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December 16, 2016

via email: commentletters@waterboards.ca.gov

Jeanine Townsend, Clerk to the Board
State Water Resources Control Board
1001 I Street, 24th Floor
Sacramento, CA 95814-0100

Subject: Comment Letter—Bay Delta Phase 2 Working Draft Science Report

Dear Ms. Townsend and Members of the State Water Resources Control Board:

Restore the Delta is a grassroots campaign by residents and organizations committed to restoring the Sacramento-San Joaquin Delta so that fisheries and farming can thrive there together again. We work through public education and outreach so that all Californians recognize the Sacramento-San Joaquin Bay Delta as part of California's natural heritage, deserving of restoration. We fight for a Delta with waters that are fishable, swimmable, drinkable, and farmable, able to support the health of the estuary, San Francisco Bay, and the ocean beyond. Our coalition envisions the Sacramento-San Joaquin Delta as a place where a vibrant local economy, tourism, recreation, farming, wildlife, and fisheries thrive for future generations as a result of resident efforts to protect our waterway commons.

We appreciate the opportunity to review the Phase 2 Draft Scientific Basis Report (SBR) for the Bay-Delta Estuary Water Quality Control Plan. It appears largely to be well-written, although its presentation suffers from some organizational problems. We have some suggestions for you on those. We are pleased to note too that the SBR continues a number of scientific observations, conclusions and determinations of the Water Board's August 2010 Delta Flow Criteria report.

Restore the Delta employs no scientists, though we do follow scientific developments concerning the Bay-Delta Estuary as closely as we can. We have the following observations and suggestions about the SBR that we certainly hope the State Water Board will consider as it completes Phase 2 amendments to the Bay-Delta Plan and the Draft Substitute Environmental Document.

Observations and Suggestions

1) We appreciate the Board's acknowledgment that the Bay-Delta ecosystem is in a state of crisis.[1] This acknowledgement is found in the Delta Reform Act as well, and we appreciate that the Board's SBR appears to accept this premise in fact as well as in law since it makes clear the urgency of the Board's tasks ahead.

2) The SBR adds that "A significant and compelling amount of scientific information indicates that restoration of natural flow functions are needed now to halt and reverse the species decline…" Such functional flows could be integrated, the Board hopes, with physical habitat improvements that together will create habitat conditions conducive to population abundance improvements. While we recognize that the SBR is not a policy or goal-setting document, this focus on "functional flows" does not persuade us yet to represent a recipe for recovery of population abundance to levels where they species may be removed from the Endangered Species Act lists. In addition, recovery goals were set separately for migratory salmon runs in the Central Valley Project Improvement Act of 1992, and in the Fish and Game Code.[2] We suggest that the next draft of the SBR should apply best available scientific statistical models to estimate from in-stream flow methods how close the proposed Bay-Delta Plan could come to meeting these salmon recovery goals.

3) A serious omission thus far from the SBR is the lack of a scientific method or basis for how the Board will go about balancing the public trust flows the Board identified in August 2010 with the needs of other types of water users. At this stage, then, we regard the SBR as very much an early draft in need of additional work in this area. In particular, the Water Board should incorporate into the scope of the SBR a benefit-cost analysis study that addresses the relative benefits of water to the Delta's regional economy and of that economy's use of water.[3]

4) The SBR appropriately identifies the many stressors long studied in the Bay-Delta estuary. The SBR goes on to state that referring to stressors as involving "non-flow actions" "fails to capture both how inadequate flows have contributed to the

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[1] State Water Resources Control Board, Draft Phase 2 Scientific Basis Report, October 2016, p. 1-3. "It is widely recognized that the Bay-Delta ecosystem is in a state of crisis….In the early 2000s, scientists noted a steep and lasting decline in population abundance of several native estuarine fish species that has continued and worsened during the recent drought. Likewise, Central Valley salmon and steelhead have not recovered, and natural production of all runs remains near all-time lows."

[2] State and federal fish doubling goals are found in California Fish and Game Code Section 6902(a); and Central Valley Project Improvement Act of 1992, Section 3406(b)(1).

