



September 14, 2020

Commissioner Ann Moller Caen, President
 San Francisco Public Utilities Commission
 525 Golden Gate Avenue, 13th Floor
 San Francisco, CA 94012

**RE: Independent Scientific Peer Review of Tuolumne River Fish Models
 Demonstrates Major Flaws in the Proposed Voluntary Agreement for the
 Tuolumne River**

Dear President Moller Caen and Members of the Commission:

On behalf of the Natural Resources Defense Council, California Sportfishing Protection Alliance, Tuolumne River Conservancy, Restore the Delta, Sierra Club California, Tuolumne River Trust, The Bay Institute, San Francisco Baykeeper, Merced River Conservation Committee, Northern California Council of Fly Fishers International, Golden West Women Flyfishers, Golden State Salmon Association, Central Sierra Environmental Resource Center, Defenders of Wildlife, and the Nature Conservancy, we are writing to provide the San Francisco Public Utilities Commission (“SFPUC”) with a copy of the independent scientific peer review of the fish population models for the Tuolumne River that was recently conducted at the request of the National Marine Fisheries Service. Many of our organizations had requested that SFPUC commit to an independent scientific peer review of these models, which SFPUC staff have publicly claimed justifies their proposed Voluntary Agreement for the Tuolumne River.

The conclusions of the independent scientific peer review performed by Anchor QEA fundamentally undermine the claims of fishery benefits from the proposed Voluntary Agreement. Instead, the peer review demonstrates that significantly increased flows in the

winter and spring months – contrary to the approach of the Voluntary Agreement – are the primary management action that should be taken to prevent the SFPUC and other irrigation districts from extirpating salmon and steelhead from the Tuolumne River.

In particular, the independent scientific peer review by Anchor QEA concluded:

The model, as configured, indicates that the status of the Chinook salmon population is extremely precarious and bold actions will be needed to prevent extirpation. This need, according to the model, would best be met by very substantial increases in flow releases during spring (the period of active smolt outmigration from the river). The model suggests that management actions with the most certainty in providing real benefits would involve increases in flows during smolt outmigration. Other actions would be expected to provide relatively low benefits compared to spring flow increases.

See Peer Review at 3 (emphasis added). Similarly, while staff from the SFPUC and irrigation districts have claimed that the model demonstrates that reducing predators significantly increases returning salmon, the peer reviewers rejected this claim, finding that the model simply **assumes** that predator control would increase salmon survival:

[T]he Chinook salmon production model cannot identify the number of predators that would need to be removed or how much of a reduction in consumption would be required to achieve a significant increase in smolt-to-smolt survival. **The response from predator control is assumed, not predicted.**

Id. at 5 (emphasis added). Rather than the model demonstrating that predator control would increase survival and abundance of salmon, the model simply assumes that it will be effective.

In contrast, scientists with the National Marine Fisheries Service have recently published a peer reviewed scientific study demonstrating that predator control programs have not been effective in the Bay-Delta in protecting salmon, in which the authors conclude that “the interaction between challenging environmental conditions, rapid predator recolonization, and complex food web dynamics could prevent any feasible top-down localized predator control effort from increasing salmon survival in the Sacramento–San Joaquin Delta.”¹ This further undermines this premise of the proposed Voluntary Agreement.

The peer review also concludes that the model demonstrates that gravel augmentation would not benefit Chinook salmon (see page 3). Thus, elements of a Voluntary Agreement that focus

¹ See Cyril Michel et al, *Limitations of Active Removal to Manage Predatory Fish Populations*, N. Amer. J. of Fish. Mgmt. 40:3-16 (2020), DOI: 10.1002/nafm.10391 (concluding that one time removal of 40-70% of predators in the lower San Joaquin River resulted in no statistically significant effect on salmon survival or predation rates).

on spawning gravel augmentation are likely to have negligible benefits for the population. More broadly, another recent scientific study by scientists with the National Marine Fisheries Service and the U.S. Fish and Wildlife Service concludes that rearing habitat restoration is unlikely to benefit Chinook salmon in the absence of significant increases in flow and abundance of salmon,² demonstrating again that habitat restoration is not a substitute for adequate instream flows.

Finally, the peer review raises additional criticisms of the models. These include:

- Emphasizing that the salmon model solely addresses salmon smolts and fails to analyze effects on other life history strategies like fry and parr. *See Peer Review at 3-4.* Recent scientific research has demonstrated that multiple life history strategies that provide a diversity in the size of migrating salmon (including parr and fry) are critically important to the overall population of salmon in the tributaries to the San Joaquin River.³
- Identifying significant concerns with the accuracy of the model. *See Peer Review at 4.*
- Rejecting the steelhead model entirely, finding that it is “not useful,” that the structure and conceptual underpinning of the steelhead model “are not well supported,” “seems contrived,” and should not be used for evaluating management actions. *See Peer Review at 5-7.*

This independent scientific peer review should be a wake-up call for the Commission. The peer reviewers’ criticisms of the models and the model results undermine SFPUC staff’s claims of benefits from the proposed Tuolumne River Voluntary Agreement. Even though the model demonstrates that Tuolumne River flow is the primary determinant of salmon survival and abundance, the proposed Voluntary Agreement would provide far less flow in the Tuolumne River during the critical winter and spring months than the State Water Resources Control Board’s 2018 update to the Bay-Delta Water Quality Control Plan. Indeed, our analysis indicates that under the proposed voluntary agreement, more than 70% of the Tuolumne River’s flow from February to June could be stored or diverted in many years, leaving less than 30% of the flow in the Tuolumne River – and far less in some years.

The independent scientific peer review provides further evidence that the proposed Voluntary Agreement for the Tuolumne River is fundamentally flawed and fails to protect and restore the health of the river and its native salmon, steelhead, and other native species – and the jobs and communities that depend on their health.

² See Stuart Munch et al, *Science for integrative management of a diadromous fish stock: interdependencies of fisheries, flow and habitat restoration*, *Can. J. Fish. Aquat. Sci.* 77: 1487–1504 (2020) dx.doi.org/10.1139/cjfas-2020-0075.

³ See Anna Sturrock et al, *Unnatural selection of salmon life histories in a modified riverscape*, *Glob Change Biol.* 2019;00:1–13.

We urge the Commission to direct SFPUC staff to withdraw the flawed proposal for a Voluntary Agreement on the Tuolumne River and to cease making any claims of fishery benefits from the proposal, which are based on these flawed models. Instead of focusing on ways to reduce the amount of water flowing in the Tuolumne River, we encourage you to work with us to find ways to support investments in local and regional water supply projects that would create good paying local jobs, improve the resiliency of the water systems, and help sustain the economy with reduced diversions from the Tuolumne River. Across California, many water agencies are far ahead of the SFPUC in making these investments.

Thank you for consideration of our views.

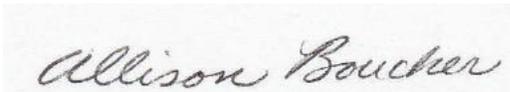
Sincerely,



Doug Obegi
Natural Resources Defense Council



Chris Shutes
California Sportfishing Protection Alliance



Allison Boucher
Tuolumne River Conservancy



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Letter to SFPUC regarding Peer Review of Tuolumne River Fish Models
September 14, 2020



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ENCLOSURE