

September 16, 2005

Tam Doduc, Chair
State Water Resources Control Board
P. O. Box 100
Sacramento, CA 95812-0100

RE: DELTA OUTFLOW OBJECTIVE FLEXIBILITY

Dear Ms. Doduc,

This letter is submitted as supplemental and response comments of the Bay Institute (TBI) regarding flexibility of the Delta outflow objective for the State Water Resources Control Board's (SWRCB) public workshops to consider potential amendments or revisions of the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan). Please also refer to our extensive previous comments on this issue (January 12, 2005, letter regarding Delta outflow objective; June 3, 2005, letter regarding periodic review; and August 31, 2005, powerpoint presentation regarding flexibility).

The need for flexibility has not been demonstrated.

No party has presented any evidence that flexing the Delta outflow objective is necessary to avoid potential adverse upstream impacts. Indeed, both the first set of gaming exercises conducted by a broad set of parties and the later set conducted by the Export Users clearly demonstrate the opposite, that operational changes can avoid such impacts while still fully complying with the objective. In fact, choosing not to defer compliance with the objective to the very last minute but instead making releases or reducing exports earlier in the month on the declining limb of the hydrograph would likely result in reduced water costs compared to late compliance (and any extra days of compliance would be credited against the following month's requirement).

Neither set of gaming exercises evaluated a number of important options recommended by TBI and other parties for complying with the objective while avoiding potential upstream impacts, including; reducing exports (a 4000 cfs reduction in February 2003 – when export pumping levels were in excess of 11,000 cfs – would have achieved compliance while avoiding adverse upstream flow fluctuations); making releases earlier in the month (which would have allowed for releases from multiple reservoirs, reducing the magnitude of flow fluctuations and spreading potential storage and coldwater pool impacts across several facilities); and making earlier releases to meet the EC metric rather than the flow metric. Even operating according to the limited options in the gaming exercises, however, always resulted in compliance with the objective when avoiding upstream impacts while complying was the purpose (as in Games 1.1

and 1.2; noncompliance only resulted when noncompliance was intended, as in subsequent games). This discussion underscores the need for the SWRCB, through the water right permitting process, to require the Central Valley Project and State Water Project – and potentially nonproject water users as well – to adopt operational protocols to avoid adverse upstream impacts.

Finally, it is worth repeating that, while not flexible in the sense of allowing non-compliance, the Delta outflow objective as promulgated in the Bay-Delta Plan and implemented in Water Right Decision 1641 incorporates a high degree of flexibility. The objective itself is highly sensitive to antecedent hydrological conditions, reflecting the estuary's natural variability. The SWRCB also allows for compliance using three different metrics; allows for flexibility in deciding when compliance with the required days during a given month occurs; allows for extra days of compliance to be credited against the following month's requirement; and allows for use of many different options available to the CVP and SWP (including at least six major reservoirs and two export pumping facilities) for complying with the objective.

Flexing the Delta outflow objective would weaken a critical protection for estuary-dependent species, with no scientific or other basis for assuming that equivalently assured benefits will be secured.

No party has presented any evidence that the Delta outflow objective does not provide critical protection for estuarine habitat and fish and wildlife beneficial uses based on statistically significant, continuing correlations between the location of X2 and the abundance of numerous estuary-dependent species. Flexing the objective would result in clearly predictable decreases in abundance as a result of upstream movement of X2, and reduce the variability of the location of X2 (which is likely as ecologically important a characteristic of the objective as its average long-term position in safeguarding ecological processes, securing adequate habitat conditions and triggering behavior of aquatic organisms). At present, the objective provides a minimum level of protection for estuary-dependent species, one that TBI and other parties have argued may not be fully protective and which is particularly crucial to maintain given the recent declines in pelagic species of the estuary.

Furthermore, none of the gaming analyses include any evidence that flexing the objective will provide specific new benefits to either Delta or upstream fishery resources (indeed, the only benefit is "saved" water, which according to the Export User recommendations should be used for multiple purposes, including water supply). No data or analyses are presented to show how upstream resources would benefit (e.g., changes in egg mortality, redd stranding, juvenile

survival, spawning habitat area, river temperature, etc.), or why such presumed benefits should be provided by flexing the Delta outflow objective rather than by changing upstream operations, promulgating separate regulatory requirements, allocating resources for habitat restoration projects, or other means.

It should also be noted that the significant decreases in abundance predicted as a result of the gaming exercises would likely be magnified greatly if the decision tree proposed by the Export Users were adopted. The Export User criteria would allow for upstream migration of the X2 location up to 1 km, a far greater shift than any modeled in the gaming exercises, with corresponding large-scale abundance decreases (12% for longfin smelt, for example). The Export User decision tree would also allow for up to 10 percent increases in the Export/Inflow Ratio, decreases of up to 1000 cfs in Rio Vista flows, and up to 200% exceedance of the export criteria during the VAMP pulse flow period, as well as allow water "saved" to be used for purposes other than complying with the Bay-Delta Plan's objectives. The potential adverse impacts of implementing the Export User decision tree could be catastrophic, to say the least.

Deferring flexibility decisions to a group such as the Water Operations Management Team is only appropriate when the scientific basis for a management regime is weak, and where there is strong evidence that a variation will be beneficial, as in the case of the Export/Inflow Criteria. Allowing the WOMT to flex the Delta outflow objective, on the other hand, even with decision tree criteria, makes the SWRCB dependent on the dedication, stamina and good will of the resource agency participants and creates a dynamic in which those participants will be forced to continually defend releasing Delta outflows to achieve the objective rather than flexing to achieve some other purpose. The practical effect of allowing flexibility will be to shift the burden of proof to showing why the objective should be complied with.

