

PERIODIC REVIEW OF THE 1995 WATER QUALITY CONTROL PLAN FOR THE SAN FRANCISCO BAY/SACRAMENTO-SAN JOAQUIN DELTA ESTUARY

CLOSING STATEMENT AND RECOMMENDATIONS OF THE STATE WATER CONTRACTORS REGARDING THE PERIODIC REVIEW OF THE WATER QUALITY CONTROL PLAN FOR THE SACRAMENTO-SAN JOAQUIN RIVER DELTA - JUNE 4, 2005

INTRODUCTION

The State Water Contractors ("SWC") respectfully submits the following comments and recommendations on the topics covered during the public workshops to review the 1995 Water Quality Control Plan for San Francisco Bay and the Sacramento-San Joaquin River Delta ("1995 Delta Plan" or "Plan").

The SWC is a non-profit corporation representing 27 member agencies¹ located throughout California that receive water from the State Water Project ("SWP"). Collectively, SWC members provide SWP water diverted from the Delta to more than 22 million people—roughly two-thirds of the State's population. In addition, hundreds of thousands of acres of some of the richest farmland in the world depend, in whole or in part, on water from the SWP. Most of the SWC member agencies are parties to long-term contracts with the Department of Water Resources ("DWR") that entitles them to water diverted by the SWP from the Delta. Pursuant to its powers and authorities, the SWC is responsible for representing the interests of its member agencies in proceedings that affect the water supplies made available by the SWP.

The SWC and its members are vitally interested in protecting the stability of the 1995 Delta Plan, as its water quality objectives often define the regulatory constraints that limit SWP operations. Without a stable definition of these constraints, water supply reliability cannot be

¹ The 27 member agencies are: Alameda County Flood Control and Water Conservation District Zone 7; Alameda County Water District; Antelope Valley-East Kern Water Agency; Casitas Municipal Water District; Castaic Lake Water Agency; Central Coast Water Authority; City of Yuba City; Coachella Valley Water District; County of Kings; Crestline-Lake Arrowhead Water Agency; Desert Water Agency; Dudley Ridge Water District; Empire-West Side Irrigation District; Kern County Water Agency; Littlerock Creek Irrigation District; Metropolitan Water District of Southern California; Mojave Water Agency; Napa County Flood Control and Water Conservation District; Oak Flat Water District; Palmdale Water District; San Bernardino Valley Municipal Water District; San Gabriel Valley Municipal Water District; San Geronimo Pass Water Agency; San Luis Obispo County Flood Control and Water Conservation District; Santa Clara Valley Water District; Solano County Water Agency; Tulare Lake Basin Water Storage District.

achieved. The SWC is, however, concerned about the way some of these objectives are implemented. Finally, the SWC must object to the way some parties at the workshop provided recommendations that would modify the 1995 Delta Plan fishery objectives without considering, or at least without providing any evidence on, how those recommendations would impact other beneficial uses protected by the Plan. Some of the recommendations would cause water losses in the hundreds of thousands of acre-feet, with little if any quantifiable benefits to fish. Moreover, the record does not support amending any of the objectives.

LEGAL STANDARDS

The SWC believe that many of the participants proposing changes to the 1995 Delta Plan either do not understand, or, more likely, find it more expedient to ignore three of the most important words in the Porter-Cologne Water Quality Act. Those words are: "which is reasonable."² Water Code section 13000 includes this phrase as follows:

The Legislature further finds and declares that activities and factors which may affect the quality of the waters of the state shall be regulated to attain the highest water quality *which is reasonable*, considering all demands being made and to be made on those waters and the total values involved, beneficial and detrimental, economic and social, tangible and intangible.... (Italics added.)

The Legislature's intent is more fully articulated in Water Code section 13241:

Each regional board shall establish such water quality objectives in water quality control plans as in its judgment will ensure the reasonable protection of beneficial uses and the prevention of nuisance; however, it is recognized that it may be possible for the quality of water to be changed to some degree without unreasonably affecting beneficial uses. Factors to be considered by a regional board in establishing water quality objectives shall include, but not necessarily be limited to, all of the following:

- (a) Past, present, and probable future beneficial uses of water.
- (b) Environmental characteristics of the hydrographic unit under consideration, including the quality of water available thereto.
- (c) Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area.
- (d) Economic considerations.

² The State Board must also continue to be mindful that the California Constitution requires that water be put to reasonable and beneficial use. (Cal. Const. Art. X §2.)

- (e) The need for developing housing within the region.
- (f) The need to develop and use recycled water.

It is one thing, in the face of these explicit pronouncements, for a workshop participant to advocate for a favored outcome on the grounds that it satisfies the reasonableness test. It is quite another thing to treat competitive beneficial uses as if they did not exist or as unworthy of balanced consideration. Several participants often seemed to take this latter approach. As a result, a great deal of workshop information treated economic and other human uses of water for urban and agricultural purposes as evils that should only be tolerated after fishery related beneficial uses had received 100 percent of what was requested.

