Tuolumne River Trust

OFFICES

57 Post Street, Suite 711
San Francisco, CA 94104
(415) 882-7252

829 Thirteenth Street
Modesto, CA 95354
(209) 236-0330

67 Linoberg Street
Sonora, CA 95370
(209) 588-8636

www.tuolumne.org

July 26, 2018

Felicia Marcus, Chair
State Water Resources Control Board
1001 I Street, 24th Floor
Sacramento, CA 95814

Re: Comment Letter – Revisions to Proposed Bay-Delta Plan Amendments

Dear Chair Marcus:

Thank you for the opportunity to comment on the final SED for Phase 1 of the Bay Delta Water Quality Control Plan. The Tuolumne River Trust agrees with the State Water Board's approach of basing instream flow requirements on a percentage of unimpaired flow. In fact, contrary to its public position on the Bay Delta Plan, The San Francisco Public Utilities Commission (SFPUC) embraces this approach in its Water Enterprise Environmental Stewardship Policy:

> It is our policy to operate the water system in a manner that protects and restores native fish and wildlife downstream of our dams and water diversions, within reservoirs, and on our watershed lands. Releases from reservoirs will (consistent with our mission described above, existing agreements, and applicable state and federal laws), mimic the variation of the seasonal hydrology (e.g., magnitude, timing, duration, and frequency) of their corresponding watersheds in order to sustain the aquatic and riparian ecosystems upon which these native fish and wildlife species depend.[1]

We believe it was disingenuous of the SFPUC to have submitted an alternative proposal to the State Water Board along with its comments on the Draft SED for the Bay Delta Plan that proposed a different approach to instream flows.

The *SFPUC Alternative to promote the expansion of fall-run Chinook salmon and Oncorhynchus mykiss populations in the lower Tuolumne River while maintaining water supply reliability* (submitted on March 16, 2017) focuses almost exclusively on non-flow measures, such as habitat restoration and predator control, and fails to acknowledge that the Tuolumne's instream flows are currently inadequate to: 1) maintain water quality conditions associated with cold-water fisheries, 2) inundate off-channel, floodplain habitat that is critical to rearing and outmigration of juvenile fish, 3) encourage growth of native streamside riparian vegetation, including cottonwoods; 4) repress invasions of the Tuolumne River

[1] SFPUC Water Enterprise Environmental Stewardship Policy – http://sfwater.org/index.aspx?page=181

by non-native species such as bass and water hyacinth; and 5) improve water quality conditions in the lower San Joaquin River and southern Delta.

Adequate flows are necessary to increase fish incubation and migration success via improved water temperatures, dissolved oxygen (including intra-gravel conditions, which are negatively impacted by sediments deposited in low-flow conditions) and other water quality parameters, as well as by increasing inundation of key rearing habitats. The net result of providing adequate flows in the Tuolumne River will be to restore a functioning river ecosystem in which native fish are favored over non-native predators.

History has shown that non-flow measures, in the absence of sufficient instream flow, are destined to fail. In 1995, the SFPUC and Modesto and Turlock Irrigation Districts entered into a Settlement Agreement with many of the parties that remain interested in the health of the Tuolumne River today, including the US Fish and Wildlife Service, the California Department of Fish and Game (now Dept. of Fish and Wildlife), and a number of NGOs. The 1995 Settlement Agreement arose out of Article 37 of the original 1964 license for the Don Pedro Project issued by the Federal Energy Regulatory Commission (then the Federal Power Commission) which required that dam releases and operations be modified upon the recommendation of the California Department of Fish and Game after the first 20 years of operation of the Don Pedro Project in order to maintain the salmon fishery.

The 1995 Settlement Agreement's three objectives for the recovery of Tuolumne River Chinook salmon were to: 1) increase naturally occurring salmon populations, 2) protect any remaining genetic distinction, and 3) increase salmon habitat in the Tuolumne River. The basic approach of Agreement was to rely heavily on non-flow measures, in particular predator habitat reduction projects, to improve the Chinook salmon run. While the Agreement did include a small increase in flows, the increase was insignificant.

Despite the best efforts of the Irrigation Districts and others to improve habitat in the river for salmon, the fall run Chinook salmon population has actually decreased since 1995. In short, the 1995 Settlement Agreement failed to meet its goal of recovery of Tuolumne River Chinook salmon. It failed to increase naturally occurring salmon populations, and it failed to protect any remaining genetic distinction. And even though there was a focus on increasing salmon habitat, it failed in many respects to do that as well. We believe the primary focus on physical habitat manipulations, with a much smaller emphasis on flow measures, is the primary reason for this failure.

The 1995 Settlement Agreement also had a significant focus on reducing predators and predator habitat, and provides a good lesson in misplaced priorities. The Special Run Pool (SRP) 9 project was designed to reduce predator habitat by filling in an old in-channel gravel pit that had become excellent habitat for predator fish, primarily large-mouth bass. After expending approximately $2.8 million, the project failed to reduce predator habitat. In fact, by the Districts' own admission, the project simply exchanged one non-native predator (largemouth

bass) with another (smallmouth bass).

