted in the impact call. Until the integration and relative weighting of the factors that went into an impact call are disclosed, the impact calls cannot be relied upon.

	ISRP comments on the critical missing information in the BDCP EIR/S continued.	"the Effects Analysis provides a simple accounting of the number of acres of natural communities and suitable habitat that will be removed and restored but very little information is provided about the management actions that will be implemented to maintain them over the duration of the conservation plan." This is a serious omission with regards to the reliability and certainty of function and species benefits from the habitat restoration actions. Other comments made by the ISRP correctly state that there is great uncertainty in the range of outcomes in aquatic habitat restorations in terms of the type and quality of habitat that will ultimately be created. The BDCP has assumed that all habitat restorations will perform flawlessly as planned with no plans for intervention to direct the development of habitat to achieve the goals identified in the BDCP plan and claimed as benefits in the EIR/S. Until plans to ensure the development and function of habitat restorations are developed and disclosed in the EIR/S, there will be no reasonable certainty of contribution to conservation for the covered species from the habitat restorations and therefore the agencies should not allow credit to these actions to justifying the issuance of take or other permits. "Recommendation... Complete work on biological objectives... Provide triggers for adaptive management. ...the Effects Analysis as a stand-alone document falls short." The ISRP's recommendations are correct and the document will remain incomplete and deficient until these are fully addressed and disclosed. Once these material omissions have been addressed in the EIR/S it should be recirculated for additional public comment. "the Effects Analysis should evaluate likelihood of the BDCP achieving each biological objective." Without this missing analysis of likelihood of success the agencies cannot justify relying upon this document should not use it to support their decision making. "Chapter 5 seems to recognize this need in light of the incomplete evaluation of biological objectives." Underlining in the quote is our comment. "Approximately 72% of the objectives for covered fish could not be fully evaluated at this time due to insufficient information." That is stunning. In other words, the document is 72% incomplete or is only 28% complete. The insufficient information the ISRP is referring to is sometimes limiting information on the species and that is an uncertainty that must be addressed and disclosed appropriately - see related extensive comments fro the ISRP on how deficient the EIR/S was in handling uncertainty. The larger source of 72% failure to fully evaluate the objectives for covered fish species comes from the incomplete project description from the BDCP. Some of the incomplete project description comes from the lack of north delta diversion operations definitions and more come from the nearly complete lack of detail in the description, location and sequence of implementation of the aquatic habitat restorations. Until these deficiencies of the project description level of detail, e.g. water depth and breach locations of aquatic habitat, are rectified, the analysis of the impacts of the BDCP plan will continue to be 72% incomplete.

	ISRP comments on the critical missing information in the BDCP EIR/S continued.	"...the numeric values of these rankings were not presented or discussed in the BDCP." Without this disclosure of the process used, the credibility of the analysis cannot be determined. With this missing documentation, we are forced to take the words and conclusions of the EIR/S without the ability to assess their accuracy or merit. Until that disclosure is completed, the document should not be relied upon by the agencies for any decision making. "A serious limiting factor of the current cumulative Net Effects is a near complete absence of any explicit weighting (in summary tables) of the biological importance of the many attributes under consideration" Again, without this missing information, the conclusions cannot be relied upon. "...what cannot be discerned is whether any critical life stages or attributes are being adversely affected by the BDCP." You cannot determine if a species will be conserved by this plan without this information. "The approach to net effect conclusions needs to be reconsidered and revamped." In other words, it is currently wrong, incomplete and poorly presented. "The text does not distinguish between hatchery versus wild salmonids in the analysis." See other comments regarding this critical missing information from the EIR/S. "...an increased residence time may promote toxigenic cyanobacteria (Microcystis aeruginosa)." The BDCP EIR/S failed to analyze the residence time of water in the aquatic habitat restorations and their contribution to increasing the frequency, magnitude, duration, and geographic extent of this significant environmental impact. This omission must be rectified prior to the document being considered a complete analysis of the BDCP impacts. "Reduction in predation hot spots should be considered in the physical design." Yes, you cannot have a project-level design and analysis without inclusion of important design elements. The BDCP assumed that the designs of the intakes would result in a 5% mortality as a design criteria but the information disclosed in the EIR/S did not show how the design of the intakes would achieve that goal. "Evaluate effects of conservation measure attributes on species while considering all other potentially interacting conservation measures." The BDCP EIR/S failed to consider the impacts to the species of combinations of effects from the proposed conservation measures. Many of the conservation measures are interactive in terms of changing habitat location and quality, predator numbers and distribution, and covered species number and distribution and yet the document has failed to consider or evaluate how the conservation measures that affect these interact in combination for direct, indirect and cumulative impacts. Without this level of analysis, the EIR/S is wholly deficient.

	ISRP comments on the critical missing information in the BDCP EIR/S continued.	"Landscape-level effects should be considered." The BDCP is proposing to modify the habitat on over 100,000 acres on as much as 20% of the surface area of the statutory delta and the document does not consider landscape-level effects. This is a gravely serious omission and deficiency. Without considering landscape-level concepts of minimum functional habitat patch size, habitat connectivity, migratory corridors, genetic pool interactions, degrees of suitability of habitat for different species life stages (e.g. suitability for roosting vs. foraging) and spatial coincidence of species range vs. location of habitat being created (if you build habitat in a location that is outside the range of the species, they will not use it and no species benefit would be achieved), the BDCP EIR/S has really failed to evaluate the impacts or justify the benefits of the habitat it proposes to create. Of all the omissions and deficiencies of the document, this may be the most egregious one (with the exception of the omission of the project description and impact analyses of the habitat restorations themselves). "...some sections of the Effects Analysis did not seem to reach a conclusion or describe the certainty about the findings, e.g., text description of Feather River flow effects on spring Chinook." More important errors and omissions of critical information that is required in order to have a complete analysis and disclosure of the impacts of the project. "Findings in the literature on the response of salmonid populations to habitat restoration was not adequately addressed in the Effects Analysis when describing the net effect of each species..." More important information collected and presented, but not utilized which resulted in an incomplete analysis. "Interactions between BDCP flows and habitat was not adequately addressed in the report. For example, Table 5.5.3-4 shows that habitat units typically increased for foraging salmonids in response to habitat restoration, but the habitat analysis did not appear to consider whether salmonids would have access to the habitat during reduced flows under the BDCP scenarios (see Table 5.E.4-1). For example, flows were expected to be ~15% to 20% lower during January to April when many foraging salmonids are rearing in the Delta area. In other words, how much rearing habitat is available and what is the habitat quality for foraging salmonids when flows have been reduced 10-20%?" Without this analysis, the BDCP cannot justify or support any claims as to rearing salmonid benefits from habitat restoration and there may be significant impacts to existing habitat that have been evaluated or disclosed. "Recommendation: evaluate effects of conservation measure attributes on species while considering all other potentially interacting conservation measures." Yes, any analysis is incomplete and deficient without considering iterations between actions proposed in a project. "The degree to which hatchery salmonids contribute to the two life history types was not described, though hatchery fish are released as migrants. For example, 80% of juvenile spring Chinook were assumed to be migrants. To what extent was this due to the release of migrants from hatcheries given that some of the natural population produces primarily foragers? The text does not otherwise distinguish between hatchery versus wild salmonids in the analysis." See previous comments in the incomplete and missing information regarding determining hatchery vs. wild and proportion of migrant vs. foraging fish.

	ISRP comments on the critical missing information in the BDCP EIR/S continued.	"The approach to Net Effects conclusions needs to be reconsidered and revamped. The Net Effects summary figures (e.g., Figure 5.5.2-5) do not include the relative importance of the categories (e.g., food, entrainment, etc.). Without incorporating their relative importance, Net Effects conclusions are potentially meaningless and uncertainty cannot be characterized." Our comment is the underlining in the ISRPs quote. "Clifton Court Forebay physical changes need more evaluation before implementation because of its reputation as a predation hotspot" Clifton Court Forebay modifications are part of the conveyance plan which the BDCP asserts is analyzed at a project-level of detail to merit consideration of construction-related permits. The ISRP comment makes it very clear that the project description of the Clifton Court Forebay modifications do not meet the criteria for a project-level project description. The BDCP should not be issued any construction-related permits until this omission and deficiency in the level of project description is rectified. "Lehman et al. (2013) suggested that increased residence and warmer water temperatures in excess of 19 - 20° C will promote toxigenic cyanobacteria including Microcystis aeruginosa. It should be recognized that Microcystis is only one potentially important toxigenic cyanobacteria in the Bay-Delta – Aphanizomenon was abundant in 2011 and 2012 in the Bay-Delta (Karobe et al. 2013)." This is another serious omission by the BDCP EIR/S to identify, characterize, evaluate, quantify and disclose an important significant impact with potentially significant magnitude of consequence to the human population that draws their drinking water and engages in contact recreation in the delta as well as significant and potentially catastrophic consequences of fish and wildlife in the delta. "The Panel cannot determine whether the conclusions about covered fish species or other species in the BDCP are accurate." This is because the project description and analyses were incomplete, the document did not fully disclose important information, and the methods and process in which conclusions were reached were not transparent, presented or justified. If the reader and decision maker do not have the ability to verify if the findings are accurate, the results cannot and should not be relied upon. "Monitoring needs, timing and intensity also need more explicit incorporation into the BDCP." The BDCP relies upon monitoring to determine if the project has met its goals and to feed the adaptive management process that is proposed to provide some contribution to certainty that the goals will be met and yet, the BDCP fails to provide an adequate level of description of the monitoring plan. Additionally, many types of monitoring result in take. As an example, trawls used to document the number and distribution of delta and longfin smelt result in large amounts of fish mortality and take. Literally, these fish could be monitored to extinction. Without a complete description of the monitoring programs, including: type, location, frequency, # of samples, level of effort, duration, estimated survival rates, and monitoring program impact avoidance, minimization and mitigation plans; the plan and impact analysis are substantially incomplete.

	ISRP comments on the critical missing information in the BDCP EIR/S continued.	"...uncertainty of the occupancy targets for terrestrial species are not addressed. In all cases, a single value of number of acres that will be occupied is provided. No estimates of the uncertainty of achieving stated restoration goals nor uncertainty of the proportion of the restored habitat that will be occupied are included." Without a reasonable range of projected habitat to be created that reflects the level of uncertainty and range of quality of habitat being created, the contributions to conservation of the species cannot reliably be determined from the habitat restorations and the results of the EIR/S should not be relied upon for decision making or as justification for the issuance of permits. "...the validity of the primary assumption that there will be no entrainment of fish at the north Delta diversion (NDD) should be evaluated." In other words, the current assumption is unrealistic and unsupportable. As an example of the fallacy of this assumption, all fish that spawn by broadcasting their eggs in the water column, e.g. striped bass, will have their eggs entrained in the intakes. All analyses that rely upon this unrealistic and unsupported assumption are in error and are misleading and inaccurate in their impact assessments. There is no such thing as a screen that has zero entrainment. There are only screens that meet criteria that result in what is deemed to be an acceptable level of entrainment by the fisheries agencies. "...does not include the potential positive or negative implications for changes in water clarity." Another major omission. Water clarity is a significant factor in smelt predation rates as they reside in the open water column. Predation rates of smelt are directly inversely proportional to water clarity. Any increase in water clarity or reduction in turbidity results in an increase in smelt predation rates. To fail to address this factor in the EIR/S is a major and basic omission in the impact analysis of the project on these species. "Because the panel was not provided the bathymetric configuration of the Restoration Opportunity Areas or the order in which the Restoration Opportunity Areas were established, it is not feasible to evaluate the sensitivity of the models to the placement of the Restoration Opportunity Areas. DSM2 (1-D) and RMA/TRIM (mult-D) hydrodynamic models represent Restoration Opportunity Areas is differently. This could be a significant source of error, especially when Delta Cross Channel gates configuration is open." this is another area of reoccurring omission in the EIR/S document. Without the detail design specifics of the habitat restorations, all of the resources and impacts that are influenced by this major change in the delta hydraulics, flows, residence times, turbidity, salinity, etc. from the aquatic habitat restorations are incomplete, in error and biased. We would go so far as to say that without a sufficient level of detail in the habitat restorations that all of the aquatic impact assessments are fundamentally flawed and inaccurate and therefore none of these analyses should be relied upon by the resource agencies. "Because the panel was not provided the bathymetric configuration of the Restoration Opportunity Areas or the order in which the Restoration Opportunity Areas were established, it is not feasible to evaluate the sensitivity of the models to the placement of the Restoration Opportunity Areas." Same as the previous comment.

	ISRP comments on the critical missing information in the BDCP EIR/S continued.	"While the adaptive management plan is considerably more developed in the BDCP Phase 3, it remains characterized as a silver bullet but without clear articulation about exactly how key assumptions will be vetted or uncertainties resolved to the point that the BDCP goals and objectives are more assured." Our comment is in the underlining of the ISRP's comment. This is such a central part of what the BDCP proposes, but their description of it is wholly inadequate to be able to evaluate the impacts of it or it's reliability in contributing to the certainty of achieving conservation goals. "...many of the critically uncertain ecosystem processes, population responses, etc. that are identified as adaptive management targets are delegated to research, rather than monitoring." Research is a building block to feed into developing an adaptive management plan, but research is not an adaptive management plan in and of itself. Any adaptive management component that the BDCP proposes as research is not an adaptive management plan and therefore is incomplete. "...each and every key uncertainty should be “fleshed out” into implementable adaptive management “experiments"” Yes, adequate science requires development and testing of key hypotheses. The BDCP has not identified these key uncertainties and has not developed monitoring plans to develop understandings of these uncertainties and therefore the adaptive management plan is doomed to failure before it even starts. Without these proposed project description is incomplete and the EIR/S is deficient. "The DSM2 simulations should be re-run for the ELT and LLT simulations with bathymetry that does not include the Restoration Opportunity Areas but driven with ELT or LLT river flow and tidal stage boundary conditions and operations." This is a very appropriate request. The DSM2 should be run both with and without the habitat restorations so that the impacts of the operations can be isolated and so that the magnitude of impacts from the assumptions related to the characteristics of the habitat restorations can be isolated and quantified in magnitude. This is not a substitute for the BDCP providing an adequate project description of the characteristics of the aquatic habitat restorations, but this requested model run comparison would at least disclose the magnitude of impacts associated with their current assumptions. Without this comparison, the proportion of impacts or lack of impacts attributable to the assumptions made in lieu of an adequate project description cannot be determined. Until this analysis is done, none of the aquatic resource impact calls should be relied upon. "The approach of analyzing flow direction every 15 minutes was a reasonable approach given the original 7b question. However, the analysis did not attempt to also look at the exchange through the Delta Cross Channel, which should be done for the modified 7b question." Yes, another reasonable and sensible request. This analysis should have been done in the first place. "Chapter 5 correctly recognized that flow/habitat relationships are necessary for evaluating changes in Feather River flow and temperature on salmonids. However, relationships between flow and habitat were not presented in Chapter 5, therefore it was not possible for the Panel to evaluate changes in spawning and rearing habitat." Another major omission that must be rectified before the document could be considered complete.

	ISRP comments on the critical missing information in the BDCP EIR/S continued.	Recommendations: Develop flow/habitat relationships for salmonids in the Feather River high flow channel, approximate the proportion of the population that uses this habitat, and correct inconsistencies in the text and summary figure." Flow/habitat relationships are already available for the Feather River from the PHABSIM analysis (SP-F12) conducted in the DWR Oroville Relicensing Studies. This omission of this analysis clearly does not take advantage of the readily available best available science. Since DWR is the state lead agency on this document this omission is a clear indication of their lack of engagement and supervision in the development of the EIR/S. "...the evaluation did not attempt to convert predicted flow and temperature scenarios to habitat units for steelhead and Chinook salmon." The data to support this analysis is readily available from the DWR Oroville Relicensing Studies. Each type of habitat unit was rated for suitability for each salmonid species and life stage that are present in the Feather River. The studies did exactly what the ISRP requests. The studies integrated the habitat types with water temperature suitability and flows to determine the quantity of habitat that changes with flow and temperature operations. This omission of this analysis clearly does not take advantage of the readily available best available science. Since DWR is the state lead agency on this document this omission is a clear indication of their lack of engagement and supervision in the development of the EIR/S. "The text states that juvenile spring Chinook salmon may be present in the Feather River from November through June. Chapter 5 also concludes that juvenile migration would not be affected by BDCP flows, which are higher in spring and lower in summer in the high flow channel during BDCP operations. Why is juvenile migration not affected by higher spring flows and lower summer flows? To what extent is rearing habitat in the high flow channel affected by higher flows and to what extent are juveniles using this habitat? There is no mention of the actual temperature experienced by the fish in the Feather River." According to the DWR Oroville Relicensing fisheries studies, spring-run Chinook salmon juvenile emigration in the late spring/early summer already suffer from water temperatures that exceed their thermal tolerances and suitable habitat criteria. Reductions in flows during this period as a result of BDCP operations will exacerbate this existing impact of the Oroville facilities. The omission of the analysis of this significant impact is a substantial oversight. this analysis must be completed and these impacts integrated with the overall impact calls before this aspect of the impact analyses could be considered complete. "Chapter 5 states that real-time operations could be used to minimize adverse effects in the Feather River, but there is no mention of whether this will be done and what the criteria might be to protect salmon. The Chapter 5 description of Feather River effects on salmonids did not incorporate information related to exceedance of minimum flows that was discussed in Appendix 5C.5.2." Empty promises for actions with no supporting detail have no substands or credibility and should not be attributed any assurances of contributions to conservation or contributions to address uncertainty.

	ISRP comments on the critical missing information in the BDCP EIR/S continued.	"what percentage of steelhead rear in the high flow channel?" This answer should have been included in the affected environment and this information is readily available from the DWR Oroville Relicensing Fisheries Studies (SP-F3.2). The answer from those studies is that approximately 1/3 of the steelhead juvenile rearing occurs in the high flow channel. "The Panel notes that steelhead prefer higher velocities than other salmonids, but changes in the amount of habitat in relation to velocity was not presented." The PHABSIM data (mentioned in a previous comment) is readily available to support this ISRP requested analysis. "Potentially adverse temperature effects or predation affects (if predators are attracted to the Bypass) were not described, but BDCP authors stated at the January meeting that temperature and predator attraction are not likely to pose a problem within Yolo Bypass." I'm sure it is not reassuring to the public that the ISRP was given verbal assurances that temperatures and predation would not be an impact on listed species in a private meeting. This claim of no impact does not stand the test of reason. Of course there will be temperature problems in the late spring in a shallow inundated area and of course there will be predators there. Unsupported assurances delivered in a private meeting do not meet the test of full disclosure. These impacts should be evaluated in the EIR/S and the document will remain incomplete and deficient until they are. "Chapter 5 concluded that there is a low negative impact related to contact and impingement of salmonids with the north Delta diversion screens, but the technical appendix states that this effect could not be evaluated." The EIR/S needs to be revised to include an evaluation of this and these findings should be correctly integrated with the impact call. As it stands, the impact call is clearly false and should not be relied upon for any agency decision making. "Other processes of food webs in aquatic habitats are described but remain unanalyzed, some of which may enhance, while others of which would inhibit their biological objectives." Another reoccurring theme in the ERI/S document, information presented but not analyzed. "Chapter 5 contains even less information this time concerning details about timing and sequencing required to evaluate potential impacts. Understanding the sequences is also critical because they have major influences (Drake 1990, 1991; Hobbs and Cramer 2008)." Clearly the document is even more deficient in the public draft than the previous ISRP review on this point. This deficiency should be addressed before the document is advanced beyond the public draft and review. "The BDCP further ignores critical data that should have been incorporated into trajectories concerning the restoration of wetland and associated aquatic habitat. This is a crucial piece because the restoration that is planned is critical key to increasing suitable habitat and food web productivity." Yes, the document is incomplete and deficient without this information and should not be utilized as a decision making document until this deficiency is rectified.

	ISRP comments on the critical missing information in the BDCP EIR/S continued.	"The restoration of these areas are predicted to create better habitat and food for juvenile Chinook salmon, splittail, sturgeon, delta smelt, and longfin smelt. Two issues arise from this assumption, one is their analysis of phytoplankton production and the second is that the analysis never includes potential competitors." Impact calls should not be based on assumptions of benefits. Unless there is a reasoned, well supported and logical argument presented for the benefit, the claimed benefit should not be credited with any contribution to conservation. The ISRP obviously don't believe this impact call is supported by the facts and that the analysis is incomplete. "Beyond the analysis of assumptions, the other compartments of the food web are not incorporated into their analyses. For example, the potential for detritus as a major source of food web production was reviewed at some point and mentioned during the discussion of food webs. However, no incorporation or estimation of potential detritus production was made, nor was the detrital web discussed any further." More missing necessary analysis. "Similarly, the role of SAV and emergent vegetation were not assessed although they were mentioned. The issue of competitors was not assessed. No incorporation was made of anthropogenic nitrogen influences on phytoplankton community composition (for example increasing the proportion of Microcystis). While the BDCP generally has a review of most of these compartments that they illustrate in the conceptual model, no quantitative models, nor estimates derived from the literature review were developed to allow a variety of scenarios that might indicate the potential robustness of the impacts of the conservation measures." Lots more missing necessary analysis. "The Climate Change (Appendix 5.A) portion of the Effects Analysis needs to address the question for frequency of dry/critical water years and relate it back Appendix 5B." Yes, all of our infrastructure and water use assumptions are based on the last 150 years of observed hydrology. The geoplogic record shows that the last 150 years was anomalously wet. It is only prudent, as the ISRP identifies, that the BDCP analysis should include analysis of scenarios for climate change which include extended drought. Until this analysis is included, the document stands incomplete and deficient. "it is also important to look at how the flow patterns will also change in the north Delta. This is an equally important piece of evaluation that should be included in the entrainment analysis." Yes, the BDCP analysis and several of the biological models do not account for changes in flows in the north delta from the north delta intake operations. These flow change analyses should have included change in magnitude duration and frequency of reverse flows on Sutter and Steamboat Sloughs and the related water quality and biological implications of these changes, e.g. juvenile salmonid emigration survival rate changes.

	ISRP comments on the critical missing information in the BDCP EIR/S continued.	...the documentation of the DSM2 PTM model in this appendix should be greatly expanded to provide clarity in their approach. Some of this documentation may already be in Appendix 5.C, however, the present documentation is not sufficient to allow Appendix 5.B to act as a stand-alone document. Our comment is in the underlining of the ISRP quote. "Before the north Delta diversion facility is operational, the operating criteria for both the North and South facilities need to be established." Yes, without the north delta intake operations models the BDCP cannot do any kind of impact analysis on this crucial component of the proposed project. This is the most striking of all of the deficiencies of the document. Without the operational model, the project does not even meet a programmatic level of analysis, let alone the project level analysis the BDCP proposes that they would like to achieve. All other components of the CVP/SWP have operations models and the project description and analysis will continue to be incomplete and deficient. "The Contaminants Appendix is limited to direct contaminant effects on covered species even though it is recognized that both direct and indirect contaminant effects must be considered (p. 5.2.3, lines 5-7). The Effects Analysis authors indicate that indirect contaminant effects are handled within Appendix 5.F: Biological Stressors on Covered Fish. Given the degree to which indirect contaminant effects are presently covered in Appendix 5.F this is not satisfactory." CEQA and NEPA require analysis of indirect affects. Obviously from the ISRP's comment, the document fails to meet this requirement and is therefore deficient. "Recommendations: Provide more information with Chapter 5: Effects Analysis rather than relying heavily on Appendix 5.D: Contaminants. Include both indirect and direct contaminant effects within Contaminants Appendix (Phase II recommendation). Methylmercury Management and Selenium Management should be evaluated by contaminants experts. Incorporate grey literature where needed (especially herbicide application for control of Invasive Aquatic Species)." All of these recommendations need to be addressed and the EIR/S recirculated for public comment. "The Contaminants Appendix is limited to direct effects of contaminants on covered species despite the recognition (Chap. 5, pg. 5.2-3, lines 5-7) that that both direct and indirect contaminant effects must be considered. Appendix 5.D states that with the exception of herbicides used to control Aquatic Vegetation, the BDCP does not add any contaminants to the Plan Area. Nonetheless, as stated (Chapter 5, page 5.3-26, lines 29-30) BDCP activities will alter freshwater flow and alter water residence times at various locations in the Delta. These changes can result in major changes in how contaminants interact with the Delta ecosystem by changing the local concentration of a given contaminant or duration of exposure. For these reasons, restricting the analysis to direct effects on covered species is inadequate." Inadequate is too kind a word, it is deficient. The ISRP and BDCP analysis missed some the other aspects of the BDCP contaminants. An example of this is the water quality that will result from water being held in the tunnels during low or no diversion flows. As identified in several related comments on the water quality chapter, the water discharged from the tunnel from those periods will contain several important contaminants that are significant impacts to human and aquatic wildlife.

	ISRP comments on the critical missing information in the BDCP EIR/S continued.	"at present discussion of potential indirect contaminant effects are not sufficient in scope, detail, or characterization of uncertainty." Our comment is underlined in the quote from the ISRP. "the environmental effects related to constructing ROAs are a bigger concern for contaminants than the north Delta diversion. However, in the case of selenium, changing the pumping operation location in conjunction with the establishment of ROAs in the South Delta has a potential significant effect. Changing to the north Delta diversions shifts the primary source of water in the South Delta to San Joaquin derived water rather than Sacramento source water under certain conditions." Correct, you have to know where the ROAs are and how they are designed to know water residence time and interactions with the BDCP operations. Without both, you cannot know or disclose the impacts to the public and agency decision makers. "the location of the ROAs and how these areas are connected to the adjacent channels is unknown." Yes, and without that you can't determine the tidal exchange volumes or rates for the required analysis. "Conservation Measure 13: Invasive Aquatic Vegetation Control is discussed in Section 5.F-6. There is little consideration of the potential effects on lower trophic levels (algal primary producer) due to herbicide applications." There is readily available published scientific literature on the impacts to algae and the rest of the aquatic food web from herbicides - see (Effects of sulfonylurea herbicides on non-target aquatic micro-organisms: Growth inhibition of micro-algae and short-term inhibition of adenine and thymidine incorporation in periphyton communities, Bo Nyström, Bo Björnsäter, Hans Blanck, Aquatic Toxicology, Volume 47, Issue 1, October 1999, Pages 9–22; Rick A. Relyea 2005. THE IMPACT OF INSECTICIDES AND HERBICIDES ON THE BIODIVERSITY AND PRODUCTIVITY OF AQUATIC COMMUNITIES. Ecological Applications 15:618–627. http://dx.doi.org/10.1890/03-5342; Junghans, M., Backhaus, T., Faust, M., Scholze, M. and Grimme, L. H. (2003), Predictability of combined effects of eight chloroacetanilide herbicides on algal reproduction. Pest. Manag. Sci., 59: 1101–1110. doi: 10.1002/ps.735) Just a cursory review of these readily available scientific publications makes it clear that not only does herbicide harm algae, it also disrupts and reduces diversity across the entire aquatic food web. Lack of consideration of this significant impact on important resources is a serious omission that must be rectified.

	ISRP comments on the critical missing information in the BDCP EIR/S continued.	"Microcystis blooms can have an adverse effect on phytoplankton, zooplankton, and fish. Factors associated with blooms include high water temperature, high water transparency, low flows, high nutrient concentration, and high nitrogen/phosphorus (N/P) ratios. Runoff from land use contributes to these favorable conditions. Microcystis affects fish populations through declines in food sources, mortality, and reduced fecundity. Water operations that reduce flow and increase water residence time may promote Microcystis. Shallow water habitat reduction may also promote Microcystis. Actions that increase water velocity and turbidity are helpful in controlling Microcystis blooms. ESO_ELT and LOS_ELT scenarios are projected to increase average water residence time (Table 5.F.8-2), which would have a detrimental effect in trying to control Myrcocystis." Yes and the BDCP proposed project will exacerbate all of these contributing conditions by increasing water residence times, reducing assimilative capacity, increasing water clarity from sediment capture at the north delta intakes and sediment sink ROAs. The BDCP failed to analyze these impacts and therefore is an incomplete disclosure of impacts. "Recommendations: Provide more detailed description of the 14 different scenarios modeled (Table 5.G-2) than shown on p. 5.G-17. For instance, specify what are the low- and high-flow operations specified in scenarios HOS and LOS." Yes, without a description of what the HOS and LOS are, we cannot independently evaluate the analysis that the BDCP has done. "Presently, 5% entrainment is based on engineering specifications and is lower than at other intake facilities (Perry 2010). These results are also in sharp contrast when through-Delta mortality was increased by 5% and escapement changed by only 0 to 4.6% in the OBAN model. Additional analyses must be done over a wider range of mortality values, 1% to 10%, to assess how bad the intake problem could be and how well must the intake function." The BDCP impact analysis cannot assume a 5% mortality just because that is the engineering criteria they propose to select, especially when the BDCP has not provided any detailed designs with design elements that would give any support the BDCP achieving that design goal. The BDCP needs to accede to the ISRP recommendation. "Recommendations: The description of the methods used to arrive at the number of acres of restored habitat that will be occupied needs to be revised." Not just the description needs to be revised. The entire approach is flawed from the beginning that all acres of all habitats will be fully functional for their target species. Habitat restorations never work this way in reality. There are readily available examples of more appropriate approaches to calculating ranges of habitat function through time, and example is: Moilanen, A., Van Teeffelen, A. J. A., Ben-Haim, Y. and Ferrier, S. (2009), How Much Compensation is Enough? A Framework for Incorporating Uncertainty and Time Discounting When Calculating Offset Ratios for Impacted Habitat. Restoration Ecology, 17: 470–478. doi: 10.1111/j.1526-100X.2008.00382.x.
	ISRP comments on the critical missing information in the BDCP EIR/S continued.	"Provide a citation for the database and a brief discussion of the error associated with the different community types." In general, the entire document was not well supported by references. In some cases it is clear that information came from other sources, e.g. project descriptions on CVP and SWP facilities, and yet the BDCP EIR/S failed to provide the appropriate references. How can the public and reviewers determine the credibility of the data sources utilized by the BDCP if the BDCP has chosen not to document or disclose them? In summary of the comments regarding the missing and incomplete analyses of the BDCP EIR/S, it should be clear from the shear magnitude of comments from the ISRP that the document is incomplete and deficient. Many of the missing elements identified by the ISRP are central issues to determining the impacts of the BDCP. Even though their comments regarding the extent of the deficiencies and omissions of required analyses were numerous and substantial, the ISRP's comments only addressed the fisheries and to a lesser extent, the wildlife chapters of the document. These ISRP comments on the incomplete BDCP EIR/S represent about 15% of the entire document, so by inference we can see just how incomplete the entire document is. Without these requested analyses, the document is not only incomplete and deficient, but it is not suitable to support the agencies in their decision making, nor does it provide sufficient justification to warrant issuance of permits by these or other agencies.

	The Independent Science Review Panel says the BDCP EIR/S analysis of impacts to fisheries was difficult to comprehend. This comment is a summary of the ISRP's comments on the comprehensibility problems with the document. Until the clarifications, improved referencing and organization are provided, the BDCP EIR/S document stands incomplete and deficient. All quotes are from the Delta Science Program Independent Review Panel Report BDCP Effects Analysis Review, Phase 3; March 2014.	"the long, highly detailed document was difficult to review and comprehend." This is a bunch of PHDs that are saying they had a hard time understanding the document. "...Chapter 5 continues to be fragmented in its presentation and sometimes inconsistent with the technical appendices..." Most of the real information was in the appendixes. Without adequate direction from the main document to the over 4,500+ pages of appendixes, those appendix materials may as well as not even existed for how useful they are in supporting the main document. You can't just leave the reader to sift through 4,500+ pages of material in the hope that they will find what they are looking for especially since the document is so incomplete as noted in the previous comments. The combination of poorly organized, low comprehensibility and incomplete leaves the reader wondering if the information they were looking for to validate an issue in the document was just not present in the document in any form or location or if they just missed the material in the unprecedentedly large and poorly organized document. The ISRP made it clear in their comments that even they did not go all the way through the fisheries-related appendixes. The result of the poor organization and internal references to supporting materials is that the BDCP has effectively failed to disclose information even in cases when that information was included (somewhere) in the document. "inefficient organization and incomplete cross-referencing among sections within the Effects Analysis (e.g., the 8 supporting appendices, totaling ~4500 pages) as well as with the larger BDCP planning documents make interpretation of anticipated net effects of BDCP implementation difficult at best." The document is not even readable or comprehensible by a bunch of PHDs who were paid to review it. Obviously the document fails the accessibility information test for NEPA and CEQA compliance if people cannot find or understand the disclosures. "...Chapter 5: Effects Analysis does not represent a stand-alone document and it relies extensively on the associated appendices and other chapters for the presentation of scientific information, with insufficient guidance for the reader." It is a large and complex topic made worse by purposely bad internal and external referencing. "The lack of accessibility to information within the chapter or clear reference to supporting detail inhibits rather than elucidates comprehension of the findings and thus conveys an unsatisfying “trust us” message." This is a clear lack of transparency in the document and the reader should not be forced to just take the BDCP's word for their unsupported and unjustified assumptions, methodologies, synthesis of information or conclusions. "...the Panel found the Chapter 5 text describing the two life cycle models (IOS and OBAN), which provide alternative views of BDCP effects compared with other analyses, to be complicated and somewhat confusing. It was not clear whether or not the models were appropriately applied to evaluate a portion of the BDCP attributes." Yes, very unclear. This must be rectified.

	The Independent Science Review Panel comments on comprehensibility problems with the document, continued.	"...we often found assumptions or conclusions stated in the Effects Analysis to be lacking in sufficient detail to stand alone..." If the assumptions are incorrect or biased then so are any conclusions drawn that relied upon them. Without sufficient detail, justification and supporting rational, none of the analyses conducted without sufficient detail should be included in considerations on contribution to conservation of the species or to confer benefits to any resource impact call. "the Effects Analysis (Chapter 5) itself is still poorly substantiated and leaves too much to appendices and other BDCP chapters without explicit cross references." Without the cross references, the materials may as well as not even exist for all the good it does for the comprehension of the reader. "...it was often necessary in the report to draw on information from a number of appendices or other sections of the report. In many cases, these sections were not referenced or the specific findings of those sections not restated. This leaves the reader to hunt for the pertinent facts." In other words, the document is unusable. "The summary table (e.g., Fig. 5.5.1-5) was extremely difficult to read, used text to describe the effect (zero to high) and color to describe certainty. A small, essentially illegible "-" sign identified negative rankings. This summary table needs to be redesigned to improve readability." Yes, anything negative is systematically downplayed in every case in this document. "Implementation of methods for evaluating BDCP effects was not readily transparent." If you can't tell how methods were implemented, then you cannot assess their credibility and accuracy. This ISRP comment should be taken seriously for how badly the document fails to meet NEPA and CEQA disclosure requirements. "The tremendous length of the documents did not reduce the uncertainty in the overall net effects." Given the previous ISRP comments on the poor organization and linkages in the document to supporting information, the length of the document makes the problem of finding relevant materials even worse. The document is so long because it is chock full of unnecessary and redundant material - see related comments. "The text is not clear how the models predict these changes associated with the BDCP during egg incubation, if the BDCP has no effect on upstream conditions..." It is unclear because the BDCP is self contradictory. If there were no changes in upstream conditions then there could not be changes in egg incubation. There are obviously changes in upstream conditions and there are as a result adverse impacts to egg incubation. When the document is so poorly organized that it self contradicts, how is the reader to make any sense of this document? The EIR/S must be revised to remove these internal inconsistencies so it does not further confuse the reader and obfuscate the truth. "...the text below it is confusing and should be clarified (did the model receive inaccurate information for upstream conditions?)." No, the document mislead the reader with the false statement that there were no changes in upstream conditions. "the presentation of the temperature results and the synthesis of the results should be improved to aid understanding." The current organization and presentation is incomprehensible and should be revised.

	The Independent Science Review Panel comments on comprehensibility problems with the document, continued.	"data is presented in individual species and life stage sections. It is very hard to synthesize the results in this format." The ISRP identifies in other comments that the synthesis is largely missing from the document anyway. Perhaps even the BDCP is confused by their own organization and that is why they failed to present an impact synthesis and supporting rational to the reader. "To help the reader understand what locations, which species, what life stages are most likely to be impacted by temperature as a result of upstream reservoir operations in response to north Delta diversion requirements, a synthesis section in the main Effect Analysis Chapter 5 should be included." Yes, this section should be either presented in map form or at the very least by affected river reach, e.g. Lower Feather River from the Thermalito Afterbay Outlet to the Yuba River confluence. This kind of reporting is standard in all related project environmental documents, see DWR's Oroville Facility FERC Relicensing studies or EIR. "Most charts in this section are hard to visually synthesize the temperature data. Color coding the charts would help guide the reader." Color coding temperature charts is also standard for comprehensibility for these types of documents, again, see the DWR documents related to their Oroville Facility Relicensing. "Table 5C.5.2-32 (p. 5.C.5.2-79) show compares the level of exceedance for the different scenarios. This table is not effective at communicating that the level of exceedance is shifting between different categories. For example, less “orange” classifications may mean that there are more “red” classifications. It would be helpful to re-visit how this information is presented." Exceedance plots are always confusing to anyone who does not use them on a regular basis. Even the ISRP was confused. These plots always are presented with explanatory text in other similar documents, see DWR Oroville Relicensing. "In many cases the description of the results were very repetitive and did not explain how the results differed from other species." Without this, there is no value conveyed to the reader, just useless volumes of text for the reader to wade through in the hopes of finding anything useful. "To help the reader understand what locations, which species, what life stages are most likely to be impacted by temperature as a result of upstream reservoir operations in response to north Delta diversion requirements, a synthesis section in the main Effect Analysis Chapter 5 should be included. The current summary of upstream temperature (Table 5.3-5, p. 5.3-21) is too general to be useful. It is not a sufficient synthesis of the information contained in Section 5C.5.2. This synthesis should address the summary of the problem presented in Section 5C.4 (5C.4-16 lines 26-32)." Yes, please revise and recirculate the document.

	The Independent Science Review Panel comments on comprehensibility problems with the document, continued.	"The documentation of the DSM2 and particle tracking model (PTM) model in this appendix should be greatly expanded to provide clarity in their approach." Without disclosing the approach, the public and the agencies which would rely upon this document to support decision making, have no way to assess it's accuracy or identify its flaws or limitations. If you cannot assess the limitations of an analysis because the approach has not been disclosed, then those results cannot be used for reliable decision making or as a defensible justification for issuance of permits. "Appendix 5.C has been a catch-all appendix ever since Phase 1 of this Effects Analysis review. Unlike the Entrainment or Contaminants appendices, this appendix does not have an individual issue that it is trying to address. This appendix is 2,636 pages long and spans a laundry list of topics including flows in river, salmon migration through the Delta, Delta Cross Channel and Georgiana Slough circulation, non-physical barriers, temperature modeling, water clarity, turbidity, invasive species, nutrients, dissolved oxygen, and algae. This appendix should have been divided into multiple appendices in previous iterations of the BDCP document. At this point, the division of the appendix will likely never happen. As a result, this is a very difficult appendix to review." Yes, it was unusable in its current form and effectively all the material contained in it a waste of time to try to find any meaningful support to the document. "Water clarity and suspended sediment should have been in an appendix all its own rather than being buried in Part 6 of Appendix 5.C." Yes, they should, but from the previous ISRP comments regarding the incomplete analysis of sediment and water clarity in the document (see preceding comments), you can see why the BDCP did not want to highlight their deficiencies by making these the logical stand alone appendixes that they should have been. "The inherent challenges in navigating a document of this size could be overcome by placing all of the contaminant effects under the Appendix entitled “Contaminants”. This was a recommendation made during the Phase 2 review." It seems that repeatedly, the BDCP did not incorporate the input and recommendations of the ISRP in their earlier phase report comments. The BDCP had the opportunity to address these deficiencies after they were pointed out and they choose to ignore the input of the best available science advice they were given. "How the benefits of Yolo Bypass Fisheries Enhancement were modeled is unclear." That is because there were few benefits and many adverse impacts. "the description of the approach that was used to estimate the amount of habitat for each species (pp. 5J.B-1 and 5J.B-2) is poorly worded and needs revising. The description should state that the details of the approaches used to develop the species-specific habitat models are provided in the species accounts in Appendix 2A." (Delta Science Program Independent Review Panel Report BDCP Effects Analysis Review, Phase 3; March 2014)
	The Independent Science Review Panel comments on comprehensibility problems with the document, continued.	In summary of this comment, the ISRP found the organization and writing to be of poor quality, important explanations and internal reference to supporting materials were missing and that the overall affect of these deficiencies resulted in a difficult to read and comprehend document. Combine these comprehensibility problems with the previous comments regarding the essential omitted information in the document and you have an EIR/S that is clearly deficient and fails to appropriately disclose information per NEPA and CEQA requirements.

	The Independent Science Review Panel says the BDCP EIR/S analysis of impacts to fisheries was internally inconsistent (self contradictory) and contained errors. The comment is a summary of the ISRP's comments on the inconsistencies and errors in the document. All quotes are from the Delta Science Program Independent Review Panel Report BDCP Effects Analysis Review, Phase 3; March 2014.	"There is "an apparent disconnect between the assessments of the levels of scientific uncertainty presented in Chapter 5 versus what is characterized in the technical appendices." Yes, the main body of the EIR/S is often in direct conflict with the analyses and conclusions of the appendix materials that were supposed to be supporting it. This is just one of many examples that must be rectified. "Some details of the hydrodynamic modeling, especially where 1D and 2D models did not agree or situations where counter-intuitive results were reported, could not be evaluated due to the limited information provided." It is obvious that there problems and internal conflicts between related analyses, but the BDCP failed to address them and failed to disclose important information which is required for the reader to be able to make their own judgments. "...there is a disconnect between the summary pages with the conclusions drawn in Chapter 5." Because they are in direct conflict. Please note that in almost every case that these internal inconsistencies occur, the appendix will have an adverse impact indicated and the main body of the EIR/S will have a no effect or beneficial impact indicated. This demonstrates a clear and consistent bias in the EIR/S document. This problem is made worse by the lack of presentation of synthesis of impacts in the document and the reliance upon unsupported and unexplained conclusions based on professional judgment. Professional judgment that is not supported by disclosure of how information was interpreted and weighted or with sufficient rationale presented is just an unsupported opinion with no professional credibility. "In situations in which an array of outcomes may be possible, only the more beneficial outcomes are used in conclusions about the BDCP." Even the ISRP noted how consistently biased the EIR/S document was. "The Effects Analysis modeling of salmon sensitivity to water temperature during egg incubation in the Sacramento River is not clear, given that the BDCP has no effect on upstream conditions according to some sections of Chapter 5. The Chapter 5 evaluation needs clarification, including a clear description of how the BDCP might affect flow and temperature in this area." The BDCP statement that there are no upstream affects is false and misleading. That is why the ISRP and the reader in general are confused. "Recommendation 1: Analysis of biological effects needs more consistency and specificity. In some respects, the current draft of the Effects Analyses lacks even more specificity than before..." So some information that was presented and disclosed is now being withheld by the BDCP. These missing materials that the ISRP refers to that the public has not had presented to them should be included in the revision of the draft document and it should be recirculated. "while the Effects Analysis recognizes that suspended sediment has been declining in the Sacramento River and that the new diversions would remove an additional 8-9%, all analyses used a high and constant amount with no mention of downstream sediment effects on either Suisun or San Francisco Bay." This ISRP comment hits on several reoccurring themes in the EIR/S document. Present correct information in the Affected Environment, then make a conflicting assumption in the analysis and then, when convenient, forget to analyze important aspects of the impacts all together.

	The Independent Science Review Panel comments on inaccuracies and errors in the EIR/S document, continued.	"...this level of detail, which sometimes included conflicting information, inhibits rather than elucidates comprehension of the findings." Combine this with the 40,000+ pages that are poorly organized and internally referenced and you have a wholly unusable document. "The simple accounting approach does not consider landscape-level effects such as connectivity and patch size nor does it take into account differences in habitat quality." The BDCP analysis is inconsistent with generally accepted analyses for these resources as the ISRP points out. "A simple surface area versus water volume calculation would provide a first-order estimate of potential food subsidy to open water habitats of the low salinity zone." Even the most basic of analyses that are utilized in other similar documents was not conducted. The BDCP is inconsistent with generally accepted analytical methods for these resources. "The survival model is largely based on Chinook salmon exceeding 140 mm in fork length, therefore the DPM does not represent foragers or smaller migrants, which are the target of the habitat restoration activities." You cannot utilize larger size fish observations of for predicting how smaller size fish will utilize habitat or their rates of survival. This extrapolation by the BDCP is inappropriate and, as the ISRP points out, produce inconsistent results. "The Effects Analysis states that it was assumed with moderate certainty that flow has high importance to foraging winter Chinook salmon, then notes that the moderate level of uncertainty reflects the relative lack of investigation on the influence of flows on smaller salmonids (Page 5.5.3-24, line 39-41). Moderate uncertainty is quite different from moderate certainty... If there is no information on how flows affect survival of smaller foraging salmonids in the Delta, it is difficult to accept a moderate level of certainty associated with the low negative impact of flows on foraging juveniles salmonids, especially when data suggest flow has a significant effect on larger salmonid (migrant) survival (Fig. 5C.5.3-4). To what extent is foraging habitat and exposure of foragers to predators affected by reduced spring flows?" The ISRP makes a good point here, the BDCP has misrepresented the uncertainty and the document is internally in direct conflict. Again, the summary in the main document takes the consistent bias of using the position that is more favorable to the BDCP project. NEPA and CEQA require an unbiased impacts assessment and as this comment points out, it clearly is not unbiased, it is systematically biased. When the BDCP revises the document to address these internal inconsistencies, it should disclose how many of them there were and the direction of the correction (.e.g. from positive to neutral, positive to negative, neutral to negative, neutral to positive, and negative to positive. This disclosure would allow the reader and agencies to determine if there was systematic bias in the previous draft that needs to be addressed. I think we all know the answer we will get when the BDCP addresses this request. "There continue to be discrepancies between conclusions regarding certainty and level of effect between the text and summary tables." Internal conflicts like this just prove how deficient the document is, as even the EIR/S document refutes itself.
	The Independent Science Review Panel comments on inaccuracies and errors in the EIR/S document, continued.	"...the BDCP is inconsistent in how models and analyses handle uncertainty and model assumptions, making it difficult to complete assessment." The document is inaccurate and inconsistent and cannot be assessed and therefore it is not usable as a decision making document or as justification for issuance of permits. "...wetland restoration will require considerable input of sediment in the short-term to meet the outcomes described in the BDCP. Yet Chapter 5 models tidal wetland restoration with a constant concentration of suspended sediment, even though the document discusses the fact that sediment has been declining over the past decades, and further that the operations of the north Delta pumps may remove 8-9% more. In other words, there is considerable inconsistency between a discussion of uncertainty and how uncertainty is incorporated into the conclusions." It is not just an internal inconsistency in the document, but when conclusions are consistently are more favorable than the analysis, that is bias. "No formal comparison of output from the OBAN and IOS models was provided, either on an absolute scale or relative scale. It should be acknowledged that adult escapement differs between models by a factor of 5." A 500% inconsistency in results is unexplained. "In neither case was an explanation for the discrepancy provided." Please provide the requested explanations. "Variance calculations need to be corrected. There appear to be analytical errors in expressing uncertainty." Please correct the identified errors. "This evaluation needs clarification and should be consistent with the Appendix." The analyses in the appendix are consistently more critical of the impacts of the project on the resources than the conclusions presented in the main document. "Recommendation: Clarify confusing and conflicting text related to salmon models. Explanation for the large discrepancies in predictions in adult returns" If there are unexplained large inconsistencies in results, neither set of results should be relied upon for conclusions or decision making until they are explained and reconciled.

	The Independent Science Review Panel comments on inaccuracies and errors in the EIR/S document, continued.	"The text states, “Several models show no change in upstream condition as a result of BDCP”. In the same paragraph, it states that SacEFT predicts a 12% reduction in egg incubation “condition” based on water temperature effects on egg survival. In contrast, the Reclamation Egg Mortality model predicts no effect due to the BDCP except in below normal water years (12% reduction in survival). SALMOD predicts negligible impacts of the BDCP on eggs, fry and smolt. The text concludes that the adverse impacts are related to high sensitivity of some models to small changes in upstream conditions. The text is not clear when describing how the models might predict these changes during egg incubation, if the BDCP has no effect on upstream conditions as reported in portions of Chapter 5. In spite of these conflicting results, Figure 5.5.4-1 shows that there would be zero effect on eggs in the Sacramento River with moderate to high certainty in this conclusion. This evaluation needs clarification." First, the model results of the proposed project are compared to the no action, so the statement that the results of the models are biased because they are overly sensitive is nonsense and purposely misleading to the less well informed reader. The no action model run has the same sensitivities, so they cancel out in the comparison. Second, the egg incubation life stage is the most vulnerable life stage of the species as it is immobile and cannot seek thermal refuge in other locations. Third, the egg incubation life stage is the most important to the productivity of the species because it is first and survival rates of this life stage ripple through the survival rates of all of the subsequent life stages. As an example, if there are less juvenile emigration from reduced populations from adverse water temperatures from the BDCP operations then there will be even less juvenile emigration survival. Predators get too full to eat and some juveniles survive because the predators were too full to consume more. If there are 12% less juvenile emigrants then there will be more than a 12% reduction in the overall juvenile migration survival as compared to the no action condition. The same thing happens again in the ocean cycle survival and adult immigration (increased fishing pressure per returning fish). You can see from this explanation that a 12% reduction in egg incubation survival results in a greater than 12% reduction in adult escapement (return to spawn). There is no denying that this is a significant impact and that this magnitude of reduction in production could lead to jeopardy of extinction for this endangered species. To be protective of the species, the BDCP should take the most conservative approach to interpreting analytical results, not being dismissive of results just because they don't like them. This explanation of the implications of an increase in egg mortality and how it relates to the species productivity overall is more detailed and coherent than any material presented in the EIR/S. This significant impact to the salmonids from the degradation in upstream conditions in favor of delta conditions and species is precisely the kind of trade-off in condition and species benefit that the FWS said in its early letters to the BDCP that it could not tolerate or support.

	The Independent Science Review Panel comments on inaccuracies and errors in the EIR/S document, continued.	"The text concludes with moderate certainty that there would be a low negative effect in the Feather River (the text should clearly identify that it is the rearing stage in the high flow channel that is affected). However, Figure 5.5.6-1 shows zero effect on rearing steelhead and low positive effect on migration. The results in this figure are not consistent with the text." Yes, again there are systematic positive bias in the conclusions in the face of negative assessments in the analysis. "Recommendations: Correct inconsistency in conclusions in Chapter 5 and the Appendix regarding impingement." Yes, please do. "information presented in Chapter 5 on injuries related to the north delta intakes was inconsistent with information presented in the supporting Appendix. This inconsistency needs to be corrected." Again, positive bias in conclusions compared to negative information presented in the analysis. "This standardization has utility for the purpose of calculating entrainment per volume of exported water, but it provides only a partial view of the pumping effect on fish populations. The percent of the populations entrained is more important. This value has more relevance to Effects Analysis on the population. It also appears the variance calculations for salvage abundance and entrainment index are being calculated incorrectly." The analysis should not be relied upon until the corrections are made. "Recommendations: Calculation of salvage density and entrainment need to be revisited and the variance calculations corrected. Current variance calculations for salvage density are underestimating actual variance and uncertainty." Again, errors and underestimation of impacts. "The report variance is too small. The variance of the total salvage estimate also appears to be wrong (pages 5.B-65 and 66)." Too small and in error - are you seeing a consistent pattern of positive bias in favor of the project? We are. "The report then states that the confidence intervals were then computed using the 95% confidence levels of the estimates of the regression." This calculation, as described, is wrong." Not only wrong, but the confidence level used was not nearly as high as claimed in the analysis. Again, more bias in favor of the project. "...the BDCP contains a number of assumptions, some of which are inappropriate, others of which contain considerable uncertainty. Uncertainties are mentioned, but no effort was made to include whether conservation efforts reach only a portion of the goals of biological objectives. Thus the analysis of effects further assumes only the most beneficial potential results in any calculations, but doesn't incorporate other possibilities." Our comment is in the underlining and bolding of the quote from the ISRP comment. The ISRP's criticism and condemnation of the bias in favor of the project inherent throughout this document is very global and so is ours.

	The Independent Science Review Panel comments on inaccuracies and errors in the EIR/S document, continued.	"The BDCP assumes a constant sediment concentration for the time period of the plan (Appendix 5.E, pp. 43-44: turbidity held constant in models and interpretations), yet they indicate that sediment concentration has been declining over the past 50 years (p. 109) and that the BDCP conservation measures will further reduce the sediment supply by an additional 8-9%. While in their discussion of sediment supply, they also conclude that declining sediment concentration and the impact of CM1 will mean much lower sediment supply, these issues have no impact on the BDCP analysis and inference. Yet the loss of sediment supply creates great uncertainties in the rate and potential for restoration of these habitats, while only the most optimal circumstances are modeled or estimated." The BDCP document background on the historical trend in declining sediment load is ignored in the analysis. Then the BDCP impact on sediment load from the north delta intakes is ignored. Then the whole topic of the importance of sediment load and turbidity is ignored. The analysis needs to include some interpretation of future declining sediment load in the no action condition and then incorporate that assumption and impacts of the north delta diversions into the impact assessment. The function of sediment and turbidity changes on resources then need to be assessed for impact calls. Until this is completed, the EIR/S will remain internally inconsistent, inaccurate, incomplete and deficient. "In contrast to their assumption, they cite literature that models the impact of introduced clams and their rate of filtering of phytoplankton and other aquatic organisms." The inconsistencies between the assumptions used in their analysis vs. the best available supporting science literature referenced need to be reconciled and the analysis redone consistent with this best available information. "Ammonia (NH3) / ammonium (NH4) effects, as written in Appendix 5.D, appear to consider indirect effects of ammonia/ium which is inconsistent with the authors' intent for Appendix 5.D." Correct the inconsistency identified by the ISRP please. "Figure 5.F.5-3 projects it would take approximately 10 years to eradicate Egeria under a high treatment scenario and a 20% annual expansion rate. Some of this benefit may be offset by the fact that habitat restoration under the Plan would also create susceptible Egeria habitat." Yes, this is a major inconsistency in their analysis and conclusions. The BDCP aquatic restorations substantially expand the potential area for Egeria so the BDCP claim that Egeria could be potentially eradicated under the program described and in the timeframe indicated is fundamentally and obviously wrong.
	The Independent Science Review Panel comments on inaccuracies and errors in the EIR/S document, continued.	"Under the fixed predation loss method, it is unclear how proportions of 11.7%, 12.1%, and 12.8% for various fish stocks are estimated (p. 5.F-77) when a simple model based on independent intake events estimates (1 – (1 – 0.05)3 × 100% = 14.26%." The ISRP demonstrates that the BDCP's analysis is refuted using even the most basic of mathematical checks. "Check survival estimates. The 94-98% or 96-98% survival values (inconsistent text, p. 5.6-42 and Table 5.G-3) between ocean entry and age 2 seem very high. Rechisky et al. (2009), for instance, found early ocean survival of yearling Chinook salmon smolts from the Columbia River to be as low as 0.28 within the first month. Rechisky et al. (2012) reported early ocean survival of yearling Chinook salmon smolts to range from 0.04–0.29." Yes, this BDCP claim of ocean cycle survival rates of 94-98% is laughably inaccurate. What the BDCP meant was the compliment (94-98% mortality), e.g. 2 to 6% survival and even this is grossly overstated as compared to any available literature on this topic as the ISRP references point out. "...the discrepancy between the effects of the 5% north Delta intake mortality and the 5% through-Delta mortality needs to be reconciled. It is unclear why these sensitivity results noted in the Conclusion (5.G.4) were not reconciled." yes, please reconcile these. "The appendix does not include a formal comparison of model output for OBAN and IOS, either on an absolute scale or relative scale. It should be acknowledged that adult escapement differs between models by a weighting factor of 5." A 500% discrepancy in results remains unexplained in the EIR/S. Discrepancies that are explained can lead to insights and understanding. Unexplained discrepancies in results leave both results without credibility or utility and should not be relied upon. In summary of the ISRP's comments on the inaccuracies and errors in the BDCP EIR/S fisheries section, it is clear from the nature and volume of their comments that there are extensive and sometimes egregious errors and inconsistencies which must be rectified before the document could be considered correct and not materially deficient. After the BDCP has rectified these errors and inconsistencies, the document should be recirculated for public comment.