The SWC has always rejected this unbalanced approach, as did the SWRCB when the 1995 Plan objectives were established, and in all of its presentations, tried to ensure that proper attention was paid both to the reasonable needs of the fisheries and to the legitimate need to protect competing beneficial uses. Fortunately, the state and federal agencies, generally, also suggested outcomes that recognized the difficult balancing that water quality planning requires. Pursuant to Water Code section 13444 and 13245, the State Board should carefully consider the recommendations that come from the SWP and CVP operators and the three federal and state fisheries agencies.³

The 1995 Delta Plan properly recognized both the balancing required and the unique approach that is needed when addressing fishery issues:

The objectives for the protection of fish and wildlife beneficial uses are established for the following parameters: dissolved oxygen, salinity (expressed as electrical conductivity), Delta outflow, river flows, export limits, and Delta Cross Channel gate operation. Unlike water quality objectives for parameters such as dissolved oxygen, temperature, and toxic chemicals, which have threshold levels beyond which adverse impacts to the beneficial uses occur, there are

³ Section 13144 reads as follows: "During the process of formulating or revising state policy for water quality control the state board shall consult with and carefully evaluate the recommendations of concerned federal, state, and local agencies."

Section 13145 reads: "The state board shall take into consideration the effect of its actions pursuant to this chapter on the California Water Plan as adopted or revised pursuant to Division 6 (commencing with Section 10000) of this code, and on any other general or coordinated governmental plan looking toward the development, utilization, or conservation of the waters of the state."

no defined threshold conditions that can be used to set objectives for flows and project operations. Instead, the available information indicates that a continuum of protection exists. Higher flows and lower exports provide greater protection for the bulk of estuarine resources up to the limit of unimpaired conditions. *Therefore, these objectives must be set based on a subjective determination of the reasonable needs of all of the consumptive and nonconsumptive demands on the waters of the Estuary.* As the long-term planning process for the Estuary, cited in the Framework Agreement, is developed and implemented, these objectives will be evaluated and modified, as necessary, to provide a level of protection predicated on more optimal physical facilities and management actions. (1995 Plan, pp. 14-15; Italics added.)

This approach is just as applicable to this periodic review as it was ten years ago. Neither the underlying law nor the policy of the State has changed. Thus, the State Board's task is to balance the competing uses based on the physical facilities and management actions that are in place in 2005.

With this legal and policy background in mind, the SWC, in this Closing Statement, will urge the State Board to maintain most of the existing provisions of the 1995 Delta Plan. The recommended modifications discussed below deal more with the way the existing objectives should be implemented, as compared with proposals to significantly change the substance of the objectives. This approach is consistent with the SWC's observation in the introduction to this Closing Statement – the stability of regulatory prescriptions is a key component of a reliable water supply.

WATER QUALITY COMPLIANCE AND BASELINE MONITORING

DWR and the Department of the Interior presented a carefully crafted and well considered set of modifications to improve both the efficiency of and substantive data provided by the 1995 Delta Plan's monitoring program. No party objected to the proposals and State Board staff, in its Staff Report, states that DWR has provided "compelling information" supporting its request to modify certain elements of Table 4 to the 1995 Delta Plan. Further, the Interagency Ecological Program reviewed the recommended monitoring changes and totally supports them. (Transcript, p.27, lns.15-20)

The issue, therefore, is not whether to approve the monitoring changes, but how to implement them promptly. The SWC recommends that the State Board act as soon as possible to approve the proposed changes to Table 4 of the 1995 Delta Plan. This need not wait for a final decision on other possible Plan revisions. This element of the periodic review is sufficiently independent to allow it to be approved and implemented separately from the rest of the Plan and without comprehensive CEQA review.

Once that step is accomplished, the SWC also recommends that the changes be approved through the water rights process, again without waiting for a final decision on the main body of the water quality control plan. The State Board could act through an order from its Executive Officer, to the extent authorized under Decision 1641, or, if required, through a noticed, one issue, half-day or less hearing to amend Decision 1641.

DELTA CROSS CHANNEL GATE OPERATIONS

The SWC urges the State Board to retain the current Delta Cross Channel operational objectives. No creditable information was provided demonstrating that any changes are either necessary or reasonable.

The CVP and, later, the SWP were designed and constructed to capture primarily water from the Sacramento River and its tributaries. However, the Tracy Pumping Plant and, later, the SWP's Banks Pumping Plant were located on the southern edge of the Delta on the San Joaquin River side. The Cross Channel and its gates, built in the 1950s, move CVP releases of Sacramento River Basin water (including water stored in Shasta Reservoir) to the Tracy Pumping Plant to serve its customers' needs along the Delta Mendota Canal without potentially harming the Delta Beneficial uses. Without the Cross Channel, the act of moving a large quantity of Sacramento River water into the south Delta would cause major water quality degradation in the central and south Delta and significant reverse flows around the tip of Sherman Island. In addition, the Cross Channel was also enabled the CVP to deliver good quality water to Contra Costa Water District at its Rock Slough intake to the Contra Costa Canal.

Until the late 1970s, the gates were left open to protect water supply and Delta water quality, except when high Sacramento River flood flows threatened to cause flooding in the

central Delta if the gates were left open. In 1978, however, after recognizing that open Cross Channel gates could cause more downstream migrating salmon smolts and Striped Bass to stray into the central Delta channels, the agencies jointly recommended that the gates be closed during specific non-flood times to reduce this unwanted movement of salmon smolts into the central Delta channels. The State Board agreed and included in its Decision 1485 the first regulatory restrictions on Cross Channel Gate operations.

These first restrictions were fairly minor and required closure only from April 15 through May 31 when the "Delta outflow index is greater than 12,000 cfs" (State Board Decision 1485, p. 39). However, as time went by and certain salmonid species were listed as endangered under the Federal Endangered Species Act, the impact of Cross Channel gate operations on smolt movement and survival received more attention. Through the December 15, 1994 Accord, the 1995 Delta Plan, and State Board Water Rights Order 1995-6, the current regulatory restrictions on Cross Channel Gate operations were established.

