

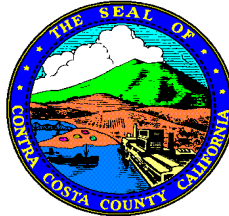
Department of
Conservation and
Development

Water Agency

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Contra Costa County



John Kopchik
Director

Public Comment
Bay-Delta Phase II Working Draft Report
Deadline: 12/16/16 12:00 noon



December 16, 2016

State Water Resources Control Board
Attention: Jeanine Townsend, Clerk to the Board
P.O. Box 100
Sacramento, CA 95812-2000

Re: SWRCB Working Draft Scientific Basis Report on Phase II update of 2006 WQCP

Dear Board members,

Contra Costa County appreciates this opportunity to review the State Water Resources Control Board's (SWRCB or State Board) Working Draft Scientific Basis Report on the Phase II update of the 2006 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (WQCP). The Phase II is considering potential changes to requirements to reasonably protect fish and wildlife: potential new inflow requirements for the Sacramento River, its tributaries, and eastside tributaries to the Delta; new Delta outflow and interior Delta flow requirements; and new cold water habitat protection requirements.

Contra Costa County covers a large area within the Delta. The County borders on Old River to the east and Suisun and San Pablo Bays in the north. The County is the ninth most populous county in California, with more than one million residents. Many of our residents rely on the Delta for their municipal, industrial and irrigation water supplies, for their livelihood, and recreation.

Contra Costa County commends the Board staff for the hard work they have put in to develop the working draft. We support the State Board's proposal to protect fish and wildlife and restore and sustain the Delta ecosystem, by restoring flows into and out of the Delta into San Francisco Bay. Setting the new minimum flow requirements as a percentage of unimpaired flow is the best way to represent more natural flow variability.

1. Achieving Coequal Goals and Inherent Objectives

In the past, the State Board has made decisions based on the principle of balancing all beneficial uses. However, as noted on page 1-5 of the working draft, the 2009 Delta Reform Act established, as State policy, achievement of two coequal goals (Delta ecosystem restoration, and improving water supply reliability for all Californians) [Water Code Section 85020]. The Act

also established as State policy the inherent objective of improving water quality to protect human health and the environment consistent with achieving water quality objectives in the Delta [Water Code section 85020(e)].

State agencies, such as the SWRCB, should now ensure their actions contribute to protecting, restoring, and enhancing the Delta ecosystem, as well as improving water supply reliability for all of California.

The SWRCB's 2010 Delta Flow Criteria Report determined how much flow needed to be left in the Bay-Delta system for the protection of fish and wildlife in the Bay-Delta system. The Preface to the 2010 Report noted that the State Board had developed these objectives by focusing entirely on what the fish need without consideration of the potential impacts on other beneficial uses. The 2010 flow criteria, therefore, represent the flows needed to help achieve the ecosystem coequal goal.

The SWRCB can also help with achievement of the second coequal goal, providing a more reliable water supply for California, by including in the Scientific Basis Report an analysis of not only the existing water conveyance system with new flow objectives, but also an analysis of future operations with additional south of Delta and/or within Delta storage. Capturing more water during periods of high runoff (wetter months) will enable the major water projects to offset any reductions in exports during dry periods, and increase water supply reliability. Modeling simulations of Bay-Delta project operations, and actual historical operations, illustrate that once San Luis Reservoir is full, Delta exports reduce significantly even though Delta outflows are high.

The State Board should encourage the major water projects to make the necessary storage improvement to enable water to be exported when it is surplus to the needs of the Bay-Delta system, consistent with California Water Code section 12204¹.

2. Delta Outflows

Contra Costa County agrees that the percent of unimpaired flow approach will encourage a diversity of flows needed for ecosystem functions and provides the general seasonality, magnitude, and duration of flows important for native species and for which they have evolved.

