State of California
State Water Resources Control Board
DIVISION OF WATER RIGHTS
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PROTEST– PETITION

OBJECTIONS TO:

ORDER APPROVING A TEMPORARY URGENCY CHANGE IN LICESNE AND PERMIT TERMS AND CONDITIONS REQUIRING COMPLIANCE WITH DELTA WATER QUALITY OBJECTIVES IN RESPOSNE TO DROUGHT CONDITIONS. In the Matter of Specified License and Permits of the Department of Water Resources and U.S. Bureau of Reclamation for the State Water Project and Central Valley Project.

SPECIFIED LICENSE AND PERMITS:

Permits 16478, 16479, 16481, 16482 and 16483 (Applications 5630, 14443, 14445A, 17512 and 17514A, respectively) of the Department of Water Resources for the State Water Project and License 1986 and Permits 11315, 11316, 11885, 11886, 11887, 11967, 11968, 11969, 11970, 11971, 11972, 11973, 12364, 12721, 12722, 12723, 12725, 12726, 12727, 12860, 15735, 16597, 20245, and 16600 (Applications 23, 234, 1465, 5638, 13370, 13371, 5628, 15374, 15375, 15376, 16767, 16768, 17374, 17376, 5626, 9363, 9364, 9366, 9367, 9368, 15764, 22316, 14858A, 14858B, and 19304, respectively) of the United States Bureau of Reclamation for the Central Valley Project.

Protest based on the fact that the proposed action may:

- not be within the State Water Resources Control Board's jurisdiction;
- not best serve the public interest;
- be contrary to law; and
- injure legal users of water.

Facts supporting the foregoing allegations:

Attached hereto is document titled "**SAN JOAQUIN TRIBUTATIES AUTHORITY PROTEST AND OBJECTIONS TO THE TEMPORARY URGENCY CHANGE ORDER.**"

PROTEST AND OBJECTION TO THE UNITED STATES BUREAU OF RECLAMATION TEMPORARY URGENCY CHANGE ORDER

TO THE STATE WATER RESOURCES CONTROL BOARD:

The San Joaquin Tributaries Authority (SJTA) submits the following Protest and Objection (Protest) to the April 11, 2014 Order Approving a Temporary Urgency Change Petition that suspends United States Bureau of Reclamation (Reclamation) license and permit conditions requiring release of water to comply with water quality control objectives (TUCO).

I. STATEMENT OF FACTS:

The State Water Resources Control Board (State Water Board) adopted the first Water Quality Control Plan for the Sacramento-San Joaquin Bay Delta Estuary (Bay Delta Plan) in 1978. The State Water Board reviewed and revised the Bay Delta Plan in 1995. D-1641 implemented the 1995 plan by amending Reclamation's water rights to include a condition that Reclamation release water from New Melones to meet the flow objectives in Table 3 of the Bay Delta Plan.

During the implementation process for the Bay Delta Plan, Reclamation, water operators, environmental organizations, and Department of Fish and Wildlife, and the United States Fish and Wildlife Service negotiated the San Joaquin River Agreement (SJRA). The SJRA included the Vernalis Adaptive Management Plan (VAMP). The VAMP program was an adaptive management strategy that provided varying levels of flow to measure the relative protection for smolt passage through the Delta. The VAMP program included off-ramps which provided relief from requirements in successive dry years. The State Water Board included the VAMP flow program in D-1641. Because VAMP did not fully implement the flows required in Table 3 the 1995 Bay Delta Plan (Vernalis Objectives), the State Water Board amended the Bay Delta Plan in 2006 to allow for the phased implementation of VAMP.

Upon the expiration of VAMP, D-1641 requires Reclamation release sufficient water to achieve the Vernalis Objectives. VAMP ended in 2011. Since 2011, Reclamation has failed to meet the Vernalis Objectives.

On July 18, 2012, the Delta Watermaster issued a Notice of Violation to Reclamation. The Notice of Violation stated that Reclamation's failure to meet the Vernalis Objectives was a violation of its water permits terms. (Attachment 1 [Notice of Violation], at 1 ("USBR is required to meet these objectives pursuant to the water right permit for New Melones storage (D-1641).").) In addition, the Notice of Violation required Reclamation to take corrective action by submitting a schedule of proposed flows to the Executive Director of the State Water Board. (*Id.*, at 2.) The Delta Watermaster warned that failure to maintain required flows in 2013 would subject Reclamation to "appropriate enforcement action." (*Id.*)

On January 17, 2014, the State Water Board released a curtailment notice, providing public notice that the State Water Board planned to curtail water use due to drought conditions. (Attachment 2 [January 17, 2014 Curtailment Notice], at 1.) The Notice stated the State Water Board planned to "notify water right holders in critically dry watersheds of the requirement to limit or stop diversions of water under their water right." (*Id.*) The notice indicated that curtailment of water rights would proceed by water right priority. It also stated, furthermore, that certain riparian and pre-1914 water right holders could receive a

notice to stop diverting water if their diversions are downstream of reservoirs releasing stored water and there is no natural flow available for diversion. (*Id.*) The notice concluded, cautioning water rights holders in water short areas they "should be looking for alternative water supplies" and to "make planting and other decisions accordingly". (*Id.*)

On March 26, 2014 Reclamation released its draft plan of operations for New Melones for water year 2014 to Stanislaus River stakeholders. (Attachment 3 [March 26, 2014 Draft New Melones Operations Plan].) The plan indicated that Reclamation would provide its Central Valley Contractors with 55 percent of their respective contract supplies. The Plan indicated that Reclamation would not release sufficient water from storage to meet the Vernalis flow objectives.

