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April 18, 2012

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

Re: Comments on the January 24, 2012, Supplemental Notice of Preparation for Environmental Documentation for the Update and Implementation of the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary

Dear Ms. Townsend:

This letter provides the Delta Stewardship Council's (Council) comments on your Bay/Delta Plan update. We provide these comments as a responsible agency under CEQA, and focus on the scope and content of the environmental information that is necessary to the discharge of your duties.

The Council supports the following:

1. The Delta Stewardship Council supports the outline of issues in your Notice of Preparation, and the referenced 2009 Staff Report, including specific water flow objectives, the appropriate monitoring and study program, and other identified potential changes.

2. The Delta Stewardship Council supports the timeline you have adopted to complete this effort by June 2014. In a very important way, completion of your work on time allows other federal, state and local agencies to make fully informed and intelligent decisions on such things as potential amendments to the Council's Delta Plan; successful completion of the Bay-Delta Conservation Plan, adoption and implementation of the Central Valley Flood Plan, and many more. We congratulate you on adopting an expedited work plan.

In addition, we would request that you include the following elements in your planning effort:

The Council urges the Board to include the following:

3. Specific incorporation of California's coequal goals as an integral part of this effort, Water Code Sec. 85054. We suggest that any new water quality objectives, to the maximum extent feasible, advance both a healthy ecosystem and a more reliable statewide water supply.

4. In a recent report on the Bay-Delta, the National Research Council of the National Academy of Science (NAS) wrote, "...only a synthetic, integrated, analytical approach to understanding the effects of suites of environmental factors on the ecosystem and its components is likely to provide important insights that can lead to the enhancement of the delta and its species." Sustainable Water and Environmental Management in the California Bay Delta, March 2012, p. 6. The report stressed that "[c]onsideration of the large number of stressors and their effects and interactions leads to the conclusion that efforts to eliminate any one stressor are unlikely to reverse declines in the listed species." Id. p. 8. The council recommends any proposed changes to the existing water quality objectives and their alternatives should be considered as part of a holistic, comprehensive analysis that considers all the factors that are having significant adverse impacts on the Delta ecosystem. The State Water Board should investigate the interrelationship between these factors in an effort to create innovative approaches that advance the coequal goals through its revisions to the Bay-Delta Plan.

5. The State Water Board will need to employ sound scientific models and to the maximum extent possible, rely on life-cycle models of key Bay-Delta species affected by flow. The State Water Board, through input from scientific experts and public forums, should identify what gaps exist in the current modeling, and through collaboration with other state and federal agencies and academia develop a strategy for resolving such scientific limitations. Again, we refer to the NAS report, "[t]he (NAS) committee re-emphasizes the need for life-cycling modeling and a collaborative process to reduce paralysis that can occur from adversarial use of models, and to encourage cross-comparisons and cross-fertilization." Id. P. 7.

6. The Council encourages the State Water Board to address flows in a way that relates to the natural functions that those flows historically provided to native species in the Delta. Such a concept is recognized in recent state legislation; see Water Code Sec. 85066 relative to 'restoration'.

   Flows interact with land to create physical habitats and connections where species find food, refuge and reproduction space. This means that through a variety of mechanisms, native species can survive, grow, and reproduce better when flows occur in historical patterns, often referred to as a natural flow regime. A natural flow regime is not simply the water volume, but also includes the seasonal timing, magnitude,

frequency, duration, and rate of change in flows. Until large-scale restoration is in place, a realistic, more natural flow regime should be used to protect, restore, and enhance the Delta ecosystem. We are attaching a one page summary our scientists provided, which describes more natural functional flows, which are the objective of a more natural flow regime. We should use the best available scientific understanding of the functions that flows provide to native species. For example, winter run salmon historically survived low summer flows by finding cold spring creeks in the watershed for spawning. These spring creeks are now blocked by reservoirs but cold water can be released from reservoirs to improve downstream spawning habitat. Other functions of flow include the effects on salinity, sediment transport and deposition, turbidity, etc.

7. As a part of the balancing the Board is required to do, the Council encourages the Board—consistent with Water Code section 85023 (reasonable use and the public trust doctrine are foundational to state and delta water management)-- to examine the water supply impacts on all relevant "beneficial uses", including domestic, irrigation, municipal, industrial, fish and wildlife preservation and enhancement, and other beneficial uses more specifically defined in 23 California Code of Regulations Section 659, et seq.

8. The Council encourages the Board to include a set of metrics or performance measures to determine whether its water quality objectives are contributing to positive trends in terms of a healthy ecosystem and a more reliable statewide water supply. We recognize the difficulty of such a process, and are engaged in doing just that for our own Delta Plan. However, saying in your amended Plan just what measures will be used to identify success or failure will help bring a sense of reality to the complex set of issues you are facing. These performance measures should allow the State Water Board to judge if the observed outcomes are consistent with those anticipated and whether success is being achieved in these areas.

   With regard to improving the health of the Delta ecosystem, some considerations for performance measures include: has there been a reduction in the threats to and stressors on the ecosystem; are there improved functional corridors for migratory species; is there an increase in the habitats required by native species in the Delta; has there been an improvement in the ecological conditions that contribute to more viable populations of native and migratory species; and are the health and populations of native and migratory species increasing?

   With regard to providing a more reliable water supply for California, the State Water Board may want to consider a method for quantifying how well the water supply needs for reasonable and beneficial uses of water are being met, including impacts to

agriculture, municipal and domestic supplies, and recreational uses; how can the economic value of specific beneficial uses of this water be quantified; how are the changes to the water quality objectives impacting these economic values; and to what degree has there been an improvement of water quality to protect human health and the environment?