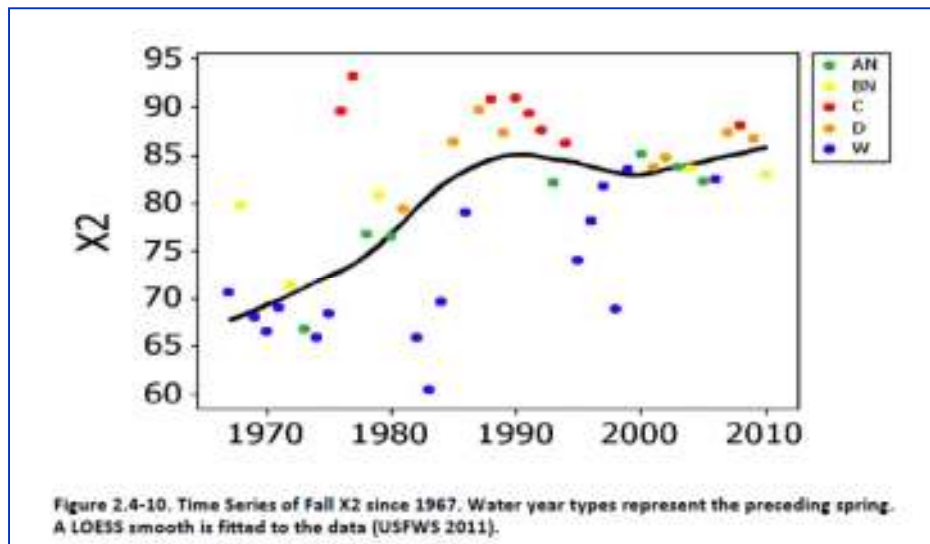
The 2010 Delta Flow Criteria Report failed to clarify whether the unimpaired flows applied to Delta outflow were the total unimpaired runoff from the full Central Valley system or just the Sacramento Valley. This should be made clear in the Scientific Basis Report and related documents.

¹ Water Code section 12204: In determining the availability of water for export from the Sacramento-San Joaquin Delta no water shall be exported which is necessary to meet the requirements of Sections 12202 and 12203 of this chapter.

The State Board should establish new flow criteria consistent with the 2010 Delta Flow Criteria Report. Consideration could be given to phasing in the full minimum flow requirements over up to, say, five years. However, as discussed above, State policy requires that the SWRCB set flow objectives that contribute to achievement of the ecosystem coequal goal, not some lesser flow level that would fail to restore and sustain key fish species.

3. Fall X2

The SWRCB's adoption of the Spring estuarine habitat standard (February-June X2 standards) in May 1995 was an important step in restoring flow conditions for key fish species in the Bay-Delta system. However, the Spring X2 standards had the unintended consequence of redirecting the impact of Delta exports to later months of the year, in particular, the fall. As shown in Figure 2.4-10 (below) in the working draft, Fall X2 increased significantly after 1995 consistent with decreased Delta outflows in September and October. As a result, Fall X2 in wet and above normal years became just as high as would have been expected in dry and critical years. This led the U.S. Fish and Wildlife Service to set maximum Fall X2 limits for wet and above normal years in the 2008 Delta smelt biological opinion.



This issue is acknowledged on page 5-1 of the working draft:

*Currently, the Bay-Delta Plan does not include adequate flow and Project operational requirements to provide for critical functions to protect beneficial uses within tributaries and in the Delta including appropriate migration, holding, spawning and rearing conditions. Inadequate or nonexistent requirements may lead to insufficient flows to protect fish and wildlife, drainage of cold water for water supply and instream flow purposes, **redirected impacts to times of year***

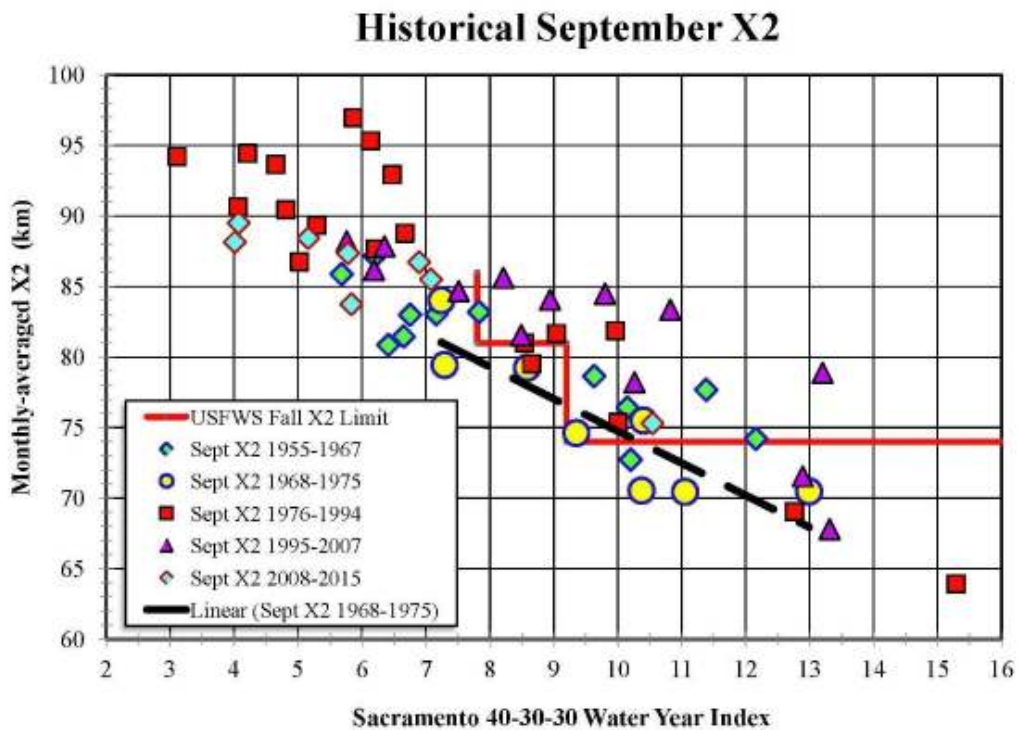
when flow requirements are less strict or do not apply and overreliance on one tributary to meet flow and water quality requirements.