Under the 1995 Delta Plan and Decision 1641, the gates must be closed at all times from February 1 through May 20 of all years. In addition, between November 1 and January 31, the gates may be closed for fish protection purposes at the request of the state and federal fish agencies for up to 45 days. Thus, from a regulatory standpoint, between November 1 and May 20, a total of 201 days, the Cross Channel gates must be, or may be closed at the request of the fisheries agencies, for 154 days, or more than 75 percent of the time.

Outside of this regulatory framework, the gates may be closed for even more days based on hydrology and/or through the Environmental Water Account program. As noted above, the gates are always closed to prevent flooding in the central Delta channels when flows in the Sacramento River approach 25,000 cfs. In addition, to cover the unlikely chance that 45 days of closures during the November through January period is not adequate in any year for fishery purposes, additional gate closures may occur through the CALFED Environmental Water Account program and/or as a "B2" action under the Central Valley Project Improvement Act.

Most of the workshop participants recognized that the Delta Cross Channel is a vital component of the water delivery and quality systems for both the CVP and the SWP. They also

recognized that gate closures during times of lower flows can significantly degrade interior Delta water quality.

This recognition is particularly important given the CALFED decision to fix the Delta using a "through-Delta" water conveyance strategy. Frequently, in times of lower river flows, the CVP and SWP delivery needs and Delta water quality cannot be met unless the gates are open and Sacramento River water can be moved through the Cross Channel into the central Delta and from there to the Banks and Tracy pumping plants. If CALFED's through-Delta conveyance strategy is to work, consistent with the CALFED principles of balanced improvement in all areas and no redirected impacts, the need to keep the Cross Channel gates open at certain times in the summer, fall and early winter must be recognized and protected.

The current regulatory and operational regime recognizes that the three beneficial uses – water supply, water quality, and fishery protection are properly balanced. The number of days of gate closures can be increased beyond the regulatory limit through the EWA program. However, The Bay Institute recommended that 15 additional days be added to the existing 45 days in November through January during which a gate closure could be regulatorily imposed. This would increase the percentage of authorized closures to nearly 85 percent of the time. Such an increase is unnecessary and could lead to serious water quality or water supply impacts.

The state and federal fishery agencies and the CVP and SWP operators have established a real-time monitoring program and a set of protocols to determine when the Cross Channel gates should be closed between November 1 and January 31 to protect downstream migrating salmon smolts. The monitoring program and protocols are based on the knowledge that the great majority of smolts migrate from their upstream rearing areas in response to flow pulses. When those storm related pulses occur, monitoring will detect if fish are beginning to move downstream and the protocols will determine if the smolt movements, along with water quality and water supply considerations, warrant a discretionary closing of the Cross Channel gates.

The monitoring and protocols for closing the gates are specifically designed to enable a substantial percentage of the smolts to pass the Cross Channel when the gates are closed, and to do so without significant impacts on water quality and water supply. They are successful because, in

the fall and early winter months salmon smolts emigrate through the Delta over time in a manner that can be graphically represented by a series of spikes (representing a large number of migrating smolts) that correlate with the flow pulses associated with storm events. Outside of the spikes, a much lower background level of fish, or none, may be moving through the system. By closing the gates at the time of the spikes, a large percentage of salmon smolts can be kept in the Sacramento River system.

If the gates are reopened between these spikes, a small increment of smolts may enter the central Delta. However, keeping those few fish in the Sacramento River, when flows are low, would come at a very high cost to other protected beneficial uses such as water quality and water supply. The information provided in SWC-EXH-1 shows the devastation that can occur if one does not recognize the need to provide balanced protection to all beneficial use categories.

The presentation by the Bay Institute provided no insight into what, if any, additional benefits, which is defined as an increase in adult salmonid escapement, one would expect to derive from the recommended 15 days of additional Cross Channel gate closures. This is not surprising since, over the nine years that the existing program has been in place, the fishery agencies have never requested that the gates be closed for 45 days when they would otherwise be open.

In the meantime, all available data show that the existing regulatory program, as supplemented by CALFED actions such as the Environmental Water Account, is working. There are no data that indicate that changes in Cross Channel gate operations would measurably improve adult salmonid survival; yet substantial data show that excessive gate closures when flows are low can seriously hurt statewide water supplies and in-Delta water quality. Thus, the record shows the unreasonableness of increasing the number of days the Cross Channel must be closed and the SWC urges the State Board to leave the Cross Channel objectives unchanged.

NARRATIVE SALMON PROTECTION OBJECTIVE

The SWC recommends that the current narrative objective for chinook salmon protection, as set forth in the 1995 Delta Plan, be left unchanged. That objective reads as follows:

Water quality conditions shall be maintained, together with other measures in the watershed, sufficient to achieve a doubling of natural production of chinook salmon from the average production

of 1967-1991 consistent with the provisions of State and federal law.

This objective has been functioning as expected and there has been significant progress towards the recovery of salmon stocks over the past ten years.⁴

No party at the workshops criticized this goal or suggested that it be converted to some form of numeric objective. Instead, the presentations focused on how best to achieve the doubling goal, and how to ascertain if doubling has occurred.

The narrative objective does not just focus on the goal; it also provides guidance on how to achieve the goal. First, it calls for maintenance of "sufficient" Delta water quality conditions. This component, conditions in the Delta, is already in place through the criteria for Cross Channel gate operations, the San Joaquin River flow objectives, and dissolved oxygen requirements. Since chinook salmon use the Delta primarily as a migration corridor between the ocean and their upstream spawning grounds, some of the fishery objectives in the 1995 Delta Plan have not been found to be significantly related to the success of salmon improvement programs.