	The Independent Science Review Panel says the BDCP EIR/S analysis of impacts to fisheries and wildlife over-reaches with its conclusions, sometimes comes to conclusions that are not supported by (or are directly contradicted by) the analyses and that the EIR/S impact calls should be more objective.	"Recommendation 2: Net Effects Analysis needs greater objectivity. Regardless of the degree of uncertainty and the number of linkages without analyses, the conclusion is often overstated as the most beneficial result." Underlining and bold emphasis added. Given CEQA and NEPA requirements for objectivity, this is a very damning statement from the ISRP. Given the ISRP assessment of "often overstated most beneficial results" the EIR/S document that is supposed to be objective and neutral tot he project is instead consistently biased in favor of the project and the document therefore corrupt. The entire document must be gone through thoroughly to remove these biases and only then can the true impacts of the project be assessed and the document be suitable to inform decision makers at the agencies. "The net effects analysis tends to overreach conclusions of positive benefits for covered fish species" This is a ISRP global condemnation of the bias in the analytical conclusions and must be rectified in the document. "...the level of uncertainty is often downplayed." Disclosure of uncertainty is a requirement of NEPA and CEQA and the issuance of permits requires a reasonable degree of certainty of achieving species conservation. From the ISRP's comment, it is clear the EIR/S fails both of those requirements with it's current treatment of uncertainties. "...conclusions regarding covered fish often overstated potential beneficial effects while not adequately addressing the lower-end effects." Again the systematic bias in favor of the project is identified by the ISRP comment. Bias in favor of a project in an EIR/S analysis and document is in direct contradictions to the requirements and spirit of NEPA and CEQA. "The lack of accessibility to information within the chapter or clear reference to supporting detail inhibits rather than elucidates comprehension of the findings and thus conveys an unsatisfying “trust us” message." The reader should never be forced just to take the word of the document authors without supporting evidence and rationale. The adversarial nature of the public portions of the EIR/S process should make it clear to the BDCP that the public does not trust the project proponents or their consultant team and given the consistent biases identified in the document by the ISRP, the BDCP has not earned nor do they deserve that trust or benefit of a doubt from the reader. "...the Effects Analysis contains a number of assumptions, some of which are inappropriate (such as the magnitude and location of invasive clam depression of phytoplankton production), and others highly uncertain." Unsupported and unreasonable assumptions should be removed from the document as all impact assessments and impact calls that rely upon these are fundamentally flawed and should not be relied upon to support decision making or for justification for issuance of permits. "...the analysis of effects further assumes only the most beneficial potential results, but doesn’t incorporate other possibilities." The ISRP makes similar statements many times in their report, so they must have felt very strongly regarding these blatant and systematic biases in avor of the project throughout the document.

	ISRP comments on BDCP unsupported and over-reaching conclusions that are not objective - continued	"A systematic approach to synopsize the overall net effect on each species was not used even though a ranking approach that could have been used in a systematic roll-up was described. Instead, professional judgment was used to assess the overall net effect." A weighted synthesis of each impact should be summarized for each species life stage. Then the relative importance of the impacts to each life stage should be put into context and from there the author summarizes their rationale for how they came to their conclusions. If these elements, which are standard practice in other similar documents (as an example see DWR Oroville Relicensing studies and EIR as well as the Lower Yuba River Accord EIR/S), are not included, then what is presented is not best professional judgment, but merely an unsupported statement of opinion. The document should be revised to provide this integrated explanation of the impact synthesis and rationale for the impact calls that are based on professional judgment. Otherwise the document has failed to disclose, is unsupported and subject to bias as the ISRP indicates. "The estimates of habitat restoration assume that restoration targets for the different habitats will be achieved with certainty, an assumption that unlikely to be met." It is unrealistic to assume all restorations will all turn out exactly as planned to function - all habitat restoration implementation monitoring results will indicate that this never occurs. Habitat has different levels of functionality for each species and life stage use, so the BDCP document is tremendously overstating their case by crediting 100% of all restored acres with 100% functionality for every species benefit identified. The current accounting is either incredibly naive and ignorant or purposely misleading and biased. "It also appears at times that conclusions are based on a select subset of the facts..." Yes, a select subset of facts and limitations on interpretation as well as undisclosed decision factors makes for quite a biased document. "The overall net effects conclusion for each species seemed to be based on the judgment of the authors, rather than a systematic ranking of attribute importance,..." Yes, the current document does not conform to standard industry practices conducted in similar documents. "A systematic approach for synthesizing the net effect on each Covered Species was not used even though a ranking system was described that could have been used as a semi-quantitative scoring approach. Instead, professional judgment was used to assess the overall net effect." Worse, the so called professional judgment was not supported by any rationale. The reader is just expected to take the unsupported opinion of the author. "It is imperative that model-based assessments clearly state when such extrapolation is occurring and the potential direction of bias that might likely arise." If models are used for conditions that are outside the range of data that were used calibrate them, the models are not reliable, are unverifiable and therefore should not be utilized at all. The BDCP analysis not only used models under conditions that exceeded the range of conditions under which they were calibrated, but as the ISRP comment notes, the risks, inaccuracies and potential biases of doing this were undisclosed.

	ISRP comments on BDCP unsupported and over-reaching conclusions that are not objective - continued	"... it is also unclear whether the Net Effects conclusions are correctly taking critical life stages into account when deriving overall Net Effects conclusions." This could only happen when the critical impacts synthesis section and rationale are missing from the document. Without this section all impact calls are unsupported and unlinked to the preceding analyses. "The Effects Analysis does not adequately defend conclusions regarding the net effects of the BDCP..." That is because the impact synthesis section is missing and therefore, as the ISRP comment identifies, the BDCP impact calls are unsupported by facts or rationale. "The conclusion statements from Chapter 5 (and/or the Executive Summary) tend to overstate the beneficial effects of BDCP for many different fish populations (e.g., salmonids, delta smelt, green and white sturgeon). The net effects analysis tends to over-reach conclusions of positive benefits for covered fish species, given the inability to quantify the overall net effect and the realization of high uncertainty." These overstatements of benefits must be corrected. When they are, it will become even more clear that the No action condition is more beneficial for the covered species than the proposed project. "For hydrodynamic modeling, only one set of ROAs were modeled. Because the locations of these assumed ROAs are not being presented to the public, there are details of the hydrodynamic modeling that cannot be factored into the Panel's evaluation of the Effects Analysis." We have many comments related to the deficiency of the document for not disclosing the location, characteristics and implementation timing and sequence. As the ISRP points out in it's comment, without this information it is impossible to assess the impacts of the proposed operations of the BDCP. "Examine and re-write conclusion statements about population net effects in both Chapter 5 and the Executive Summary to objectively express the range in anticipated population effects." Yes, this is standard practice in this type of document. See the previous comment regarding population level affects from the 12% decease in salmonid egg incubation survival. "This figure would also enhance transparency in the final professional judgment of net effects." This entire document lacks transparency. "The Effects Analysis does not adequately defend conclusions regarding the net effects of the BDCP..." Unsupported conclusions should not be relied upon. "Conclusions Often Overstate Beneficial Effects. The Panel believes that the net effects analysis tends to over-reach conclusions of positive benefits for covered fish species, given the uncertainty and inability to quantify the overall net effect." Wow, the ISRP says this a number of times, they must feel very strongly about this systematic bias in the document. "Statements about increased resiliency and abundance are inappropriate given the high uncertainty expressed in the initial sentence. The statements tend to focus on the upper end of beneficial effects rather than a balanced analysis that might capture the range in net effects." Yes, this is a systematic bias in the entire document, not just the fisheries section that the ISRP reviewed.

	ISRP comments on BDCP unsupported and over-reaching conclusions that are not objective - continued	"The BDCP should help conserve the species in the Plan Area and help it cope with expected climate change…." The term "conserve" implies a large beneficial population effect for salmon that may help the population recover from ESA listing. Maybe the BDCP will lead to a positive effect, but the magnitude of the effect is uncertain, as stated above, so it seems inappropriate to imply the BDCP would eliminate attributes in the Delta that cause lower population viability. Yes, given the uncertainty of BDCP benefits (most of them overstated as previously identified) and the magnitude of the factors affecting the species populations, this claim by the BDCP is a gross overstatement. As illustration of the BDCP's gross overstatement of benefits, the BDCP's own analysis indicates that the differences in the proposed project vs. the no action condition are vastly overshadowed in magnitude by the changes assumed to occur under climate change conditions. Given these BDCP statements it would be impossible for the BDCP to result in the certainty of conservation of the species in the future with climate change. "The following conclusion for delta smelt overstates and over-emphasizes the potential for significant beneficial effects (by emphasizing great potential) while also noting the conflicting conclusion of high uncertainty in the net effect: "While there is great potential for large benefits for delta smelt, there is a high level of uncertainty regarding the resulting effects. However, combined with the Fall X2 decision tree, the BDCP will have at least a minor beneficial effect on the species, but a great potential for larger benefits depending on actual food production and location of delta smelt population in relation to restored areas." The high-end benefit is emphasized in the BDCP text. Perhaps there is higher certainty for a positive versus negative net effect but there is high uncertainty for the net effect of actions on the delta smelt population, ranging from little to high population effect. This evaluation would benefit by the removal of "great"." You can't claim a high certainty of benefit for smelt when there is high uncertainties of all the factors that contribute to the uncertainty. The BDCP should rectify these overstatements by providing a calculation of benefit vs. probability. As an example, if something was determined to potentially be beneficial, but there is only a 15% probably of it occurring, then there is only a 15% probability of benefit. This would allow the uncertainties to be more realistically and unbiased addressed. "For green and white sturgeon, the BDCP concluded: "Therefore, the BDCP is expected to conserve both species in the Plan Area through improvements in abundance, productivity, life history diversity, and spatial diversity." The term "conserve" implies a large beneficial population effect that was not supported by the evaluation. The conclusion statement also implies and therefore overstates measureable positive changes to four population viability criteria. These benefits may reflect the goals of the BDCP, but the uncertain magnitude of benefits to sturgeon should not be described as improving abundance, productivity, life history diversity, and spatial diversity." Once the level of uncertainties are incorporated per our immediately preceding comment, the deminimus benefit to the species from the BDCP will become apparent.

	ISRP comments on BDCP unsupported and over-reaching conclusions that are not objective - continued	"For salmonid species, weighting is discussed for migrant vs. foraging forms, but this too is seemingly ignored (or at least not mentioned) in the Net Effect conclusions." Yes, weighting is a common practice in these types of document. This kind of rigorous approach avoids a non-transparent process and the bias that is inherent to the current BDCP draft EIR/S document. "In its current form, at the level of detail conveyed, in the models used, and in the verbal assessments and conclusions, the level of uncertainty is downplayed." Consistently downplaying the negatives of a project is a bias in favor of the project which is contrary to the requirements and intent of NEPA and CEQA. "Disconnect between uncertainty and BDCP conclusions: Frequently, explicit modeling is reduced to small portions of conceptual models. When a range of potential outcomes may result from uncertainties in multiple conditions, only the most beneficial outcome is considered when coming up with a conclusion or summary." Our comment is in our underlining of the ISRP's comment. "Nonetheless, these uncertainties are simply ignored when it comes to conclusions, where it is determined that only the beneficial results of control invasive aquatic vegetation will result..." Again, negatives are ignored and only positives are considered. "In addition, the validity of the primary assumption that there will be no entrainment of fish at the north Delta diversion should be evaluated. In reality, there will be some fish lost at the transfer point..." Entrainment happens on criteria fish screens for species life stages that are free floating and smaller than the screen size. These entrainment losses are just accepted by the fisheries agencies, but it does not mean that these losses do not occur. An example of this entrainment would be for striped bass egg stage which is free floating and occurs in the same geographic area as the north delta intakes. There is not mention of this from the BDCP. "It is not clear how the low positive effect with moderate certainty (Figure 5.5.4-1) was derived, given that there was no presentation on flow/habitat relationships, which were discussed as being key to the analysis." Here is an example of a positive impact assessment determination by the BDCP without any supporting analysis - this is a clear overstatement if not outright fabrication without the supporting documentation.

	ISRP comments on BDCP unsupported and over-reaching conclusions that are not objective - continued	"Chapter 5 concluded that there is a low negative impact related to contact and impingement of salmonids with the north Delta diversion screens, but the technical appendix states that this effect could not be evaluated." Both of the BDCP statements are incorrect and the low negative impact call is overly optimistic and unsupported. The screen impingement impacts could have been evaluated if the BDCP had produced a project-level detail project description which should have included detailed screen designs, bathymetry at the intake locations, intake operation models and 2D or 3D modeling of approach velocities during screen operations under a range of conditions. Given the extreme length of the fish screens (reportedly up to a half mile), low to no or even reverse flow velocities in this tributary reach which would result in long duration of fish exposure to screen (as much as several hours during slack tide and slow flow velocities), repeated exposures of fish at the same screen from tidal sloshing, exposure to subsequent downstream screens with inadequate resting time between them for the fish to recover swimming performance and the fact that approach velocities are based on fish swimming performance criteria which assume a short duration of exposure from a well rested fish, it is much more logical and supported to assume that fish impingement will be much more severe than a "low negative" affect. Given the factors related to impingement identified in the previous sentence it is much more logical to conclude that impingement would be significantly adverse and result in substantial take. The argument and conclusion presented here is more comprehensive, logical and rationally supported than the BDCP analysis on this topic. "Current variance calculations for salvage density are underestimating actual variance and uncertainty." This must be corrected in the revised document. "The normalization process has dampened the variability among annual values such that any subsequent variance calculations will underestimate the actual magnitude of the uncertainty..." Yes, once the data has been corrupted by inappropriate conditioning, then all subsequent calculation and analyses based on that data are corrupted. The normalization of the data and analyses must be redone in order to have a credible and accurate analysis. "Uncertainties are mentioned, but no effort was made to include whether conservation efforts reach only a portion of the goals of biological objectives. Thus the analysis of effects further assumes only the most beneficial potential results in any calculations, but doesn't incorporate other possibilities." NEPA and CEQA require that uncertainties are disclosed. From the ISRP comment makes it clear that the BDCP has failed to do so. The BDCP must remove the bias of always coming to the most beneficial interpretation of information in making their impact calls. Impact calls must consider all information, not just the selected ones that lead to the biased predetermined positive outcome. "While the overall conceptual model is adequate, integration and synthesis is lacking. Consequently the conclusions and net effects are not appropriate given the gaps in analyses and the uncertainties." Comment is in the underlining of the ISRP comment.

	ISRP comments on BDCP unsupported and over-reaching conclusions that are not objective - continued	"while potentially negative impacts on the success of restoration are considered in passing, e.g., invasive bivalves, none of their potential effects are incorporated into their analyses or conclusions. The simplest effects perspective of the BDCP is that it edits out all potential outcomes except for the most favorable one." Comment is in the underlining of the ISRP comment. "Yet the loss of sediment supply creates great uncertainties in the rate and potential for restoration of these habitats, while only the most optimal circumstances are modeled or estimated." Comment is in the underlining of the ISRP comment. "These models suggest 1) that the depth-productivity model they used is completely inaccurate in the context of invasive clams and 2) remind us that while the potential impact of clams are mentioned as an uncertainty, only the most optimal scenario without clams is used for conclusions about the short and long-term benefits of the BDCP." If the BDCP had incorporated scenarios that included invasive bivalves (which are reasonable and prudent to include due to the likelihood of this occurring and the magnitude of the impacts from it occurring that must be considered and disclosed), it would have had to conclude that the aquatic habitat restorations proposed by the BDCP would significantly increase the adverse affects to the environment and adverse impacts to the covered species by creating more habitat for the invasive species. The analysis must be revised to include these scenarios in order to be complete and credible. "some quantitative detail on one or a few compartments, complete with large tables showing all the numbers produced, lacks significant meaning when other compartments are merely discussed. The overall impression is that these compartments live in conceptual isolation, lacking the integration of multiple and linked processes/interactions together into a synthesis. Consequently the BDCP analyses are ambiguous and conclusions and estimates of net effects overestimate the net positive impacts of conservation measures." Comment is in the underlining of the ISRP comment. "Section 5.D.43 (lines 8-10) on the impact of restoration on ammonium suggest that restoration will not have an impact on NH4 concentrations – This is overly simplistic as tidal wetlands are known to be important in nitrogen biogeochemistry, acting as a source via sediment re-mineralization (Cornwell et al. 2014) or clam excretion (Kleckner 2009) or as a sink via organic matter production or coupled nitrification – denitrification (Cornwell et al. 2014)." The BDCP assumptions, analysis and conclusions on the topic of nitrogen cycle impacts from the habitat restorations is incorrect and in direct contradiction to readily available published scientific literature as the ISRP points out.

	ISRP comments on BDCP unsupported and over-reaching conclusions that are not objective - continued	Recommendations: Page 5.F-107, last paragraph, first sentence, and Executive Summary: The 1% to 12.8% range in predation effects due to the north Delta diversion is a mixture of population-level and localized effects and should not be treated as measuring the same quantity. That range estimate is deceptive and technically incorrect. By incorrectly combining incompatible information, the analyses has not been correctly interpreted and therefore the impact conclusion is wrong. The ISRP's word choice of "deceptive" indicates that they believe the information was purposely misrepresented to achieve a favorable outcome for the BDCP. "For the north Delta diversion facilities, two approaches were used to estimate predation-related effects: bioenergetics modeling and fixed estimate of 5% predation loss at each of three intakes screens. The Executive Summary states predation losses at north Delta intakes should be from less than 1% to 12.8%. However, this range is contradicted by the simple fixed estimate model: Assuming three intakes each with a 5% independent rate of loss, then the overall rate is 1 – (1 – 0.05)3 = 0.1426 or 14.26%." The ISRP comment indicates that the BDCP analysis used an engineering design objective as a predetermined outcome of a rate of predation that is unsupported by the literature cited or the analyses disclosed in the document. The two analytical approach results are in contradiction with each other and the document does not explain these discrepancies. Then the BDCP analysis fails even the most basic of mathematical analysis using their flawed and unsupported assumption of 5% predation losses. If the 5% predation rate is accepted (it should not without supporting literature citations and rationale), the ISRP calculation of 14.26% would be correct. That means that the BDCP conclusion that predation could be as low as 1% is understating the impact by 1300+%. A 14+% loss of juvenile salmonids will equate to a greater than 14% decrease in adult escapement (see related comments). A 14% reduction in the adult escapement of an endangered species results in jeopardy for the species. The BDCP therefore does not result in conservation of the proposed covered salmonid species, should not be approved and should not be issued ITPs. "the bioenergetics models to express the effects of predation at the north Delta intakes as a percentage of total juvenile predation can be misleading (p. 5.F-75)." It is purposely misleading and is a symptomatic of a systematic bias in favor of the project in all impact analyses and impact call conclusions. Even with this consistent bias, the BDCP is not very beneficial to the proposed covered species. If an honest assessment was done with no bias, the EIR/S would conclude that there were significant adverse impacts to the covered species as compared to the No Action condition. "...ratios of model output (i.e., relative differences) will not eliminate biases due to structural defects in the model under alternative scenarios." Yes, a model with corrupted base assumptions is not useful and only produces misleading results.

	ISRP comments on BDCP unsupported and over-reaching conclusions that are not objective - continued	"As discussed in other sections of our review, providing a single value for the number of acres of habitat that will be occupied by each species is scientifically questionable." Not only is it scientifically questionable, it is wrong. The BDCP assumes that all habitat created will provide 100% function and value to the target species. This accounting is ridiculously and indefensibly optimistic and results in a huge overstatement of species benefit. Habitat value and suitability is not absolute, it is a gradient of some suitability to mostly suitable. No habitat restoration provides 100% suitability and function to any species or life stage over 100% of it's area, yet that is exactly the assumption that the BDCP has used in their accounting. A reasoned and supported accounting of partial suitability should be analyzed and presented as the ISRP has repeatedly requested and the magnitude of benefits to the species reassessed based on this corrected analysis. The benefits will be significantly revised down under any realistic assessment. "the estimate of the amount of habitat that will be occupied by a species following restoration is questionable." Same comment as the previous quote. "Restoration rarely achieves immediate conservation or biodiversity goals (Hobbs and Cramer 2008, Hobbs et al. 2011)." We will use segments of the ISRP's comments on the lack of objectivity and bias to summarize this comment. "Net Effects Analysis needs greater objectivity." "Regardless of the degree of uncertainty and the number of linkages without analyses, the conclusion is often overstated as the most beneficial result." "only the most beneficial outcome is considered when coming up with a conclusion or summary." "the conclusions and net effects are not appropriate" "the BDCP is that it edits out all potential outcomes except for the most favorable one." "only the most optimal circumstances are modeled or estimated." "...the BDCP analyses are ambiguous and conclusions and estimates of net effects overestimate the net positive impacts of conservation measures." The global condemnation of the ISRP for the lack of objectivity and systematic bias and most positive presentation of only selected facts is stunning in it's severity. The BDCP lead agencies should fire the contractors were hired to conduct an impartial and professional review of the environmental impacts of the project that delivered this obviously advocate biased assessment. The lead and responsible agencies that this document is supposed to represent should throw this current document out and start over with a truly, and legally required, unbiased, neutral, independent, third party assessment of impacts. Until this is done, this document will remain a farce and a mockery of what NEPA and CEQA is supposed to achieve.

	The Independent Science Review Panel says the level of uncertainty in the BDCP EIR/S analysis of impacts to fisheries was not handled appropriately. This comment is a summary of the ISRP's comments on the problems with the document on how it addressed and disclosed uncertainties and limitations of the analyses. (Delta Science Program Independent Review Panel Report BDCP Effects Analysis Review, Phase 3; March 2014)	"...the Panel felt that there was appropriate characterization of high uncertainty within the technical appendices but Chapter 5 did not sufficiently acknowledge or articulate this reality, especially when using professional judgment to reach overall net effects of the BDCP on key species. In particular, the Panel observed that the critical uncertainties associated with presumed beneficial effects of tidal wetland restoration were not recognized in the Chapter 5 summary." Disclosing uncertainties in an appendix and then ignoring those uncertainties in the main document and in the synthesis of conclusions for impacts and benefits of the project does not meet the criteria for disclosure nor does it meet the test of best available science. As the conclusions stand now, they are unsupportable in light of the uncertainties and should be heavily discounted regarding benefits to species conservation. "Our conclusion of the Effects Analysis is that many of the critical assumptions in modeling effects and justifications behind the supposed benefits of the conservation measures are highly uncertain." If assumptions are corrupted at the beginning of the modeling then all subsequent analysis of the modeling results are corrupted and should be disregarded. "The net effects analysis tends to overreach conclusions of positive benefits for covered fish species" Yes, all uncertainties are ignored and only the most positive set of outcomes that could possibly occur if everything went perfect and according to plan are considered in the impact conclusions. Until some accommodation is integrated into the analysis for a range of outcomes and implementation realities, this analysis stands as biased, utterly unrealistic and describes an outcome that could never occur in the real world. Therefore this document provides no certainty for the agencies to utilize as a basis for approval of this document or issuance of permits. "...the level of uncertainty is often downplayed." Ditto. "Given uncertainty in effects analysis, more description of monitoring and adaptive management would be worthwhile to show that the BDCP would adequately address the uncertainty." - said differently, the current analysis does not adequately address uncertainty. The ISRP is wrong on this one. Future monitoring does not compensate for impact calls that are wrong in the EIR/S that have lead to incorrect conclusions and decisions. The uncertainties must be addressed in the impact analysis and a range of outcomes considered. Only once the range of outcomes has been bracketed by an analysis that incorporates uncertainty can a monitoring plan be designed and contingency plans (adaptive management) developed. "... this isn't a conservation plan, but rather a conservation menu that generally fails to describe how major uncertainties will be resolved." Underlining emphasis added. The ISRP observation that the BDCP lacks an actual plan is really a central point. The BDCP lacks so many of the elements that are required to formulate a plan that can be evaluated. In the absence of being able to develop a functional and complete plan, the BDCP has given us a menu from which they will choose what they may or may not do in the future. The menu approach cannot be properly evaluated and provides the agencies no reasonable certainty of outcome. If the BDCP can't even describe and integrate uncertainty in their EIR/S document as the ISRP repeatedly identifies, how can the agencies have any assurances that the BDCP in implementation would successfully address uncertainties when they actually occur?

	ISRP comments on BDCP inappropriate handling of uncertainties in the EIR/S - continued.	"Chapter 5 reflects the lowest common denominator in terms of uncertainty." Taken literally, the ISRP is saying that only uncertainties that were identified in each of the related supporting appendix analyses were included in the main document synthesis of information and given consideration in the impact call. That would be precisely none. "While sensitivity analyses would have informed the Effects Analysis in the case of some of the biological models, this recommendation was generally not followed." The ISRP criticized the administrative draft document on this fundamental problem with how the BDCP was not adequately addressing uncertainty and the BDCP continued to ignore this scientific review panel's best available science input in the development of their public draft. "...sustaining or enhancing covered species will seemingly fall almost entirely on adaptive management..." The ISRP is saying that there is NO certainty of any benefit for the proposed covered species from the actual BDCP plan and that there are only vague promises to do undefined things in the future as an assurance of conservation. The regulatory cannot take this level of assurance as justification for issuance of permits. "The tenuous conclusion drawn from the Effects Analysis is that many of the critical justifications behind the supposed benefits of the conservation measures are highly uncertain." Again, with no reasonable certainty, as the ISRP indicates there is not, the agencies cannot issue permits nor should they approve the EIR/S document. "the Effects Analysis contains a number of assumptions, some of which are inappropriate (such as the magnitude and location of invasive clam depression of phytoplankton production), and others highly uncertain." Combine inappropriate assumptions with a negligent "blind eye" treatment of uncertainties and you get an analysis and conclusion that are worth precisely nothing in terms of assurances of outcome. "If there is one area of general scientific consensus among the Panel about the implementation of the Bay Delta Conservation Plan is that its outcomes remain highly uncertain." In other words, the ISRP's conclusion that the conclusions reached in the document are highly suspect was unanimous. In order for the agencies to accept this document, they have to completely ignore the input of the best available science from the ISRP. "The BDCP Effects Analysis should better integrate where uncertainty exists, identify the most relevant monitoring indicators necessary to evaluate the trajectory of the outcome, provide triggers for adaptive management" Yes, uncertainty must be defined with a range of outcome and some sense of probability. Once that is defined then there need to be thresholds established for specific management actions. Without this the document has not dealt with uncertainty and it does not have an adaptive management plan. It currently does not address uncertainty and in place of a plan, it has adaptive management empty promises.

	ISRP comments on BDCP inappropriate handling of uncertainties in the EIR/S - continued.	Without incorporating their relative importance in the summary figure, net effect conclusions are potentially meaningless and uncertainty cannot be characterized. Underlining emphasis added. The ISRP's point here is that the conclusions are meaningless and therefore cannot be relied upon to support decision making. "Algal toxins could be an attribute for monitoring to reduce uncertainty in contaminants and food web conceptual models." Algal toxins are a good example of a major impact of the proposed project due to the changes in water circulation patterns and the reduction of the rate of turnover of water in the central and south delta. Not only does the BDCP not adequately characterize and evaluate this impact, but it also fails to provide a monitoring plan or action thresholds for adaptive management. These deficiencies (and many others) must be rectified. "An assessment might have high uncertainty for all low importance categories and still have high overall certainty if all the important categories carry with them high certainty. Conversely, the overall assessment would have low certainty, if one or more of the high importance categories carry high uncertainty. The Net Effects conclusions for a fish species needs to therefore take into account the relative importance of the various categories, make them explicit, and interpret Plan effects within that context on a species-by-species basis. Uncertainty plus uncertainty is more uncertainty. Uncertainty never averages or cancels out uncertainty; any more than noise plus noise is less noise." What the ISRP is asking for here in terms of how uncertainty should be addressed in the impact synthesis could not be more basic and yet the BDCP EIR/S fails to provide even this most basic and common sense treatments of uncertainty. Even worse than the BDCP not following the ISRP's reasonable and prudent request for this treatment of uncertainties is that the BDCP's EIR/S actually does the opposite of their request. The current draft EIR/S actually takes high impact drivers of high uncertainty and makes impact calls that they categorize as low uncertainty. The BDCP is mathematically and logically wrong and the entire document needs to be revised to the common sense treatment of uncertainty requested by the ISRP. "A broad consensus exists among the Panel that Chapter 5 does not adequately address uncertainty." We concur. "...the outcomes for conservation measures and their interaction and effectiveness are glossed over and uncertainties are not apparent in conclusions and summary discussions." The ISRP's repetitive criticism of the document on this point is illustrative of just how pervasive this set of problems is with the EIR/S document. "The concerns raised above, at best, add additional uncertainty to the conclusion drawn by the Plan. At worst, these concerns may result in systematic biases in the model projections. The direction of the net effect of these biases is unknown." Actually the net effect of the biases is easy to determine. None of the uncertainties that were not included in the development of the conclusions are beneficial to the net effects of the project. The BDCP counts 100% of the habitat will be fully functional when uncertainty (and tons of published literature on implemented restoration project performance) will certainly fall far short of this most positively biased assessment possible. If they could have claimed 110% habitat functionality, they would have.

	ISRP comments on BDCP inappropriate handling of uncertainties in the EIR/S - continued.	"Because of the lack of an established relationship between passage time, screen contact rate and injury or mortality, it is not possible to conclude with certainty what the effects of the north Delta intakes may be on juvenile Chinook salmon or indeed on juvenile steelhead…" The information the EIR/S author says is missing and therefore they cannot do an assessment is because the BDCP project description is incomplete. Duration of fish exposure to screens (passage time) determination only requires screen length, 2D modeling of flows in the vicinity of the screen and operating rules for how the screens will be run. These are basic, but as the EIR/S author identifies, these are missing from the EIR/S document project description. There may not be a better, and more directly self proclaimed, example of the deficiencies and incompleteness of the project description and analyses in the EIR/S than this. The project description and the environmental analysis of the project will remain incomplete until the requisite information to conduct this analysis are completed. "The assumption of rapid positive food web benefits from restoration of aquatic habitat is a potential benefit, but the degree of benefit, its timing, and even whether benefits will accrue is uncertain. Restoration even may be on a pathway to achieving desired biological objectives, but the time frame may be considerable and beyond the 50-year period of the BDCP." Habitats do not become instantly functional and beneficial as the BDCP analysis treats them. Studies of recently inundated lands from levee breaks show that there is a clear overall reduction in habitat quality and quantity at the beginning. Only after months or even years do any net positive habitat contributions occur. An example of these studies is the DWR assessment of habitat impacts from the Jones Tract levee break as well as in the assessment of the proposed In-Delta Water Storage Project. "Provide clear statements within Chapter 5 and the Executive Summary of Appendix 5.D about the high level of uncertainty associated with contaminant effects as a result of site-specific details that cannot be modeled without explicit information about the location and connectivity of ROAs." Note the ISRP says, "high level of uncertainty" not just "uncertainty". High levels of uncertainty should never be relied upon, especially for impacts that could carry a heavy price in terms of human and environmental impact such as contaminants - period. "uncertainty was not considered when estimating the number of acres of restored habitat that a species would occupy following restoration." In summary regarding the BDCP's inappropriate and inadequate treatment of uncertainties, it is true there are many uncertainties in a project with the scope and complexity of the BDCP's proposed project, but just because there are many and it is complex it does not give the BDCP license to ignore uncomfortable uncertainties and to take only the most optimistic interpretation of would could transpire as a result of the project. NEPA and CEQA require not only disclosure of uncertainties, but also a rationale and logically integrated treatment and integration of those uncertainties in the assessment of effects. From the severity and volume of the ISRP's comments, it is clear the ISRP has concluded that the BDCP has dismally failed to meet these standards and requirements for how uncertainties are identified, disclosed, evaluated and integrated into the impact calls.

	The Independent Science Review Panel says the BDCP EIR/S analysis of impacts to fisheries lacked an integrated quantitative assessment. The comment is a summary of the ISRP's comments on the problems with the document the lack of integration of quantitative assessments. (Delta Science Program Independent Review Panel Report BDCP Effects Analysis Review, Phase 3; March 2014)	"...the lack of an integrated or quantitative assessment of net effects…" The BDCP did a few quantitative assessments, but the results of them were directly contradictory and inconsistent. The BDCP did not address these inconsistencies and did not integrate the range of outcomes into their impact assessment. This is like doing your homework and then not bothering to turn it in to get credit. Because of this deficiency, no credit should be given for impact calls that purport to contribute to species conservation. "...in the case of covered species, effects could not be quantified and only two of the sixteen existing life cycle models were deemed to be relevant to BDCP. For these and other reasons, a systematic approach to synopsize the overall net effect on each species was not used. Instead, professional judgment was used instead of a ranking approach to quantify a synthesis of cumulative effects and associated certainty in the projected outcome." The BDCP utilized professional judgment even when better, more objective assessments were available. Even the execution of professional judgment was flawed as the authors never disclosed their thought process or rationale as to how the information was integrated into their conclusions. Without knowing which impacts were important drivers for the overall outcome, the agencies cannot be informed as to which variables in the program need to be most closely monitored or managed and which are most important to reaching conservation goals. Without this information the assessments are meaningless and fail to fulfill their required function to support decision making. "...the Effects Analysis (Chapter 5) itself is still poorly substantiated..." In other words, the reader is not able to verify the truthfulness of the document and conclusions with the incomplete set of information that the BDCP has presented. We the public and the regulatory agencies cannot accept an incomplete document that requires us to "just trust" without the ability to independently assess and verify. "The approach to net effect conclusions needs to be reconsidered and revamped." Yes, this is another requirement from the ISRP phase 2 report that the BDCP failed to implement in the public draft. "A systematic approach to synopsize the overall net effect on each species was not used even though a ranking approach that could have been used in a systematic roll-up was described. Instead, professional judgment was used to assess the overall net effect." The BDCP described an appropriate synthesis approach for the impact call and then proceeded to ignore their own proposed procedure for the assessments. The inconsistency in following methodology must be rectified. The type of synthesis described is common to all similar environmental documents done in California water projects over the last decade. The more complex the impacts of a project, the more important a well reasoned, presented and justified information integration process is for the impact synthesis and impact call. This glaring deficiency must be rectified.
	Independent Science Review Panel comments on the BDCP EIR/S lack of integration and quantitative assessments - continued.	...some quantitative detail on one or a few compartments, complete with large tables showing all the numbers produced, lacks significant meaning when other compartments are merely discussed. The overall impression is that these compartments live in conceptual isolation, lacking the integration of multiple and linked processes/interactions together into a synthesis. Consequently the BDCP analyses are ambiguous and conclusions and estimates of net effects overestimate the net positive impacts of conservation measures. Data presented that is not discussed, integrated, put into perspective, weighed for importance only serves to obfuscate rather than clarify understanding of the impacts, issues and cause and effect relationships. The BDCP is required to take all relevant information and present it to the reader. "Passage, Movement, and Migration Results, Flow Summary (Section 5C.5.3.1, Pages 5C.5.3-1 through 5C.5.3-64) Please improve the synthesis of results in this section. These pages contain only charts with no dialogue or graphs to aid the reader." Again, data presented like this is designed to obscure rather than reveal the truth.

	The Independent Science Review Panel says the BDCP EIR/S project benefits to fisheries are uncertain and rely too heavily upon adaptive management. The comment is a summary of the ISRP's comments on the problems with the document on how adaptive management is defined, utilized and relied upon. All quotes included in the comment are from the Delta Science Program Independent Review Panel Report BDCP Effects Analysis Review, Phase 3; March 2014.	"...the foundation of the BDCP is weak in many respects and the default burden to ensure covered species benefit, if not recovery, depends on adaptive management." Underlining emphasis added. The species benefit default to adaptive management is a serious problem with the document as other ISRP comments criticize the lack of a functional or complete adaptive management program by the BDCP - see related comments. Given the default of benefits to an undefined adaptive management plan, there are no reasonable assurances of conservation provided by the EIR/S to justify the agencies approving the plan or issuing ITPs. "The adequacy of the BDCP therefore rests not in the intent and development of the conservation measures, but in the rigor and application of adaptive management to ensure that the critical uncertainties are addressed and strategically incorporated into a progressively refined Plan." Again, other ISRP comments determined that the BDCP does not yet have a complete or functional adaptive management plan to rely upon - see related comments. "...adaptive management is identified considerably more in the Phase 3 review version of the Effects Analysis, it remains characterized as a silver bullet but without clear articulation about how key assumptions will be vetted or uncertainties resolved to the point that the BDCP goals and objectives are more assured." The BDCP goals and objectives are not assured in the EIR/S document at all considering that the ISRP comments correctly identifies that the BDCP analysis was: incomplete (see related comments), internally self contradictory (see related comments), in error and inaccurate (see related comments), biased and lacking in objectivity (see related comments), incorporates only the most favorable interpretation of possible outcomes (see related comments), does not address uncertainties (see related comments), analyses and discussion presented were not integrated into impact calls and impact calls often directly contradicted this other information, and does not apply the best available science (see related comments). Given this large list and magnitude of deficiencies of the BDCP document and that even with the most optimistic, ,myopic and biased interpretation of information, the BDCP does not present a compelling benefit. Therefore, once these deficiencies and biases are corrected it is clear that the No Action will have less adverse impacts and greater benefits than the proposed project. It should be noted that the No Action condition contains many less uncertainties and risks than the implementation of the proposed project. On this basis it is not possible to identify the No Action as the LEDPA. "There is a tremendous trust embodied in an ill-defined adaptive management process." Dictionary.com defines "ill-defined" as, " badly or inadequately defined; vague: He confuses the reader with ill-defined terms and concepts." "Recommendation 16: Provide more detail about the specific approaches that will be used when implementing adaptive management" Yes, please do and since it is such an essential component of the success of the plan, this will be material new information and therefore requires recirculation of the public draft.

	Independent Science Review Panel comments on the BDCP EIR/S project over-reliance on an ill-defined adaptive management program - continued.	"Other than the impression that the foundation of the BDCP is weak in many respects, the default burden to ensure Covered Species benefit, if not recovery, rests on adaptive management. The adequacy of the BDCP therefore rests not in the intent and development of the conservation measures, but in the rigor and application of adaptive management..." And yet the ISRP comments consistently identify the inadequacy of the plan and description for adaptive management - see related comments. "Recommendation... Provide triggers for adaptive management." "The BDCP Effects Analysis should better integrate where uncertainty exists, identify the most relevant monitoring indicators necessary to evaluate the trajectory of the outcome, provide triggers for adaptive management" The ISRP is saying that the current monitoring plan is so inadequate that it cannot determine if there is even a positive or negative change, let alone if biological goals and objectives that lack decision making thresholds to trigger adaptive management are met. The monitoring plan must be fully developed and disclosed or how else will the public and resources agencies be able to tell if the plan can meet it's goals? Monitoring plans have species impacts that have to be disclosed, e.g. seine trawl monitoring of delta smelt could literally cause the extinction of this listed species - see related comments. "Adaptive management is unlikely to succeed unless clear targets and thresholds for alternative management approaches are identified." Actually, it is impossible for a program to be successful without performance measures and action thresholds. To paraphrase an old aphorism, the BDCP has failed to plan so they have planned to fail. "...the specific process whereby adaptive management would be utilized to ensure BDCP meets its goals and objectives by rigorous adaptive management need to be described in much more detail. There needs to be a more obvious commitment to active adaptive management." The ISRP comments are true and should be addressed and resolved. However, the real problem is that the BDCP plan is incomplete. If the plan was complete and better founded, then it would not need to rely upon adaptive management in order to claim contribution to conservation for the covered species. Until the BDCP plan no longer relies upon the adaptive management plan for success, but is merely utilized as a contingency plan for what the BDCP has failed to anticipatable, the plan will continue to be incomplete, deficient and not worthy of approval or issuance of permits.

	The Independent Science Review Panel says the BDCP EIR/S project did not utilize best available science. The comment is a summary of the ISRP's comments on the missed opportunities to utilize the best available science as well as comments regarding the inconsistent rationale for why certain models were not selected for use in the analyses. All quotes included in the comment are from the Delta Science Program Independent Review Panel Report BDCP Effects Analysis Review, Phase 3; March 2014.	"Some life cycle models inappropriately excluded. Appendix 5G excluded delta smelt life cycle models in the Effects Analysis without adequate justification. Based on the premise of using the "best available science," it is unclear how none of the delta smelt models could have reached that level of acceptance." Yes, the BDCP inappropriately dismissed a number of useful, generally accepted and readily available analytical tools without sufficient justification or rationale provided. Another example of this would be dissolved oxygen models - see related comments. Analytical tools such as those identified in the preceding comment and by the ISRP must either be utilized in a revised EIR/S analysis or the BDCP must provide sufficient rationale that is consistent with how other models and tools were evaluated. "One justification was that none of the models used zooplankton data; however, the BDCP Net Effects assessment indicated zooplankton was only of moderate importance to delta smelts (Figure 5.5.1-5). It would therefore seem that some assumptions about zooplankton could have been made, allowing life-cycle modeling to be performed. Robustness studies could have accompanied the modeling process. Furthermore, if the BDCP team felt none of the delta smelt models to be adequate, why was there no investment made in model development for such an important species of interest?" The ISRP correctly points out that the BDCP rationale for not using these available models was flawed and unsupported. Additionally, as the ISRP notes, impact analyses that are central to addressing the objectives and impacts of the project should have the highest level of effort and rigor applied to them. "Lack of specificity in Restoration Opportunity Areas limits conclusions of many aspects of Effects Analysis. For the hydrodynamic modeling, only one set of Restoration Opportunity Areas were modeled." This is a core deficiency of the document as discussed in many related comments. If the BDCP only modeled one scenario (incompletely as the ISRP points out) and analyzed and disclosed only this scenario then the permits should only cover the actions that would occur under this one and only one scenario as they are explicitly defined. If elements are not defined at a project-level of detail, they no related permits should be issued. If the implementation plan deviates at all from this scenario then another environmental review must be conducted prior to issuance of permits. "While sensitivity analyses would have informed the Effects Analysis in the case of some of the biological models, this recommendation was generally not followed." With so much uncertainty in biological response to changed conditions, sensitivity analyses are critical to test the influence of assumptions utilized in the analysis to ensure that the conclusions are appropriate and reliable. Since the BDCP did not do this (contrary to the input from the ISRP) then there is no way the BDCP can even reasonably prove that their analytical results are accurate, reliable or correct.

	Independent Science Review Panel comments that the BDCP EIR/S project did not utilize best available science - continued.	The approach used to calculate residence time is also of concern. The residence time in each Restoration Opportunity Areas is a function of bathymetry, the exchange between the Restoration Opportunity Area and the adjacent channels. The 1-D DSM2 model does not have the capability to calculate this parameter. In addition, because the specific locations and configurations of the Restoration Opportunity Areas are not presented in the Effects Analysis, the panel has no basis to comment on the validity of the approach. If the ISRP can't determine the validity of the process the BDCP used, then neither can the resources agencies. If the resource agencies cannot verify the validity of the approach, then they cannot rely upon these results or conclusions. Therefore they cannot use the EIR/S as a decision document. "Rather than using current estimates of habitat occupancy within the Plan Area to estimate occupancy of restored habitat, we recommend using spatially explicit occupancy models (see comments under question 4). In addition, the minimum width and maximum distance of riparian habitat corridors should be identified for terrestrial mammals that are restricted to riparian habitats (riparian woodrat and riparian brush rabbit). Persistence of these species in the Plan Area requires riparian habitat patches that are sufficiently large to support stable populations as well as riparian corridors that will allow movement between suitable habitat patches. Both the minimum patch size and minimum corridor parameters (width, distance, over story cover) should be specified to ensure long-term occupancy of restored riparian habitat." These are all common elements of any assessment of habitat restoration at a landscape level and have been since landscape level restorations were first initiated in the 1990s. Failing to address these most basic of landscape analysis approaches is clearly deficient and does not meet the test of best available science. Without these additional dimensions of habitat value and use evaluation, the current assessment is incomplete, lacking and deficient. "Communication of uncertainty would be improved by consideration of a range of potential outcome values in models." Yes, when you are using a model, you have to test the sensitivity of the model to various ranges of inputs, otherwise you cannot evaluate the utility and limitations of the model results. Without the sensitivity assessments the ISRP requests, the model results should not be relied upon and any conclusions drawn from them heavily discounted. "...the Effects Analysis does not lend itself to evaluation of chained statistical uncertainties." What the ISRP is saying is that if you have uncertainties that are not bounded by ranges and you compound (multiply) those uncertainties with multiple additional sets of interdependent and interactive uncertainties, by the end you have a result that is ultimately useless. Uncertainties can be managed in analyses and the ISRP is saying that the BDCP analysis failed to do that. "Phytoplankton productivity is unrealistically modeled,..." Bad and flawed science, let alone the best available science.

	Independent Science Review Panel comments that the BDCP EIR/S project did not utilize best available science - continued.	"The assumptions made in hydrodynamic models TRIM/ RMA versus DSM2 or CALSIM2 result in a range of outcomes; their analysis is limited to only one set of ROA configurations" There should be a set of sensitivity analysis done on the input assumptions and then this range of outcome should be run on a range of implementation scenarios. Even if it were a good plan (it is not) if it implemented in an incorrect sequence of inter-related ROA impacts then substantial, significant and unforeseen impacts will occur. This cannot be allowed to occur and the project cannot be approved with a single set of ROA implementation assumptions when that is obviously not how it would ultimately be implemented. "The panel concluded: 1) the assumption of a 3-day moving average to characterize flow on the Sacramento below Georgiana Slough is not valid..." Yes, it is not best available science when flow data is available from DWM2 at 15 minute increments and the BDCP decides to water down the analysis to a 3 day moving average. This reach of the river is highly tidally influence and BDCP operations would intensely interact with the tidal flows, e.g. cessation of pumping at slack or near slack tides - even though the BDCP did not develop or disclose their north delta operating process or ops model. Averages of conditions over even a daily data aggregation make any analyses meaningless. An easy example of the absolute loss of utility of data by aggregation into simple daily or multiple day averages is the analysis of duration of juvenile salmonid exposure to screen operations. This is an important impact of the project that was not fully or accurately addressed in the EIR/S. One of the reasons the BDCP gave for not doing the analysis was the lack of appropriate flow and velocity data. the data was available, the BDCP just opted to condition and use the data in such a way as to render it useless for this type of analysis. This is unacceptable and certainly does not even meet the test of good science, let alone best available. "At worst, these concerns may result in systematic biases in the model projections." Systematic biases must not be tolerated and must be corrected. "...the empirical relationship created for the current configuration of the Delta is not valid for the future configuration." The ISRP is saying that the BDCP should not assume that relationships between current conditions and biological responses of the species will hold true under substantially altered hydrologic conditions that will occur with the BDCP north delta operations and implementation of the ROAs. The BDCP's assumption that these relationships will hold true is fundamentally flawed and they have not even accounted for the possibility or risks to the success of the project that changes in responses would occur. Until these deficiencies are addressed, the document remains deficient.

	Independent Science Review Panel comments that the BDCP EIR/S project did not utilize best available science - continued.	This analysis should have been broken into two time periods: gate open and gate closed conditions. This table raises a significant concern that the author did not have a basic understanding of how the Delta Cross Channel gate changes flow patterns (and migration patterns) in the Delta. Yes, the analysis aggregated data that had two radically different hydrologic conditions and sets of migratory pathway options. The analysis was not only fundamentally flawed, it demonstrates a fundamental misunderstanding of the functions of the system operations and variables affecting the data being used. This is not just bad science, it is dangerously naive and ignorant. "Positive barrier fish screens are widely used throughout the Pacific Northwest to protect juvenile salmonids from entrainment into water diversions, and this information should be readily available to the BDCP team." Yes, the northwest provides much of the best available and applicable scientific literature and the BDCP has systematically failed to capture and benefit from these learning's. the BDCP should conduct an exhaustive search of this available literature and summarize those applicable learning's in the affected environment. "Recommendation: Conduct literature search on positive barrier fish screens, which are widely used." That's what I just said. "Positive barrier fish screens are widely used throughout the Pacific Northwest to protect juvenile salmonids from entrainment into water diversions, and fish screening criteria are widely applied. The BDCP team could access relevant documents on the web." Yes, these are really readily available and it is shameful the BDCP chose not to utilize these resources. "Recommendations: Develop flow/habitat relationships for salmonids in the Feather River high flow channel, approximate the proportion of the population that uses this habitat, and correct inconsistencies in the text and summary figure." Flow/habitat relationships are already available for the Feather River from the PHABSIM analysis (SP-F12) conducted in the DWR Oroville Relicensing Studies. This omission of this analysis clearly does not take advantage of the readily available best available science. Since DWR is the state lead agency on this document this omission is a clear indication of their lack of engagement and supervision in the development of the EIR/S. "...the evaluation did not attempt to convert predicted flow and temperature scenarios to habitat units for steelhead and Chinook salmon." The data to support this analysis is readily available from the DWR Oroville Relicensing Studies. Each type of habitat unit was rated for suitability for each salmonid species and life stage that are present in the Feather River. These readily available studies did exactly what the ISRP requests. The studies integrated the habitat types with water temperature suitability and flows to determine the quantity of habitat that changes with flow and temperature operations. This omission of this analysis clearly does not take advantage of the readily available best available science. Since DWR is the state lead agency on this document this omission is a clear indication of their lack of engagement and supervision in the development of the EIR/S.

	Independent Science Review Panel comments that the BDCP EIR/S project did not utilize best available science - continued.	"Currently, the temperature analysis includes: 1) a comparison of mean monthly temperatures categorized by water year type,..." Mean monthly temperatures are an inappropriate aggregation of data that makes analysis of water temperature exposures to fish meaningless. Hourly water temperature data is available and has been used for environmental assessments of DWR Oroville operations impacts on fish in their FERC relicensing studies. "Another potential key statistic that could be extracted from the model data is the number of consecutive days in which water temperature is greater than the threshold level." Another even more rigorous approach is to aggregate the number of hours and degrees of water temperature analytical threshold exceedance. As an example 4 hours of 1 degree exceedance is 4 units of exceedance and 2 hours of 2 degrees of exceedance is 4 units of exceedance. This is done for the No Action and alternative to compare relative duration and magnitude of exceedances. This way larger magnitude exceedances which are biologically more severe are ranked accordingly. Additionally, multiple analytical thresholds should be utilized for different levels of biological impact to fish. These thresholds should have included a threshold which published literature generally agrees that no adverse affects have been reported. This optimal suitable threshold criteria is then complemented by other temperature thresholds at which literature generally agrees that adverse biological consequences occur. These other thresholds should have included, prespawn mortality, egg mortality and reduced fecundity and incipient adult mortality at the very least. "Ironically, the literature they rely on, Lopez et al. (2006) and Lucas and Johnson (2012), indicate that biomass and production of phytoplankton in the Delta do not fit this simple model expectations. A major limitation of the depth-productivity model is the impact bivalve grazing on available net production. Net phytoplankton production (in excess of potential grazing) peaked at different depths and at much lower rates depending on overall habitat depth and water residence time. Assumptions of phytoplankton production and their conversion to zooplankton and invertebrates as food sources for covered species in aquatic systems consequently lack realism." The assumptions are flawed and are contradicted by the literature the BDCP themselves referenced. This results in a flawed result that lacks incorporation of reasonably foreseeable conditions and certainly does not meet the test of best available science. "Transport timescales calculated in sub-regions rather than full Delta “average” residence time will give much more detailed information about changes in circulation patterns as a result of alterations to the system as a result changes in operations and additions of restoration opportunity areas." Best available science can go much farther than even the ISRP request. The entire delta can be analyzed using GIS segments of river area. This methodology was utilized in the Oroville Facilities Relicensing by DWR and is how a landscape analysis of changes in habitat suitability must be analyzed in order to meet the test of best available science.

	Independent Science Review Panel comments that the BDCP EIR/S project did not utilize best available science - continued.	"The modeling of Methyl mercury effects are highly uncertain due in large part to site-specific characteristics that cannot be modeled at present." This is because the BDCP did not define the aquatic habitat restoration bathymetry and restoration designs. These and other dependent analysis will continue to be incomplete and inconclusive until the BDCP completes the project description. the project description must be completed and then a complete, thorough and unbiased analysis completed. "even if the proportion of San Joaquin discharge relative to the Sacramento River is low, the increase in Se concentration could still be significant. This conclusion should be reviewed." A simple mass balance equation of the flow contributions from the respective tributaries would have allowed at least a quasi-quantitative analysis to be conducted. The current unsupported supposition that the Se concentration won't go up much due to low SJR flows is a fallacy. As the ISRP requests, this analysis needs to be revisited as the assumption is invalid and better science than unsupported opinion is readily available as we suggest a better and simple assessment method in our previous comment. "While the literature is not well developed for the SFE there is at least some indication that herbicide applications are detrimental to photosynthetic organisms (phytoplankton)." Actually there is a lot of published literature on the adverse affects of herbicides on the entire aquatic food web, not just the algae - see related comments. "The analysis also apparently ignores smaller size prey (assumption 6, p. 5.F-16)." Yes, ignoring smaller size prey certainly is not using best available science or generally accepted methods. "Perform a sensitivity analysis at to generate confidence intervals at the north delta intakes using mortality values at existing structures (Perry 2010) (p. 5.G-46). The 95% survival value used in simulations of the north Delta intake is an engineering specification." See previous related comments. "None of the smelt models were selected, despite the fact that four models (state-space, multivariate auto regression, Bayesian change point, and smolt survival regression) met their five selection criteria. Given the relative importance of the delta smelt, it is unclear how none of the models met the criteria of best available science." The BDCP inconsistently applied their analytical tool selection criteria. Models and analytical tools that were not utilized, but lack supporting rationale and justification for why they were not utilized should be included in a revised analysis. Taken in their totality, the ISRP has many comments and specific instances that the BDCP has failed to meet the NEPA and CEQA requirement to utilize the best available science.
	The Independent Science Review Panel identifies that important elements of the proposed project have changed since the release of the Public Draft EIR/S. The comment is a summary of the ISRP's comments on the changes in the project scope and the design and environmental analyses required. All quotes included in the comment are from the Delta Science Program Independent Review Panel Report BDCP Effects Analysis Review, Phase 3; March 2014.	"Conservation Measure 1 now includes significant modifications to Clifton Court Forebay. These modifications include building a wall in Clifton Court Forebay to create two separate regions, the north region would receive water from the North Delta pump facilities and the south region would receive water from the existing south Delta channels. In addition, the current size of the Clifton Court Forebay would also be enlarged by flooding an adjacent tract of land to the south. Based on the public panel discussion with ICF and the Fish agencies on January 29, 2014..." This is a material change in the scope and impacts of the BDCP and requires that this new material information is recirculated for public comment. "ICF acknowledged that this is a newer element of the design for Conservation Measure 1. There was no documentation in Appendix 5.H..." There was no documentation of this design because they changed the proposed project description after the document was released for public review and comment. This information, that was only disclosed during a private meeting with the ISRP, has still not been disclosed to the public by the BDCP.

	The ISRP is concerned over the magnitude of impacts from the implementation of the BDCP. All quotes included in the comment are from the Delta Science Program Independent Review Panel Report BDCP Effects Analysis Review, Phase 3; March 2014.	"Evaluate and compare sensitivity of populations to a broader range in mortality at the north delta intakes and passage through the Delta. A 5% mortality at the north Delta intake is projected to cause a 58 to 61% reduction in adult escapement (i.e., EBC2- ELT or EBC2-LLT vs. ESO-95-ELT or ESO-95-LLT). This is a huge effect that would have to be mitigated by other BCDP conservation actions." This relates to our previous comments that a 5% loss from the intakes in juvenile emigration would translate to much higher adult escapement impacts. Although it was easily understandable that this would be the case (even thought the BDCP did not identify or disclose it), even we are shocked at the magnitude of this impact as cited and reported by the ISRP. This magnitude of impact definitely warrants a jeopardy impact call on listed species rather than contributing to conservation of the species. Unless the BDCP can thoroughly and defensibly refute the ISRP's and our related comments, the project should never be approved as it would substantially contribute to the extinction of the species that it proposes to conserve.
	The ISRP says that the BDCP EIR/S significantly underestimates take at the north delta intakes. All quotes included in the comment are from the Delta Science Program Independent Review Panel Report BDCP Effects Analysis Review, Phase 3; March 2014.	""Because of the lack of an established relationship between passage time, screen contact rate and injury or mortality, it is not possible to conclude with certainty what the effects of the north Delta intakes may be on juvenile Chinook salmon or indeed on juvenile steelhead…"." "Positive barrier fish screens are widely used throughout the Pacific Northwest to protect juvenile salmonids from entrainment into water diversions, and fish screening criteria are widely applied. The BDCP team could access relevant documents on the web." "Application of the Glenn Colusa analysis to the north delta intake suggested a cumulative loss of 12% of the juvenile winter-run Chinook salmon at the north Delta intake,…" The GCID intake at Hamilton City the ISRP comment refers to is the most directly comparable and relevant installation and monitoring result experience that the BDCP should be relying most heavily upon. It is in the same system, on the same species and runs (literally the same fish) and is similar in design to what the BDCP has proposed. The only major difference is that the BDCP intakes are larger then the GCID screens, so the predation rate losses should be anticipated to be even higher. The BDCP should have used the observed results from GCID as the basis for anticipated losses associated with their proposed intakes. The math is easy. 12% loss at each of three proposed fish screens equates to a 32% population loss. This is catastrophic and must not be allowed to happen. The BDCP must redo their analysis utilizing these much more credible data sources and rates of losses.
	Incorporate comments by reference	This comment is a request to incorporate by reference the Delta Science Program Independent Review Panel Report BDCP Effects Analysis Review, Phase 3; March 2014 in it's entirety as a comment from Central and South Delta Water Agencies and San Joaquin County.
	The BDCP EIR/S did not quantify construction related losses from dewatering for intakes	The BDCP intakes are in waters that are designated critical habitat for several ESA species (delta smelt, spring- and winter-run Chinook salmon, steelhead and North American green sturgeon. The impoundments that have to be drained to do the in-water construction for the intakes will result in fish being harmed, harassed or in outright mortality - which is take. The BDCP will require permits for this take, but the BDCP analysis was not specific enough to warrant issuance of an ITP. Compare the level of detail provided by other environmental documents that secured similar take permits, e.g. South Natoma Intakes, and you will see a huge disparity in terms of the level of detail in the description of the project as well as the detail in the mitigation and salvage planning. The BDCP cannot even say exactly where these impoundments are, exactly how big they are, what time of year the construction would occur, does not provide a detailed plan for minimizing take, does not provide a detailed salvage plan and does not estimate how many fish would be taken. Until the BDCP EIR/S provides a commensurate level of detail as other similar projects have been held to in their project description and their avoidance, minimization and mitigation plans, the BDCP should not be issued take permits for in-water work.
	The conveyance is mis-represented as a conservation measure.	The conveyance does not reduce take of species or restore habitat, therefore it should not be classified as a conservation measure. The document should be revised to correct this deliberately misleading misrepresentation.

