

# Deltakeeper

A project of Waterkeepers Northern California  
Before the  
State Water Resources Control Board  
Bay-Delta Workshops  
24 January 2005

Good Morning Chairman Baggett, Board Members:

Bill Jennings, Representing Deltakeeper, Waterkeepers Northern California, San Joaquin Audubon, the Committee to Save the Mokelumne and the California Sportfishing Protection Alliance.

I'm going to make a brief presentation followed by Dr. Lee who will discuss export effects on dissolved oxygen. Dan Odenweller will then address export fishery impacts. Mike Jackson will conclude.

These are general remarks; more specific written comments will follow. We strongly endorse and incorporate by reference the submittals and testimony of the Bay Institute on these issues.

I preface our comments with several observations. First, the history of this estuary tells us that elaborate structural and hydraulic modifications of aquatic ecosystems always have unintended consequences.

Second, reductions in Delta inflow are likely because of the:

1. loss of Trinity River water,
2. Freeport diversion (both to Sacramento County and EBMUD's peripheral tube around the Delta),
3. increasing North-of-Delta urban needs (including 70K AF to be diverted from the Stanislaus to municipal use in SJ County),
4. loss of reservoir storage from sedimentation, and
5. the continuing trend from snowmelt to rainfall runoff.

A simple mass balance analysis demonstrates that reductions in inflow coupled with increases in Delta exports will inevitably reduce outflow and exacerbate existing problems.

And third, species abundance is continuing to decline. Between 2002 and 2004:

1. adult delta smelt indices were the 6<sup>th</sup>, 10<sup>th</sup> and 1<sup>st</sup> lowest respectively in the 38 year record,
2. striped bass indices were the 2<sup>nd</sup>, 3<sup>rd</sup> and 1<sup>st</sup> lowest on record,
3. treadfin shad indices were the 6<sup>th</sup>, 7<sup>th</sup> and 5<sup>th</sup> lowest on record, and
4. longfin smelt indices were the 12<sup>th</sup>, 4<sup>th</sup> and 3<sup>rd</sup> lowest on record.

And these were years of relative water abundance – we're in trouble.

Recent information confirms that native out-migrating San Joaquin salmon continue to be massacred by excessive export pumping. The radio telemetry studies by Dave Vogle, DWR's particle tracking model and the Chipps Island Trawl demonstrate that VAMP and the head-of-Old River barrier enable out-migrants to pass Stockton only to be drawn to their fate down Turner and Columbia Cuts.

It should be noted that:

1. total and summer exports have increased since the signing of the Bay-Delta Accord,
2. the period 2002-2004 was the first time that high July-August exports occurred in years that did not have high outflow during spring, and
3. a decision has been made to renege on the ROD commitment to upgrade export facility screens.

It is abundantly clear that instead of fixing the Delta, CalFed is serving as the chaperone of its continued decline. Under the Accords, water supply security was to be achieved by fixing the Delta. Instead, CalFed has employed restoration as a smokescreen to obscure and justify increased degradation fueled by escalating exports.

This Board, not CalFed, has the statutory responsibility for ensuring that Delta waters meet the chemical, physical and flow parameters necessary to support renewable fisheries. It's imperative that action be taken before the inevitable drought sequence sends at risk species into oblivion.

Bay-Delta standards must protect the entire estuarian ecosystem, including native and anadromous fish (all 58 species), lower trophic levels and benthic communities. Porter-Cologne and the Clean Water Act do not distinguish between species.

Just as you cannot discount the majority of estuarine inhabitants, you cannot ignore, as CalFed has, the majority of pollutants present in the Delta – and the effects of export operations on those pollutants.

The Delta is a repository for an astonishing array of pollutants from dairies and irrigated agriculture, logging, municipal and industrial wastewaters and stormwater runoff, mining, shipping & dredging, recreation, etc. – that have been found to violate Basin Plan objectives. Many of these pollutants are toxic and bioaccumulative.

Flow modifications – changes in import-export or outflow ratios – will inevitably alter the fate & transport and likely effects of numerous pollutants on beneficial uses. They will change the zones of impact. They will also affect the movement of sediments and therefore sediment toxicity and location.

Failure to implement a comprehensive monitoring program in the Delta ensures that we lack the information necessary to adequately understand how this complex interacting ecosystem responds to major changes in flow and water quality.

Existing water quality monitoring has primarily focused on salt and drinking water concerns. Ecosystem water quality has been treated as an unwanted stepchild and relegated to CalFed's basement. There is urgent need for a regional monitoring program in the Delta – like that in the Bay - that addresses ecosystem water quality – and that provides the baseline data and feedback information necessary to protect this estuary.

Data collected on salt or drinking water constituents – and modeling based upon that data - cannot be defensibly employed to evaluate the effects of potential flow modifications on toxicity and the suite of chemical contaminants identified as violating or having the potential to violate water quality standards.

Phrased differently: salinity and TOC are inadequate surrogates for the suite of toxic and/or bioaccumulative pollutants or physical parameters identified as impairing beneficial uses.

Water quantity and water quality are but flip sides of the same coin. Flow modification alters assimilative capacity, which in turn changes pollutant concentration. Increases in concentration can adversely affect dischargers, fisheries and the aquatic food web - most beneficial uses.

Pollutant mass loads are increasing – even as Delta inflow is decreasing. Assimilative capacity is being lost. And, assimilative capacity is our first line of defense against – not only known contaminants – but the universe of unmonitored and unidentified pollutants present in these waters.

