Comments of Restore Hetch Hetchy

AMENDMENT TO THE WATER QUALITY CONTROL PLAN FOR THE SAN FRANCISCO BAY/SACRAMENTO-SAN JOAQUIN DELTA ESTUARY AND SUPPORTING DRAFT REVISED SUBSTITUTE ENVIRONMENTAL DOCUMENT

Submitted March 16, 2017

Background

Restore Hetch Hetchy respects the State Water Resources Control Board process and responsibility for determining how much of the natural flow of the Stanislaus, Tuolumne and Merced Rivers should be left instream to protect environmental resources on those rivers and downstream on the lower San Joaquin River and in the Bay-Delta. Restore Hetch Hetchy also understands the challenges water agencies and communities, who rely on diversions from these rivers for agricultural and urban consumptive use, will face when instream flow requirements are increased.

The mission of Restore Hetch Hetchy is *to return the Hetch Hetchy Valley in Yosemite National Park to its natural splendor — while continuing to meet the water and power needs of all communities that depend on the Tuolumne River.* As our principal interest lies upstream, Restore Hetch Hetchy takes no position on what alternative the State Board should adopt, nor how the responsibility for meeting any particular alternative should be distributed among the various water users.

Restore Hetch Hetchy has, however, studied water operations on the Tuolumne River extensively and thus is able to provide a perspective that we hope will help the Board identify and implement a fair and equitable solution. We note that the nature of how the Tuolumne River's flows are currently divided between the San Francisco Public Utilities Commission and the Turlock and Modesto Irrigation Districts make the equitable distribution of responsibility challenging.[1]

[1] Restore Hetch Hetchy has developed the TOPS model ("Tuolumne River Operations"), for evaluating management alternatives on the Tuolumne River. TOPS is based in Microsoft Excel, documented, very user friendly and freely available to all interested parties.

Summary

Analysis suggests that implementation of the State Board alternatives, as proposed, is likely to affect operations of the San Francisco Public Utilities Commission more so than the operations of the Turlock and Modesto Irrigation Districts – at least on a proportional basis. This is the result of San Francisco having developed its water delivery system dependent on junior water rights on the Tuolumne River, and exacerbated by its "fourth agreement" with the Districts wherein it has committed to providing 51.7% of any increase in downstream flow requirements.

San Francisco and its wholesale customers have relied principally on the Tuolumne River for the bulk of their supply – a dependence more singular than most urban water systems. Other urban water agencies, however, have managed to accommodate reductions in imported water supply to lessen impacts on the environment through a variety of means – including development of local surface and/or groundwater storage, investment in groundwater banking in remote regions, recycling, desalination and, of course, conservation. To date, the City has shown only modest interest in such alternatives and has instead claimed that implementation of State Board alternatives would result in severe economic impacts due to water shortages.

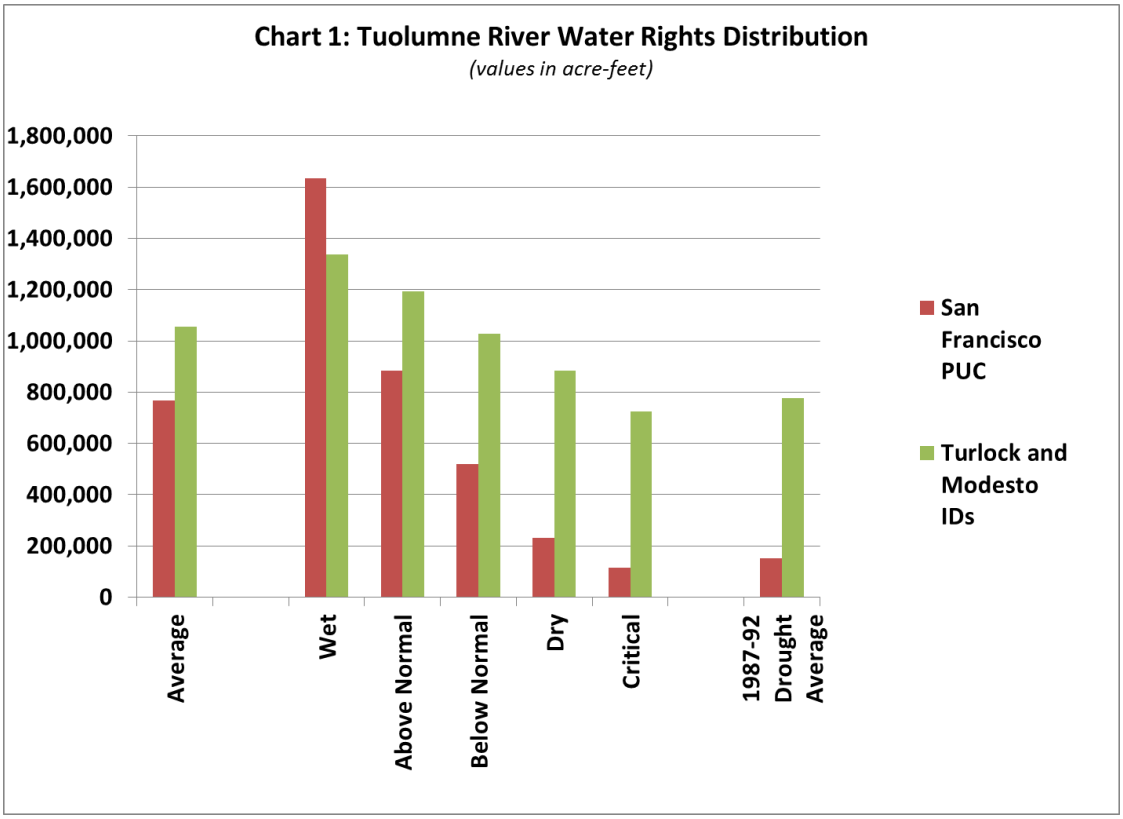
The State Board and the Governor are right to encourage cooperation among the agencies which rely on the too-often dewatered tributaries to the lower San Joaquin River. Leaving more water instream will no doubt cause hardships among the water agencies affected, but those hardships will be much lessened if the water agencies work together.