The narrative objective also calls for "other measures in the watershed." As Professor Wim Kimmerer stated, the real potential for improving salmon stocks is found in the upstream watershed and the ocean. (WK EXH 1) The SWC concurs with this observation. For many years, when it came to assessing the problems and solutions related to California's Central Valley fishery, there has been a nearly obsessive preoccupation with the Delta. Thus, federal, State and stakeholder experts have focused on finding Delta fixes that would act as cure-alls, often at significant cost to other beneficial uses of water. At the same time, we missed an opportunity to study and implement fishery actions in upstream areas where more efficient improvements to the overall system may be found.

During the recently completed workshops, no one challenged the conclusion that salmon doubling must be a basin-wide endeavor. On the contrary, the presentations demonstrated that the

⁴ There were different characterizations of this progress by the parties to the workshop – some optimistic and some wishing greater progress has been achieved. But all agreed that improvement has resulted from actions, particularly upstream actions, taken over the period in question. It will likely take at least 30 years, or 10 generations, to see the full effects of actions already taken and those still to be completed.

phrase "together with other measures in the watershed" may be the most important element of the objective as now written.

Unfortunately, some parties took this concept too far by suggesting that the State Board act beyond its water quality authority in a proceeding that was noticed solely to consider modification of the 1995 Delta Plan. For example, the Bay Institute recommended that the Red Bluff Diversion Dam should be open year round. The SWC supports efforts to eliminate the blockage that this structure creates to upstream migrating spring-run salmon, but does not believe the State Board has the jurisdiction to bring about that result in these proceedings. Such a proposal could only be considered during a reopening of Decision 1641.

Other means of solving the Red Bluff dilemma are being considered through the CALFED and CVPIA programs. In the proper forums, the SWC would support a combination of regulatory and non-regulatory cooperative efforts to fix the problems at Red Bluff and other upstream areas. But the SWC also requests that the State Board clearly articulate, in its final Plan revisions, that its authority in these proceedings is limited to establishing water quality objectives within the Delta and Bay.

The SWC also urge the State Board to reject the request to add steelhead to the doubling objective. The original decision to limit the narrative objective to chinook salmon makes sense because fairly good data exists on the base populations between 1967 and 1991. At least in these workshops, no one provided any similar data for steelhead that would enable the State Board to develop a numerical base from which one could ascertain if the objective has been met for steelhead. In other words, what are we doubling from? A better approach is to wait until a recovery plan has been completed under FESA and then see if additional State Board action is needed based on the science disclosed through the recovery plan process.

Finally, The SWC does not believe that the doubling objective should be revised, as suggested by NOAA-Fisheries, to substitute the phrase "sustainable viable salmonid populations" for the phrase "doubling of natural production of chinook salmon from the average production of 1967-1991." This change would create a far more ambiguous objective, particularly if, as suggested by some parties, it was applied on a tributary by tributary basis. Until the Board holds a

Central Valley wide set of hearings to determine if and how such an objective could be established, monitored and administered, or just what is a "sustainable viable salmonid population, it is premature to make such a change.

MUNICIPAL AND INDUSTRIAL WATER QUALITY OBJECTIVES

Two separate issues were presented under this topic – the chloride objective for Rock Slough/Pumping Plant No. 1, and bromide levels in Delta waters. The SWC recommendations for these two items are separately discussed below.

a. Rock Slough/Pumping Plant No. 1

The SWC recommend that the State Board not change the M&I chloride objectives, but that it establish a second compliance location.

The Contra Costa Water District has significantly changed the way it operates its Delta diversion facilities. These changes have impaired the CVP's and SWP's ability to consistently meet the 150 ppm and 250 ppm chloride objectives that are measured at Pumping Plant No. 1 on the Contra Costa Canal, which is located at the end of Rock Slough. Since CCWD began diverting water from Old River for direct delivery to the district's water users or into Los Vaqueros Reservoir, it has often reduced its Rock Slough diversions to such low levels that Rock Slough basically becomes a dead-end channel. When these conditions exist, CVP and SWP operations, which can only indirectly affect Old River water quality, are ineffective in maintaining quality water in Rock Slough. The problem is exacerbated by poor quality drainage water entering Rock Slough from Veale Tract and other neighboring Delta islands, and seepage into the Contra Canal that is unrelated to CVP or SWP operations.

When these low flow conditions exist in Rock Slough there is no reason, legal or policy, why the CVP and SWP should be responsible for maintaining water quality objectives at a location that, by CCWD's choice to assist the fishery and because of local pollution, have become unreasonably difficult to attain.

Fortunately, DWR, USBR, and CCWD all recognized the problems with the current compliance monitoring location at Pumping Plant No. 1 before the Los Vaqueros Project went into operation. Hence, they have agreed that Holland Tract would be the logical place to add an

additional compliance monitoring station. Unfortunately, the parties have not been able to reach consensus on two issues related to use of a Holland Tract station.

DWR and USBR have proposed water qualities in Old River at Holland Tract that they believe correlate to the 150/250 quality objectives at Pumping Plant No. 1. CCWD is asking for lower salinity levels. Also, the parties have not agreed on the rate of diversions from Rock Slough into the Contra Costa Canal that would trigger the need to measure compliance of the chloride objective at Pumping Plant No. 1 rather than at the surrogate Holland Tract station. This dispute centers on how much flow through Rock Slough is needed to flush accumulated local salts out of the system before it becomes reasonable to resume measuring compliance at Pumping Plant No. 1.

