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Comment Letter – 2016 Bay-Delta Plan Amendment & SED

FOCUS: San Francisco Public Utilities Commission (SFPUC) opposition to higher flows

I support the minimum level of higher flows proposed under the draft Substitute Environmental Document (SED). Based on the information provided by fisheries experts, I would urge the Board to consider the 60% level of unimpaired flows, as more likely to provide the necessary changes in the ecosystem.

I am a San Francisco resident and a customer of the SFPUC. I have attended four SFPUC meetings to discuss the SED. Based on SFPUC's public comments, it appears that SFPUC opposes the higher flows proposed in the SED. Further, it appears that their opposition is based on outdated or inaccurate information.

Given the lack of scientific and economic rigor in their public materials, I would urge the State Water Resources Control Board to exercise a very high degree of skepticism regarding any statements submitted by the SFPUC regarding the SED. I would also urge the Board to insist that the SFPUC support all of its positions with accurate, peer-reviewed information, research and scientific analysis.

I would also like to remind the Board of the passage of Measure AA, on the Bay Area ballot in June 2016. This ballot measure imposed a $12 parcel tax for San Francisco Bay wetlands restoration. San Francisco voters approved Measure AA by 77%. Bay Area voters overall voted 69% in favor.

In my view, the SFPUC is ignoring the will of the voters in their opposition to the SED. The increased unimpaired flows will benefit San Francisco Bay's ecosystem, increasing the return on the dollar for the future restoration work funded by Measure AA.

Following are my responses to some of their public statements.

Title of document: Bay-Delta Water Quality Control Plan and the San Francisco Regional Water System
Presenter: Steven R. Ritchie, Assistant General Manager, Water
Date presented at SFPUC meeting: 2/28/17

1. Quote from Slide 8:
"Unimpaired flows are not a useful mechanism in a heavily modified environment. Specifically, 40% unimpaired flow on the Tuolumne River in February-June is unlikely to achieve significant fishery benefits on the River."

Response: The evidence from SED Appendix C, p. 3-21 directly contradicts this statement. That page has a graph showing salmon escapement from the three tributaries, from 1952 to 2010. The pattern is crystal clear: during periods of high precipitation, when the entire estuary experienced significant unimpaired flows, we see higher salmon escapement from the three tributaries, including the Tuolumne. These periods had significant unimpaired flows, similar to what the state of California is experiencing this year.

2. Quote from Slide 10: "Reducing the number of non-native predators through barriers, active removal and higher bag limits should benefit fall-run Chinook and O. mykiss survival, leading to greater production of salmonids."

Response: On August 26, 2010, Peter B. Moyle and William A. Bennett of the Center for Watershed Sciences sent a letter (attached) to the California Department of Fish and Wildlife (then Fish and Game). In the four-page letter, the authors summarize scientific research demonstrating the perils of non-native predator removal.

The authors state, "For example, Mississippi silversides are important in the diets of 1-3 year old striped bass, so bass predation could be regulating the silverside population. If true, then relieving silversides from striped bass predation pressure is likely to increase their numbers, which could have negative effects on delta smelt through predation on eggs and larvae (Bennett and Moyle 1996). This strongly suggests that any proposal to initiate a control program for striped bass should carefully consider the likely consequences, as well as involve an intensive study effort on the impact of program to make sure the alleged cure is not worse than the supposed disease. The take home message from all this is that reducing the striped bass population may or may not have a desirable effect." (p. 3)

From pp. 4, "Overall, the key to restoring populations of desirable species and to diminish populations of undesirable species (Brazilian waterweed, largemouth bass, etc.) is to return the Delta to being a more variable, estuarine environment. This is likely to happen naturally with sea level rise interacting with levee collapses (Lund et al 2007, 2008), but the populations of delta smelt and similar fishes may not be able to last that long. We stress that attempting to reduce striped bass and other predator populations is unlikely to make a difference in saving endangered

fishes, and will serve only to distract attention from some of the real problems."

Please note that the full citations are provided on p. 4 of the letter.

3. Quote from slide 7: "Our Level of Service objective for water supply (adopted in 2008) is to survive a specific drought planning scenario (1987-92 followed by 1976-77) with no more than 20% rationing from a total system demand of 265 mgd."

Response: This policy needs to revisited. It's almost ten years old. Demand is currently running at 175 mgd. Bay Area water users have conserved, and conserved at rates higher than 20%. Studies of water conservation indicate that a large portion of these savings are permanent; that is, demand will not rebound to previous levels. A more realistic, long-term drought planning scenario would include flexible bands, with increasing levels of rationing as the lengthy drought deepened.