Allowing flexibility of the Delta outflow objective would convert a scientifically sound, hydrologically sensitive criterion for protecting estuarine habitat and estuary-dependent species, as part of a set of objectives in a larger water quality plan to protect Bay-Delta beneficial uses under the Clean Water Act, into a "flexible" water account whose assets would be used to balance various environmental, water quality and water supply purposes. The balancing performed by the SWRCB in promulgating the Bay-Delta Plan objectives to comply with the Clean Water Act would in effect be replaced by the balancing by management agencies in flexing the objective to achieve multiple purposes, some outside or even in conflict with the regulatory mandate of the SWRCB.

Finally, all parties seem to agree that there are unmet needs in protecting the Bay-Delta ecosystem, and uncertainties as to how best meet these needs, as

evidenced by the pelagic fish declines. Addressing these needs is not and should not be linked to changing the Delta outflow objective but instead requires the development and adoption of additional protection measures, regulatory and otherwise. For instance, the SWRCB should consider creating a Bay/Delta Plan mitigation account, with assets of water and/or funding, that can be used flexibly to dedicate or acquire supplemental environmental water supplies or implement other actions for fishery and habitat protection in response to new information and changing conditions in the estuary.

The Export Users gaming results do not support using flexibility.

The evidence presented by the Export Users (State Water Contractors, Kern County Water Agency, San Luis Delta and Mendota Water Authority) does not support flexibility of the Delta outflow objective. On the contrary, the very limited gaming conducted by the Export Users actually demonstrates that potential adverse upstream impacts of implementing the objective can be avoided by altering project operations while fully complying with the objective; that flexing the objective would reduce protection for estuary-dependent species; and that a primary purpose of flexing appears to be to “increase overall water supply,” according to their own summary of the gaming exercises, rather than fully protect the estuarine habitat and fish and wildlife beneficial uses. Furthermore, despite claims that flexibility allows for balancing between benefits to upstream vs. Delta species, no evidence was presented to show how flexibility is essential for such balancing or even how upstream benefits would be created using flexibility.

Game 1.3 – (usage option 3). In this game, upstream releases that would have been made to comply with the Roe Island objective were reduced, and some of the “saved” water released later in order to maintain average February – June X2 location. Declines in estuary-dependent abundance are predicted from the upstream shift in X2 location earlier in the period. The gaming results presented do not disclose changes in average monthly X2 location, which would show decreased seasonal as well as within-month variability in X2 location. There is no scientific basis for assuming that maintaining the average location over the entire February – June period provides equivalent protection to maintaining the intra- and inter-month variability of X2 location (see below). In addition to decreased abundance, reduced X2 variability, and other ecological impacts, there are serious implementation problems with this scenario. Because the Delta outflow objective is based on measured monthly antecedent conditions, calculating the average February – June X2 location cannot be done until June at the earliest. In applying Game 1.3 flexibility in the real world, how would the project operators know how much water to release prior to June 1 in order to maintain the average

location? Interestingly, even with the perfect foresight and historical knowledge of computer modeling, only 29 TAF of “savings” resulted.

Games 2.1 and 3.1. The Delta outflow objective was not achieved, resulting in a substantial upstream shift of X2 location for a number of multi-month periods and substantial predicted declines for most estuary-dependent species (three of the four species examined). The Export Users report a predicted population increase for one species, longfin smelt. This result reflects their selection of the longest averaging period for springtime X2 (January – June) and thus presents an incomplete analysis of the likely response of this species. The abundance of longfin smelt is significantly correlated with X2 location calculated for a number of multi-month periods, including those for which the gaming results predict an upstream shift in X2. Using the statistically significant relationships for these periods (derived from data provided by W. Kimmerer) to predict changes in longfin smelt abundance, a 0.12 km upstream shift in February – May X2 corresponds to 1.4% population decline, a 0.20 km upstream shift in January – April X2 to a 2.5% decline, and a 0.17 km upstream shift in March – May X2 to a 2.0% decline.

Game 2.2. As with other games, using a number of multiple month periods as the basis for calculating X2 – abundance relationships leads to predicted declines in abundance. The Export Users identified 166 TAF of “saved” water available for export during the summer/fall period. No data or analyses were presented regarding the benefits created by the flexing. Potential adverse impacts of increased summer/fall export pumping on food web productivity – an issue of concern in the evaluation of the recent pelagic fishes decline – were also not addressed.

Game 2.3 and 3.3. Although average February – June X2 location was unchanged (and as discussed above for Game 1.3, this operational scenario is unrealistic), substantial upstream shifts in X2 (nearly half a km in Game 3.3) during shorter periods within the spring are reported. For example, compared to the negligible increase in longfin smelt population predicted by the Export Users, the 0.45 km upstream shift in March – May X2 corresponds to a 5.1% decrease in longfin smelt population. In addition, as with most of the other game results, population declines are predicted for the other three species examined. In addition to direct adverse impacts from noncompliance with the objective, the Export Users scenario yields 74 – 114 TAF of water available for export later in the year, an operational change with the potential for further adverse impacts, as discussed above.

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Thank you for considering these supplemental and response comments regarding flexibility of the Delta outflow objective. Please contact us if you have any questions regarding these comments.

Sincerely,

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