Restore Hetch Hetchy supports a cooperative solution that balances all interests on the Tuolumne and other rivers in the San Joaquin basin. We submit the following observations in an effort to assist the State Board in this challenging endeavor.

Water rights

More than a century ago, San Francisco sorely needed to develop additional water supply and was eager to develop a public project as it was unhappy with its current supplier, the private Spring Valley Water Company. It focused on the Tuolumne River, in spite of (1) the need to get permission to build dams within Yosemite National Park and (2) very limited availability of water in dry years as the Turlock and Modesto Irrigation Districts (California's oldest irrigation districts) retained senior rights to the river's flow.

On average San Francisco retains rights to 42% of the river's flow – plenty to supply the needs of its service territory. River flows in the driest years, however, provide limited supply to San Francisco – forcing the City to rely on water stored in wetter years. See Chart 1.



San Francisco's Customers

San Francisco's water rights on the Tuolumne River provide about 85% of its overall system supply. The remaining 15% is derived from Watersheds in the Bay Area.

Presently San Francisco's system includes contractual obligations, with no ending date, to deliver an average of 265 million gallons per day (MGD), although actual deliveries have been somewhat lower. A bit less than 1/3 of this total, 81 MGD, is designated for retail customers in San Francisco. Most of San Francisco's supplies are sold to wholesale customers in other Bay Area cities.

The availability of Tuolumne River water supplies has encouraged at least some of its wholesale customers to abandon local supplies. Restore Hetch Hetchy has not done a comprehensive survey, but will provide these two examples from the Urban Water Management Plans (2010):

Palo Alto

"In 1962 … the City's wells were placed in a standby condition. Since 1962, the City's entire supply of potable water has come from the SFPUC."

Hayward

"During the 1940s and 1950s, the well water was supplemented by water purchased from San Francisco. In 1962, Hayward entered into an agreement … to purchase all Hayward water from the SFPUC … ceased providing well water in 1963."

San Francisco's wholesale customers recycle very little water.

Most but not all wholesale customers depend on San Francisco's system, and therefore the Tuolumne River, for the vast majority of their water supply. Until now, they have not had the incentive or need to expand and diversify their water supply portfolios.