Title of Document: Bay-Delta Water Quality Control Plan Proposed Amendments (PDF attachment linked to Meeting Agenda) (attached)
From: Steven R. Ritchie, Assistant General Manager, Water
Date of document: 2/23/17

Quote from p. 2: "At the SFPUC, we pride ourselves in relying on the best available science. We do not support the notion that the State Water Board is using the best available science, particularly when it comes to management of the Tuolumne River and producing positive environmental outcomes there."

Response:

In contrast, the SED contains 24 chapters and 11 appendices, and is over 3000 pages in total. It also contains hundreds of peer-reviewed citations. SED Chapter 19, focused on fish, had 11 pages of published, peer-reviewed research articles.

The studies the SFPUC has provided to me do not include any peer-reviewed research published in a scientific journal. In addition, the SFPUC has not provided me with any direct evidence that the science used to develop the Bay-Delta Plan draft did not use the best available science. Nor have they provided any scientific evidence that predator reduction is a viable alternative.

Thank you very much.

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August 26, 2010

To: Mr. Jim Kellogg, President, Fish and Game Commission

From: Peter B. Moyle and William A. Bennett, Center for Watershed Sciences

Re: Striped bass predation on listed fishes: can a control program be justified?

Recently, the Commission has been requested to remove all regulations from the striped bass fishery, as a way of reducing predation on salmon, delta smelt, and other threatened fishes. Our basic message is that the Commission should exercise extreme caution in making this change; new regulations to control striped bass are more likely to be harmful than helpful to native species of concern.

Striped bass are an abundant alien predator on fish and other aquatic organisms in the San Francisco Estuary and its tributaries (Moyle 2002). Salmon, delta smelt, and other native fishes are in decline. Therefore, it is presumed that reducing striped bass numbers can help to increase populations of threatened fishes. Over the past two years, this argument has been the focus of litigation, proposed legislation, and most recently a request by NMFS to the Fish and Game Commission to remove all restrictions on the striped bass fishery. Given the ample evidence that fishing can greatly reduce abundance of target species, it is a reasonable assumption that removing restrictions on striped bass would significantly reduce their numbers, particularly if fishing concentrated on immature fish and large, older females. However, whether or not threatened salmon, steelhead, and smelt populations would rebound is an open question. Here are some of the assumptions, or, untested hypotheses, that would need to be true and work in concert before native fishes might benefit from fewer striped bass.

Assumption 1. Predation by striped bass regulates populations of salmon, steelhead, and smelt, with other predators (other fish, birds, marine mammals, etc.) playing a minor role.

Assumption 2. Other predators will not exhibit compensatory increases in predation on threatened fish if striped bass are removed.

Assumption 3. Other species on which striped bass prey, such as Mississippi silverside, will not increase in abundance, causing harm by competing and preying on threatened species.

Assumption 4. Reducing striped bass numbers can measurably compensate for the massive changes to the estuary and watershed caused by water diversions and other factors, which also reduce fish populations.

Before any of the above assumptions can be accepted several factors need to be taken into consideration:

1. Striped bass are generalist and opportunistic predators that tend to forage on whatever prey are most abundant, from benthic invertebrates to their own young to juvenile salmon and shad (Stevens1966, Moyle 2002, Nobriga and Feyrer 2008).

2. Delta smelt were a minor item in striped bass diets when they were highly abundant in the early 1960s (Stevens 1966), as well as in recent years at record low abundance (Nobriga and Feyrer 2008). Striped bass are unlikely to be a major predator of delta smelt because smelt are semitransparent (hard to see in turbid water) and do not school (they aggregate loosely where conditions are favorable), unlike more favored prey such as threadfin shad, juvenile striped bass, and Mississippi silverside.

3. Striped bass will feed heavily on juvenile salmon and steelhead in the rivers, as they migrate seaward, which is well documented. However, most salmon eaten are likely to be naïve fish from hatcheries, high predation on them has little bearing on the degree of predation encountered by more wary juveniles from natural spawning. Predation on hatchery-reared juveniles may even buffer wild fish from such predation, given that wild fish are warier and less conspicuous than the more abundant hatchery fish. Lindley and Mohr (2003) present a model that suggests an annual loss of 9% to striped bass predation is sufficient to increase the probability of extinction of winter run Chinook salmon. However it is important to appreciate the considerable uncertainty associated with this modeling result, given the difficulty of estimating juvenile salmon abundance.

