



NCWA
Northern California Water Association

*To advance the economic, social and environmental sustainability of Northern California
by enhancing and preserving the water rights, supplies and water quality.*

December 16, 2016

Felicia Marcus, Chair
Members of the Board
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95812

Re: Scientific Basis Report, Phase II WQCP Update

Dear Chair Marcus and Members of the Board:

The Northern California Water Association (NCWA) and the Sacramento Valley Water Users (SVWU) provide the following comments on the draft Phase II scientific basis report (Draft SBR). We appreciate the State Water Board circulating this as an initial “working draft” and we provide our comments in this vein—to help develop a more robust next draft of the report. In addition to our comments, we will follow up with the State Water Board to provide this information in more detail and we also stand ready to provide any additional information upon the request by the State Water Board staff.

In sum, we strongly believe that California needs a more progressive approach to water management than one simply based on some selected percentage of “unimpaired flows.” The following summarizes why an “unimpaired flow” approach would not work for 21st century California, while also proposing a “functional flow” approach for the Sacramento Valley that more closely reflects the need to efficiently serve multiple beneficial uses of water in a state with 39 million people. We also believe that a close review of recent science surrounding the Delta suggests the State Water Board should evolve and offer a different approach that relies upon the current science supporting “functional flows.”

I. The unimpaired flow approach would not work for 21st century California.

The “unimpaired flow” approach would not be practical as a regulatory approach nor would it help foster or serve as a good measure for the success of negotiated resolutions or voluntary agreements as called for in the California Water Action Plan. Water suppliers in every part of California expressed concerns with this approach last July 25 for this reason. (*see* letter, Appendix 1.)

The “unimpaired flow” approach is a variation of an old and tired dogma where redirecting water for instream flows was the objective, rather than focusing on how water can best serve multiple beneficial purposes such as fish, birds, cities and farms, as required by Water Code §13000 *et seq.* The “unimpaired flow” approach also belies 21st century water management that is necessary to serve 39 million people with a highly diverse landscape in California. This simplistic approach would provide little, if any, benefit for the environment in the Bay-Delta water system, and would adversely affect the environment in upstream areas such as the Sacramento Valley by depleting cold water reservoir supplies that are needed for salmon, by reducing available water supplies for birds and the Pacific Flyway, and by limiting food production throughout the Sacramento Valley that is necessary for healthy fish and birds.

Importantly, redirecting wholesale blocks of water into the Delta without clear scientific benefits would undermine the state’s co-equal goals and would be a waste and unreasonable use of water in California.

A. An unimpaired flow objective would not be likely to benefit fish in the Delta.

- California has tried a highly flow-centric approach in the Delta for the past several decades, with agencies re-directing more than **1.3 million acre-feet more water per year for Delta outflow** over the past several decades. (See MBK Engineers and HDR “Retrospective Analysis of Changed Central Valley Project and State Water Project Conditions Due to Changes in Delta Regulations,” January 2013; see Appendix 2.) This has not improved fisheries in the Delta and it appears that there have been further declines in pelagic fisheries with these additional flows. Now is the time to try a different approach, as described below.
- Modern science has shown that **dedicating large blocks of water** to a sterile and inhospitable channelized river provides **little or no benefit to fisheries** in the Delta. For example, the Delta Independent Science Board in “Flows and Fishes in the Sacramento-San Joaquin Delta” (August 2015) presented a report that highlighted this dynamic. The Lead Scientists for the program have also presented this information to the State Water Board on several occasions over the past several years, explaining that adding water to a clear, inhospitable channel, such as those in the Delta, would not improve fisheries unless other issues are addressed.
- The State Water Board held a series of **workshops in 2012** to bring good modern science to the process. The October draft scientific basis report has completely ignored the entire 2012 process. In that process, **ICF presented a formal report** to the SWRCB that raised some serious questions about the “unimpaired flow” approach. The draft scientific basis report also has completely ignored peer-reviewed and published scientific reports that question the relationship between Delta flows and Delta fish abundance. Instead, the Draft SBR relies on old, outdated reports.
- A snapshot of the current and evolving science surrounding the Delta can be seen in the recent **Delta Science Program report** “The Delta on Fast Forward: Thinking Beyond the

Next Crisis” (November 2016), where there is a focus on various priority stressors that do not include unimpaired flows into the Delta.