While the SWC believes that the salinity levels and flow rates suggested by CCWD are too low, the SWC does not recommend that the State Board try to settle the disputes in these water quality proceedings. Instead, the SWC recommends that the State Board approve use of a designated Holland Tract location as an alternate site for measuring compliance of the Pumping Plant No. 1 objective and allow CCWD, USBR and DWR to continue negotiating resolution of the two issues summarized above. If settlement is not reached by the time the State Board notices the supplemental water rights hearing needed to implement new or modified elements of a Delta water quality control plan, the Board should use that process to settle the issues still in dispute.

b. Bromide

Several entities, including the California Urban Water Agencies, interested in protecting source water quality for drinking water presented statements concerning bromide levels in Delta water. These comments referenced conclusions concerning appropriate bromide levels that were contained in a 1998 "Bay-Delta Water Quality Evaluation" prepared for CUWA, and in the CALFED Record of Decision.

The CALFED ROD included the following language (at page 65) to describe its bromide goal:

...to achieve either: (a) average concentrations at Clifton Court Forebay and other southern and central Delta drinking water intakes of 50 ug/L bromide ... or (b) an equivalent level of public health protection using a cost-effective combination of alternative source

waters, source control and treatment technologies.

The SWC recognizes that bromides contribute to the formation of potential carcinogens when combined with drinking water disinfection chemicals, and, therefore, supports the efforts to improve drinking water quality. However, for purposes of this review of the 1995 Delta Plan, the only supportable concept from the quotation above is the alternative of providing an "equivalent level of public health protection." The SWC urges the State Board to focus on actions that will provide such equivalent protection, as meeting an in-channel goal of 50 ug/L in Old River and other points in the south Delta is impossible with current and projected future Delta plumbing.⁵ An isolated facility, with an intake at Hood and capacity greater than that considered by CALFED, is about the only way such a bromide level could possibly be achieved in the south Delta.

CALFED probably included the in-channel 50 ug/L bromide goal as a long term planning target for further evaluation of potential Delta conveyance improvements. Inclusion of the equivalent level of public health protection language recognized it might be infeasible to reach the goal at Delta drinking water intakes. The SWC, in its Exhibit 5, demonstrated that a 50 ug/L level for bromides equals about 17 mg/L chloride. Even if all water now stored in all the Central Valley dams were dedicated to achieving such an instream objective, it would fail. The twice daily 200,000 cfs tidal flows, carrying the natural bromides contained in ocean salts, would simply overwhelm the system at the south Delta locations where drinking water is diverted.

When CALFED postponed a decision on the dual facility concept, it significantly delayed and possibly eliminated the only alternative that could have made significant progress towards a 50 ug/L objective at Delta drinking water intakes. Thus, what all municipal agencies, including those that are members of the SWC, are striving for today is the "equivalent level of public health protection," known as "ELPH." The SWC supports the ELPH process. It has supported the Veale Tract drainage improvements, the lining of the Contra Costa Canal, Franks Tract improvements, and other efforts to achieve better Delta source water quality consistent with the need to protect water quantities for export water uses.

⁵ The California Urban Water Agencies and the CALFED Drinking Water Quality Program made similar recommendations in their statements to the State Board.

The SWC urges the State Board to avoid making any findings that could be interpreted as recommending municipal water agencies strive to achieve a 50ug/L bromide level in the south Delta channels. Such a broad statement could be read as creating an enforceable narrative objective, or as constituting a finding that water flows or reservoir operations might be reasonable ways of implementing such an objective. Given the enormous impact such an interpretation would have on the water supply available for other beneficial uses, attempting to meet a bromide target with flows would not be a constitutionally reasonable use of water, even if it were physically possible.

In 1991, the State Board recognized that improvement of in-Delta bromide levels was an important "goal," but specifically added that it was not a water quality control plan objective. (See CUWA EXH 1, p.2.) If the State Board is going to consider some reference to the 50 ug/L bromide level, this important distinction between a goal and an objective should be included, as it was in 1991.

DELTA OUTFLOW

The SWC is not seeking a change in the X2 outflow objective. However, the SWC does believe that modifying how X2 is implemented presents the State Board with its greatest opportunity to improve Delta water management in a way that will benefit all beneficial uses, including the Bay and Delta fisheries. The SWC urges the State Board to adopt a process that will allow real-time flexing of the X2 outflow requirement when conditions prevail that will enhance multiple beneficial uses.

In making this recommendation, the SWC recognizes the desire for enforceable standards. However, nothing in the flexing proposal being discussed will change the fact that X2 will remain a fully enforceable numeric objective. Meeting the objective as it appears in the Plan will still be the default. The more flexible approach would only be implemented when the fishery and project agencies agreed, subject to State Board veto, that flexing the objective would result in greater fishery benefits at a more reasonable cost. The flexibility proposed actually would reduce the natural tension between fixed, numerical criteria that readily define when a regulated entity is in or

out of compliance and the need to develop real-time water management techniques that reasonably protect fishery resources without unnecessarily impacting statewide water supplies.

What the scientific community has learned about the Delta through implementation of the current Delta standards and detailed scientific study is that every time we set regulations to benefit a specific species we believe to be an "indicator species," or the canary in the mine, nature has later proven us wrong. Every time we decide that a certain block of time or rate of flow is critical to a species' success, we learn that there are more exceptions to the rule than there is a rule.