	The BDCP EIR/S does not disclose what proportion of contribution to conservation comes from other stressor measures.	No level of certainty of benefit has been identified for all of the other stressors measures. The BDCP EIR/S document should be revised to more clearly disclose the limitations of the certainty of benefit of these actions and the overall contribution to conservation put into context so that the reader (and agency decision makers) can evaluate how much of the alleged benefit of the project is based on these uncertain and tenuous other stressor actions.
	The Biological Goals and Objectives are not specific enough to support the use of adaptive management.	Much of the document relies upon adaptive management to meet project goals. The goals are very poorly defined (see related comments), the monitoring methods proposed are inadequate to measure changes that are meaningful in evaluating if a biological goal has been achieved (see related comments) actions are concurrently implemented so it is impossible to attribute which action may be driving the species benefits (see related comments). None of these limitations are disclosed in the BDCP EIR/S. Given these constraints on the usefulness of the monitoring proposed by the BDCP and their lack of applicability to the biological goals, the proposed reliance upon adaptive management is wholly unrealistic and cannot and will not be achieved if the project is implemented. Seeing as so many of the benefits of the BDCP plan are proposed to rely upon adaptive management and that the benefits of many of the actions are uncertain and the programs to monitor success are very unlikely to be successful, all of the benefits claimed by the BDCP in the EIR/S analysis should be called into question and evaluated for their true level of certainty.
	Historical increases of salt water intrusion in the Delta region allowed the teredo, a saltwater worm, to thrive and destroy piers and ships in Suisun Bay.	The BDCP EIR/S analysis did not evaluate the property destruction that would occur with the increase in range, distribution and population levels of teredo that would result from the reduction in water quality and increased salt water intrusion that would result from the BDCP proposed operations. the BDCP EIR/S should be revised to identify, characterize, evaluate and disclose this impact of the BDCP project and alternatives.
	Methods proposed to measure habitat and species population conditions are not accurate enough to measure the improvements that are set in the biological goals and objectives.	As an example, you can't measure with a statistically defensible reliability, a 75% fish survival from salvage operations or a 2% increase in juvenile salmonid escapement. The biological goals definitions and monitoring methods proposed need to be reconciled so that they are meaningfully compatible. As it stands, the BDCP has no way to monitor in any practicable method to a degree of accuracy to prove or disprove that it is meeting the biological goals. The BDCP plan needs to be modified to something which can be reliably measured and the level of success or failure of the program determinable.
	The assumptions used on the Screening Effectiveness Analysis (North Delta Intake) are flawed.	The assumptions used in the analysis did not correctly take into account the duration of exposure and repeated exposure (on the same screen) from slowing, slack and reverse tidal operations. As an example, a delta smelt, which tends to float with the currents, could be exposed to a single screen for several hours during a tidal change. Certainly this duration of exposure would exceed the fishes sustained swimming performance such that it would become impinged or entrained at the screen. The BDCP EIR/S analysis failed to take into account the intertidal affects of duration of exposure of fish to the screens and therefore the conclusions reached in those analyses are flawed, should be revised to take into account this important variable and should be recirculated.
	Intertidal operations are not fully described for maintaining screen sweeping velocities for fish.	An important criteria for protecting fish from fish screen-related take is the duration of exposure. Duration of exposure is a result of the length of the screen and the velocity of the water column passing the screen. Duration of exposure is important as there are fish swimming performance curves which have been developed and are accepted as representing how fast a fish can swim and for how long. The BDCP EIR/S did not define exactly how long the screens are. The BDCP did not provide any 2D or 3D modeling of water velocities at the screen faces for each screen or under various flow depths and velocities. Without the accurate length of the screen, an estimation of water velocities under different conditions and a set of operations the project proposes to adhere to, the duration of exposure cannot be determined and therefore screen-related fish take cannot be reliably estimated. The BDCP needs to revise their analysis to a project-level of detail with specific screen lengths, water velocity modeling under a range of conditions and a detailed operating plan as to how fish screen exposure duration would not be exceeded. Until this level of analysis is conducted, the BDCP should not be awarded any take or construction-related permits.
	The NMFS OCAP BO RPA Action IV 4.1 requires "whole facility overall survival is 75%" for Chinook, steelhead and green sturgeon at the Reclamation Tracy Fish Collection Facility.	This survival objective was supposed to be achieved no later than 12/31/12 per the OCAP BO so this survival rate is applicable to the Existing Condition/No Action/No Project as well as Reclamation's south delta component of Joint operations in the alternatives. The BDCP EIR/S did not include this assumption of compliance with the existing requirement in the No Action alternatives and analyses. The BDCP EIR/S needs to be revised to correct this error and provide an accurate No Action characterization as the basis for comparison to identify and quantify the affects of the proposed project and alternatives.

	The project is implementing a number of conservation measures simultaneously that are intended to benefit the same species that the project proposes to adaptively manage.	Even if the project could measure the biological performance of these measures (it can't - see related comments), how does it propose to determine which of the conservation measures are working and which ones have failed and are not contributing to conservation and recovery? Unless the success and or failure of programs to contribute to recovery can be determined, how can any legitimate adaptive management scheme be successfully implemented and result in a reliable benefit and outcome for the species? The answer is, "it can't". Therefore, all of the benefits ascribed to adaptive management should be discounted based on the certainty that the monitoring programs will not lead to better future decisions and adequate certainty of contribution to conservation for the species.
	Impacts of water quality on fisheries habitat suitability have not been adequately addressed in the EIS/EIR.	Complex and dynamic temporal and spatial distribution of a gradient of water quality constituent concentrations that affect fisheries habitat suitability and designated warm-water and cold-water fisheries beneficial uses requires that the entire model run results be used - all time series and all output nodes. The current analysis just looks at averaged data at a few specific compliance points. The actual impacts to beneficial uses that the environmental document must evaluate and disclose occur across the entire area that the models address, not just some sample nodes that may not be representative of what would actually occur. The best available science requires that the output (all time series and all output nodes) from the water quality models be integrated into a GIS and analyzed to determine the frequency, duration and magnitude of water quality exceedances above fish species tolerances and fisheries beneficial use designations. All of the data to conduct this analysis as described is readily available. Fisheries habitat locations and essential fish habitat has been defined by the fisheries agencies and GIS coverages of those are readily available from the lead agencies. The output node locations of the water quality model need to be entered into the GIS spatial database and the unique identifiers of the node be coded the same as the model output so the databases can be joined. Once the water quality model has been linked to the GIS spatial database, a simple query of will show what locations in the delta exceed water quality and suitability of water quality for fisheries habitat suitability and fisheries beneficial uses for what periods of the year and by how much. A comprehensive impact analysis that does meet the test of best available science can easily be done using the method described and this type of approach is well documented in other environmental analysis, including DWR's Oroville Relicensing EIR.
	The best available science for water temperature impacts is to convert modeling water temperature output node locations to corresponding GIS segments of the river and assign those segments water temperature values from the model output. The water temperature suitability for any fish species and life stage timing can then be analyzed for the spatial and temporal distribution and overall suitable habitat quantity for each species life stage. DWR used this methodology in their DWR Oroville Licensing EA and EIR. The Habitat Suitability index methodology can be found at http://www.water.ca.gov/orovillerelicensing/docs/app_ferc_license_2005/Vol_V_App%20G-AQUA2_Aquatics%20Methodology.pdf, pages 8 - 21 for water temperature fisheries habitat suitability.	DWR set a precedent for the relevant and generally accepted best available science with these documents. This methodology (in its entirety) should be considered the minimum standard for best available generally accepted science for the types of fisheries impact assessments that BDCP is causing or could potentially cause. As lead agency, DWR will need to justify why the methodology was important to evaluate and disclose operational change impacts on habitat suitability for the Oroville Relicensing and how the operational changes of this same (and other) facilities did not warrant this same application of best available science. Choosing arbitrary analytical nodes (individual locations) for long reaches of the rivers for the analysis as BDCP has done is vastly incomplete and unrepresentative of the conditions that would result from the project. The methodology DWR used in the Oroville Relicensing project is representative of the entire river and fully utilizes all of the model output. BDCPs methodology is out of date and uses only a very small portion of the available model output results. The Oroville Relicensing methodology is equally applicable to all of the upstream tributaries from the delta. In addition to water temperature analyses, these proven and agency accepted analytical approaches are also equally applicable to many other model output driven analyses such as dissolved oxygen, stage elevation/water depth, turbidity, EC, TDS, and other fisheries habitat suitability assessments. This methodology is also equally applicable to other water quality sensitive resources such as water supply (M&I, agriculture) and others.

	BDCP extension of the period of the Delta Cross Channel Locks closure will cause increased straying of some fish populations.	Adult anadromous fish that immigrate during the period that the locks are now closed under the BDCP will not be able to cross back into the Sacramento system without going all the way back down the McKoulumne and back up Georgiana Slough. Sacramento River fish populations that strayed into the central delta had the opportunity to make it back into the Sacramento River system by using the Delta Cross Channel locks. With the additional period that the locks will be closed under the BDCP, it is unlikely the majority of these fish will find their way back to the Sacramento River system. Given the period of closure under the BDCP, the populations most affected would be the Sacramento, Feather, Yuba, Bear, and American rivers (and all their tributary creeks) steelhead and sturgeon (green and white). Straying caused by this will result in reduction of genetic integrity of the populations and failure to spawn when the fish do not find suitable spawning habitat.
	BDCP implementation affects reservoir operations, but the EIR/S did not consider affects to warmwater fisheries in the reservoirs.	Changes in reservoir operations change the rate of reservoir drawdown during warmwater fisheries reproduction. Increases in the rate of reservoir drawdown during the warmwater fisheries spawning, egg incubation and initial rearing period can adversely affect warmwater fisheries sustainability and recreation resources. Since the BDCP will change reservoir operations and therefore affect warmwater fisheries spawning/egg incubation and initial rearing habitat availability and suitability these environmental affects of the BDCP project have not been evaluated or disclosed. DWR, as State Lead agency on both documents has been inconsistent with their approach to impact analyses. Since the precedent has been set by DWR that these are affects to be expected from reoperations of reservoirs, it is an inconsistent policy for them not to consider these affects on the BDCP project. All affected BDCP affected reservoirs should have included this analyses and impact disclosure.
	BDCP implementation affects reservoir operations, but the EIR/S did not consider affects to coldwater fisheries in the reservoirs.	Changes in reservoir operations change to coldwater pool volume and DO volume that are suitable for coldwater fisheries habitat. The Oroville Facilities Relicensing EA considered reservoir fluctuation changes on suitable coldwater fisheries habitat with the following methodology. Suitable coldwater fisheries habitat exists only were water temperature requirements are met and were Dissolved Oxygen concentrations habitat requirements are met (6.5 mg/l). The volume of water represented by depths that met both criteria proposed project was compared to the no action to determine if there were significant effects on reservoir coldwater fisheries from the implementation of the proposed project. Since the BDCP will change reservoir operations and therefore affect coldwater fisheries habitat availability and suitability these environmental affects of the BDCP project have not been evaluated or disclosed. DWR, as State Lead agency on both documents has been inconsistent with their approach to impact analyses. Since the precedent has been set by DWR that these are affects to be expected from reoperations of reservoirs, it is an inconsistent policy for them not to consider these affects on the BDCP project. All affected BDCP affected reservoirs should have included this analyses and impact disclosure.
	BDCP implementation affects reservoir operations, but the EIR/S did not consider affects to fisheries upstream of the reservoirs.	Changes in reservoir operations change the formation and cutting of upstream tributary sediment wedges at their interface with the fluctuating reservoir levels. Sediment wedge formation and erosion affects coldwater fisheries in the reservoir access to the upstream tributaries for food foraging, thermal refuge and reproduction. Reductions in access to the upstream tributaries for the coldwater fisheries can affect the sustainability of these populations. The Oroville Facilities Relicensing EA considered reservoir fluctuation changes on coldwater fisheries accessibility to upstream habitat. DWR, as State Lead agency on both documents has been inconsistent with their approach to impact analyses. Since the precedent has been set by DWR that these are affects to be expected from reoperations of reservoirs, it is an inconsistent policy for them not to consider these affects on the BDCP project. All affected BDCP affected reservoirs should have included this analyses and impact disclosure.
	Opportunities to improve fisheries conditions did not identify or include cutting off seepage from the Sacramento Deep Water Ship Channel locks in Sacramento which contribute to an attraction flow that causes Sacramento system salmonid straying into the deep water ship channel.	There is no passage for fish through the locks, so the fish must take a 50 mile round trip if they are lucky enough to find their way back to where they belong. Judging by the amount of sport fishing in the area and some anecdotal fisheries reports from DWR, there is a considerable amount of straying at this location that the project could have addressed and that would have had less environmental impacts than other conservation measures that were included in the BDCP.

	Intakes 1 - 3 are on sections of the river that would naturally have the thalwag of the river against the bank at the location selected for the intake.	Juvenile emigrating salmonids follow the thalwag flow of the river when actively emigrating, so the location of those intakes puts the fish population at greater exposure to the fish screens and their associated elevated predation rates than if the intakes were located outside of the thalwag of the river.
	The fish screen intakes are too close in proximity to each other to allow for adequate fish recuperation prior to exposure to the next screen.	Failure to consider reductions in swimming performance of fish from inadequate rest between screens means that fish impingement on the screens and take will be larger than calculated in the analysis.
	Reverse tidal flows in the area where the fish screen intakes are located will carry fish upstream repeatedly past the same screens.	Instead of being exposed to however many number of screens are included in the project scenario, emigrating juvenile fish or resident fish could be exposed to the screens multiple times. The analysis showing just a single exposure of a fish to a screen and calculating the level of take from that is clearly under counting the true fish exposure to the screens and therefore the true level of take from the screens.
	The No Action definition did not include the existing Fish Screening Program in the delta.	Funding to continue and expand the Fish Screening Program was included by the BDCP as an other stressor action. This makes the proposed project comparison to the No Action condition incorrect and results in the BDCP taking too much credit for this other stressor action.
	Increased nutrient and contaminant loading from BDCP operations in the Delta increases bio-accumulation of contaminants in fish such as Hg, As, Pb, pesticides and pharmaceutical residues.	Increased bio-accumulation of these toxins affects reproductive success, egg embryo mortality and growth rates, fry growth and mortality rates, and fish morphology and sexual development.
	Reservoir fluctuation impacts were not included in analytical scope.	The proposed project operations change in timing and the rate of spring releases from the Oroville reservoir will result in an increase in the rate of the drawdown of the reservoir during the black bass spawning, nest construction, egg laying and egg incubation period. The DWR Oroville Facilities Relicensing impact analyses on reservoir populations of black bass from reservoir drawdown timing and rates provides an excellent example of the type and level of detail of analysis of reservoir stage changes from operations that should have been conducted in the BDCP EIR/S. The BDCP knew its proposed operations changed the timing and magnitude of reservoir releases and that there would be impacts but the EIR/S failed to identify, characterize, evaluate, quantify or disclose these impacts. The EIR/S should be revised to include these impact analyses and should be recirculated for public comment.
	The minimum DO objectives in the Stockton DWSC are 5 mg/l from December through August and 6 mg/l from September through November (to protect adult migration of Chinook salmon). (SDIP Sig Criteria)	The BDCP should have utilized this impact analytical threshold in its analyses. This project covers the same geographic area as the SDIP, has many similar effects on the environment, and the environmental analysis is being conducted by many of the same agencies, i.e. DWR, Reclamation, DFG, FWS, NMFS. Why then did those agencies depart from their previous significance criteria for the BDCP evaluation? The BDCP EIR/S failed to provide any rational or justification for the agencies departure from their previous analytical approach on this previous similar and accepted project. The impact analysis must be redone including this significance criteria so it is consistent with other similar agency environmental documents.

	All of the intakes are located at sections of the river either at or in close proximity to bends in the river.	The proposed intake locations near bends in the river are hydraulically complex with lack of uniform velocities vertically through the water column and horizontally across the river cross section. These near river bend proposed intake location water velocities are particularly complex and dynamic during approaching tidal slack flows and reverse flows as the positive flow thalwag will cease and then form in different locations in the cross section of the river under reverse flows. As an example of the complexity of intake location, bends in the river, thalwag, and flow velocities; intake #1 just upstream of Scribner Bend is on the outside of a curve where the thalwag will be located during normal downstream flows. The intake extends downstream to just upstream of where Scribner Bend starts. Scribner Bend is a sharp bend in the river and the thalwag switches sides of the river about the mid-point of where the proposed screens would be located. Sweeping velocities might be adequate at the upstream end of the screen, but not meet sweeping criteria in the mid- or downstream sections of the screen. The downstream-most end of the intake screen experiences near bank reverse flow circulation under positive flow conditions as a result of sharpness of the river curve and the strength of the thalwag switching sides of the river. We do not need published literature citations to validate these flow phenomenon's in this location as the thalwag is readily visible under most conditions and fishing at that location with a bobber will demonstrate the reverse flow circulation described. Since the intakes are supposed to be operated to maintain a minimum sweeping velocity, the complex, dynamic, and un-uniform flow velocities make it uncertain that the facilities will uniformly comply with maintaining criteria sweeping velocities during operations. Site bathymetry and 2D modeling of water velocities under different flow, tidal and diversion operations were inadequate to reflect the range of conditions the BDCP proposes to operate under. Site specific bathymetry and modeling should be done for each of the proposed intake locations and analyses and diversion operating rules developed and tested to ensure that fish screen criteria sweeping velocities are met. Until this level of analysis of the proposed facilities is conducted, the BDCP EIR/S document is incomplete and deficient in the analysis of project-level impacts and therefore should not be issued construction- or environmental-related permits (e.g. ITPs).
	Aquatic habitat restoration plan level of detail is insufficient to allow any meaningful analysis of environmental effects or understanding of interactions of these actions with the CVP/SWP operations.	The BDCP does not describe or disclose the proposed aquatic habitat characteristics in a level of detail sufficient to support the evaluation of the nature and magnitude of impacts from these actions. The BDCP description of these actions does not disclose water depth, substrate, in-situ and mobilized contaminants, channel complexity, turbidity, food base, hydraulic characteristics of tidal interchange, time requirements for habitat functionality to develop after implementation (habitats are not immediately functional and channel and vegetation equilibrium will not be reached for years or even decades), and hydraulic complexity development. Without these specific descriptions of the proposed aquatic habitat restorations, there cannot be an appropriate evaluation of methylization of Hg, turbidity, DO, concentration of salts and other water quality constituents from evaporation and transpiration, habitat type and quality, contribution to species conservation, and other water quality impacts. The BDCP description of the proposed aquatic habitat restorations and their analysis of them are deficient and are insufficient to support issuance of incidental take permits. The BDCP should provide adequate level of detail such that an appropriate environmental analysis of these proposed aquatic habitat restorations can be evaluated, characterized, quantified and disclosed. Once that is done then avoidance, minimization and mitigation measures can be proposed by the BDCP for the significant impacts from these proposed actions.
	WQ-1: Effects on ammonia concentrations resulting from facilities operations and maintenance (CM1)	The impact call of "Less-Than-Significant" is incorrect. The No Action and BDCP Proposed Project south delta operations continue to draw higher than background levels of ammonia concentrations from the Sacramento Regional Waste Water Treatment Plant discharges across the delta, exposing a larger area of the delta to elevated ammonia concentrations than would occur without the project. The disruption to the food chain in the delta and its affects on listed fish species from elevated ammonia concentrations is a significant impact.
	WQ-14: Effects on mercury concentrations resulting from implementation of CM2–CM22	The BDCP EIR/S impact calls on the No Action is incorrect. CM2-22 do not exist in the No Action, therefore there would be No Impact/No Effect. A Proposed Project that has this severity of an impact on water quality, especially compared to the No Impact/No Effect of the No Action, should not be approved or implemented.

	WQ-19: Effects on pathogens resulting from facilities operations and maintenance (CM1)	The BDCP EIR/S impact calls on the Proposed Project are wrong. The Proposed Project operations reduces the rate of turnover of water in the delta and reduces assimilative capacity (a conclusion from the Water Quality Chapter). Reduced rate of refreshment of water in the delta from the Proposed Project operations is further evidenced by the results of the DSM2 Particle Tracking Model. Increased nutrient loads (e.g. phosphates) and water temperatures that occur from the reduced refreshing of water in the delta from the Proposed Project will result in an increase in the frequency, magnitude, duration and geographic extent of algal blooms. Excess carbon and nitrogen, which the previous impact discussions have disclosed the Proposed Project increases, also contribute to algal blooms (http://en.wikipedia.org/wiki/Algal_bloom). The increase in the magnitude, duration, frequency and geographic extent of harmful algal blooms (HAB) will be significantly increased under the Proposed Project operations due to reduced refreshing of water in the delta and the resulting increase in nutrient loading. The HAB creates toxins that are poisonous to humans through water supply and contact recreations. HAB is also harmful to fish and aquatic bird species. The BDCP aquatic habitat restorations will also cause in increase nutrient concentrations and water temperatures and which result in an increase in the rate and severity of algal blooms and therefore also significantly adversely impact DO. The impacts on algal blooms from the Proposed Project operations and aquatic habitat restorations act in combination together, so the impacts will be worse than the additive impacts of each. This is a significant and adverse impact and the impact call should be changed to reflect this. Any impact call change is a material change to the document and therefore the draft document should be recirculated.
	WQ-20: Effects on pathogens resulting from implementation of CM2–CM22	The BDCP EIR/S impact calls on the Proposed Project are wrong. The Proposed Project operations reduces the rate of turnover of water in the delta and reduces assimilative capacity (a conclusion from the Water Quality Chapter). Reduced rate of refreshment of water in the delta from the Proposed Project operations is further evidenced by the results of the DSM2 Particle Tracking Model. Increased nutrient loads (e.g. phosphates) and water temperatures that occur from the reduced refreshing of water in the delta from the Proposed Project will result in an increase in the frequency, magnitude, duration and geographic extent of algal blooms. Excess carbon and nitrogen, which the previous impact discussions have disclosed the Proposed Project increases, also contribute to algal blooms (http://en.wikipedia.org/wiki/Algal_bloom). The increase in the magnitude, duration, frequency and geographic extent of harmful algal blooms (HAB) will be significantly increased under the Proposed Project operations due to reduced refreshing of water in the delta and the resulting increase in nutrient loading. The HAB creates toxins that are poisonous to humans through water supply and contact recreations. HAB is also harmful to fish and aquatic bird species. The BDCP aquatic habitat restorations will also cause in increase nutrient concentrations and water temperatures and which result in an increase in the rate and severity of algal blooms and therefore also significantly adversely impact DO. The impacts on algal blooms from the Proposed Project operations and aquatic habitat restorations act in combination together, so the impacts will be worse than the additive impacts of each. This is a significant and adverse impact and the impact call should be changed to reflect this. Any impact call change is a material change to the document and therefore the draft document should be recirculated.
Chapter 12 - Terrestrial		

	Previous CVP/SWP related environmental documents have utilized more comprehensive significance criteria to evaluate project impacts than were used in the BDCP EIR/EIS. Other recent CVP/SWP and habitat restoration related environmental documents establish precedent for how the State and Federal agencies should evaluate the BDCP impacts.	These agency precedent setting environmental documents include: CALFED Bay-Delta EIS/EIR (Federal agencies: Reclamation, FWS, NMFS, BLM, USGS, USACE, US EPA, USDA, USFS, NRCS, and WAPA; State agencies: DWR, DFG, Reclamation Board, Cal EPA, CDFA, Delta Protection Commission and SWRCB), South Delta Improvement Project EIS/EIR (Federal Lead Agency: Reclamation; State Lead Agency: DWR; Responsible Agencies: SWRCB and DFG; Cooperating Agency: USACE), Salton Sea Restoration Program EIS/EIR (Federal Lead Agency: USACE; State Lead Agency: California Natural Resources Agency; Prepared by: DWR and DFG), Lower Yuba River Accord EIS/EIR (Federal Lead Agency: Reclamation; Responsible Agencies: DWR, DFG, and SWRCB; and Cooperating Agencies: NMFS and FWS), Oroville Facilities FERC Relicensing EIR (State Lead Agency: DWR), and Monterey Agreement EIR (State Lead Agency: DWR). The same agencies that produced and approved these other recent and similar scope project environmental documents are the same agencies involved in the BDCP. The BDCP's agency roles for the environmental documents are similar to these other projects - Federal Leads: Reclamation, NMFS and FWS; State Lead: DWR; Responsible Agencies: DFG and SWRCB; and, Cooperating Agencies: USEPA and USACE. These documents establish a precedent for the significance criteria that should be used in evaluating the resource impacts of the BDCP project. If the BDCP does not utilize these same significance criteria as these other similar projects, then BDCP must provide a supporting justification for their departure from previous agency policies and practices. BDCP should revise the document to include all aspects of the significance criteria for their impact evaluations that were established as agency precedents in these other recent and similar documents. Subsequent comments identify these missing criteria.
	Harm to, harassment of, or destruction of individuals of any species listed as endangered, threatened, or rare under federal or California law. (Salton Sea Sig Criteria)	The BDCP should have used this same exact significance criteria to be consistent with previous similar environmental documents and previously established process, policy and procedures.
	Have substantial adverse effect, either directly or through habitat modifications, on any species identified as endangered, rare, or threatened; or identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations. (Monterey Agreement Sig Criteria)	The BDCP intake and tunnel headworks facility pumps are loud. These pumps are less than a mile from Stone Lakes National Wildlife Refuge. The areas of these facilities are also habitat for Greater Sandhill Cranes. The value and productivity of these habitats and at the refuge will be significantly diminished by the noise disruption of the project construction and operations. The BDCP EIR/S did not take into account these impacts with respect to the Migratory Bird Treaty Act (MBTA) 16 U.S.C. 703-712.
	Reduce the area of habitat value or critical habitat areas designated under FESA. (Monterey Agreement Sig Criteria)	The BDCP did not use this commonly applied significance criteria. This significance criteria must be added to the EIR/S analysis in order for the document to conform with previous agency policies and procedures for evaluating the environmental impacts of these similar and precedent setting projects.
	The BDCP proposes to restore and conserve "grassland; vernal pool complex; alkali seasonal wetland complex; managed seasonal wetland; nontidal perennial emergent wetland and nontidal perennial aquatic; and cultivated lands."	There is no "purpose" identified in the EIR/S for the project to include these types of habitats in the restoration plans. The CVP/SWP projects do not affect these habitats with their operations and therefore there is no "need" to get a take permit for these species. Any affect on these habitat types would be from the conveyance construction or from conversion to aquatic habitat types should be avoided and minimized to the extent possible and mitigated for their impacts (which does not require an ITP). Unnecessary inclusion of these habitat types in the restoration plans only increases the impacts of the project. There should be at least some of the alternatives considered in the EIR/S that do not include these habitat types so that the impacts for including an aspect of the project in the scope that does not address an identified need or purpose can be quantified and isolated.

	The Purpose and Need and the operations of the CVP/SWP do not support the inclusion of terrestrial species in the scope of the BDCP.	Terrestrial species are not directly affected by the operations of the CVP/SWP other than habitat alteration from the ongoing operations in the CVP/SWP service area. In the administrative draft EIS/EIR, none of the needs for the project identify terrestrial species or terrestrial habitat issues. Potential BDCP construction footprint habitat losses for terrestrial species of the BDCP are addressed through project mitigations so inclusion of terrestrial species for continued operations of the CVP/SWP is not necessary to get the aquatic species incidental take permits the state needs to operate the SWP. Reclamation is proposing to publicly condemn tens of thousands of acres of lands for terrestrial species conservation for the CVP project that does not affect terrestrial species and for a BDCP project Reclamation does not need incidental take permits for. Since the CVP has no requirement in the OCAP BOs RPAs regarding these terrestrial species and because Reclamation does not need incidental take permits to operate the CVP, these terrestrial habitat private land condemnations are a discretionary action. The original proposal from the BDCP was that habitat restoration would only occur on private lands from willing sellers because the federal agencies are not authorized to condemn private lands for discretionary actions. The terrestrial species should be dropped from the covered species list in the
	The BDCP impact summary indicates that many of the No Action Alternative impacts on terrestrial species are No Impact.	There are just a few of the 187 terrestrial biological resource impacts for the No Action Alternative that are "Less-Than-Significant" or "Significant" prior to mitigation. The BDCP did not include any mitigations for the No Action Alternative even though it is seeking permit coverage for the unpermitted operations of the CVP and SWP and their ongoing impacts and maintenance activities based on this EIR/S - see related comments. Conversely, the Alternative 4 Proposed Project has many significant impacts on terrestrial species prior to mitigation. These are all reduced to Less-Than-Significant and Not Adverse after mitigation. If the No Action had included mitigations, these impacts would have also been reduced to these same or lesser levels after mitigation. The incorrect omission of mitigations for the No Action has clearly biased the impact analysis comparison between the No Action and the alternatives. Remember that Alternative 4 Proposed Project impacts are in addition to the No Action impacts - see related comments in fisheries and other sections. The much higher number of impacts to terrestrial species in the Proposed Project Alternative 4 prior to mitigation show that the project negatively affects terrestrial species. This demonstrates that the terrestrial species should not be included in the scope of the HCP as the CVP/SWP operations do not affect them - see related comments.
	The BDCP plan materially conflicts with other habitat conservation plans (HCPs) that are in various planning and implementation phases in the same locations/areas and same terrestrial species that BDCP proposes.	The BDCP is proposing to restore many of the same lands that are currently part of HCPs being developed by the delta counties: Sacramento, San Joaquin, Yolo, Contra Costa and Solano. The BDCP's plan is in direct and significant conflict with these other local and regional plans. These other HCPs were initiated first, are more developed/further along the approval process, have more specific plans (not just the nebulous and programmatic undefined future to be defined later proposals of the BDCP) and are closer in timing to implementation and contribution to the conservation of these species. The BDCP is disrupting the efforts and plans of these other HCPs to protect and conserve the many of the same terrestrial species as the BDCP proposed covered species. Because of this BDCP direct conflict with the other plans, the BDCP is actually reducing the overall near- and mid-term conservation of these species. This conflict with other HCPs and the resulting reduction in conservation for the BDCP proposed covered species was not adequately discussed or disclosed in the BDCP EIR/S. This significant direct impact to habitat that would have otherwise been created and implemented by these other HCPs was not identified, quantified, characterized, or disclosed in the BDCP EIR/S. These significant impacts from the BDCP proposed project have not had measures implemented to avoid, minimize or mitigate them and therefore the current BDCP EIR/S is incomplete and deficient. The BDCP EIR/S document should be revised to provide a detailed accounting of the locations, quantity and types of habitat restoration conflict with existing and in-progress local and regional plans and policies. This revision would be a material change that would require the BDCP recirculate the EIR/S for an additional round of public comment. The BDCP can avoid this conflict by dropping the terrestrial species from the proposed covered species.

	comment continued…	The Purpose and Need statement does not provide any justification for including the terrestrial species anyway - see related comments. If the BDCP does not drop the terrestrial species from the covered species list, in order to minimize this significant impact on the other pre-existing HCPs, the BDCP Proposed Project needs to include a plan/commitment not to implement restorations on any of the areas/locations previously identified by the other HCPs. Given the conflict between the BDCP and the plans of other pre-existing HCPs, there is also a reasonable doubt of sufficient remaining suitable lands for proposed BDCP conversion to specific species habitat restoration. As an example, once San Joaquin, Sacramento and Yolo and Solano counties have implemented their planned habitat conservation for Giant Garter Snake (GGS), there will be little suitable habitat available for the 3:1 habitat loss mitigation and habitat restoration as a contribution to conservation for the BDCP to implement. This scarcity of suitable GGS habitat to conserve and/or restore is illustrative of the conflict of the BDCP with the other pre-existing conservation plans and also calls into question the ability of the BDCP to fulfill its habitat conservation goals in the future. The limitations on available habitat to convert in competition with the other HCPs demonstrates the level of uncertainty of the BDCP achieving conservation goals and therefore the BDCP cannot be awarded incidental take permits with this level of uncertainty.
	At no time should the project be allowed to degrade or reduce the amount or quality of habitat or reduce species populations in the course of the implementation of the project.	The pace of the amount of habitat lost to conveyance construction occurs at a much faster pace than the restoration and functional development of habitat restoration CMs. The level of detail provided in the EIR/EIS does not even allow a detailed accounting of habitat loss by type (species) by year or an accounting of the type and quantity by year of fully functioning habitat restoration or mitigation, so a detailed analysis to quantify this shortfall is not even currently possible. Degradation of habitat conditions have led to the listing of the species that the BDCP proposes to cover. Since the purpose of the HCP/NCCP is to conserve and protect the covered species, the project should not be allowed to result in a net negative quantity and quality of habitat for the listed/covered species at any point in time during the BDCP project.
	The schedule and pace of early project implementation of habitat restoration is not adequate in magnitude to mitigate for the land disturbance from the initiation of the construction of the project (let alone contribute to conservation).	Mitigation must be completed prior to land disturbance in order for the endangered species conditions not to additionally degrade before they are theoretically improved by the project. Endangered species that according to the NMFS and FWS OCAP BOs are on the verge of jeopardy should not be exposed by the project to further habitat degradation prior to habitat improvements. NMFS and FWS are not justified in issuing ITPs s until such time in the implementation of the project that it has at least achieved a positive net effect on endangered species habitat and that at no time during the implementation of the project are endangered species habitat conditions and populations allowed to be reduced by the project.
Conservation Measures	The BDCP will not fulfill their commitment to "restore 19,150 acres of tidal natural communities by year 10 of the project" (CM4).	The EIR/S says that habitat restorations that occur after the near-term will be analyzed at a programmatic level of detail and will be subject to more detailed analysis in subsequent environmental document(s). No specific timeframe for these subsequent environmental documents is provided in the EIR/S. CM4 lacks detailed designs (necessary for surface water flood channel capacity analysis and flood risk assessment, aesthetics - see related comments); footprint of disturbance (necessary for terrestrial species, fish stranding and agricultural impacts - see related comments); operational plans (necessary for operations modeling, water supply impacts, water quality impacts, agricultural impacts - see related comments); Maintenance plans (vegetation management and dredging impacts on water quality and fisheries habitat); water rights (evaporation, transpiration and groundwater recharge consumption) have not been secured or the process to secure them defined and analyzed (necessary for water rights impacts - see related comments); the change in beneficial uses of water of those water rights has not been identified or evaluated (necessary for water rights and water supply impacts - see related comments); equipment used (e.g. earthmoving, dredging, etc.) and estimated hours of operations (necessary for air quality impacts); etc. With all of this necessary project level detail to satisfy the impact analyses missing from the public draft EIR/S, the detailed description of CM4 will either need to be revised after this draft to provide sufficient level of detail or these CMs will need to be addressed in a subsequent environmental document. If the level of detail in the CM4 descriptions is enhanced, then this will be a material change in the content of the document and impacts disclosed and therefore the document should be recirculated for public comment. If CM4 is not be addressed at a project level of detail until a subsequent environmental document, the BDCP should disclose the timeline for those documents. CM4 is committed to "restoring 19,150 acres within the first 10 years of implementation".

	comment continued…	
	The Biological Goals and Objectives are not specific enough to support the use of adaptive management.	See related comments under fisheries. This problem of lack of specific measurable goals and triggers for adaptive management actions equally apply to the incomplete project description for terrestrial species. This deficiency must be rectified.
	The project is implementing a number of conservation measures simultaneously that are intended to benefit the same species that the project proposes to adaptively manage.	Even if the project could measure the biological performance of these measures, how does it propose to determine which of the conservation measures are working and which ones have failed and are not contributing to conservation and recovery?
	The tunnel spoil disposal area on Andrus Island disrupts the main Reclamation District drainage and irrigation supply ditch.	These ditches are also GGS habitat. The BDCP did not quantity the number of acres of lost and degraded habitat from the tunnel spoils, nor did the document address avoidance, minimization and mitigation measures for these impacts.
	The BDCP analysis of terrestrial species impacts from the conveyance (CM1) determined that CM1 does not reduce take of species or restore habitat.	Because the conveyance does not result in any contribution to conservation for terrestrial species, it cannot be classified as a conservation measure. The conveyance is the objective of the project proponents. They want to build a conveyance. It is not a conservation measure and it should not be misrepresented to the public as one. This misrepresentation of the conveyance as a conservation measure is just one more example of the biased assessment of environmental affects in the EIR/S document and the consistent positive bias predecisional attitude the lead agencies have had for the project throughout the environmental review process.

	The BDCP is taking double credit for habitat restorations.	Some of the conservation areas that the BDCP is taking credit for in contribution to the conservation of the species in the HCP are either existing obligations of the project (see related comments) or are already in the planning process under other HCPs, i.e. same lands are proposed for GGS conservation by both the BDCP HCP and the San Joaquin HCP. Double counting of habitat restoration contributions to conservation that are already existing obligations must be removed from the calculations of habitat created in the proposed project that would be above and beyond the habitat that will be created under the no action condition. Furthermore, the BDCP must remove from their accounting of contributions to conservation areas that are already designated to be restored by other projects, e.g. San Joaquin County HCP. Habitat can only be restored once, and the double counting that the BDCP is doing is dishonest. The agencies must not accept this corrupted accounting of contributions to conservation and unless, after the accounting flaws are fixed, their is a legitimate, substantial and reliable contribution to conservation, the resource agencies should not approve the plan nor should they issue any incidental take permits or any other construction-related permits.
	Security lighting at the intakes and tunnel headworks facility will confuse greater sandhill cranes that are found in high population concentrations at the immediately adjacent to the east Stone Lakes National Wildlife Refuge.	With the increase in fog from the intermediate forebay reducing visibility and the new hazard of the power lines installed for the intake and tunnel headwork pumps and facilities in combination with the navigational hazard of the security lighting, an increase in the take of this species should have been anticipated by the project.
	There is a lack of species-specific toxicity information for birds and lack of exposure information for mammals, reptiles, or amphibians	The BDCP needed more bird samples collected in the environmental baseline monitoring and the analysis of terrestrial species toxicity analysis must be addressed in greater detail and specificity, especially with regards to contaminants that will change in location, concentration, exposure opportunity, rate of bioaccumulation etc. that the BDCP project impacts. As an example, the reduced turnover rate of water in the south and central delta from the proposed BDCP operations will result in an increase in the concentration of Selenium contribution from the San Joaquin River - see related comments under water quality and fisheries. The current toxicity of Selenium in terrestrial species was inadequately sampled and characterized by the BDCP and the analysis done of the impacts of the increased selenium concentrations on the terrestrial species was inadequate. The BDCP must collect a more complete baseline of all contaminants and do a much more thorough analysis of the impacts of these contaminants from the BDCP proposed project and alternatives.
	Late afternoon sun in the winter will cast a shadow from the surge towers that will reach the National Wildlife Refuge and degrade the quality of habitat.	This impact can be reduced by using larger diameter shorter surge towers and by relocating them farther away from the refuge and mitigated by replacing habitat that is degraded by the tower shadows.
	Noise from the intake pumps and tunnel headworks will reach the National Wildlife Refuge and degrade the quality of habitat.	This impact can be reduced by noise suppression of the pumps, by relocating them farther away from the refuge and mitigated by replacing habitat that is degraded by the BDCP facility noise.
	WQ-5: Effects on bromide concentrations resulting from facilities operations and maintenance (CM1)	The "Significant Unavoidable" and "Adverse" increase in bromide after mitigation as compared to the "Less-Than-Significant" impact of the No Action Alternative is an unacceptable degradation of the beneficial uses of water in the delta. Bromide is an important water quality constituent for drinking water and represents a well documented and severe health risk to humans and animals. A project that has this kind of "Significant Unavoidable" and "Adverse" impact should not be allowed to be implemented, especially when the impact is not precipitated in the No Action condition.
	WQ-14: Effects on mercury concentrations resulting from implementation of CM2–CM22	The BDCP EIR/S impact calls on the No Action is incorrect. CM2-22 do not exist in the No Action, therefore there would be No Impact/No Effect. A Proposed Project that has this severity of an impact on water quality, especially compared to the No Impact/No Effect of the No Action, should not be implemented.

	WQ-19: Effects on pathogens resulting from facilities operations and maintenance (CM1)	The BDCP EIR/S impact calls on the Proposed Project are wrong. The Proposed Project operations reduces the rate of turnover of water in the delta and reduces assimilative capacity (a conclusion from the Water Quality Chapter). Reduced rate of refreshment of water in the delta from the Proposed Project operations is further evidenced by the results of the DSM2 Particle Tracking Model. Increased nutrient loads (e.g. phosphates) and water temperatures that occur from the reduced refreshing of water in the delta from the Proposed Project will result in an increase in the frequency, magnitude, duration and geographic extent of algal blooms. Excess carbon and nitrogen, which the previous impact discussions have disclosed the Proposed Project increases, also contribute to algal blooms (http://en.wikipedia.org/wiki/Algal_bloom). The increase in the magnitude, duration, frequency and geographic extent of harmful algal blooms (HAB) will be significantly increased under the Proposed Project operations due to reduced refreshing of water in the delta and the resulting increase in nutrient loading. The HAB creates toxins that are poisonous to humans through water supply and contact recreations. HAB is also harmful to fish and aquatic bird species. The BDCP aquatic habitat restorations will also cause in increase nutrient concentrations and water temperatures and which result in an increase in the rate and severity of algal blooms and therefore also significantly adversely impact DO. The impacts on algal blooms from the Proposed Project operations and aquatic habitat restorations act in combination together, so the impacts will be worse than the additive impacts of each. This is a significant and adverse impact and the impact call should be changed to reflect this. Any impact call change is a material change to the document and therefore the draft document should be recirculated.
	WQ-20: Effects on pathogens resulting from implementation of CM2–CM22	The BDCP EIR/S impact calls on the Proposed Project are wrong. The Proposed Project operations reduces the rate of turnover of water in the delta and reduces assimilative capacity (a conclusion from the Water Quality Chapter). Reduced rate of refreshment of water in the delta from the Proposed Project operations is further evidenced by the results of the DSM2 Particle Tracking Model. Increased nutrient loads (e.g. phosphates) and water temperatures that occur from the reduced refreshing of water in the delta from the Proposed Project will result in an increase in the frequency, magnitude, duration and geographic extent of algal blooms. Excess carbon and nitrogen, which the previous impact discussions have disclosed the Proposed Project increases, also contribute to algal blooms (http://en.wikipedia.org/wiki/Algal_bloom). The increase in the magnitude, duration, frequency and geographic extent of harmful algal blooms (HAB) will be significantly increased under the Proposed Project operations due to reduced refreshing of water in the delta and the resulting increase in nutrient loading. The HAB creates toxins that are poisonous to humans through water supply and contact recreations. HAB is also harmful to fish and aquatic bird species. The BDCP aquatic habitat restorations will also cause in increase nutrient concentrations and water temperatures and which result in an increase in the rate and severity of algal blooms and therefore also significantly adversely impact DO. The impacts on algal blooms from the Proposed Project operations and aquatic habitat restorations act in combination together, so the impacts will be worse than the additive impacts of each. This is a significant and adverse impact and the impact call should be changed to reflect this. Any impact call change is a material change to the document and therefore the draft document should be recirculated.
REUSABLE TUNNEL MATERIAL TESTING Report -section 3.1.3	The water permeability of the polymer treated samples is much lower than the untreated samples.	The water infiltration rate of the treated tunnel much is much lower than the untreated materials. The analysis should also have included a comparison to the infiltration rates of the soils that would be covered by the tunnel much disposal to determine the impacts to soil suitability for agriculture, habitat, groundwater recharge, surface erosion, cumulative drainage, and surface water drainage quantity and quality. The BDCP EIR/S failed to conduct these assessments on the impacts of the infiltration rates of the tunnel muck disposal.
Chapter 13 - Land Use		

	Previous CVP/SWP related environmental documents have utilized more comprehensive significance criteria to evaluate project impacts than were used in the BDCP EIR/EIS. Other recent CVP/SWP and habitat restoration related environmental documents establish precedent for how the State and Federal agencies should evaluate the BDCP impacts.	These agency precedent setting environmental documents include: CALFED Bay-Delta EIS/EIR (Federal agencies: Reclamation, FWS, NMFS, BLM, USGS, USACE, US EPA, USDA, USFS, NRCS, and WAPA; State agencies: DWR, DFG, Reclamation Board, Cal EPA, CDFA, Delta Protection Commission and SWRCB), South Delta Improvement Project EIS/EIR (Federal Lead Agency: Reclamation; State Lead Agency: DWR; Responsible Agencies: SWRCB and DFG; Cooperating Agency: USACE), Salton Sea Restoration Program EIS/EIR (Federal Lead Agency: USACE; State Lead Agency: California Natural Resources Agency; Prepared by: DWR and DFG), Lower Yuba River Accord EIS/EIR (Federal Lead Agency: Reclamation; Responsible Agencies: DWR, DFG, and SWRCB; and Cooperating Agencies: NMFS and FWS), Oroville Facilities FERC Relicensing EIR (State Lead Agency: DWR), and Monterey Agreement EIR (State Lead Agency: DWR). The same agencies that produced and approved these other recent and similar scope project environmental documents are the same agencies involved in the BDCP. The BDCP's agency roles for the environmental documents are similar to these other projects - Federal Leads: Reclamation, NMFS and FWS; State Lead: DWR; Responsible Agencies: DFG and SWRCB; and, Cooperating Agencies: USEPA and USACE. These documents establish a precedent for the significance criteria that should be used in evaluating the resource impacts of the BDCP project. If the BDCP does not utilize these same significance criteria as these other similar projects, then BDCP must provide a supporting justification for their departure from previous agency policies and practices. BDCP should revise the document to include all aspects of the significance criteria for their impact evaluations that were established as agency precedents in these other recent and similar documents. Subsequent comments identify these missing criteria.
	Conflict with any applicable habitat conservation plan or natural community conservation plan. (Monterey Agreement CALFED, and Oroville FERC Sig Criteria)	The BDCP conflicts with County Habitat Conservation Plans (HCPs) : San Joaquin, Sacramento, Contra Costa, Solano, Yolo. The HCPs are for the most part, further along in their planning process, approval process and implementation than the BDCP. The BDCP should be deferring to these other more developed HCPs whenever there is a potential conflict between proposed land restoration locations. The BDCP not only did not evaluate the conflicts from identifying the same lands for restoration as these other plans, they did not evaluate the impacts of the HCPs competing for the same lands (increased land costs), did not evaluate the interactions between adjacent and interrelated habitat restoration areas, and did not evaluate the cumulative effects of all of the land conversions from all the HCPs. The BDCP EIR/S document must address these deficiencies before the document could be considered useful or complete as an agency decision support document, Until these deficiencies are addressed, USFWS and CDFW should not rely upon this document for decision making regarding issuance of incidental take permits.
	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect. (Monterey Agreement, CALFED and Oroville FERC Sig Criteria)	Conflicts with County General Plans: San Joaquin, Sacramento, Contra Costa, Solano, Yolo. BDCP conflicts with local and regional land trusts, zoning, and mitigation banks.
	Conflict with city or county general plan designations or zoning. (CALFED Sig Criteria)	See preceding comment.
	Change of the type or intensity of land uses resulting in incompatibility with existing surrounding land uses or incompatibility with the regional character. (Yuba Accord Sig Criteria)	The BDCP facilities are a significant change in land use intensity from rural agriculture to heavy industry. Habitat restorations are incompatible with adjacent farming practices and will require new spray buffers which impairs current land viability for agriculture.

	Williamson Act - 51220.5. Legislative finding; "compatible uses." The Legislature finds and declares that agricultural operations are often hindered or impaired by uses which increase the density of the permanent or temporary human population of the agricultural area. For this reason, cities and counties shall determine the types of uses to be deemed "compatible uses" in a manner which recognizes that a permanent or temporary population increase often hinders or impairs agricultural operations.	The State's condemnation of the properties usurps the city and county role in determining what compatible uses are under the Williamson Act.
	Williamson Act - 51238.1. Compatible uses. (a) Uses approved on contracted lands shall be consistent with all of the following principles of compatibility: (1) The use will not significantly compromise the long-term productive agricultural capability of the subject contracted parcel or parcels or on other contracted lands in agricultural preserves. (2) The use will not significantly displace or impair current or reasonably foreseeable agricultural operations on the subject contracted parcel or parcels or on other contracted lands in agricultural preserves. Uses that significantly displace agricultural operations on the subject contracted parcel or parcels may be deemed compatible if they relate directly to the production of commercial agricultural products on the subject contracted parcel or parcels or neighboring lands, including activities such as harvesting, processing, or shipping.	BDCP tunnel muck disposal will affect adjacent farmlands with dust that will affect the quality and quantity of yields and therefore the economic viability of a property. A specific example of this is the BDCP proposed tunnel muck disposal site on Andrus Island adjacent to Wilson Farms cherry and pear orchards and adjacent to their fruit packing house. Dust from the tunnel muck disposal will create quality problems on the fruit and be an health and safety issue for the packing house workers. New forebays and habitat restorations are incompatible with adjacent farming practices and will require new spray buffers which impairs current land viability for agriculture. The BDCP changes in land use are incompatible with the adjacent land uses.

	Williamson Act - 51256.3. Agricultural conservation easement; Sacramento-San Joaquin Delta. For the purposes of facilitating long-term agricultural land conservation in the Sacramento-San Joaquin Delta, an agricultural conservation easement located within the primary or secondary zone of the delta, as defined in Sections 29728 and 29731 of the Public Resources Code, may be related to contract rescissions in any other portion of the secondary zone without respect to county boundary limitations contained in an agricultural conservation easement agreement pursuant to Section 51256.	The BDCP can't mitigate rescinding of WA contracted lands in the primary or secondary delta with new WA contracted lands without balancing the quantity of contract rescission by the County.
	Williamson Act - 51290. State or local public improvements within preserve. (a) It is the policy of the state to avoid, whenever practicable, the location of any federal, state, or local public improvements and any improvements of public utilities, and the acquisition of land therefore, in agricultural preserves. (b) It is further the policy of the state that whenever it is necessary to locate such an improvement within an agricultural preserve, the improvement shall, whenever practicable, be located upon land other than land under a contract pursuant to this chapter. (c) It is further the policy of the state that any agency or entity proposing to locate such an improvement shall, in considering the relative costs of parcels of land and the development of improvements, give consideration to the value to the public, as indicated in Article 2 (commencing with Section 51220), of land, and particularly prime agricultural land, within an agricultural preserve.	The BDCP conveyance alignment route selection and habitat restoration locations were biased to take lands under a Williamson Act (WA) contract in order to acquire lands that are lower cost because they are in an agricultural preserve. 58% of the land in the statutory delta is under WA contract. As proof of the BDCP targeting of Williamson Act lands, of the lands condemned for the conveyance almost all of it is under Williamson Act contract. If the project was not targeting WA lands to acquire lands cheaper, then the WA condemned lands should be at 58% or less. The BDCP needs to revise their conveyance route and habitat restoration sites so that it conforms with the WA provisions for the state to avoid and minimize impacts to WA lands. Unless the revised BDCP proposal results in less than 58% of the condemned lands being enrolled in the WA, then the BDCP will have failed to conform to this WA rule. The BDCP should provide justification for why it is currently clearly inconsistent with this WA rule.

	Williamson Act - 51292. Conditions under which public improvement may not be located within preserve. No public agency or person shall locate a public improvement within an agricultural preserve unless the following findings are made: (a) The location is not based primarily on a consideration of the lower cost of acquiring land in an agricultural preserve. (b) If the land is agricultural land covered under a contract pursuant to this chapter for any public improvement, that there is no other land within or outside the preserve on which it is reasonably feasible to locate the public improvement.	The BDCP has not provided any supporting documentation as to why there is no reasonably feasible alternative to locating the project on WA contracted lands. See preceding comment.
	The programmatic level analysis of the habitat restoration (non-location specific) does not disclose what the impacts will be on Williamson Act (WA) contract lands.	If the restoration zones are any indication, the habitat restorations would occur almost exclusively on WA contracted lands. This is obviously targeting by the BDCP to condemn WA lands to acquire lands more cheaply.
	BDCP taking of portions of parcels may result in the remaining portions of the parcels not qualifying for the Williamson Act minimum parcel size requirements.	Loss of the tax protected status of the remaining parcels would be an on-going impact of the BDCP on the land owner that must be avoided, minimized and mitigated. Avoidance can be done by careful parcel selection. This impact can be minimized by not condemning portions of parcels that leave uneconomic and non-WA qualifying parcels. Mitigation would be through purchase of uneconomic and non-WA qualifying parcels and/or ongoing compensation to the land owner and county for the impact to the WA status.
	Farmland Security Zone (FSZ) are a higher level of conservation than a standard WA contract. The FSZ preserve must support at least 100 contiguous acres of Prime Farmland, Farmland of Statewide Importance, Unique Farmland, or Farmland of Local Importance. FSZ land cannot be annexed into a city, or a special district that provides non-agricultural services, or for use as a public school. In return, FSZ contracts offer landowners greater property tax reduction than under a 10-year Williamson Act contract.	The BDCP analysis failed to calculate what proportion of condemned lands were FSZ and to disclose the impacts of conversion of this land conservation type.
	Uniform Appraisal Standards for Federal Land Acquisitions - B-11. Partial Acquisitions. When the United States acquires only part of a unitary holding, federal law requires that compensation be made not only for the property interest acquired, but also for the diminution, if any, in the value of the remainder directly caused by the acquisition and/or by the use to which the part acquired will be put.	BDCP taking of parcels and portions of parcels may result in land ownership fragmentation. Fragmentation of land ownership disrupts land use, reduces land utility, reduces access, and creates uneconomically sized parcels for continued use as agricultural production land. Land fragmentation and the related impacts described above are impacts and on-going impacts the project that have to be fully mitigated.

	The BDCP did not provide sufficient justification for the proposed conveyance facilities locations.	Facilities location rationale and supporting documentation must provide rationale for why a facility that is condemning private lands must be cited in one location over another – this documentation and rationale has not been adequately done for the intake citing or canals/pipelines. Even a cursory review of the BDCP proposed north delta intake locations shows that historic buildings (e.g. Rosebud Mansion) and recreation areas (Merrit Landing) are directly affected by intake locations that could easily be shifted to avoid these impacts. Without sufficient justification for the location of the facilities and their lack of investigated alternatives to avoid and minimize impacts, the BDCP project should not be granted public condemnation of private properties.
	BDCP's announcement of the project footprint for potential land condemnation has already reduced the marketability and price of that land.	The BDCP caused reduction in land values results in reduction in tax revenues for local and regional governments and authorities. Land appraisals are required for determining the value for compensation for land condemnation. Land transaction values are a part of the valuation process. The BDCP threat of condemnation has already impacted land transaction values, so transaction values need to be adjusted to reflect this BDCP impacted value in order to achieve "fair compensation".
	FISH AND GAME CODE SECTION 1348. (a) … the department shall not acquire any property pursuant to this subdivision by eminent domain proceedings except that property as may be necessary to provide access roads or rights-of-way to areas to be used for fishing the coastal waters of the Pacific Ocean, and then only if the board of supervisors of the affected county has agreed by resolution to those proceedings for each parcel of land...	Fish and Game (CA Fish and Wildlife) is a responsible agency for the BDCP and should be the State co-lead agency on the NCCP. Fish and Game is not authorized to condemn property for the purposes of habitat restoration.
Chapter 14 - Agriculture		
	Previous CVP/SWP related environmental documents have utilized more comprehensive significance criteria to evaluate project impacts than were used in the BDCP EIR/EIS. Other recent CVP/SWP and habitat restoration related environmental documents establish precedent for how the State and Federal agencies should evaluate the BDCP impacts.	These agency precedent setting environmental documents include: CALFED Bay-Delta EIS/EIR (Federal agencies: Reclamation, FWS, NMFS, BLM, USGS, USACE, US EPA, USDA, USFS, NRCS, and WAPA; State agencies: DWR, DFG, Reclamation Board, Cal EPA, CDFA, Delta Protection Commission and SWRCB), South Delta Improvement Project EIS/EIR (Federal Lead Agency: Reclamation; State Lead Agency: DWR; Responsible Agencies: SWRCB and DFG; Cooperating Agency: USACE), Salton Sea Restoration Program EIS/EIR (Federal Lead Agency: USACE; State Lead Agency: California Natural Resources Agency; Prepared by: DWR and DFG), Lower Yuba River Accord EIS/EIR (Federal Lead Agency: Reclamation; Responsible Agencies: DWR, DFG, and SWRCB; and Cooperating Agencies: NMFS and FWS), Oroville Facilities FERC Relicensing EIR (State Lead Agency: DWR), and Monterey Agreement EIR (State Lead Agency: DWR). The same agencies that produced and approved these other recent and similar scope project environmental documents are the same agencies involved in the BDCP. The BDCP's agency roles for the environmental documents are similar to these other projects - Federal Leads: Reclamation, NMFS and FWS; State Lead: DWR; Responsible Agencies: DFG and SWRCB; and, Cooperating Agencies: USEPA and USACE. These documents establish a precedent for the significance criteria that should be used in evaluating the resource impacts of the BDCP project. If the BDCP does not utilize these same significance criteria as these other similar projects, then BDCP must provide a supporting justification for their departure from previous agency policies and practices. BDCP should revise the document to include all aspects of the significance criteria for their impact evaluations that were established as agency precedents in these other recent and similar documents. Subsequent comments identify these missing criteria.
	Convert a substantial amount of important farmland to nonagricultural use, or impair the agricultural productivity of important agricultural land. (SDIP Sig Criteria)	The BDCP facilities and habitat restorations convert approximately 20% of the agricultural lands in the statutory delta. Converting 20% of ag lands in a community is devastating to the local economy, jobs, tax base, school system, and sense of place.