➤ For **salmon**, Dave Vogel, a leading expert on salmonid species who presented and submitted important biological information and analyses during the 2012 workshops, has undertaken a detailed review of the Draft SBR sections pertaining to anadromous salmonids. A copy of Mr. Vogel’s report is attached as Appendix 3, and his key conclusions and recommendations are summarized as follows:

- The best available science concerning anadromous salmonids was not used in preparing the Draft SBR--relevant science on anadromous salmonids, previously provided for the 2012 Workshops, was overlooked or ignored.
- Information regarding Sacramento River basin anadromous salmonids presented in the Draft SBR is incomplete and largely out-of-date.
- Many statements in the Draft SBR regarding anadromous salmonids are unsubstantiated with no supporting scientific basis.
- The Draft SBR does not address major scientific uncertainties or highly complex variables affecting salmonids.
- There are numerous conflicting and confusing statements concerning unimpaired flows and natural flows.
- The draft SBR frequently recommends “mimicking the natural hydrograph” for purported benefits to anadromous salmonids, but then also recommends artificially “sculpting” flows that would not reflect natural hydrologic conditions.
- The Draft SBR lacks descriptions of alleged flow-related problems in the Sacramento River and its tributaries on a specific spatial and temporal basis.
- The Draft SBR is severely deficient in not providing any meaningful details on non-flow measures that could be implemented to benefit salmonids.
- The Draft SBR does not adequately describe the specific biological mechanisms that would result from the flow recommendations, and does not quantify how those mechanisms would benefit anadromous salmonids.
- The Draft SBR provides no meaningful discussion of the redirected impacts on other species and life stages that would result from the flow recommendations – e.g., major reductions in water storage in the large reservoirs (Shasta, Oroville, Folsom).
- The Draft SBR is severely deficient in the section concerning other stressors on anadromous salmonids, and additional management actions which could be implemented to benefit salmonids.

- For **pelagic fish**, Dr. Robert Latour, an expert on the use of biostatistics in fishery management and who also presented important information during the 2012 workshops, has reviewed the Draft SBR's sections concerning pelagic fish in the Delta. A copy of Dr. Latour's comments is attached as Appendix 4. His comments include the following:
- The Draft SBR does not consider peer-reviewed, published scientific reports that demonstrate that statistical analyses based on Fall Midwater Trawl indices on which the Draft SBT is based are flawed.¹
 - By relying strictly on survey indices, the Draft SBR disregards a very large amount of instructive information concerning the relationship between fish behavior and condition and environmental variables. The basis for a much more robust analysis would be readily available in existing data if the analysis instead were to be based on the raw survey data, rather than only on the indices, as is the currently dominant approach.
 - The Draft SBR does not account for known and significant scientific uncertainty with current fish abundance indices. Failing to account for that uncertainty significantly detracts from the value for policymaking of any analysis based on those indices.
 - As a result of these problems with the current method of analysis of the relationship between environmental variables and Delta fish populations, including the analysis reflected in the Draft SBR, the Draft SBR does not meet the scientific standards applied by, among other agencies in the United States, NOAA Fisheries in developing policy for other fish-management programs, such as setting acceptable levels of commercial fish harvest.
- Although the “unimpaired flow” approach is suggested as a way to **mimic natural flow patterns**, this would not be the case in the Sacramento Valley. The term “natural” flows describe the flows that would have occurred absent all anthropogenic influences and is considered to represent flows during the period before significant landscape changes in the Delta and Sacramento River basin. Since then, there have been substantial changes in land use, including the clearance and drainage of wetlands and constructions of levees for flood control, which have ended the natural cycle of bank overflows and detention storage. These influences have dramatically affected Central Valley and Delta flows. For this reason, **unimpaired flows do not represent natural conditions** in the Sacramento Valley and Delta. Instead, they simply are calculations that adjust historical flows for upstream reservoir operations and current water use practices. Under natural conditions, the Sacramento Valley was inundated by high flows in most years. The consumptive use of these areas and the functions they provide must be considered if flow requirements are meant to mimic natural flows. (*Estimates of Natural and Unimpaired Flows for the Central Valley of California: WY 1922-2014*, DWR, March 2016). The functional flow

¹See Newman, K. 2008. Sample design-based methodology for estimating delta smelt abundance. *San Francisco Estuary & Watershed Science* 6(3); Latour, R.J. 2016. Explaining patterns of pelagic fish abundance in the Sacramento-San Joaquin Delta. *Estuaries and Coasts* 39:233-247. Copies of these peer-reviewed, published papers are enclosed with this letter, see Appendix 4.

approach described below more closely resembles and can serve as a surrogate for more natural flow paths in a state with a flood and water system designed for 39 million people.