The SWRCB should review modeling simulations for a major new conveyance project proposed by DWR and Reclamation. Some of the project alternatives assumed no Fall X2 limits. The September and October Delta outflows in those simulations show even more dramatic reductions in Delta outflow (increases in X2) than have occurred during the recent historical, post-1995, period. This supports the need to establish limits on X2 in the fall.

The Scientific Basis Report should discuss in more detail this dramatic decrease in fall outflows and to what extent this contributed to the subsequent pelagic organism decline.

It is also useful to remember that the SWRCB's Spring X2 standards were set by matching the historical X2 conditions, for each month, February-June, at the three compliance locations (Port Chicago, Mallard Island and Collinsville) during the period 1968-1975. This period was established by the U.S. EPA to represent baseline water quality conditions in the Delta, consistent with the federal Clean Water Act and federal antidegradation policy.

A similar approach could be used to establish a sliding scale for Fall X2 limits, *i.e.*, establishing a maximum Fall X2 as a function of the Sacramento Valley 40-30-30 water year index, and quantifying those limits using the historical 1968-1975 conditions. An example of this approach is shown below. The USFWS Fall X2 limits for wet and above normal years are consistent with the 1968-1975 historical conditions.



Historical September X2 as a function of the Sacramento Valley 40-30-30 Water Year Index

The working draft Scientific Basis Report proposes the same Fall X2 limits consistent with the 2008 USFWS biological opinion and the 2010 Delta Flow Criteria Report (page 5-29). The State Board should also consider whether it is also necessary to set Fall X2 limits for below normal, dry and critical years to fully protect key fish species and restore and sustain the Delta ecosystem.

4. Rio Vista Flows

The current Rio Vista attraction flow standards only apply September-December. Modeling simulations performed recently for a proposed major Bay-Delta conveyance project assumed that there would also be a minimum Rio Vista flow requirement of 3,000 cfs for January-June. The project proponents have not asked yet that these January-June flows be included as a permit term. They have also not disclosed why the January-June Rio Vista minimum flow limits are necessary or what would be the impact on project operations if those minimum flow limits were not in effect.

As was the case with establishment of Spring X2 discussed above, new SWRCB actions or new Bay-Delta projects will have the potential to significantly reduce Rio Vista flows outside of the current D-1641 period, September-December. The current Scientific Basis Report should analyze what Rio Vista flows are needed January-August to protect other Chinook salmon runs, provide necessary attraction flows for those runs, and avoid redirected impacts. It is not sufficient to merely retain the current September-December minimum flows.

5. Sacramento River Inflow at Freeport

Contra Costa County supports the recommendation of year-round Sacramento River mainstem inflow requirements to protect native fish rearing in and migrating through tributaries, and to contribute to Delta outflows needed to protect estuarine and anadromous species. As discussed on page 1-6 of the working draft, the 2010 Delta Flow Criteria Report discussed the concept of a 75% of unimpaired Sacramento River minimum inflow criteria from November through June.

A current proposal to construct major new conveyance in the Delta assumes Sacramento flows would be regulated in part through bypass flow requirements at new intakes in the North Delta. The project proponents have stated that the proposed project will not change upstream operations. However, the operations modeling for this project shows inflows to the Delta from the Sacramento Valley (measured upstream of the new intakes at Freeport) would often be less than under current conditions.