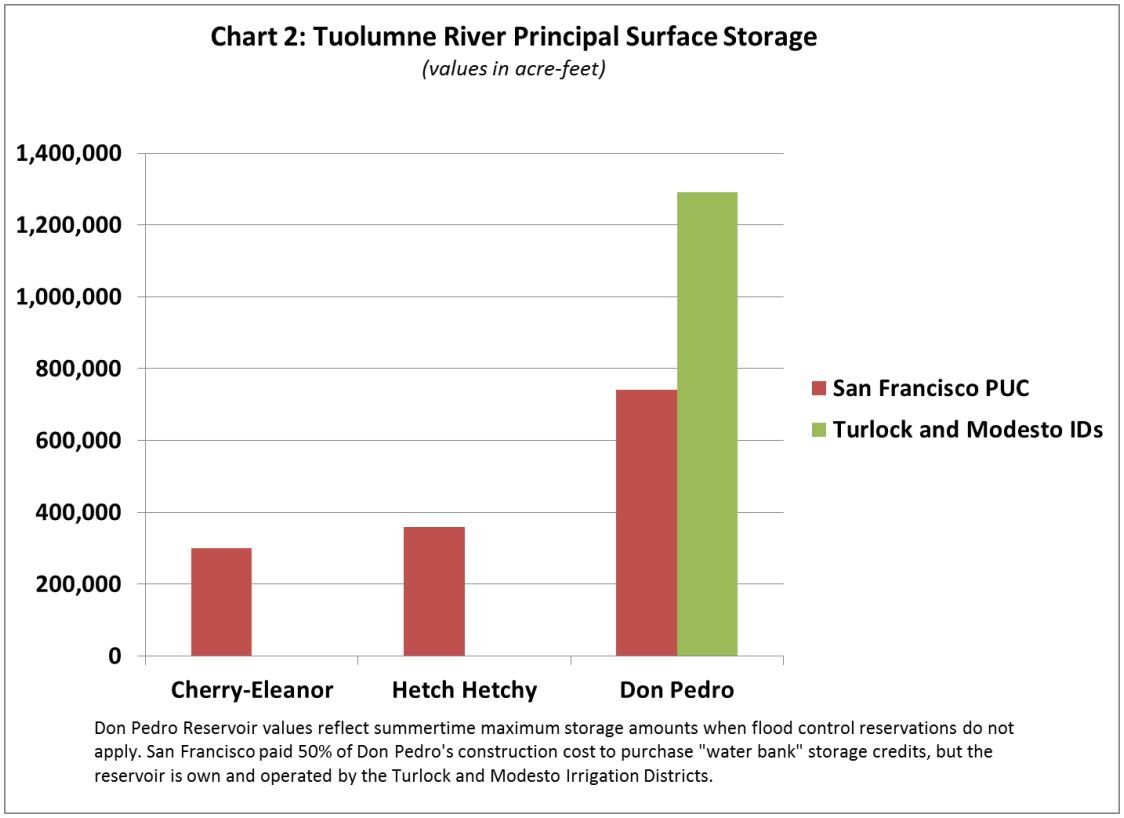
Storage

Due to its limited water rights in dry years, San Francisco has developed an extraordinary amount of storage so that it can reliably supply Tuolumne River water to its customers when its water rights are insufficient to meet demand. The City built and operates Eleanor, Hetch Hetchy, and Cherry Reservoirs in the upper Tuolumne River watershed.

The City also paid half the cost of construction of Don Pedro Reservoir in order to retain substantial "water bank" storage credits. The agreement also allowed San Francisco to transfer its upstream flood control requirements to Don Pedro.

The Turlock and Modesto Irrigation Districts presently meet instream flow requirements downstream of Don Pedro with their supplies. The agreement between the Districts and San Francisco, however, specifies that San Francisco is obligated to meet 51.7% of any increase in flow requirements.

Chart 2 illustrates how surface storage in the Tuolumne water shed is distributed between San Francisco and the Districts.



Effect of State Board Proposal on Diversions of San Francisco and the Turlock and Modesto Irrigation Districts

As proposed, the effect of the State Board's flow proposal on San Francisco's diversions would be significant – even more so than most or all water agencies depending on the Stanislaus, Tuolumne and Merced Rivers. San Francisco already has diminished flow available in dry years – a condition that is exacerbated under the State Board's proposal.

Tables 1 and 2, and charts 3a-3d (below) provide a summary of the proposed increase in minimum flow to the lower Tuolumne, along with the reduced availability of water for diversion by San Francisco and the Districts. "Water supply availability", for this purpose, is calculated as the difference between water rights and obligation for meeting instream flows below Don Pedro and La Grange.

The charts and tables illustrate that San Francisco may owe more water to downstream flows that it derives from its water rights on an annual basis under some conditions. In other words, San Francisco's usable supply from the Tuolumne River would sometimes be negative.

The charts and tables also illustrate the potential disproportionate impact on San Francisco. For example, under the 40% scenario, San Francisco would lose 87% of its usable water during a repeat of the 1987-1992 drought, while the Districts would lose only 18% of their supply.

Alternatives for urban agencies

Over the last 25 years, urban and agricultural water agencies throughout California have made substantial changes to their systems in order to accommodate increased water needs of fisheries and wetlands. To date, San Francisco and the Districts have not been required to make significant changes.