B. An unimpaired flow approach would have significant impacts on every beneficial use of water in the upstream areas in the Sacramento Valley.

- An unimpaired flow approach would significantly impact reservoir storage necessary to serve cities, rural communities, farms, fish, birds and recreation, particularly during dry years. Most notably, unimpaired flows would have **significant impacts on reservoir storage**, which would impact every one of these beneficial uses of water in the Sacramento Valley and throughout California. As discussed in MBK's September 2012 material presented to the State Water Board (MBK, *Evaluation of Potential SWRCB Unimpaired Flow Objectives – April 25, 2012; see Appendix 5*), if a 50% unimpaired flow requirement were to be imposed impacts to the cold-water pools of Shasta, Oroville, and Folsom Reservoirs would be impacted in 80% of the years. In addition, these reservoirs would reach their dead pools in 20 to 40% of the years. In addition to such reductions in storage, increases in spring time releases also would deplete cold water supplies needed to protect salmon spawning downstream from reservoirs. Importantly, such an approach would further limit California's ability to be prepared for future dry years, such as those we saw in 2014-15. This includes reducing cold water pools and management flexibility for salmon, reduced deliveries for birds along the Pacific Flyway (ricelands, refuges), and reduced deliveries and reliability for cities, rural communities and farms. By **drawing so heavily on reservoir storage**, this approach also would significantly limit California's ability to prepare for drought conditions such as we have seen the past five years. Because flow requirements based on a percent of unimpaired flow would require increased reservoir releases in the spring before the irrigation season begins, it would not be possible to simply reduce agricultural diversions to satisfy these requirements.
- The **draft SBR lacks details** about the potential activities that will be "further evaluated," including any coordinated actions concerning cold water habitats on the major tributaries. This deficiency, in addition to the lack of detail relative to the overall plan for implementation, prevents any meaningful evaluation of the potential benefits or impacts to, or trade-offs for, fisheries, birds, and water supply that would occur with such activities.
- The unimpaired flow approach would be **counter to** the recent state policies and direction regarding **sustainable groundwater management**, which will rely upon groundwater recharge and the conjunctive management of surface and groundwater resources to achieve these objectives. (*see Water Code §§10720.1(g); 10727.4(e) and (f).*) The unimpaired flow approach clearly would lead to significant additional groundwater pumping, which according to the Nature Conservancy's 2014 report, *Groundwater and*

Stream Interaction in California's Central Valley: Insights for Sustainable Groundwater Management (see Appendix 6), would result in less recharge opportunities, could impact groundwater-supported ecosystems, and could have negative impacts on stream flows that are not fully developed for years or even decades. This would be counter to the Sustainable Groundwater Management Act (SGMA).

II. California should pursue functional flows for multiple beneficial purposes.

California needs a 21st century water management approach that focuses on functional flows tailored for specific beneficial purposes. In California, every drop of water must have a specific purpose. Modern science is revealing that spreading water across the bypasses and the landscape in the Sacramento Valley and Delta (as a surrogate for natural system functions) will likely benefit fish and other species through food production and habitat. Importantly, the functional flow approach depends upon the special interactions between the water and the landscape. This approach already is underway and can be expanded in the Sacramento Valley.