6. San Joaquin River Inflow at Vernalis

Although the SWRCB has separated out San Joaquin tributary flows (Phase 1) from the consideration of other tributary flows and Delta outflow (Phase 2), San Joaquin inflows to the

Delta contribute to Delta outflow as well as transporting San Joaquin fish species through the Delta to San Francisco Bay and the ocean.

The 2010 Delta Flow Criteria Report on page 6 states:

Inflows should generally be provided from tributaries to the Delta watershed in proportion to their contribution to unimpaired flow unless otherwise indicated.

The County concurs with this approach. This would ensure a more natural distribution of the magnitude and timing of flows within the Bay-Delta system. It would also mean that more flow would be required from the San Joaquin Valley than is currently being considered in Phase 1.

If the State Board determines that the minimum Delta outflows during January-June should be around 65% of unimpaired flow, then the contribution from the San Joaquin flow at Vernalis may also need to be as high as 65% of the total San Joaquin Valley unimpaired flow. The SWRCB should consider proposed Delta outflow objectives that incorporate Vernalis inflows consistent with the San Joaquin Valley contribution to total unimpaired flow.

Page 5-15 of the working draft states:

*Flow contributions from the San Joaquin River upstream of Vernalis, which are currently heavily impaired, are being addressed through the separate Phase I process to amend the Bay-Delta Plan. Because revised San Joaquin River flow objectives have not yet been adopted by the State Water Board, for purposes of developing the illustrative example presented here, staff assumed that **San Joaquin River contributions would continue to reflect existing conditions as modeled in CalSim II (DWR 2015).** With the Phase I changes to the Bay-Delta Plan, these contributions would potentially increase.*

The associated CALSIM and SacWAM modeling of the proposed objectives should incorporate increased Vernalis inflows consistent with this approach and not assume existing (unchanged) San Joaquin Valley inflows.

7. Delta Barriers and Delta Cross Channel Gate Operations

Delta barriers such as the proposed flow barrier or gate at the Head of Old River in the south Delta at the junction with the San Joaquin River can provide the beneficial effect of keeping outmigrating San Joaquin fish from straying or being drawn toward the south Delta export pumps. However, the Head of Old River barrier also starves the south and central Delta of positive (northwards) flow and increases the possibility of reverse flows in Old and Middle River. The barrier along with other agricultural barriers in Old River, Grant Line Canal and Middle River also “blocks the natural flow and circulation patterns of these streams (NMFS 2009)” [working draft at page 2-57], and reduce the ability of resident fish species from circulating within the Delta.

The recirculated Substitute Environmental Document for Phase 1 on page 1-10 states:

*DWR and USBR were planning to construct permanent physical facilities in the form of permanent operable gates (known as the South Delta Improvements Program) that would have provided better compliance with the objectives. However, the permanent facilities have not been constructed to date, and their construction is unlikely to occur due to endangered species concerns. The National Marine Fisheries Service (NMFS) biological opinion (BO) Stanislaus River reasonable and prudent alternative, including Action 3.1.3 (NMFS BO) was issued in June 2009 and **specifically directs DWR to halt implementation of the South Delta Improvements Program**. NMFS has indicated that consultation for the program cannot be reinitiated until after 3 years of fish predation studies at the southern Delta temporary barriers are completed. The studies were completed in 2011, and DWR is currently working with NMFS. After all permits have been acquired DWR can proceed with construction; **however, there is not a schedule available for project completion at this time.***

The Scientific Basis Report should include more detail regarding the potential adverse impacts of Delta barriers on fish species in the Delta, and the corresponding benefits and adverse impacts to water quality.

8. Implementation Issues Regarding Determining Unimpaired Flow

The Scientific Basis Report on page 5-29 states:

*“...the new winter and spring numeric Delta outflow requirement is recommended to be structured similarly to the existing Delta outflow objectives, which require a certain amount of outflow based on a measure of unimpaired inflows (the ERI²) for the previous month. The requirement would be modified to **use the current month’s index** to be compatible with the inflow requirements discussed above, and to better allow management in a variable system.”*

The concept of basing minimum flow requirements on the current month’s unimpaired flow is a good one in theory. The modeling simulations are based on a monthly time step and have perfect foresight with regard to the unimpaired flows. The 2010 Delta Flow Criteria Report recommended minimum Delta outflows and other flows based on a 14-day running average.