It is unclear how San Francisco will respond when it submits comments, concurrent with these herein, to the State Board's SED on March 17, 2017. The City's comments submitted orally and via PowerPoint on March 21, 2013, and supported in a letter dated March 29, 2013, however, indicated a reluctance to pursue water supply investments and diversification that other California agencies have successfully accomplished over the past few decades. This analysis seemed to indicate that San Francisco would not pursue the alternative investments but would instead simply suffer shortages. (On January 10, at a meeting of the San Francisco Public Utilities Commission, Chai Anson Moran announced clearly that such would not be the case – that as a responsible water provide San Francisco would do everything in its power to make sure such shortages did not occur.)

Not knowing how San Francisco will respond, and in spite of Mr. Moran's assurances, Restore Hetch Hetchy attaches our 5-22-13 letter to the State Board regarding San Francisco's previous hyperbolic estimates of economic impacts and reluctance to pursue alternative supplies. (The letter is attached to the end of these comments.)

Conclusion

As mentioned above, Restore Hetch Hetchy's interest in the Tuolumne River lies upstream, in Yosemite National Park. We look forward to solutions to both problems – fairly dividing the Tuolumne River's flow between instream, urban, and agricultural uses, and ending the unnecessary and, we believe, illegal inundation of Hetch Hetchy Reservoir inside Yosemite National Park.

Table 1: Available water supply under State Board alternatives

Average of all years

	Existing	Feb-Jun 30%	Feb-Jun 40%	Feb-Jun 50%	Feb-Jun 60%
Minimum River Flow	213,574	505,917	644,902	784,182	923,479
San Francisco PUC	766,657	615,486	543,617	471,596	399,565
Turlock and Modesto IDs	841,299	700,127	633,011	565,753	498,487

Dry years

	Existing	Feb-Jun 30%	Feb-Jun 40%	Feb-Jun 50%	Feb-Jun 60%
Minimum River Flow	130,208	329,546	422,250	514,953	607,657
San Francisco PUC	232,104	129,026	81,089	33,152	-14,785
Turlock and Modesto IDs	753,799	657,539	612,772	568,006	523,239

Critical years

	Existing	Feb-Jun 30%	Feb-Jun 40%	Feb-Jun 50%	Feb-Jun 60%
Minimum River Flow	108,598	260,483	331,380	402,361	473,419
San Francisco PUC	114,352	35,812	-849	-37,553	-74,297
Turlock and Modesto IDs	614,315	540,969	506,733	472,457	438,143

1987-1992 Drought

	Existing	Feb-Jun 30%	Feb-Jun 40%	Feb-Jun 50%	Feb-Jun 60%
Minimum River Flow	112,168	287,143	366,479	445,815	525,151
San Francisco PUC	151,102	60,623	19,598	-21,426	-62,451
Turlock and Modesto IDs	664,943	580,448	542,137	503,825	465,514

Table 2: Percentage minimum flow increase and water supply reduction under State Board alternatives

Average of all years

	Existing	Feb-Jun 30%	Feb-Jun 40%	Feb-Jun 50%	Feb-Jun 60%
Minimum River Flow	100%	137%	202%	267%	332%
San Francisco PUC	100%	-20%	-29%	-38%	-48%
Turlock and Modesto IDs	100%	-17%	-25%	-33%	-41%

Dry years

	Existing	Feb-Jun 30%	Feb-Jun 40%	Feb-Jun 50%	Feb-Jun 60%
Minimum River Flow	100%	153%	224%	295%	367%
San Francisco PUC	100%	-44%	-65%	-86%	-106%
Turlock and Modesto IDs	100%	-13%	-19%	-25%	-31%

Critical years

	Existing	Feb-Jun 30%	Feb-Jun 40%	Feb-Jun 50%	Feb-Jun 60%
Minimum River Flow	100%	140%	205%	271%	336%
San Francisco PUC	100%	-69%	-101%	-133%	-165%
Turlock and Modesto IDs	100%	-12%	-18%	-23%	-29%

1987-1992 Drought

	Existing	Feb-Jun 30%	Feb-Jun 40%	Feb-Jun 50%	Feb-Jun 60%
Minimum River Flow	100%	156%	227%	297%	368%
San Francisco PUC	100%	-60%	-87%	-114%	-141%
Turlock and Modesto IDs	100%	-13%	-18%	-24%	-30%

Chart 3a: Tuolumne River Minimum Instream Flow and Water Supply Available for Consumptive Use under State Board Alternatives

Average of all Years

(values in acre-feet)