- The California Water Action Plan section on water flows describes a goal to “ensure sustainable river and estuary habitat conditions for a healthy, functional Bay-Delta ecosystem.” (See page 12.)
- The Delta Stewardship Council (DSC) in its approved Delta Plan provides a solid overview of the functional flow approach in Chapter 4.
- The past two Lead Scientists for the Delta Science Program were co-authors in a recent published report that found that in highly modified riverscapes (such as the Sacramento Valley), functional flows are a “more effective approach to identify and restore aspects of the flow regime that support key ecosystem functions and drive geomorphological and ecological processes.” (Yarnell et al., “Functional Flows in Modified Riverscapes: Hydrographs, Habitats and Opportunities (2015); see Appendix 7.)
- Local agencies in every part of the Sacramento Valley and its river systems already have re-managed flows for the benefit of salmon and steelhead in the past several decades. (“Re-managing the Flow;” see Appendix 8.) These include actions on the American, Bear, Feather, Sacramento and Yuba Rivers, as well as Mill Creek and various smaller watercourses. These flows all have been tailored for salmon and steelhead. These arrangements all began to be implemented after the last major update of the Water Quality Control Plan.
- On the Sacramento Valley floor, water spread out and slowed down more closely mimics natural conditions and this water will serve multiple beneficial uses in a flow through system—cities and rural communities, farms, birds along the Pacific Flyway, food for fish, recreation. A recent example is the program in the Sacramento Valley during the

summer to implement the 2016 North Delta Food Web Action as part of the Delta Smelt Resiliency Strategy (July 2016) (*see* Appendix 9).

- Recent energetics models for birds and the Pacific Flyway have shown the value and importance of functional flows for food production and habitat along the Pacific Flyway, which includes ricelands and refuges. Recent actions for Delta smelt food production in the Yolo Bypass have shown the same promise and various efforts to grow and nurture small salmon on ricelands have suggested better salmon survival than in the sterile channelized river. (The Sacramento Valley and Waterfowl; *see* Appendix 10; and Duck's Unlimited comments submitted to the State Water Board, incorporated by reference.)

We will follow up and provide more detail on all the functional flows that have already been implemented since the last major update of the Water Quality Control Plan and others that are currently being developed.

III. Listen to the new science regarding opportunities for functional flows.

The State Water Board and other state and federal agencies should continue to enlist the Delta Science Program and the Independent Science Board, a leading group of scientists, to provide guidance to state and federal agencies with respect to Delta science. Water suppliers across the state on July 19, 2016 sent a letter to the SWRCB suggesting a new approach is necessary and encouraging the SWRCB and other agencies to listen to the new science surrounding flows. (*See* Appendix 11.) We strongly encourage the State Water Board to listen closely to the Lead Scientist and the Independent Science Board comments and incorporate modern science into the scientific basis. In this regard, we recommend and request that the SWRCB issue and pose the listed questions set forth in Appendix 12 to any independent review of the draft scientific basis report, including in particular, the peer review to be conducted pursuant to California Health & Safety Code §57004.

IV. Negotiated resolutions can lead to effective functional flow approaches.

Regulatory solutions do not seem to be working well for any beneficial uses that depend on water in the Sacramento Valley or the Delta. Moreover, further regulatory actions will generally take decades to implement. On the other hand, the California Water Action Plan calls for a coordinated and collaborative approach that encourages negotiated voluntary agreements. (Page 18.) The Resources Secretary and you exchanged letters in November 2015 reiterating your mutual commitment to voluntary agreements. On September 19, 2016, the Governor again directed agencies to pursue negotiated agreements. For this administration to be successful in the water arena, negotiated resolutions (not regulatory actions) that pursue functional flows and other measures will be essential and will lead to more sustainable outcomes. The Sacramento Valley Water Users are committed to a negotiated resolution and voluntary agreements for the Sacramento Valley and the Delta.

We appreciate the opportunity to provide comments on your working draft.

Sincerely yours,



David Guy
President, NCWA



Dustin Cooper
Minasian Law Firm



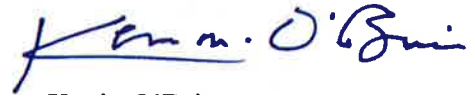
Andy Hitchings
Somach, Simmons and Dunn



Dan Kelly
Placer County
Water Agency



Alan Lilly
Bartkiewicz, Kronick
and Shanahan



Kevin O'Brien
Downey Brand

cc: Tom Howard
Eric Oppenheimer
Michael Lauffer
Michael George
Jeanine Townsend (per SWRCB notice)

For copies of the appendices, please call NCWA at 916.442.8333.