Assimilative capacity can also be lost through flow manipulation. For example, we're all aware of the fish kills caused by draining Folsom to avoid curtailing exports in 02 & 03. This has led the agencies to call for "flexibility" in import/export ratios and X2. But, other options were available.

CalFed's Data Assessment Team (DAT) could have anticipated the situation and released water from Shasta (5-days travel time) or Oroville (3 days travel time). Instead they delayed until the last moment where they had no alternative but to release from Folsom (1 day travel time) to avoid shutting down the pumps.

Fisheries must not continue to be sacrificed on the alter of poor planning.

Throughout the Central Valley reservoir releases orchestrated to meet the urgencies of the moment to protect export commitments with little or no consideration of their effects on water quality.

An example is the potential effects to municipal and industrial dischargers. As previously observed, alterations of flow change assimilative capacity, which in turn, change pollutant concentration.

The cornerstone of NPDES permit development is the reasonable potential analysis. A reasonable potential to exceed a water quality standard is based upon a worst-case scenario. For example, a reasonable potential analysis for ammonia would consider the highest ambient concentration at the lowest stream flow at the highest temperature. If reasonable potential is found, a permit must include a water quality-based limit.

A relatively modest change in flow can increase constituent concentration. We've seen hardness shifts from 200 to 20 mg/l – that dramatically increase the bioavailability of metals. A reduction in the 7Q10 affects virtually every discharger. Temperatures can be dramatically altered. Thermal shock is a concern. If dilution ratios fall below 20 to 1, tertiary treatment is required. These kinds of changes can trigger findings that require dischargers to spend tens-of-millions of dollars in facility upgrades. All of Region 5's NPDES Unit Chiefs agree that this is a serious concern.

Bay-Delta standards incorporate and implement existing the Central Valley Basin Plan criteria – including narrative criteria and controllable factors. Export-driven flow changes must not be allowed to cause pollutant concentrations to exceed applicable criteria.

These concerns are not presently addressed by the DAT in coordinating releases between reservoirs. The Board must establish the necessary framework and monitoring to ensure that fluctuation flows to not adversely affect water quality.

Export pumping also affects the aquatic food web. Annual primary production in the Delta declined some 43% between 1975 and 1995. Certain zooplankton and phytoplankton populations have declined by one to two orders of magnitude over the last several decades.

While there is an over-abundance of nutrients (algae) in the San Joaquin River, the Sacramento River water is very low in nutrients (we don't see algal problems).

Several years ago, Dr. Lee and our staff conducted an investigation in the Central and South Delta. We discovered that when the export pumps were operating, San Joaquin River flows did not extend beyond Columbia and Turner Cuts.

Water in the Central Delta was largely comprised of low nutrient Sacramento River water drawn across the Delta to the pumps. Increased exports will increase the volume of Sacramento River water in the Central and South Delta.

It is reasonable to conclude that resulting decreases in nutrients may further depress productivity in the Delta. It is an issue that begs further study before we increase export pumping.

Efforts to repair the grievous damage done to this estuary have encountered a roadblock of increasing exports. This is not the time to sabotage restoration efforts by relaxing standards before we see positive proof that the Delta has been fixed.

Prudence would suggest that the Board move deliberately and cautiously before relaxing standards. The myriad redirected impacts and likely unintended consequences arising from relaxation cannot be ignored. They must be identified and mitigated.

Indeed, available evidence suggests that more stringent standards are clearly warranted.

In summary:

1. In-as-much as CalFed has become the handmaiden of MWD, its time for this Board to embrace its statutory responsibility to protect the Delta.
2. Given increasing degradation, Delta standards should not be relaxed but, rather, broadened to protect all species and to include all pollutants identified as exceeding Basin Plan criteria.
3. A regional monitoring program focused on ecosystem water quality should be created.
4. A framework and protocols that incorporate protection of water quality in the DAT flow deliberations must be implemented.
5. An effective enforcement program should be established.
6. Upgrades of fish screens at the pumps (and for that matter, Delta diversions) should be required. In the alternative, exports should be further restricted during critical periods.
7. And, perhaps most importantly, export deliveries should be reduced to levels in place at the signing of the Accords until the Delta is "fixed" – (standard met and fisheries restored). It is absurd that restoration efforts costing tens upon tens of millions of dollars have been negated by increasing exports – that we are left with an estuary more impoverished than when we began.

Dr. Lee will now discuss the relationship between exports and DO depletion in the San Joaquin River. It must be emphasized that Old and Middle Rivers are also 303(d) listed for low dissolved oxygen. We've documented massive fish kills there during periods of low DO.

We've also documented prolonged aquatic life toxicity in the South Delta. Any solution incorporating barriers to mitigate adverse effects caused by excessive export pumping must address the redirected impacts created by the lack of inflow and circulation in the South Delta.

NOTE: I have only one brief slide regarding the VAMP pulse flow (Issue No. 9).

Water quality standards and their implementation cannot simply focus on salmonids and Delta smelt.

Considering the plummeting numbers of Delta fisheries and magnitude losses to lower trophic populations, its clear that present Delta standards are inadequate and must be strengthened.

On a similar note, in evaluating impacts to assimilative capacity, the assimilative capacity that has already been committed (or locked away) in NPDES permits but has yet to be used by the discharger must be considered.