Provided estimates of unimpaired flow can be computed daily, there should be enough information to update the running 14-day average unimpaired flows.

The working draft on page 5-30 (Section 5.3.4.4, Adaptive Management) states:

² ERI = Eight River Index

*As with inflows, adaptive management provisions are proposed to provide for specific flow functions and ecosystem processes for the new or modified Delta outflow requirements. The January-June numeric Delta outflow requirements may include a **block of water that can be adaptively shifted within or outside the winter-spring time period**. The purpose of adaptively managing a portion of Delta Outflow would be to provide water for experimental studies and for augmenting flows when scientific information and real time circumstances indicate that additional flow is needed to achieve the narrative objective. A water mass balance accounting procedure should be developed to track the volume of water used and the amount remaining for environmental purposes.*

Some amount of adaptive management should be allowed, however, determining a block of water and allowing shape shifting within or outside the winter-spring time period (January-June) could lead to gaming of the system by project operators. Operators could take credit for water that is spilled from upstream reservoirs in one month and thereby avoid releasing necessary flows for fish in later, drier, months. It will also be difficult to know how large the January-June block of water will be until late June.

9. Year Round Old and Middle River (OMR) Flow Limits

The working draft on page 5-41, only recommends new OMR from December through June. The suggested flow range is from -1,250 cfs to -5,000 cfs, which would be managed based on the presence of Delta smelt, longfin smelt, and salmonids.

However, the discussion in 5.5.4, Old and Middle River Reverse Flow Limitations, describes how entrainment of American shad at the export facilities is highest between July and August and again between October and December, although some salvage occurs each month of the year. Green and white sturgeon are vulnerable to entrainment from exports year-round.

In fact, there are resident fish in the Delta year-round and, consistent with the goal of ecosystem restoration in the Delta, these fish should be provided year-round protection against reverse flows and entrainment. The current focus is only on key fish species, but other species could become endangered in the future, especially if reverse flow protection only from December through June shifts impacts to July-November.

Figure 9 (below) on page 30 of Appendix B, DWR's Technical Memo, Study 30 – CalSim II Model with 50% unimpaired flow instream flow requirements (September 2016), shows simulated OMR flows and the OMR standard for DWR's Study 30. It is not clear why the OMR standards in July to November were set to zero for illustration purposes. This figure represents an operational scenario where OMR remains greater than -5,000 cfs in almost all months.

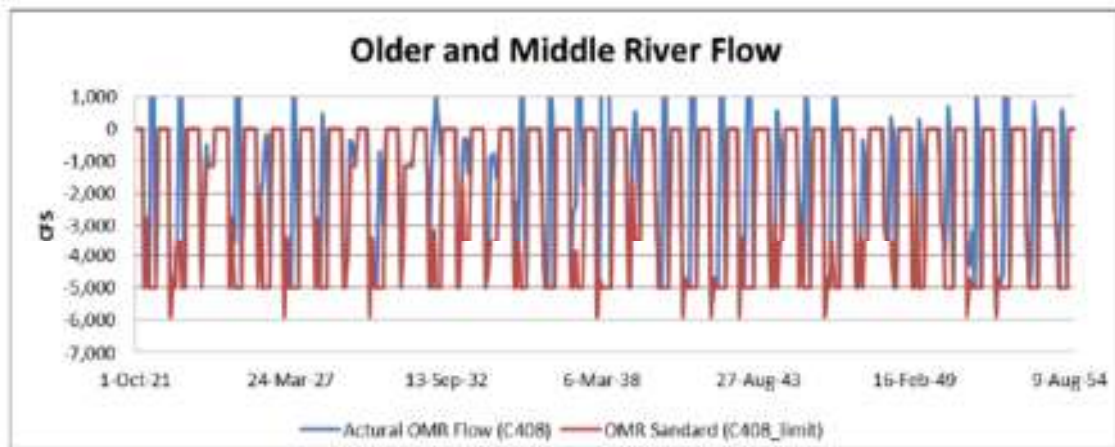


Figure 9 – Comparison of Simulated OMR Flow and OMR Standard in Study 30

Contra Costa County recommends a year-round limit on reverse flows through a minimum OMR of -5,000 cfs, which is the value of OMR below which entrainment effects are known to increase.

10. Limiting south Delta exports to no more than 300% of Vernalis flow

The working draft at page 5-43 discusses new limits on south Delta exports during the San Joaquin River October Pulse Flow period. The working draft cites the work of Mesick (2001) and states:

“Limiting south Delta exports to no more than 300% of Vernalis flow during any October pulse flow would help to reduce straying of San Joaquin Chinook salmon during their spawning migration.”