4. All measurements of predation and mortality are very rough, with high variation around any estimate. Unfortunately, such estimates are often presented as single values which tend to be taken as absolute values (e.g., Hansen 2009). The multiple sources of uncertainty that affect these values include abundance of adult striped bass, prey abundance, rates of prey encounter and consumption (which are now based only on stomach contents), as well as biases inherent in the designs and methods of different studies. Models, such as Lindley and Mohr (2003), can produce estimates of salmon loss to striped bass, but they are only as good as the information used to produce them, which is extremely limited in quality and amount. The Lindley and Mohr (2003) model, while excellent, has results that are merely a demonstration that striped bass could affect winter run Chinook numbers rather than a proof that they actually do.

5. There is a tendency to conflate all predation losses of salmon with striped bass and/or to dismiss the effects of other predators as being insignificant (e.g. Hansen 2009). In fact, there are a multitude of other predators on juvenile salmon in the system, from birds (e.g., mergansers, cormorants, terns) to other fish, native and non-native, including juvenile steelhead. The most abundant fish predator in the Delta today is probably largemouth bass, as the result of changes in hydrodynamics related to the ever-increasing export of water (Moyle and Bennett 2008). If a control program for striped bass can be justified, then it is likely one should also be instituted for largemouth bass, as well as for spotted bass, channel catfish, and other non-native predatory fish.

6. Applying mortality rates due to predation that were estimated using hatchery-reared salmon juveniles may have little bearing on those of fish from natural spawning. Thus,

applying a predation mortality rate of 90% or so to represent what happens to out-migrating juvenile salmon from natural spawning has to done very carefully. Such a high predation rate is based only on observations of hatchery juveniles, which are typically released in large numbers over limited time periods. Because these fish are adapted for life in crowded hatchery troughs, where food comes from above in the form of pellets, they have never experienced the threat of predation. It is astonishing in many respects that as many of these fish survive as do. Wild fish, in contrast, are more wary, spending much of their time in cover with well-developed predator avoidance behavior; they tend to migrate at night and spend the days along the shoreline hiding in whatever cover is available.

7. Much of the predation on juvenile salmon (from multiple predator species) seems to take in place in conjunction with artificial structures and poor release practices. These include releases of fish from hatcheries and those trucked to the estuary from the export facilities in the south Delta. Opportunistic predators, such as striped bass, are extremely quick to cue on predictable events, such as regularly timed releases of smolts at a single location. Changing the simple-minded protocols associated with fish releases may be a wiser approach for reducing such predation, rather than using observations of these events to blame striped bass and justify predator control programs. Reducing predation opportunities at various artificial structures may also have large benefits and needs investigation.

8. If the striped bass is indeed the dominant predator on other fishes in the Delta and Sacramento River (the reason for a control program), then this predatory effect should be greatest on populations of other species that are more frequently consumed. The 'release' from predation pressure associated with reducing striped bass numbers is thus highly likely to benefit many other alien fish which are also known predators and competitors on fishes of concern. This assertion is widely supported by ecological theory and numerous investigations in a variety of systems, including estuaries elsewhere. For example, Mississippi silversides are important in the diets of 1-3 year old striped bass, so bass predation could be regulating the silverside population. If true, then relieving silversides from striped bass predation pressure is likely to increase their numbers, which could have negative effects on delta smelt through predation on eggs and larvae (Bennett and Moyle 1996). This strongly suggests that any proposal to initiate a control program for striped bass should carefully consider the likely consequences, as well as involve an intensive study effort on the impact of program to make sure the alleged cure is not worse than the supposed disease. The take home message from all this is that reducing the striped bass population may or may not have a desirable effect.

In our opinion, it is most likely to have a negative effect. While the ultimate cause of death of most fish may be predation, the contribution of striped bass to fish declines is not certain. By messing with a dominant predator (if indeed it is), the agencies are inadvertently playing roulette with basic ecosystem processes that can change in unexpected ways in response to reducing striped bass numbers. Overall, the key to restoring populations of desirable species and to diminish populations of undesirable species (Brazilian waterweed, largemouth bass, etc.) is to return the Delta to being a more

variable, estuarine environment. This is likely to happen naturally with sea level rise interacting with levee collapses (Lund et al 2007, 2008), but the populations of delta smelt and similar fishes may not be able to last that long. We stress that attempting to reduce striped bass and other predator populations is unlikely to make a difference in saving endangered fishes, and will serve only to distract attention from some of the real problems. However, efforts to reduce predation opportunities (not necessarily predators) in some locations with a focused effort may make a difference in the survival rates of depleted salmon and other species and provide some assistance to their recovery.