	The EIR/S failed to adequately address the impact that the BDCP would cause agricultural land to be converted from annual to permanent crops.	The BDCP EIR/S discloses that annual crops in the CVP/SWP are being converted to permanent crop plantings and that the conversion to permanent crops reduces water contractors' management flexibility during drought conditions under the No Action. The reliability of a minimum water supply to sustain a permanent crop is a commonly understood criteria for a grower's decision to convert from an annual crop to permanent crop. "Shifting to a relatively higher ratio of permanent crop plantings to annual crop plantings means that when irrigation water supplies are limited, much of the pressure to cut back on irrigation water use focuses: First – on reductions in annual crop plantings and increases in fallowed ground" (http://cnas.ucr.edu/drought-symposium/presentations/Agronomy-3-CA.pdf). The reduction in the variation in water deliveries that result from the implementation of the BDCP EIR/S proposed project will result in a reduction in the frequency and duration of water shortage conditions undeniably would affect grower decision making regarding the rate of annual crop conversion to permanent crops. It may not be possible to quantify the increase in the rate of the conversion of farmland to permanent crops, but that is not an excuse for the BDCP to identify and evaluate the types and relative magnitude of these impacts from the BDCP project.
	There would be a significant impact on agricultural resources if the alternatives would: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as designated in the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use. (Monterey Agreement, Oroville, CALFED Sig Criteria)	The facilities construction footprint, staging areas, and habitat restorations will all result in permanent conversion of Prime Unique and Important Farmland. Farmland can also be converted by changing land productivity such that it is no longer suitable for agricultural production (lack of water supply, unsuitable water supply quality, lack of alternative water supply, uneconomic cost of water supply, soil salt accumulation, or shallow water table depths unsuitable for crop production that results in permanent land retirement). Farmland can also be converted from these designations if the land no longer meets the criteria for the designations. As an example, if irrigation water is no longer available or drainage no longer adequate as a result of the project, the project has converted Prime Farmland to non-prime status as irrigation and adequate drainage is a requirement for the Prime Farmland designation. The BDCP has failed to identify, evaluate and disclose these types of agricultural land conversion impacts. The BDCP can avoid and minimize this land conversion impact utilizing to the fullest extent possible the following measures. Facilities and habitat restoration should be conducted only on public lands. Restore all existing degraded habitat as a priority before converting agricultural land. If public lands are not available for restoration efforts, focus restoration efforts on acquiring lands from willing sellers where at least part of the reason to sell is an economic hardship (for example, lands that flood frequently or where levees are too expensive to maintain). When habitat restoration must be conducted on private lands, select lower productivity farmland for conversion into habitat restoration. Parcels of land selected for tidal or inter-tidal habitat restoration should focus on points of land on islands where the ratio of levee miles to acres farmed is high to reduce levee maintenance costs to local landowners and reduce flooding risks. This measure will reduce the amount of change to agricultural productivity and reduce the amount of farmland converted to non-agricultural land uses. The BDCP has failed to demonstrate even a reasonable effort at avoiding and minimizing farmland conversion to non-agricultural use.
	Substantial permanent reduction in agricultural acreage in a region or permanent conversion of any lands categorized as Prime Farmland, Farmland of Statewide Importance, or Unique Farmland under FMMP or Prime Farmland under the Williamson Act. (Yuba Accord Sig Criteria)	See previous related comments under Land Use and preceding two comments.
	Conflict with existing zoning for agricultural use, or a Williamson Act contract. (Monterey Agreement, Oroville, and CALFED Sig Criteria)	The construction footprint, staging areas, and habitat restorations will all result in conversion of over 100,000 acres of Williamson Act contracted lands. The conveyance alignment and habitat restoration locations were designed to take lands under a Williamson Act contract in order to acquire rights-of-way for the BDCP based primarily for the lower cost of acquiring land in an agricultural preserve. BDCP needs to demonstrate there is no other lands outside the Williamson Act preserve on which it is reasonably feasible to locate the public improvement. See previous related comments under Land Use.

	Adverse effects on agricultural operations from adjacent land uses (for example, creation of no-spray zones adjacent to new habitat, siltation from levee construction, or other incompatible uses). (Oroville, Monterey Agreement and CALFED Sig Criteria)	New open water from BDCP facilities, e.g. intake settling ponds, intermediate forebay, south delta forebay and aquatic habitat and riparian habitat restorations will impose new no-spray zones around them which constrains agricultural operations. Agrichemical application methods will also be constrained by new BDCP created obstacles for crop dusters from new power lines, surge towers and conveyance and habitat restoration levees.
	An increase in groundwater pumping that would cause or exacerbate overdraft of a basin, which in turn leads to a conversion of farmlands to non-agricultural uses. (Oroville and CALFED Sig Criteria)	Dewatering of groundwater during BDCP construction will depress localized groundwater tables and may dewater agricultural groundwater wells. The BDCP can mitigate this impact by providing affected growers with alternative water supplies and/or deepening current wells and paying for the additional energy costs for pumping. Utilization of groundwater as an alternative/supplemental water supply due to continued variations in CVP/SWP water deliveries occurring in the Proposed Project will result in continued, and in some cases, new areas of land subsidence. Land subsidence can affect some agricultural resources such as surface and groundwater drainage and flow capacities of drainage and water supply conveyances. Reductions in surface drainage and disruptions of drainage and water supply infrastructure could result in a reduction in productivity of some agricultural lands. Under areas in the CVP/SWP service area where farmland is only marginally suitable under the current Affected Environment conditions could result in farmland becoming unsuitable for agricultural production (resulting in permanent land retirement) under the Proposed Project alternative. The BDCP can avoid these significant impacts if the contracted water delivery amounts are adjusted to a level that can be reliably delivered under all water year types and hydrologic conditions. By reducing the amount of water commitment to a level that can always be delivered, the growers will adapt their operations to that level of water and will discontinue the use of the groundwater as an alternative because, according to regional water master plans, the use of the groundwater on any prolonged (8 years in a row or more) is not economically sustainable.
	Inconsistency with agricultural objectives of local, regional, and state plans. (Oroville and CALFED Sig Criteria)	This impact significance criteria should have been used by the BDCP to have a consistent implementation of policy set in preceding similar projects.
	Conflicts with applicable environmental plans or policies adopted by agencies with jurisdiction over the project. (Oroville and CALFED Sig Criteria)	BDCP is inconsistent with county general plans for their HCPs and ag land conservation zones. The BDCP can avoid and minimize this significant impact by not converting lands to habitat restoration that are already identified for conservation in local conservation planning efforts.
	Criteria used to evaluate the adverse effects of the Program on Agricultural Economics are listed below. The following results of Program actions are considered adverse effects: Permanent or long-term reduction in acres of irrigated land in a region; A change in water quality that would reduce crop yields; or Changes in costs or revenues that change the economics of farming to an extent that land use, water use, or employment could be affected. (Oroville Sig Criteria)	BDCP project caused changes in water quality, water surface elevations and groundwater elevations in the delta change agricultural productivity and revenues. These BDCP caused impacts include reduction in the suitability of water supply quality; reduction in reliability of water supplies from intake dewatering, reduction in viability of alternative groundwater supplies; soil salt accumulation from reduce irrigation water quality; increases in the magnitude, duration or frequency of land inundation from the Yolo bypass habitat restoration flows; and/or shallow water table depths that impact suitability for crop production from seepage from facilities and habitat restorations. These BDCP impacts that can affect agricultural productivity and revenues occur singly and in combination which results in additive magnitude of effects. The BDCP EIR/S has failed to identify, evaluate or disclose these affects or to address the combinations of these affects and their impacts on the productivity and revenue of each of the crops and areas in the delta.

	Agricultural objectives for EC, ranging from 450 µS/cm to 2,200 µS/cm, are applicable at Jersey Point and Emmaton from April through August 15. Both locations have 30-day moving average EC objectives of 1,000 µS/cm. (SDIP Sig Criteria)	Since agricultural irrigation beneficial use occurs at each of the 1,400 plus agricultural diversions in the delta, irrigation water quality compliance for agricultural water supply uses must be evaluated at all of the agricultural diversions in the delta. This type of analysis that addresses each of the locations of the beneficial use is readily implementable with data and tools that the BDCP analysis already utilizes. Reduced water quality in the delta resulting from the BDCP project (e.g. increased salinity) will result in an increase in delta water use requirements (increased irrigation water, increased irrigation leaching component requirement) and reduce yields and crop revenue. Changes in water supply salinity (ECw) and salt accumulation result in crop type changes or suitability of land for agricultural production. The BDCP can avoid these significant impacts by not degrading delta water quality and minimize it by paying growers to upgrade irrigation systems in the delta to increase water use efficiency and salinity management efficiency. The BDCP EIR/S can analyze the change in water quality that results from the project by utilizing DSM2 model output of water quality (salinity) at each DSM2 analytical node and comparing the readings to the adjacent agricultural diversion locations during the irrigation season. Using this method, the BDCP can evaluate the magnitude, duration and frequency of water quality exceedances of irrigation water quality standards for each diversion and for water quality tolerances of the agricultural crops that are grown at those diversions. Crops have different salinity tolerances at different crop growth stages, so this aspect must be incorporated into the analysis as well. Only utilizing a comprehensive analytical approach as just described will meet the test of utilization of best available science and adequate disclosure of project impacts.
	Although increases in groundwater levels are typically considered to be beneficial, increases that cause water logging of agricultural crop lands would be considered an adverse impact under some conditions. (CALFED Sig Criteria)	BDCP conveyance, habitat restoration, tunnel muck disposal and intake sediment disposal footprint disrupts agricultural drainage which will results in increased water tables. Seepage of water from the BDCP forebays and habitat restorations will increase local water tables. When water tables encroach into the crop root zone, salts are wicked up into the root zone and oxygen exchange for the roots is reduced. Either of these conditions on a seasonal basis will reduce crop production and if the elevated water table exposure to increased water tables is prolonged then the crop may die. BDCP can minimize the significant impact of elevated water tables on agricultural production by designing intertidal and sub-tidal habitat restorations to not seep into or raise local groundwater tables such that they affect adjacent property agricultural suitability or productivity. This can be done using geotechnical linings to prevent seepage and with groundwater interception ditches with sump pumps. These facilities to avoid and minimize groundwater table affects from the project would need to be maintained by the BDCP in perpetuity. These avoidance and minimization measures will reduce the amount of farmland converted to non-agriculture land uses and will reduce the amount of change to agricultural productivity. In areas that water table depth is affected to a degree that makes land unsuitable for the crops currently grown at that location or would be subject to reduced productivity due to elevated water tables, BDCP can provide supplemental groundwater drainage such as drain tile, drainage intercepts, sump pumps, etc.

	Agricultural impacts resulting from changes in water temperature (Yuba Accord Sig Criteria)	Increases in releases from CVP/SWP dams (Shasta, Oroville, Folsom and New Melones) for larger spring and summer releases to increase delta outflows included in Alternative 4 will result in a reduction of water temperatures at agricultural diversions downstream of these facilities on the Sacramento, Feather, American and Stanislaus rivers. As a specific example of this type of impact that the BDCP EIR/S failed to address, increased releases from the Lake Oroville facilities will reduce the residence time of water in the Thermalito Afterbay prior to agricultural diversion therefore reducing the water temperatures at the agricultural irrigation diversions. As identified in the DWR Oroville Relicensing environmental documents and studies, irrigation water temperatures below 65^{o}F can reduce rice crop yields. Increases in the frequency and duration of irrigation water temperatures below 65^{o}F result in reduced yields in rice production in portions of the service area supplied from the Thermalito Afterbay and downstream of the facilities on the Feather River. The potential increase in magnitude and duration of cold water effects from the Oroville facilities on rice yields that are anticipated from the increased spring and summer releases in Alternative 4 could be mitigated by Reclamation joining California Department of Water Resources in compensating growers for the rice yield losses that occur due to project operations. DWR compensates the irrigation districts that are affected by the water temperatures of their Oroville Facilities releases with cash payments for the value of yield loss. DWR payments to the affected irrigation districts have been over $1 million per year for these impacts. Similar losses could occur at TCID and GCID from CVP reoperations of Shasta and for other crops and other irrigation districts for the other CVP/SWP facilities. The BDCP fails to identify, evaluate or disclose these type of impacts or to identify or incorporate any measures to avoid, minimize or mitigate these affects. BDCP can avoid or minimize these impacts by managing water temperatures of releases to maintain suitability at agricultural diversions. The BDCP can mitigate any remaining impact utilizing the same process as DWR utilized in compensating growers for cold water-related yield loss from their Oroville Facilities operations.
	A change in water quality that would reduce crop yields. (Oroville Sig Criteria)	Water temperature suitability for agricultural irrigation is an important water quality component that the BDCP did not evaluate. See preceding comment. BDCP caused impacts of ECw and Bo in delta irrigation water supplies have not been adequately addressed in the EIS/EIR. Complex and dynamic temporal and spatial distribution of a gradient of water quality constituent concentrations that affect agricultural productivity, suitability and designated agricultural irrigation beneficial uses of the water requires that the entire model run results be used - all time series and all output nodes. The current analysis just looks at averaged data at a few specific compliance points. The actual impacts to beneficial uses that the environmental document must evaluate and disclose occur at each and every agricultural diversion in the delta. The best available science requires that the output (all time series and all output nodes) from the water quality models be integrated into a GIS and analyzed to determine the frequency, duration and magnitude of water quality exceedances above crop tolerances for crops that are grown in the area serviced by each agricultural surface water diversion. All of the data to conduct this analysis as described is readily available. The agricultural surface water diversion location database exists and is readily available in CDEC. The output node locations of the water quality model need to be entered into the GIS spatial database and the unique identifiers of the node be coded the same as the model output so the databases can be joined. Once the water quality model has been linked to the GIS spatial database, a simple set of database queries of will show what locations in the delta exceed water quality and suitability of water quality for agricultural beneficial uses for what periods of the year, for which crops and by how the criteria were exceeded by. A comprehensive impact analysis that does meet the test of best available science can easily be done using the method described and this type of approach is well documented in other environmental analysis, including DWR's Oroville Relicensing EIR.

	Changes in costs or revenues that change the economics of farming to an extent that land use, water use, or employment could be affected. (Oroville Sig Criteria)	Reduced water quality in the delta resulting from the BDCP project (e.g. increased EC and Bo) will result in an increase in delta water use requirements (e.g. increased irrigation frequency, increased irrigation leaching component), increased pumping and irrigation costs, reduced crop yields, reduced crop quality, and reduced crop revenue. The BDCP can avoid this significant impact by not degrading delta water quality and minimize impacts by paying growers to upgrade irrigation systems in the delta to increase water use efficiency and salinity management efficiency. It is not just the delta farmers that will be economically affected by the BDCP. Westlands Water District has estimated that the cost of water through the conveyance will cost the CVP water contractors between $238 and $337/AF of water supply under various conveyance cost and outflow operating rule scenarios. This cost for water clearly exceeds what is economically viable for all but the highest value agricultural crops. Orchards and vineyards and vegetable crop production are not or are only marginally economic at these BDCP caused water costs. Row crops and forage crops such as corn, cotton, dry beans and alfalfa are not even close to economic to grow at these water costs. Row and forage crops make up the majority of irrigated acres farmed in the Westlands water district, so they are obviously planning that the project will significantly change their land use, either in changes in crops grown, urban and industrial development (growth inducing) or in fallowed acres. This impact of the project was not disclosed in the EIR/S. Another BDCP caused impact on agricultural economics is that the planned habitat restoration increases weed pressure on adjacent and downstream farmland by producing weed seeds which are transferred from the habitat by wind and water. This increased weed pressure from the BDCP habitat restorations increases weed control costs and causes crop yield losses. The BDCP can minimize this significant impact to agricultural productivity and operational viability by maintaining their habitat restorations free of exotic and invasive weed species as well as controlling wind and water transport of weed seeds by managing drainage, ground cover and wind breaks. The BDCP can mitigate the remaining impacts to agriculture by compensating growers for increased weed control costs and weed pressure-related yield losses.
	The increased water supply cost resulting from the BDCP would degrade current beneficial uses.	Water supply costs estimated by Westlands Water District at $238 - $337/AF is an uneconomic cost for growing most agricultural crops in the Central Valley. The majority of the water supply demand for the CVP/SWP is from the Central Valley water districts for agricultural water use. The majority beneficial water use in these areas, per the Central Valley Regional Water Quality Control Plan, is for agriculture. The BDCP will make the water too expensive for these designated beneficial uses. This increase in water supply costs to a point where the identified beneficial use of the water is no longer economic on a broad scale is a significant impairment of this beneficial use. The SWRCB and CVRWQCB should not issue 401 permits for the BDCP until this impairment of beneficial use is addressed by the BDCP. The BDCP document did not identify, characterize, quantify or evaluate this impact and the document is therefore deficient. The BDCP did not identify any measures to avoid, minimize or mitigate this impact.

	Under BDCP proposed operations, the Oroville facilities will reduce spring water temperatures in the Thermalito Afterbay and lower Feather River which will cause a significant additional yield loss impact on rice grown in the Feather River Water Service Area.	The BDCP proposed operations reoperates the Oroville facility to provide additional water releases in the spring. The increased releases in the spring will reduce residence time of water in the Thermalito Afterbay which will reduce the opportunity for water to warm to water temperatures suitable for crop irrigation. Increased flows in the lower Feather River and reduced water temperatures of releases from the Thermalito Afterbay to the river will reduce the water temperatures in the lower Feather River at the downstream agricultural diversions (e.g. Sutter Extension and others). Prior to the construction of the Oroville Facilities, DWR entered into an agreement with the senior surface water rights holders on the lower Feather River to ensure their water supply and the suitability of water quality (water temperature) for agricultural irrigation purposes. This agreement is between DWR and the Feather River Service Area (FRSA) water districts (Biggs West Gridley, Richvale, Western Canal and Sutter Extension). In this agreement, DWR is required to "provide water temperatures at the water district diversions that are suitable for agricultural irrigation". Due to low water temperature requirements for salmonids in the lower Feather River, DWR has been in violation of this agreement since early in the operation of the facilities. During the Oroville FERC Relicensing studies, the yield loss to rice production from the reduced water temperatures from the Oroville Facilities was characterized and quantified (2005 Rice Water Temperature Field Study, DWR, December 2005; Water Temperature Study, RG Mutters, UC Davis Agricultural Extension Service, Jan. 2006.) These studies resulted in a settlement from DWR to the FRSA water districts for damages to crop production Amendment on Agreements of Diversion of Water from the Feather River and Settlement of Issues Related to the Temperature of Water Diversions, DWR April 23, 2008). The reoperation of the Oroville Facilities proposed operations increased spring releases will increase the magnitude, duration and frequency of water temperatures that damage crop production. The BDCP EIR/S failed to identify, characterize, quantify or disclose this significant impact of the proposed BDCP project. The BDCP can avoid and minimize this impact by constructing warming basins for the agricultural diversions so that water temperatures of diverted water are suitable for agricultural production.

	Increased saltwater intrusion into the delta from the BDCP operations will increase groundwater salinity in large portions of the delta and use of groundwater as a substitute water supply during periods of BDCP degraded surface water quality will poison the soils and crops.	The BDCP EIR/S has identified a significant and unavoidable degradation of water quality in the delta from increased saltwater intrusion from BCDP proposed operations. The BDCP EIR/S has failed to adequately evaluate how these significant surface water quality impacts effect groundwater quality. When surface water quality is reduced in the delta due to BDCP operations, growers will utilize groundwater as a substitution for their BDCP compromised senior surface water rights and diversions. This increased reliance upon groundwater as a substitution water supply during periods of BDCP degraded surface water quality will result in increased groundwater withdrawals and increased hydraulic gradient from the tributary to the groundwater basin. The BDCP caused increase in hydraulic gradient from the tributary to the groundwater will pull water from the BDCP degraded water quality in the tributary into the adjacent groundwater profile. The lower quality (higher EC and Boron) water from the tributary will flow in on top of the deeper groundwater with little to no mixing with better quality deeper groundwater. The deeper groundwater quality may not be significantly affected for some time as it approaches the wellhead groundwater cone depression, but it will be degraded over time. The more immediate affect of the higher EC and Boron layer degraded water quality of near surface groundwater will occur nearly immediately. Groundwater tables are near the soil surface and in the crop root zone in most of the delta in portions if not the entire year. Salts wick up through the soil from shallow groundwater by capillary action with soil particle interstitial spaces. Even though the salts from the tributaries may not reach the wellheads for several years, the near surface migration of salts from the tributary recharge of the BDCP depressed groundwater cone will start affecting the salinity of the root zones of the crops near the edges of the islands in the first season or two. Once salts have been pulled into the shallow groundwater as described above, it will be nearly impossible for the grower to manage the salts. In areas of deeper groundwater (e.g. Southern Central Valley), a grower can flush salts down and out of the root zone. In the delta, because of the shallow groundwater table, irrigations to flush salts out of the root zone will only raise the water table and cause the salts to wick higher into the root zone. The leaching irrigation has nowhere to go so it will only slightly dilute the salts, but again the salts will wick up through the soil. Even a thin layer of degraded groundwater quality that occurs in or near the root zone could make larger portions of the delta unfarmable in a matter of just a few years. This BDCP impact converts the farmland to a different land use (non-farming) which by CEQA significance criteria is a significant impact. The BDCP failed to identify, evaluate, quantify or disclose the significant impacts of reduced shallow groundwater quality in the delta that would be caused by the BDCP proposed operations. The BDCP can minimize this significant impact by actually complying with the current water quality requirements instead of frequently violating them as the current CVP/SWP operations do. The BDCP can mitigate this impact by providing alternative water supplies to areas of degraded surface water supplies so that the growers do not have to rely upon groundwater as an alternative supply.
	Increased saltwater intrusion into the delta from the BDCP operations will increase groundwater salinity in large portions of the delta from reclamation district operations to draining the islands.	This comment builds off of the impacts described in the preceding comment regarding BDCP degradation of surface water quality and the resulting degradation of shallow groundwater quality in the delta. Many islands in the delta have land elevations that are at, near or below the water levels of their surrounding tributaries. The only way the islands are maintained from becoming flooded by seepage from the tributaries is to nearly continuously pump water out from the drainage ditches in the Reclamation District back into the tributary. By the Reclamation District pumping the water off of the island or tract, the groundwater levels are maintained to levels that are farmable (3 to 8 foot minimum depending on crop type and season). The amount of shallow groundwater pumping and rate of turnover of shallow groundwater recharge from the tributary is dependent upon several factors. The more porous the levees and soils, the faster the movement of tributary water into the shallow groundwater. The larger the difference between the tributary water elevation and the groundwater height (hydraulic gradient), the faster the movement of tributary water into the shallow groundwater. Even a thin layer of degraded groundwater quality that occurs in or near the root zone could make larger portions of the delta unfarmable in a matter of just a few years.

	comment continued…	This BDCP impact of surface water quality degradation that causes shallow groundwater quality degradation will result in a conversion of farmland to a different land use (non-farming) which according to CEQA guidance significance criteria is a significant impact. The BDCP failed to identify, evaluate, quantify or disclose the significant impacts of degraded shallow groundwater quality in the delta that would be caused by the BDCP proposed operations. The BDCP can avoid this significant impact to groundwater quality by adopting operations that do not degrade the surface water quality. The BDCP can minimize this significant impact to groundwater quality by building toe drains at the base of the levees surrounding the affected islands and providing for and maintaining drainage operations that intercept and prevent the movement of degraded surface water quality into the island's groundwater. This minimization measure would need to be complemented by the BDCP also providing an alternative surface water supply of non-degraded quality for the farmers to use as an alternate water supply. These suggested avoidance and minimization measures are practical, feasible, well tested and accepted and are small in scale in comparison to the scope and cost of the overall BDCP proposal.
	Increased saltwater intrusion into the delta from the BDCP operations will increase groundwater salinity in large portions of the delta from drain tile operations on the islands.	This comment builds off of the impacts described in the preceding two comments regarding BDCP degradation of surface water quality and the resulting degradation of shallow groundwater quality in the delta. Due to the shallow groundwater tables in the delta, many open ground fields and most permanent crop plantings utilize drain tile to maintain groundwater levels and keep groundwater moving to protect their crops and the productivity of the soils. Most permanent crop plantings are adjacent to the levees due to their higher elevation, better drainage and better soils. This means that the drain tiles that are under most of permanent crops planted in the delta are right next to the tributaries. Drain tiles are typically installed at 6 to 10 feet deep, depending on soil type, crop type, groundwater table elevations and topography (drainage). The drain tile function is to reduce the groundwater table elevations, creating a localized groundwater table depression to protect the soil and crops from groundwater elevations that are too shallow. The groundwater collected from the drain tile is transported via drainage pipes to the lower elevation drainage ditches that are located near the center of the islands and tracts. This necessary drain tile function creates the same increased hydraulic gradient from the island groundwater table from the surrounding tributaries as described in the preceding two comments on use of groundwater substitution water supplies and the resulting groundwater cone of depression and the Reclamation District pumping of drainage ditches to maintain groundwater table elevations. The impacts from the degraded groundwater quality from the BDCP operations will occur even more quickly with drain tile operation interactions than the impacts to shallow groundwater quality described in the two preceding comments. Degraded surface water quality from the BDCP operations will be pulled into the shallow groundwater table where the drain tiles are functioning in the same manner as described in the previous two comments. The drain tiles will collect this degraded quality groundwater and drain the water to the main drainage ditches. These drainage ditches are also water supply ditches that are pumped out of to irrigate other fields. These central drains/water supply ditches is how water supply is delivered to most fields that are in the interior of the islands and tracts. Through the function of the drain tile and drainage of those systems into the water supply ditches in the middle of the islands and tracts, the degraded shallow groundwater from BDCP operations have now been translated back into additional impacts to water quality of surface water supplies for the interior fields. As mentioned previously, because of the proximity of the drain tiles to the tributaries and the function of the drain tile to translocate the drainage water to the main ditches, this mode of impact could occur very quickly, e.g. the first year of degraded surface water quality from the BDCP operations. The scope of this impact is not small either.

	comment continued…	Most of the islands and tracts, with the exception of some of the most interior delta and lowest elevation islands, are ringed by permanent crop plantings at their outside edges. Cumulatively, these represent several hundred miles of tributary length that have drain tiles installed adjacent to them. The BDCP failed to identify, evaluate, quantify or disclose the significant impacts of degraded shallow groundwater quality in the delta and the translation of that shallow groundwater quality degradation into a subsequent degradation of additional surface water supply water quality that would be caused by the BDCP proposed operations. The BDCP can avoid this significant impact to groundwater quality by adopting operations that do not degrade the surface water quality. The BDCP can minimize this significant impact to groundwater quality by building toe drains at the base of the levees surrounding the affected islands and providing for and maintaining drainage operations that intercept and prevent the movement of degraded surface water quality into the island's groundwater. The BDCP can further minimize this significant impact by providing for and maintaining sump pumps for the tail water coming out of the drain tile systems. The sump pump would discharge the drain tile water back into the tributary rather than letting the degraded shallow groundwater contaminating the surface water supplies at the main drain/water supply ditches. The use of sump pumps on drain tile systems is a common practice in the southern central valley as the topographic gradients are not sufficient to allow drain tile function without the sump pumps. Because the use of sump pumps on drain tile systems is common practice in the CVP/SWP service areas, the BDCP cannot claim that there are no feasible, practicable measures to avoid, minimize or mitigate this significant impact of the BDCP proposed operations.
	BDCP will dewater groundwater around intake, tunnel headworks and tunnel access construction sites which will collapse water bearing strata in the soil.	Once clay soil water bearing strata are collapsed, they do not recover their structure, water holding capacity or their previous soil volume. This collapse results in a permanent subsidence of the ground surface, which can damage structures and levees, alter drainage patterns and groundwater depth. Inadequate drainage from subsidence and elevated water tables alter the suitability of soil for agriculture and its productivity. Land subsidence can affect some agricultural resources such as surface and groundwater drainage and flow capacities of drainage and water supply conveyances. Reductions in surface drainage and disruptions of drainage and water supply infrastructure result in a reduction in productivity of agricultural lands. This alteration of drainage and productivity will cause a reclassification of a prime productivity soil to a lower rating which is a significant impact of the project. Changes of soil ratings at the construction dewatering sites was not identified, evaluated or disclosed in the BDCP EIR/S document. The BDCP needs to mitigated these impacts by fixing any disruptions or reductions in capacity to agricultural drainage and water supply systems. Subsided ground can be mitigated by raising subsided areas by imported soils and land leveling.
	The tunnel spoil disposal area on Andrus Island disrupts the main Reclamation District drainage and irrigation supply ditch.	Erosion from tunnel muck disposal areas will add additional siltation load to the agricultural drainages and result in increased frequency of required dredging. The BDCP can avoid this impact by not citing tunnel muck disposal areas near ag drainage, by designing erosion catchments surrounding the tunnel muck disposal areas and by paying the Reclamation districts for the increased frequency of ditch dredging. The tunnel spoil disposal area on Andrus Island is adjacent to Wilson Farms pear and cherry packing houses and orchards. Dust from the tunnel spoils will cause quality problems with the fruit and become a human health issue from dust particulate exposure at those facilities. Other tunnel muck disposal sites will affect agricultural production adjacent to them resulting in reduced yields and quality. Contamination from tunnel muck erosion into the agricultural drains may cause drain water quality to be degraded which could result in potential discharge or treatment requirements. The BDCP can minimize this impact by treating the drain water in areas surrounding the tunnel muck disposal sites to meet SWRCB water quality discharge requirements.
	BDCP executive summary of mitigation actions - "Deplete groundwater supplies or interfere with groundwater recharge, alter local groundwater levels, reduce the production capacity of preexisting nearby wells, or interfere with agricultural drainage as a result of implementing CM2–CM22"	Mitigation GW-5: Agricultural lands seepage minimization - The BDCP EIR/S determined that the remaining impacts after mitigation is significant and unavoidable. In reality, the entirety of the impact can be mitigated with sufficient effort, so the BDCP is just trying to avoid spending money to fix the problems that the project created.

	Habitat restorations in the Yolo Bypass, Cache Slough Complex, central delta, and eastern delta result in loss of winter cattle grazing range.	Loss of grazing opportunities in the Delta will effect high sierra summer grazing operations and affect the local economies in these other geographic areas. The BDCP analysis failed to identify, evaluate or disclose this impact.
	The BDCP project footprint (facilities and habitat restorations) removes high Storie Index lands in the Delta.	The BDCP destroys highly productive land in the delta so that lower productivity lands in the CVP/SWP service area south of the delta which are lower Storie index ratings than the delta can be irrigated. The BDCP analysis failed to provide an analysis of how many acres of each Storie Index class were destroyed and how many were sustained as a result of the project. The BDCP needs to utilize California Agricultural Land Evaluation and Site Assessment (LESA) Model, the USDA Land Capability Classification, and the Storie Index to quantify BDCP impacts to agricultural lands. The use of these models and analytical approaches is well established and accepted.
	New open water areas from the BDCP forebays and habitat restorations increases localized humidity.	Increased localized humidity increases the frequency, duration and magnitude of mildew infestations in agricultural crops grown in the vicinity of these new BDCP open water areas. Delta crops grown in proximity to the BDCP open water areas that are particularly susceptible to mildew and will require increase mildew control costs as well as suffer reductions in crop quality and yields. These mildew susceptible crops include: wine grapes, melons, blueberries, cucumbers, squash, pears, apples. Other higher humidity associated agricultural pests and diseases also will increase as a result of the BDCP project. These other higher humidity associated pests and diseases include: Eutypa and botrytis (in grapes), smut (in corn), rusts (most crops), Alternaria (almonds), and many other common production problems. The presence of the BDCP open water features will increase the frequency, magnitude and duration of these humidity-related production problems, increase control costs, and reduce crop quality and yields. BDCP can avoid this significant impact by locating open water features away from crops that are sensitive to higher humidity's, minimize impacts by reducing the size of the open water or by covering the open water and can mitigate the remaining impacts by paying the growers for increased control costs and for lost crop quality and yields.
	BDCP has proposed installation of fish screens onto unscreened agricultural diversions.	BDCP implemented screens may result in a reduction in diversion capacity, operational constraints on flow conditions in which diversions can occur, increased pumping energy costs, and increased maintenance and associated labor costs. BDCP can minimize some of these impacts through appropriate designs that specifically address these issues. BDCP can mitigate the other impacts by paying for increased costs for power and maintenance in perpetuity rather than the 50 year span of the project. To ensure that funding for this mitigation is available in perpetuity, BDCP needs to fund a trust so that it becomes self funding through interest payments.
	Historical increases of salt water intrusion in the Delta region allowed the teredo, a saltwater worm, to thrive and destroy piers and ships in Suisun Bay.	The BDCP EIR/S analysis did not evaluate the property destruction that would occur with the increase in range, distribution and population levels of teredo that would result from the reduction in water quality and increased salt water intrusion that would result from the BDCP proposed operations. Many agricultural pumps in the delta are held up by wooden piers that would be significantly adversely affected in the event that the piers would be eaten by the teredo which would not and does not occur under current or no action conditions. The BDCP EIR/S should be revised to identify, characterize, evaluate and disclose this impact of the BDCP project and alternatives.
	There are indirect and cumulative impacts to agriculture from BDCP project effects on the supporting infrastructure.	The BDCP project footprint reduces the number of producing agricultural acres in the delta. Reduced acreage affects agricultural supporting industry costs and viability. Packing houses require a minimum critical mass in terms of local producing acres of a crop. If the number of acres for the crop is reduced in the service proximity of the packing house, the packing operation is no longer economically viable. The same is true for agrichemical distributors, box suppliers, trucking companies, workers, and other supporting industries. The BDCP analysis fails to identify, evaluate or disclose these other agricultural resource impacts to viability and productivity.
	The BDCP increases transit costs for agriculture.	BDCP reroutes roads for facilities and habitat restorations which changes to property access and distances traveled. The BDCP needs to analyze the increased travel distance impacts for each affected owner and operator in the delta and compensate them in perpetuity for these increased costs.

	Construction staging areas would suffer permanent impairment of soil productivity.	The staging areas will be compacted and loose soil structure (deflocculated). The activities in these areas will be so intense and the damage so severe that the agricultural productivity of the temporary construction and staging areas will never recover. This aspect of the impacts of the BDCP were not identified, evaluated or disclosed. This BDCP significant impact can be minimized by reducing the size of the construction staging areas, and by using these areas for tunnel muck disposal and for intake sediment disposal.
	Yolo Bypass is seasonally inundated under current conditions for flood control operations. Current effects from flood control operations agricultural resources are addressed by Flood Easements on the effected agricultural properties. Current flood easements do not cover the activity to flood properties for habitat creation purposes. The current BDCP proposed habitat inundation is not specific enough to allow full analysis of the impacts to agriculture (even though this action is part of the No Action/No Project).	The BDCP does not identify measures to minimize the impact of the Yolo Bypass habitat restoration flows on agriculture, nor does it address how the issue of flooding a property for habitat restoration will be addressed under new easement agreements. The BDCP can minimize Yolo Bypass habitat restoration flow impacts on agriculture by managing floodplain inundation to ramp down flows (and inundated area) to reduce fish stranding and to bring flows to normal (pre-habitat restoration) flow levels by the end of the inundation period. The inundation period as described in the No Action and Alternative 4 is completed at the end of April. Ramping down the flows prior to the end of the inundation period will reduce the amount of area affected by inundation and reduce the duration of inundation delays to agricultural production thereby reducing the amount of change to agricultural productivity. The BDCP can design floodplain inundation flows to be sensitive to flow thresholds that inundate large increments of land area. The BDCP can manage flows below flow thresholds that inundate large areas of land prior to the end of March to avoid changes to agricultural productivity in higher flow inundated areas. Floodplain restoration should acknowledge that farmland (especially land that the crop residue is allowed to stand) that is inundated provides high quality salmonid rearing and Sacramento splittail spawning and rearing habitat. Conversion of farmland into permanent fallow is not necessary to achieve the goals of the floodplain restoration. Growers on potentially inundated farmland should be encouraged or compensated (easements for specific cropping practices) to leave crop residue on the fields to enhance the floodplain habitat quality and productivity. This measure shoul reduce the total amount of farmland converted to non-agricultural land uses. Ground preparation for planting in the Yolo Bypass are initiated as early March and from the time the land is drained from inundation the ground requires about 2 weeks to dry down to a workable condition (depending on weather). The result of the increase in the frequency of inundation to the end of April will result in an increase in the frequency of changes in agricultural operations to adjust to later season land inundation. Adjustments to agricultural operations to address later season land inundation include: prioritization of land preparation to prepare affects lands last or later and changes in crop selection to crops that are planted later in the season (usually less profitable). Seasonal inundation that ends at the end of April as a result of this action, should not affect rice production and yields as rice planted prior to the beginning of June does not typically suffer yield losses associated with planting date. Cattle grazing begins in the Yolo Bypass in late April, so the productivity of inundated pasture land may be reduced from the increased frequency and duration of inundation. The inundated ground will require time to dry out and to grow forage prior to the land being suitable for cattle grazing.
	Yolo Bypass conservation measure diversion operations and inundation were not defined sufficiently such that they could be incorporated in modeling and the surface water impact analyses.	The BDCP lack of definition of Yolo Bypass conservation flow rules for how much, when and under what conditions supplemental inundating flows would be released by the BDCP into the bypass to not provide detail to include in modeling (water supply, surface water and water quality impacts) or in land use impact analysis (agriculture and recreation). Yolo bypass operations were not defined sufficient to include in CALSIM modeling assumptions and CALSIM II has an inadequate analytical output temporal resolution to be of sufficient detail to evaluate the impacts of Yolo Bypass diversion flows. Timing, duration and magnitude of BDCP Yolo Bypass inundation flows are required in order for impacts on agriculture need to be defined enough to evaluate the magnitude, frequency, duration and geographic extent of impacts. Until the BDCP provides the detailed operating rules for the Yolo Bypass conservation measure inundation operations, the BDCP EIR/S impact analysis will remain incomplete and deficient with undisclosed impacts.
	The BDCP includes 8,000 acres of tidal habitat restoration. This tidal habitat restoration is assumed to be created from the conversion of agricultural lands into habitat.	This would be considered a permanent retirement of 8,000 acres of current agricultural lands unless the restoration occurs in total or in part on public lands which are not currently in agricultural production or utilized for grazing.

	The BDCP fails to identify, evaluate or disclose the on-going direct, indirect and cumulative affects of continuation of operation of the CVP/SWP on salt accumulation in soils in the CVP/SWP service area.	The continuation of salt accumulation in soils in the No Action alternative is anticipated to reduce the productivity of some farmlands that are specifically vulnerable to salt accumulation (poorly drained and/or low infiltration rate soils). This salt accumulation would occur primarily in the CVP/SWP service areas that are supplied by diversions from the Sacramento – San Joaquin Delta and in areas that exhibit salt accumulation under the current Affected Environment. In some cases where salt accumulation is acute under the current Affected Environment, continued salt accumulation that would occur in the No Action could result in farmland becoming unsuitable for agricultural production and result in permanent retirement of that farmland.
	Continuation of operations of the CVP/SWP and continuing variability of water supplies will result in continued use and overdraft of groundwater resources as an alternative/supplemental water supply for agriculture.	Continued use of groundwater (which is almost always a lower water quality than surface water quality) as an alternative or supplemental water supply will result in the continuation of accumulation of salts in soils. The continuation of salt accumulation in soils will reduce the productivity of some farmlands that are specifically vulnerable to salt accumulation (poorly drained and/or low infiltration rate soils). This salt accumulation would occur primarily in the CVP/SWP service areas that are supplied by diversions from the Sacramento – San Joaquin Delta and in areas that exhibit salt accumulation under the current Affected Environment. In some cases where salt accumulation is acute under the current Affected Environment, continued salt accumulation will result in farmland becoming unsuitable for agricultural production and result in permanent retirement of that farmland.
	Continuation of operations of the CVP/SWP will result in a continued overdraft of groundwater in the CVP/SWP service areas	Utilization of groundwater as an alternative/supplemental water supply due to continued variations in CVP/SWP water deliveries occurring in the Proposed Project will result in continued, and in some cases, new areas of land subsidence. Land subsidence can affect some agricultural resources such as surface and groundwater drainage and flow capacities of drainage and water supply conveyances. Reductions in surface drainage and disruptions of drainage and water supply infrastructure could result in a reduction in productivity of some agricultural lands. Under areas in the CVP/SWP service area where farmland is only marginally suitable under the current Affected Environment conditions could result in farmland becoming unsuitable for agricultural production (resulting in permanent land retirement) under the Proposed Project alternative. The BDCP can avoid these significant impacts if the contracted water delivery amounts are adjusted to a level that can be reliably delivered under all water year types and hydrologic conditions. By reducing the amount of water commitment to a level that can always be delivered, the growers will adapt their operations to that level of water and will discontinue the use of the groundwater as an alternative because, according to regional water master plans, the use of the groundwater on any prolonged (8 years in a row or more) is not economically sustainable.
	GW-2: During operations, deplete groundwater supplies or interfere with groundwater recharge, alter local groundwater levels, or reduce the production capacity of preexisting nearby wells	The BDCP forebays will raise water tables in properties adjacent to them. Water tables that are elevated into the root zones of the crops creates water logging, a reduction in soil oxygen exchange, adds service load to drain tile systems and wicks salts into the root zone. If water tables are raised into the root zone of crops for more than a few weeks during the dormant season or for any duration any other time of year, the permanent crop will not longer be viable in that location. If salt wicking from the raised water table increases soil Electrical Conductivity (EC) sufficiently, yield losses will occur. If EC values are raised to a higher level, certain salt sensitive crops will no longer be viable to grow on that land. If EC values are raised to an even higher level, the land may not be suitable to grow any crop and is therefore effectively converted from agricultural production to non-agricultural land uses which is a significant impact. Water table increase impacts from BDCP aquatic and wetland habitat restorations can be avoided, minimized and mitigated by: using geotechnical fabrics on habitat levees to reduce seepage to adjacent properties, using slurry walls in levees to prevent and reduce groundwater migration, use of toe drains outside of habitat restoration levees and install shallow groundwater wells in areas with increased water tables. The toe drains and shallow groundwater wells would need to be pumped out to draw down the water tables on the affected lands.

	GW-6: Deplete groundwater supplies or interfere with groundwater recharge, alter local groundwater levels, reduce the production capacity of preexisting nearby wells, or interfere with agricultural drainage as a result of implementing CM2–CM22	The BDCP aquatic and wetland habitat restorations will raise water tables in properties adjacent to them. Water tables that are elevated into the root zones of the crops creates water logging, a reduction in soil oxygen exchange, adds service load to drain tile systems and wicks salts into the root zone. If water tables are raised into the root zone of crops for more than a few weeks during the dormant season or for any duration any other time of year, the permanent crop will not longer be viable in that location. If salt wicking from the raised water table increases soil Electrical Conductivity (EC) sufficiently, yield losses will occur. If EC values are raised to a higher level, certain salt sensitive crops will no longer be viable to grow on that land. If EC values are raised to an even higher level, the land may not be suitable to grow any crop and is therefore effectively converted from agricultural production to non-agricultural land uses which is a significant impact. Water table increase impacts from BDCP aquatic and wetland habitat restorations can be avoided, minimized and mitigated by: using geotechnical fabrics on habitat levees to reduce seepage to adjacent properties, using slurry walls in levees to prevent and reduce groundwater migration, use of toe drains outside of habitat restoration levees and install shallow groundwater wells in areas with increased water tables. The toe drains and shallow groundwater wells would need to be pumped out to draw down the water tables on the affected lands.
	WQ-3: Effects on boron concentrations resulting from facilities operations and maintenance (CM1)	The BDCP EIR/S impact calls on the No Action are incorrect. CM1 does not exist in the No Action, therefore there would be No Impact. Any increase in Boron concentration is significant to the suitability of water supply for agricultural irrigation beneficial uses. This impact should be changed to significant.
	WQ-4: Effects on boron concentrations resulting from implementation of CM2–CM22	The BDCP EIR/S impact calls on the No Action are incorrect. CM2-22 do not exist in the No Action, therefore there would be No Impact. Any increase in Boron concentration is significant to the suitability of water supply for agricultural irrigation beneficial uses. This impact should be changed to significant.
	WQ-7: Effects on chloride concentrations resulting from facilities operations and maintenance (CM1)	The "Significant Unavoidable" and "Adverse" increase in chloride after mitigation as compared to the "Less-Than-Significant" impact of the No Action Alternative is an unacceptable degradation of the beneficial uses of water in the delta. Chloride is an important water quality constituent for irrigation water. A project that has this kind of "Significant Unavoidable" and "Adverse" impact should not be allowed to be implemented, especially when the impact is not precipitated in the No Action condition.
	WQ-11: Effects on electrical conductivity concentrations resulting from facilities operations and maintenance (CM1)	The No Action operations are required to comply with delta water quality standards that protect water quality and beneficial uses. These water quality standards include limits on electrical conductivity (EC) that are designed to protect sensitive resources from EC impacts. The No Action significant impact determination is correct as the current CVP/SWP operations routinely exceed these standards, see Affect Environment. The No Action would continue to violate these water quality protections and therefore the significant impact call by the BDCP EIR/S is warranted. The Proposed Project impacts are even worse than the No Action. Since the current and No Action CVP/SWP operations are in violation of water quality requirements and the Proposed Project results in a degradation of that condition, the project should not be awarded any permits as the project is in violation of the law. Any increase in EC concentration from the Proposed Project is significant to the suitability of water supply for agricultural irrigation beneficial uses.
	WQ-12: Effects on electrical conductivity (EC) concentrations resulting from implementation of CM2–CM22	The BDCP EIR/S impact calls on the No Action and Proposed Project are incorrect. CM2-22 do not exist in the No Action, therefore there would be No Impact/No Effect. Evaporation from the aquatic habitat restorations will result in a concentration of the EC levels, so this should be a significant impact. Any increase in EC concentrations is an unacceptable degradation of the beneficial uses of water in the delta. EC is an important water quality constituent for irrigation water and results in reduced yields, increase accumulation of salts in the soil, increased water use (for leaching irrigation component), soils that are unsuitable for production of salt sensitive crops and ultimately with continued accumulation of salts a soil that is unsuitable for any kind of agricultural production. Any increase in EC concentration from the Proposed Project is significant to the suitability of water supply for agricultural irrigation beneficial uses.
	WQ-21: Effects on pesticide concentrations resulting from facilities operations and maintenance (CM1)	The Proposed Project reduction in refreshment rate of water in the delta will reduce the assimilative capacity (per BDCP EIR/S water quality chapter conclusions). The reduced assimilative capacity will result in an increase in the magnitude, duration, frequency and geographic extent of water quality requirement (e.g. TMDL) exceedances. Since these water quality parameters are already in violation, the contribution of the Proposed Project operations will exacerbate these conditions. It is not the BDCP that will be fined and have further operational constraints placed upon them for these water quality violations, it will be the local farmers. The BDCP Proposed Project contribution to this problem is significant and adverse and therefore must be mitigated.

	WQ-22: Effects on pesticide concentrations resulting from implementation of CM2–CM22	The Proposed Project reduction in refreshment rate of water in the delta will reduce the assimilative capacity (per BDCP EIR/S water quality chapter conclusions). The reduced assimilative capacity will result in an increase in the magnitude, duration, frequency and geographic extent of water quality requirement (e.g. TMDL) exceedances. The aquatic habitat restorations create additional area and opportunity for pesticide spray drift to get into the water. The evaporation from the aquatic habitat restorations will further increase the pesticide concentrations. Since these water quality parameters are already in violation, the contribution of the Proposed Project operations will exacerbate these conditions. It is not the BDCP that will be fined and have further operational constraints placed upon them for these water quality violations, it will be the local farmers. The BDCP Proposed Project contribution to this problem is significant and adverse and therefore must be mitigated. A project that precipitates such a significant adverse impact when the No Action has no impact and no effect is a project that should not be implemented.
	WQ-23: Effects on phosphorus concentrations resulting from facilities operations and maintenance (CM1)	The Proposed Project reduction in refreshment rate of water in the delta will reduce the assimilative capacity (per BDCP EIR/S water quality chapter conclusions). The reduced assimilative capacity will result in an increase in the magnitude, duration, frequency and geographic extent of water quality requirement (e.g. TMDL) phosphorus exceedances. Since these water quality parameters are already in violation, the contribution of the Proposed Project operations will exacerbate these conditions. It is not the BDCP that will be fined and have further operational constraints placed upon them for these water quality violations, it will be the local farmers. The BDCP Proposed Project contribution to this problem is significant and adverse and therefore must be mitigated. A project that precipitates such a significant adverse impact when the No Action has no impact and no effect is a project that should not be implemented.
	WQ-24: Effects on phosphorus concentrations resulting from implementation of CM2–CM22	The Proposed Project reduction in refreshment rate of water in the delta will reduce the assimilative capacity (per BDCP EIR/S water quality chapter conclusions). The reduced assimilative capacity will result in an increase in the magnitude, duration, frequency and geographic extent of water quality requirement (e.g. TMDL) phosphorus exceedances. The evaporation from the aquatic habitat restorations will further increase the phosphorus concentrations. Since these water quality parameters are already in violation, the contribution of the Proposed Project operations will exacerbate these conditions. It is not the BDCP that will be fined and have further operational constraints placed upon them for these water quality violations, it will be the local farmers. The BDCP Proposed Project contribution to this problem is significant and adverse and therefore must be mitigated. A project that precipitates such a significant adverse impact when the No Action has no impact and no effect is a project that should not be implemented.
	WQ-25: Effects on selenium concentrations resulting from facilities operations and maintenance (CM1)	The Proposed Project reduction in refreshment rate of water in the delta will reduce the assimilative capacity (per BDCP EIR/S water quality chapter conclusions). The reduced assimilative capacity will result in an increase in the magnitude, duration, frequency and geographic extent of water quality requirement (e.g. TMDL) exceedances for selenium. Since these water quality parameters are already frequently in violation, the contribution of the Proposed Project operations will exacerbate these conditions. It is not the BDCP that will be fined and have further operational constraints placed upon them for these water quality violations, it will be the upstream farmers that discharge selenium in their ag drain water. The BDCP Proposed Project contribution to this problem is significant and adverse and therefore must be mitigated.
	WQ-26: Effects on selenium concentrations resulting from implementation of CM2–CM22	The Proposed Project reduction in refreshment rate of water in the delta will reduce the assimilative capacity (per BDCP EIR/S water quality chapter conclusions). The reduced assimilative capacity will result in an increase in the magnitude, duration, frequency and geographic extent of water quality requirement (e.g. TMDL) selenium exceedances. The evaporation from the aquatic habitat restorations will further increase the selenium concentrations. Since these water quality parameters are already in violation, the contribution of the Proposed Project operations will exacerbate these conditions. It is not the BDCP that will be fined and have further operational constraints placed upon them for these water quality violations, it will be the upstream farmers that discharge selenium in their ag drain water. The BDCP Proposed Project contribution to this problem is significant and adverse and therefore must be mitigated. A project that precipitates such a significant adverse impact when the No Action has no impact and no effect is a project that should not be implemented.

	WQ-27: Effects on trace metal concentrations resulting from facilities operations and maintenance (CM1)	The Proposed Project reduction in refreshment rate of water in the delta will reduce the assimilative capacity (per BDCP EIR/S water quality chapter conclusions). The reduced assimilative capacity will result in an increase in the magnitude, duration, frequency and geographic extent of water quality requirement (e.g. TMDL) exceedances for trace metals. Since these water quality parameters are already frequently in violation, the contribution of the Proposed Project operations will exacerbate these conditions. It is not the BDCP that will be fined and have further operational constraints placed upon them for these water quality violations, it will be the upstream farmers and M&I dischargers. The BDCP Proposed Project contribution to this problem is significant and adverse and therefore must be mitigated.
	WQ-28: Effects on trace metal concentrations resulting from implementation of CM2–CM22	CM2-22 do not exist in the No Action, therefore there would be No Impact/No Effect. The Not Adverse and Less-Than-Significant impact calls are in conflict. If the CEQA call is correct, then the NEPA call can't be Not Adverse, it must be Adverse.
REUSABLE TUNNEL MATERIAL TESTING Report -section 2.3.1	Environmental testing did not include all of the relevant compounds that should have been tested for.	As an example, the tests had a category for "soluble metals". This is such a broad category as to be useless in a meaningful environmental analysis of agricultural impacts. Metal concentrations in soils can be toxic to plants and soil microbes. The amount of metal that can create impacts varies by the metal type and the form of the metal. This soluble metals testing category is not useful to determine the potential impacts of the tunnel muck disposal on the agricultural land productivity or suitability. The samples should have been tested for a broad panel that encompassed Boron, Chromium, Lead, Zinc, Iron, and others so that the impacts of tunnel muck disposal could be evaluated. Testing panels should have also included other compounds such as salts so those impacts could have been evaluated and disclosed. The testing of the samples should be redone to include these other important constituents and the EIR/S revised to evaluate, quantify, disclose and mitigate for the impacts associated with the chemical constituent impacts of the tunnel muck materials proposed by the BDCP.
REUSABLE TUNNEL MATERIAL TESTING Report -section 3.1.3	The water permeability of the polymer treated samples is much lower than the untreated samples.	The water infiltration rate of the treated tunnel much is much lower than the untreated materials. The analysis should also have included a comparison to the infiltration rates of the soils that would be covered by the tunnel much disposal to determine the impacts to soil suitability for agriculture, habitat, groundwater recharge, surface erosion, cumulative drainage, and surface water drainage quantity and quality. The BDCP EIR/S failed to conduct these assessments on the impacts of the infiltration rates of the tunnel muck disposal.
REUSABLE TUNNEL MATERIAL TESTING Report - page 3-8	"To expedite drying and reduce soil plasticity, high-calcium quicklime could be added, as demonstrated by the laboratory test results in Table 3-2. However, because the addition of quicklime elevates pH values, lime-treated soil should be kept away from areas where plant growth is desirable."	The BDCP EIR/S failed to identify, characterize, evaluate, quantify or disclose this impact to agricultural lands productivity. Most plant species cultivated for agriculture in the delta require soils pH that are between 6 to 8. Any pHs resulting from the project outside of this range will result in either crops that will wither and die or have severe nutrient availability issues which will reduce yields. Altered pH soils will favor colonization of exotic and invasive plant species which increases weed pressure on adjacent agricultural properties and develops non-native habitat/species colonization characteristics. The BDCP EIR/S needs to be revised to evaluate, quantify, minimize and mitigate this significant impact in tunnel muck disposal areas.
REUSABLE TUNNEL MATERIAL TESTING Report - page 3-23	"A comparison between the planting suitability test results on baseline and conditioned soil samples are presented"	The impact assessment methodology is flawed as the NEPA and CEQA basis for comparison should be against the soil properties that currently exist (would exist in the future without the project), not against the untreated tunnel muck material as the report has done. The soil properties of the locations the BDCP has proposed for tunnel muck disposal should be used as the basis of comparison to the BDCP proposed tunnel muck treated materials. The EIR/S analysis should be revised to include this correct comparison to meet the requirements of NEPA and CEQA.
REUSABLE TUNNEL MATERIAL TESTING Report - page 3-24	"The safety of human or animal consumption of agricultural crops grown in the conditioned soil was outside the scope of this study and Agriculture would be required to evaluate this issue further."	This report identifies that the analysis is incomplete. The BDCP EIR/S does not even include the analysis in the report, so the EIR/S is even more incomplete and therefore deficient. The EIR/S should be revised to include the information that the report identifies as being required in order to be complete and warrant consideration of issuance of permits.