In March of 2014, the SJTA communicated with the Delta Watermaster regarding Reclamation's compliance with Vernalis Objectives. (Attached 4 [Email Communication with Delta Watermaster].) The SJTA provided the Delta Watermaster, State Water Board members, and State Water Board staff with Reclamation's plan of operations, noting that Reclamation was not planning to meet Vernalis Objectives.

On April 9, 2014, Reclamation submitted a Temporary Urgency Change Petition requesting changes to the Vernalis Objectives (TUCP). (Attachment 5 [TUCP].) Consistent with the Drought Operations Plan (DOP), the State Water Board approved the proposed Vernalis changes on April 11, 2014 (TUCO). (Attachment 6 [TUCO].) On April 11, 2014, the State Water Board issued a notice regarding the TUCP and Order (Notice). (Attachment 7 [Notice].) The Notice requires objections and comments pursuant to the Order must be received by the State Water Board no later than noon on April 21, 2014.

The SJTA and its members have historically opposed requirements in D-1641 from which the TUCO provides relief. This Protest is based on legal issues of authority and process, and does not represent endorsement or approval of D-1641 requirements; the SJTA members persist in their assertion that D-1641 requirements and the requirements currently proposed in the State Water Board's Phase 1 review of the Bay Delta Plan are not supported by science, fact, law, or proper balancing analysis.

II. BASIS OF OBJECTIONS:

A. Procedural Objections

(1) The Drought Proclamation does not provide the State Water Board with the authority to approve the TUCP.

In the TUCO, the Executive Director alleges the Governor's drought proclamation provides the authority to amend the D-1641 requirements by suspending Water Code section 13247's requirement that water quality plans must be implemented. (TUCO, at 5.) This is not correct. Simply suspending Water Code section 13247 does not provide the State Water Board with authority to change D-1641 requirements.

First, the State Water Board already implemented the water quality objectives. The suspension of Water Code section 13247 may have affected the State Water Board's duty to implement the water quality objectives had the Board not already done so. However, since the State Water Board has already implemented the water quality plan in compliance with section 13247, suspending the implementation requirements does not void any of the implementation actions previously undertaken by the State Water Board. Certainly suspending section 13247 does not change the terms and conditions included in

Reclamation's water right permits. For this reason, the drought proclamation does not provide the State Water Board to approve the TUCP.

Second, the requirement to implement water quality control plans is not only included in the Water Code, but is also required by historic court decisions. Several Courts have reviewed the State Water Board's development and implementation of water quality control plans. These decisions require that water quality objectives be implemented and enforced. In the most recent review, the *State Water Resources Control Bd. Cases* (2006) 136 Cal.App.4th 674 ("*Robie*") an appellate court held that once adopted, the water quality objectives had to be implemented. The Court specifically ruled the State Water Board cannot "make a de facto amendment to a water quality objective in a water quality control plan by simply refusing to take that action that it has identified as necessary to achieve that objective." (*Robie*, at 732.) Thus, *Robie* requires water quality objectives be fully implemented. In addition, *Robie* specifically prohibited amendment of a water quality control plan by failure to meet the objectives. For this reason, requirement that water quality objectives must be implemented is not lifted simply by suspending Water Code section 13247; the requirement also exists in case law.

(2) The Executive Director does not have authority to approve the TUCP.

The Executive Director has not been delegated authority to approve the TUCP. The Executive Director alleges his authority to approve the TUCP is derived from State Water Board Resolution 2012-0029, which "delegates to the Board Members individually and to the Executive Director the authority to hold a hearing, if necessary, and act on a temporary urgency change petition." (Attachment 8 [February 28 Order], at 7.) This is the sole citation in the document for the Executive Director's authority to approve a temporary urgency change petition.

The Executive Director misinterprets Resolution 2012-0029. As reflected in the title: "DELEGATION OF AUTHORITY TO THE STATE WATER RESOURCES CONTROL BOARD MEMBERS INDIVIDUALLY AND TO THE DEPUTY DIRECTOR FOR WATER RIGHTS", Resolution 2012-0029 delegates authority to the Deputy Director, not the Executive Director. (Attachment 9 [Resolution 2013-0029].) The Resolution states, in relevant part, "If the State Water Board receives any objections to a petition for a temporary urgency change, the Deputy Director shall refer the matter to the Executive Director for action under section 2.2." The record does not indicate the Deputy Director has ever referred the objections to the Executive Director.

Even had the Deputy Director made such a referral, Section 2.2 does not authorize the Executive Director to approve temporary urgency change petitions. Rather, this section only provides the Executive Director with a mechanism to address objections to temporary urgency change petitions. The difference between the authority to approve and the authority to address objections is stark and cannot be confused. The Resolution does not confer the authority to approve a protested temporary urgency change petition on either the Deputy Director or the Executive Director.

There is a separate resolution which Delegates authority to the Executive Director. State Water Board Resolution 2012-0061 is entitled "DELEGATION OF AUTHORITY TO THE EXECUTIVE DIRECTOR." (Attachment 10 [Resolution 2012-0061].) Nothing in Resolution 2012-0061 provides authority for the Executive Director to act on a temporary urgency change petition.

