California Department of Fish and Game

Statement before the State Water Resources Control Board

Review of the 1995 Water Quality Control Plan

Topic #6 – Export Limits

January 18, 2005

The State Water Resources Control Board's (SWRCB) 1995 Water Quality Control Plan (WQCP) uses an export:inflow standard to limit the effects of export pumping on fish and wildlife beneficial uses of water of the San Francisco/Sacramento-San Joaquin Delta Estuary. This standard incorporates the concept that the effect of pumping on Delta fish and habitat is greater when flow into the Delta is low and is less when flow is greater and recognizes that the export pumping rate relative to inflow rate is of greater consequence to protecting fish and wildlife beneficial uses in some parts of the year than in others. The standard specifies the maximum percentage of Delta inflow that can be diverted, 35 % in February –June and 65% in July –January. It also allows a higher percent of inflow to be diverted in February during years when it was especially dry in January.

Modifying flexibility in the E:I standard

Existing flexibility in the E:I standard has been used at times in the past four years. The fish management agencies, with SWRCB approval, have allowed Delta exports to be 5 to 10 percent of inflow more than the E:I standard for short periods of time to obtain water for the CALFED Environmental Water Account. Decisions were made by the fisheries agencies to allow pumping to be increased for the EWA when the risk to Delta fishes was believed to be relatively low. Water thus obtained made it possible for the fish agencies to later call for export curtailments when risk to fish was determined to be high, with foregone project exports replaced with water from the EWA. Chronically low abundance of delta smelt during recent years, when there have been both pumping

curtailments to benefit fish and periodic episodes of pumping above the E:I standard to obtain replacement water supplies, has caused biologists to reevaluate this strategy. Biologists need to determine whether the periods of intentional higher pumping may have had a detrimental impact on newly hatched delta smelt larvae that are too small (< 20 mm) to be detected either in ongoing delta monitoring or in fish facilities samples that outweighs the positive impact of pumping curtailments later in the spring. Additional sampling will be conducted in 2005 to try to assess distribution of these small larvae and their exposure to presently unquantified effects of export pumping. Until this situation is better understood, biologists will likely be reluctant to use existing flexibility and call for increased pumping when the E:I standard is controlling to get water for the EWA when it is likely, based on observations of spawned delta smelt in the vicinity, that the small larvae are present near the pumps and in the exported water. Accordingly, DFG does not advocate increased flexibility in the E:I standard.

Calculation method for determining Delta inflow and the allowable diversion rate (WQCP Table 3, footnote 23; footnote 19 in D-1641)

The E:I standard uses a 14-day average for inflow and a 3-day average for exports to determine the amount of water that may be diverted, given the percent of inflow allowed to be diverted at the time. If E:I is the standard controlling project operations, then the effect of this method is to slow the rate at which pumping is increased during the early part of an increasing runoff event (freshet or ascending hydrograph), as increases in pumping must wait until increased flow into the Delta is reflected in the 14-day average inflow. However, if flows are increasing because DWR and/or Reclamation increased reservoir releases, inflow may be calculated using a 3-day average so that the projects can increase pumping sooner and capture water they had previously stored.

During periods of relatively high sustained Delta inflow, the allowable diversion rate is based on the 14-day average inflow. When precipitation/runoff subsides, reservoir inflow rate decreases until at some point the release is comprised partly of previously stored water and, according to the WQCP, the calculation of allowable diversion rate

switches from using 14-day average Delta inflow to the 3-day average Delta inflow. Because system-wide flows generally also are declining, the 3-day average Delta inflow is usually less than the 14-day average and consequently the allowable rate of diversion decreases (percent of inflow allowed for diversion not changed). If the E:I standard is controlling SWP/CVP operations, the effect of this calculation method has been to limit pumping during the descending limb of the hydrograph, an outcome that has a positive effect on fish in the Delta. The result is fortuitous for fish because in our juvenile salmon monitoring we often see an increase in the rate of downstream movement of juvenile salmonids into the Delta during and after periods of increased river and Delta flow. If 1995 WQCP Table 3 footnote 23 describing how allowable pumping under the E:I standard is calculated were to be changed as is being proposed, the DFG believes that when the change affects inflow calculations and increases allowable pumping in the winter and spring months the resulting higher pumping rates would cause increased adverse impacts to juvenile salmon and steelhead and other Delta fish species. At the very least, we suggest there needs to be an evaluation of the frequency and magnitude of potential changes in operations and an assessment of potential effects on Delta fish and habitat that would be expected if the Delta inflow calculation method were changed. Until that assessment is completed and the consequences understood and resolved, the DFG believes it is inappropriate to change the method for implementation of the E:I standard.

Allowance for operation of in-Delta storage

It is being proposed that previously stored water released from in-Delta storage be included in the calculation of inflow for purposes of implementing the E:I standard. Release of water from in-Delta storage may occur under one of two sets of conditions: 1) when E:I is constraining pumping or 2) when it is not. If in-Delta storage were integrated with SWP/CVP operations, then when E:I is constraining project pumping any water released from in-Delta storage adds to Delta inflow and it either 1) enables increased export pumping or 2) allows other sources of Delta inflow to be reduced without affecting actual pumping. Under the latter situation the extent to which other sources

(project reservoir releases) could be reduced without affecting export pumping under an E:I limit would then be determined by flow or other requirements immediately below project dams or at locations in the Delta (e.g. flow requirements for Sacramento River at Rio Vista or San Joaquin River at Vernalis.) Because of the potential for water released from Delta islands to be substituted for other sources of Delta inflow and because water from a source in the central portion of the Delta will not necessarily support the same ecological functions as inflow from the Sacramento or San Joaquin rivers, flow requirements in other parts of the Delta, and in fact upstream, become increasingly important in protecting beneficial uses within the Delta. We have neither done nor seen an analysis of what these effects might be, however, we think it is important to remind everyone that the various objectives in the WQCP work together to protect beneficial uses and that potential interactions among the objectives should be considered when changes to any of the objectives are being contemplated. Inclusion of previously stored water from in-Delta storage facilities in calculating Delta inflow may be appropriate under most circumstances, but the potential for impacts to aquatic resources should be evaluated and the likely increased frequency in applicability of other WQCP objectives should be taken into account.

Adequacy of aquatic resource protection with E:I standard

The specific values in the E:I standard are not determined from direct relationships to fish survival, production or abundance. Instead they were set to establish operational boundaries that tend to moderate the effects of pumping on the Bay-Delta aquatic environment. The E:I standard was included in the 1995 WQCP instead of a Qwest standard because project operators had found it difficult to operate to Qwest requirements in the 1993 NOAA Fisheries Biological Opinion for Winter-run Chinook salmon. Qwest requirements established seasonal limits on reverse (or upstream) flow in the western Delta. The 35 percent E:I standard in February – June was expected to provide similar protection in terms of Delta habitat conditions for migrating juvenile salmon and steelhead, delta smelt, and other species.

It is not clear whether the E:I standard is sufficiently rigorous to fully achieve its intended purpose or to what degree stricter E:I limits would help improve habitat conditions and reverse the recent pattern of dramatically low abundance of numerous estuarine organisms.. However, in the context of these observations and absent a clearer understanding of what the controlling factors may be, the Department believes it would be inappropriate to change the E:I standard at this time and recommends that the current E:I standard be retained.