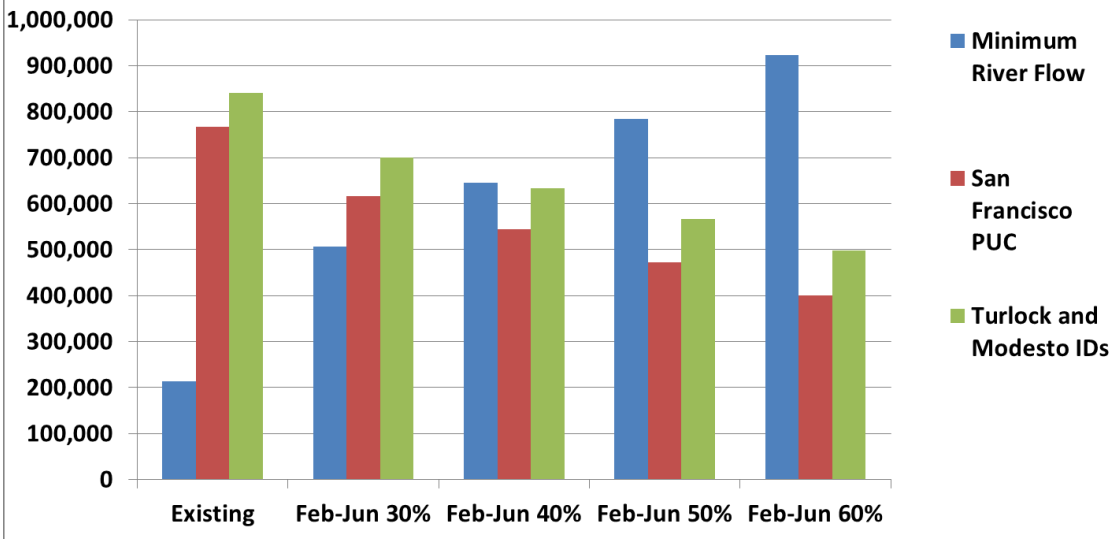


Chart 3b: Tuolumne River Minimum Instream Flow and Water Supply Available for Consumptive Use under State Board Alternatives

Average of Dry Years

(values in acre-feet)

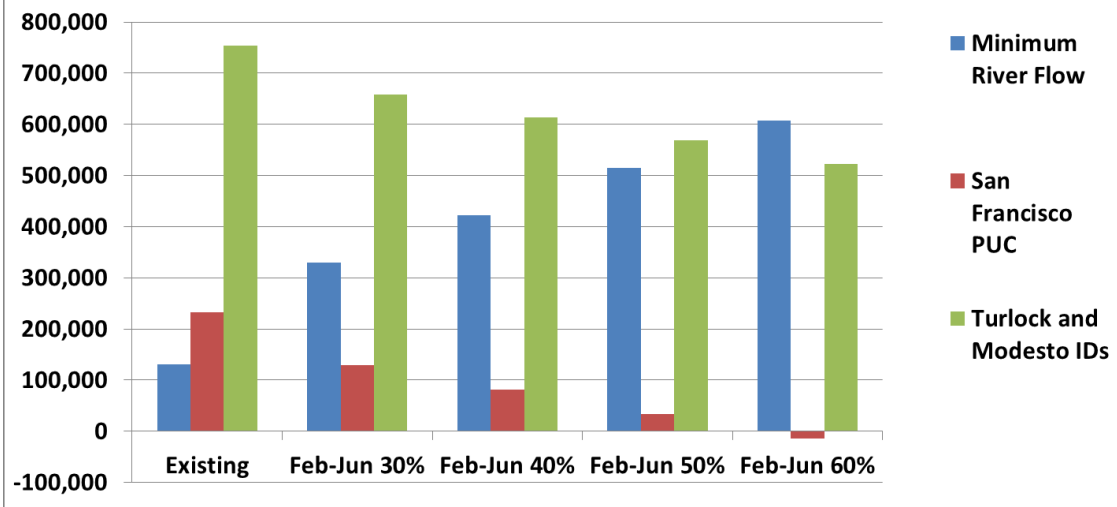


Chart 3c: Tuolumne River Minimum Instream Flow and Water Supply Available for Consumptive Use under State Board Alternatives
Average of Critical Years
(values in acre-feet)

