

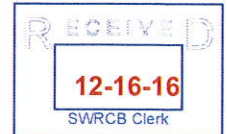
United States Department of the Interior

BUREAU OF RECLAMATION
Mid-Pacific Regional Office
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Sacramento, CA 95825-1898

IN REPLY REFER TO:

BDO-400
ENV-6.00

DEC 16 2016



Ms. Jeanine Townsend
Clerk to the Board
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95812

Subject: Comment Letter – Bay Delta Phase II Working Draft Science Report

Dear Ms. Townsend:

The Bureau of Reclamation appreciates the opportunity to comment on the *Working Draft Scientific Basis Report for New and Revised Flow Requirements on the Sacramento River and Tributaries, Eastside Tributaries to the Delta, Delta Outflow, and Interior Delta Operations.* We understand that this is a significant undertaking by the State Water Resources Control Board.

In general, Reclamation believes the document and unimpaired flow concepts presented within the document do not reflect that the waterways associated with the Central Valley Project have been highly modified by human activities to provide for other beneficial uses of water beyond native species. Reclamation believes the system must be considered in the broader context of the capabilities of the water control facilities and other beneficial uses of the water in order to develop a plan that makes sense biologically, and is at the same time protective of other potential uses of the water.

The document discusses the potential for modifications to water control operations in a very general sense and with limited description of the actual implementation of the modifications. Without finer resolution to how these modifications would actually be implemented (or potentially balanced given the conflicts summarized above), we do not believe we have the ability to analyze the benefits or impacts to these changes at this time. As such, we plan to review and provide more detailed comments on the Draft Supplemental Environmental Document for Phase II when the document is made available. However, for your consideration, we have also attached a limited number of comments that are somewhat more specific to particular portions of the document.

If you should have any questions on this matter, please contact Ms. Carolyn Bragg, Reclamation's point of contact for this review, at 916-414-2433 or cbragg@usbr.gov.

Sincerely,



FOR David G. Murillo
Regional Director

Enclosure

**SWRCB Amendment to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta
Estuary Comment Form**

Document: Water Plan – Scientific Basis Report Phase II

Submission Date: 12/14/2016

Comment #	Page #	Line #	Comment
1.	General		<p>The report states, " While there are additional flow and operational requirements included in ESA and CESA requirements to avoid jeopardy of listed species, the State Water Board has an independent and distinct obligation to reasonably protect fish and wildlife that may extend beyond the ESA and CESA requirements." The Board seems to rely on general theories, such as more flow is generally better for the fish. This may not be the case. Because the systems are impacted by non-native species, pollutants, human channelling, etc. the Board needs to rely on solid evidence and expertise if it is to increase requirements beyond ESA and CESA.</p>
2.	General		<p>The Board is intending to mimic the natural hydrograph, except it will also regulate temperatures below the project reservoirs. This likely means that we will be able to store less of the high winter and spring flows than we currently do, and also be subject to higher releases in the summer and fall. This will not be feasible over time and over water year-types and drought cycles. Regulating reservoirs for drought cycles needs to be further addressed. The Board has stated that flow regimes based on the natural hydrograph will not be fixed amounts. This is a single-year approach. If the Board truly wants durable instream flows, ones that can be met in a drought cycle, they need to look at the projects' individual safe yield. If we are exceeding safe yields in wetter years for flow requirements, then we have no storage supplies for drought years, for either instream flows or irrigation and M&I. This is what has happened under D-1641.</p>
3.	General		<p>The Board is modeling instream flows and developing exceedance curves to show that it is balancing instream flow needs with other uses. In order to make sure this method results in durability, the operational assumptions need to be reasonably calculated. When D-1641 was modeled, the Board's model added water to the models to show that instream flows could be met through all year types. This has resulted in the need to seek modification to the instream flow requirements in recent drought years. The Board appears to believe that a percent of unimpaired flow will balance instream uses and consumptive uses, and that that balance will be apparent to all. This ignores that precipitation (unimpaired flow) is an annual supply, and reservoirs are built for multi-year supplies. To truly balance, or figure out a reservoir's contribution to unimpaired flows and balance the water supply and instream flow uses, some thinking about the annual safe yield of the projects needs to occur. Otherwise, we may be mining storage in years when we should be conserving, and vice-versa.</p>
4.	1-3, 1-4	1.1.2, 4 th para.	<p>"While various state and federal agencies have acted to adopt requirements to protect the Bay-Delta ecosystem, there is no comprehensive regulatory strategy addressing the watershed as a whole. Instead, there are various regulatory requirements that cover some areas of the watershed and not others. Many of these requirements are the sole</p>