The Districts' post-project monitoring report was very clear about the impact of high flows in affecting predator habitat. Here is an example of what the report had to say about flows and predator habitat:

> During extremely wet years, high flows can flush largemouth bass out of a stream, but typically a sufficient number of adults can find shelter in flooded areas to repopulate the stream during lower flow conditions (Moyle 2002). During the years following the flood, largemouth bass abundance was controlled by spring and summer flow conditions that were unfavorable for reproduction. Largemouth bass require low water velocities and warm water temperatures to reproduce. (Moyle 2002, Swingle and Smith 1950, Harlan and Speaker 1956, Mraz 1964, Clugston 1966, Allan and Romero 1975, all as cited in Stuber et al 1982) (p 130).

Unfortunately, despite the many lessons we have learned through the implementation of the actions included in the 1995 Settlement Agreement (and similar habitat-centric approaches throughout the Central Valley, such as Calfed and CVPIA/AFRP), the SFPUC Alternative to the State Water Board Plan continues to emphasize the same myopic approach. Indeed, the flow-related aspects of the SFPUC Alternative are in some respects regressive from the current flow schedule. Very simply, we believe the SFPUC Alternative is doomed to fail and would generally be a misuse of taxpayer and ratepayer money, as well as a violation of the SFPUC's (and Modesto and Turlock Irrigation Districts') responsibility to protect the public trust.

We believe the fundamental premise of the SFPUC Alternative is flawed for several reasons. First, there is no unifying ecological principle that guides the SFPUC Alternative. Rather, the SFPUC Alternative attempts to replace the functions of flowing water (e.g., sediment mobilization, invasive species control, recruitment of desirable native riparian vegetation and inundation of rearing habitat) with costly, manual actions, which the SFPUC asserts will lead to the expansion of salmon and steelhead populations, despite evidence to the contrary. As we describe above, a similar approach was taken in the 1995 Settlement Agreement that did not result in increased numbers of native fish species.

As described in the Recovery Plan for the Evolutionary Significant Units of Sacramento River Winter-Run Chinook Salmon and Central Valley Spring-Run Chinook Salmon and the Distinct Population Segment of California Central Valley Steelhead (NMFS 201x), a salmon and steelhead recovery plan must be based on two key salmonid conservation principles.

First, is that functioning, diverse, and interconnected habitats are necessary for a species to be viable. Put simply, the full ecosystem needs to be restored, not just a limited set of specific elements that are part of the ecosystem. Salmon and steelhead recovery cannot be achieved without providing sufficient habitat throughout the full spawning, rearing and migratory route. The SFPUC Alternative's proposed actions to modify spawning and in-channel rearing habitat

are very limited geographically, and they ignore the need for habitat improvements in the Tuolumne River corridor and downstream as far as the Delta.

Second, a successful restoration strategy must address the four attributes of fish species viability (spatial structure, diversity, productivity and abundance) as outlined in McElhany et al. (2000). The Recovery Plan for the Evolutionary Significant Units of Sacramento River Winter-Run Chinook Salmon and Central Valley Spring-Run Chinook Salmon and the Distinct Population Segment of California Central Valley Steelhead (2014) summarizes these attributes:

> Abundance and population growth rate are self-explanatory parameters that are clearly important to species and population viability, while spatial structure and diversity are just as important but less intuitive. Spatial structure refers to the arrangement of populations across the landscape, the distribution of spawners within a population, and the processes that produce these patterns. Species with a restricted spatial distribution and few spawning areas are at a higher risk of extinction from catastrophic environmental events (e.g., a single landslide) than are species with more widespread and complex spatial structure. Species or population diversity concerns the phenotypic (morphology, behavior, and life-history traits) and genetic characteristics of populations. Phenotypic diversity allows more populations to use a wider array of environments and protects populations against short-term temporal and spatial environmental changes. Genetic diversity, on the other hand, provides populations with the ability to survive long-term changes in the environment. It is the combination of phenotypic and genetic diversity expressed in a natural setting that provides populations with the ability to adapt to long-term changes (McElhany et al. 2000).

The SFPUC Alternative provides no targets for population abundance, growth rate or phenotypic/genetic diversity. Rather, the proposal provides an estimate of what the biological outputs of its approach will be, rather than establishing biological goals at the outset and designing conservation actions in support of achieving those goals. This approach is backward. Biological targets that comply with and articulate existing City, State and Federal policies should be defined in specific, measureable, achievable, relevant and time bound (SMART) terms in order to set the stage for the overall scope and specifics of recovery actions. These targets must be the driving force behind the SFPUC's alternative plan to meet its obligations under the Clean Water Act, Porter-Cologne Act, Federal and State Endangered Species Acts and the Public Trust Doctrine.