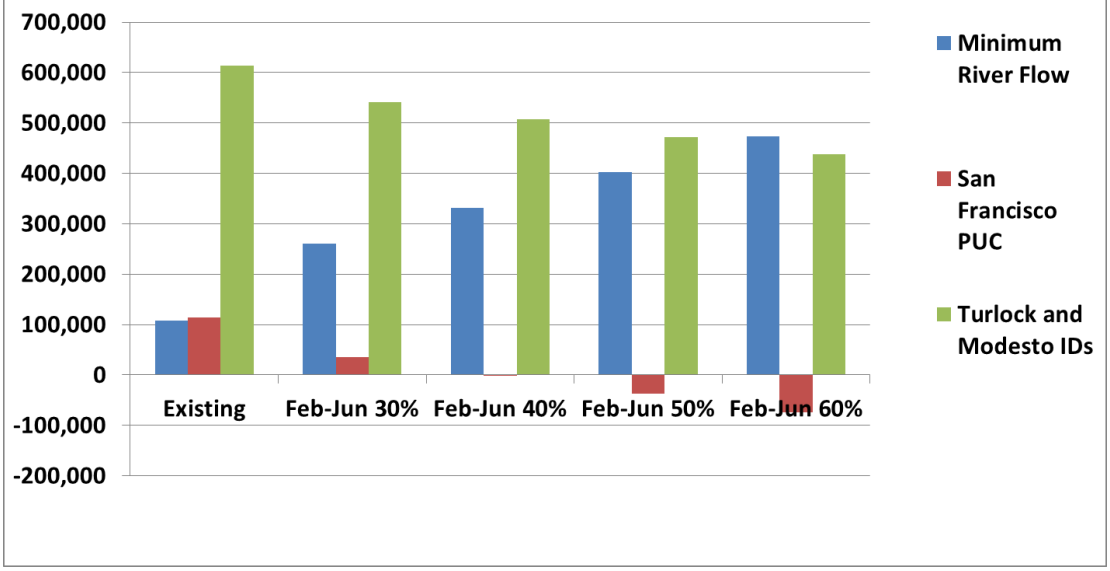
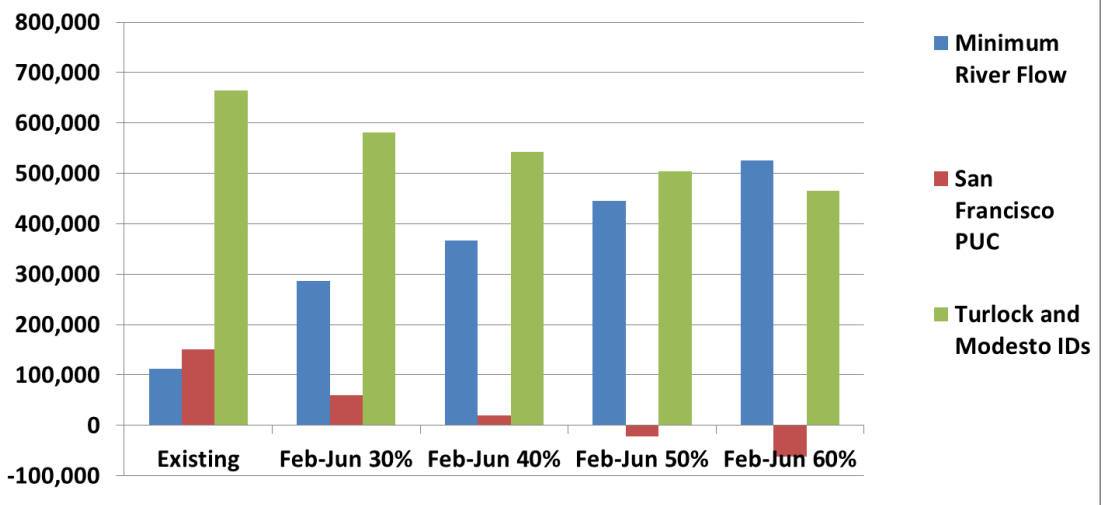


Chart 3d: Tuolumne River Minimum Instream Flow and Water Supply Available for Consumptive Use under State Board Alternatives
Average for 1987-1992 Historic Drought
(values in acre-feet)



RESTORE HETCH HETCHY
YOSEMITE NATIONAL PARK

May 22, 2013

Ms. Felicia Marcus, Chair
State Water Resources Control Board
1001 I Street, 24th Floor
Sacramento, CA 95814-2828

Re: Diversification of San Francisco's water supply portfolio

Dear Chair Marcus:

As advocates for a restored and healthy Tuolumne River, we have followed the State Board process as it moves forward to update the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan). We paid close attention when San Francisco presented its comments orally at the board workshop on March 21, and have now had the opportunity to review the full text of San Francisco's March 29, 2013 letter to the State Board on the matter.

Disappointingly, San Francisco's letter demonstrates not only its opposition to helping to provide sufficient flows to assist salmon and other fish in the lower Tuolumne River but also its aversion to diversifying its water supply portfolio. As a result, San Francisco has presented an unwarranted resistance to changes in its water system that not only makes it difficult to accommodate environmental restoration but also impedes water supply reliability for its customers. The SFPUC's estimate of economic impacts presumes that the San Francisco and its wholesale customers are incapable of developing water supply alternatives that would ameliorate impacts associated with reduced diversions from the Tuolumne River. In this regard, San Francisco and its wholesale customers lag behind most large urban water agencies in California.