			responsibility of the (CVP and SWP) under the Bay-Delta Plan, as implemented through Revised Water Right Decision 1641 (D--1641) and two biological opinions addressing Delta smelt and salmonids. The best available science, however, indicates that these requirements are insufficient to protect fish and wildlife. Further, these requirements address only portions of the watershed; there are a number of tributaries that do not have any requirements to protect fish and wildlife or that have requirements that are not integrated with other requirements such as the Bay-Delta Plan and CESA and ESA requirements. While conditions may be protective of fish and wildlife in some of these tributaries, action is needed to ensure that conditions are not degraded in the future. This Bay-Delta Plan update is intended to begin to address these issues in a more comprehensive way by looking at the Sacramento River watershed and related tributaries and Delta as a whole."
5.	1-13	3 rd para	The suggestions that the "statistically significant declines suggest that D-1641 is not sufficiently protective for these species ..." is an oversimplification of the species decline.. As suggested earlier in this section, ecosystem alterations are likely linked to this significant decline. These dynamics are not related to D1641 flow standards, yet the next paragraph discusses recommendations related to flows are described, while the paragraph above suggests there are other ecosystem drivers that influence fish populations.
6.	Ch 2		Section 2.4 mentions "a large number of agricultural diversions pumping directly from the Delta channels", but does not describe these in the context of delta inflow diversion (Section 2.4.1, unless the reference to Fleenor is in regard to this) and delta hydrodynamics (2.4.2). Additional discussion of these diversions should characterize their impact on inflow/outflow and hydrodynamics. If these types of analyses do not exist, it would be good to see them examined in the next phase of scientific review regarding these topics.
7.	2-9	10	Did the modeling (including CalSim) use climate change assumptions or historical hydrology? If it used climate change assumptions, how were they incorporated? And how were gauge data for non-modeled streams adjusted?
8.	2-33		Recommend defining "major" reservoirs
9.	2-33		Recommend adding discussion of hydropower reservoirs and their typical seasonal operations along with the temperature effects from the upstream hydropower facilities.
10.	2-33		The El Dorado Irrigation District diversion is in Folsom Reservoir, not upstream of Folsom Reservoir.
11.	2-69		Recommend mentioning the climate change modeling assumptions if they were included in the analysis. If not included, recommend mentioning how they have been modeled and why they were not included in this analysis.
12.	3-9	1 st para	Delta hydrodynamics was modified prior to the CVP and SWP operations. One purpose of the CVP was to maintain freshwater during the dry summer period due to in Delta consumptive use and river riparian consumptive use. During the 1920s and 1930s the Delta turned salty due to these uses of freshwater, and the project was developed in the 40s. This sentence is an overgeneralization and lacks recognition of a fundamental purpose of the CVP. Suggestion is to recognize many users of Delta freshwater and hydrodynamic alteration.
13.	3-53	Table 3.5-1	This table is similar to other tables in this section and highlight the concept of "protective flows". It is unclear of what response from the population is likely to be observed by "protective flows" Will these flows provide to enhance, recovery, maintain or protect? It seems that these values represent more than protective values, but likely maintenance values.
14.	3-75		Figure 3.7-1 What does the red line represent? What is the significant of this relationship?