Citations used:

Bennett, W.A., and P. B. Moyle. 1996. Where have all the fishes gone: interactive factors producing fish declines in the Sacramento-San Joaquin estuary. Pages 519-542 in J. T. Hollibaugh, ed. San Francisco Bay: the Ecosystem. San Francisco: AAAS, Pacific Division.

Hansen, C. H. 2009 Striped bass predation on listed fish within the Bay-Delta Estuary and tributary rivers. Expert Report Coalition for a Sustainable Delta et al. v. Koch, E.D. Cal. Case No. CV 08-397-OWW. 63 pp.

Lindley, S.T. and M.S. Mohr. 2003. Modeling the effect of striped bass (Morone saxatilis) on the population viability of Sacramento River winter-run Chinook salmon (Oncorhynchus tshawytscha). Fishery Bulletin 101:321-331

Lund, J., E. Hanak., W. Fleenor, W., R. Howitt, J. Mount, and P. Moyle. 2007. Envisioning futures for the Sacramento-San Joaquin Delta. San Francisco: Public Policy Institute of California. 284 pp. (Available at ppic.org)

Lund, J., E. Hanak, W. Fleenor, W. Bennett, R. Howitt, J. Mount, and P. B. Moyle. 2010. Comparing futures for the Sacramento-San Joaquin Delta. Berkeley, University of California Press. 230 pp.

Moyle, P. B. 2002. Inland Fishes of California. Revised and expanded. Berkeley: University of California Press. 502 pp.

Moyle, P. B. and W. A. Bennett. 2008. The future of the Delta ecosystem and its fish. Technical Appendix D, Comparing Futures for the Sacramento-San Joaquin Delta. San Francisco: Public Policy Institute of California. 38 pp. (Available at ppic.org)

Nobriga, M.L., and F. Feyrer. 2008. Diet composition in San Francisco Estuary striped bass: Does trophic adaptability have its limits? Environmental Biology Fish 83: 495-503.

Stevens 1966. Food habits of striped bass (Roccus saxatilis) in the Sacramento-San Joaquin Delta. Pages 68-96 in J.L. Turner and D.W. Kelley, eds. Ecological studies of the Sacramento-San Joaquin Estuary, part II: fishes of the Delta. CDFG Fish. Bull.136.

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February 23, 2017

TO: Commissioner Anson Moran, President
Commissioner Ike Kwon, Vice President
Commissioner Ann Moller Caen
Commissioner Francesca Vietor
Commissioner Vince Courtney

THROUGH: Harlan L. Kelly, Jr., General Manager

FROM: Steven R. Ritchie, Assistant General Manager, Water

RE: Bay-Delta Water Quality Control Plan Proposed Amendments

The State Water Resources Control Board's Revised Substitute Environmental Document (SED) in Support of Potential Changes to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary: San Joaquin River Flows and Southern Delta Water Quality dated September 15, 2016 is a significant proposal to protect water quality in the Lower San Joaquin River and Southern Delta. The proposed regulatory action includes a proposal for instream flow requirements extending into the San Joaquin River tributaries, including the Tuolumne River. As a result, the proposal has significant implications for the Tuolumne River and the SFPUC water supply.

Our analysis of the State Water Board's proposal leads us to the conclusions that:

- The State Water Board's 40% unimpaired flow proposal would mean significant reductions in our water supply, and alternatives to make up that supply are enormously expensive and have potential significant impacts that make their permitting and implementability uncertain.
- We have serious doubts about the Tuolumne River ecosystem benefits of the State Water Board's proposal.
- We have better ideas for Tuolumne River ecosystem improvements that have significant technical support.
- Negotiated settlements among water users, NGOs and the State and Federal agencies are a better solution than the State Water Board's regulatory proposal if they can be developed and implemented. They need to be jointly developed for the San Joaquin River, the Sacramento and the Delta.
- The State-sponsored settlement discussions are off to a slow, but promising, start. There is much work to be done in building trust among the parties. However, we do not believe the State Water Board's regulatory proposal provides a framework that is sufficiently flexible or robust to support settlement discussions.