Today our best scientists seem to agree that more monitoring is needed for the Delta system and, based on the results of that monitoring, we should react to each year's unique conditions, each month's odd temperature and flow patterns, and each days random decisions by fish as to when and where they want to move. We need to refine our regulatory thinking. We need to devise ways to create objectives, terms, and conditions that can be enforced, but are not so immutable that they might accomplish only marginal benefits at the expense of equally important public values such as adequate water supplies for the 30 million or so people living in California, and other fishery purposes that would actually benefit protected species.

If one considers the Delta Cross Channel gate operation discussed above, flexible management is what the 1995 Delta Plan objective allows between November 1 and the end of January. As described earlier in this Closing Statement, we know salmon smolts tend to move downstream in the late fall and winter. We also know they tend to move during storm generated flow pulses. What we do not know is what day they are going to arrive in the Delta, because sometimes, for unknown reasons, they do not move as expected during a storm pulse. They often fool us. As a result, it made sense to establish the number of days that the gates can be closed, but leave it to biologists to decide when that should occur.

X2 raises somewhat different issues than Cross Channel gate operations. Nevertheless, similar hydrologic and fishery response uncertainties make X2 a strong candidate for flexible operations for the overall good of the system and the beneficial uses it provides.⁶

⁶ Of course, the SWC also support the continued flexing of the existing E/I ratio and improvement of the procedures used to document and implement the current export limit objective.

This Closing Statement will not provide specific details on how flexing proposals should be implemented. The SWC, in cooperation with other interested entities, has been conducting gaming exercises to improve our understanding of flexing and its impacts on flows and beneficial uses. These games are helping define the conditions under which flexing should be authorized. The SWC and others propose to present those gaming results in the very near future to the State Board and the parties at an additional workshop. Upon completion of that workshop, the SWC will request an opportunity to provide a supplemental closing statement that will describe the recommendations. We hope those recommendations will represent a strong consensus among those entities that participated in the games.

The SWC can say now, however, that the flexing recommendations will include sideboards that can not be exceeded. They will also include requirements that written reports describe the scientific factors that led the operating and fishery agencies to decide to flex or not to flex. The SWC believes it is just as important to understand the science behind a decision not to flex as it is to justify a flex. Finally, the recommendations will describe what circumstances should require a flex to be considered. In this regard, the SWC wants to assure the State Board that the suggestion made by the Bay Institute that the SWC or any other party is proposing flexing X2 every year (see Transcript, p. 863) is without foundation. The SWC expects that the triggering event for an X2 flex would be limited to the Roe Island location and to years when significant releases of previously stored water are required to provide flows that would not have existed in a state of nature. Although such conditions have occurred in two of the last four years, they had not often occurred before that time and will be the exception, not the rule.

At this time, the SWC simply wants to go on record in support of a water quality control plan and ultimately water rights decisions that support and authorize flexible management of our water resources to more reasonably protect all beneficial uses. Objectives that mandate the same operations year-in-year-out, irrespective of the actual circumstances in the Bay-Delta system will almost universally fall short of that goal.⁷

⁷ The SWC recognize that water year type has been used to authorize different operations under different conditions. Unfortunately, the year-type distinctions have proven too gross to be useful in many circumstances. For
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EXPORT LIMITS

The SWC requests that the State Board maintain the current export limit (E/I ratio) objective. This is also the recommendation of the California Department of Fish and Game and the Department of Interior.

The only party that suggested changes to the E/I ratio was the Bay Institute. Its presentation (BAY EXH 6, p. 5) requested that the E/I ratio be tied to San Joaquin River inflows in addition to total inflows to the Delta. The Bay Institute presentation recommended that SWP and CVP diversions be limited to the *lesser* of the current E/I ratios or 200 percent of San Joaquin flows from March 15 to March 31 and 100 percent of San Joaquin flow from April 1 through April 14. Its exhibits and letters do not analyze the impact such a change would have on the water supply beneficial use of Delta waters.

One can quickly calculate, however, that using flows of the much smaller San Joaquin River to limit diversions by projects that derive most of their water supplies from the natural and stored flows of the much larger Sacramento River would significantly impact statewide water supplies in many years. For example, assume that, on April 1 of any year, the inflow from the Sacramento River was 18,000 cfs, the inflow from eastside streams were 1,000 cfs, and the inflow from the San Joaquin River was 3,000 cfs, (not an unreasonable set of ratios). Under those conditions, the SWP and CVP total exports could not exceed 7,700 cfs (35% of 22,000). Under the Bay Institute approach, the maximum permissible diversion would be 3,000 cfs, a reduction of more than 60% equaling a loss of over 9,000 acre feet per day.

As another, more concrete, example, the third graph of Figure 18 of SJRG EXH 20 shows San Joaquin River flows and export pumping for March 1 through May 31, 2003. As one can see, pumping from March 1 though about April 15 ranged from 8,000 to 12,000 cfs. At the same time, San Joaquin River flows were steady at about 2,000 cfs. This is not surprising as San Joaquin River flows are only about 15 percent, on average, of Sacramento River flows. Therefore, for the SWP and CVP, which base their systems' reliability on water flows from the Sacramento River

example, at last check 2005 is still designated a below normal year, while we saw outflows of over 100,000 cfs in the second half of May.

system, there was plenty of water, as a whole, to support early spring efforts to move surplus natural flows south of the Delta.

Under the Bay Institute proposal, however, the pumping rates would have to be reduced after March 15 to 4000 cfs and after April 1 to 2000 cfs. In just the four weeks between March 15 and April 15 this would cause a water supply reduction of over 300,000 acre feet.