			Figure 3.9-1: What does the red line represent? What is the significance of this relationship?
			Table 3.13-3: The method was used to determine 1 dot or 2 dots (important vs. very important)? What do these qualitative characterizations represent regarding flow timing, since the mechanisms seem primarily habitat related, not biological process related?
15.	5-1	2 nd para	What does Project Operational requirements mean? The Scientific basis document identified many stressors not related to flow or Project operations. It would be good to consider delta consumptive use and river riparian use, but this section seems to lack consideration of the broader users or stressor in the Delta with regards to providing for critical functions for protecting beneficial uses. Suggest revising to "Permitted diversion operational requirements."
16.	5-1	General	This section does not address multi-year carryover storage versus seasonal storage when recommending increased releases. While maintaining coldwater pool storage is critical, each years' operations need to consider future years' risk of drought, particularly for multi-year reservoirs.
17.	5-2	2 nd para	The paragraph includes a statement that native fish and wildlife were able to maintain a health population until relatively recent. Ch 2 does not present historic data, shifting baseline are a consistent problem in resource systems where we do not adequately recognize that there was step changes from historic conditions, which were poorly characterized. Suggest revising or removing the statement since historic population status (<1950) was likely substantially greater than recent healthy populations (1960s to 1980), even though there is uncertainty associated with this assertion.
18.	5-2	2 nd Paragraph	Reference to warming of flows from reservoirs, but there is no mention of temperature benefits due to reservoirs and the ability to release cold water in summer/fall months.
19.	5-5		As in other sections, the document refers to additional analyses that will be provided at a later date. In this case, the MRDO/unimpaired inflow and outflow analysis provided utilizes SVUFM and CalSim II modeling comparisons, yet the final, yet to be completed analysis will use the SacWAM model.
20.	5-6	5.2.2	This paragraph implies that if releases are exported, then habitat cannot be provided – recommend specifying this conclusion as a delta result. Increased releases on the tributaries can certainly provide additional habitat within the rivers.
21.	5-8	Fig 5-8	Typically the independent variable is on the x axis, in this case flow, and the frequency (dependent) is on the y-axis. Review frequency plots.
22.	5-12	3 rd para	Additional time is required to provide input on the approach of using the current months ERI rather than the prior month. It is uncertain how this could be undertaken. It would be good to look at the ERI thresholds under different WYT. Reclamation is not able to provide full comments on this approach at this time and request discussion with SWRCB staff to further understand issues related to this type of operation.
23.	5-12	3 rd para.	One potential way to approach using ERI, would be to assess it under various WY types and determine the frequency threshold values of the ERI are exceeded. These thresholds (water management objective) could be related to adaptive management during each different outflow condition to determine if the water management objective is achieved after the decision to attempt to meet it was made at the beginning of the month.
24.	5-16, 17	Fig 5.3-1 and 2	What is meant by impairments in the Vernalis flows? This only occurs in months when additional in-Delta consumptive pumping increases. Could this be due to modeling bias due to lacking this input? I did not see this phenomena explained

25.	5-26		in Ch 2 or 3. Unclear how recovery is linked, since Ch 3 and 4 suggest other stressors than just flow are influencing population abundance.
26.	5-30	5.3.4.2	"In November the inflow to Sacramento CVP and SWP reservoirs would be added to reservoir releases to provide additional delta inflow and augment Delta outflow up to the fall target."
27.	5-31	5.4.2	It is appreciated that SWRCB considering temperatures on multiple tributaries however it is uncertain that 7DADM criterion can be met on multiple CVP tributaries and have CVP flows support winter, spring, and fall outflow recommendations. An analysis that evaluated the temperatures likely to results from the operations to meet flow exceedance targets should be assessed. While this document focused on flows, it does not seem to take into account the influence outflow and other standards may have on not exceeding the temperature standards. Integrated temperature and flow modeling would be useful to understanding the effect of recommended new flow standards on recommended new temperature standards.
28.	5-31	5.4.2	Many ideas seem to be included in this discussion of cold water habitat below dams. The relationship between temperature thresholds and 7DADM regulatory criteria is not clear. While 7DADM may be a relevant regulatory criteria, it is difficult to operate to since averaging over the last 7 day period can cause substantial impacts later in the averaging period that may not be feasible or sensible to operations. We believe there are other temperature targets that are better than 7DADM for operations. We are unable to provide full comments on temperature management at this time and request discussion with SWRCB staff to further understand some of the issues related to temperature operations.
29.	5-39		The discussion of the month of October for closure of the DCC contains two perspectives. One suggests closure for up to 14 days can be a benefit without clear quantification of what the benefit is. One is a comment that "supports the addition of the month of October." An analysis of October operations of the DCC seems incomplete as multiple actions are suggested, please consider better description of the benefits, what the objective to be protective would be (is this action protective of straying?), how it could be accomplished. We are not able to provide full comments on DCC operation at this time and request discussion with SWRCB staff to further understand some of the issue related to DCC operations.
30.	5-41	5.5.5	Substantial information is provided in Ch 2 regarding the effects of tides and barriers on delta hydrodynamics, but this section seems to only identify exports as influence interior delta flows and hydrodynamic processes influence survival. The evidence in Ch 3 does not clearly support an expanded window of a lower minimum export rate. Reclamation is unable to provide full comments on export reduction recommendation at this time and request discussion with SWRCB staff to further understand some of these issues related to export operations and protective standards.