[3] A fine survey of principles and methods of benefit-cost estimation in the service of public trust balancing, with relevance to the Bay-Delta estuary, is provided by ECONorthwest, *Bay-Delta Water: Economics of Choice*, January 2013. Online 29 November 2016 at https://c-win.org/bay-delta-water-economics-of-choice-2013/.

pervasiveness and severity of other stressors and the need for adequate flows to successfully implement many 'non-flow' measures." This strikes us as an eminently reasonable entry point for a discussion of the scientific basis for identifying flows that would be needed to improve stressor-related conditions to target level (not unlike trying to answer the question of "what flows do fish need?"). What flows are needed to control and manage nonnative invasive clams? And for controlling subsurface aquatic vegetation, or minimizing partition of dissolved selenium from the water column? What flows are needed to prevent harmful algal blooms in the Delta and what role might the Delta Cross Channel play in helping to control them? At present, Chapter 4 does not provide such discussions for any of the stressors it describes.

This would help make the problem of nonnative and invasive invertebrate species like *Corbula* and *Corbicula* more susceptible to active, even adaptive, management. It would be useful to see where flows that might control these latter two species might overlap with flows that might benefit native fish species like Delta smelt and Chinook salmon runs.

In relation to this, the SBR should have paragraphs at the conclusion of each stressor discussion that states precisely, if conceptually at first, what the role of flow is now in creating the stressor condition and what the role of flow could be to establish a target metric for a new and hopefully reduced stressor condition. At present, Chapter 4 is less than transparent about the Board's scientific analysis of the relationship between flow and stressors, and such a discussion for each would go a long way to clarify that position among both scientists and the lay public.

5) We would hope this would lead the Board to develop tables showing schedules of flow needed to address various stressors, from pesticides and sediments and turbidity to selenium, ammonia/ammonium, nonnative invasive plants cyanobacteria, temperature, and dissolved oxygen problems at different times of year. Ideally, such tables would be similar or modeled on those summarized in Tables 3.13-1 through 3.13-4 in Chapter 3. A goal for the SBR's next draft should be to develop comparable tables that show areas of potential overlap between flows that benefit fish and flows that alleviate or reduce stressors in the Bay-Delta Estuary, with both related to percent-of-unimpaired flow scenarios.

6) More unformed right now in the SBR is the role of adaptive management, not just of hydrology information but of fish and stressor information needs. How will adaptive management articulate with real-time flow management without becoming trial-and-error treatment of flow and other resources, including water supply and fish abundance? What does the Board consider to be the scope of adaptive management? Will it apply solely to endangered species concerns, or will public health and environmental justice risk issues also be considered in the scope of adaptive management?

7) We applaud the fact that the State Water Board appears to have finally done an evaluation of its D-1641 and 2006 Bay-Delta Plan flow objectives, at least for the Sacramento side of the Bay-Delta Plan area. Chapter 5 presents a rigorous comparison of minimum required Delta outflow (MRDO) with various percent-of-unimpaired-flow scenarios, which readily show that in July through October the estuary is operated primarily to meet MRDO and not for the estuary's ecosystems. (See Figure 5.3-3.)

8) In sum, it appears to us that the Phase 2 SBR is farther along in constructing the justification and methodological basis for new in-stream flow objectives for the Sacramento River and its major tributaries than is the comparable study from 2012 on the San Joaquin River side (Phase 1). An important piece in the Phase 2 SBR is the identification of flows fish need and relating those flows on a functional and seasonal basis to potential scenarios where percent-of-unimpaired flows may be applied to protect fish and other ecosystem habitat values in the long run. We understand from reviewing this first draft SBR that the Board still has work to complete relating these functional flows to more real-time hydrologic conditions such as uncontrolled flows, flooding, and return flows. More work, as we have noted above, needs to be done to show what flows are needed to more effectively manage key stressors in the Bay-Delta Estuary. And we remain concerned that public trust balancing analysis by the State Water Board remains inchoate and invisible to the public, opting instead for an implicit balancing based on status quo flow and export assumptions, rather than subjected to rigorous economic reasoning informed by public input on public trust matters.

Finally, for the organization of the report, we suggest that you provide a short opening discussion in the executive summary that briefly addresses the Board's research agenda for the SBR, how far the current draft SBR goes in fulfilling that agenda, and what the next steps in the research are. A reader must wait until near the end of Chapter 5 of the current draft to get a sense of what steps remain in the Board's efforts to provide a sturdy scientific basis for its policy development in the Bay-Delta Plan, and even then it is found only by a careful reading of the chapter. Identifying research agenda progress with a separate subheading would be helpful to readers.

Thank you for the opportunity to comment on the Phase 2 Scientific Basis Report for the Bay-Delta Plan. We hope you and your staff find these comments useful.

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cc: Thomas Howard
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