The Bay Institute attempts to justify its approach in the name of reduced entrainment at the SWP and CVP pumps. However, current studies do not confirm a significant statistical link between entrainment of young-of-the-year fish and later adult populations that would warrant such a huge impact on water supplies. The SWC supports efforts to reduce entrainment of salmonids through installation of a permanent barrier at the head of Old River and of Delta Smelt through the EWA and related programs. But the SWC strongly opposes the suggestions by the Bay Institute that the way to proceed is to cripple water supplies and hope that some benefit to the adult fishery might result.

RIO VISTA FLOWS

Rio Vista flows seldom control operations of the SWP or CVP. In addition, the SWC recognizes that minimum flow objectives for this location are appropriate to provide migration cues for adult salmon returning to their native spawning locations. Therefore, the SWC recommends that the current flow objectives remain in effect.

However, just because a flow objective seldom controls operations, does not mean that it should be immune from being flexed if unusual circumstances arise when adult salmon are not yet in the system, the objective controls, and impacts on upstream storage may result. The State Board, while considering a more flexible approach to implementing water quality and flow objectives, should include the Rio Vista flow objective in its deliberations.

SAN JOAQUIN RIVER FLOWS

The State Water Project does not own or operate any reservoirs, diversions, or other facilities that reduce or otherwise adversely impact flows in the San Joaquin River at or above Vernalis. Members of the SWC, however, are signatories to and active participants in the San

Joaquin River Agreement, including the VAMP program. Therefore, the SWC will limit its comments on this topic and leave the balance of the debate to those more directly affected.

a. VAMP

With respect to the VAMP, the SWC agree with the Department of Fish and Game. It is premature to consider including the VAMP flow and pumping targets as objectives in a Delta water quality control plan. (DFG EXH 7, p. 4) The VAMP is an incomplete experimental effort to determine how flows and/or pumping with the head of Old River barrier in place impacts San Joaquin River salmonids. A party that suggests that the VAMP experimental protocols be included in an amendment to the 1995 Delta Plan is implying that it knows the answers before the scientists have completed their work. Therefore, the State Board should reject this approach and allow the VAMP to be governed by the agreement among the participating parties and the design of the experiment.

b. Flows Outside The VAMP Period

With respect to the appropriate level of San Joaquin River flows outside the VAMP period, the SWC's main concern is generated by the suggestion of some, particularly the Bay Institute, that San Joaquin flows be used to define permissible levels of pumping at the Banks and Tracy pumping plants. This subject has been previously touched on in this Closing Statement (See "Export Limits", pp. 16-18), but needs to be reiterated given the Bay Institute's recommendation that:

Required flow levels should be linked to maximum Delta export rates to provide an average Vernalis flow: export ratio for the March-June period that is greater than or equal to 1.0.

(BAY EXH 8, p. 9)

If adopted, this recommendation would have devastating impacts on water supplies. Turning once again to the third graph of Figure 18 of SJRG EXH 20, one can quickly calculate the cost of implementing this proposal. The average flow of the San Joaquin River from March 1 through May 31 was, generously, about 2,500 cfs. During that same time frame, average export pumping was around 6,000 cfs. If water diversions must be limited to the average of San Joaquin

flows, then pumping would need to be reduced by over 600,000 acre feet during that three-month period, unless a benefactor could be found to add that much flow to the San Joaquin River.⁸

In addition, the linkage to the San Joaquin River is made less important by the soon to be installed permanent barrier at the Head of Old River. The barrier at the Head of Old River de-links the pumps from the San Joaquin River; and as a result, entrainment of emigrating smolts will be minimized significantly.

The SWC cannot over-emphasize that the concept of trying to use the San Joaquin River and its flows as the basis for regulating diversions from the Delta just does not work. The only way to accomplish what the Bay Institute seems to be trying to do for San Joaquin River fish without decimating water supplies would be to develop an isolated conveyance facility. However, The Bay Institute strongly opposed that approach during the CALFED deliberations on Delta conveyance alternatives. We all now need to work to make the through-Delta approach a success without causing major damage to our statewide water infrastructure.

c. Flows and Dissolved Oxygen

Some parties used the San Joaquin flow topic to promote a requirement that higher flows be required in the main stem of the San Joaquin River from Vernalis to the Stockton Deepwater Channel in order to maintain dissolved oxygen levels at or above the existing water quality objective. The SWC has a definite interest in these proposals as they involve, in part, contentions that SWP and CVP pumping increase flows down Old River at the expense of water in the main stem of the San Joaquin River.

The SWC does not believe that the State Board should adopt a San Joaquin River flow objective below Vernalis. Such an action would improperly reward both the Corps of Engineers, which promoted and constructed the ship channel ignoring concerns that it would exacerbate DO issues, and the City of Stockton that discharges oxygen demanding sewage into the waterway.⁹

⁸ The SWC recognizes that Bay Institute's recommendation is for a four-month average, through the end of June. It is very unlikely, however, that adding June to the calculation above would make Bay Institute's proposal look less unreasonable.

⁹ The SWC and some of its member agencies are working diligently to find a non-regulatory solution to the DO problem at Stockton. The statements in this Closing Statement should not be viewed as a retreat from that effort.