To the contrary, section 3.1 of Resolution 2012-0061 states the Executive Director is prohibited from "[a]dopting regulations; except that emergency regulations, once adopted by the Board, may be revised or readopted by the Executive Director." This section does not provide the Executive Director

with the authority to approve temporary urgency petitions. First, the TUCO is not an emergency regulation; an emergency regulation is a rule of general applicability adopted pursuant to Water Code section 1058.5. Second, the State Water Board never adopted the TUCP. For these reasons, section 3.1 does not authorize action by the Executive Director.

Section 8 of Resolution 2012-0061 does not confer the authority to approve a temporary urgency change order either. It states, "[t]he Executive Director may amend, modify, rescind, or revoke any permit, license, certificate, waste discharge requirements, decision, or order if an appellate court opinion published in the official reports establishes that the State Water Board has a ministerial duty to do so." No such court opinion has been published, and thus the Executive Director does not have the authority to modify water rights permits. No other sections from Resolution 2012-0061, besides 3.1 or 8, could in any way be construed as granting the Executive Director the power to approve the TUCP, and as demonstrated above, those sections do not grant the Executive Director this authority.

The Executive Director simply does not have the authority to approve the TUCP, and did not have the authority to approve any of the previous temporary urgency change petitions. For this reason, the existing Orders and the previous versions thereof are invalid and cannot be treated as controlling until the State Water Board takes action.

(3) Ex Parte rules preclude the Executive Director from approving the TUCP and require recusal of State Water Board Members.

The TUCP, related hearings, and order approving or denying the TUCP constitute an adjudicative proceeding. (*Temescal Water Co. v. Department of Public Works* (1995) 44 Cal.2d 90, 100; *See also* Attachment 11 [Office of Chief Counsel, Ex Parte Questions and Answers (Ex Parte Q&A) (April 25, 2013)], at 4.) As such, State Water Board members and the Executive Director are prohibited from receiving communications from Reclamation concerning the TUCP, while the TUCP was pending or impending. (*Mathew Zaheri Corp. v. New Motor Vehicle Bd.* (1997) 55 Cal.App.4th 1305, 1317; Attachment 11 [Ex Parte Q&A], at 6.)

Despite this prohibition, members of the State Water Board, the Executive Director, and State Water Board staff met with Reclamation staff to discuss and craft the TUCP. (*See* Attachment 12 [Letter from William W. Stelle, Jr., Regional Administrator of National Oceanic and Atmospheric Administration, to David Murillo and Mark Cowin, "Re: Drought Operations Plan for the Central Valley Project and State Water Project from April 1 through November 15, 2014" (April 8, 2014)], at 1-2.) These communications between Reclamation, State Water Board members, and the Executive Director constitute impermissible ex parte communications. (Govt. Code, §§ 11430.10(a) & 11430.70(a); *See also* Attachment 11 [Ex Parte Q&A], at 1.) Such prohibited ex parte communications are grounds for disqualification of these State Water Board members and the Executive Director from considering and acting on the TUCP. (Govt. Code, § 11430.60.)

Even if the Executive Officer had authority to issue the TUCO, which he does not, he should have recused himself from reviewing the TUCP and issuing the TUCO. The Executive Director participated in the development of the DOP upon which the TUCP is based. This participation precludes him from being able to provide fair impartial review and issue an unbiased opinion. (Govt. Code, § 11430.60; *Mathew Zaheri Corp. v. New Motor Vehicles Bd.* (1997) 55 Cal.App.4th 1305, 1319; *See* Attachment 11 [Ex Parte Q&A], at 7, 10.)

B. Objections Based on Petition Deficiencies

(1) Reclamation has not established an urgent need.

In order to support its TUCP, Reclamation is required to prove there is an "urgent need" for the requested relief. (Water Code, § 1438.) Reclamation has not, and cannot, show the need for relief from the Vernalis objectives is urgent. To the contrary, Reclamation's inability to meet its requirements is not urgent, but rather, routine. The Vernalis Objectives have not been met since the VAMP program ended in 2011. In 2012, Reclamation failed to meet the April-May requirement and the State Water Board issued a Notice of Violation. In 2013, Reclamation again failed to meet D-1641 requirements. Thus, since VAMP, Reclamation has never complied with Vernalis Objectives.

Further, drought conditions have not caused an urgent need for relief from the Vernalis Objectives. Rather, since their original development, D-1641 successive dry year requirements have been difficult to achieve. Over the past decade Reclamation has informed the State Water Board it is unable to meet D-1641 requirements in successive dry years. (Attachment 13 [United States Department of the Interior, Comments Regarding the California State Water Resources Control Board's Consideration of an Amended Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (November 9, 2006)], at 3, 9, 10.) In 2005, during the review of the Bay Delta Plan, Reclamation provided evidence it could not meet the objectives. Similarly, the SJTA and its members have also provided the State Water Board with evidence that D-1641 requirements are untenable in successive dry years. (*See* Attachment 14 [San Joaquin River Group, San Joaquin River Group Comments on the Draft Environmental Impact Report on the Implementation of the 1995 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary], at 8, 10.) Thus, the need to address D-1641's successive dry year requirements is not urgent, but has been noted often, and is well-documented over the past 20 years.