Unwarranted projections of impacts to water supply

The State Board has stated that its update of the Bay-Delta Plan is not likely to affect San Francisco's diversions (see Substitute Environmental Document, page 5-56). San Francisco claims otherwise, citing language from its "4th Agreement" (with the Turlock and Modesto Irrigation Districts) that pertains to potential action of the Federal Energy Regulatory Commission, but not to any action by the State Board. San Francisco provides no explanation, however, as to why the

language in the 4th Agreement would apply to the State Board proceeding. Nor does its letter explain why the State Board does not have discretion to determine whether and to what extent San Francisco might be obligated to assist with flow enhancements below Don Pedro Reservoir.

Using the 4th Agreement language, San Francisco makes a further series of unwarranted assumptions leading to a conclusion that its Tuolumne River diversions would be decreased by an average of 118,000 acre-feet per year during a repeat of the hydrologic conditions of the 1987-1992 drought (roughly half of its diversion volume in most years). This conclusion is without foundation and does not provide the basis for a productive discussion with the State Board as it moves forward with its statutory responsibility to update the Bay-Delta Plan.

We suggest that the State Board disregard San Francisco's water supply analysis in its entirety unless it can provide a more solid foundation for its findings.

Unreasonable costs associated with reduced diversions

As stated above, we disagree with the conclusion related to anticipated reductions in diversions of Tuolumne River supplies to the Bay Area. Even if such reduction were to take place, however, the very high costs associated with the reductions are not justified. Water supply agencies across the State have adjusted to far higher reductions in recent decades and found ways to meet the needs of their customers at a small fraction of the cost that San Francisco asserts.

San Francisco asserts that its customers would incur a cost of $49,000,000,000 per year during a repeat of the hydrologic conditions of the 1987-1992 drought in which its diversions from the Tuolumne River would be reduced by 118,000 acre-feet per year. These figures indicate that the average unit value of this water would be $415,000 per acre-foot! This value is without precedent. It is more than 40,000 times the retail cost of water for farmers in the Turlock and Modesto Irrigation Districts. It is more than 200 times the cost of retail water in Bay Area communities or the current cost of developing recycled supplies (see, for example, San Diego's Water Purification Demonstration Project *Project Report (Final Draft)*, March 2013.)

To be fair, these values are not strictly comparable. The cost in Turlock and Modesto is for raw water, while the retail and recycled water costs are for treated water. And the $415,000 per acre-foot value associated with potentially reduced diversions is not a cost of supply, but is the estimated *value* of water supply to business.

But including $415,000 per acre-foot as a potential cost as San Francisco has asserted in its letter to the State Board assumes that it would do nothing whatsoever to replace or otherwise mitigate supplies that might be forgone. Such an approach is analogous to starving to death because one's favorite restaurant is shut down. The value should not be taken seriously.

Of course, if it were the case that instream flows on the lower Tuolumne did substantially affect San Francisco's ability to divert water, it would not simply absorb the impact but would take action to replace the lost supply.

We ask the State Board to instruct San Francisco that its unreasonable assessments of economic impacts will be disregarded and to ask San Francisco to provide a realistic assessment of what actions it would take to respond to reductions in diversions in Tuolumne River supplies at a minimum cost to its ratepayers.

Diversification of Supply

The San Francisco Regional Water System presently relies on the Tuolumne River for 85% of its current supply. Such a high degree of reliance on supply from a single source makes the water system vulnerable in a number of ways. An extended drought in the Tuolumne watershed, potentially exacerbated by the effects of global warming, threatens reliability in San Francisco and the other Bay Area cities that depend on its Regional Water System. Also, any outage due to seismic activity or other causes on the conveyance system that stretches the width of California could have serious consequences for customers (we do commend San Francisco and its customers for its substantial work over the last decade on its Water System Improvement Plan to increase the reliability of pipelines within the Bay Area.).

But San Francisco's reluctance to engage in any substantial efforts to diversify its water supply diminishes its ability to contribute to efforts to restore parts of the Tuolumne River and related ecosystems. Efforts to increase flows on the lower Tuolumne through the State Board, FERC or other processes will continue, as will the appeal to restore Hetch Hetchy Valley in Yosemite National Park.