The Scientific Basis Report should clarify why it is acceptable to export three times as much water during the October pulse flow period than is entering the Delta from the San Joaquin River at Vernalis. This flow is needed to attract fall-run Chinook salmon that are returning to the San Joaquin River tributaries to spawn. These fish will be susceptible to entrainment at those high export rates and negative Old and Middle River flow conditions.

At other times of the year, the ratio of San Joaquin inflow to south Delta exports is limited to 4:1, 3:1, 2:1 and 1:1, depending on water year type. Those limits represent only 25%, 33%, 50% and 100% of Vernalis flow.

11. Exceedances of D-1641 Municipal and Industrial Standards in Modeling Studies

On page 30 of Appendix B, DWR’s Technical Memo, Study 30 – CalSim II Model with 50% unimpaired flow instream flow requirements (September 2016), DWR states:

“...there are occurrences of ($EC > EC$ Standard) in Rock Slough (RS) and in Jersey Point (JP) which exceed the Salinity Standards, as shown in Figure 8.”

There are also some exceedences of the Jersey Point agricultural EC standard.

These modeled exceedences at Rock Slough and Jersey Point are unlikely to occur in actual Bay-Delta operations because the State Water Project and Central Valley Project operators would need to ensure additional Delta outflow to meet the standards. This would mean that operations in subsequent months would also be different as the project attempts to make up for any loss in Delta exports.

In March 2000, in Revised Water Right Decision 1641, the SWRCB stated:

*The SWRCB’s EIR shows that the municipal water quality objective at Rock Slough is exceeded in December. This is due, however, to differences between methods used to calculate salinity in the models used for the EIR’s preparation. (R.T. p. 12249; SWRCB 1e, p. VI-11; SWRCB 75; SWRCB 76.) **In actuality, the projects are operated to meet salinity objectives at Rock Slough as well as at the export pumps, and the objective should not be exceeded. Therefore, there should be no significant adverse effect on water quality at CCWD’s Pumping Plants as a result of approving the petition.***

The problem of exceedences of the Rock Slough standard in Bay-Delta operations modeling was known in 2000, and before. The SWRCB should work with the developers of CALSIM and SacWAM to eliminate these exceedences so that the “actual” future operations and their environmental impacts are fully disclosed.

12. Presentation of Historical Data and Modeling Simulations

Many of the data presentations in the working draft in Chapter 5 are in the form of cumulative probability plots, e.g., Figure 5.3-4. Cumulative probability plots do not allow a comparison of model, or historical, data for the same instant of time. It would be useful for decision makers and the public to plot data for a given month (say January) as a time series showing different alternatives (35%-70% of unimpaired flow) and the existing base case. That would disclose more clearly years when a given alternative was easy to meet and years when it was difficult.

The working draft should also include plots of modeling data for a given time as x-y plots showing the flow for the alternative as a function of the flow for the existing base case at the same time. The data could be presented for a given month, say, January, so a comparison could be made with other months. In some months it may be easier to meet a 75% of unimpaired flow requirement than in others.

Similarly, the working draft should present x-y plots of historical flow data as a function of unimpaired flow, for different months, to indicate what percentage of unimpaired flow is currently being achieved, and the variability between years. It would also be useful to categorize the historical data by different periods, *e.g.*, pre-SWP, post-D-1485, post-May 1995 WQCP, post 2008-2009 biological opinions, etc. The SWRCB previously used this in the 2010 Delta Flow Criteria Report.

The State Board should also encourage proponents of Bay-Delta projects to present their modeling simulation flow data as percentages of unimpaired flow. That way decision makers and the public can determine whether a given project alternative is consistent with the recommendations in the 2010 Delta Flow Criteria Report, and the Phase 1 and Phase 2 documents.

Thank you for considering Contra Costa County's comments on the working draft Scientific Basis Report. County staff and consultants are available to answer any questions you may have and to provide further input on these important issues. Please contact me at (925) 674-7824, or Richard Denton, our Water Resources consultant, at (510) 339-3618.

Sincerely,

A handwritten signature in blue ink, appearing to read "Ryan Hernandez".

Ryan Hernandez
Manager
Contra Costa County Water Agency

Cc: Board of Supervisors
John Kopchik, Director, Department of Conservation and Development
Maureen Toms, Conservation Planning Deputy Director