Finally, any existing urgency is solely the result of Reclamation's own decisions. For example, Reclamation voluntarily accepted the Operations Criteria And Plan (OCAP) Biological Opinion (BO) requirements. These requirements, set forth in Table 2e of the Reasonable and Prudent Alternatives (RPA) for New Melones operations, mandate Reclamation to release significantly more water from New Melones. The decision to accept these conditions cannot be used by Reclamation as a reason it is unable to meet other flow objectives. Reclamation also made the voluntary decision to allocate 88,000 acre feet of contract allocations to its CVP contractors. This allocation was contrary to Reclamation's own Operation Plan for New Melones which called for a 0 percent allocation to New Melones contractors. (Attachment 15 [OCAP BO at 73-75].) The operations plan allocates CVP contractors water based on the New Melones Index. When the New Melones Index is 1.6 million acre feet or less the operations plan provides contractors with 0 percent allocation; this year the New Melones Index is 1.29 million acre feet. Reclamation has not provided any explanation for its decision to increase CVP contractor allocations from 0 to 88,000 acre feet. Regardless of its reasons, Reclamation cannot now rely on its decision to act outside its plan of operations as reason to obtain relief from water quality requirements.

(2) Reclamation has not established relief is necessary or beneficial.

(a) Relief will not benefit Reclamation's New Melones operations.

In its TUCP, Reclamation states that the requested relief will benefit New Melones operations. (TUCP, at 1.) The State Water Board Order relies on this statement as true, despite the lack of supporting evidence provided. As explained below, the relief proposed by Reclamation will not result in any measurable benefit to New Melones operations.

Reclamation has sufficient storage in New Melones to meet this year's Vernalis Objectives, and other water quality objectives for the next four years, even if it receives no inflow during that time. Thus, if Reclamation is able to meet the flow requirements for the next several years, regardless of inflow, it does not appear it needs to increase its operational flexibility.

The benefit from the requested relief is minimal and will not make an operational difference at new Melones. As of April 13, 2014, New Melones held 1,022,239 acre feet of water in storage. (Attachment 16 [CDEC New Melones Levels April 13, 2014].) Projected runoff into New Melones for April and May is 290,000 acre feet. (Attachment 17 [CDEC New Melones Apr/May Runoff].) The D-1641 Vernalis pulse flow requirements for this year would require 3,110 cubic feet per second for 31 days. The relief proposed by Reclamation would exceed the existing requirements for the first 16 days by approximately 6,400 acre feet (3,300 – 3,100 = 200 cubic feet per second per day; 200 x 16 days = 3,200 cfs; 3,200 x 2 = 6,400 acre feet). The next 15 days Reclamation proposes to fall short of the objective by about 48,000 acre-feet (3,100 – 1,500 = 1,600; 1,600 x 15 days = 24,000 cfs; 24,000cfs x2 = 48,000 acre feet). This results in a net savings of approximately 42,000 acre feet of water (48,000 – 6,400 = 41,600).

This incremental water savings will not benefit New Melones operations; it will not appreciably change water storage levels; it will not change Table 2e requirements; it will not improve temperature; it will not improve CVP contract deliveries in 2015; it will not increase salinity releases; and it will not improve senior water right holder allocations. Because relief will not improve New Melones Operations, there is no need for the State Water Board to provide Reclamation with relief from the Vernalis Objectives.

(b) Relief will not improve temperatures on the Stanislaus River.

Reclamation claims that the relief proposed in the TUCP will "improve water temperatures on the Stanislaus River." (TUCP, at 1.) Reclamation does not cite to evidence in the record supporting the allegation that temperature on the Stanislaus will improve.

The DOP includes conflicting and confusing conclusions regarding the impact of the proposed relief on Stanislaus River temperatures. The DOP concedes that the flows proposed by the TUCP will not meet the temperature compliance schedule set forth in the Biological Opinions. (Attachment 18 [DOP Attachment E], at 26.) The Drought Operations Plan then goes on to state that the flows will provide "some summer coolwater refugia". (*Id.*) The DOP does not define what refugia will be provided, nor does it reconcile the violation of temperature requirements with the provision of refugia. Table 2e provides cold water refugia above Orange Blossom Bridge regardless of the TUCO. Therefore, relieving Reclamation from Vernalis Objectives will not assist New Melones operations in providing cold water refugia.

Another error in the TUCO and TUCP is those neither consider nor rely on information developed pursuant to the Stanislaus River Temperature model. Reclamation was a member of the Stanislaus stakeholder group that developed and published the Stanislaus River Temperature Model. The Stanislaus River Temperature Model does not support the allegation that the proposed flows will improve temperatures. The Model predicted that lower water temperatures can be achieved by releasing more water from New Melones in March through May. (*See* Attachment 19 [Stanislaus River Temperature Exceedence Graph].) If Reclamation was required to meet the Vernalis Objectives for the April-May pulse period, water temperatures on the Stanislaus River would be colder further downstream. In contrast,

allowing Reclamation to reduce flows, as shown on the attached Exceedence Graph, causes water temperatures to increase.

Although it does not state so directly, the TUCP seems to indicate that temperature improvements will result from increasing the quantity of water stored in New Melones. (Attachment 18 [DOP Attachment E], at 42.) Increasing water stored in New Melones will not improve temperatures on the Stanislaus River for two reasons. First, maintenance of coldwater pool requires 300,000 acre feet to be stored in New Melones at the end of September. (Attachment 19 [Stanislaus River Temperature Exceedence Graph].) Even if Reclamation met the Vernalis Objectives there would be significantly more than 300,000 acre feet at the end of September. (Attachment 20 [DOP Attachment B], at 2 [50% forecast estimates 597,000 acre feet; 90% forecast estimates 474,000 acre feet].) Second, temperature releases at New Melones are controlled by Table 2e. Table 2e requirements are driven by the New Melones index of storage and projected inflow. The index mandates requirements in increments of 500,000 acre feet. Thus, increasing stored water by approximately 42,000 will not increase the amount of water released from storage pursuant to Table 2e.