REUSABLE TUNNEL MATERIAL TESTING Report - page 263	Nitrate/Nitrite Sample Holding Time: "Samples were out of prescribed holding time upon resolution of discrepancies and were received without thermal preservation. The samples were analyzed upon client advice to proceed with the analysis."	The report admits the samples were mishandled and did not comply with proper procedures and that the samples were processed and results used anyway. It is nice they disclosed this profound defect in the report in an appendix on page 263. There was no mention of this severe limitation in the usefulness of the results in the data presentation and analysis in the main report. In short, none of the sample handling protocols were followed and none of these results should be relied upon for any purpose. This whole report falls woefully short of "best available", let alone "good" or even "proficient" science.
Chapter 15 - Recreation		
	Previous CVP/SWP related environmental documents have utilized more comprehensive significance criteria to evaluate project impacts than were used in the BDCP EIR/EIS. Other recent CVP/SWP and habitat restoration related environmental documents establish precedent for how the State and Federal agencies should evaluate the BDCP impacts.	These agency precedent setting environmental documents include: CALFED Bay-Delta EIS/EIR (Federal agencies: Reclamation, FWS, NMFS, BLM, USGS, USACE, US EPA, USDA, USFS, NRCS, and WAPA; State agencies: DWR, DFG, Reclamation Board, Cal EPA, CDFA, Delta Protection Commission and SWRCB), South Delta Improvement Project EIS/EIR (Federal Lead Agency: Reclamation; State Lead Agency: DWR; Responsible Agencies: SWRCB and DFG; Cooperating Agency: USACE), Salton Sea Restoration Program EIS/EIR (Federal Lead Agency: USACE; State Lead Agency: California Natural Resources Agency; Prepared by: DWR and DFG), Lower Yuba River Accord EIS/EIR (Federal Lead Agency: Reclamation; Responsible Agencies: DWR, DFG, and SWRCB; and Cooperating Agencies: NMFS and FWS), Oroville Facilities FERC Relicensing EIR (State Lead Agency: DWR), and Monterey Agreement EIR (State Lead Agency: DWR). The same agencies that produced and approved these other recent and similar scope project environmental documents are the same agencies involved in the BDCP. The BDCP's agency roles for the environmental documents are similar to these other projects - Federal Leads: Reclamation, NMFS and FWS; State Lead: DWR; Responsible Agencies: DFG and SWRCB; and, Cooperating Agencies: USEPA and USACE. These documents establish a precedent for the significance criteria that should be used in evaluating the resource impacts of the BDCP project. If the BDCP does not utilize these same significance criteria as these other similar projects, then BDCP must provide a supporting justification for their departure from previous agency policies and practices. BDCP should revise the document to include all aspects of the significance criteria for their impact evaluations that were established as agency precedents in these other recent and similar documents. Subsequent comments identify these missing criteria.
	Changes in fresh water flows in rivers and the Delta during the recreational season. (CALFED Sig Criteria)	Operation of the Delta Cross Channel locks will block recreational boating in the delta. Temporary barriers and fish behavioral modification devices proposed in BDCP other stressors conservation measures create a boating and contact recreation hazard.
	Changes of river temperature that reduce recreational swimming, tubing, canoeing, kayaking, and rafting. (CALFED Sig Criteria)	Reoperation of upstream of delta tributaries will result in some water temperature and flow changes that can be hazards to swimming and boating safety.
	Temporary restriction of recreation activities due to construction. (CALFED Sig Criteria)	There will be large no boating, fishing, and swimming zones around the intake facilities as they are constructed. Their will be a permanent smaller permanent loss of these activities near these facilities during the entire project period (50 years).
	Conversion of recreation facilities to other uses. (CALFED Sig Criteria)	Intake #3 will cause backwater effects that alter the inundation of the boat launch and park at Merritt Landing. This increased frequency, magnitude and duration of inundation that forces the park closure results in an adverse change in the use of these recreation facilities.
	Changes in aesthetic conditions that could affect visitor appreciation of an area. (CALFED Sig Criteria)	The BDCP intake and tunnel headworks facility pump operations are loud. Sound carries farther and louder over water and bounces back and forth between the levees. Intake noise will disrupt contact and non-contact recreation activities on the Sacramento River for miles adjacent to the facilities. This impact can be minimized and avoided by a design of the intake pumping plants so they are protected by levees to get them out of the flood plain rather than the current BDCP design of having them on raised platforms.
	Changes in fishing or hunting opportunities. (CALFED Sig Criteria)	No fishing and boating zones around intake #3 reduces recreational opportunities at Merritt Island Park and Boat Launch. This impact can easily be minimized by relocating this facility to avoid being adjacent to the park.
	BDCP CVP/SWP operational changes impact reservoir drawdown which were not included in BDCP analysis.	The BDCP also failed to identify and evaluate the visual and aesthetic impacts of operational changes in the rate and timing of reservoir drawdown's. Increased rate of reservoir drawdown's will result in earlier and more frequent dewatering of boat ramps.

	Backwater affects of intake #3 encroachment on the Sacramento River cross section would increase the frequency, magnitude and duration of flooding of the Merritt Island Park and Boat Launch.	This redirected flow impact reduces recreational opportunities in the area. See related comments on backwater effects of intakes.
	BDCP adversely affects recreational boating in the delta.	Barges and barge loading areas impede and are a hazard for recreational boating. Impacts to recreation boating from intakes can be reduced by setting back intakes into the levees and avoiding adjacency to parks and boat ramps.
	Large expanses of open water from subtidal and intertidal habitat restorations create new large waves which are hazards to boating recreation and impediments to navigation.	The BDCP is proposing 65,000 acres of aquatic habitat restoration. This represents over 100 square miles of open water that can generate large waves. As an example of open water area large wave impacts, Franks Tract is a small flooded island just south of the San Joaquin River. Franks Tract is a notorious boating hazard in the delta for large waves during high wind events (common in the Central delta) and has been responsible for swamping and damaging many recreational boats. Waves from Franks Tract can impede and even prohibit navigation in the area (including the San Joaquin Deep Water Ship Channel) for any vessel smaller than an ocean going boat. The BDCP proposes aquatic habitat restoration areas of open water that are 20 times the size of Franks Tract. BDCP must avoid and minimize this problem created by their proposed aquatic habitat restorations by providing specific aquatic habitat restoration designs to avoid, minimize and mitigate these significant impacts. These avoidance and minimization measures could include barrier islands to break up open areas and absorb wind and waves. The BDCP should have analyzed this impact and proposed measures to avoid, minimize and mitigate this affect.
	Historical increases of salt water intrusion in the Delta region allowed the teredo, a saltwater worm, to thrive and destroy piers and ships in Suisun Bay.	The BDCP EIR/S analysis did not evaluate the property destruction that would occur with the increase in range, distribution and population levels of teredo that would result from the reduction in water quality and increased salt water intrusion that would result from the BDCP proposed operations. Many recreational piers in the delta are held up by wooden piers that would be significantly adversely affected in the event that the piers would be eaten by the teredo which would not and does not occur under current or no action conditions. there are many wooden boats that would also be significantly impacted by the BDCP. The BDCP EIR/S should be revised to identify, characterize, evaluate and disclose this impact of the BDCP project and alternatives.
	WQ-19: Effects on pathogens resulting from facilities operations and maintenance (CM1)	The BDCP EIR/S impact calls on the Proposed Project are wrong. The Proposed Project operations reduces the rate of turnover of water in the delta and reduces assimilative capacity (a conclusion from the Water Quality Chapter). Reduced rate of refreshment of water in the delta from the Proposed Project operations is further evidenced by the results of the DSM2 Particle Tracking Model. Increased nutrient loads (e.g. phosphates) and water temperatures that occur from the reduced refreshing of water in the delta from the Proposed Project will result in an increase in the frequency, magnitude, duration and geographic extent of algal blooms. Excess carbon and nitrogen, which the previous impact discussions have disclosed the Proposed Project increases, also contribute to algal blooms (http://en.wikipedia.org/wiki/Algal_bloom). The increase in the magnitude, duration, frequency and geographic extent of harmful algal blooms (HAB) will be significantly increased under the Proposed Project operations due to reduced refreshing of water in the delta and the resulting increase in nutrient loading. The HAB creates toxins that are poisonous to humans through water supply and contact recreations. HAB is also harmful to fish and aquatic bird species. The BDCP aquatic habitat restorations will also cause in increase nutrient concentrations and water temperatures and which result in an increase in the rate and severity of algal blooms and therefore also significantly adversely impact DO. The impacts on algal blooms from the Proposed Project operations and aquatic habitat restorations act in combination together, so the impacts will be worse than the additive impacts of each. This is a significant and adverse impact and the impact call should be changed to reflect this. Any impact call change is a material change to the document and therefore the draft document should be recirculated.

	WQ-20: Effects on pathogens resulting from implementation of CM2–CM22	The BDCP EIR/S impact calls on the Proposed Project are wrong. The Proposed Project operations reduces the rate of turnover of water in the delta and reduces assimilative capacity (a conclusion from the Water Quality Chapter). Reduced rate of refreshment of water in the delta from the Proposed Project operations is further evidenced by the results of the DSM2 Particle Tracking Model. Increased nutrient loads (e.g. phosphates) and water temperatures that occur from the reduced refreshing of water in the delta from the Proposed Project will result in an increase in the frequency, magnitude, duration and geographic extent of algal blooms. Excess carbon and nitrogen, which the previous impact discussions have disclosed the Proposed Project increases, also contribute to algal blooms (http://en.wikipedia.org/wiki/Algal_bloom). The increase in the magnitude, duration, frequency and geographic extent of harmful algal blooms (HAB) will be significantly increased under the Proposed Project operations due to reduced refreshing of water in the delta and the resulting increase in nutrient loading. The HAB creates toxins that are poisonous to humans through water supply and contact recreations. HAB is also harmful to fish and aquatic bird species. The BDCP aquatic habitat restorations will also cause in increase nutrient concentrations and water temperatures and which result in an increase in the rate and severity of algal blooms and therefore also significantly adversely impact DO. The impacts on algal blooms from the Proposed Project operations and aquatic habitat restorations act in combination together, so the impacts will be worse than the additive impacts of each. This is a significant and adverse impact and the impact call should be changed to reflect this. Any impact call change is a material change to the document and therefore the draft document should be recirculated.
Chapter 16 - Socio-economics		
	Previous CVP/SWP related environmental documents have utilized more comprehensive significance criteria to evaluate project impacts than were used in the BDCP EIR/EIS. Other recent CVP/SWP and habitat restoration related environmental documents establish precedent for how the State and Federal agencies should evaluate the BDCP impacts.	These agency precedent setting environmental documents include: CALFED Bay-Delta EIS/EIR (Federal agencies: Reclamation, FWS, NMFS, BLM, USGS, USACE, US EPA, USDA, USFS, NRCS, and WAPA; State agencies: DWR, DFG, Reclamation Board, Cal EPA, CDFA, Delta Protection Commission and SWRCB), South Delta Improvement Project EIS/EIR (Federal Lead Agency: Reclamation; State Lead Agency: DWR; Responsible Agencies: SWRCB and DFG; Cooperating Agency: USACE), Salton Sea Restoration Program EIS/EIR (Federal Lead Agency: USACE; State Lead Agency: California Natural Resources Agency; Prepared by: DWR and DFG), Lower Yuba River Accord EIS/EIR (Federal Lead Agency: Reclamation; Responsible Agencies: DWR, DFG, and SWRCB; and Cooperating Agencies: NMFS and FWS), Oroville Facilities FERC Relicensing EIR (State Lead Agency: DWR), and Monterey Agreement EIR (State Lead Agency: DWR). The same agencies that produced and approved these other recent and similar scope project environmental documents are the same agencies involved in the BDCP. The BDCP's agency roles for the environmental documents are similar to these other projects - Federal Leads: Reclamation, NMFS and FWS; State Lead: DWR; Responsible Agencies: DFG and SWRCB; and, Cooperating Agencies: USEPA and USACE. These documents establish a precedent for the significance criteria that should be used in evaluating the resource impacts of the BDCP project. If the BDCP does not utilize these same significance criteria as these other similar projects, then BDCP must provide a supporting justification for their departure from previous agency policies and practices. BDCP should revise the document to include all aspects of the significance criteria for their impact evaluations that were established as agency precedents in these other recent and similar documents. Subsequent comments identify these missing criteria.
	If the project necessitates public service expenditures substantially in excess of revenues. (Salton Sea Sig Criteria)	The BDCP will reduce tax based revenues and in some cases increase the level of services needed. As an example, the local Fire and Law Enforcement Departments will have to respond to incidences related to the proposed facilities, e.g. fires, drowning, injuries, break-ins, vandalism, boating and swimming accidents at the intakes, etc. The BDCP increases burden on local services while reducing local tax revenue to support these services.
	Impacts were considered significant if construction and/or operation of the project alternatives would result in a substantial disruption of local businesses. (SDIP Sig Criteria)	The BDCP will condemn thousands of acres of farmland in the delta. Some businesses will be wiped out completely, others will be fragmented and reduced in size such that they are no longer economically viable. As an example, Greene and Hemly, Inc. a delta pear and apple grower with cold storage and packing house have direct construction impacts on as many as 5 of their properties in the various BDCP scenarios.

	Does the potentially affected community include minority or low-income populations? (Salton Sea Sig Criteria)	Most of the communities affected by the project in the delta are minority and low income. The project disproportionately affects these minority and low income populations.
	Whether the risk or rate of hazard exposure by minority population or low-income population to an environmental hazard exceeds or is likely to exceed the risk or rate to the general population or appropriate comparison group. (CALFED and SDIP Sig Criteria)	Minority farm workers will have greatest exposure and risk from mosquito borne West Nile Virus compared to any population segment (greater time exposure outdoors in the immediate vicinity of increased West Nile Virus risk from the project and a population that has less economic resources to pay for insect repellant).
	A substantial effect on income, output, or employment is defined as more than one-half of 1% of the region's baseline level. (CALFED Sig Criteria)	The BDCP proposes to convert over 10% of the surface area of the statutory delta from farming to habitat restoration. Few jobs will be created by the habitat restorations, but since the delta economy is almost exclusively agriculturally based, it is logical that (counting ag supporting industry) 10% of the jobs in the delta region would be lost as a result of this significant socioeconomic impact. The majority of the population that would be affect by this impact are economically disadvantaged minorities.
	BDCP converts land use from income producing properties to habitat which affects the local and regional tax base.	BDCP needs to determine changes to tax revenue, local government expenditures, and sales taxes resulting from removing specific lands from county tax rolls resulting from the construction, operation, and mitigation of conveyance facilities and habitat restorations.
	The economic impact calls (ECON-1 - ECON-18) in the EIR/S do not stand any test of reason or logic.	ECON-1 impact call claims that there is No Impact on temporary regional economics during construction of the conveyance. The CEQA impact call before mitigation is no impact and then the BDCP proposes to mitigate that non-impact and yet the NEPA impact call is adverse. These calls are clearly in conflict. Obviously construction traffic, noise, no-boating zones, housing conflicts or construction workers with availability of housing for migrant farm workers and other delta population will have an affect on delta economics during conveyance construction. The CEQA impact calls have no creditability nor do they stand up to even the most cursory examination. ECON-2 CEQA impact call on alt4 claims no impact on delta housing during construction of the conveyance. The BDCP must be guaranteeing that none of the construction workers will reside in the delta during project construction or their impact call is bogus. ECON-3 impact call claims no impact and Adverse/Beneficial on changes in community character. These impact calls are also bogus. According to the BDCP, installing three 5 story tall half mile long intake facilities that are as noisy as a jet engine and have bright security lighting in a very rural area and scenic highway supposedly has no impact. The NEPA impact call of beneficial is also fallacious as the number of jobs created for maintaining the conveyance will not be nearly as many jobs as have been displaced by the conveyance and the labor skill sets are different, so the people getting the jobs would not be the same people as the ones displaced by the project. There would be a handful of new jobs for people that are outside of the delta community and thousands of jobs lost by residents from the delta. This can hardly be considered overall beneficial by anyone's accounting, no matter how biased. ECON-4 are claimed by the BDCP EIR/S as no impact even though thousands of acres will no longer be paying local and regional taxes because they have been converted from tax paying and tax revenue generating entities to state and federal properties that do not pay or generate those revenues. ECON-5 the EIR/S falsely claims no impact on recreation economics from construction of the conveyance even though there will be no boating zones in recreation areas for barge loading, in-water work and conveyance water crossings. ECON-6 is also falsely claimed as no impact on agricultural economics from construction of the conveyance even though thousands of acres will be converted from prime, unique and regionally important farmland into construction staging, construction footprint, forebay, pumping plant and other conveyance facilities. ECON-8, 9, and 10 - same comments as ECON-2, 3 and 4. ECON-11, same comment as ECON-5. ECON-12, same comment as ECON-6. ECON-13, same comment as ECON-3. ECON-14, same comment as ECON-2. ECON-15, same comment as ECON-3. ECON-16, same comment as ECON-4. ECON-17, same comment as ECON-4. ECON-18, same comment as ECON-6. The BDCP must change these grossly inaccurate and unsupportable impact calls.

	Cost estimates provided by BDCP have proven to be unreliable.	The original contracted cost of the entire environmental planning process was approximately $10,000,000 and reportedly the environmental review/planning process has cost $220,000,000 to get to the Public Draft stage. This is a 2200% cost overrun and counting. Assuming the Public Draft is two thirds of the way to completing the process, the total cost overrun should be anticipated to be around 3,330+%. Why should the public rely upon DWR and Reclamation cost estimates for the construction of the tunnels at $25 billion? The $25 billion estimate does not include the cost of habitat restoration and mitigation (that includes running mitigation facilities in perpetuity). If the tunnel construction experiences the same cost overruns the environmental planning process is incurring, then the tunnel construction would come in around $830 billion. Would that construction cost stand a cost/benefit analysis? If the habitat restoration and mitigation components of the costs of the project also experience 3,330+% cost overruns, what reasonable certainty do the permit issuing agencies have that the project will be implemented and produce the magnitude of species benefits that warrant issuance of incidental take permits?
	Cost estimates provided by BDCP are incomplete.	Project cost estimates have not included the cost of acquisition of mitigation lands. The cost of mitigation of the footprint of construction and for the impacts of the habitat restoration need to be included. Most significantly, mitigation of the disruption of reclamation district/water district infrastructure from conveyance and habitat restorations has not been included. This mitigation to fix the disrupted reclamation/water district infrastructure is unquantifiable until the reclamation/water districts agree to the mitigation plan design as part of the 404 permit approval process.
	Direct tax revenues are not the only local and regional loss of revenue from the conversion of farmlands from the BDCP.	Other local revenue losses from the BDCP include: Williamson Act Subventions, special assessment zones (Reclamation Districts, special assessment debt and obligations (e.g. Mello-Roos Community Facilities Districts), properties with past-due tax liens, and other government services fees (e.g. levee maintenance, mosquito abatement, road maintenance, sanitation, public health, and environmental management).
Chapter 17 - Aesthetics		
	Previous CVP/SWP related environmental documents have utilized more comprehensive significance criteria to evaluate project impacts than were used in the BDCP EIR/EIS. Other recent CVP/SWP and habitat restoration related environmental documents establish precedent for how the State and Federal agencies should evaluate the BDCP impacts.	These agency precedent setting environmental documents include: CALFED Bay-Delta EIS/EIR (Federal agencies: Reclamation, FWS, NMFS, BLM, USGS, USACE, US EPA, USDA, USFS, NRCS, and WAPA; State agencies: DWR, DFG, Reclamation Board, Cal EPA, CDFA, Delta Protection Commission and SWRCB), South Delta Improvement Project EIS/EIR (Federal Lead Agency: Reclamation; State Lead Agency: DWR; Responsible Agencies: SWRCB and DFG; Cooperating Agency: USACE), Salton Sea Restoration Program EIS/EIR (Federal Lead Agency: USACE; State Lead Agency: California Natural Resources Agency; Prepared by: DWR and DFG), Lower Yuba River Accord EIS/EIR (Federal Lead Agency: Reclamation; Responsible Agencies: DWR, DFG, and SWRCB; and Cooperating Agencies: NMFS and FWS), Oroville Facilities FERC Relicensing EIR (State Lead Agency: DWR), and Monterey Agreement EIR (State Lead Agency: DWR). The same agencies that produced and approved these other recent and similar scope project environmental documents are the same agencies involved in the BDCP. The BDCP's agency roles for the environmental documents are similar to these other projects - Federal Leads: Reclamation, NMFS and FWS; State Lead: DWR; Responsible Agencies: DFG and SWRCB; and, Cooperating Agencies: USEPA and USACE. These documents establish a precedent for the significance criteria that should be used in evaluating the resource impacts of the BDCP project. If the BDCP does not utilize these same significance criteria as these other similar projects, then BDCP must provide a supporting justification for their departure from previous agency policies and practices. BDCP should revise the document to include all aspects of the significance criteria for their impact evaluations that were established as agency precedents in these other recent and similar documents. Subsequent comments identify these missing criteria.
	Result in long-term (that is, persisting for 5 years or more) adverse visual changes or contrasts to the existing landscape as viewed from areas with high visual sensitivity within 3 miles. The analysis also considered how many viewing sites would be affected. (CALFED Sig Criteria)	The BDCP facilities mar the visual landscape of the delta and the facility type and size are completely out of the aesthetic character of the delta. Construction staging area aesthetic impacts would last longer than 5 years. This impact can be minimized and avoided by a design of the intake pumping plants so they are protected by levees to get them out of the flood plain rather than the current BDCP design of having them on raised platforms. The height of the buildings would be reduced so they would not be as visible and levees would reduce their visibility. Constructing the facilities on the existing ground level behind ring levees would also minimize and avoid noise impacts from the facilities.

	Obstruct or permanently reduce visually important features that are in Variety Classes A and B, and can be viewed from visually sensitive areas. (CALFED Sig Criteria)	Hwy 160 is designated a scenic hwy and the intakes, settling ponds, tunnel pumping plant, forebays and tunnel access points substantially affect visual resources - these facilities are greatly outside of the character of their surroundings.
	Substantially damage scenic resources; (Salton Sea Sig Criteria)	The BDCP facilities mar the visual landscape of the delta and the facility type and size are completely out of the aesthetic character of the delta.
	Substantially degrade the existing visual character or quality of a site and its surroundings; (Salton Sea Sig Criteria)	The BDCP facilities mar the visual landscape of the delta and the facility type and size are completely out of the aesthetic character of the delta.
	Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area. (Salton Sea Sig Criteria)	The BDCP facilities security lighting will be bright and be visible for miles across the delta.
	The EPA's 404(b)(1) guidelines for Specification of Disposal Sites for Dredged or Fill Materials to have significant impact on aesthetic resources if they: Mar the beauty of natural aquatic ecosystems by degrading water quality, creating distracting disposal site, inducing inappropriate development, encouraging unplanned and incompatible human access, or by destroying visual elements that contribute to the compositional harmony or unity, visual distinctiveness, or diversity of an area; Adversely affect the particular features, traits, or characteristics of an aquatic area that make it valuable to property owners; or Degrade water quality, disrupt natural substrate and vegetation characteristics, deny access to or visibility of the resource, or result in changes in odor, air quality, or noise levels, thereby potentially reducing the value of an aquatic area to private property owners. (SDIP Sig Criteria)	The BDCP proposed tunnel muck disposal sites mar the beauty of natural aquatic ecosystems by degrading water quality, creating distracting disposal site, inducing inappropriate development, encouraging unplanned and incompatible human access, and by destroying visual elements that contribute to the compositional harmony and unity, visual distinctiveness, and diversity of an area; Adversely affect the particular features, traits, or characteristics of an aquatic area that make it valuable to property owners; and Degrade water quality, disrupt natural substrate and vegetation characteristics, deny access to or visibility of the resource, or result in changes in odor, air quality, or noise levels, thereby potentially reducing the value of an aquatic area to private property owners. The BDCP tunnel muck disposal sites meet all of the criteria used in the South Delta Improvement Project to determine significant impacts.
	Conflict with adopted visual resource policies. (SDIP Sig Criteria)	Highway 160 is designated a California Scenic Highway. The BDCP facilities will significantly impact the scenic nature of the road. With as many as 5 proposed facilities that are each a half mile long distributed over 10 miles of the river, 25% of the length of this scenic highway in this reach will be rerouted off of the current scenic route and obscured by BDCP facilities. With 5 large intake facilities that destroy the rural ambiance, no one could argue that this reach of the scenic highway would be designated scenic after the project is implemented.
	Substantially reduce the vividness, intactness, or unity of high-quality views. (SDIP Sig Criteria)	The BDCP facilities mar the visual landscape of the delta and the facility type and size are completely out of the aesthetic character of the delta.
	Introduce a substantial source of light and glare into the view shed. (SDIP Sig Criteria)	The BDCP facilities security lighting will be bright and be visible for miles across the delta.

	Conflict with local guidelines or goals related to visual quality. (SDIP Sig Criteria)	The BDCP did not evaluate if the project conflicted with local guidelines on visual quality. Previous similar documents have set the precedent that the BDCP lead agencies can and do evaluate this significance criteria and therefore the BDCP document is inconsistent with previous agency policies and procedures.
	Alter the existing natural view sheds, including changes in natural terrain. (SDIP Sig Criteria)	The intake facilities will be the tallest buildings in the delta and will block views of the river and down the river. This impact can be minimized by building the facilities at the existing ground level behind protective ring levees.
	Alter the existing visual quality of the region or eliminate visual resources. (SDIP Sig Criteria)	The BDCP did not evaluate if the project conflicted with local guidelines on visual quality. Previous similar documents have set the precedent that the BDCP lead agencies can and do evaluate this significance criteria and therefore the BDCP document is inconsistent with previous agency policies and procedures.
	Increase light and glare in the project vicinity. (SDIP Sig Criteria)	The BDCP facilities security lighting will be bright and be visible for miles across the delta. No other facilities in the delta have the security lighting that are comparable to even a small fraction of the light pollution that these facilities will be emitting. This impact can be minimized by utilizing security lighting that points down rather than out or up. Air traffic collision avoidance lights on the towers add to the light impacts and were not discussed or disclosed in the BDCP EIR/S document.
	Result in backscatter light into the nighttime sky. (SDIP Sig Criteria)	The BDCP facilities security lighting will be bright and be visible for miles across the delta. No other facilities in the delta have the security lighting that are comparable to even a small fraction of the light pollution that these facilities will be emitting. This impact can be minimized by utilizing security lighting that points down rather than out or up.
	Result in a deduction of sunlight or introduction of shadows in community areas. (SDIP Sig Criteria)	Late afternoon sun in the winter will cast a shadow from the surge towers that will reach the National Wildlife Refuge. This impact can be reduced by using larger diameter shorter surge towers and by relocating them farther away from the refuge.
	Obstruct of permanently reduce visually important features that are in Variety Classes A (high in vividness, intactness, unity) and B (moderate in vividness, intactness, unity), and can be viewed from visually sensitive areas. (SDIP Sig Criteria)	The two 40 diameter surge towers at the tunnel headworks will be 100 feet high and be within one mile of a National Wildlife Refuge and within 3 miles of the refuge Visitors Center. There is no terrain in the area except for levees, so this surge tower will become the most dominant visible feature in the region. The industrial smoke stack appearance of the surge towers could not be in greater conflict with the aesthetics of the National Wildlife Refuge and surrounding farmland scenery.
	Result in long-tern (persisting for 2 years or more) adverse visual changes or contrasts to the existing landscape as viewed from areas with high visual sensitivity within 3 miles. (SDIP Sig Criteria)	The two 40 diameter surge towers at the tunnel headworks will be 100 feet high and be within one mile of a National Wildlife Refuge and within 3 miles of the refuge Visitors Center. This impact can be reduced by using larger diameter shorter surge towers and by relocating them farther away from the refuge.
Chapter 18 - Cultural		

	Previous CVP/SWP related environmental documents have utilized more comprehensive significance criteria to evaluate project impacts than were used in the BDCP EIR/EIS. Other recent CVP/SWP and habitat restoration related environmental documents establish precedent for how the State and Federal agencies should evaluate the BDCP impacts.	These agency precedent setting environmental documents include: CALFED Bay-Delta EIS/EIR (Federal agencies: Reclamation, FWS, NMFS, BLM, USGS, USACE, US EPA, USDA, USFS, NRCS, and WAPA; State agencies: DWR, DFG, Reclamation Board, Cal EPA, CDFA, Delta Protection Commission and SWRCB), South Delta Improvement Project EIS/EIR (Federal Lead Agency: Reclamation; State Lead Agency: DWR; Responsible Agencies: SWRCB and DFG; Cooperating Agency: USACE), Salton Sea Restoration Program EIS/EIR (Federal Lead Agency: USACE; State Lead Agency: California Natural Resources Agency; Prepared by: DWR and DFG), Lower Yuba River Accord EIS/EIR (Federal Lead Agency: Reclamation; Responsible Agencies: DWR, DFG, and SWRCB; and Cooperating Agencies: NMFS and FWS), Oroville Facilities FERC Relicensing EIR (State Lead Agency: DWR), and Monterey Agreement EIR (State Lead Agency: DWR). The same agencies that produced and approved these other recent and similar scope project environmental documents are the same agencies involved in the BDCP. The BDCP's agency roles for the environmental documents are similar to these other projects - Federal Leads: Reclamation, NMFS and FWS; State Lead: DWR; Responsible Agencies: DFG and SWRCB; and, Cooperating Agencies: USEPA and USACE. These documents establish a precedent for the significance criteria that should be used in evaluating the resource impacts of the BDCP project. If the BDCP does not utilize these same significance criteria as these other similar projects, then BDCP must provide a supporting justification for their departure from previous agency policies and practices. BDCP should revise the document to include all aspects of the significance criteria for their impact evaluations that were established as agency precedents in these other recent and similar documents. Subsequent comments identify these missing criteria.
	Physical destruction, damage, or alteration of all or part of the property; (Salton Sea Sig Criteria)	Rosebud Mansion and the Hemly manor house at north end of Randall Island would either be destroyed directly by the footprint of construction of the BDCP facilities (Rosebud) or so severely affected by the change in setting as to be fundamentally compromised.
	Isolation of the property or alteration of the character of the property's setting when that character contributes to the property's qualifications for the NRHP; (Salton Sea Sig Criteria)	Intake 3 destroys the historic building, Rosebud Mansion. Intake 5 either takes out or significantly compromises the setting and aesthetic values of the Hemly Victorian manor at the upstream end of Randall Island. With this alteration, this historic building would no longer qualify for the NRHP. These two delta landmarks are the most prominent, visible and well maintained examples of early delta heritage and the project takes out both of them. This impact will greatly adversely affect the character of the community. These impacts are clearly not compliant with Section 106 of the National Historic Preservation Act. This impact can be avoided by relocating the intake and tunnel headworks facilities.
	Introduction of visual, audible, or atmospheric elements that are out of character with the property or changes that may alter its setting; (Salton Sea Sig Criteria). Visual and auditory intrusions to a resource's historic setting. (SDIP Sig Criteria)	Intake facilities footprints directly affect at least 3 potential historical landmark buildings. Rosebud Mansion, Hemly manor house at north end of Randall Island, and the Greene house on Merritt Island across river from intakes would either be destroyed directly by the footprint of construction of the BDCP facilities (Rosebud) or so severely affected by the change in setting as to be fundamentally compromised.
	Neglect of a property resulting in its deterioration or destruction (Salton Sea Sig Criteria)	The BDCP did not evaluate if the project conflicted with local guidelines on visual quality. Previous similar documents have set the precedent that the BDCP lead agencies can and do evaluate this significance criteria and therefore the BDCP document is inconsistent with previous agency policies and procedures.
	Transfer, lease, or sale of a property without adequate provisions to protect the property's historic integrity. (Salton Sea Sig Criteria)	The BDCP did not evaluate if the project conflicted with local guidelines on visual quality. Previous similar documents have set the precedent that the BDCP lead agencies can and do evaluate this significance criteria and therefore the BDCP document is inconsistent with previous agency policies and procedures.
	Cultural resources that have been determined ineligible for inclusion in the NRHP could experience adverse effects, but they would not be considered significant unless they were resources regulated by the American Indian Religious Freedom Act or the Native American Graves Protection and Repatriation Act. (Salton Sea Sig Criteria)	There are native American burial sites at several of the BDCP proposed intake sites and probably at area of the north Forebay/Tunnel headworks facility. This can be avoided by relocating the facilities where there are no burial grounds.

	Section 15064.5 of CEQA states that a project may have a significant effect on the environment when the project may cause a substantial adverse change in the significance of a historical resource (i.e., resource eligible for the CRHR or a local register of historical resources). A substantial adverse change is defined as the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the historical resource would be materially impaired. (Salton Sea Sig Criteria)	Rosebud Mansion, the Hemly manor house at north end of Randall Island, and the Greene house on Merritt Island across river from intakes would either be destroyed directly by the footprint of construction of the BDCP facilities (Rosebud) or so severely affected by the change in setting as to be fundamentally compromised.
	Cause a substantial adverse change in the significance of an archaeological resource pursuant to State CEQA Guidelines Section 15064.5. (Oroville Sig Criteria)	There are native American burial sites at several of the BDCP proposed intake sites and probably at area of the north Forebay/Tunnel headworks facility. This can be avoided by relocating the facilities where there are no burial grounds.
	Disturb any human remains, including those interred outside of formal cemeteries. (Oroville Sig Criteria)	There are native American burial sites at several of the BDCP proposed intake sites and probably at area of the north Forebay/Tunnel headworks facility. This can be avoided by relocating the facilities where there are no burial grounds.
	Substantial reservoir elevation or lowering water level fluctuation zone, relative to the basis of comparison, which would result in increased inundation of previously exposed areas or exposure of previously inundated lands, of sufficient frequency to adversely affect sensitive cultural resources, for any given month of the year over the 72-year simulation period. (Yuba Accord and Oroville Sig Criteria)	The reoperation of the CVP/SWP will change the magnitude, duration and frequency of exposure of archeological resources in the fluctuation zones of the CVP/SWP reservoirs. The BDCP EIR/S failed to identify and disclose this impact. This was a substantial issue in the FERC relicensing of the DWR Oroville Facilities. The BDCPs affects on these resources should be mitigated consistent with those conducted for the DWR FERC relicensing.
Chapter 19 - Transportation		

	Previous CVP/SWP related environmental documents have utilized more comprehensive significance criteria to evaluate project impacts than were used in the BDCP EIR/EIS. Other recent CVP/SWP and habitat restoration related environmental documents establish precedent for how the State and Federal agencies should evaluate the BDCP impacts.	These agency precedent setting environmental documents include: CALFED Bay-Delta EIS/EIR (Federal agencies: Reclamation, FWS, NMFS, BLM, USGS, USACE, US EPA, USDA, USFS, NRCS, and WAPA; State agencies: DWR, DFG, Reclamation Board, Cal EPA, CDFA, Delta Protection Commission and SWRCB), South Delta Improvement Project EIS/EIR (Federal Lead Agency: Reclamation; State Lead Agency: DWR; Responsible Agencies: SWRCB and DFG; Cooperating Agency: USACE), Salton Sea Restoration Program EIS/EIR (Federal Lead Agency: USACE; State Lead Agency: California Natural Resources Agency; Prepared by: DWR and DFG), Lower Yuba River Accord EIS/EIR (Federal Lead Agency: Reclamation; Responsible Agencies: DWR, DFG, and SWRCB; and Cooperating Agencies: NMFS and FWS), Oroville Facilities FERC Relicensing EIR (State Lead Agency: DWR), and Monterey Agreement EIR (State Lead Agency: DWR). The same agencies that produced and approved these other recent and similar scope project environmental documents are the same agencies involved in the BDCP. The BDCP's agency roles for the environmental documents are similar to these other projects - Federal Leads: Reclamation, NMFS and FWS; State Lead: DWR; Responsible Agencies: DFG and SWRCB; and, Cooperating Agencies: USEPA and USACE. These documents establish a precedent for the significance criteria that should be used in evaluating the resource impacts of the BDCP project. If the BDCP does not utilize these same significance criteria as these other similar projects, then BDCP must provide a supporting justification for their departure from previous agency policies and practices. BDCP should revise the document to include all aspects of the significance criteria for their impact evaluations that were established as agency precedents in these other recent and similar documents. Subsequent comments identify these missing criteria.
	Changes to commercial shipping routes or ports. (CALFED Sig Criteria)	The construction of the BDCP intakes impacts river navigation from encroachment into navigable channel from coffer dams and permanently impedes commercial shipping by the intake encroachment on the navigable waterway. Barge loading areas would impede commercial and recreational navigation, increase risk of levee breaches from barge collisions and levee structural integrity disruption, and natural gas wells and pipelines. This impact can be reduced by setting back the levees at the site of intake construction.
	Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system. (Monterey Agreement, Oroville, CALFED, and SDIP Sig Criteria)	BDCP construction-related traffic will significantly increase heavy truck traffic and construction staff commuter traffic on delta roads. This impact can be reduced by having construction staff shuttled into construction sites from staging areas outside of the delta, e.g. South Sacramento or Elk Grove.
	Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways. (Monterey Agreement and Oroville Sig Criteria)	BDCP construction-related traffic will significantly increase heavy truck traffic and construction staff commuter traffic on delta roads. In the delta, alternative routes may not be feasible, so local traffic normal service loads could be significantly affected. Heavy truck loads may exceed service capabilities of local bridges, including Freeport, Courtland, Ryer Island, Steamboat, Walnut Grove, Georgiana Slough, Isleton, Rio Vista, Highway 12, Lambert Road, and Hood-Franklin; and may structurally damage them. To avoid this impact trucks loads should be strictly managed to not exceed bridge capacities. Bridge approaches can be narrow, approaches cross on-coming traffic causing a traffic hazard (especially with large trucks) and some bridges are too narrow to allow two way traffic while a truck crosses. BDCP impacts to two way traffic across the bridges increases the response time for emergency services in the delta. Truck drivers inexperienced in crossing these bridges often run into the bridge and cause structural damage. In the event of BDCP truck accidents that temporarily block a bridge of damage that closes bridges for a longer period of time (perhaps months), emergency service response times and traffic patterns and road service loads can be dramatically impacted. The BDCP EIR/S document did not identify, characterize or disclose these project impacts. Bridges that cannot be crossed with two way traffic should be widened by the project as a mitigation of this impact.
	Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risk. (Oroville Sig Criteria)	Pump towers at intakes and tunnel headworks as well as transmission lines for the facilities creates an air traffic hazard for crop duster planes in the project area. This impact can be minimized by building the pumps at the existing ground level behind ring levees and making the surge towers larger diameter and shorter. Collision avoidance lights should also be added to the towers.

	Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses. (Oroville Sig Criteria)	Rerouting highway 160 around intake facilities will create 4 sharp turns for each intake where there were none before. 5 intakes that would result in twenty 90 degree turns in highway 160 that slow traffic and create a public safety hazard. The traffic slowing and extra distance will slow emergency response for the Courtland, Hood and Walnut Grove Fire Departments. The project can avoid this impact by setting their intake pumps back from the levee and allowing the road to stay on top of the original levee.
	Changes to a railway route by a major relocation of railroad tracks. (CALFED Sig Criteria)	The project would relocate railroad track adjacent to Clifton Court Forebay. This could be avoided by relocating the south delta facilities so they do not conflict with the railroad tracks.
	Creation of a substantial hazard to navigation or a substantial change to the ease of navigation. (CALFED Sig Criteria)	BDCP intakes, construction barges and dredges and maintenance dredging activities impact river navigation from encroachment into navigable channel which violates the Rivers and Harbors Act of 1899.
	Substantial deterioration of the roadway surface as a result of construction activities. (SDIP Sig Criteria)	Large transport trucks with heavy loads of construction material and tunnel spoils will degrade road surfaces. BDCP can easily mitigate this by repaving all the roads at the end of the tunnel construction period that the BDCP project uses for truck traffic.
	Impedance of navigational craft as a result of the installation of cofferdams, or the staging of barges in navigable sections of the south Delta waterways. (SDIP Sig Criteria)	The construction of the BDCP intakes impacts river navigation from encroachment into navigable channel from coffer dams and permanently impedes commercial shipping by the intake encroachment on the navigable waterway. This impact can be reduced by setting back the levees at the site of intake construction.
	Impedance or blockage of navigational craft in the Delta channels where the fish control gate and flow control gates are installed. (SDIP Sig Criteria)	BDCP changes in the operation of the Delta Cross Channel Lock closed period impacts boat navigation. This can be mitigated by installing a boat portage around the locks. The boat lift at the Walnut Grove Boat Storage or new boat lift could be used for boat portage from the Sacramento River side and a boat ramp created to launch/haul from on the Snodgrass Slough side.
	Safety conflicts by operating large, slow-moving dredging equipment on Delta Waterways. (SDIP Sig Criteria)	Construction barges and maintenance dredging creates a recreational boating commercial shipping safety conflict. This impact can be avoided by only surface road hauling and dredging only from tops of levees.
	The intermediate forebay water surface area will increase the frequency, duration, and severity of dense fog events in its vicinity.	The BDCP caused increase in the severity, frequency and duration of fog affects on traffic on Lambert Rd and Highways 160 and I-5 increases traffic hazards and reduces public safety. This impact can be avoided by covering the intermediate forebay.
	Highway 160 is designated a California Scenic Highway.	With 5 large intake facilities that destroy the rural ambiance, no one could argue that this reach of the scenic highway would be designated scenic after the project is implemented.
	It is almost a certainty that some tunnel muck will have contaminant levels that will restrict its reuse and require special handling. The only question is, what amount of the tunnel muck will be contaminated at those levels?	Contaminated tunnel muck will have to be treated as a class 1 material which would require shipping to the Kettleman City dump (California's only class 1 material dump). The BDCP has not identified or disclosed the traffic impacts to shipping what could be (and should be assumed to be unless sufficient evidence is provided to quantify the volumes of contaminated tunnel muck) millions of tons of materials trucked to Kettleman City.
Chapter 20 - Utilities and Public Services		

	Previous CVP/SWP related environmental documents have utilized more comprehensive significance criteria to evaluate project impacts than were used in the BDCP EIR/EIS. Other recent CVP/SWP and habitat restoration related environmental documents establish precedent for how the State and Federal agencies should evaluate the BDCP impacts.	These agency precedent setting environmental documents include: CALFED Bay-Delta EIS/EIR (Federal agencies: Reclamation, FWS, NMFS, BLM, USGS, USACE, US EPA, USDA, USFS, NRCS, and WAPA; State agencies: DWR, DFG, Reclamation Board, Cal EPA, CDFA, Delta Protection Commission and SWRCB), South Delta Improvement Project EIS/EIR (Federal Lead Agency: Reclamation; State Lead Agency: DWR; Responsible Agencies: SWRCB and DFG; Cooperating Agency: USACE), Salton Sea Restoration Program EIS/EIR (Federal Lead Agency: USACE; State Lead Agency: California Natural Resources Agency; Prepared by: DWR and DFG), Lower Yuba River Accord EIS/EIR (Federal Lead Agency: Reclamation; Responsible Agencies: DWR, DFG, and SWRCB; and Cooperating Agencies: NMFS and FWS), Oroville Facilities FERC Relicensing EIR (State Lead Agency: DWR), and Monterey Agreement EIR (State Lead Agency: DWR). The same agencies that produced and approved these other recent and similar scope project environmental documents are the same agencies involved in the BDCP. The BDCP's agency roles for the environmental documents are similar to these other projects - Federal Leads: Reclamation, NMFS and FWS; State Lead: DWR; Responsible Agencies: DFG and SWRCB; and, Cooperating Agencies: USEPA and USACE. These documents establish a precedent for the significance criteria that should be used in evaluating the resource impacts of the BDCP project. If the BDCP does not utilize these same significance criteria as these other similar projects, then BDCP must provide a supporting justification for their departure from previous agency policies and practices. BDCP should revise the document to include all aspects of the significance criteria for their impact evaluations that were established as agency precedents in these other recent and similar documents. Subsequent comments identify these missing criteria.
	Generate enough solid waste to exceed landfill capacity or substantially shorten the life of a landfill. (Monterey Agreement and SDIP Sig Criteria)	Contaminants from upstream parent materials (e.g. Hg, Se, As) are endemic in the geomorphic formation of the delta. The BDCP project and environmental impact disclosures should assume contaminant levels which are considered hazardous and disclose those potential impacts unless they can (using best available science) prove the absence of contaminants at those levels. BDCP has not provided any compelling evidence that it will not encounter contaminants in its tunnel boring or other excavation and earth moving-related actions. It is almost a certainty that some tunnel muck will have contaminant levels that will restrict its reuse and require special handling. The only question is, what amount of the tunnel muck will be contaminated at those levels? Contaminated tunnel muck will have to be treated as a class 1 material which would require shipping to the Kettleman City dump (California's only class 1 material dump). Any material shipped to Kettleman would shorten the useful lifespan of the dump and be a significant impact that needs to be avoided, minimized and mitigated. The BDCP has not tested or disclosed contaminant testing of geotechnical borings done in the Delta, so the BDCP has not proven that toxic and hazardous material that restricts its reuse and requires special handling will not be found in the tunnel muck. In order for the BDCP to meet the test of best available science, the BDCP needs to conduct geotechnical borings all along the tunnel route and test the cores for contaminants. the tunnel borings need to be of sufficient density and consistency in contaminant levels to achieve a NI 43-101 compliant level of confidence that the contaminants were not present at levels that pose human health risks or could require disposal restrictions. Then and only then, can the project assume that the tunnel muck can be safely disposed on the islands as they have proposed.
	Create a demand for utilities that exceeds the capacity and outputs of existing infrastructure and requires new infrastructure or facilities. (Salton Sea, CALFED, and SDIP Sig Criteria)	Pumps at intakes and at tunnel head works will require new transmission lines and some transmission lines in the south delta pumping plants will require additional lines to be added to existing routes or parallel sets of lines next to existing lines. The transmission line capacity through the delta is a limiting factor for the power transmission capacity in California. By adding load at this critical location of most limited capacity, the power demand by the BDCP facilities impacts the capacity and power transfer capabilities for the entire state. The additional power load placed on the delta transmission facilities from the BDCP makes the entire California power grid less robust and more prone to cascading power failures. Any new power generation facilities, e.g. DWR's Lodi power plant, that are brought on line to supply the power demands of the BDCP are growth inducing. The impacts of bringing the additional power generation capacity to supply BDCP power requirements should have also been disclosed as an impact of the project.
	Public finance: If the project necessitates public service expenditures substantially in excess of revenues. (Salton Sea Sig Criteria)	The BDCP will reduce tax based revenues and in some cases increase the level of services needed. As an example, the local Fire and Law Enforcement Departments will have to respond to incidences related to the proposed facilities, e.g. fires, drowning, injuries, break-ins, vandalism, boating and swimming accidents at the intakes, etc. The BDCP increases burden on local services while reducing local tax revenue to support these services.

	Intersect with major infrastructure components, such as bridges or overpasses, requiring relocation of the components. (CALFED Sig Criteria)	BDCP construction-related traffic will significantly increase heavy truck traffic and construction staff commuter traffic on delta roads. In the delta, alternative routes may not be feasible, so local traffic normal service loads could be significantly affected. Heavy truck loads may exceed service capabilities of local bridges, including Freeport, Courtland, Ryer Island, Steamboat, Walnut Grove, Georgiana Slough, Isleton, Rio Vista, Highway 12, Lambert Road, and Hood-Franklin; and may structurally damage them. To avoid this impact trucks loads should be strictly managed to not exceed bridge capacities. Bridge approaches can be narrow, approaches cross on-coming traffic causing a traffic hazard (especially with large trucks) and some bridges are too narrow to allow two way traffic while a truck crosses. BDCP impacts to two way traffic across the bridges increases the response time for emergency services in the delta. Truck drivers inexperienced in crossing these bridges often run into the bridge and cause structural damage. In the event of BDCP truck accidents that temporarily block a bridge of damage that closes bridges for a longer period of time (perhaps months), emergency service response times and traffic patterns and road service loads can be dramatically impacted. The BDCP EIR/S document did not identify, characterize or disclose these project impacts. Bridges that cannot be crossed with two way traffic should be widened by the project as a mitigation of this impact.
	Increase the anticipated risk of gas line rupture during the construction phase, especially to gas lines crossing exterior levees. (CALFED Sig Criteria)	Barges used during construction and vibration from tunneling could cause gas transmission pipeline ruptures. Tunneling could intersect with gas wells and cause collapse of casings. BDCP pipelines in the north end of the project could physically intersect with gas transmission pipelines.
	Require the construction or expansion of a water conveyance or treatment facilities or require new or expanded water supply entitlements. (SDIP Sig Criteria)	Yolo bypass diversion flows for floodplain habitat will require either new water rights or transfer of existing water rights to a new location with a new water use specified to accommodate the use of the water for environmental purposes instead for water supply purposes. BDCP aquatic and intertidal habitat restorations also need water rights as water will be consumed by these through transpiration and evaporation. The BDCP document did not identify the source of water rights for these applications.
	Require the construction or expansion of communications facilities (telephone, cell, cable, satellite dish). (SDIP Sig Criteria)	The tunnel headworks facility and intakes will require new communications facilities to link operations to the Joint Operations Center. The communications facilities may require new or augmentation of existing relay towers.
	Private lands which are publicly condemned for the BDCP facilities and habitat restorations will no longer pay fees to the local Reclamation Districts.	Reclamation Districts are funded by assessments on their service area land owners. When the BDCP takes land away from the land owners it is also taking revenue from the Reclamation Districts. Although economic impacts are not considered in the environmental analysis, the impacts of the loss of funding on levee maintenance and other real physical impacts of the reduction in funding are within the scope of what the environmental document is supposed to evaluate under NEPA and CEQA. This impact was not identified, characterized, quantified or disclosed in the BDCP EIR/S and therefore the document is incomplete and deficient.
Chapter 21 - Energy		

	Previous CVP/SWP related environmental documents have utilized more comprehensive significance criteria to evaluate project impacts than were used in the BDCP EIR/EIS. Other recent CVP/SWP and habitat restoration related environmental documents establish precedent for how the State and Federal agencies should evaluate the BDCP impacts.	These agency precedent setting environmental documents include: CALFED Bay-Delta EIS/EIR (Federal agencies: Reclamation, FWS, NMFS, BLM, USGS, USACE, US EPA, USDA, USFS, NRCS, and WAPA; State agencies: DWR, DFG, Reclamation Board, Cal EPA, CDFA, Delta Protection Commission and SWRCB), South Delta Improvement Project EIS/EIR (Federal Lead Agency: Reclamation; State Lead Agency: DWR; Responsible Agencies: SWRCB and DFG; Cooperating Agency: USACE), Salton Sea Restoration Program EIS/EIR (Federal Lead Agency: USACE; State Lead Agency: California Natural Resources Agency; Prepared by: DWR and DFG), Lower Yuba River Accord EIS/EIR (Federal Lead Agency: Reclamation; Responsible Agencies: DWR, DFG, and SWRCB; and Cooperating Agencies: NMFS and FWS), Oroville Facilities FERC Relicensing EIR (State Lead Agency: DWR), and Monterey Agreement EIR (State Lead Agency: DWR). The same agencies that produced and approved these other recent and similar scope project environmental documents are the same agencies involved in the BDCP. The BDCP's agency roles for the environmental documents are similar to these other projects - Federal Leads: Reclamation, NMFS and FWS; State Lead: DWR; Responsible Agencies: DFG and SWRCB; and, Cooperating Agencies: USEPA and USACE. These documents establish a precedent for the significance criteria that should be used in evaluating the resource impacts of the BDCP project. If the BDCP does not utilize these same significance criteria as these other similar projects, then BDCP must provide a supporting justification for their departure from previous agency policies and practices. BDCP should revise the document to include all aspects of the significance criteria for their impact evaluations that were established as agency precedents in these other recent and similar documents. Subsequent comments identify these missing criteria.
	Require or result in the construction of new water, wastewater treatment, or electrical power generation facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. (Salton Sea Sig Criteria)	Pumps at intakes and at tunnel head works will require new permanent transmission lines, there are construction-related transmission lines installed at tunnel boring machine access points and some transmission lines in the south delta pumping plants will require additional lines to be added to existing routes or parallel sets of lines next to existing lines. The transmission line capacity through the delta is a limiting factor for the power transmission capacity in California. By adding load at this critical location of most limited capacity, the power demand by the BDCP facilities impacts the capacity and power transfer capabilities for the entire state. The additional power load placed on the delta transmission facilities from the BDCP makes the entire power grid less robust and more prone to cascading power transmission failures. Any new power generation facilities, e.g. DWR's Lodi power plant, that are brought on line to supply the power demands of the BDCP are growth inducing. The impacts of bringing the additional power generation capacity to supply BDCP power requirements should have also been disclosed as an impact of the project. The tunnels are only seasonally operated. Due to the high nutrient loading, biological oxygen demand and anaerobic conditions that would occur in just days of non-operation of the tunnels, the water volume in the tunnels (approximately 10,000 AF) would need to be treated to address the resulting water quality before the water could be used or even disposed of. Treatment of this toxic water would require new treatment facilities which will draw large amounts of power that the BDCP has not accounted for in it's impact analysis. None of these energy impacts were disclosed by the BDCP EIR/S document.
	Effects on the SWP net energy requirements would be considered significant if net electricity consumption increased more than 10%. (SDIP Sig Criteria)	The EIR/S fails to utilize this criteria and perform this analysis. SDIP, which included the same agencies as the BDCP determined that this significance criteria and analysis were required, why does the BDCP project not adhere to a consistent policy and process as the same agencies previously adopted policy and process on what is clearly a very similar project in terms of location and types or affects?
	Increase in long-term average annual power requirement of more than 5 percent. (Yuba Accord Sig Criteria)	The EIR/S fails to utilize this criteria and perform this analysis. SDIP, which included the same agencies as the BDCP determined that this significance criteria and analysis were required, why does the BDCP project not adhere to a consistent policy and process as the same agencies previously adopted policy and process on what is clearly a very similar project in terms of location and types or affects?
	Project effects on net energy requirements considered significant if result in a increase of more than 10 percent in net electrify consumption. (Salton Sea Sig Criteria)	See preceding 2 comments.

	The BDCP intake diversion pumps will be ramped on and off 2 times per day to address sweeping velocities across the fish screens for tidal operations.	The startup and shutdown of pumps will likely be phased every few minutes during the tidal cycles. These are large pumps, 500 to 1000 cfs each. As pumps are powered up, there is a peak electrical load that occurs that is a much larger load than their static load demand. The BDCP failed to identify, characterize and disclose this impact to the power grid. Since multiple pumps are in each facility and there are multiple facilities, the BDCP needs to describe an operational plan and the engineering systems (and back-up systems and protocols) which will coordinate the phasing of the introduction of these power loads on the grid so that it does not precipitate peak power loads that will take down the transmission line power grid. Without the description of the system, protocols, back-up systems and safety mechanisms, the BDCP has failed to provide any supporting information that the project will not catastrophically pull down the power grid and cause a cascading power failure that could black out the entire west coast. Bonneville Power Administration made this same mistake and blacked out Oregon and California for 3 days.
	The BDCP increases local and regional power requirements and reduces available capacity on existing transmission lines throughout the delta and the entire state.	BDCP can reduce, avoid and mitigate their impact on local power demand and power transmission line capacity by generating electricity at the intake locations to power their pumps. This on-site power generation could include solar, natural gas fired or current/tidal power generation. BDCP can also avoid and minimize the impacts to energy availability and transmission line capacity by only pumping when there is available existing capacity to run their pumps and facilities.
	Tunnel boring machines may encounter gas well casings that were not correctly documented.	Many gas wells have been drilled and abandoned in the delta over the last 100 years or so. Some gas well records have been lost or are incomplete (omissions) and some records include incorrect identification, status and/or location (errors). When the tunnel boring machines hit these active or inactive gas wells, there are hazards for rapid gas accumulation in the tunnel, explosions, disruption to gas production and transmission lines, and damage to the tunnel boring machine that can require rescue operations and delays to construction schedules as disclosed in the BDCP EIR/S. Recently, a tunnel boring machine in Seattle was stopped and had to be rescued after hitting an undocumented pipe. The risk of the BDCP tunneling machine encountering a gas well is not slight and the impacts of it not inconsequential. If the BDCP TBM does encounter an active or inactive gas well, it could disrupt local and regional natural gas supplies which would affect local and regional businesses and communities which rely upon these supplies. The BDCP EIR/S document fails to identify, characterize, and disclose these hazards.
Chapter 22 - Air Quality and Greenhouse Gas		
	Previous CVP/SWP related environmental documents have utilized more comprehensive significance criteria to evaluate project impacts than were used in the BDCP EIR/EIS. Other recent CVP/SWP and habitat restoration related environmental documents establish precedent for how the State and Federal agencies should evaluate the BDCP impacts.	These agency precedent setting environmental documents include: CALFED Bay-Delta EIS/EIR (Federal agencies: Reclamation, FWS, NMFS, BLM, USGS, USACE, US EPA, USDA, USFS, NRCS, and WAPA; State agencies: DWR, DFG, Reclamation Board, Cal EPA, CDFA, Delta Protection Commission and SWRCB), South Delta Improvement Project EIS/EIR (Federal Lead Agency: Reclamation; State Lead Agency: DWR; Responsible Agencies: SWRCB and DFG; Cooperating Agency: USACE), Salton Sea Restoration Program EIS/EIR (Federal Lead Agency: USACE; State Lead Agency: California Natural Resources Agency; Prepared by: DWR and DFG), Lower Yuba River Accord EIS/EIR (Federal Lead Agency: Reclamation; Responsible Agencies: DWR, DFG, and SWRCB; and Cooperating Agencies: NMFS and FWS), Oroville Facilities FERC Relicensing EIR (State Lead Agency: DWR), and Monterey Agreement EIR (State Lead Agency: DWR). The same agencies that produced and approved these other recent and similar scope project environmental documents are the same agencies involved in the BDCP. The BDCP's agency roles for the environmental documents are similar to these other projects - Federal Leads: Reclamation, NMFS and FWS; State Lead: DWR; Responsible Agencies: DFG and SWRCB; and, Cooperating Agencies: USEPA and USACE. These documents establish a precedent for the significance criteria that should be used in evaluating the resource impacts of the BDCP project. If the BDCP does not utilize these same significance criteria as these other similar projects, then BDCP must provide a supporting justification for their departure from previous agency policies and practices. BDCP should revise the document to include all aspects of the significance criteria for their impact evaluations that were established as agency precedents in these other recent and similar documents. Subsequent comments identify these missing criteria.