Since the proposal's release in September 2016, SFPUC staff have been working on comments on the SWRCB's proposal and have met with numerous parties including:

- Wholesale Customers and BAWSCA
- San Joaquin River tributary irrigation districts
- Local, State and Federal elected officials representing customers in our service area
- State resource agencies
- The Governor and his staff
- The San Francisco Chronicle editorial board
- Non-Governmental Organizations, representing both business and environmental interests
- Water agencies from other parts of the state

In meetings with those entities, we have stressed that:

- The State Water Board's proposal could have a significant impact on our water supply.
- We have doubts about the State Water Board's approach to using unimpaired flow as an environmental approach, instead focusing on strategically managed or functional flows as being more important, coupled with non-flow measures.
- Negotiated settlements are a superior path to a solution for the Bay Delta system.

Attached is a briefing paper regarding the State Water Board's proposal, its potential impact on the SFPUC and its service area, and our support for negotiated settlements as a superior solution to Bay-Delta problems. The paper has been used to facilitate many of the conversations with the entities described above. The Tuolumne River Trust has identified a number of areas where they disagree with the points made in the briefing paper. The following is a summary of the points of disagreement over the briefing paper. The area of disagreement and quotes from the Tuolumne River Trust's comments are highlighted in **bold.**

"The SFPUC's brief... is a highly biased document."

We do not believe it is a biased document. At the same time, we highlighted a number of issues to make sure that all parties understand that this is an extremely significant matter. Our final message is that negotiated settlements are a better solution than a regulatory and/or litigated solution that could take more than a decade with limited progress in the intervening years.

"We encourage the SFPUC to follow the best-available science and play a leadership role in balancing environmental needs with a reliable water supply."

At the SFPUC, we pride ourselves in relying on the best available science. We believe we are doing far more than others in balancing environmental needs with a reliable water supply. We do not support the notion that the State Water Board is using the best available science, particularly when it comes to management of the Tuolumne River and producing positive environmental outcomes there.

Socioeconomics analysis

The SFPUC is currently analyzing the socioeconomic effects of the State Board's proposal. In the absence of the availability of that analysis, the SFPUC has continued to cite the analysis that was included in its March 2013 comments on the initial SED. The analysis included in these comments was originally prepared in 2009 for an Administrative Law Judge proceeding at the Federal Energy Regulatory Commission (FERC) evaluating whether to increase instream flow requirements on the Tuolumne River below the Don Pedro hydroelectric project. The SFPUC had to rely on that analysis in 2013 because of the limited comment period on the initial SED which prohibited a new analysis to be performed. The 2014 study that the Tuolumne River Trust refers to is a draft report, titled "Socioeconomic Impacts of Water Shortages within the Hetch Hetchy Regional Water System Service Area," that was submitted to the Federal Energy Regulatory Commission as part of the relicensing of the Don Pedro hydroelectric project. In April, 2014, the SFPUC received comments from several environmental groups on the draft report. The draft report will be revised and submitted in the Fall of 2017 about the time the Turlock and Modesto Irrigation Districts submit their Amended License Application. We used the 2009 analysis in our briefing paper rather than the 2014 analysis because the 2014 study is being updated it did not make sense to confuse decision makers and the public by citing a draft report that is being revised. The revisions to the draft report will include revised demand projections, revised census data, revised income projections, conservation projections and available non-SFPUC supplies. The SFPUC is currently using the same methodology used in the 2009 and 2014 studies to measure the economic losses of the State Board proposal.

In regard to questions about job and sales losses in the most recent drought, the overall 14% rationing that occurred in the service area was achieved by the residential sectors and therefore, the Commercial and Industrial sectors did not experience mandatory rationing which would impact their operations. We have offered a meeting between our consultant, economist David Sunding and the Tuolumne River Trust and others to help understand what happened during this last drought.

Regardless, the value of raising the socioeconomic issues in the briefing paper is to make sure that the potential consequences are understood.

Effect of drought on water supplies: "It is unlikely the SFPUC service territory will ever suffer losses... because the SFPUC has so much storage (almost 1.5 million acre-feet) that it buffers the system from extended droughts."

Our analysis regarding our water supply is far more robust than the analyses suggested by the Tuolumne River Trust and the State Water Board. Our supply is based on having sufficient water in storage to survive extended droughts. That concern about storage led the SFPUC to establishing the Water Bank in Don Pedro Reservoir through the Fourth Agreement in the 1960s.