As to spatial structure, the SFPUC Alternative relies heavily on two stages of salmonid life cycle (spawning and egg incubation) and a portion of a third stage (juvenile migration). By restricting actions to benefit spawning and egg incubation habitat, and only a portion of juvenile migration habitat (in-channel rearing habitat above RM 26), the SFPUC Alternative misses opportunities to improve periodically inundated habitat (loosely "floodplains") throughout the Tuolumne River and into the lower San Joaquin River. Floodplain habitat has been demonstrated to strongly support growth of juvenile salmonids and the spawning and incubation success of other native fish species such as Sacramento splittail. Along the Tuolumne, there is poor

channel-floodplain connectivity; thus, there is a significant opportunity to improve productivity of several fisheries that has been completely omitted from the SFPUC proposal. Any improvements to the system that may be achieved upstream are likely to be undermined unless improvements are made along downstream portions of the River as well.

Different stretches of floodplain support different life stages of fish species. Additionally, floodplain distribution supports life history diversity, survival in different water year types, and successful outmigration. We believe the proposal should focus not just on habitat quality, but also on the extent and distribution of frequently inundated floodplain habitat needed to support agreed upon fish populations.

Finally, in the case of Chinook salmon, the SFPUC Alternative is focused almost exclusively on parr production, rather than providing for successful migration for a range of life history types, including fry, parr and smolts. Restricting the plan to focus primarily on successful parr outmigration will limit the success of the population over the long-run because the lack of phenotypic diversity in migrating salmon will make the population more susceptible to environmental stressors and future environmental changes. Rather than focusing on a single life-history strategy, it is imperative to provide an outmigration environment that improves survival of fry, parr and smolts.

We have reviewed initial results of floodplain modeling conducted to date. Although San Francisco contends there is sufficient rearing habitat, we strongly disagree. Our floodplain analysis indicates an inadequate amount or rearing habitat. The SFPUC appears to be confusing rearing “habitat” in the main stem with off-channel rearing habitat needs. Not only are these two different types of habitat, but the SFPUC’s finding of abundant rearing “habitat” only confirms that the mainstem is a warm, shallow, slow moving stream that favors predators over native species and provides inadequate migratory habitat for salmonids and other migratory fishes.

A more comprehensive approach to floodplain enhancement and management is needed, including reaches of the lower Tuolumne River below Geer Road. Different reaches of floodplain support different life stages of fish species. Functional floodplain habitat can be restored through flow modifications, topographic modifications, or a combination of both.

We believe the SFPUC’s focus on manual predator suppression is a severe weakness of their proposal. There are significant environmental conditions (e.g., warm water temperatures, water velocity, etc.) that support a predator population that also need to be addressed. Additionally, we would prioritize investments that reduce predation pressure while simultaneously addressing other critical stressors (e.g., restoration of floodplain habitat, temperature management, etc.). We want to avoid a situation in which resources are expended without producing measurable results, especially considering that significant resources will be required for successful floodplain restoration.

The reality is that the presence of abundant non-native predators is a symptom, not a cause, of the malfunctioning Tuolumne River environment. The manual predator suppression program is a time- and money-intensive strategy that is unlikely to work. Similar strategies (that are much more intensive and better funded) have completely failed in the Pacific Northwest, where the Federal government has spent hundreds of millions of dollars on a bounty program for native predators, and scaring away nesting terns and fish-eating marine mammals. Furthermore, predator removal has potential downsides. For example, removing large predatory fish can actually cause an increase in smaller predators. As described above, this is exactly what happened at the SRP 9 project where smallmouth bass replaced largemouth bass.

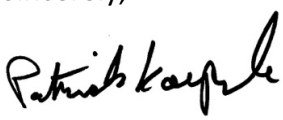
Existing flow schedules for the Tuolumne amount to approximately 20% of unimpaired flow being released for environmental purposes. The SFPUC Alternative proposes minor changes to these schedules, and in wetter years actually reduces the quantity of water released from 300,923 acre-feet under existing rules to an estimated 286,867 acre-feet under the SFPUC Alternative. The bottom line is that the SFPUC Alternative is far below the 60% of unimpaired flow the Water Board's flow criteria study determined would be necessary to protect fish species in the San Joaquin River basin. It will not achieve the objectives we are pursuing, and likely will not even provide incremental benefits.

Finally, while the SFPUC Alternative seeks to promote the expansion of fall-run Chinook salmon and O. mykiss populations in the lower Tuolumne, the three San Joaquin tributaries and associated water purveyors are responsible not only for protecting water quality in the San Joaquin tributaries, but also meaningful contributions to protecting water quality in the lower San Joaquin River and the Delta. Nothing in the SFPUC proposal addresses any obligation to maintain water quality downstream, and thus its scope is too narrow.

In summary, the Tuolumne River Trust agrees with the State Water Board's approach of basing instream flow requirements on a percentage of unimpaired flow. We believe at least 50% of unimpaired flow should be required between February and June. We also agree with the Water Board that a successful restoration plan will include both flow and non-flow elements. The SFPUC and Modesto and Turlock Irrigation Districts will have many opportunities to test their proposed measures for success. We look forward to working with them to identify the best ways to truly restore the Tuolumne River, and are certain higher flows will play a major role in our success.

Thank you for the opportunity to comment.

Sincerely,



Patrick Koepele
Executive Director