While San Francisco may choose to resist any attempts to reduce the environmental impacts of its water system in the Tuolumne watershed, it should recognize that it will serve its customers better if it develops alternative resources that will substantially diversify its water supply portfolio. Other major urban water utilities in California have been doing so for the last 20 years and continue to make substantial progress. By taking only minimal steps to diversify its portfolio, San Francisco is behind the curve and is stubbornly clinging to an increasingly outmoded way of providing water to its customers.

Table 1 (attached) provides a selection of water supply projects and programs that have been developed over the past 20 years by urban agencies in California – most of which have been developed with little or no controversy. The list is not comprehensive and not intended to be. It is merely a list of some of the more substantial programs and projects that other urban agencies in California have developed in order to accommodate the needs of their customers. These

investments have often been developed at least in part to respond to the need to operate diversion facilities in ways that do less harm to the natural environment.

Of course, all water systems are different and there are few "one size fits all" solutions for developing new supplies. San Francisco's wholesale and retail customers generally use less water on a per capita basis than many other urban communities in the State. In addition, San Francisco's system presently has limited connections to the State Water Project so investments in groundwater banking or transfers may require additional conveyance as well.

San Francisco, of course, is developing a modest degree of water supply diversity. The ongoing investments in groundwater in the west and southwest basins are a positive step forward. San Francisco's cooperative work with other Bay Area agencies on recycling and even a potential desalination plant may well result in a better integrated and more reliable water system for the entire Bay Area (though we are withholding judgment on the outcomes of these processes).

Overall, however, San Francisco has done very little compared to the vast array of projects that other urban agencies in California have already completed and are continuing to develop. We ask the State Board to encourage San Francisco to learn from many of these examples and to pursue substantial new investments in sustainable water supplies.

Conclusion

Urban water agencies throughout California, particularly those that rely on diversions from the Delta through the State Water Project, have experienced a reduction in diversion capability in order to reduce harm to the natural environment, including the protection of endangered species. These agencies have developed a wide variety of alternative supply projects to provide increased reliability while reducing environmental harm. San Francisco can and should do so as well.

We ask the State Board to work cooperatively with San Francisco and its wholesale customers in their efforts to develop resilient and sustainable water systems that will protect both California's economy and its natural waterways.

Thanks you for your consideration of these comments. Please feel free to contact Restore Hetch Hetchy if you have any questions.

Spreck Rosekrans
Director of Policy

Cc: Mr. Art Torres, San Francisco Public Utilities Commission
Ms. Irene O'Connell, Bay Area Water Supply and Conservation Agency

Table 1: Selected urban water supply investments in California since 1990

Utility	Program or Project
Contra Costa Water District	• Construction and Expansion of Los Vaqueros Reservoir - 160,000 acre-feet • Middle River Intake and Pump Station
East Bay Municipal Utility District	• Freeport Regional Water Facility to access contract supplies with the Bureau of Reclamation • Ongoing discussions with Placer County and others to "firm up" supply though Freeport
Zone 7	• Semitropic water bank – 65,000 acre-feet
Alameda County Water District	• Semitropic water bank – 150,000 acre-feet
Santa Clara Valley Water District	• Semitropic water bank – 350,000 acre-feet • Will double production of recycled water by 2035 (from 14,000 acre-feet per year to 29,000 acre-feet per year
Metropolitan Water District of Southern California (on behalf of all customers)	• Diamond Valley Lake – 810,000 acre-feet • Semitropic Water Bank – 350,000 acre-feet • Arvin Edison Water Bank – 350,000 acre-feet • Kern Delta Water Bank – 350,000 acre-feet • Local Groundwater Storage (Long Beach, Chino, Orange County, Compton etc.) – 212,000 acre-feet • Water transfers to MWD through State Water Project and Colorado Aqueduct – 331,000 acre-feet per year (average 2008-2010, average cost $218 per acre-foot)
San Diego	• Water transfers through Colorado Aqueduct - 124,000 acre-feet per year (average 2008-2010, average cost $688 per acre-foot)
MWD customers (other than San Diego)	• Water transfers through the State Water Project - 77,000 acre-feet per year (average 2008-2010, average cost $267 per acre-foot)
Orange County	• The Municipal Water Districts of Orange County currently use 40,000 acre-feet of recycled water per year and expect to increase the amount to 60,000 acre-feet per year by 2035
West Basin	• Currently recycles 30,000 acre-feet per year - plans to expand to 70,000 acre-feet per year by 2035
Los Angeles	• Currently recycles 5,000 acre-feet per year - plans to expand to 59,000 acre-feet per year by 2035
San Diego	• Currently recycles 27,931 acre-feet per year - plans to expand to 49,998 acre-feet per year by 2035