(c) Relief will not assist in making water available for salinity control.

Reclamation alleges relief from the Vernalis Objectives will make water available to meet salinity requirements. (TUCP, at 1.) Reclamation's analysis regarding quantity of water required to meet salinity requirements is incorrect. Reclamation was aware of the faulty analysis before filing the TUCP and should have corrected the analysis. Reclamation's failure to correct analysis mischaracterizes the amount of water that will remain stored in New Melones and creates false support for relief requested by the TUCP.

On March 26, 2014, Reclamation held a meeting to discuss New Melones operations and, among other issues, operations necessary to meet salinity requirements. Reclamation provided attendees with the same 90% salinity barrier analysis that is found in Attachment B to the Drought Operations Plan. (Attachment 3 [March 26, 2014 Draft New Melones Operations Plan].) Reclamation indicated the estimated salinity requirements were based on average year flows and did not take into account the significantly dry conditions that exist on the ground. (*Id.*) Reclamation and the other attendees agreed the analysis was not accurate and requested more precise analysis be performed under the direction of Mr. Dan Steiner. Mr. Steiner refined the analysis and provided the analysis to Reclamation on or about March 31, 2014. (Attachment 21 [Steiner EC Analysis Memo].) Mr. Steiner's analysis showed that Reclamation significantly inflated the flows necessary to meet the salinity requirements this year and that the amount of water that would actually be necessary to meet salinity requirements is substantially lower than that projected by Reclamation. Specifically, Mr. Steiner's analysis estimates the amount of water that will be released from the Merced River (50 cfs), the Tuolumne River (100 cfs), and New Melones (150 cfs) and subtracts the estimated depletions from the irrigation districts on the westside of the San Joaquin River. This estimate reflects that little, if any, water will be flowing past Vernalis. Thus, it will take very little Stanislaus River water to dilute the low volume of water at Vernalis, regardless of electrical conductivity (EC) concentration.

The amount of water Reclamation will have to release to meet the salinity objectives this year will be far less than in an average year. For example, based on an average water year, Reclamation estimates it will need to release 564 cfs to meet salinity requirements in June. Mr. Steiner's revised analysis estimates the salinity requirements would not constitute flows greater than Table 2e's minimum requirement of 150 cfs. In the months of June through September, the corrected dry year flows would result in saving more than 59,000 acre feet; significantly more water savings than what would be gained

by the relief proposed in the TUCP. Thus, provided the corrected analysis, the relief requested by Reclamation would not be necessary, but already be provided by the reduced need to release salinity flows.

Further, the record is devoid of any analysis regarding whether the beneficial use protected by salinity flows (south Delta agriculture) will need such protection. Diversions for agriculture in the South Delta are based on claimed riparian, post-1914, and pre-1914 water right claims. Due to dry conditions, the natural flow of water will end at some point this summer, at which time riparian water right holders will no longer be able to divert water. The end of natural flow will also end most pre-1914 water right diversions, due to the few Delta facilities that were constructed before 1914. The dry conditions will also curtail post-1914 water rights as there will be insufficient water in the system to supply these rights. For these reasons, south Delta agriculture is unlikely to have a legal water supply in the summer months. If the salinity requirements are in place to protect a beneficial use that will not exist, Reclamation should consider whether the salinity objective require the release of any water at all.

(d) Relief will not assist in making water available for Vernalis flows later in the year and in subsequent years.

Reclamation alleges that relief from the Vernalis Objectives will "assist in making water available" later and in subsequent years. (TUCP, at 1.) Relief from March through June will not assist in providing increased flow later in the year. The TUCO itself provides relief from the flow requirements later in the year. Thus, saving flow for later in the year when there will be no requirement, and therefore no release of flow, is unnecessary.

(e) Relief will not assist in making water available for the April-May pulse flow.

Reclamation alleges that relief from the Vernalis Objectives will "assist in making water available" for the April-May pulse flow. (TUCP, at 1.) Relief from meeting the Vernalis Objectives will not assist in making water available for the April-May pulse flow. The TUCO provides relief for the April-May pulse flow. Therefore, the April-May pulse flow will not be met. Further, the record does not support the allegation that the few days of relief, starting April 11 to the beginning of the pulse flow period could or does assist in the April-May pulse flow.

(3) Reclamation has not established the relief will not unreasonably affect fish.

Before approving the TUCP, the State Water Board must make a specific finding that it will not have an unreasonable effect on fish and wildlife. (Water Code, § 1435 (b)(3).) The TUCP and supporting documentation do not provide evidence to support a finding by the State Water Board that the relief provided by the TUCP will not unreasonably affect fish and wildlife.

The TUCO states relief "provides for a significant increase in flows" above Biological Opinion requirements. (TUCO, at 6.) However, the TUCO fails to explain or address the fact that relief is allowing less water than required by D-1641 for fish protection. The stated purpose of the D-1641 Vernalis flow objectives for the February through June and April-May pulse flows is to benefit salmon. (D-1641, at 45.) The TUCO must evaluate the reduction in D-1641 flows and conclude it will not unreasonably affect fish and wildlife. The TUCO does not perform this analysis and for this reason the fish conclusions are not supported.