	Produce emissions that would cause or measurably contribute to a violation of state or federal ambient air quality standards; (Salton Sea, Monterey Agreement, Oroville, and SDIP Sig Criteria)	The BDCP did not evaluate their air quality impacts against all of the affected County standards, including: Sacramento, Yolo, San Joaquin, Solano, Contra Costa, Fresno, Kings, Tulare, Kern etc. or all the affected Air Basin standards, including: San Joaquin, Sacramento, Lake Tahoe, etc. The BDCP document did not provide sufficient rationale for why the EIR/S did not include this larger affected geographic area and air quality standards. The document must be revised to include these additional affected areas.
	Cause a net increase in pollutant emissions that exceed Clean Air Act conformity de minimis thresholds for ozone precursors or PM10; (Salton Sea Sig Criteria)	See preceding comment.
	Establish land uses that would expose people to localized (as opposed to regional) air pollutant concentrations that violate state or federal ambient air quality standards; (Salton Sea Sig Criteria)	The tunnel spoil disposal area on Andrus Island is adjacent to Wilson Farms pear and cherry packing houses and orchards. Dust from the tunnel spoils will cause human health issue from dust particulate and contaminant exposure at those facilities and for local residences and other businesses for each of BDCP proposed the tunnel muck disposal sites. Tunnel muck has been treated to make it flowable for handling during excavation. The treatment deflocculates the soil structure and makes particle sizes that are easily mobilized by wind. These particle sizes are more likely to violate PM10 and PM2.5 particle size air quality standards. Significant population centers are downwind of the tunnel muck disposal sites, including the communities of: South Sacramento, Elk Grove, Galt, Lodi, Stockton, Tracy, Thornton, Isleton, Rio Vista, Brentwood, Antioch, Courtland, Walnut Grove, Clarksburg, Greenville, and West Sacramento.
	Potential air quality impacts are considered potentially significant if the construction or operations of facilities associated with a particular implementation alternative or Program element would cause substantial adverse changes to the existing (ambient) air quality conditions in the affected area. The range of such changes includes producing emissions that would either on their own or when combined with existing emissions: Violate federal or state ambient air quality standards, Cause a lowering of attainment status, or Conflict with adopted air quality management plan policies or programs (CALFED Sig Criteria)	The tunnels are seasonally operated with periods of non-operation of up to several months at a time and several months of very low flows that would result in water residence times in the tunnels of several days to several weeks. Due to the high nutrient loading and high biological oxygen demand of the diverted Sacramento River water and anaerobic conditions that would occur in just days of non- or low flow operation (less than 1000 cfs) in the tunnels, the water volume in the tunnels (approximately 10,000 AF) would generate and out-gas constituents which are air quality problem and greenhouse gas contributors. Emissions from the tunnels would include: carbon monoxide, carbon dioxide, methane, ethane, butane, sulfurous compounds, ammonia and other nitrous compounds, and others. These air quality and greenhouse gas emissions will also occur at leaser levels during high volume tunnel operations. None of these greenhouse gas and air quality constituent releases from the tunnel operations and non-operating periods were identified, characterized, quantified or disclosed by the BDCP EIR/S document.
	Construction-Related Significance Thresholds (tons per year): San Francisco Bay Area- 50 ROG, 100 NOx, 100 Co, n/a PM10; San Joaquin Valley Air Basin- 50 ROG, 50 NOx, 100 CO, 70 PM10 (SDIP Sig Criteria)	Contaminated tunnel muck will have to be treated as a class 1 material which would require shipping to the Kettleman City dump (California's only class 1 material dump). The BDCP has not disclosed the air quality impacts from hauling and disposal of these materials which is a significant impact that needs to be avoided, minimized and mitigated.
	Expose sensitive receptors to substantial pollutant concentrations. (Oroville Sig Criteria)	Tunnel muck disposal sites and tunnel access ports which will discharge emissions from volatilization as well as anaerobically produced air quality problem constituents are located within 1 - 3 miles of communities, schools, day care centers, senior centers, and wildlife refuges. None of these air quality constituent releases from the tunnel operations and non-operating periods were identified, characterized, quantified or disclosed by the BDCP EIR/S document.
	Create objectionable odors affecting a substantial number of people. (Oroville Sig Criteria)	Algal blooms, tunnel discharge of gasses, tunnel muck disposal, sediment removal from diversion pumps, and intertidal habitat restorations will all generate noxious odors and these are in proximity to delta communities as well as generally up-wind of South Sacramento, Elk Grove, Lodi, Galt, Tracy, Brentwood, Antioch and Stockton.

REUSABLE TUNNEL MATERIAL TESTING Report -Table 2.1	The table indicates that 56% of all cores tested from 2009-2012 sampling had particle sizes of 200 mesh or smaller.	A 200 mesh filter is 74 microns. More than half of the material cleared this screen size so more than half of the particles are smaller than 74 microns. The physical material testing did not screen the materials any finer to determine what proportion of the material was 10 microns or smaller. Seeing as more than half the material tested was smaller than 74 microns, it stands to reason that a significant percentage of the material could be and is likely, 10 microns or smaller. PM10 is an important air quality standard that regulates particle sizes of 10 microns and smaller as they pose a significant human health and ecosystem risk. The BDCP EIR/S did not analyze what proportion of tunnel muck disposal materials that the plan has proposed to dispose of on the surface in land fills, levee construction, habitat restoration, flood response, etc. would potentially affect PM10 air quality standards and human health. DWR obviously had the materials available to do the testing, but the EIR/S failed to utilize the best available science and quantify that impact. The materials should be tested for particle size distribution to 10 and 2.5 micron sizes so these risks and impacts can be appropriately analyzed and disclosed. Once the BDCP EIR/S document has been revised to address this serious deficiency, the document should be recirculated for public comment.
REUSABLE TUNNEL MATERIAL TESTING Report -Table 2.1	The soil physical testing failed to identify what proportion of the soil volume was composed of organic matter and the EIR/S failed to analyze the air quality impacts of the rapid oxidation of these materials.	Deep soil conditions are anaerobic (without oxygen). Organic matter trapped deep in the soil is subject to rapid oxidation once exposed to surface aerobic conditions. This rapid oxidation of tunnel muck organic matter will generate potentially large CO2 discharges which is an air quality and greenhouse gas impact which the BDCP EIR/S has failed to identify, characterize, evaluate, disclose or mitigate. The samples were not tested to determine the organic mater composition, their oxidation rate, or their off-gassing rates and quantities during oxidation and degradation. DWR collected the samples, but failed to apply the best available science in evaluating that data. The samples should be processed to quantify the organic matter % of the tunnel muck material by location, determine off-gassing characteristics and volumes, and determine materials volumes by source location and determine fate of disposal or reuse by type and location. Only when the EIR/S analysis completes all of these analyses could the level of analysis be considered to meet best available science and a project-level analysis that would potentially warrant issuance of construction-related permits.
REUSABLE TUNNEL MATERIAL TESTING Report -section 2.3.1	Environmental testing was done only on soils mixed with polymers and was not handled appropriately for testing of compounds which volatilize.	According to this report, samples were taken from 2009 through 2012. The report does not disclose how these samples were stored. The samples were all mixed together. Then they were wetted, mixed with polymers and then dried out and more time past. Then and only then was a sample sent to a single lab for testing. First, environmental testing should be done immediately after sampling with careful handling of the materials to preserve moisture content, prevent external contamination and manage off-gassing of volatile compounds. Sample handling, chain of custody, refrigeration of samples, storage container, processing time and other requirements need to be adhered to in any rigorous and appropriate sampling and testing protocol. The document does not disclose any of these protocols and given the length of time from sampling to testing, there probably were none. Each sample should have been processed separately so that the chemical conditions in the locations represented by each sample could be determined. Samples of each core should have been sent to more than one lab to confirm consistency of lab analysis and quality. Then and only then, would these results be useful and meet the test of best available science. As the work was done, we have a single, old, poorly stored, mixed, rewetted, polymer contaminated, biodegraded, dried out, oxidized sample that was only sent to one lab for one test. Unfortunately, even if all of the samples were now tested separately the samples are old and not representative of conditions. Most of the compounds tested are subject to change based on biodegradation, mineralization, oxidation, chemical breakdown, enzymatic breakdown, volatilization and chemical concentration gradient changes. The gasses that will be discharged and volatilized from the tunnel muck materials are not represented by the test results as they were processed, so this impact, if it was even evaluated in the BDCP EIR/S, would be significantly under-estimated. The BDCP EIR/S analysis needs to be revised to evaluate these impacts, the limitations and deficiencies of the current test data disclosed and the impacts mitigated.

REUSABLE TUNNEL MATERIAL TESTING Report - page 3-8	"it is expected that RTM could be dried at a rate of approximately 2 percent per day given a maximum lift thickness of 12 to 18 inches and several passes per day with a disc to turn the material over."	This statement identifies, but does not quantify, a large amount and intensity of equipment activity to condition tunnel muck to dry it out. Not only would the equipment discharge require air quality impact analysis, but the tunnel muck material is made up of fine particle sizes (more than 50% finer than 200 mesh) and therefore would be mobilized by the equipment activity and wind erosion. These impacts need to be quantified and disclosed at a project-level of detail in order to ensure that air quality requirements are met and appropriate avoidance, minimization and mitigation measures are implemented. The BDCP EIR/S needs to be revised to include and quantify these impacts before construction-related permits should be issued.
	It is almost a certainty that some tunnel muck will have contaminant levels that will restrict its reuse and require special handling. The only question is, what amount of the tunnel muck will be contaminated at those levels?	Contaminated tunnel muck will have to be treated as a class 1 material which would require shipping to the Kettleman City dump (California's only class 1 material dump). The BDCP has not disclosed the air quality impacts from hauling and disposal of these materials which is a significant impact that needs to be avoided, minimized and mitigated.
	Covered activities don't address all of the current CVP/SWP system (upstream tributaries, existing canals, on-going affects of water deliveries) on air quality and greenhouse gasses.	Greenhouse gas and air pollution contributions from the upstream CVP/SWP reservoir operations, water conveyance in rivers upstream of the delta, water conveyance across the delta for south of delta diversion, conveyance of water in the canals and downstream of delta reservoirs and in the CVP/SWP service areas is not identified, characterized, evaluated, or the impacts of disclosed in the BDCP EIR/S document. Reservoirs have been demonstrated in published scientific papers to be sources of greenhouse gas emissions. Since the BDCP EIR/S document does not address the existing facilities maintenance, operation and on-going air quality and greenhouse gas emission affects, these components of the CVP/SWP should not be included in the covered activities nor in any subsequent permits that are issued based on this document.
	WQ-1: Effects on ammonia concentrations resulting from facilities operations and maintenance (CM1)	The impact call of "Less-Than-Significant" is incorrect. The No Action and BDCP Proposed Project south delta operations continue to draw higher than background levels of ammonia concentrations from the Sacramento Regional Waste Water Treatment Plant discharges across the delta, exposing a larger area of the delta to elevated ammonia concentrations than would occur without the project. The disruption to the food chain in the delta and its affects on listed fish species from elevated ammonia concentrations is a significant impact. The Proposed Project tunnels will outgas ammonia which is a greenhouse gas emission.
Chapter 23 - Noise		
	Previous CVP/SWP related environmental documents have utilized more comprehensive significance criteria to evaluate project impacts than were used in the BDCP EIR/EIS. Other recent CVP/SWP and habitat restoration related environmental documents establish precedent for how the State and Federal agencies should evaluate the BDCP impacts.	These agency precedent setting environmental documents include: CALFED Bay-Delta EIS/EIR (Federal agencies: Reclamation, FWS, NMFS, BLM, USGS, USACE, US EPA, USDA, USFS, NRCS, and WAPA; State agencies: DWR, DFG, Reclamation Board, Cal EPA, CDFA, Delta Protection Commission and SWRCB), South Delta Improvement Project EIS/EIR (Federal Lead Agency: Reclamation; State Lead Agency: DWR; Responsible Agencies: SWRCB and DFG; Cooperating Agency: USACE), Salton Sea Restoration Program EIS/EIR (Federal Lead Agency: USACE; State Lead Agency: California Natural Resources Agency; Prepared by: DWR and DFG), Lower Yuba River Accord EIS/EIR (Federal Lead Agency: Reclamation; Responsible Agencies: DWR, DFG, and SWRCB; and Cooperating Agencies: NMFS and FWS), Oroville Facilities FERC Relicensing EIR (State Lead Agency: DWR), and Monterey Agreement EIR (State Lead Agency: DWR). The same agencies that produced and approved these other recent and similar scope project environmental documents are the same agencies involved in the BDCP. The BDCP's agency roles for the environmental documents are similar to these other projects - Federal Leads: Reclamation, NMFS and FWS; State Lead: DWR; Responsible Agencies: DFG and SWRCB; and, Cooperating Agencies: USEPA and USACE. These documents establish a precedent for the significance criteria that should be used in evaluating the resource impacts of the BDCP project. If the BDCP does not utilize these same significance criteria as these other similar projects, then BDCP must provide a supporting justification for their departure from previous agency policies and practices. BDCP should revise the document to include all aspects of the significance criteria for their impact evaluations that were established as agency precedents in these other recent and similar documents. Subsequent comments identify these missing criteria.

	An alternative would have significant noise impacts if its implementation would directly or indirectly increase ambient CNEL levels by a discernible increment (3 dB or more) at noise sensitive land uses (Salton Sea Sig Criteria)	The BDCP intake and tunnel headworks facility pumps are loud. These pumps are less than a mile from Stone Lakes National Wildlife Refuge. The areas of these facilities are also habitat for Greater Sandhill Cranes. The value and productivity of these habitats and at the refuge will be significantly diminished by the noise disruption of the project construction and operations.
	Project Noise Impacts considered significant if: 1) Construction activities lasting more that one day that increase the ambient noise levels by 10dBA or more at any noise-sensitive location.2) A permanent (i.e., long term operational) increase of 5 dBA Community Noise Equivalent Level (CNEL) over ambient noise levels at any noise-sensitive land use. 3) A permanent (i.e., long term operational) increase of 3 dBA CNEL over ambient noise levels at any noise-sensitive land use location (Monterey Agreement Sig Criteria)	Significant impact 1: Construction and operations noise on the intakes, tunnel headworks and tunnel access ports is adjacent to a National Wildlife Refuge and other Greater sandhill cranes habitat. Cranes are a noise sensitive species and will abandon habitat if disturbed. Once disturbed, the cranes are much less likely to return to the habitat as habitat use is a learned behavior. Construction impacts on habitat usage may last for multiple generations of this species. Mitigation is for construction and operations activities to cease in season when cranes are present. Significant impact 2: The BDCP intake and tunnel headworks facility pump operations are loud. Sound carries farther and louder over water, so intakes adjacent to the communities of Freeport, Clarksburg, Courtland and Locke would be significantly affected. This impact can be minimized and avoided by a design of the intake pumping plants so they are protected by levees to get them out of the flood plain rather than the current BDCP design of having them on raised platforms. The raised platforms cause the sound from the pumps to carry farther to affect communities such as Elk Grove. Constructing the facilities on the existing ground level behind ring levees would dampen and redirect the noise from the facilities and is a reasonable and prudent avoidance and mitigation action. Significant impact 3: The BDCP intake and tunnel headworks facility pumps are loud. These pumps are less than a mile from Stone Lakes National Wildlife Refuge. The areas of these facilities are also habitat for Greater Sandhill Cranes. The value and productivity of these habitats and at the refuge will be significantly diminished by the noise disruption of the project construction and operations.
	Result in a permanent increase in ambient noise above existing levels. (Oroville, SDIP Sig Criteria)	See preceding comment.
	Based on County of San Joaquin noise criteria, OPR standards, and FTA criteria, the following thresholds have been developed for this project: Construction noise would exceed 45 dBA at the nearest noise-sensitive land uses between 9:00 pm and 6:00 am on any day; or Operation of facilities would result in noise that exceeds the acceptable noise standards of the relevant jurisdictions or existing or presumed ambient sound level by more than 5 dBA at sensitive receptor locations. (SDIP Sig Criteria)	See preceding comment.
	The BDCP utilized a Traffic Noise Model.	A similar level of sophistication for the noise analysis of the operations of the intakes and pumps was not conducted.
Chapter 24 - Hazards		

	Previous CVP/SWP related environmental documents have utilized more comprehensive significance criteria to evaluate project impacts than were used in the BDCP EIR/EIS. Other recent CVP/SWP and habitat restoration related environmental documents establish precedent for how the State and Federal agencies should evaluate the BDCP impacts.	These agency precedent setting environmental documents include: CALFED Bay-Delta EIS/EIR (Federal agencies: Reclamation, FWS, NMFS, BLM, USGS, USACE, US EPA, USDA, USFS, NRCS, and WAPA; State agencies: DWR, DFG, Reclamation Board, Cal EPA, CDFA, Delta Protection Commission and SWRCB), South Delta Improvement Project EIS/EIR (Federal Lead Agency: Reclamation; State Lead Agency: DWR; Responsible Agencies: SWRCB and DFG; Cooperating Agency: USACE), Salton Sea Restoration Program EIS/EIR (Federal Lead Agency: USACE; State Lead Agency: California Natural Resources Agency; Prepared by: DWR and DFG), Lower Yuba River Accord EIS/EIR (Federal Lead Agency: Reclamation; Responsible Agencies: DWR, DFG, and SWRCB; and Cooperating Agencies: NMFS and FWS), Oroville Facilities FERC Relicensing EIR (State Lead Agency: DWR), and Monterey Agreement EIR (State Lead Agency: DWR). The same agencies that produced and approved these other recent and similar scope project environmental documents are the same agencies involved in the BDCP. The BDCP's agency roles for the environmental documents are similar to these other projects - Federal Leads: Reclamation, NMFS and FWS; State Lead: DWR; Responsible Agencies: DFG and SWRCB; and, Cooperating Agencies: USEPA and USACE. These documents establish a precedent for the significance criteria that should be used in evaluating the resource impacts of the BDCP project. If the BDCP does not utilize these same significance criteria as these other similar projects, then BDCP must provide a supporting justification for their departure from previous agency policies and practices. BDCP should revise the document to include all aspects of the significance criteria for their impact evaluations that were established as agency precedents in these other recent and similar documents. Subsequent comments identify these missing criteria.
	Generate enough solid waste to exceed landfill capacity or substantially shorten the life of a landfill. (Monterey Agreement Sig Criteria)	Contaminated tunnel muck will have to be treated as a class 1 material which would require shipping to the Kettleman City dump (California's only class 1 material dump). If only a small portion of the tunnel muck is contaminated, the volumes of materials sent to Kettleman (or other class 1 dumps) would significantly shorten the useful lifespan of those landfills. The BDCP has not provided adequate evidence that the tunnel muck will not be contaminated, so the EIR/S should take the prudent approach of assuming that contaminants will occur and to disclose the impacts that will occur from the contamination.
	Releases of toxic materials from soils or sediments (CALFED Sig Criteria)	Tunnel muck disposed may contain contaminants which are endemic in the delta (e.g. Hg, Pb, Se, As) - see related comments. Sediment captured and disposed of from the intakes will contain contaminants that adhere to sediment particles (e.g. pyrethroids, DDT and DDT derivative breakdown products). Both of these sources of contaminants from BDCP disposals can release these otherwise biologically sequestered materials and mobilize them through surface water and wind erosions and percolation into groundwater through drainage. Once the BDCP releases and mobilizes these contaminants then other sensitive receptors are vulnerable to exposure - endangered species, local residents and workers, downwind communities and schools, bioaccumulation in the food web, etc.
	The potential for transmission of mosquito-borne diseases to humans would increase substantially. (Salton Sea Sig Criteria)	Subtidal, intertidal, wetland, and riparian habitat restorations will significantly increase mosquito production in areas that are adjacent to delta communities (e.g. Clarksburg, Courtland, Locke, Walnut Grove, Isleton, Rio Vista) and is generally upwind of large populations (e.g. Elk Grove, Galt, Lodi, Stockton, Tracy, Brentwood)
	Whether health effects occur in a minority population or low-income population affected by cumulative or multiple adverse exposures from environmental hazards. (CALFED and SDIP Sig Criteria)	Minority farm workers will have greatest exposure and risk from mosquito borne West Nile Virus compared to any population segment (greater time exposure outdoors in the immediate vicinity of increased West Nile Virus risk from the project and a population that has less economic resources to pay for insect repellant). Increased nutrient and contaminant loading increases bio-accumulation of contaminants such as Hg, As, Pb and pesticides. Some minority populations consume fish from the delta for subsistence and are at much higher exposure and risk than populations that are not dependent upon the delta fishery as their primary source of sustenance.
	Whether the risk or rate of hazard exposure by minority population or low-income population to an environmental hazard exceeds or is likely to exceed the risk or rate to the general population or appropriate comparison group. (CALFED and SDIP Sig Criteria)	See preceding comment.

	Recreational users of the Sea or fish consumers would be exposed to substantially increased levels of health hazards (Salton Sea Sig Criteria)	Reduced water turnover and assimilative capacity result in additional nutrient loading and increased water temperatures which cause an increased frequency, magnitude, duration and geographic extent of algal blooms in the delta. Algal blooms increases human health risks from contact recreation and drinking water sources. Increased nutrient and contaminant loading increases bio-accumulation of contaminants such as Hg, As, Pb and pesticides. Some minority populations consume fish from the delta for subsistence and are at much higher exposure and risk than populations that are not dependent upon the delta fishery as their primary source of sustenance.
	Wind erosion of exposed contaminated sediments would expose people to airborne health hazards (Salton Sea Sig Criteria)	Habitat restoration construction and tunnel muck disposal will increase airborne soil which may be contaminated with Se, Hg, As, other heavy metals and/or pesticide residues. Airborne dust particles from these project sources can also cause Valley Fever which is a human health risk.
	The maps show areas designated "reusable tunnel materials". The plan does not disclose the exact composition of the tunnel spoil materials.	Contaminants from upstream parent materials (e.g. Hg, Se, As) are endemic in the geomorphic formation of the delta. As an example, Cache Slough is one of the largest naturally occurring Mercury sources in the state and Mercury from that drainage has been transported into the delta from that source since the Coastal Range was formed geologically. Selenium has been also been transported into the delta from the San Joaquin River system since the Coastal Range was formed geologically. The size, shape and drainage patterns in the delta have changed dramatically since the geologic formation of the Coastal Range so it is very likely that those two specific sources of toxics could have deposited substantial contaminant loads in the areas that the tunnels are planned to excavate. Hg is heavy, so it can sink through the soil and pool up in high concentrations. The BDCP project and environmental impact disclosures should assume contaminant levels which are considered hazardous and disclose those potential impacts unless they can (using best available science) prove the absence of contaminants at those levels. BDCP has not provided any compelling evidence that it will not encounter contaminants in its tunnel boring or other excavation and earth moving-related actions. It is almost a certainty that some tunnel muck will have contaminant levels that will restrict its reuse and require special handling. The BDCP has not tested or disclosed contaminant testing of geotechnical borings done in the Delta, so the BDCP has not proven that toxic and hazardous material that restricts its reuse and requires special handling will not be found in the tunnel muck. In order for the BDCP to meet the test of best available science, the BDCP needs to conduct geotechnical borings all along the tunnel route and test the cores for contaminants. the tunnel borings need to be of sufficient density and consistency in contaminant levels to achieve a NI 43-101 compliant level of confidence that the contaminants were not present at levels that pose human health risks or could require disposal restrictions. Then and only then, can the project assume that the tunnel muck could be disposed on the islands without potential significant human health affects.
REUSABLE TUNNEL MATERIAL TESTING Report -Page2.4	"...soil samples to be air dried for one month to simulate anticipated field construction procedures and allow for biodegradation of the conditioner products."	What microbes are responsible for biodegradation of the conditioners? Do any of these microbes pose human health risks? What are the breakdown chemical products from this decomposition? Where in the EIR/S are the Materials Safety Data Sheets (MSDS) on these products the BDCP proposes to use? Where is the analysis of risks of handling these materials in the TBM operations in the EIR/S? The BDCP EIR/S is deficient as it does not address any of these questions. The BDCP EIR/S should be revised to address these significant deficiencies and recirculated for public comment.

REUSABLE TUNNEL MATERIAL TESTING Report -section 2.3.1	Environmental testing was done only on soils mixed with polymers and was not handled appropriately for testing of compounds which volatilize.	According to this report, samples were taken from 2009 through 2012. The report does not disclose how these samples were stored. The samples were all mixed together. Then they were wetted, mixed with polymers and then dried out and more time past. Then and only then was a sample sent to a single lab for testing. First, environmental testing should be done immediately after sampling with careful handling of the materials to preserve moisture content, prevent external contamination and manage off-gassing of volatile compounds. Sample handling, chain of custody, refrigeration of samples, storage container, processing time and other requirements need to be adhered to in any rigorous and appropriate sampling and testing protocol. The document does not disclose any of these protocols and given the length of time from sampling to testing, there probably were none. Each sample should have been processed separately so that the chemical conditions in the locations represented by each sample could be determined. Samples of each core should have been sent to more than one lab to confirm consistency of lab analysis and quality. Then and only then, would these results be useful and meet the test of best available science. As the work was done, we have a single, old, poorly stored, mixed, rewetted, polymer contaminated, biodegraded, dried out, oxidized sample that was only sent to one lab for one test. Unfortunately, even if all of the samples were now tested separately the samples are old and not representative of conditions. Most of the compounds tested are subject to change based on biodegradation, mineralization, oxidation, chemical breakdown, enzymatic breakdown, volatilization and chemical concentration gradient changes. The gasses that will be discharged and volatilized from the tunnel muck materials are not represented by the test results as they were processed, so this impact, if it was even evaluated in the BDCP EIR/S, would be significantly under-estimated. The BDCP has already identified that the TBM will need to utilize a "gassy tunnel protocol" for drilling the tunnels. If the soil cores had been properly handled and tested, the degree, variability and risks of soil-borne gasses could have been determined. This lost opportunity to characterize and quantify the gassy tunnel risks and the BDCP failure to analyze those results is borderline criminal negligence and the project should not be awarded any construction-related permits until sufficient and appropriate testing and analysis of these risks is conducted. The BDCP EIR/S analysis needs to be revised to evaluate these impacts, the limitations and deficiencies of the current test data disclosed and the impacts mitigated.
	The CVP/SWP water diversions are operated seasonally. There are typically one to several months of the year that no or very little diversion occurs. The two 40' tunnels that are 35 miles long represents a volume of over 10,000 AF. Diversions of 500cfs will take over a week to move through the tunnel. Water diverted from the Sacramento River has a high Biological Oxygen Demand (BOD), is largely photosynthetic and aerobic based microbial population ecology, and is nutrient loaded. Without sunlight and without oxygen, the volume of water in the tunnels will quickly go anaerobic and anoxic.	Anaerobic and anoxic conditions in the tunnels during non-operational and low flow operational conditions will creates taste and odor problems that make water unsuitable for drinking water supply or requires very expensive water treatment. Separating the contaminated water would be difficult and instead of this water volume being water supply, it becomes a hazardous material disposal problem. Under these conditions arsenate compounds can be formed which is a wildlife and human health risk that was not identified, characterized, quantified or disclosed in the BDCP EIR/S.
	The intermediate forebay water surface area increases fog in its vicinity.	This potentially affects local traffic on Lambert Rd and traffic on Highways 160 and I-5. This increase in the frequency, severity and duration of fog increases traffic hazards and reduces public safety.

	BDCP proposes to utilize a "gassy tunnel protocol" for the boring machines. This is because of methane and natural gas that is naturally occurring in the areas where the tunnel boring is proposed. The protocols are to reduce the risks of explosions from these gasses.	The BDCP acknowledges that there is a risk of explosion during the tunnel boring process by adopting the gassy tunnel drilling protocol. The BDCP fails to disclose the level of risk of explosion that remains after the protocols have theoretically reduced the risk of explosion during construction. When the tunnel boring machines hit an active or inactive gas wells there is a risk of an explosions that could travel through a gas transmission lines, much the same as recently occurred with PG&E gas transmission lines in San Bruno. The EIR/S also fails to disclose what level of risk there is from explosion from gas accumulation during operation and non-operation periods of the tunnels. There is a human health risk to the workers and residents from a potential explosion and an explosion could cause levees to fail either from direct impact or indirectly through vibration and liquefaction. These risks were not identified, characterized or disclosed in the EIR/S.
	Tunnel boring machines may encounter gas well casings that were not documented.	Many gas wells have been drilled and abandoned in the delta over the last 100 years or so. Some gas well records have been lost or are incomplete (omissions) and some records include incorrect identification, status and/or location (errors). When the tunnel boring machines hit these active or inactive gas wells, there are hazards for rapid gas accumulation in the tunnel, explosions, disruption to gas production and transmission lines, and damage to the tunnel boring machine that can require rescue operations and delays to construction schedules as disclosed in the BDCP EIR/S. Recently, a tunnel boring machine in Seattle was stopped and had to be rescued after hitting an undocumented pipe. The risk of the BDCP tunneling machine encountering a gas well is not slight and the impacts of it not inconsequential. The BDCP EIR/S document fails to identify, characterize, and disclose these hazards. In the event of an explosion or a boring machine rescue operation, there are additional risks to construction personnel, adjacent residents and workers, and to levee integrity.
Chapter 25 - Public Health		
	Previous CVP/SWP related environmental documents have utilized more comprehensive significance criteria to evaluate project impacts than were used in the BDCP EIR/EIS. Other recent CVP/SWP and habitat restoration related environmental documents establish precedent for how the State and Federal agencies should evaluate the BDCP impacts.	These agency precedent setting environmental documents include: CALFED Bay-Delta EIS/EIR (Federal agencies: Reclamation, FWS, NMFS, BLM, USGS, USACE, US EPA, USDA, USFS, NRCS, and WAPA; State agencies: DWR, DFG, Reclamation Board, Cal EPA, CDFA, Delta Protection Commission and SWRCB), South Delta Improvement Project EIS/EIR (Federal Lead Agency: Reclamation; State Lead Agency: DWR; Responsible Agencies: SWRCB and DFG; Cooperating Agency: USACE), Salton Sea Restoration Program EIS/EIR (Federal Lead Agency: USACE; State Lead Agency: California Natural Resources Agency; Prepared by: DWR and DFG), Lower Yuba River Accord EIS/EIR (Federal Lead Agency: Reclamation; Responsible Agencies: DWR, DFG, and SWRCB; and Cooperating Agencies: NMFS and FWS), Oroville Facilities FERC Relicensing EIR (State Lead Agency: DWR), and Monterey Agreement EIR (State Lead Agency: DWR). The same agencies that produced and approved these other recent and similar scope project environmental documents are the same agencies involved in the BDCP. The BDCP's agency roles for the environmental documents are similar to these other projects - Federal Leads: Reclamation, NMFS and FWS; State Lead: DWR; Responsible Agencies: DFG and SWRCB; and, Cooperating Agencies: USEPA and USACE. These documents establish a precedent for the significance criteria that should be used in evaluating the resource impacts of the BDCP project. If the BDCP does not utilize these same significance criteria as these other similar projects, then BDCP must provide a supporting justification for their departure from previous agency policies and practices. BDCP should revise the document to include all aspects of the significance criteria for their impact evaluations that were established as agency precedents in these other recent and similar documents. Subsequent comments identify these missing criteria.
	An increase in mosquito breeding habitat (CALFED Sig criteria)	BDCP habitat restorations including intertidal, subtidal, wetlands, vernal pool and riparian, new forebays, construction site dewatering and tunnel muck disposal sites (from drainage, wet soil and puddles) create mosquito breeding habitat. Since the project proposes to create a significant amount of this of habitat (approximately 100,000 acres) plus thousands of acres of forebay, dewatering and tunnel muck disposal sites which combined represent over 15% of the surface area of the statutory delta, this will be a significant impact.

	A decrease in the distance between human and mosquito populations (CALFED Sig criteria)	Minority farm workers will have greatest exposure and risk from mosquito borne West Nile Virus compared to any population segment (greater time exposure outdoors in the immediate vicinity of increased West Nile Virus risk from the project and a population that has less economic resources to pay for insect repellant). Habitat restorations and project facilities and operations which generate mosquito populations are adjacent to delta communities (e.g. Freeport, Hood, Clarksburg, Courtland, Locke, Walnut Grove, Isleton, Ryde, Rio Vista, Bethel Island, Brentwood, etc.) and are upwind of large urban areas (e.g. Sacramento, West Sacramento, Davis, Woodland, Elk Grove, Lodi, Galt, Stockton, Tracy, Antioch, Pittsburg, etc.). Cumulatively these populations which will have significantly increased exposure to and risk from mosquito populations could be greater than 1,000,000 people.
	Expose people to a significant risk of contracting a disease. (SDIP sig criteria)	The EIR/S fails to utilize this criteria and perform this analysis. SDIP, which included the same agencies as the BDCP determined that this significance criteria and analysis were required, why does the BDCP project not adhere to a consistent policy and process as the same agencies previously adopted policy and process on what is clearly a very similar project in terms of location and types or affects?
	Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam. (SDIP sig criteria)	Many gas wells have been drilled and abandoned in the delta over the last 100 years or so. Some gas well records have been lost or are incomplete (omissions) and some records include incorrect identification, status and/or location (errors). When the tunnel boring machines hit these active or inactive gas wells, there are hazards for rapid gas accumulation in the tunnel, explosions and damage to the tunnel boring machine that can require TBM rescue operations. The risk of the BDCP tunneling machine encountering a gas well is not slight and the impacts of it not inconsequential. In the event of an tunnel explosion, a boring machine rescue operation or damage from TBM vibration, there are significant risks to levee integrity and therefore increased risk of flooding to all the tracts and islands the tunnels traverse. Communities affected by the increased flood risk from the tunnel boring machines include Hood, Courtland, and Clarksburg. In the event that one island is flooded, it significantly increases the risk of flooding of adjacent islands from seeps and boils that pass from island to island (as was documented in the Victoria Island flood onto McDonald Island) and from redirected flood flows (as has been documented from McCormack-Williamson Tract onto Staten Island). During tunnel operations in the event of a catastrophic failure (such as from the delta seismic risk the BDCP identifies in its Purpose and Need Statement), the tunnel access ports will let the momentum of water in the tunnel be dissipated by releasing water through them. This could result in two 40 foot diameter surges of water being discharged at the tunnel access port without warning The discharged volume could total of several thousand acre feet of water depending on the location, operations and nature of the tunnel failure. Any personnel, residents or workers in the vicinity of the tunnel access port during this event would be in extreme risk of injury or death and damage and/or loss of property and structures would occur. This volume of water could also risk levee integrity on the affected island or tract which is another source of flood risk from the project. Construction of levees for aquatic habitat restorations also increases flood risks to public health. According to the USACE's definition, an embankment that permanently holds back water is not a levee, it is a dam. In order to minimize the risk of failure of the habitat restoration levees, the levees should be constructed to meet the USACE's criteria for dams. The BDCP EIR/S document fails to identify, characterize, and disclose these impacts to public health from increased flood risks.
	Adversely affect drinking water quality (SDIP sig criteria)	The CVP/SWP water diversions are operated seasonally. There are typically one to several months of the year that no or very little diversion occurs. The two 40' tunnels that are 35 miles long represents a volume of over 10,000 AF. Diversions of 500cfs will take over a week to move through the tunnel. Water diverted from the Sacramento River has a high Biological Oxygen Demand (BOD), is largely photosynthetic and aerobic based microbial population ecology, and is nutrient loaded. Without sunlight and without oxygen, the volume of water in the tunnels will quickly go anaerobic and anoxic. This creates taste and odor problems that make water unsuitable for drinking water supply or requires very expensive water treatment. Separating the contaminated water would be difficult and instead of this water volume being water supply, it becomes a hazardous material disposal problem.
	If the project necessitates public service expenditures substantially in excess of revenues. (Salton Sea Sig Criteria)	The BDCP will reduce tax based revenues and in some cases increase the level of services needed. As an example, the local Fire and Law Enforcement Departments will have to respond to incidences related to the proposed facilities, e.g. fires, drowning, injuries, break-ins, vandalism, boating and swimming accidents at the intakes, etc. The BDCP increases burden on local services while reducing local tax revenue to support these services.

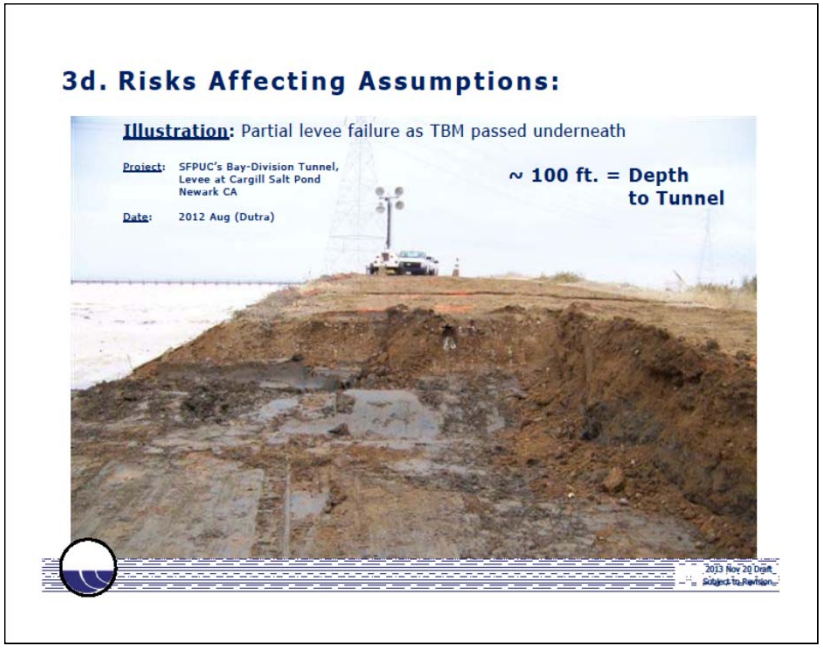
	Whether the health effects, which may be measured in risks and rates, are above the generally accepted norms. Adverse health effects may include bodily impairment, infirmity, illness, or death. (CALFED and SDIP Sig Criteria)	Reduced water turnover and assimilative capacity in the Delta from BDCP operations will result in additional nutrient loading and increased water temperatures which cause an increased frequency, magnitude, duration and geographic extent of algal blooms in the delta. Algal blooms increases public health risks from contact recreation and drinking water sources.
	Whether health effects occur in a minority population or low-income population affected by cumulative or multiple adverse exposures from environmental hazards. (CALFED and SDIP Sig Criteria)	Minority farm workers will have greatest exposure and risk from mosquito borne West Nile Virus compared to any population segment (greater time outdoors in the immediate vicinity and less economic resources to pay for protective clothing and insect repellant).
	Are significantly adverse environmental or human health impacts likely to fall disproportionately on minority or low-income populations? (Salton Sea Sig Criteria)	Increased nutrient and contaminant loading from BDCP operations increases bio-accumulation of contaminants in fish such as Hg, As, Pb and pesticides. Some minority populations consume fish from the delta for subsistence and are at much higher exposure and risk than populations that are not dependent upon the delta fishery as their primary source of sustenance.
	Reduces the quality of a water supply such that it is more difficult to treat to meet applicable federal or state drinking water standards for finished water or to maintain existing finished water quality. (Monterey Accord Significance Criteria)	The BDCP EIR/S Water Quality chapter identifies that there is a degradation in water quality from the Proposed Project for: Ammonia, Boron, Nitrates, Pathogens, Phosphorus, Trace Metals, and Turbidity. The BDCP EIR/S Water Quality chapter identifies that there is a significant unavoidable impact to water quality from the Proposed Project for: Bromide, Chloride, Electrical Conductivity, Mercury, Organic Carbon, Pesticides, and Selenium. These are all important drinking water supply quality parameters that will require additional water treatment from the Proposed Project impacts. The Significant Unavoidable impact calls on drinking water quality parameters that have significant human health issues is particularly alarming and un acceptable for any project to be approved by the agencies to move forward to permitting or construction. The No Action impacts are often represented in the same box as the impact calls for the Proposed Project and indicate that they have the same impact calls, i.e. both NA and PP have LTS and NA impact calls. What this impact summary table misrepresents is that for the NEPA impact call, the Proposed Project is compared to the No Action so the Proposed Project impacts are in addition to (not equivalent to) the No Action impacts. If the impacts were the same in the Proposed Project as the No Action, even if there were impacts in the No Action, the Proposed Project impact would be No Impact and No Effect. Many people get their drinking water supply from the delta and it
	Private lands which are publicly condemned for the BDCP facilities and habitat restorations will no longer pay fees to the local Reclamation Districts.	Reclamation Districts are funded by assessments on their service area land owners. When the BDCP takes land away from the land owners it is also taking revenue from the Reclamation Districts. Although economic impacts are not considered in the environmental analysis, the impacts of the loss of funding on levee maintenance and other real physical impacts of the reduction in funding are within the scope of what the environmental document is supposed to evaluate under NEPA and CEQA. A reduction in funding of levee maintenance has real and significant impacts on public health and safety from increased flooding risks caused by BDCP land condemnation. This impact was not identified, characterized, quantified, disclosed or mitigated in the BDCP EIR/S and therefore the document is incomplete and deficient.

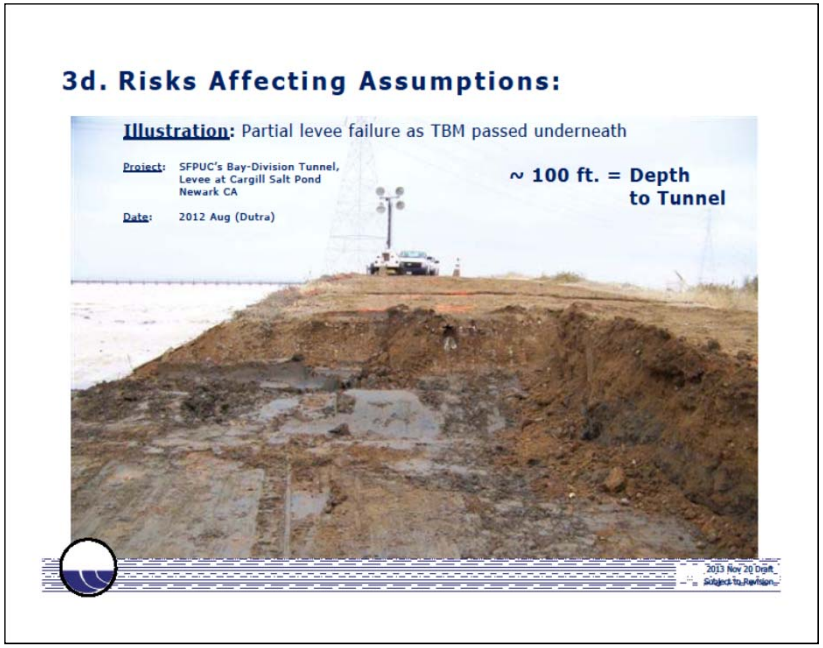
REUSABLE TUNNEL MATERIAL TESTING Report -Table 2.1	The table indicates that 56% of all cores tested had particle sizes of 200 mesh or smaller.	A 200 mesh filter is 74 microns. More than half of the material cleared this screen size so more than half of the particles are smaller than 74 microns. The physical material testing did not screen the materials any finer to determine what proportion of the material was 10 microns or smaller. Seeing as more than half the material tested was smaller than 74 microns, it stands to reason that a significant percentage of the material could be and is likely, 10 microns or smaller. PM10 is an important air quality standard that regulates particle sizes of 10 microns and smaller as they pose a significant human health and ecosystem risk. The BDCP EIR/S did not analyze what proportion of tunnel muck disposal materials that the plan has proposed to dispose of on the surface in land fills, levee construction, habitat restoration, flood response, etc. would potentially affect PM10 air quality standards and human health. DWR obviously had the materials available to do the testing, but the EIR/S failed to utilize the best available science and quantify that impact. The materials should be tested for particle size distribution to 10 and 2.5 micron sizes so these risks and impacts can be appropriately analyzed and disclosed. Once the BDCP EIR/S document has been revised to address this serious deficiency, the document should be recirculated for public comment.
REUSABLE TUNNEL MATERIAL TESTING Report -Page2.4	"...soil samples to be air dried for one month to simulate anticipated field construction procedures and allow for biodegradation of the conditioner products."	What microbes are responsible for biodegradation of the conditioners? Do any of these microbes pose human health risks? What are the breakdown chemical products from this decomposition? Where in the EIR/S are the Materials Safety Data Sheets (MSDS) on these products the BDCP proposes to use? Where is the analysis of risks of handling these materials in the TBM operations in the EIR/S? The BDCP EIR/S is deficient as it does not address any of these questions. The BDCP EIR/S should be revised to address these significant deficiencies and recirculated for public comment.
REUSABLE TUNNEL MATERIAL TESTING Report -section 2.3.1	Environmental testing did not include all of the relevant compounds that should have been tested for.	As an example, the tests had a category for "soluble metals". This is such a broad category as to be useless in a meaningful environmental analysis. The samples should have been tested for a broad panel that encompassed all of the drinking water quality standards so that the impacts of tunnel muck disposal that resulted in water or wind erosion deposition in water could be evaluated. Testing panels should have also included compounds which can be bioacumulated in fish and other species so those impacts could have been evaluated and disclosed. The testing of the samples should be redone to include these other important constituents and the EIR/S revised to evaluate, quantify, disclose and mitigate for the impacts associated with the chemical constituent impacts of the tunnel muck materials proposed by the BDCP.
REUSABLE TUNNEL MATERIAL TESTING Report - page 3-23	"exposure of people, wildlife and plants to conditioned soil has not been fully assessed under unrestricted-use conditions, creating an uncertainty for potential adverse effects.	Even the BDCP's own report indicates that the analysis of the tunnel muck is incomplete and "not fully assessed". The BDCP EIR/S has not even identified the limitations of the current analysis and the remaining uncertainties. The EIR/S is incomplete and should be revised to address these deficiencies and recirculated for public comment.

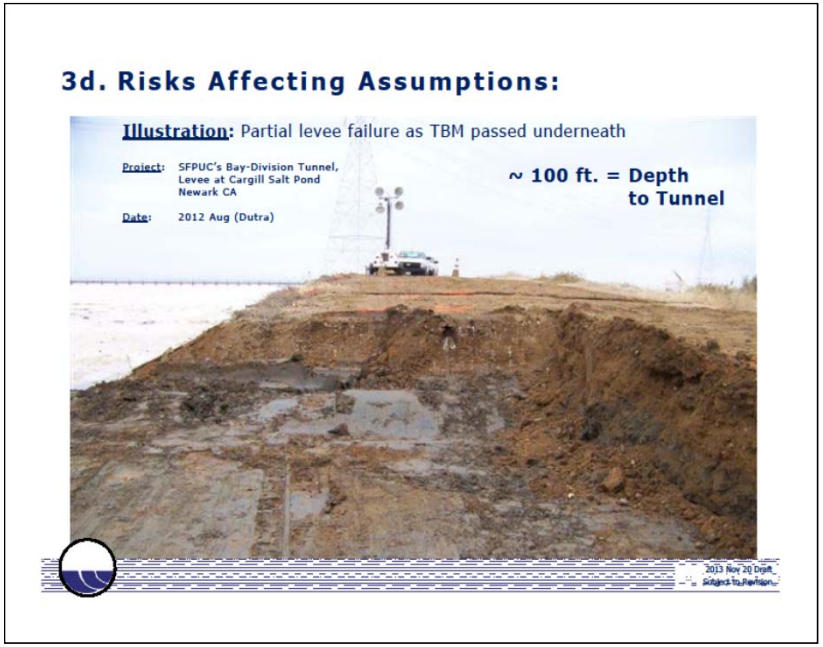
REUSABLE TUNNEL MATERIAL TESTING Report - page 3-23	"If RTM is to be placed in the environment where people could contact the soil, either directly (e.g., through skin contact) or indirectly (e.g., as airborne particulate, or as leachate in surface or drinking water), then human health risk assessment(s) will need to be developed. Development of appropriate exposure scenarios for evaluation in the risk assessment will depend on the specific environmental context; for example, uses as surficial landscape fill for a residential area or subsurface use at a construction site. Determination of appropriate exposure scenarios, and the specific risk-assessment details, is a collaborative process with regulatory agency and/or permitting agency authorities (e.g., the California RWQCB, the United States Army Corps of Engineers (USACE), or the DTSC), depending on the re-use option. The scoping process would be used to determine if additional evaluation efforts are necessary to meet agency requirements for allowing re-use (e.g., benthic invertebrate bioassays if spoils are intended for wetland fill, or phytotoxicity testing if spoils are intended for upland re-use)."	This statement in the report is correct, the project should be rescoped to determine exactly how the tunnel muck would be disposed and all of the analyses conducted at a project-level of detail prior to permitting the project. The BDCP EIR/S includes none of these analyses and therefore should not be awarded any construction-related permits based on the currently deficient and incomplete document. The document should be revised to include this information and recirculated for public comment.
	The tunnel spoil disposal area on Andrus Island is adjacent to Wilson Farms pear and cherry packing houses and orchards. Dust from the tunnel spoils will cause quality problems with the fruit and become a human health issue from dust particulate exposure at those facilities.	Contaminants from upstream parent materials (e.g. Hg, Se, As) are endemic in the geomorphic formation of the delta. The BDCP project and environmental impact disclosures should assume contaminant levels which are considered hazardous and disclose those potential impacts unless they can (using best available science) prove the absence of contaminants at those levels. BDCP has not provided any compelling evidence that it will not encounter contaminants in its tunnel boring or other excavation and earth moving-related actions. It is almost a certainty that some tunnel muck will have contaminant levels that will restrict its reuse and require special handling. The only question is, what amount of the tunnel muck will be contaminated at those levels? Contaminated tunnel muck will have to be treated as a class 1 material which would require shipping to the Kettleman City dump (California's only class 1 material dump). Any material shipped to Kettleman would shorten the useful lifespan of the dump and be a significant impact that needs to be avoided, minimized and mitigated. The BDCP has not tested or disclosed contaminant testing of geotechnical borings done in the Delta, so the BDCP has not proven that toxic and hazardous material that restricts its reuse and requires special handling will not be found in the tunnel muck. In order for the BDCP to meet the test of best available science, the BDCP needs to conduct geotechnical borings all along the tunnel route and test the cores for contaminants. the tunnel borings need to be of sufficient density and consistency in contaminant levels to achieve a NI 43-101 compliant level of confidence that the contaminants were not present at levels that pose human health risks or could require disposal restrictions. Then and only then, can the project assume that the tunnel muck can be safely disposed on the islands as they have proposed.

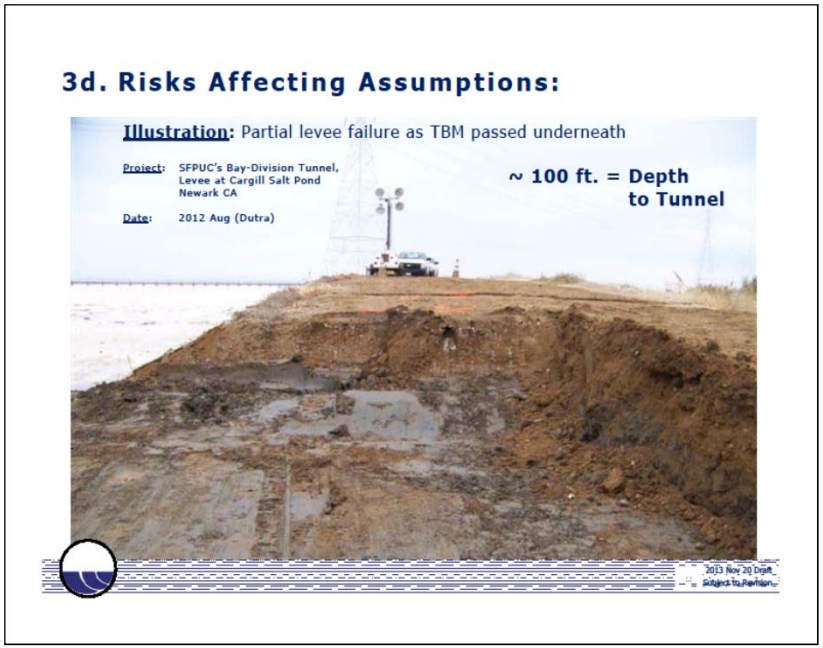
	Effects on Emergency response	BDCP construction-related traffic will significantly increase heavy truck traffic and construction staff commuter traffic on delta roads. In the delta, alternative routes may not be feasible, so local traffic normal service loads could be significantly affected. Heavy truck loads may exceed service capabilities of local bridges, including Freeport, Courtland, Ryer Island, Steamboat, Walnut Grove, Georgiana Slough, Isleton, Rio Vista, Highway 12, Lambert Road, and Hood-Franklin; and may structurally damage them. Bridge approaches can be narrow, cross on-coming traffic and some bridges are too narrow to allow two way traffic while a truck crosses. Truck drivers inexperienced in crossing these bridges often run into the bridge and cause structural damage. To avoid this impact trucks loads should be strictly managed to not exceed bridge capacities. Bridges that cannot be crossed with two way traffic should be widened by the project as a mitigation of this impact.
	The intermediate forebay water surface area increases fog in its vicinity.	The BDCP caused increase in the severity, frequency and duration of fog affects on traffic on Lambert Rd and Highways 160 and I-5 increases traffic hazards and reduces public safety and slows emergency response.
	WQ-5: Effects on bromide concentrations resulting from facilities operations and maintenance (CM1)	The "Significant Unavoidable" and "Adverse" increase in bromide after mitigation as compared to the "Less-Than-Significant" impact of the No Action Alternative is an unacceptable degradation of the beneficial uses of water in the delta. Bromide is an important water quality constituent for drinking water and represents a well documented and severe health risk to humans and animals. A project that has this kind of "Significant Unavoidable" and "Adverse" impact should not be allowed to be implemented, especially when the impact is not precipitated in the No Action condition.
	WQ-7: Effects on chloride concentrations resulting from facilities operations and maintenance (CM1)	The "Significant Unavoidable" and "Adverse" increase in chloride after mitigation as compared to the "Less-Than-Significant" impact of the No Action Alternative is an unacceptable degradation of the beneficial uses of water in the delta. Chloride is an important water quality constituent for drinking water and represents a well documented and severe health risk to humans and animals. A project that has this kind of "Significant Unavoidable" and "Adverse" impact should not be allowed to be implemented, especially when the impact is not precipitated in the No Action condition.
	WQ-14: Effects on mercury concentrations resulting from implementation of CM2–CM22	The BDCP EIR/S impact calls on the No Action is incorrect. CM2-22 do not exist in the No Action, therefore there would be No Impact/No Effect. A Proposed Project that has this severity of an impact on water quality, especially compared to the No Impact/No Effect of the No Action, should not be implemented.
	WQ-15: Effects on nitrate concentrations resulting from facilities operations and maintenance (CM1)	The No Action impact call is incorrect. There is no change in the No Action for operations that affect nitrate concentrations, so the correct impact call would be "No Impact" and "No Effect". The Not Adverse and Less-Than-Significant impact calls are in conflict. Less-Than-Significant is an impact call for an adverse impact of small magnitude or significance. Not Adverse is an impact call for an impact that includes conditions that are both positive and negative, but on the balance are not negative. Therefore the NEPA Not Adverse impact call is incompatible with the CEQA Less-Than-Significant impact call. If the CEQA call of Less-Than-Significant is correct, then the NEPA call can't be Not Adverse, it must be Adverse. The impact call of less than significant is incorrect as any increase in nitrate concentrations in water supplies is a degradation to beneficial uses of drinking water and is therefore a significant impact to human health. The impact call for the Proposed Project should be changed to significant and adverse.
	WQ-16: Effects on nitrate concentrations resulting from implementation of CM2–CM22	The BDCP EIR/S impact calls on the No Action is incorrect. CM2-22 do not exist in the No Action, therefore there would be No Impact/No Effect. The Not Adverse and Less-Than-Significant impact calls are in conflict. Less-Than-Significant is an impact call for an adverse impact of small magnitude or significance. Not Adverse is an impact call for an impact that includes conditions that are both positive and negative, but on the balance are not negative. Therefore the NEPA Not Adverse impact call is incompatible with the CEQA Less-Than-Significant impact call. If the CEQA call of Less-Than-Significant is correct, then the NEPA call can't be Not Adverse, it must be Adverse. Since nitrate concentrations in drinking water supply pose significant human health risks, any degradation of nitrate water quality should be considered significant and significant impacts must be mitigated.

	WQ-17: Effects on organic carbon concentrations resulting from facilities operations and maintenance (CM1)	The No Action impact call is incorrect. There is no change in the No Action for operations that affect nitrate concentrations, so the correct impact call would be "No Impact" and "No Effect". The Not Adverse and Less-Than-Significant impact calls are in conflict. Less-Than-Significant is an impact call for an adverse impact of small magnitude or significance. Not Adverse is an impact call for an impact that includes conditions that are both positive and negative, but on the balance are not negative. Therefore the NEPA Not Adverse impact call is incompatible with the CEQA Less-Than-Significant impact call. If the CEQA call of Less-Than-Significant is correct, then the NEPA call can't be Not Adverse, it must be Adverse. Since dissolved organic carbon concentrations is an important parameter to drinking water supply suitability, any degradation of organic carbon water quality should be considered significant and significant impacts must be mitigated.
	WQ-19: Effects on pathogens resulting from facilities operations and maintenance (CM1)	The BDCP EIR/S impact calls on the Proposed Project are wrong. The Proposed Project operations reduces the rate of turnover of water in the delta and reduces assimilative capacity (a conclusion from the Water Quality Chapter). Reduced rate of refreshment of water in the delta from the Proposed Project operations is further evidenced by the results of the DSM2 Particle Tracking Model. Increased nutrient loads (e.g. phosphates) and water temperatures that occur from the reduced refreshing of water in the delta from the Proposed Project will result in an increase in the frequency, magnitude, duration and geographic extent of algal blooms. Excess carbon and nitrogen, which the previous impact discussions have disclosed the Proposed Project increases, also contribute to algal blooms (http://en.wikipedia.org/wiki/Algal_bloom). The increase in the magnitude, duration, frequency and geographic extent of harmful algal blooms (HAB) will be significantly increased under the Proposed Project operations due to reduced refreshing of water in the delta and the resulting increase in nutrient loading. The HAB creates toxins that are poisonous to humans through water supply and contact recreations. HAB is also harmful to fish and aquatic bird species. The BDCP aquatic habitat restorations will also cause in increase nutrient concentrations and water temperatures and which result in an increase in the rate and severity of algal blooms and therefore also significantly adversely impact DO. The impacts on algal blooms from the Proposed Project operations and aquatic habitat restorations act in combination together, so the impacts will be worse than the additive impacts of each. This is a significant and adverse impact and the impact call should be changed to reflect this. Any impact call change is a material change to the document and therefore the draft document should be recirculated.
	WQ-20: Effects on pathogens resulting from implementation of CM2–CM22	The BDCP EIR/S impact calls on the Proposed Project are wrong. The Proposed Project operations reduces the rate of turnover of water in the delta and reduces assimilative capacity (a conclusion from the Water Quality Chapter). Reduced rate of refreshment of water in the delta from the Proposed Project operations is further evidenced by the results of the DSM2 Particle Tracking Model. Increased nutrient loads (e.g. phosphates) and water temperatures that occur from the reduced refreshing of water in the delta from the Proposed Project will result in an increase in the frequency, magnitude, duration and geographic extent of algal blooms. Excess carbon and nitrogen, which the previous impact discussions have disclosed the Proposed Project increases, also contribute to algal blooms (http://en.wikipedia.org/wiki/Algal_bloom). The increase in the magnitude, duration, frequency and geographic extent of harmful algal blooms (HAB) will be significantly increased under the Proposed Project operations due to reduced refreshing of water in the delta and the resulting increase in nutrient loading. The HAB creates toxins that are poisonous to humans through water supply and contact recreations. HAB is also harmful to fish and aquatic bird species. The BDCP aquatic habitat restorations will also cause in increase nutrient concentrations and water temperatures and which result in an increase in the rate and severity of algal blooms and therefore also significantly adversely impact DO. The impacts on algal blooms from the Proposed Project operations and aquatic habitat restorations act in combination together, so the impacts will be worse than the additive impacts of each. This is a significant and adverse impact and the impact call should be changed to reflect this. Any impact call change is a material change to the document and therefore the draft document should be recirculated.