We know well how contentious development of flow objectives can be. As General Manager of SAWPA, I participated in the Water Quality Control Plan update for the Santa Ana River Basin. We made a strong effort to include stakeholders, who had an active role in helping craft the outcome. One key strategy we used was the establishment of taskforces to develop common statements of facts. Of course, controversy remained, but the decision and process getting there was substantially improved.

As the Bay-Delta Plan is revised, a critical element will be to ensure that all interested parties and stakeholders are actively engaged throughout this process. This can be achieved by the State Water Board staff conducting meetings and workshops designed to gather the most up-to-date scientific research and technical insight on the above issues. Such workshops could address the relationships between specific factors affecting the achievement of the coequal goals, strategies for developing and implementing metrics to measure success, and providing insight as to some of the unintended consequences that may result.

Finally, we suggest that principles of adaptive management be incorporated into the development of this update. This is a key element of the DSC's Delta Plan, and facilitates future revisions of the plan as additional information becomes known. We suggest that revision of the Bay-Delta Plan include a section on adaptive management to test assumptions, evaluate outcomes, and support future revisions and changes.

The Mission of the Delta Stewardship Council

The mission of the Council is to achieve the coequal goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. The Council is the state agency responsible for developing and adopting a comprehensive, long-term management plan for the Delta (Delta Plan). The purpose of the Delta Plan is to further the coequal goals of a healthy Delta ecosystem and a more reliable water supply. Strategies for furthering the coequal goals include: 1) measures that promote characteristics of a healthy Delta ecosystem, (Water Code § 85302 (c)), and 2) measures that promote a more reliable water supply (Water Code § 85302 (d).) However, planning for achievement of the coequal goals is also incumbent upon other state agencies, including the State Water Board. At the time the Legislature created the Council and mandated the development and implementation of the Delta Plan, the Legislature also declared that the goal of furthering the coequal goals extends beyond the Council, and in fact are the basic goals for the state for the Delta (Public

Resources Code § 29702.) The DSC is a responsible agency with respect to the actions being proposed in the State Water Board's NOP.

We appreciate the opportunity to provide comments on this update. If you have any questions regarding these comments, please contact Mark Bradley of my staff at (916) 445-0143.

Sincerely,

P. Joseph Grindstaff
Executive Officer

cc: Charles R. Hoppin, Chair, State Water Resources Control Board
Francis Spivy-Weber, Vice Chair, State Water Resources Control Board
Tam M. Doduc, Board Member, State Water Resources Control Board
Tom Howard, Executive Director, State Water Resources Control Board
Delta Stewardship Council Members

More natural functional flow

What is more natural flow? Natural Delta flow is the historical (say pre 1849) pattern of watershed flows that eventually arrived in the Delta. Historical Delta flows resulted from rainfall in the watershed and the pattern of water storage and release from mountain snowpack, forest and valley soil and vegetation, and the natural topography of creeks, rivers, natural levees, and valley floodplains. These landscape patterns have been modified since 1849 and will largely not be returned. However, "more natural" suggests that we can return some of the *functions* that flows provide to the life history needs of native species.

Why more natural flow? The key premise is that native species are adapted to the seasonal, interannual, and spatial variability of the historical flow pattern and the functions that come with it. Flows interact with land to create physical habitats and connections where species find food, refuge, and reproduction space. This means that, through a variety of mechanisms, native species can survive, grow, and reproduce better when flows occur in historical patterns. Therefore, managing for more natural flows protects, restores, and enhances the Delta ecosystem.

What does more natural flow look like? There were no measurements of natural Delta flow before the watershed was modified by gold mining, agriculture, and water storage. In general, natural flows rise in concert with precipitation patterns and fall slowly as the natural water storage capacity of the watershed is released. Natural flows are not simply water volumes but also include the seasonal timing, magnitude, frequency, duration, and rate of change in flows. It is often asserted that "unimpaired Delta inflow" is a good approximation of natural flow. This is the flow that would be expected if reservoirs were removed but the contemporary watershed and valley land uses remained. Unimpaired flow is NOT natural flow, however. Unimpaired Delta inflow may overestimate the magnitude of natural Delta inflow and underestimate the timing of seasonal peaks.

Will more natural flow work? Not by itself. Natural flows exist only in the context of natural landscape patterns. Indeed, the pattern of natural flow reflects seasonal and interannual interaction with the landscape itself. For example, historical high winter and spring flows were intercepted and stored by natural flood plains and then released slowly to the Delta through the summer. Much of the ecosystem functional value of natural flows is in these seasonal land and water interactions.

We don't have natural landscapes so now what? Until large-scale restoration is in place decades hence, we can meet ecosystem goals in the interim by using the best available scientific understanding of the *functions* that flows provide to native species. For example, winter run salmon historically survived low summer flows by finding cold spring creeks in the watershed for spawning. The spring creeks are now blocked by dams but cold water can be released from reservoirs to improve spawning habitat lower down. Another example is using Delta outflow to position the low salinity zone ("X2") in Suisun Bay at key times of year when the salinity, refuge, and food resources there can benefit and protect native fish. There are many other examples. More natural flow is therefore understood to emphasize more natural *functions* rather than the shape of the hydrograph per se. With landscape restoration over time, managing water for functional natural flows should be adaptively managed as ecosystem conditions change.