The TUCO states the fish agencies have concurred with the proposal for relief from Vernalis Objectives. This is not correct. The concurrences on the joint DWR/USBR TUCP do not consider or otherwise approve the proposed changes to the Vernalis Objectives. The TUCO states that the Fish Agencies met at the Stanislaus Operations Group (SOG) meeting and approved relief from the Vernalis Objectives. (TUCO, at 4.) The SOG group met on April 9, 2014. (Attachment 22 [SOG Meeting Notes].) The notes from the SOG meeting do not reflect the Fisheries Agencies discussed whether the proposed relief would unreasonably affect fish or wildlife. Instead, the SOG participants only discussed how to shape the reduced flows. It appears the participants assumed the relief would be granted and never analyzed the impact of the reduced flows on fish.

The Drought Operations Plan contains very minimal analysis regarding the fishery impacts of the proposed relief from the Vernalis Objectives. (Attachment 18 [DOP Attachment E].) Attachment E of the Drought Operations Plan addresses the impact of the proposed relief on species that are listed by the Endangered Species Act (ESA). Steelhead is the only ESA-protected species on the San Joaquin River system. Appendix E does not analyze the impacts of the proposed relief upon fall-run. There are no other documents that provide the analysis of impacts to fall-run. This failure is particularly important for relief from Vernalis objectives, since one of the main drivers for the standards is protection of fall-run outmigration.

The record only looks at Vernalis relief in relation to impacts to Steelhead. This analysis is not supported by evidence or fact, but instead on conclusory statements. (*Id.*)

(4) Reclamation has not established the relief requested will not injure legal water users.

Before approving the TUCP, the State Water Board must make a specific finding that it will not injure another legal user of water. (Water Code, § 1435(b)(2).) The TUCP and supporting documentation do not provide evidence to support any such finding. The TUCP states that "other legal users of water should not be injured by this action." This hopeful statement, however, is not supported by any information or documentation. Therefore, the TUCP does not provide sufficient information upon which the State Water Board could make the finding that no legal user of water would be injured. (TUCP, at 3.)

The TUCO concludes "lawful users of water will not be injured by the proposed change because Reclamation will continue to meet modified San Joaquin River flow requirements and adequate flows are expected to remain in the system to meet the demands of other lawful users of water." (TUCO, at 5.) A statement that adequate flows will remain in the system is not the same as analyzing and concluding legal water users will not be injured. In fact, relief from Vernalis flow objectives will harm legal water users. The ability of the State and Federal Contractors to export water is directly dependent on flows at Vernalis. (*See* TUCO, at 7.) Therefore, to the extent the State Water Board provides for relief from meeting Vernalis flows, less water will arrive at Vernalis and limit the amount of water exported. As estimated above, the relief from Vernalis objectives will reduce Vernalis flows by approximately 42,000 acre feet. This means that exports will also be reduced by 42,000 acre feet.

C. Objections Based on Violations of Law

(1) A Temporary Urgency Change Petition is limited to changing the point of diversion or place/purpose of use.

Section 1435 of the Water Code allows permit holders who have an "urgent need to change a point of diversion, place of use, or purpose of use" to file a TUCP with the State Water Board. This section is

very specific and narrow. It allows a permit holder to change the point of diversion, place or purpose of use; it does not provide a mechanism to change water quality conditions on a water right permit.

A separate Water Code section regulates the revision of the conditions upon water right permits. (Water Code, § 1391.) Section 1391 states the right to divert water is subject to the conditions included in the water right permit. It authorizes the amendment, revision, or deletion of conditions of a water right permit only when the State Water Board has reserved jurisdiction based on a finding that there is not sufficient information to determine which conditions are necessary to reasonably protect vested rights. (Water Code, § 1394.) The permits at issue do not include such reserved jurisdiction. To the contrary, the conditions which limit the water rights at issue were put in place after the development of the Bay Delta Plan and significant collection and analysis of information.

(2) A Temporary Urgency Petition cannot be used to change water quality objectives.

Reclamation is attempting to use the TUCP process to review its obligation to meet the Vernalis water quality objectives. Specifically, Reclamation states the State Water Board "cannot reasonably or sustainably rely solely on project water supplies in New Melones Reservoir . . . to meet the Vernalis pulse flow requirements on the lower San Joaquin River." (TUCP, at 2.) Further, Reclamation goes on to characterize the proposed modification as a flow regime that "represent[s] a reasonable contribution from New Melones." (*Id.*, at 2.) Reclamation appears to be attempting to reallocate responsibility for meeting the Vernalis Objectives. A TUCP cannot be used as a tool to review water quality objectives or the implementation thereof. (Water Code, § 13244; See also *United States v. State Water Resources Control Bd.* (1986) 182 Cal.App.3d 82, 112 [holding water quality objectives must be established through the State Water Board's quasi-legislative powers].) When it implemented the 1995 Bay Delta Plan and revised the Plan in 2006, the State Water Board weighed and balanced competing needs and water right priority to determine Reclamation's obligation. Reclamation did not challenge the implementation of these requirements when they were adopted and implemented through amending its water right permits. Reclamation may challenge the validity of its existing obligations by participating in the State Water Board's ongoing review of the Bay Delta Plan or directly seeking review of the D-1641 requirements. It may not attempt to revise its obligations through a TUCP process.

(3) The TUCP violates the requirement that WQCPs must be implemented.

When the State Water Board adopted the water quality objectives in 1995 and revisited them in 2006, it considered the impacts the requirements would have in dry years and successive dry years. After setting these objectives, the State Water Board developed a plan to implement them. In each of these steps (setting and implementing), the State Water Board evaluated the impacts of the objectives in successive dry years and determined these impacts were acceptable by adopting the requirements.

Once the State Water Board has adopted a water quality control plan, the objectives in the plan must be fully implemented. (Water Code, § 13247; *Robie*, at 729.) The decision in *Robie* was clear that once a requirement is included in a water quality control plan it must be implemented or revised through amending the water quality control plan – no requirement may go unimplemented. (*Robie*, at 732.)