Our experience in the 1987-92 drought led to two very well-considered policy decisions about how we manage our water supply. First, we renewed our commitment to "Water First", meaning that our system operation is dictated by preservation of water supply, with power generation being a secondary consideration. Second, we established a drought planning scenario assuming

that we would experience another 1987-92 drought followed by a 1976-77 drought. Our Level of Service objective, formally established in 2008, is to have sufficient water to survive the drought planning scenario with no more than 20% rationing at a system-wide demand of 265 MGD. Since 1995, we have planned and implemented our water operations accordingly. That operational philosophy and planning appears even more prudent in light of global climate change.

East Palo Alto situation: The SFPUC brief suggests that "East Palo Alto's water shortage is a result of limited water supply, which is not the case." "East Palo Alto's shortage is a result of an unfair water allocation, not a result of limited water supply."

East Palo Alto's shortage is due to having insufficient guaranteed supplies to support additional proposed development. There are two possible solutions to East Palo Alto's shortage. One is for the SFPUC to provide additional supply directly to East Palo Alto. The SFPUC cannot do that if it is unable to fulfill the Supply Assurance of 184 MGD to the Wholesale Customers which would be in question under the State Water Board's proposal. The second possible solution is a transfer of Individual Supply Guarantee to East Palo Alto. However, if the Supply Assurance is in question, then other Wholesale Customers may be less likely to transfer excess ISG.

Effects on San Franciscans: The SFPUC brief suggests that "San Francisco might have to reduce its water use by 40%..." "Most of the reduction in water supply, if even necessary, would be borne by the SFPUC's wholesale customers..."

Under current agreements this may be true, however the Water Supply Agreement is silent on how allocations are made above 20% shortage levels. In addition, there are a number of Wholesale Customers who have substantially reduced their demands in the last several years, even pre-dating the 2012-16 dry period. The split between Retail and Wholesale customers at all levels of system shortages has been raised for reconsideration.

Obtaining additional water to make up for water supply impacts: "It is unlikely the SFPUC would need to purchase water from other agencies because it has enough storage to buffer the system against droughts." Also, if the economic impacts of shortage are as large as claimed, the cost of additional supply would be small by comparison.

It would be difficult to obtain additional supplies if needed, and at 40% unimpaired flow requirements, they would be needed. The costs of additional supplies would be borne by ratepayers and would have to be justified to them as necessary.

The "environmental community" has attempted to engage the Tuolumne diverters in a Scientific Evaluation Process.

The San Joaquin River Tributary Authority, of which the SFPUC is a member, agreed to engaging in a settlement process in 2012. Part of the process included using the Scientific Evaluation Process. The SJTA worked through the SEP on the Stanislaus River with the intent for the process, if successful, to be used on the Merced River and then the Tuolumne River. Representatives of the irrigation districts and the SFPUC initially participated in the SEP but did not find them fruitful and discontinued participation. Ultimately, a consensus

document was not produced that included all the original participants nor has it been implemented.

Voluntary agreements: "Pursuing a voluntary agreement is fine, as long as it's not just a stall tactic. In fact, settlement negotiations for the Tuolumne have been underway for two-and-a-half years."

Pursuing voluntary agreements is not a stall tactic. The existing New Don Pedro settlement discussions have not had a driver. The State Water Board's proposal is a new driver. That is the true value of the State Water Board's proposal. It is compelling parties to come to the negotiating table. We expect to be hurt and expect others to be hurt by any negotiated settlement but we believe it to be the most desirable approach.

Water supply shortages of up to 50% could occur in droughts: "This statement is absolutely false. According to the Bay Delta Water Quality Control Plan environmental document:

> **'The 1922-2003 average calculated volume of water potentially available to CCSF under the Raker Act was about 750 TAF/y (thousand acre-feet per year, or 670 mgd)... According to a SFPUC planning document, an average of 244 TAF/y (218 mgd) is diverted from the Tuolumne River...based on data from 1989-2005.'**

The State Water Board's analysis is based on averages as opposed to our rigorous analysis of conditions and our anticipation of a more severe drought than previously experienced. Our complete analysis of our hydrologic history from 1921 to 2011 identifies numerous occasions of shortage if that hydrology was repeated. We cannot assume that each of these dry periods would end quickly. We have successfully operated our system through dry periods for the benefit of our customers so that we do not have to resort to excessive rationing to survive.

Interpretation of the Fourth Agreement regarding flow obligations on the Tuolumne River: "Obviously, the SFPUC intends to challenge any application of the Fourth Agreement if necessary."

The SFPUC will pick and choose its legal confrontations to protect the interests of its ratepayers. But if a State standard is adopted, it may be used on any Federal permit or license issued regarding Tuolumne River matters.