	GEO-1: Loss of property, personal injury, or death from structural failure resulting from strong seismic shaking of water conveyance features during construction	The NEPA call on the No Action is incorrect, it should be "No Effect" seeing as the No Action does not include construction of conveyance features. The Not Adverse and Less-Than-Significant impact calls are in conflict. If the CEQA call is correct, then the NEPA call can't be Not Adverse, it must be Adverse. The risk of levee failure during conveyance construction is real, see "SFPUC Tunnel Boring Machine caused failure in the SF Bay Cargill Salt Pond levee". The risks of levee failure (a water conveyance) from BDCP Proposed Project tunnel boring machine vibration is significant and with mitigation (safety precautions, temporary protection levees, etc.) could be a less than significant and adverse impact. 
	GEO-2: Loss of property, personal injury, or death from settlement or collapse caused by dewatering during construction of water conveyance features	The NEPA call on the No Action is incorrect, it should be "No Effect" seeing as the No Action does not include dewatering during construction of conveyance features. The Not Adverse and Less-Than-Significant impact calls are in conflict. If the CEQA call is correct, then the NEPA call can't be Not Adverse, it must be Adverse. The risk of collapse from dewatering during conveyance construction is real. The risks of settlement or collapse caused by BDCP Proposed Project construction site dewatering is significant and only with mitigation (safety precautions, surface elevation monitoring, dewatering impoundments, etc.) would they be less than significant and adverse.

	GEO-3: Loss of property, personal injury, or death from ground settlement during construction of water conveyance features	Finally, here is an example of an impact call that is made correctly relative to the No Action. The correct answer is that since the No Action does not include construction of conveyance features there is "No Effect". The Not Adverse and Less-Than-Significant impact calls of the Proposed Project are in conflict. If the CEQA call is correct, then the NEPA call can't be Not Adverse, it must be Adverse. The risk of levee failure during conveyance construction is real, see "SFPUC Tunnel Boring Machine caused failure in the SF Bay Cargill Salt Pond levee". The risks of levee failure (a water conveyance) from BDCP Proposed Project tunnel boring machines is significant and with mitigation (safety precautions, temporary protection levees, etc.) could be less than significant and adverse. 

	GEO-4: Loss of property, personal injury, or death from slope failure during construction of water conveyance features	The Not Adverse and Less-Than-Significant impact calls are in conflict. If the CEQA call is correct, then the NEPA call can't be Not Adverse, it must be Adverse. The risk of levee failure during conveyance construction is real, see "SFPUC Tunnel Boring Machine caused failure in the SF Bay Cargill Salt Pond levee". The risks of slope failure of a levee (a water conveyance) from BDCP Proposed Project tunnel boring machines is significant and with mitigation (safety precautions, temporary protection levees, etc.) could be less than significant and adverse. 

	GEO-5: Loss of property, personal injury, or death from structural failure resulting from construction-related ground motions during construction of water conveyance features	The Not Adverse and Less-Than-Significant impact calls are in conflict. If the CEQA call is correct, then the NEPA call can't be Not Adverse, it must be Adverse. The risk of levee failure during conveyance construction is real, see "SFPUC Tunnel Boring Machine caused failure in the SF Bay Cargill Salt Pond levee". The risks of slope failure of a levee (a water conveyance) from BDCP Proposed Project tunnel boring machines is significant and with mitigation (safety precautions, temporary protection levees, etc.) could be less than significant and adverse. 
	GEO-6: Loss of property, personal injury, or death from structural failure resulting from rupture of a known earthquake fault during operation of water conveyance features	The Not Adverse and Less-Than-Significant impact calls are in conflict. If the CEQA call is correct, then the NEPA call can't be Not Adverse, it must be Adverse. A Proposed Project that precipitates such a significant adverse impact when the No Action has no impact and no effect is a project that should not be implemented.
	GEO-7: Loss of property, personal injury, or death from structural failure resulting from strong seismic shaking during operation of water conveyance features	The Not Adverse and Less-Than-Significant impact calls are in conflict. If the CEQA call is correct, then the NEPA call can't be Not Adverse, it must be Adverse. A Proposed Project that precipitates such a significant adverse impact when the No Action has no impact and no effect is a project that should not be implemented.
	GEO-8: Loss of property, personal injury, or death from structural failure resulting from seismic-related ground failure (including liquefaction) during operation of water conveyance features	The Not Adverse and Less-Than-Significant impact calls are in conflict. If the CEQA call is correct, then the NEPA call can't be Not Adverse, it must be Adverse. A Proposed Project that precipitates such a significant adverse impact when the No Action has no impact and no effect is a project that should not be implemented.
	GEO-9: Loss of property, personal injury, or death from landslides and other slope instability during operation of water conveyance features	The Proposed Project takes this impact from a Benefit in the No Action to a Adverse and less than significant impact in the Proposed Project. Why would anyone want to do a project that so obviously results in a worse condition for so many resources as compared to the No Action?

	GEO-10: Loss of property, personal injury, or death from seiche or tsunami during operation of water conveyance features	The Proposed Project takes this impact from a Benefit in the No Action to a Adverse and less than significant impact in the Proposed Project. Why would anyone want to do a project that so obviously results in a worse condition for so many resources as compared to the No Action?
	GEO-11: Ground failure caused by increased groundwater surface elevations from unlined canal seepage as a result of operating the water conveyance facilities	The Not Adverse and Less-Than-Significant impact calls are in conflict. If the CEQA call is correct, then the NEPA call can't be Not Adverse, it must be Adverse. A Proposed Project that precipitates such a significant adverse impact when the No Action has no impact and no effect is a project that should not be implemented.
	GEO-12: Loss of property, personal injury, or death resulting from structural failure caused by rupture of a known earthquake fault at Restoration Opportunity Areas	The Not Adverse and Less-Than-Significant impact calls are in conflict. If the CEQA call is correct, then the NEPA call can't be Not Adverse, it must be Adverse. A Proposed Project that precipitates such a significant adverse impact when the No Action has no impact and no effect is a project that should not be implemented.
	GEO-13: Loss of property, personal injury, or death from structural failure resulting from strong seismic shaking at Restoration Opportunity Areas	The Not Adverse and Less-Than-Significant impact calls are in conflict. If the CEQA call is correct, then the NEPA call can't be Not Adverse, it must be Adverse. A Proposed Project that precipitates such a significant adverse impact when the No Action has no impact and no effect is a project that should not be implemented.
	GEO-14: Loss of property, personal injury, or death from structural failure resulting from seismic-related ground failure (including liquefaction) beneath Restoration Opportunity Areas	The Not Adverse and Less-Than-Significant impact calls are in conflict. If the CEQA call is correct, then the NEPA call can't be Not Adverse, it must be Adverse. A Proposed Project that precipitates such a significant adverse impact when the No Action has no impact and no effect is a project that should not be implemented.
	GEO-15: Loss of property, personal injury, or death from landslides and other slope instability at Restoration Opportunity Areas	The Proposed Project takes this impact from a Benefit in the No Action to a Adverse and less than significant impact in the Proposed Project. Why would anyone want to do a project that so obviously results in a worse condition for so many resources as compared to the No Action?
	GEO-16: Loss of property, personal injury, or death from seiche or tsunami at Restoration Opportunity Areas as a result of implementing the conservation actions	The Proposed Project takes this impact from a Benefit in the No Action to a Adverse and less than significant impact in the Proposed Project. Why would anyone want to do a project that so obviously results in a worse condition for so many resources as compared to the No Action?
Chapter 26 - Minerals		
	Previous CVP/SWP related environmental documents have utilized more comprehensive significance criteria to evaluate project impacts than were used in the BDCP EIR/EIS. Other recent CVP/SWP and habitat restoration related environmental documents establish precedent for how the State and Federal agencies should evaluate the BDCP impacts.	These agency precedent setting environmental documents include: CALFED Bay-Delta EIS/EIR (Federal agencies: Reclamation, FWS, NMFS, BLM, USGS, USACE, US EPA, USDA, USFS, NRCS, and WAPA; State agencies: DWR, DFG, Reclamation Board, Cal EPA, CDFA, Delta Protection Commission and SWRCB), South Delta Improvement Project EIS/EIR (Federal Lead Agency: Reclamation; State Lead Agency: DWR; Responsible Agencies: SWRCB and DFG; Cooperating Agency: USACE), Salton Sea Restoration Program EIS/EIR (Federal Lead Agency: USACE; State Lead Agency: California Natural Resources Agency; Prepared by: DWR and DFG), Lower Yuba River Accord EIS/EIR (Federal Lead Agency: Reclamation; Responsible Agencies: DWR, DFG, and SWRCB; and Cooperating Agencies: NMFS and FWS), Oroville Facilities FERC Relicensing EIR (State Lead Agency: DWR), and Monterey Agreement EIR (State Lead Agency: DWR). The same agencies that produced and approved these other recent and similar scope project environmental documents are the same agencies involved in the BDCP. The BDCP's agency roles for the environmental documents are similar to these other projects - Federal Leads: Reclamation, NMFS and FWS; State Lead: DWR; Responsible Agencies: DFG and SWRCB; and, Cooperating Agencies: USEPA and USACE. These documents establish a precedent for the significance criteria that should be used in evaluating the resource impacts of the BDCP project. If the BDCP does not utilize these same significance criteria as these other similar projects, then BDCP must provide a supporting justification for their departure from previous agency policies and practices. BDCP should revise the document to include all aspects of the significance criteria for their impact evaluations that were established as agency precedents in these other recent and similar documents. Subsequent comments identify these missing criteria.

	Result in the loss of a known mineral resource of value to the region and the residents of the State (Oroville Sig Criteria)	The presence of BDCP facilities (forebays, intakes, pipelines, tunnels, canals and habitat restorations) will create an obstruction for the access to extract and transport natural gas in the delta. The BDCP will not grant new gas transmission line crossings across their right of way once the facilities are constructed. Offset drilling may be utilized to access pools of natural gas under the facilities, but at an additional cost that discourages development of these resources. In some cases, the gas deposits will not be accessible at all due to the presence of the BDCP facilities.
	Result in substantial soil erosion or the loss of topsoil. (Monterey Agreement Sig Criteria)	BDCP disposal of tunnel muck will bury the topsoil such that it is equivalent to loss as a usable resource. This is a significant impact to hundreds of acres from BDCP tunnel muck disposal. This impact can be avoided and minimized by excavating and reserving the topsoil at the tunnel muck disposal sites, disposing of the muck (if it is not contaminated), dry out and provide for drainage of the tunnel muck and putting the original topsoil back on top of the tunnel muck.
	Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslides, lateral spreading, subsidence, liquefaction or collapse. (Monterey Agreement Sig Criteria)	BDCP construction and operations vibrations could result in liquefaction of soils or levees. The weight of BDCP facilities can contribute to soil compaction and subsidence. BDCP construction dewatering can cause collapse of water bearing soil strata which causes subsidence.
	Increase the anticipated risk of gas line rupture during the construction phase, especially to gas lines crossing exterior levees. (CALFED Sig Criteria)	Barges used during construction and vibration from tunneling could cause gas transmission pipeline ruptures. Tunneling could intersect with gas wells and cause collapse of casings. BDCP pipelines in the north end of the project could physically intersect with gas transmission pipelines.
	Tunnel boring machines may encounter gas well casings that were not correctly documented.	Many gas wells have been drilled and abandoned in the delta over the last 100 years or so. Some gas well records have been lost or are incomplete (omissions) and some records include incorrect identification, status and/or location (errors). When the tunnel boring machines hit these active or inactive gas wells, there are hazards for rapid gas accumulation in the tunnel, explosions, disruption to gas production and transmission lines, and damage to the tunnel boring machine that can require rescue operations and delays to construction schedules as disclosed in the BDCP EIR/S. Recently, a tunnel boring machine in Seattle was stopped and had to be rescued after hitting an undocumented pipe, so this is not an uncommon problem for TBMs. The risk of the BDCP tunneling machine encountering a gas well is not slight and the impacts of it not inconsequential. If the BDCP TBM does encounter an active or inactive gas well, it could disrupt local and regional natural gas supplies which would affect local and regional businesses and communities which rely upon these supplies. The BDCP EIR/S document fails to identify, characterize, and disclose these hazards.
Chapter 27 - Paleontology		
Chapter 28 - Environmental Justice		

	Previous CVP/SWP related environmental documents have utilized more comprehensive significance criteria to evaluate project impacts than were used in the BDCP EIR/EIS. Other recent CVP/SWP and habitat restoration related environmental documents establish precedent for how the State and Federal agencies should evaluate the BDCP impacts.	These agency precedent setting environmental documents include: CALFED Bay-Delta EIS/EIR (Federal agencies: Reclamation, FWS, NMFS, BLM, USGS, USACE, US EPA, USDA, USFS, NRCS, and WAPA; State agencies: DWR, DFG, Reclamation Board, Cal EPA, CDFA, Delta Protection Commission and SWRCB), South Delta Improvement Project EIS/EIR (Federal Lead Agency: Reclamation; State Lead Agency: DWR; Responsible Agencies: SWRCB and DFG; Cooperating Agency: USACE), Salton Sea Restoration Program EIS/EIR (Federal Lead Agency: USACE; State Lead Agency: California Natural Resources Agency; Prepared by: DWR and DFG), Lower Yuba River Accord EIS/EIR (Federal Lead Agency: Reclamation; Responsible Agencies: DWR, DFG, and SWRCB; and Cooperating Agencies: NMFS and FWS), Oroville Facilities FERC Relicensing EIR (State Lead Agency: DWR), and Monterey Agreement EIR (State Lead Agency: DWR). The same agencies that produced and approved these other recent and similar scope project environmental documents are the same agencies involved in the BDCP. The BDCP's agency roles for the environmental documents are similar to these other projects - Federal Leads: Reclamation, NMFS and FWS; State Lead: DWR; Responsible Agencies: DFG and SWRCB; and, Cooperating Agencies: USEPA and USACE. These documents establish a precedent for the significance criteria that should be used in evaluating the resource impacts of the BDCP project. If the BDCP does not utilize these same significance criteria as these other similar projects, then BDCP must provide a supporting justification for their departure from previous agency policies and practices. BDCP should revise the document to include all aspects of the significance criteria for their impact evaluations that were established as agency precedents in these other recent and similar documents. Subsequent comments identify these missing criteria.
	Whether health effects occur in a minority population or low-income population affected by cumulative or multiple adverse exposures from environmental hazards. (CALFED and SDIP Sig Criteria)	Minority farm workers will have greatest exposure and risk from mosquito borne West Nile Virus compared to any population segment (greater time outdoors in the immediate vicinity and less economic resources to pay for insect repellant). Increased nutrient and contaminant loading from BDCP operations increases bio-accumulation of contaminants in fish in the delta such as Hg, As, Pb and pesticides. Some minority populations consume fish from the delta for subsistence and are at much higher exposure and risk than populations that are not dependent upon the delta fishery as their primary source of sustenance.
	Are significantly adverse environmental or human health impacts likely to fall disproportionately on minority or low-income populations? (Salton Sea Sig Criteria)	See preceding comment.
	Effects on bioaccumulation of toxics from reduced assimilative capacity on subsistence fishermen	See preceding comment.
	Effects on local communities occurs disproportionately on disadvantaged minorities	Delta communities affected by the project are predominantly minority and economically disadvantaged communities, e.g. Hood, Courtland, Locke, Isleton.
	The BDCP EIR/S directed the reader to a website to get more specific information on the proposed project and conservation actions.	The EIR/S link did not even point to these items specifically. Websites change, are not a suitable substitute for providing the reader information. Economically disadvantaged people do not have web access. All relevant supporting descriptions should be included in the document.
	The public draft EIR/S was never translated into other languages.	By not making the public draft EIR/S available in any languages other than English, the BDCP has denied reasonable access and opportunity to participate in and contribute to the public process all individuals that don't read English or have any difficulties reading and comprehending English. The public draft EIR/S must be translated into Spanish and other important ethnic languages, especially since these communities and populations are so directly and profoundly affected by BDCP impacts in the conversion of farmland which results in losses of farm jobs and farm-related support jobs for people in these ethnic groups and communities.

	An EIR/S is supposed to be written so it is accessible and understandable.	NEPA and CEQA guidance says an environmental document needs to be targeted to approximately an 8th grade level of reading proficiency. Not only is the language used in the BDCP EIR/S too laden with acronyms, high level vocabulary and water industry specific terminology that is incompletely or poorly explained, but the poor organization and extreme size of the document makes it absolutely inaccessible to anyone with less than a college level reading and comprehension level. Do you know any 8th graders that would be able to comprehend this document or read 40,000 odd pages? The BDCP fails to meet these important NEPA and CEQA requirements to provide access to all citizens. The document must be rewritten to conform with these NEPA and CEQA requirements.
Chapter 29 - Climate Change		
	The 75940 Federal Register / Vol. 78, No. 240 / Friday, December 13, 2013 states that, "The Plan also intends to… reducing future risks to the Delta from earthquakes, levee failure and climate change."	Where in the BDCP documents does the project result in reducing "future risks to the delta from earthquakes, levee failure, and climate change"? The project proposes to address those issues for the CVP/SWP conveyance, but it does nothing for the delta on these stated project needs. The project does increase the risk of levee failure to the delta by altering existing levees and adding new ones. The project also increases risks to the delta from future climate change as the aquatic habitat restorations increase the volume of intertidal exchange. Increases in the volume of intertidal exchange will degrade water quality, increase the velocities of tidal surges, increase the magnitude of tidal surge stage elevations, and increase tidal exchange tributary velocities. So is the BDCP proposing to reduce earthquake, levee failure and climate change risk in the delta or is the Federal Register notice incorrect such that it must be revised and reissued in order to not be in direct contradiction with the proposed project of the BDCP?
	Do covered activities address all of the current CVP/SWP system (upstream tributaries, existing canals, on-going affects of water deliveries, etc)?	The document does not discuss climate change impacts and contributions on-going CVP/SWP operations and maintenance from leaks, salt accumulation in service areas, erosion, loss of habitat, degradation of beneficial uses, disposal of contaminants, greenhouse gas contributions, reservoir greenhouse gas emissions, etc. Since this document does not address climate change impacts what environmental coverage does the CVP/SWP have for those activities?
	The BDCP climate change assumptions fail to take into account the possibility that the climate is reverting to the geologic historical norm.	The geologic and dendrochronology record show that the last 150 years of California hydrology have been anomalously wet. All of California's population distribution and industry, current water use, cultural norms and expectations with regards to water use and water supply infrastructure are based on observations and experience that are limited to the last 150 years that we know are not representative of the longer term normal precipitation patterns in California. The dendrochronology and geologic record show that in California's recent history (over the last 1000 years), California has experienced several droughts that last more than 100 years. The BDCP climate change analysis needs to include a scenario for how the CVP/SWP would perform and what impacts would occur if California's hydrology returned to the geologic historical norm which occurred prior to the last 150 years. BDCP's analysis of operations only uses the hydrologic period of record dating back to 1912, so the climate change section, in order to be a complete analysis and disclosure, should analyze the hydrology and impacts of the potential operations in hydrologic conditions prior to this date. The data to simulate this pre-western development hydrology is readily available - as an example, http://ascelibrary.org/doi/abs/10.1061/40856%28200%29278.
	The BDCP's analysis of climate change is inconsistent with climate change analysis directives from Federal Agencies.	The BDCP analysis of climate change utilized different assumptions than are mandated by Bureau of Reclamation and the USACE.
Cumulative - Global		

	Even when project-related impacts are individually minor, the cumulative effects of these impacts, in combination with the impacts of other projects, could be significant under CEQA and must be discussed (State CEQA Guidelines, Sections 15130 and 15355[b]). Section 15065(c) of the State CEQA Guidelines, an EIR must discuss the cumulative impacts of a project when its incremental effect would be cumulatively considerable. This means that the incremental effects of an individual project would be cumulatively considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. Section 15355 of the State CEQA Guidelines defines cumulative impacts as “two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts."	BDCP cumulative topics that should have been identified, evaluated and disclosed include: Mining and dredging activities; tributary and ocean fisheries harvest, attraction flows in the bay and for Napa River Steelhead, Agricultural development and land uses in the CVP/SWP service areas (e.g. conversion to permanent crops from more reliable water supply); management of special-status species (interactions with other HCPs); other regional fish hatchery activities (straying from non-central valley river systems and the genetic affects on fisheries stocks,
	When considering the quantity of land in the statutory delta that the BDCP is proposing to convert from farm production that contributes to the local and regional area economies and add to that the amount of land already converted plus all the lands proposed to be converted by the other 5 Habitat Conservation Plans implementing in the delta, these impacts are very significant as they comprise over 25% of the land area of the delta.	A 25% change in land use cannot be considered insignificant. Cummulative impacts arwe not adequately addressed. The real need is the recovery and protection of fish - not terrestrial resources.

	The DWR Oroville FERC Relicensing EIR defined their fisheries cumulative impact geographic scope with the following: "The geographic scope of the analysis of cumulative effects on aquatic resources, including spring-run Chinook salmon and Central Valley steelhead, is broad, given their large geographic distribution and the many different types of related actions that affect these anadromous fish species. It ranges from the upper portions of the Feather River basin where the species spawned prior to construction of other mining, hydroelectric, and water development projects by mining entities, electric utilities, and water agencies, down to the Feather and Sacramento Rivers, to the San Francisco Bay/Sacramento–San Joaquin Delta (Bay-Delta) and even the Pacific	DWR found that the operations of the Oroville Facility warranted evaluating Cumulative impacts to the ocean (including the bay and affects on the Napa River Steelhead (North Coast ESU)) and the BDCP modifies operations at not only Oroville, but Shasta, Folsom and New Melones. BDCP needs to consider the cumulative impacts to at least as comprehensive as the Oroville Relicensing EIR. Given the magnitude of the operational changes in net outflows, X2, and population level effects on anadromous species, the BDCP should also be evaluating direct and indirect impacts of anadromous species in the bay, Napa River and ocean.
Chapter 30 - Growth Inducement		
	Previous CVP/SWP related environmental documents have utilized more comprehensive significance criteria to evaluate project impacts than were used in the BDCP EIR/EIS. Other recent CVP/SWP and habitat restoration related environmental documents establish precedent for how the State and Federal agencies should evaluate the BDCP impacts.	These agency precedent setting environmental documents include: CALFED Bay-Delta EIS/EIR (Federal agencies: Reclamation, FWS, NMFS, BLM, USGS, USACE, US EPA, USDA, USFS, NRCS, and WAPA; State agencies: DWR, DFG, Reclamation Board, Cal EPA, CDFA, Delta Protection Commission and SWRCB), South Delta Improvement Project EIS/EIR (Federal Lead Agency: Reclamation; State Lead Agency: DWR; Responsible Agencies: SWRCB and DFG; Cooperating Agency: USACE), Salton Sea Restoration Program EIS/EIR (Federal Lead Agency: USACE; State Lead Agency: California Natural Resources Agency; Prepared by: DWR and DFG), Lower Yuba River Accord EIS/EIR (Federal Lead Agency: Reclamation; Responsible Agencies: DWR, DFG, and SWRCB; and Cooperating Agencies: NMFS and FWS), Oroville Facilities FERC Relicensing EIR (State Lead Agency: DWR), and Monterey Agreement EIR (State Lead Agency: DWR). The same agencies that produced and approved these other recent and similar scope project environmental documents are the same agencies involved in the BDCP. The BDCP's agency roles for the environmental documents are similar to these other projects - Federal Leads: Reclamation, NMFS and FWS; State Lead: DWR; Responsible Agencies: DFG and SWRCB; and, Cooperating Agencies: USEPA and USACE. These documents establish a precedent for the significance criteria that should be used in evaluating the resource impacts of the BDCP project. If the BDCP does not utilize these same significance criteria as these other similar projects, then BDCP must provide a supporting justification for their departure from previous agency policies and practices. BDCP should revise the document to include all aspects of the significance criteria for their impact evaluations that were established as agency precedents in these other recent and similar documents. Subsequent comments identify these missing criteria.
	The analysis of growth-inducing effects addresses the effects that economic and population growth fostered by the BDCP that could have on local resource conditions, including housing, provision of public services, and other resources (i.e., air quality, water quality, and biological resources).	The Cost Benefit Analysis conducted by the BDCP should be re-evaluated based on the $51-$65 Billion Cost estimated by Westlands Water District in their November 20, 2013 District Workshop presentation . This cost results in water that costs $238 - $337/AF. At this cost, the cost of water will be uneconomic for most farm crops. Since most of the water from the BDCP goes to agriculture, but agriculture will not be able to economically use the water, then the water must be used for other purposes, such as growth of M&I uses. This new supply of water that is only economic for M&I purposes is clearly growth inducing.

	The BDCP incorporated other water supply intakes into their project description, including: Solano County Cache Slough complex, City of Stockton, Contra Costa, Mirant and other intakes.	Even though the BDCP claims that no new water will be delivered as a result of the project, these other water supplies will result in urban and industrial growth and are growth inducing.
	The BDCP claims that no new water will be delivered as a result of the project, but an increase in water supply reliability is also growth inducing.	An increase in the reliability of water supply allows current water supplies to be stretched to support additional housing, industry and conversion of farmland from annual crops to permanent crops.
	BDCP changes in available or unutilized water conveyance capacity is growth inducing.	A BDCP increase in water conveyance capacity (two 40' tunnels) and a reduction in the current operational constraints of the CVP/SWP creates an opportunity for third party water transfers above and beyond that of the current CVP/SWP system and operations. By creating additional capacity and opportunity, BDCP is encouraging transfer of water supplies from northern California water sources to water consumers south of the delta. As an example, under existing conditions the Lower Yuba River Accord, YCWA is able to transfer only a small portion of the water it has available for sale and transfer. Sales and transfers can currently only occur under a very narrow range of operational and hydrologic conditions. With the BDCP facilities and reduced operational constraints, the opportunity for those transfers would be greatly increased. In anticipation of this capacity available for transfer through the new BDCP facilities, several northern California water districts have been purchased by southern California interests. The BDCP must include in their environmental analysis and disclosure what the quantity of available capacity would be in the proposed facilities and operations and compare that to the existing and future no action/no project conditions. The change in available water transfer capacity should then be evaluated for its growth inducing and other impacts (e.g. socioeconomics, agriculture, water supply, water quality, environmental justice, groundwater, fisheries, etc.) The BDCP can avoid this impact by adding to the operational charter for the facilities and as part of the joint operations agreement, that the facilities will not be used for private water transfers. Since the BDCP is largely being paid for with public funding, private entities should not be allowed to profit from it.
	The additional power requirements of the BDCP will lead to construction of additional power generation facilities, which is growth inducing.	Pumps at intakes and at tunnel head works will require new transmission lines and some transmission lines in the south delta pumping plants will require additional lines to be added to existing routes or parallel sets of lines next to existing lines. The transmission line capacity through the delta is a limiting factor for the power transmission capacity in California. By adding load at this critical location of most limited capacity, the power demand by the BDCP facilities impacts the capacity and power transfer capabilities for the entire state. In the event of a cascading power failure, the additional power load placed on the delta transmission facilities from the BDCP makes the entire power grid less robust and more prone to cascading power failures. Any new power generation facilities, e.g. DWR's Lodi power plant, that are brought on line to supply the power demands of the BDCP are growth inducing. The impacts of bringing the additional power generation capacity to supply BDCP power requirements should have also been disclosed as an impact of the project.
Chapter 31 - NEPA/CEQA Requirements		

	The BDCP has the wrong lead agencies for the environmental review.	US Fish and Wildlife Service (FWS) is a much more appropriate federal lead than Reclamation ever was as FWS would issue permits based on the EIS document and Reclamation has recently indicated that they will not even be a part of the BDCP when implemented. Reclamation should only have the role of a cooperating agency in the EIS given that it has said it will not be part of the BDCP. DWR will be an active participant in the BDCP, but it will not be issuing any permits based on the EIR. California Department of Fish and Game (DFG) will be issuing permits based on the EIR, so it should be the state lead agency on the environmental document. DWR should only have the role of a responsible agency in the EIR. DWR and Reclamation have committed many predecisional acts and generated huge amounts of advocacy propaganda in favor of the BDCP project - see related comments below. For these reasons and those previously stated in this comment, DWR and Reclamation should recuse themselves from lead agency roles on the environmental documents. Once FWS and DFG have taken on the federal and state lead agency roles, the entire EIR/S document should be reviewed and adapted to meet those lead agency needs.
	The BDCP should be split into separate NEPA and CEQA documents.	NEPA and CEQA have different requirements. It is technically possible to have joint NEPA and CEQA documents, but in the case of the BDCP, the combined document misses some of the requirements of both. As an example, BDCP determined that the NEPA No Action and the CEQA No Project were the same. They are not - see related comments. The BDCP attempt to do a joint document took a very large and complex document and made it even more large and complex. As a result, not only does the document miss the 300 page long EIR document guidance from CEQA by a factor of over 130 times, but it has made the document unreadable. The document also misses critical requirements of both NEPA and CEQA or those elements are so deeply buried or convoluted that their identification escapes the readers ability to identify them. The BDCP needs to separate the NEPA and CEQA requirements and publish two separate documents. this will greatly simplify the over complicated BDCP document, make it more readable, make identification of required NEPA or CEQA elements more apparent and would greatly shorten the grossly overlong document. Common elements that truly support both documents could be kept as common appendixes. Once the NEPA and CEQA documents have been separated, the public review and comment process should be restarted.
	The Lead Agencies, DWR, Reclamation, FWS and NMFS, have demonstrated a consistent bias in favor of the project throughout the environmental review process which is in direct contradiction to NEPA and CEQA regulations for impartial environmental reviews. The Lead Agencies have consistently advocated in favor of the project through public comments of agency officials that have direct oversight and directive responsibilities for the development of the EIR/EIS, through literature published by the Lead Agencies and through the official EIS/EIR website portal.	Bureau of Reclamation, NMFS and United States Fish and Wildlife Service (USFWS), have previously commented on their concerns on their own BDCP EIR/S document regarding agency “advocacy” and/or “biased” documents for the BDCP Water Tunnels project. (Federal Agency Release, Bureau of Reclamation Comments p.1; NMFS Comments p.2): USFWS Comments p.1, July 18, 2013).

	The BDCP is suppressing public comment by not posting public comments on the EIR/S website as they previously had been doing.	On the BDCP website, the following language now appears under "Correspondence": "In order to maintain the integrity of the formal public review period, incoming correspondence will not be available via the website beginning December 13, 2013 to the close of the public comment period April 14, 2014." (See http://baydeltaconservationplan.com/library/Correspondence.aspx) On the BDCP website, now only those viewpoints that the government chooses will be posted on the BDCP website. For example, the website continues to include blogs purporting to debunk alleged "Myths" about the BDCP, and other materials written to promote BDCP and discount public concerns. (See, e.g., http://baydeltaconservationplan.com/news/blog/14-01-10/Correcting_Stubborn_Myths_Part_II.aspx.) The First Amendment of the United States Constitution provides in pertinent part that there shall be no law "abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the Government for a redress of grievances." Similarly, the California Constitution commands that "A law may not restrain or abridge liberty of speech or press" and the people have the right to "assemble freely to consult for the common good." Cal. Const., Art. 1, § 2(a); § 3(a). "In a public forum, by definition, all parties have a constitutional right of access and the state must demonstrate compelling reasons for restricting access to a single class of speaker, a single viewpoint, or a single subject. When speaker and subject are similarly situated, the state may not pick and choose." Perry Educ. Assn. v. Perry Local Education Assn, 460 U.S. 37, 55 (1983). "Any access barrier must be reasonable and viewpoint neutral [citations]." Christian Legal Soc. Chapter of the University of California, Hastings College of the Law v. Martinez, 130 Sect. 2971, 2984 (2010). "When the government targets not subject matter, but particular views taken by speakers on a subject, the violation of the First Amendment is all the more blatant. [Citation.] Viewpoint discrimination is thus an egregious form of content discrimination. The government must abstain from regulating speech when the specific motivating ideology or the opinion or perspective of the speaker is the rationality for the restriction." Rosenberger v Rector and Visitors of University of Virginia, 515 U.S. 819, 829 (1995). The exclusion of critical comments from the BDCP website at the same time as the government agency proponents continue to post materials that promote their viewpoint that BDCP is a worthwhile project violates the First Amendment prohibition of viewpoint discrimination in forums created by the government.
	The Denial of the Right of Access to Critical Comments Violates the California Constitution.	The California Constitution provides in pertinent part that "The people have the right of access to information concerning the conduct of the people's business, and, therefore, the meetings of public bodies and the writings of public officials and agencies shall be open to public scrutiny." Cal. Const. Art. 1, § 3(b)(1). Moreover, any authority "shall be broadly construed if it furthers the people's right of access, and narrowly construed if it limits the right of access." Cal. Const. Art. 1, § 3(b)(2). "Given the strong public policy of the people's right to information concerning the people's business (Gov.Code, § 6250), and the constitutional mandate to construe statutes limiting the right of access narrowly (Cal. Const., art. 1, § 3, subd. (b)(2), all public records are subject to disclosure unless the Legislature has expressly provided to the contrary." Sierra Club v. Superior Court, 57 Cal.4th 157, 166 (2013) (internal quotation marks deleted). The complexity of the BDCP and the volume of documents being circulated for public review to explain that complexity make review challenging even for professionals. For an average member of the public, the job is almost impossible. The public's ability to be informed regarding this project is facilitated by having access to comments being made by others during the review process, including non-profit environmental groups and other public agencies. The refusal to publish comment letters on the website as they come in denies the public the right of access to the comments in violation of the California Constitution.

	The Exclusion of Environmental Information Contrary to the Opinions of the Project Proponents Violates NEPA and CEQA.	NEPA and CEQA are both "environmental full disclosure laws." Silva v. Lynn, 482 F2d 1282, 1284 (1st Cir. 1973)(NEPA); Communities for a Better Environment v. City of Richmond, 184 Cal.App.4th 70, 88 (2010)(CEQA). Both laws require that an agency "use its best efforts to find out all that it reasonably can" about the subject project and its environmental impacts. Barnes v. U.S. Dept. of Transp. 655 F.3d 1124, 1136 (9th Cir. 2011)(NEPA); Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova, 40 Cal. 412, 428 (2007)(CEQA). Interfering with review by members of the public of comments made by other members of the public is environmental concealment, not disclosure, and is calculated to prevent the public from finding out all that it reasonably can about the subject project and its impacts. CEQA provides that "notwithstanding any other provision of law" the record of proceedings "shall include, but is not limited to," written documents submitted by any person relevant to findings and all written correspondence submitted to the respondent public agency with respect to compliance with CEQA or the project. Public Resources Code § 21167.6(e)(3), (7). The NEPA Regulations require that federal agencies make comments received under NEPA available to the public pursuant to the provisions of the Freedom of Information Act and that they shall be provided without charge to the extent practicable. 40 C.F.R. § 1506.6(f). The CEQA Regulations provide that: Public participation is an essential part of the CEQA process. Each public agency should include provisions in its CEQA procedures for wide public involvement, formal and informal consistent with its existing activities and procedures, in order to receive and evaluate public reactions to environmental issues related to the agency's activities. Such procedures should include, whenever possible, making environmental information available in electronic format on the Internet, on a web site maintained or utilized by the public agency. 14 Code Cal. Regs § 15201(emphasis added). Instead, the BDCP proponent agencies have selectively published environmental information favorable to the project on their website while concealing what they consider to be unfavorable information that they would rather not share with the public. Making the comments available only after the comment period has closed makes a mockery of the promise of a fair, transparent and open process. Members of the public will have no opportunity to learn information provided by those with concerns about the BDCP in time to help them develop their own timely comments, including suggested alternatives to the project. The exclusion of comments from the website violates the environmental full disclosure purposes of both NEPA and CEQA, and the CEQA regulation requiring the posting of environmental information on the agency's website.
	The public handout, "BDCP EIR/EIS Highlights" December 2013, contains summary information which is misleading in its presentation and completeness.	The table on page 39 shows the amount of Williamson Act Lands converted. The % conversion of the lands in the delta leads the reader to conclude that the impacts are fairly small, e.g. 1.2% for the proposed project. What is not obvious is that this impact only represents the conveyance footprints and specifically avoids showing the number of acres that occur from the rest of the actions included in those alternatives. If those were included, it would show about 115,000 acres of conversion for alternative 4 which is about 14% of the surface area of the delta. Since all of the actions are taking place on the land part of the delta, conversion of WA farmland is over 20%. The representation of the impacts is so biased and purposely incomplete in this document, it is clearly designed to confuse and mislead the public with regards to the impacts of the project. This same misleading table was used as a poster at the public open house meetings conducted by BDCP from December 2013 - February 2014.

	Here are some examples of inappropriate Lead Agency project advocacy from the BDCP EIR/EIS website from November 19, 2013: http://baydeltaconservationplan.com/News/OpinionArticles.aspx - "Opinion Articles The following selected opinion articles represent the views of the state administration in support of the Bay Delta Conservation Plan."	http://www.dailydemocrat.com/news/ci_24043894/meral-norcal-benefits-from-delta-water-plan - "Gov. Jerry Brown's conservation plan would provide clear benefits to all Californians through restoration of the largest estuary along the west coast and through vastly improving the reliability of the Delta's current water system, which is subject to disruptions and possible shut-downs caused by a predicted rise in sea level, earthquakes, floods and ongoing efforts to protect endangered fish species." "To logically reach the newspaper's conclusion that there is no benefit one would have to deny or look past the purpose, size, effects and full range of benefits BDCP is calculated to provide the entire state. The benefits range from the billions of dollars that would be spent on employment and the purchase of everything from equipment to the concrete needed to form the tunnels to a painstakingly detailed ecological restoration plan that aims to enhance and sustain Delta smelt and Chinook salmon populations. Wouldn't readers of the newspaper benefit from enhancing the survivability of salmon if it means the salmon thrive to spawn in local waters for decades to come? Wouldn't they benefit from a strengthened statewide economy and the $4.8 to $5.4 billion net benefit economists predict would result from stabilizing water deliveries? Wouldn't they also benefit by supporting steps we can take now to improve and protect the Delta water conveyance from sea level rise and the probability of earthquakes? Would northern California somehow be wholly immune from the economic damage that would result should water be abruptly cut off to 25 million people? Surely, you don't need to live in the Delta, or even be a fisherman, to appreciate and value moves to support the future survival of an endangered species like Chinook salmon. " "The fish and wildlife resources in the Delta are declining, and only strong action gives any hope that they can be restored. The Bay Delta Conservation Plan is the best way to achieve this worthwhile goal." "The fact is the plan will do no harm to Northern California water rights, biological resources, or communities. In fact, it will actually benefit water users along the Sacramento River by helping to restore salmon and steelhead populations, relieving pressure from regulators on water users from Solano to Shasta counties."
	The BDCP EIS/EIR Lead Agencies (DWR, Reclamation, NMFS and FWS) have engaged in a campaign of advocacy for the BDCP project utilizing the official EIR/EIS website for public promotion in favor of the project which is in direct violation of NEPA and CEQA requirements for neutrality and objectivity in the environmental evaluation of the project. Here is an example of inappropriate project advocacy from the EIS/EIR lead agencies taken from the BDCP EIR/EIS website on November 19, 2013: http://baydeltaconservationplan.com/News/OpinionArticles.aspx	http://www.foxandhoundsdaily.com/2013/10/water-tunnels-good-economy-environment/#sthash.0Jk2sTjE.dpuf - "It would provide secure and reliable water deliveries in the event that levee failure compromises water quality near the pumps. This also would help restore natural flow patterns in the Delta, protecting salmon and other fish species. The configuration of the south Delta system today is a dead end. Two out of three fish that get trapped there die. Other features of the plan will improve food production and rearing and migrating habitat for fish." "This restoration would benefit a large number of native species that depend on these habitats such as resident and migratory waterfowl, shorebirds, river otters, kit fox, coyote, shrimp and other crustaceans, aquatic insects, fish, and native plants. BDCP would provide extensive areas of transitional uplands to ensure that tidal marsh can persist and "migrate" upslope in the face of expected sea level rise."

	The BDCP EIS/EIR Lead Agencies (DWR, Reclamation, NMFS and FWS) have engaged in a campaign of advocacy for the BDCP project utilizing the official EIR/EIS website for public promotion in favor of the project which is in direct violation of NEPA and CEQA requirements for neutrality and objectivity in the environmental evaluation of the project. Here is an example of inappropriate project advocacy from the EIS/EIR lead agencies taken from the BDCP EIR/EIS website on November 19, 2013: http://baydeltaconservationplan.com/News/OpinionArticles.aspx	http://www.sacbee.com/2013/10/27/5846827/viewpoints-the-balancing-act-of.html - "Yet it appears on track to becoming a sound investment for dozens of public water agencies and the California public at large." "Our research shows that the plan, soon to be released for public review, reflects a balancing of the two fundamental goals the plan must meet: more reliable water supplies and a healthier Delta ecosystem." "Building five new intakes on the Sacramento River capable of filling the existing aqueduct system of the State Water Project and Central Valley Project would be the preferable approach from the narrow standpoint of improving water supply for the 25 million Californians and 3 million acres of farmland that use Delta water. Our cost-benefit analysis scores this proposal highest." "It sounds reasonable to argue for a smaller conveyance system to free up money to invest in water supply development outside the Delta, but our work shows that it doesn't pencil out." "Continued inaction could lead to much higher long-term costs to meet environmental and water supply goals." "If no new Delta water conveyance system is built and certain seasonal Delta flows and pumping restrictions weighed by wildlife agencies were imposed to protect fish, the result could be the loss of more than 1 million acre-feet of water supply a year. That supply loss would trigger severe cutbacks to farms and cities, and widespread economic pain. Avoiding further water supply cutbacks from the Delta is valuable, even if the $25 billion investment in the Bay Delta Conservation Plan produces no additional supplies. Our economic analysis suggests that the water supply reliability offered by the plan is worth $15 billion over 50 years to the water districts that depend upon the Delta. In all, once water quality and seismic security benefits also are considered, the Bay Delta Conservation Plan offers these water districts – whose customers would pay more than two-thirds of the plan's costs – net benefits worth $5 billion. The plan represents the proverbial choice of paying less now or a lot more later. Its stabilizing effect on water supply also would help build California's economic muscle. By my calculation, the plan would increase economic activity statewide by $84 billion over its 50-year life, even after the costs of the project are taken into account. As a voluntary partnership, the Bay Delta Conservation Plan must make biological sense for the wildlife agencies and financial sense for the paying public, all while achieving broader state goals for the environment and the economy. The plan itself is a balancing act, but its statewide costs and benefits are not. In terms of California's economic future, this plan would pay off in a big way."
	The BDCP EIS/EIR Lead Agencies (DWR, Reclamation, NMFS and FWS) have engaged in a campaign of advocacy for the BDCP project utilizing the official EIR/EIS website for public promotion in favor of the project which is in direct violation of NEPA and CEQA requirements for neutrality and objectivity in the environmental evaluation of the project. Here is an example of inappropriate project advocacy from the EIS/EIR lead agencies taken from the BDCP EIR/EIS website on November 19, 2013: http://baydeltaconservationplan.com/News/OpinionArticles.aspx	http://www.insidebayarea.com/opinion/ci_24183739/putting-proposed-delta-tunnels-better-perspective - "Importantly, the BDCP would vastly improve the reliability of the Delta's current water system, helping to responsibly protect it from potentially catastrophic disruptions and shutdowns resulting from efforts to protect endangered fish species, rising sea levels caused by climate change, and predicted floods and earthquakes."

	The BDCP EIS/EIR Lead Agencies (DWR, Reclamation, NMFS and FWS) have engaged in a campaign of advocacy for the BDCP project utilizing the official EIR/EIS website for public promotion in favor of the project which is in direct violation of NEPA and CEQA requirements for neutrality and objectivity in the environmental evaluation of the project. Here is an example of inappropriate project advocacy from the EIS/EIR lead agencies taken from the BDCP EIR/EIS website on November 19, 2013: http://baydeltaconservationplan.com/News/OpinionArticles.aspx	http://www.mantecabulletin.com/archives/79806/ - "The plan preserves San Joaquin Valley agriculture by creating a more reliable and secure supply. The plan would not affect water rights"
	The BDCP EIS/EIR Lead Agencies (DWR, Reclamation, NMFS and FWS) have engaged in a campaign of advocacy for the BDCP project utilizing the official EIR/EIS website for public promotion in favor of the project which is in direct violation of NEPA and CEQA requirements for neutrality and objectivity in the environmental evaluation of the project. Here is an example of inappropriate project advocacy from the EIS/EIR lead agencies taken from the BDCP EIR/EIS website on November 19, 2013: http://baydeltaconservationplan.com/News/OpinionArticles.aspx	http://www.westerncity.com/Western-City/July-2013/The-Bay-Delta-Conservation-Plan/ – Mark Cowin, Director DWR: "The Bay Delta Conservation Plan (BDCP), seven years in the making, would prevent water delivery disruption by constructing three new screened intakes along the Sacramento River 35 miles north of the existing pumping plants. Twin tunnels buried up to 150 feet beneath the Delta's peat soil would carry the water south, ensuring that water supplies could be delivered even if climate change and other forces resculpt the interior Delta." "A new Delta water conveyance system would safeguard the water delivery system. But the ecological imperative for such an improvement is as compelling as the economic reasons." "To upgrade fish screens here would cost a lot of money and yield minimal benefit," "Reducing reliance on the south Delta pumps would also allow for more natural east-west flows in the tidally influenced south Delta. That would minimize the extent to which reverse flows caused by pumping may draw migratory fish off course." "There's another reason to build a northern diversion point: Threatened Delta smelt rarely venture so far north in the Sacramento River. Generally Delta smelt avoid the stretch of the river where the federal and state governments propose to build new intakes. In comparison, Delta smelt frequent the south Delta. Rules to protect the smelt frequently force shutdowns of the south Delta pumps." "New pumping plants outside the zone of prime Delta smelt habitat would have helped both fish and people this year. But Delta smelt, salmon, sturgeon, sandhill cranes, Swainson's hawks and dozens of other kinds of Delta wildlife need more than relocated pumping plants." "Such habitat would serve not only to shelter fish and wildlife, but also to boost food production across the aquatic system." "Intakes of 9,000 cubic feet per second would allow the federal and state water projects to take a "big gulp" of winter storm flows, when pumping causes minimal ecological harm." "Doing nothing will cost future Californians a lot more someday."

	The BDCP EIS/EIR Lead Agencies (DWR, Reclamation, NMFS and FWS) have engaged in a campaign of advocacy for the BDCP project utilizing the official EIR/EIS website for public promotion in favor of the project which is in direct violation of NEPA and CEQA requirements for neutrality and objectivity in the environmental evaluation of the project. Here is an example of inappropriate project advocacy from the EIS/EIR lead agencies taken from the BDCP EIR/EIS website on November 19, 2013: http://baydeltaconservationplan.com/News/OpinionArticles.aspx	http://www.recordnet.com/apps/pbcs.dll/article?AID=/20130519/A_OPINION06/305190304/-1/a_news13 - "The Bay Delta Conservation Plan is, after all, one of the most important and visionary public works projects ever conceived. The health of 25 million Californians, the productivity of farms throughout the Central Valley and businesses statewide, the uninterrupted functioning of our economy, and ensuring a more reliable source of water for generations to come depend on its success." "Lastly, the plan will produce many jobs for Stockton residents and others throughout the region. In all, the construction, operations and maintenance, and the habitat restoration work are expected to create 136,723 jobs over the next 50 years. Surely, that's something the newspaper can support."
	The BDCP EIS/EIR Lead Agencies (DWR, Reclamation, NMFS and FWS) have engaged in a campaign of advocacy for the BDCP project utilizing the official EIR/EIS website for public promotion in favor of the project which is in direct violation of NEPA and CEQA requirements for neutrality and objectivity in the environmental evaluation of the project. Here is an example of inappropriate project advocacy from the EIS/EIR lead agencies taken from the BDCP EIR/EIS website on November 19, 2013: http://baydeltaconservationplan.com/News/OpinionArticles.aspx	http://www.sacbee.com/2013/04/14/5338213/the-big-divide-over-water-plan.html - "California has an extraordinary opportunity to make its water supplies safer and more secure. We can avoid the devastating economic impacts of a natural disaster. We can restore the ecological health of the Sacramento-San Joaquin Delta and enhance Delta communities. We are, at last, positioned to achieve these significant benefits through the Bay Delta Conservation Plan." "Having new water intakes 35 miles from the existing pumps would improve the ability of California's major water projects to divert water when and where it does the least ecological harm. This is the Bay Delta Conservation Plan proposed project." "…the Bay Delta Conservation Plan will not impair the water rights of those using water upstream." "An investment of only $15 billion – the estimated cost of a new Delta conveyance system – would secure these supplies from disaster and prevent an economic calamity, as well as secure the health of the Delta ecosystem." "With an improved Delta, millions of working families will be able to turn on a tap and have water, farmers will irrigate the fields that produce our food, our high-tech economy will continue to grow jobs, and native salmon and smelt will thrive."
	The BDCP EIS/EIR Lead Agencies (DWR, Reclamation, NMFS and FWS) have engaged in a campaign of advocacy for the BDCP project utilizing the official EIR/EIS website for public promotion in favor of the project which is in direct violation of NEPA and CEQA requirements for neutrality and objectivity in the environmental evaluation of the project. Here is an example of inappropriate project advocacy from the EIS/EIR lead agencies taken from the BDCP EIR/EIS website on November 19, 2013: http://baydeltaconservationplan.com/News/OpinionArticles.aspx	http://www.youtube.com/watch?feature=player_embedded&v=q6eHdY2HgKE. This video is an advocacy piece for the project which is in direct conflict with the independent objective environmental review required by NEPA and CEQA. DWR and Reclamation need to retract these advocacy materials as they are in direct conflict with their responsibilities as lead agencies. since DWR and Reclamation have demonstrated their bias on this project, they should hand over lead agency responsibilities to other agencies.

	The BDCP EIS/EIR Lead Agencies (DWR, Reclamation, NMFS and FWS) have engaged in a campaign of advocacy for the BDCP project utilizing the official EIR/EIS website for public promotion in favor of the project which is in direct violation of NEPA and CEQA requirements for neutrality and objectivity in the environmental evaluation of the project. Here is an example of inappropriate project advocacy from the EIS/EIR lead agencies taken from the BDCP EIR/EIS website on November 19, 2013:	http://baydeltaconservationplan.com/Libraries/Dynamic_Document_Library/BDCP_Securing_California_s_Water_Supplies.sflb.ashx "The BDCP would modernize the heart of California's aging water supply network, while balancing environmental and water supply considerations". "Using gravity to transport water would save tremendous amounts of energy and reduce greenhouse gas emissions over time." Commenter note: not as compared to the existing condition, No Project or No Action conditions. "The proposed tunnel and intake facilities will: Protect the state's most critical water delivery system by ensuring that the new facilities have 200-year flood protection, Protect against sea level rise and flooding due to climate change by building intakes upstream in the north Delta, and Protect against earthquake damage by using the latest seismic criteria and design methodologies in the tunneling industry."
	The BDCP EIS/EIR Lead Agencies (DWR, Reclamation, NMFS and FWS) have engaged in a campaign of advocacy for the BDCP project utilizing the official EIR/EIS website for public promotion in favor of the project which is in direct violation of NEPA and CEQA requirements for neutrality and objectivity in the environmental evaluation of the project. Here is an example of inappropriate project advocacy from the EIS/EIR lead agencies taken from the BDCP EIR/EIS website on November 19, 2013: http://baydeltaconservationplan.com/News/OpinionArticles.aspx	http://baydeltaconservationplan.com/Libraries/Dynamic_Document_Library/5-22-13_Congressional_letter_of_support_for_BDCP.sflb.ashx - "Thirteen California members of the U.S. Congress today sent a letter to U.S. Secretary of the Interior Sally Jewell and California Gov. Edmund G. Brown, Jr., expressing "continued strong support" for the Bay Delta Conservation Plan"
	The BDCP EIS/EIR Lead Agencies (DWR, Reclamation, NMFS and FWS) have engaged in a campaign of advocacy for the BDCP project utilizing the official EIR/EIS website for public promotion in favor of the project which is in direct violation of NEPA and CEQA requirements for neutrality and objectivity in the environmental evaluation of the project. Here is an example of inappropriate project advocacy from the EIS/EIR lead agencies taken from the BDCP EIR/EIS website on November 19, 2013:	http://baydeltaconservationplan.com/Libraries/Dynamic_Document_Library/BDCP_Overview_Brochure_3-14-13.sflb.ashx "The BDCP Can Solve the Delta's Problems and Provide Reliable Water Supply, Economic Sustainability and Jobs" "…the BDCP will: Provide water managers with a reliable and predictable amount of water; Protect against water supply disruptions for 66 percent of the state's population; Protect water supplies from catastrophic failure due to earthquakes or failed levees; Boost the state's ability to respond to drought and climate change; Create 137,000 jobs; Isolate water supplies from increasingly stressed Delta levees; Implement ecologically friendly ways to move California's drinking and irrigation water under the Delta to secure water supplies for California homes, businesses, and farms; Improve the overall ecological health of the Delta; Reverse the trend of habitat loss and help recover declining populations of native species; Address habitat needs for 11 fish species and 46 wildlife and plant species; Improve natural flow conditions for fish and wildlife; Implement an accelerated habitat restoration program by creating 30,000 acres of aquatic habitat in the next 15 years; Reconnect floodplains and rivers; Return degraded riverbanks to a more natural state; Improve water quality; Control invasive species"

	The BDCP EIS/EIR Lead Agencies (DWR, Reclamation, NMFS and FWS) have engaged in a campaign of advocacy for the BDCP project utilizing the official EIR/EIS website for public promotion in favor of the project which is in direct violation of NEPA and CEQA requirements for neutrality and objectivity in the environmental evaluation of the project. Here is an example of inappropriate project advocacy from the EIS/EIR lead agencies taken from the BDCP EIR/EIS website on November 19, 2013: http://baydeltaconservationplan.com/News/OpinionArticles.aspx	http://baydeltaconservationplan.com/Libraries/Dynamic_Document_Library/BDCP_Overview_Brochure_3-14-13.sflb.ashx "As the Delta ecosystem improves in response to BDCP implementation, water operations will become more reliable and secure." "The direct benefits of the BDCP to water users—reliable export volume, reduced regulatory and legal uncertainty, improved water quality, reduced seismic risk to water supplies—exceed the costs of BDCP." "BDCP would environmentally retrofit, modernize, and restore greater flexibility to the state's water system."
	The BDCP EIS/EIR Lead Agencies (DWR, Reclamation, NMFS and FWS) have engaged in a campaign of advocacy for the BDCP project utilizing the official EIR/EIS website for public promotion in favor of the project which is in direct violation of NEPA and CEQA requirements for neutrality and objectivity in the environmental evaluation of the project. Here is an example of inappropriate project advocacy from the EIS/EIR lead agencies taken from the BDCP EIR/EIS website on November 19, 2013: http://baydeltaconservationplan.com/News/OpinionArticles.aspx	http://baydeltaconservationplan.com/Libraries/Dynamic_Document_Library/BDCP_Fast_Facts.sflb.ashx - "The BDCP Would Benefit Millions of Californians" "The BDCP Would Benefit the Delta Ecosystem"
	Public Comments of Lead Agency Staff that Direct the EIR/S show biases and pre-decision on the outcome of the project prior to the completion and certification of the environmental documents.	Jerry Meral, DNR (in charge of the BDCP EIR for DNR and directing DWR in the preparation of the EIR/EIS) – Retirement letter to Jerry Brown 12/13/13 – published quote in Sacramento Bee: "While additional permits will be required," Meral said in the letter, "it is virtually certain that the plan will be implemented."
	The BDCP Federal Lead agencies, Reclamation, USFWS, and NMFS have violated their contracting regulations with how the originally contracted consultant team was replaced.	The following companies included in the EIR/S List of Preparers were not part of the consultant team selected to develop the EIR/S: Fehr & Peers, SAIC, Black & Veatch, ICF International, Apple One, Egret, Inc. and Estep Environmental Consulting. The federal agencies did not participate in the selection process for these contractors and no selection process adhering to state contracting standards was used by DWR.