The TUCO attempts to provide relief from the D-1641 requirements without amending the water quality control plan. Neither the water quality control plan nor the *Robie* decision allow for such relief. To the contrary, *Robie* specifically determined that changing the requirements of a water quality control plan without amending the plan is unlawful and amounts to a failure to implement the plan. (*Id.*) For this

reason, the TUCP cannot be used to provide relief from D-1641 requirements, and such relief amounts to a failure to fully implement the Bay Delta plan.

(4) A Temporary Urgency Change Petition cannot cure a violation of a water quality objective retrospectively.

A TUCO cannot retrospectively provide relief from the violation that has already occurred. (Order WR 2009-0013; TUCO, at 5.) Reclamation requested relief from conditions on its water rights on April 9, 2014, after it had been violating the permit conditions for more than a month. The TUCO did not provide relief for the ongoing violations at the time of the request for relief. (TUCO, at 5.)

The State Water Board is required to "take vigorous action to enforce the terms and conditions of permits." (Water Code, § 1825.) Reclamation's right to divert water was, and is, limited by the terms and conditions included in the permit. (Water Code, § 1381.) The TUCO does not indicate the State Water Board Plans to take any action in response to Reclamation's violations. Instead, the TUCO sets a dangerous precedent; the approval of the TUCP encourages water right holders to violate permit requirements and request forgiveness after such violation.

(5) A Temporary Urgency Change Petition cannot require non-petitioning parties to transfer water as mitigation.

In the DOP, DWR and Reclamation propose to mitigate injury to Steelhead caused by relief from the export/inflow ratio by making "an amount of water equivalent to half the volume of increased exports realized over the April/May 2014 period available to provide for a larger pulse flow." (Attachment 18 [DOP Attachment E], at 24 [emphasis added].) The DOP states that the releases would come "from some source within the San Joaquin River Basin in addition to the Appendix 2-E flows or that required to meet in-river regulatory obligations on the other tributaries" in "a future year." (*Id.*)

Neither DWR nor Reclamation has the authority to promise flow will be provided by "some source within the San Joaquin River Basin." DWR does not hold water rights or operate facilities in the San Joaquin River system. Reclamation operates New Melones on the Stanislaus River. Reclamation may obligate itself to provide increased fish flows. However, Reclamation does not have the authority to export water. Because the future flows would be for the purpose of mitigating increased exports, it is questionable whether Reclamation would have the authority to offer such mitigation. (*U.S. v. State of Cal., State Water Resources Control Bd.* (9th Cir. 1982) 694 F.2d 1171, 1172 [New Melones permits place of use do not include export areas; Reclamation has not yet determined water is available for out of basin demand].)

Regardless of its authority, the mitigation language does not indicate Reclamation is obligating itself to provide the future flows. Rather, Reclamation expects some other party in the system will provide future mitigation flows. This is outrageously presumptuous and unlawful. Neither DWR nor Reclamation has the authority to require releases or water transfers. To the extent DWR and Reclamation are relying on arranging a future water purchase or transfer, the language of the DOP should be revised to reflect this. In addition, if this is the case, the DOP should be revised to analyze whether relying on transfer in the first year that is considered "dry" or better is reasonable.

(6) State Water Board's failure to respond to objections is unlawful.

The State Water Board approved the original TUCP on January 31, 2014. In response to the January Order, several parties filed objections and protests. The State Water Board did not hold a hearing or otherwise respond to the objections. In response to a request for revision, the State Water Board revised its approval of the TUCP on March 18, 2013. Again, in response to this approval, several parties filed objections and again the State Water Board has yet to respond to the objections. On April 9, 2014, Petitioners made two requests to further modify the TUCP. The State Water Board approved one request on April 9 and the other on April 11, 2014. In its TUCO, the State Water Board makes clear "This Order does not specifically address the comments, objections and petitions for reconsideration received to date, but may touch on issues raised in those documents. As necessary, actions will be taken to address the objections and petitions for reconsideration at a later date." (TUCO, at 5.)

The State Water Board is obligated to "give prompt consideration to any objection." (Water Code, § 1438(d).) The State Water Board has not given prompt consideration to the objections and protests. There are many outstanding issues from the objections to the January Order, the February Orders, the March Order and now the April Orders that have not been considered or otherwise addressed. Some of the issues are no longer relevant because the State Water Board failed to respond and the approved actions have been completed. Other issues remain outstanding. In both of these circumstances, the State Water Board failed to respond properly. The State Water Board's failure to address these outstanding objections violates Water Code section 1438's requirement of prompt consideration.

III. ACTIONS AVAILABLE TO CURE OBJECTIONS:

A. The State Water Board should reaffirm Reclamation's obligations pursuant to D-1641.

Since VAMP ended, Reclamation has taken the position it is not responsible for meeting D-1641's water quality requirements at Vernalis. (Attachment 23 [Reclamation letter to Craig Wilson dated August 8, 2012].) Further, in its request for relief from the Vernalis Objectives, Reclamation "respectfully maintains its position that the Board cannot reasonably or sustainably rely solely on project water supplies in New Melones Reservoir, on the Stanislaus River, to meet the Vernalis pulse flow requirements on the San Joaquin River." (TUCP, at 2.)