The record from the State Board's workshops shows that providing flows of 1,500 cfs below Vernalis during the late summer and fall months would usually result in flows much greater than the natural flows that would be provided from a totally unimpaired San Joaquin River. San Joaquin River natural flows, like many tributary streams in California, drop to very low levels once the rainy season ends and the snow has melted. It was not uncommon before the San Joaquin River basin dams were constructed to see flows just above Vernalis at just several hundred cubic feet per second. Foreign-in-time stored water releases provide the current minimum flows during the late summer and early fall that are, except in extremely dry years, are at or above 1,000 cfs.

In addition, SWC EXH 9 summarizes output from a model study that shows how flows reaching Vernalis split when they reach Old River – *without any export pumps operating*. The exhibit shows that at flows of 1,000 cfs or less, between 65 and 70 percent of that water flows down Old River.

What does all this suggest? It suggests that before the water projects were constructed in the Delta and upstream on the San Joaquin River and its tributaries, the fresh water flows reaching Stockton in the late summer and early fall were often in the 200-300 cfs range. Did those low flows cause a DO block back then? We do not know. If they did, then the San Joaquin River salmon probably adapted, waited it out, and moved upstream when conditions improved. On the other hand, if there was no DO block under preproject conditions, with flows much lower than they are today, it proves that the cause of the block is artificial modification of the channel that increased residence times and the discharge of municipal wastes.

In either case, the State Board should not approve a policy that requires the use of important water supplies to clean up a pollution problem in an artificial waterway that can be addressed in other ways.

SAN JOAQUIN RIVER SALINITY

This topic must be discussed in two sections, at Vernalis and in the Delta below Vernalis.

a. Salinity at Vernalis

Rather, it should be viewed as an objection to adopting regulations that would require non-responsible third parties to dedicate their water supplies to clean up someone else's pollution problem.

Like San Joaquin River flows at Vernalis, the State Water Project has no facilities or water users who impact water quality upstream of or at Vernalis. Appropriately, therefore, neither the 1995 Delta Plan nor Decision 1641 made the SWP responsible for maintaining water quality at Vernalis. Nothing has changed since the 1995 Delta Plan and the same result should follow from this periodic review. Therefore, the SWC asks the State Board to clearly state in the revised Plan, particularly in the program of implementation, that the State Water Project is not responsible for meeting the Vernalis salinity objectives.

The SWC also believes the workshop presentations clearly showed that, with proper operation of New Melones Reservoir, the current 1.0/0.7 E.C. objectives at Vernalis can be met in all year types. Further, the SWC does not believe the South Delta Water Agency has made a case for changing the time periods when each of the objectives is applicable. California constitutional and statutory law clearly requires that senior rights holders use reasonable water management and farming practices to ensure that water is available to meet the needs of all users from a water course. None of the special Delta statutes requires anything less of Delta water users.

While the SWC is not taking any position on changes to the Vernalis salinity objective proposed by others, our review of the workshop materials does lead us to conclude that an updated examination of the water quality needed to protect crops grown in the south Delta area may be warranted. Such a study could give special attention to soils in the south Delta and currently available water and salt management techniques.

b. Salinity Below Vernalis

Turning to interior Delta salinity objectives, the SWC believes that barrier operations will enable the State Water Project to fully meet its Decision 1641 obligations at all south Delta stations except Brandt Bridge. For Brandt Bridge the SWC asks the State Board to reexamine the reasonableness of a 0.7 E.C. objective and how it should be implemented. This request is based on two clearly demonstrated propositions.

First, it is not normally possible to always meet a 0.7 objective at Brandt Bridge when a 0.7 objective is just being met at Vernalis because there is water quality degradation downstream of Vernalis and upstream of Old River. For example the City of Manteca discharges wastes at a

permissible EC of 1.0 pursuant to a recent order of the Central Valley Regional Water Quality Control Board. Also, there are agricultural drains below Vernalis and above Old River. The records from the workshop show that the resulting degradation is in the range of 0.1 to 0.2 EC.

Second, since the majority of the degradation is occurring above Old River, reducing the flow split into Old River by reducing pumping at Banks or closing a head-of-Old River barrier provides minimal benefit. Even if those actions were able to increase flows in the main stem of the San Joaquin River, since the degradation occurs above Old River, Brandt Bridge would just experience higher flows of water that violates the 0.7 EC objective.

The water quality control plan and Decision 1641 are both flawed in viewing Brandt Bridge as a Delta station rather than a San Joaquin River station similar to Vernalis. No amount of SWP operational changes in the Delta, even with the proposed barriers, can alter water quality at Brandt Bridge. The 0.7 objective cannot be met without cleaning up the sources of degradation.

Often, in the past, we heard the claim that if the Bureau would simply meet the Vernalis salinity objective the Brandt Bridge objective could be met. That has turned out to be false and it remains immutable that the State Water Project cannot do anything about the Brandt Bridge violations that will occur when Vernalis salinity is at or just below the 0.7 EC level. The State Board should recognize this physical fact and modify the Delta Plan accordingly.

CONCLUSION

The beginning of this Closing Statement emphasized the importance to water supply reliability of stable water quality control plans. Consistent with that belief, the SWC has recommended few substantive changes in the water quality objectives themselves. On the other hand this Closing Statement has aggressively suggested that implementation can be significantly improved.

The Bay-Delta program of implementation should reward water management techniques that have the potential to increase benefits to multiple beneficial uses. Adaptive management, flexible tools, real-time monitoring -- these are the hallmarks of current efforts to fix the Delta without further impacting water supplies for our ever-growing population. The SWC urges the

State Board to play a significant roll in this process by creating a Bay Delta water quality control plan that allows the current real-time management efforts to flourish and grow.