	The BDCP Federal Lead agencies, Reclamation, USFWS, and NMFS have violated their contracting regulations with how the originally contracted consultant team was replaced.	The originally selected BDCP EIR/S Prime Contractor, HDR Engineering, does not have a single staff member identified as a contributing author in the EIR/S. HDR is not even identified as part of the consultant team prior to 2011. The consultant team preparing the EIR/S was effectively completely replaced without the lead agencies conforming to contracting regulations. The contract was not re-noticed in the Federal Register, a Request for Proposals was not circulated, Proposals were not evaluated and scored using an accepted system, qualified teams were not interviewed and a winning proposal team was not selected. ICF International replaced the consultant team that was selected that conformed to contracting regulations without the ICF International team going through any of the contracting approval process and procedures. The Lead Agencies have violated their contracting rules by replacing the originally selected and contracted consultant team. As a result of these contracting illegalities, the work product produced by this unauthorized group should be set aside by the agencies and unauthorized fees paid to these contractors should be recovered. The environmental review consultant team contracting process should be restarted to properly conform to contracting regulations and once selected that team should review and revise the developed materials into a suitable and appropriate informational and decision document.
	The BDCP Federal Lead agencies, Reclamation, USFWS, and NMFS have violated their contracting regulations with how the originally contracted consultant team was replaced.	The Hallmark Group, directed work on the development of the EIR/S, but was also not part of any team reviewed or selected by the Federal Lead Agencies or that conformed to their contracting regulations. Hallmark materially directed the EIR/S project schedule, policy and technical issue resolution, and content reviews in the EIR/S. All work for the EIR/S conducted under their direction and review of Hallmark should be discarded and redone in conformance with approved Federal Agency EIS development guidelines.
	The BDCP Federal Lead agencies, Reclamation, USFWS, and NMFS have violated their contracting regulations with how the originally contracted consultant team was replaced.	NEPA EIS contractors must execute a disclosure statement, prepared by the lead agency, specifying that the contractor has no "financial or other interest in the outcome of the project." 40 CFR 1506.5(c). The companies identified above were not part of the EIR/S consultant team, so disclosure statements submitted by the original HDR Engineering team do not apply to these companies. These companies and the Federal Lead Agencies are in violation of NEPA regulations if they did not submit disclosure statements prepared by the lead agencies prior to them engaging in developing work products for the EIS.
	The BDCP Federal Lead agencies, Reclamation, USFWS, and NMFS have violated their contracting regulations with how the originally contracted consultant team was replaced.	Since the companies identified above were not contracted to prepare the EIR/S, the materials developed by these companies violate the Federal Advisory Committee Act (FACA). Paid third party advocates prepared critical elements of a decision document which is supposed to be independent and unbiased and which may result in them getting privileged information and/or an unfair advantage in future contracting. The EIS is required to be an objective, good faith attempt at full disclosure, and could be invalidated in court if it is found to be biased. See Project Advocacy related comments in this section.
	The BDCP Federal Lead agencies, Reclamation, USFWS, and NMFS have violated their contracting regulations with how the originally contracted consultant team was replaced.	In addition to the FACA violations of the environmental consultants, materials prepared for the BDCP HCP/NCCP that were developed by the project proponents, e.g. Metropolitan Water District, Kern County Water Agency, etc. were used wholesale and verbatim in the EIR/S. Since the entities that prepared these materials for the HCP/NCCP were not contracted to develop the EIR/S, these materials also violate FACA.
	The BDCP Federal Lead agencies, Reclamation, USFWS, and NMFS have violated their contracting regulations with how the originally contracted consultant team was replaced.	The Biological Assessment (BA) for the BDCP was not in the scope of the original HCP/NCCP or EIS/EIR contract, so ICF International's FACA violations on the BDCP project should conflict them out of potential contention for future contracting of the BA or any future BDCP contracts.
Chapter 32 - Public Involvement		
	Alternatives identified in public scoping were not evaluated and/or not given adequate consideration in the alternatives screening and development process.	Alternatives identified, but not considered or not given adequate consideration in the alternative development process include: Sacramento Deep Water Ship Channel as a conveyance; additional south of water storage; additional north of delta storage; enhancements to south delta pumping facilities and operations; distributed intakes; and combinations of north and south of delta storage, modification of south delta pump facilities and operations and distributed intakes;

	The public should have a comment period duration that is sufficient to allow review and comment on the entire document.	Some members of the public are only concerned with portions of the document, but land owners and members of the delta communities are concerned with every aspect of the potential impacts of the project. The document identifies (or at least it should) significant impacts to the delta for virtually all of the 25 resource categories analyzed in the documents. In order for the delta land owners and communities to understand and comment on the project impacts to their livelihoods and quality of life, the review period needs to be extended so that the public has the opportunity to provide the essential public participation in the project to avoid and minimize those impacts to the greatest extent feasible and practicable. The current review period duration in combination with the document size effectively forces the public to pick and choose what sections of the document that they will have the opportunity to review and comment on which unfairly diminishes their role in the environmental review process as defined and protected by NEPA and CEQA regulation.
	The current review period of 180 days is too short.	At approximately 40,000 pages of materials to review, the 180 day public review period requires a person to review and comment (with supporting analyses, references, etc.) on over 220 pages a day including weekends and holidays. There are 6 holiday days during the review period and over 45 days that are weekends, so excluding those a person would need to review and comment on 310 pages per day. This pace of public review opportunity does not stand the test of reason. CEQA guidance says a large complex project EIR should be less than 300 pages. At the estimated 40,000 pages the BDCP documents are over 130 times larger than CEQA guidance recommends. A 300 page document and a standard 60 day review period per CEQA guidance result in an average of 50 pages per day for review and comment. 50 pages per day for review and comment is what we are requesting from the BDCP to allow an appropriate opportunity for public comment. 50 pages/working day (excluding weekends and holidays) for review and comment is the maximum that could be considered reasonable and not exclusive of the opportunity for the public to participate. At the current 40,000 pages and 50 pages per day review (excluding weekends and holidays), the public review and comment period should be well over 1,100 days.
	The documents are unnecessarily long.	The documents include substantial amounts of material that are redundant or not necessary to include in the document. This makes the document much larger than it needs to be to communicate the essential information to the public and agency personnel using this as a decision document. The inclusion of such large volumes of redundant and unnecessary materials, we consider a strategy on the project's part to make the environmental document so large and onerous that the public won't be able to get through it and substantively comment on it. Judging by our brief review of the document so far, there are literally thousands of pages of materials that are redundant and or unnecessary.
	The document is poorly organized.	Information that is necessary as context to evaluate one topic, i.e. Water Supply, is not introduced until later in the document, i.e. Water Quality. How can you meaningfully discuss water supply impacts without the context of understanding changes that have occurred to water quality suitability for water supplies. Climate change affects most resources and is discussed in most chapters, but it is the second to last resource topic introduced in the document. The Proposed Action is the 4th alternative. The Proposed Action is obviously one of the main focuses for the public in the review and comment. Making the Proposed Action the 4th alternative makes comparison and evaluation of the Proposed Action more difficult and cumbersome for the review and comment process.
	The table that summarized the changes to the EIR/S between the Administrative Draft and the Public Draft is substantially misleading.	Substantive changes to the text and wording of the document have been made throughout the document. The summary of changes table comes nowhere near encompassing or correctly characterizing the magnitude and extent of substantive changes that have occurred to the document. The opportunity for the public to review the Administrative Draft version of the document in advance of the Public Draft version and the inclusion of a misleading table summarizing changes between the two versions does not reduce the large burden placed on the public for commenting on this ridiculously large size, high complexity, overly technical, poorly organized, redundant material laden document.

	In addition to the time extension to provide an adequate opportunity for public input we request several additional responses from the project to reduce the current onerous and unreasonable burdens on the public review process.	These requests include: Remove all of the redundant and unnecessary materials from the public draft. This will shorten the length of the document, and therefore reduce the public review burden by at least several thousand pages. Provide a red-line strikeout version of the public draft showing all of the changes that were made from the administrative draft. This allows people who invested substantial amounts of time to review the administrative draft to understand the changes that have been made and provides a partial remedy for the misleading summary table of changes in the public draft. Reorganize the document so that there is a more logical sequence of presentation of information. At the very least the Proposed Action should be organized as the first alternative.
	As final evidence of how cumbersome the document is to review, has any individual staff member (including the decision makers that authorized the release of the document) of the lead agencies read and commented on every single page of the document?	The answer is "no", because that is not a humanly doable task. The agency staff members haven't had enough time to review the entire document and neither have we, the public.
	The public must get enough detail in NOI/NOP to determine if the project is relevant to them. Land owners and the public did not get enough detail to determine if they are potentially affected or not.	The footprint of potential construction or habitat location was not specific enough for land owners to determine if they were potentially affected or not. The magnitude of land seizure/conversion (25% of the statutory delta) was not disclosed so that the communities could determine the potential magnitude of the project. The tunnel conveyance was not one of the project options originally disclosed in the NOI/NOP. The scale of facilities (300' tall surge towers, three 160 acre diversion pump facilities, security lighting and noise level of the diversion facilities, three diversion structures that are up to a half mile long each), rerouting of state highways), was inadequately described such that the nature and potential magnitude of affect on adjacent properties from facilities and habitat could be determined by the public and surrounding communities.
	During the EIR/S public scoping the lead agencies promised the public that the project would not condemn private lands for habitat restoration. Now the project is condemning lands for habitat restoration.	The public was not given an opportunity to comment on the condemnation process for habitat restoration in the project scoping. Further, this important change in the scope and impacts of the project was never noticed in the Federal Register. The BDCP should re-notice the NOP and redo scoping so that this important change in the aspect of the project is disclosed to the public.
	The BDCP public meetings during the public review period of the draft EIR/S failed to disclose any of the conclusions reached in the draft document analysis.	A series of posters were presented to the public. The content of the posters only covered basic aspects of what the NEPA and CEQA process is intended to address and existing conditions information. The BDCP specifically withheld from the public and presentation or discussion of the conclusions reached from the DEIR/S document.
	The BDCP EIR/S fails to analyze all aspects of the alternatives at an equal level of detail as CEQA requires.	The description and analysis (as flawed as it is - see related comments) of tunnel muck in the REUSABLE TUNNEL MATERIAL TESTING REPORT addresses only the Proposed Project alternative 4 alignment. There are other alternatives that also require tunneling, pipeline, tributary bypass culverts, levee setbacks, habitat restoration land forming, levee laybacks for the bypass inundation, levee breaching, and other actions that will generate large volumes of soil and spoils to be disposed of. The BDCP EIR/S did not sample, characterize or analyze these other spoils disposals at the same level of detail as provided in the analysis of alternative 4, the proposed project. This unequal level of analysis must be corrected, the document revised and recirculated for public comment after these new sets of information and disclosure have been changed.
Chapter 33 - List of Preparers		

	Inclusion of contractors as preparers of the EIR/S document that were not part of the selected or approved EIR/S consultant team demonstrates that DWR, Reclamation, FWS, and NMFS violated state and federal contracting regulations.	Companies (and their staff) identified in the List of Preparers that were not on the selected EIR/S consultant team include: SAIC, Fehr & Peers, Black & Veatch, Apple One, Egret, Inc., Estep Environmental Consulting and ICF International. Everyone that directly contributed materials that resulted in the final formulation of the document (whether their specific materials were included or not), should be included in the list or preparers. We believe that materials that were written by the water contractors staff and their agents and representatives were directly incorporated into the EIR/S document which was not disclosed and is a violation of NEPA and CEQA development guidance and lead agency policies. These water contractor contributing authors should also be disclosed in the list of preparers.
	90+% of the original EIR/S contracting team is not included in the List of Preparers. According to the Draft EIR/S List of Preparers, there is no content in the document that was contributed to by the originally selected EIR/S contractor team other than CH2M HILL and AECOM. The rest of the originally selected EIR/S contractor team apparently contributed no content to the document including: HDR Engineering, Hansen Environmental, Tulley and Young, MBK, Western Resource Economics, ESA Associates, Davis Group, Jack Benjamen & Associates, Kroen Consulting, Lorren Bottoroff, Robertson-Bryan, William Lettis & Associates, Ron Ott or Resource Management Associates.	At the time that ICF was brought in to complete the EIR/S (in violation of State (DWR) and Federal (Reclamation, FWS and NMFS) contracting regulations - see related comments under NEPA/CEQA Requirements) more than two years after the original EIR/S consultant team (HDR) was under contract, the original team had completed and submitted for review preliminary draft sections of the EIR/S, e.g. environmental settings, regulatory background, methodologies, preliminary environmental impact analyses, reference materials, etc. DWR and Reclamation spent two years and tens of millions of dollars (estimated at over $50,000,000) on those original environmental team EIR/S draft documents. The List of Preparers identifies that none of those materials made it into the Public Draft EIR/S and that DWR and Reclamation wasted 2 years and tens of millions of dollars on the environmental review process. Are there really no materials in the EIR/S document from the originally contracted team with the exception of CH2MHILL and AECOM?
	The originally selected BDCP EIR/S Prime Contractor, HDR Engineering, does not have a single staff member identified as a contributing author in the EIR/S. HDR is not even identified as part of the consultant team prior to 2011.	The list of preparers is obviously in error and is misleadingly incomplete. Disclosure of who prepared the document is an important set of information for the public to judge the credentials of those who prepared the document. These omissions to the list of preparers warrant recirculation of the draft once the list has been corrected.
Chapter 34 - References		
	In general, the document was poorly supported by references.	The document contained very few references for a document of this type and size. Many bald statements of fact or condition are included in the EIR/S that do not have supporting references. An example of this is the description of the volumes of storage in the various CVP/SWP reservoirs. No references are provided as the source of this information. The BDCP certainly did not do these measurements themselves so they are using third party information without providing appropriate references. Many other statements of conditions or claims of resource relationships or sensitivities or impacts are identified in the document that do not have appropriate supporting references, e.g. thermal tolerances of fish. Without the appropriate supporting references, these statements should not be accepted as providing any evidence of benefits. The document should be reviewed and revised to provide supporting references to all currently unsupported statements.
Appendixes		

1B Water Storage	This appendix does not belong in the EIR/S.	See related comments under Chapter 3 Alternatives. Many of the statements in this appendix are untruthful in the context of NEPA and CEQA requirements. The appendix repeatedly claims that the project does not need to consider storage. That is true of the HCP as they are defining the proposed project. This claim that the project does not have to consider storage is very untrue with regards to NEPA and CEQA. If you review the Purpose and Need and Project Objectives chapter 2, you will see that storage meets almost every identified need, purpose and objective. Storage may or may not be a viable stand alone alternative, but the BDCP EIR/S did not even analyze or screen this option. Storage accomplishes most of the purpose, need and objectives better than the proposed project. Storage should also have been considered a component of an alternative and combined in several alternatives with other viable concepts. Storage could have been upstream for additional water supply (see related comments), in-delta operating buffer to manage water quality and upstream water supplies more efficiently (see related comments), and downstream storage for increased capacity and operational flexibility, e.g. timing of delta water diversions (see related comments). An example alternative that should have been evaluated by the BDCP, but was not, would be an alternative that combined new upstream (e.g. Sites Reservoir AKA NODOS), in-delta (e.g. Sacramento Deep Water Ship Channel with locks at the Cache Slough end - see related comments) and downstream storage (e.g. San Luis II - see related comments) with no new conveyance (e.g. through delta) and substantially reduced habitat restoration. Instead of evaluating and screening these different types of storage, all of which were introduced in the scoping process (see related comments), the BDCP decided not to evaluate or screen them at all and they have provided no consistent rationale for not considering these options other than their patently false claims that they don't have to consider storage if they don't want to. It is particularly important that storage is given full and appropriate consideration as an alternative or an alternative component as the environmental impacts and footprint of storage would be orders of magnitude smaller than the proposed project so the storage option would undoubtedly become the Least Environmentally Damaging Alternative (LEDPA). The project proponents know that a storage based project alternative would become the LEDPA and therefore be the mandated alternative by the EPA and USACE, so that is why they have worked to discredit the storage alternative without giving it due or consistent consideration in the screening process. The appendix is so in conflict with NEPA and CEQA that the lead agencies should be embarrassed to have included this wholly inappropriate appendix in their EIR/S. The EIR/S should be revised to omit this appendix, the lead agencies should publish a retraction and clarification regarding the presentation of the appendix materials to the public and the option of each type of storage and their combinations with each other and other alternative components should be given full consideration consistent with all other concepts introduced in scoping. Once storage has been integrated into one or several alternatives, the EIR/S should be revised and recirculated for public comment.

CDWA & SDWA

Additional Analysis and Comments
Set Two, 19 Pages

Comments: Draft BDCP EIR/EIS Appendix 4A Title, Summary of Survey Data Collection Efforts by Department of Water Resources to Obtain Information Regarding Baseline Conditions in Areas That Could Be Affected by BDCP	Topic
General Comments	
Key quote: Appendix 4A, p. 4A-1, beginning at line 7: Under CEQA and NEPA, state and federal lead agencies are required to undertake a certain amount of original research and analysis in order to obtain the information required to prepare legally sufficient environmental impact reports (EIRs) and environmental impact statements (EISs). Key quote: Appendix 4A, p. 4A-1, beginning at line 22: DWR has taken actions to obtain access to land in the Delta for the purpose of gathering information to be used in environmental review. DWR, however, has not been able to get access [to] a substantial number of the private properties that would yield relevant information. The problem repeatedly faced by DWR in such efforts has been the unwillingness of private property owners to allow entry onto their properties. Many landowners have gone to court to prohibit access. This appendix describes the actions taken by DWR to gain access to properties within the Delta as needed to fulfill the requirements of CEQA and NEPA and federal permits (i.e., Sections 408 and 404(b)) for the BDCP. Key quote: Appendix 4A, p. 4A-11, beginning at line 2: As the preceding discussion shows, DWR has been unable, despite diligent efforts, to gain access to all of the private properties within the Delta on which it would like to conduct ground surveys, Environmental Site Assessments, and engineering, biological, geotechnical, archaeological, floral and faunal studies. Although DWR has been able to conduct some of the geotechnical studies it contemplated originally, it has not been able to conduct all such studies because of the court order issued April 8, 2011. DWR has challenged that court decision and is currently seeking access to land in the Delta for the purpose of conducting the geotechnical activities through the use of eminent domain. In short, DWR has done all that is reasonably feasible under the circumstances to conduct thorough investigation of the impacts of all of the BDCP alternatives.	Failure of federal co-lead agencies to address lack of original scientific data and the subsequent lack of baseline data

DWR's best efforts failed even after serving land owners with TEP's and offering compensation. Appendix 4A describes the steps taken by DWR to gain access to private land and the chronology of court decisions resulting from various legal actions. Final court decisions are pending. Appendix 4A opines that despite all of the good and well meaning efforts of DWR, the State was not able to collect baseline environmental and geotechnical data on numerous privately owned lands because land owners would not allow access. DWR admits that lack of access prevented the collection of original data along alternative conveyance routes. Therefore, DWR was not able to collect baseline data along alternative conveyance routes. This failure to collect and analyze baseline data affects several key NEPA guidance elements, including alternative analysis. **Analysis**: None of the three co-lead federal agencies, or their NEPA guidance requirements, is mentioned in Appendix 4A. However, one issue that arises from the federal requirements is the need to establish baseline conditions so that those conditions can be evaluated against the "no-action" alternative in an EIS. Since NEPA refers to "alternative analysis" as the heart of an EIS, it seems reasonable to assume that baseline data is critical to the federal analysis. In some cases, the EIS data is incomplete or not available. When this situation occurs, the Council on Environmental Equality (CEQ) directs the agency to obtain the information if the cost to do so is not exorbitant. If collecting the data is not possible, the EIS must disclose what information is not available and identify the relevance of the information. We can not identify in Appendix 4A where any federal agency has addressed the CEQ guidance for missing data or data gaps. The following are excerpts from the three co-lead federal agencies NEPA Handbooks that address baseline data and why those data are necessary for alternatives analysis. NOAA-NMFS NEPA Guidance, The National Oceanic and Atmospheric Administration National Environmental Policy Act Handbook, Version 2.3, May 2009: > Every EIS must include an analysis of the No Action Alternative (40 CFR 1502.14 (d)). The No Action Alternative is simple; NOAA will not take any action to meet the purpose and need for the proposal. In most cases, the No Action Alternative would not further NOAA's stated purpose and need. However, it still must be described in the EIS in order to provide a baseline for	

comparison with the proposed action and any alternatives. All EIS's must include a description of the environment in which the proposed action and alternatives are to take place (40 CFR 1502.15). This description provides a view on the current conditions and serves as a baseline against which to compare impacts of the alternatives. Focus should be on specific resources that are most likely to be impacted. For project-specific analysis, the affected environment typically encompasses the proposed action's site and immediate vicinity. However, the analysis of cumulative impacts may broaden that range. [From recommended EIS organization] Present the No Action Alternative first to establish a baseline against which other alternatives will be compared. U.S. Fish and Wildlife Service NEPA Reference Handbook (2002) NEPA's Forty Most Asked Questions, 25a: Lengthy technical discussions of modeling methodology, baseline studies, or other work are best reserved for the appendix. In other words, if only technically trained individuals are likely to understand a particular discussion then it should go in the appendix, and a plain language summary of the analysis and conclusions of that technical discussion should go in the text of the EIS. (40 CFR 1502.14 and 1508.23, and 516 DM 4.10). 4(a) No Action Alternative. Describe in detail the specific actions that would take place as a result of not taking the proposed action. The actions can be projected linearly to the planning (future) target date or, the actions can be projected non-linearly to the target date based on reasonably-anticipated projects and activities planned or proposed without the proposed action. In unusual circumstances, we may consider a no-action alternative that is not reasonable when its implementation is otherwise restricted or prohibited by a court decision or legislative statute. In such unusual cases, the no action alternative may still be used as the baseline for comparing the proposed action and other alternatives. Explain the basis for the no action alternative in the EA/EIS. Bureau of Reclamation NEPA Handbook, February 2102 Endangered Species Act (P.L. 93-205, as amended; 50 CFR 402; and 40 CFR 1502.25) The integration of NEPA and ESA in a timely manner is best accomplished by close and careful	

coordination and cooperation between Reclamation and the Service and/or NOAA-NMFS as early as practical in the NEPA process…Another consideration is the definition and use of the term "baseline." The Section 7 implementing regulations state that the effects of a proposed action are added to the baseline to determine if the species is jeopardized by the totality of actions that may affect it. If a species would be jeopardized by the proposed action (in addition to all other actions), a jeopardy biological opinion would be issued. "Environmental baseline" is defined in Section 7 regulations (50 CFR 402.02): "The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in process." This definition is similar to the "affected environment" under the NEPA regulations. The environmental baseline sets the stage for determining potential effects upon listed species under ESA. The environmental baseline is not the same thing as the "No Action Alternative" under NEPA.

CEQ NEPA Regulations as found in 40 C.F.R. Part 1500

§1500.2 Policy, Federal agencies shall to the fullest extent possible:

(b) Implement procedures to make the NEPA process more useful to decision-makers and the public; to reduce paperwork and the accumulation of extraneous background data; and to emphasize real environmental issues and alternatives. Environmental impact statements shall be concise, clear, and to the point, and shall be supported by evidence that agencies have made the necessary environmental analyses.

§1502.15, Affected Environment.

The environmental impact statement shall succinctly describe the environment of the area(s) to be affected or created by the alternatives under consideration. The descriptions shall be no longer than is necessary to understand the effects of the alternatives. Data and analyses in a statement shall be commensurate with the importance of the impact, with less important material summarized, consolidated, or simply referenced.

Council on Environmental Equality, A Handbook for Integrating NEPA and Section 106, March 2013: > In addition to consultation, the EIS and Section 106 processes typically require specialized studies, including historic resource surveys, to fill data gaps. The EIS may need to include such studies for all alternatives, and Section 106 may require more detailed studies, particularly in the area of potential effects, for the preferred alternative. Because land owners have denied access there are data gaps, the NHPA Section 106 consultation requirements can not be met. In analyzing a proposed project in a joint CEQA/NEPA format all of the federal agencies must distinguish the scientific and analytical basis for its decisions separately from the CEQA lead agency decision. Fundamental to this analysis is establishing the NEPA baseline. The NEPA baseline for determining the significance of impacts is the set of conditions defined by examining the full range of construction and operational activities that the project proponents could implement. Unlike the CEQA baseline, which is defined by conditions at a point in time, the NEPA baseline is not bound by statute to a "flat" or "no-growth" scenario. The significance of impacts associated with implementation of the proposed Project or alternative is defined by comparison to impacts that would occur under NEPA baseline conditions (i.e., the increment). Based on DWR's admission that no baseline data was collected on numerous private properties, virtually the entire length of all tunnel alignments, the federal agencies have not established a baseline data set from which to compare the impacts of the project alternatives. Therefore, there is no basis from which federal agencies can make decisions regarding environmental consequences. Federal lead agencies responsible for the preparation of an EIS under NEPA must examine the full range of construction and operational activities that the project proponents could implement. Therefore, the BDCP (the plan not the EIS) must provide enough information to allow the federal agencies to fully evaluate construction and operational impacts. The BDCP EIS must then provide baseline data from which the agencies make their determination of project-related impacts.	
General Comments: Chapter 7	**TOPIC**
Throughout EIR/EIS Chapter 7 and Appendix 7A a groundwater model is used to attempt to describe the environmental setting/affected environment and the environmental consequences on groundwater resources. The groundwater model used throughout the document to assess groundwater conditions in the plan area and upstream and service	Incorrect use of groundwater modeling

export areas is based on one developed by the US Geological Survey, referred to as CVHM. The application and limitations of CVHM are described in US Geological Survey Professional Paper 1776 (2009). The consulting firm, CH2MHill, listed on as one of the document preparers modified the CVHM model to assess groundwater conditions (environmental setting) and environmental consequences in the plan area (Delta) and renamed that modified model "CVHM-D", where the nomenclature "D" represents the Delta. Most of the groundwater section descriptive text and the data used as input to the CVHM and CVHM-D models were extracted from the State of California, Department of Water Resources publication, Bulletin 118-03 (February 2004). Groundwater modeling, the project (alternatives) impacts on groundwater and the cumulative effects of the project (alternatives) on groundwater do not meet the requirements set forth in NEPA, nor does Chapter 7 or Appendix 7A of the Draft EIR/EIS identify all potential effects likely to impact groundwater resources.	Omits published data which contradicts or calls into question groundwater modeling data Fails to meet the requirements set forth in 40 CFR Section 1502.15 Affected Environment
Comments Chapter 7	

Comment 1. NEPA guidance requires that the EIS "…succinctly describe the environment of the area(s) to be affected or created by the alternatives under consideration." The EIS does not provide site-specific groundwater or aquifer data along the proposed conveyance routes or at the intake locations. The EIS uses only generalized data from published reports, primarily DWR Bulletin 118-2003. Bulletin 118-2003 provides generalized area information. No detailed groundwater or aquifer characteristic data are available for most of the project area within the Delta. The data necessary for a comprehensive, analysis of the groundwater setting along the alternative conveyance routes and intake locations are not available to a reviewer. Section 7.1.1, Potential Environmental Effects Area, provides only regional generalized descriptions of the groundwater settings, and devotes significant discussion to regional groundwater conditions outside of the Delta. There are no specific discussions about groundwater or aquifer conditions in the Delta or that describe environmental and specific groundwater conditions within the alternative alignments. However, Section 7.3, Environmental Consequences, attempts to "describe[s] the potential groundwater-related effects that could result from project construction, operation, and maintenance." Regional groundwater data extracted from Bulletin 118-2003, the primary reference used in EIS Chapter 7, provides virtually no specific groundwater or aquifer data for project alternatives locations and site-specific groundwater data. The EIS avoids reference to existing groundwater data as published in DWR Bulletin 118-3, *Evaluation of Ground Water Resources: Sacramento County*, 1974, which provides geologic data for superjacent stream channel deposits which cross-cut the northern Delta and which will affect and be affected by proposed dewatering and construction activities. Furthermore, the EIS makes no attempt to describe the sedimentary textures or aquifer characteristics along the alignment alternatives, instead relying on groundwater modeling as described in and derived from USGS Professional Paper 1766, *Groundwater Availability of the Central Valley Aquifer, California*. However, according to USGS Professional Paper 1766, the groundwater aquifer-systems in the Central Valley used to model groundwater availability, including the Delta, are derived from "the, lithologic data from approximately 8,500 drillers' logs of boreholes ranging in depth from 12 to 3,000 feet below land surface were compiled and analyzed to develop a 3-D texture model. The lithologic descriptions on the logs were simplified into a binary [two textures] classification of coarse- or fine-grained. The percentage of coarse-grained sediment, or texture, then was computed from this classification for each 50-foot depth interval of the drillers' logs. A 3-D texture model was developed for the basin-fill deposits of the valley by interpolating the percentage of coarse-grained deposits onto a 1-mile spatial grid at 50-foot depth intervals from land surface to 2,800 feet below land surface." This modeling approach which is poorly described in the EIS ignores that only about 500 well logs were used to determine groundwater levels and only about 200 well logs out of 8,500 were used to describe aquifer textures (clay, silt, sand, gravel, etc.) for the entire Central Valley of	Fails to meet the requirements set forth in 40 CFR Section 1502.15 Affected Environment

California. The EIS describes how the USGS model, called CVHM, was modified (CVHM-D) from one-square mile modules to ¼ mile modules to analyze groundwater conditions in the project area. However, the modified model, CVHM-D, adds no new data, relies on essentially two wells in the Delta (nearly 800,000 acres) and provides no site specific groundwater data that describes the environmental setting along the alternative conveyance alignments. On February 12, 2014 at a public open-house meeting held for the BDCP EIR/EIS in Clarksburg, California this reviewer talked with Gwendolyn Buchholz, PE, Vice President, CH2M-Hill. Ms. Buchholz is listed as a preparer of Chapter 7. Ms. Buchholz said that she was responsible for groundwater modeling for the BDCP EIR/EIS and that the groundwater models used to evaluate the environmental setting, and the project impacts on the groundwater were lacking in site-specific data and that their usefulness was very limited. Ms. Buchholz was also unaware of geologic data acquired by CH2M-Hill from six-boring along a portion of the southern proposed alignment of one tunnel alternative which contradicted modeling data input and which called into question the conclusions reached in the EIS regarding tunnel impacts on groundwater. Based on the absence of groundwater data as required by 40 CFR Section 1502.15, it is not possible for a reviewer to independently understand the environmental setting for the alternative alignments or at the intakes along the Sacramento River. **Comment 2**. The EIS must be revised to provide site specific groundwater and aquifer data along the alternative conveyance routes and at the proposed intake locations so that a reviewer can understand the environmental setting for groundwater resources, and evaluate project impacts and mitigation measures and assess the likelihood that the EIS has failed to address other impacts and mitigation measures. Section 7.3 Environmental Consequences, states that, “The potential for interaction between the canal alignments and the underlying aquifer system in the Delta Region was evaluated using a numerical model, Central Valley Hydrologic Model-Delta (CVHM-D), described in subsection 7.3.1.2, Analysis of Groundwater Conditions due to Construction and Operations of Facilities in the Delta.” The EIS does not include an analysis of the environmental consequences to groundwater resources from the construction or operation of any of the proposed tunnel alignments, even though it appears that a tunnel, rather than a canal, is the preferred alternative. The EIS must be revised to address environmental consequences of the construction and operation of twin tunnels on groundwater resources.	Fails to provide site specific groundwater details Fails to meet the requirements set forth in 40 CFR Section 1502.15 Affected Environment and Section1502.16 Environmental Consequences
Comment 3. Section 7.3.1.1 Analysis of Groundwater Conditions in Areas that Use SWP/CVP Water Supplies states that, “It is assumed that in areas that experience increased SWP/CVP water supplies, groundwater withdrawals would decline, and depending upon the local	Contradicts the purpose statement

groundwater characteristics, groundwater elevations may rise. It is further assumed that if SWP/CVP water supplies decrease in areas that have historically relied upon groundwater for major portions of the water supply, groundwater withdrawals would increase to replace the reduction in SWP/CVP surface water supplies." This statement contradicts the Purpose Statement (Chapter 2, Section 2.4) which states that, "The … Purpose Statement reflects the intent to advance the coequal goals set forth in the Sacramento–San Joaquin Delta Reform Act of 2009 of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem." The above phrase—restore and protect the ability of the SWP and CVP to deliver up to full contract amounts—is related to the upper limit of legal CVP and SWP contractual water amounts and delineates an upper bound for development of EIR/EIS alternatives, not a target. It is not intended to imply that increased quantities of water will be delivered under the BDCP. As indicated by the "up to full contract amounts" phrase, alternatives need not be capable of delivering full contract amounts on average in order to meet the project purposes. Alternatives that depict design capacities or operational parameters that would result in deliveries of less than full contract amounts are consistent with this purpose." Therefore, how can the project proponents assume that increased deliveries will be forthcoming under BDCP? Increased exports to supplement groundwater withdrawals should not be considered unless the BDCP EIS Purpose and Need is modified to reflect the need. Additionally, the EIS offers no evidence that increased groundwater withdrawals within the export service area will occur. The assumption used in the BDCP EIS that increased water exports with mitigate groundwater withdrawals in the export service areas is unfounded and should not be used as a justification for the BDCP, and without supporting evidence the assumption is not a legitimate direct, indirect or cumulative effect; therefore not an environmental consequence.	
Comment 4. Section 7.3.1.2 Analysis of Groundwater Conditions Associated with Construction and Operations of Facilities in the Delta. In the Central Valley Hydrologic Model–Delta Methodology portion of 7.3.1.2, the EIS lists five modifications to the CVHM for application to the project, to create model CVHM-D. One model modification reduced the grid-cell size from 1 mile square to ¼ mile square in order to provide more Delta-specific detail. "This modification allowed for greater precision in model output in the Delta Region." However, this modification relies on the assumption that spatial information, such a groundwater levels and aquifer texture characteristics are available within the original one-square mile grid-cell. According to Professional Paper 1766, Figure C15, Distribution of Calibration Data, in the case of the Delta region, there are no data points. That is, the US Geological Survey did not use any data from the Delta in CVHM. How then does the EIS use CVHM and CVHM-D to calibrate and model groundwater conditions in the Delta or specifically, along the alternative	Groundwater modeling for Delta impacts includes no data from Delta aquifers

conveyance alignments if there are no data? Dividing one-mile square grid cells into ¼ mile grid cells does not improve model precision if there are no data. The EIS must explain how subdividing one-mile square grid cells devoid of data into ¼-mile grid cells, also devoid of data, improves the model precision and how these data-less grind-cells provide meaningful input to model groundwater conditions along the alternative alignments.	
Comment 5. The EIS fails to comply with NEPA at the most basic level, as set forth in 40 CFR Section 1502.22 Incomplete or Unavailable Information and Section 1502.24 Methodology and Scientific Accuracy. Chapter 7 is extremely difficult to objectively review and develop meaningful comments because there is virtually no data in the EIS which leads to conclusions that allows a reviewer to critically evaluate the impacts to groundwater or mitigation measures. At the Clarksburg BDCP open house (February 12, 2014) we asked several "BDCP Staff" - all CH2MHill employees, if they could explain how they modeled groundwater conditions without any data - literally only 2 data points in 400,000 acres. Gwen Buchholz, VP at CH2MHill and the lead modeler, said that she had no data and was compelled to create a model because they were under a time constraint to get the EIS out for public comment. She admitted that the groundwater model used to describe the affected areas was virtually useless. She told us that their assumption was that the tunnel would be bedded on a sand layer they saw in one boring at about 150 feet bgs. We told her that we had reviewed boring data (collected by CH2MHill) that clearly showed the tunnel invert would bed on fat clays. She said if that were true, it would change the analysis...it is true, but not evaluated in the EIS. At the same Clarksburg open house we spoke with Praba Pirabarooban, DWR Supervising Water Resources Engineer. We asked him to explain how the tunnels are constructed: 3 boring machines working at once; each machine dropped to tunnel depth (about 150 feet) in an excavation; pre-cast concrete tunnel parts, each 10-feet long and representing 1/8 if the circumference (45 degrees), bolted and glued together (about 304,000 individual precast concrete pieces held together by about 12,000,000 bolts) . Mr. Pirabarooban admitted he had virtually no data to inform the design of the tunnel and very limited data about construction of the intakes. For instance, he had data from one boring in the Sacramento River which showed a clay layer at 30 feet bgs. Therefore, the entire dewatering plan (sheet pile construction) and intake construction protocols in the EIS are based on one boring, he actually thought that clay layer in the Delta would be continuous for about one mile along the river and about 1000 feet east of the river. There are no data to confirm this assumption. According to the EIS, DWR relied on two technical memorandums prepared by DWR to estimate dewatering protocols. It took us about one month, but we finally obtained the Tech Memos. Mr. Pirabarooban was a quality control reviewer for one the memos which said, that to dewater the intake construction sites will require anywhere form 200 to 1,000,000 gpd.	Fails to meet the requirements set forth in 40 CFR Section 1502.22 Incomplete or Unavailable Information and Section 1502.24 Methodology and Scientific Accuracy

But that a final pumping protocol could not be determined without more data...data DWR never acquired before they prepared the EIS. It makes it very difficult to review an EIS when there are no data from which we can reasonably evaluate any impacts. We asked Mr. Pirabarooban what percentage of data he had for the tunnel design; he said about 15% for one alignment. DWR probably had less than 5% of the necessary data when compared to the alternative alignments. Mr. Pirabarooban agreed with that. We asked him how long would it take to acquire and analyze enough data to design the tunnels, his answer- about 1.5 to 2 years and $1.5 billion. According to Technical Memorandum: *Definition of Existing Groundwater Regime for Conveyance Canal Dewatering Evaluation*, DWR 9AA-31-05-145-002, Task Order No. WGI-15, Subtask 2, January 21, 2010, section 3.0 Approach: p. 3-1: Although several thousand borings have been drilled throughout the Delta, mostly for geotechnical evaluation of manmade levees, almost none of these borings are located in the immediate vicinity of proposed project facilities. More relevant data for this investigation was found in previous studies for the Peripheral Canal. In addition, the project database included data from numerous United States Geologic Survey (USGS) and DWR groundwater monitoring wells surrounding the Delta. However, none of these well were located in the immediate vicinity of proposed project features. p. 3-4: Although more than 100 groundwater monitoring wells were identified within the project area, the spatial distribution of these wells is not uniform across the project area. Additionally, the density of wells with respect to near surface hydrogeologic conditions is insufficient to produce a project-wide groundwater map detailed enough for site-specific dewatering analysis. Therefore, it is not possible to determine the site specific variation of initial depth to groundwater along each alignment. The EIS ignores these statements from a document upon which Chapter 7 relies for much of its credibility and scientific accuracy. The EIS must be revised to meet CFR 40 Section 1502.22 and include an explanation of the limits of available data and how those data gaps influence the usefulness of the CVHM-D groundwater model.	
Comment 6. The EIS fails to meet the NEPA requirements of 40 CFR Section 1502.24. Professional and scientific integrity is compromised throughout EIS Chapter 7 by citing only portions or sections of reference material which agree with the project proponents desired outcome. This selective data presentation violates Section 1502.24, and makes it impossible for comprehensive review of the proposed project's impacts and mitigation measures. Therefore, revise EIS Chapter 7 to meet the basic requirements of 40	Fails to meet 40 CFR Section 1502.24 for professional and scientific accuracy

CFR Section 1502.24 and to provide reviewers with a scientifically objective evaluation of the proposed project's impacts and relevant mitigation measures. Examples of the use of selective data include, but are not limited to: **Comment 6a**: Section 7.1.1.1 Central Valley Regional Groundwater Setting; p. 7-3, beginning line 4, Regional Hydrogeology Overview; The EIS ignores or uses only selected data from three Chapter 7 references which describe the complex stratigraphy and lithologic character of the Delta and the site-specific groundwater conditions affecting project alternatives. The EIS uses only selective data or ignores the limitations of California Department of Water Resources, 2003, California's Groundwater. Bulletin 118, Update 2003; California Department of Water Resources, 2010, Technical Memorandum: Definition of Existing Groundwater Regime for Conveyance Canal Dewatering and Groundwater Evaluation. Delta Habitat Conservation and Conveyance Program, Document Number: 9AA-31-05-145-002, and California Department of Water Resources, 2010, Technical Memorandum: Analysis of Dewatering Requirements for Potential Excavations, Delta Habitat Conservation and Conveyance Program, Document Number: 9AA-31-05-145-001. From Chapter 9, the EIS ignores significant portions of Norris, R. M., and R. W. Webb. 1990, Geology of California, Second Edition, New York: John Wiley & Sons, Inc. which describes the complex geologic setting of the Delta because it does not fit the pre-determined, simplified lithologic conditions for project groundwater modeling (Norris and Webb, beginning on page 434). The EIS does not explain that Figure Number 9-3 used for groundwater analysis and geology which is adapted from Atwater (Atwater, B. F. 1982. Geologic Maps of the Sacramento–San Joaquin Delta, California: U.S. Geological Survey. (Miscellaneous Field Studies Map MF-1401, scale 1:24,000), Reston, VA) and that the Atwater map is essentially a surficial geology map that provides data to only a feet below the existing ground surface and therefore Atwater's geologic mapping can not be projected to depths below 2 or 3 meters. **Comment 6b**: Section 7.3.1, Methods of Analysis. The EIS does not disclose that CVHM is a general, overall water balance tool model. CVHM specifies that groundwater water levels are generalized aquifer characteristics from selected wells and are culled to include just fine or coarse sand in 50 to 100 foot thick layers. This omission in the EIS prevents the reviewer from thoroughly understanding the implication of the dewatering and project construction impacts. Additionally, the "refinement of CVHM" to CVHM-D for the Delta only reduced the 1 sq. mi. grid to ¼ sq. mi. CVHM-D did not reduce the layer thickness to less than 50 feet; nor did it add additional texture (lithologic) descriptors. CVHM-D model calibration is critical to the evaluation and interpretation of project impacts on groundwater resources. Water level in wells is necessary for this calibration. No wells for calibration were used in the Delta area. A general water balance in the Delta has been produced by the model, but the EIS does not provide specifics for subsurface geology,	

engineering characteristics, dewatering programs, or domestic well interference. Comment 6c: The EIS refers to existing ground water levels and flow directions (p. 7-40). None of the groundwater parameters necessary to evaluate existing conditions have been measured or calculated. The EIS only guesses at the groundwater elevations within one of two feet of depth and generalizes the groundwater flow direction based on topography and existing, present-day, drainage patterns. In the near-flat Delta terrain, surveys accurate to centimeters are necessary to accurately delineate the flow directions and head boundaries. The EIS fails to meet basic scientific standards.	
Comment 7; Section 7.3.1.2, p. 7-36, beginning line 19. The EIS states, "The parameters used to simulate the dewatering projects were obtained from two DWR technical memoranda: *Definition of Existing Groundwater Regime for Conveyance Canal Dewatering and Groundwater Evaluation* (California Department of Water Resources 2010a) and *Analysis of Dewatering Requirements for Potential Excavations* (California Department of Water Resources 2010b). Each dewatering project was simulated using CVHM-D." However, according to Technical Memorandum: *Analysis of Dewatering Requirements for Potential Excavations*, DWR Document Number 9AA-31-05-145-001, Task Order WGI-15, February 28, 2010 (Technical Memo-1), section 1.1, p. 1-1: "Task Order WGI-15, *Conveyance Canal and Construction Area Groundwater Evaluation*, is designed to develop a more detailed understanding of the near-surface hydrogeologic regime and excavation dewatering requirements for proposed water conveyance options in the Sacramento River–San Joaquin River Delta ("the Delta")." The term "near-surface" refers to, "The pipeline excavation depth was assumed to be 30 feet below ground water surface. The dewatering target was assigned as 5 feet below the pipeline excavation depth (i.e. 35 feet bgs)." (Section 3.3.2, p. 3-7). Although the tunnel alignment per se will not be dewatered, there are numerous locations along the proposed tunnel alignment which are proposed to be dewatered to depths up to 150 feet below the existing ground surface. Therefore, project dewatering effects on groundwater, to tunnel alternatives invert depths from 36 feet to 150 feet below the exiting ground surface are ignored in the EIS. Figure 3-3 (Technical Memo-1) shows one proposed tunnel alignment but does not show any alternative tunnel alignment, or Alternative 4, the preferred alignment and does not accurately show the proposed location of the intakes. Therefore, how can the EIS, which relies on Technical Memo-1, comply with 40 CFR Section 1502.14, Alternatives including the proposed action, and with CFR 40 Section 1502.24 Methodology and scientific accuracy? **Comment No. 8; Section 7.3.1.2, p. 7-36, beginning line 23.** The EIS, relying on Technical Memorandum: Analysis of Dewatering	EIS fails to address dewatering effects t depths of 150 feet below the existing ground surface

Requirements for Potential Excavations, states that, "Each dewatering project was simulated using CVHM-D. The effects of each dewatering simulation were compared to the simulation of the No Action Alternative baseline conditions to obtain an estimate of the incremental impacts of dewatering activities." However, the EIS ignores Technical Memo-1 which states (Section 5.0 Data Needs, p. 5-1): A numerical model or analytical calculation could be employed to estimate the subsidence that might occur as direct result of dewatering. However, the usefulness of such a modeling/analysis effort would also depend on gathering site-specific thicknesses of potentially compressible units, values for inelastic and elastic storage coefficients. The estimates for pre-consolidation head are also needed to evaluate potential dewatering induced subsidence. The results of the subsidence assessments would be used to evaluate the potential for dewatering impacts to the surrounding topography, including nearby levee systems. The necessary data for this type of modeling/analyses could be acquired though geotechnical borings and acquisition of undisturbed core samples. However, dewatering of one or more test excavations as suggested ...would be necessary to confirm and refine the model's predictions. Section 5.0, Data Needs of Technical Memorandum: Analysis of Dewatering Requirements for Potential Excavations, identifies "some data gaps" including dewatering analysis of peat, site specific aquifer parameters, installation of "numerous groundwater monitoring wells", collection of groundwater quality data and "Once site-specific data have been collected, it is recommended that previously created flow evaluations be updated to reflect these new data. Additional scenarios could then be created to optimize dewatering methods or to determine the feasibility of alternate methods." (p. 5-2) None of these data gaps are addressed in the EIS. How does the EIS comply with CFR 40 Section 1502.24 Methodology and scientific accuracy and 40 CFR 1502.22 Incomplete or unavailable information?	
Comment 9, Section 7.3.3, p. 7-39, beginning line 6 The EIS states, "The assessment of effects resulting from implementation of the BDCP alternatives is complicated by the fact that locations and construction details for existing production wells in the vicinity of the project are unknown at this time." This statement is misleading and is contradicted by Technical Memorandum: *Definition of Existing Groundwater Regime for Conveyance Canal Dewatering Evaluation*, DWR 9AA-31-05-145-002, Task Order No. WGI-15, Subtask 2, January 21, 2010, section 3.0 Approach, which states that, " Although more than 100 groundwater monitoring wells were identified within the project area, the spatial distribution of these wells is not uniform across the project area. Additionally, the density of wells with respect to near surface hydrogeologic conditions is insufficient to produce a project-wide groundwater map detailed enough for site-specific dewatering analysis. Therefore, it is not possible to determine the site specific variation of initial	Fails to accurately apply data to analysis

depth to groundwater along each ... alignment." (p. 3-4) Additionally, Technical Memorandum: Definition of Existing Groundwater Regime for Conveyance Canal Dewatering Evaluation, DWR 9AA-31-05-145-002, Task Order No. WGI-15, Subtask 2, states that, "Appendix A contains individual hydrographs of groundwater wells monitored by DWR within the project area." Appendix A contains 102 groundwater well hydrographs. The location of each hydrograph is known. Therefore, the EIS choose to ignore available groundwater data.	
Comment 10. Section 7.3.3.9, p. 7-81, beginning line 25 The EIS states, "Operation of the tunnel would have no impact on existing wells or yields given the facilities would be located more than 100 feet underground and would not substantially alter groundwater levels in the vicinity." The BDCP proposed two tunnels, not one; the EIS should be corrected. The EIS should be corrected to reflect a tunnel invert depth of 150 feet below the existing ground surface. The EIS offers no evidence or data to support the above statement. Throughout the EIS, the project proponents have stated that there are limited groundwater data available for analysis and that much of the Chapter 7 analysis of project impacts to groundwater resources is based on two technical dewatering memorandums prepared by DWR and the CVHM-D groundwater model, neither were used to evaluate groundwater resources to depths of 100 feet or greater. The construction and operation of two tunnels, each 44 feet in outside diameter, buried at 106 feet to about 150 feet below the surface could have significant impacts of groundwater resources. Based on geotechnical borings (dated April 2013) from Mandeville and Bacon Islands, acquired by DWR and CH2MHill for the tunnel alignments, but not used in the preparation of the EIS, the interbedded lithologic units at depths between 100 and 150 feet below the existing ground surface range in thickness from one foot to about 17 to 20 feet and include 30 or more lithologic types. Some of the lithologic units at the tunnel depths exhibit aquifer characteristics – silty sand, fine grain sand, etc. The majority of lithologic units are clays which may act as aquitards or aquicludes. The EIS makes no attempt to assess the impacts of dual tunnel construction on groundwater resources at depths of 106 to 150 feet below the existing ground surface. Based on DWR Bulletin 118-3, Evaluation of Ground Water Resources: Sacramento County, July 1974, reprinted April 1980, there are buried channels composed of permeable sand and gravels incised into less permeable silt and clay, resulting in a network of meandering tabular aquifers which are normal or near-normal to the proposed tunnels alignments. The buried channel aquifers represent the former locations of major rivers including the Sacramento, American and Consumnes. These buried, highly permeable channels will be intersected by tunnel construction. It is likely, that in the north Delta, these buried tabular	Fails to assess the lithologic characteristics of aquifers at twin tunnel depths

aquifers serve as drinking water and agricultural water supplies. However, the EIS does not address impacts to groundwater users who withdraw groundwater from these aquifers.	
Comment 11. Impact GW 7(1): Twin tunnel construction will intersect producing aquifers and reduce yield or interfere with pre-existing wells. The impact would result in lowered groundwater levels and reduced well capacities and discharge rates and would affect residential and agricultural available groundwater. Impact GW 7(2): Pumping pre-existing groundwater wells within the vicinity of the tunnel alignments will cause groundwater drawdown beneath the tunnels and may aversively affect the structural integrity of the dual tunnels. Pumping wells within the vicinity of the dual tunnels create radii of influence which lower groundwater levels. Withdrawing groundwater from beneath the dual tunnels will adversely affect the structural integrity of the lithologic units on which the tunnels are bedded. Impact GW 7(3): Pumping during dewatering activities at the intakes and at specific locations along the tunnels alignments, may cause reversals in groundwater gradients and groundwater flow directions. The shallow groundwater gradients are susceptible to alterations that would affect pre-existing domestic and agricultural water wells. Impact GW 7(4): Construction of the forebays, which intercept the unconfined aquifer, will change the gradient and depth to groundwater. Groundwater levels up-gradient of the forebays will be increased and depth to groundwater down-gradient of the forebays will be in reduced and may cause extremely shallow ground conditions that will damage building foundations, roadways and irrigation canals.	Impacts to groundwater resources which are not addressed in the EIS
General Comment Chapter 9	
The BDCP EIS relies exclusively on the twin tunnel concept to meet the purpose and need of the BDCP. However, there is virtually no detail and no significant discussion regarding the impacts of the tunnel construction on surface settlement. Therefore, a reviewer can not reach any conclusion on the project's effects or mitigation measures. Although not specifically called out, Impact Geo-3 relies on "adaptive management" techniques and future engineering studies and design to allay any concerns regarding surface settlement, and ignores published data that provides methods to estimate surface settlement impacts. The BDCP EIS proponents and preparers clearly know that published data to estimate surface settlement is available because language within the BDCP EIS is very similar to, or nearly the same as, language in various professional publications that address surface settlement caused by tunnels in soft ground. However, the preparers have chosen not to cite any published design manuals or professional papers, probably because doing so would force the preparers to acknowledge that large scale surface settlement and significant adverse effects are likely to occur during the construction of the twin tunnels. Therefore, the BDCP EIS preparers should revisit available technical publications and fully disclose to the public an estimate of surface settlement and the likely impacts.	
COMMENTS CHAPTER 9	**Topic**

GENERAL COMMENT	
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Comment 12. According to US Department of Transportation, *Federal Highway Administration, Technical Design Manual for Design and Construction of Road Tunnels, and A Method of Estimating Surface Settlement Above Tunnels Constructed in Soft Ground*, by R.K Rowe and K.Y. Lo (National Research Council of Canada, 1983) *and Predicting the Settlements Above Twin Tunnels Constructed in Soft Ground by D. N. Chapman*, C.D.F. Rogers and D.V.L. Hunt, University of Birmingham, U.K., estimating potential ground settlement above tunnels in soft ground can be accomplished with accepted mathematical formulas. However, in the EIS all methods to estimate potential ground settlement above the twin tunnels are ignored. The risk of ground settlement to cause personal injury above the tunnels may be low. However, the EIS ignores the potential for adverse impacts at the ground surface based on accepted soil mechanics applications. The Technical Design Manual for Design and Construction of Road Tunnels (US Department of Transportation, Federal Highway Administration) provides an approach to estimate ground surface settlement impacts above tunnels. Based on the design manual's mathematical formulas numbers 7-2, 7-3 and 7-4, it is possible to estimate the width and depth of a settlement trough. The design manual also states that, "In the case of parallel adjacent tunnels, surface settlement is generally assumed to be additive." Therefore, based on published data, accepted soil mechanic applications and the proposed BDCP tunnel geometry, known or estimated groundwater conditions and soil types as stated in other chapters of the BDCP EIS, a reasonable estimate of ground surface settlement can be determined. The BDCP EIS should be revised to include such an estimate to be used to evaluate surface impacts so that an informed reviewer can	Impact Geo-3

understand the surface settlement effects of the twin tunnels and determine the potentially significant impacts of surface settlement along all tunnel alternative alignments.	
Comment 13. The EIS's failure to estimate potential ground surface settlement above the twin parallel tunnels ignores potential surface impacts which include: • An estimate of the width of the settlement trough which could be several hundred feet or more in width and extend the entire 35-mile length of the tunnels and how the width could vary depending on geologic and groundwater conditions,. • An estimate of the depth of the settlement trough which could be minimal to tens of feet or more in depth and extend the entire 35-mile length of the tunnels and how the depth could vary depending on geologic and groundwater conditions. • Effect of highways, roads, and streets from settlement. • Effect on buried utilities. • Effect on surface streams and rivers. • Effect on agricultural lands and access to agricultural lands. • The withdrawal of additional agricultural land from production within the trough. • The requirement to purchase additional right-of-way to prevent encroachment onto land affected by settlement, and the additional costs to do so. The effect of flooding within the trough and how flooding could affect surrounding land uses.	Impact Geo-3
Comment 14. Figure 9-3 does not show the location of the Alternative 4 tunnel alignment. Therefore, the reference to Figure 9-3 is confusing and should be corrected. Alternative 4 is not located west of the community of Locke and the location shown in Figure 9-3 should not be considered in the vicinity of the Alternative 4 alignment. Table 9-26, Surficial Geology Underlying Alternative 4/ Modified Pipeline/Tunnel Alignment by Segments, lists only surficial deposits. A surficial deposit is defined by the American Geological Institute (Dictionary of Geologic Terms, 1983) as, "Pertaining to or lying in or on a surface, specifically, the surface of the earth". Surficial geology is not a term that is applied to geologic deposits or geologic units at depth. The Atwater (1982) report cited in the BDCP maps surficial deposits and specifically identifies those deposits as shallow, near surface deposits, based largely on soil types; not 150 feet deep, the depth of the tunnel inverts. Therefore, the EIS should be revised to eliminate references to surficial geology as an indicator of potential ground surface settlement. Additionally, the title of Table 9-3 should be changed to "Surficial Geology Overlying Alternative 4/ Modified Tunnels Alignment by Segments".	Misleading geologic descriptions
Comment 15. The title of Impact Geo-3 is "Loss of Property, Personal Injury, or Death from Ground Settlement during Construction of Water Conveyance Features" (section 9.3.3.9). Therefore it is misleading why the impact refers to: The results of the site-specific evaluation and the engineer's	Misleading statements regarding impacts and mitigation measures

recommendations would be documented in a detailed geotechnical report prepared in accordance with state guidelines, in particular Guidelines for Evaluating and Mitigating Seismic Hazards in California (California Geological Survey 2008). It is not clear from the EIS how surface settlement impacts from twin tunnels can be mitigated using Guidelines for Evaluating and Mitigating Seismic Hazards in California. Therefore, the BDCP EIS must clarify how these guidelines are applied to surface settlement impacts and what those impacts could be. Impact Geo-3 seems to assume that surface settlement from twin tunnels is akin to slope stability issues associated with landslides and that all risks from surface settlement will be addressed in the design phase of the project. Impact Geo-3 concludes: Conformance to these and other applicable design specifications and standards would ensure that construction of Alternative 4 would not create an increased likelihood of loss of property, personal injury or death of individuals from ground settlement. Therefore, there would be no adverse effect. At best, the EIS vague about design specifications and gives no hint of what “other applicable design specifications and standards” might be. The EIS does not cite any technical manuals or professional papers regarding methods to estimate ground surface settlement and asks the public to trust that the a qualified tunnel engineer and operator will be retained to construct twin 44-foot diameter tunnels in soft ground, entirely within groundwater aquifers, at tunnel invert depths of 150-feet for a distance of 35-miles. The EIS should be revised to take a hard look at its conclusion that the twin tunnels would have no adverse effect.	