The SJTA requests the State Water Board revise the TUCO to clarify that Reclamation is obligated to meet the Vernalis flow requirements until such time as they are lawfully amended. The SJTA makes this request for two reasons. First, the authority of the State Water Board to provide relief in this TUCP must be clear. Reclamation does not believe it is required to meet D-1641 requirements, yet it seeks relief from any perceived requirement. The State Water Board cannot provide relief to Reclamation if Reclamation has no obligation. If the State Water Board is to provide relief, it must do so only after it has identified the requirements that bind Reclamation and defined the nature and extent of relief it will provide.

Second, D-1641 will be in place until the State Water Board is able to complete a full review of the Bay Delta Plan and implement any changes that may result from the review. If history is any measure, the review, adoption of changes, and implementation could take decades. During this time period, it is imperative that Reclamation, the State Water Board, and other interested stakeholders understand and abide by the requirements of D-1641.

D-1641 was very clear that Reclamation was responsible for meeting the water quality objectives at Vernalis. (Attachment 24 [Table 3 of the 2006 Bay Delta Plan].) After D-1641 was adopted, Reclamation and members of the SJTA entered into the San Joaquin River Agreement which

implemented VAMP. VAMP was a program in which Reclamation purchased water from the SJTA member agencies in order to meet its D-1641 requirements. When VAMP ended in 2011, Reclamation and the SJTA members were unable to extend the terms of VAMP, and Reclamation remained responsible for meeting the D-1641 requirements.

The year after VAMP ended, Reclamation failed to meet D-1641 requirements. In response, the Delta Watermaster issued a Notice of Violation. (Attachment 1 [Notice of Violation].) The Notice of Violation reaffirmed that Reclamation was responsible for meeting D-1641 requirements. In response to the Notice of Violation, Reclamation questioned the authority under which the Notice of Violation was issued and stated the State Water Board's allegation it was "solely responsible" to meet the D-1641 requirements was "not supported by any rational basis." (Attachment 23 [Reclamation letter to Craig Wilson dated August 8, 2012], at 2.) From this exchange, the Delta Watermaster and Reclamation agreed to work together to ensure D-1641 requirements were met going forward. (Attachment 25 [Watermaster Letter of September 4, 2012].) In 2013, the Delta Watermaster and Reclamation met several times regarding D-1641 compliance. Reclamation made efforts to meet D-1641 requirements, but fell just short of compliance. No action was taken in response to the violation of the D-1641 objective.

Although its legal obligations are clear, Reclamation is attempting shirk these responsibilities through sustained non-compliance and denial of obligation. The SJTA requests the State Water Board amend the TUCO to ensure the record clearly reflect Reclamation is responsible for the Vernalis Objectives.

B. The State Water Board should include successive dry year relief in its proposed Phase 1 Lower San Joaquin River Objectives.

In the Phase 1 review of the Bay Delta Plan, the State Water Board has proposed San Joaquin River flow requirements that do not include dry-year off ramps. (Attachment 26 [Substitute Environmental Document in Support of Potential Changes to the Water Quality Control Plan for the San Francisco Bay-Sacramento/San Joaquin Delta Estuary: San Joaquin River Flows and Southern Delta Water Quality, Appx. K], at 1 of 11.) As the current requests and approvals demonstrate, successive dry year relief should be included in the San Joaquin River flow proposal. The SJTA requests the State Water Board amend the TUCO to include a commitment the State Water Board will develop and analyze the impacts of dry-year off-ramps in the San Joaquin River flow requirements proposed in Phase 1.

C. The State Water Board should agree to forego curtailment action on the San Joaquin River.

The State Water Board sent out a notice of potential curtailment action on January 17, 2014. (Attachment 2 [January 17, 2004 Curtailment Notice].) Since that time, the State Water Board has been considering and preparing to take curtailment notices on the San Joaquin River system. At the same time, the State Water Board has been reviewing and approving changes to the most junior water rights on the San Joaquin River system that relieve these junior water holders from satisfying the conditions of their water rights which require they release water into the San Joaquin River system.

The rules of water right priority require the most junior water user to curtail all diversion of water before senior water users. (*El Dorado Irrigation Dist. v. State Water Resources Control Bd.* (2006) 142 Cal.App.4th 937, 965.) Usually the release of water from storage is not regulated by water permit or license. However, Reclamation's water rights permits are conditioned to require the release of water from storage when necessary to satisfy D-1641 requirements. Therefore, the most junior water right on the San Joaquin River system requires the release of water from storage.

Because this provision is included in Reclamation's water right and Reclamation's water right is the most junior on the San Joaquin River system, the State Water Board cannot both provide relief from the conditions of the water right permit of the most junior water user and attempt to curtail senior water rights. For this reason, the TUCO ties the State Water Board's hands and prohibits it from taking any further curtailment action in the San Joaquin River system. The SJTA requests the State Water Board agree to forego curtailment action on the San Joaquin River system until such time as Reclamation meet the Vernalis Objectives.

a. STATEMENT OF SERVICE:

This Protest has been served by email upon the State Water Board, Reclamation and the Department of Water Resources as follows:

State Water Resources Control Board
c/o Michael Buckman
P.O. Box 2000
Sacramento, CA 95812-2000
Michael.Buckman@waterboards.ca.gov

Regional Solicitor's Office
c/o Amy Aufdemberge
2800 Cottage Way, Rm. E-1712
Sacramento, CA 95825
Amy.Aufdemberge@sol.doi.gov

U.S. Bureau of Reclamation
Paul Fujitani
3310 El Camino Ave., Room 300
Sacramento, CA 95821
pfujitani@usbr.gov

Dated: April 21, 2014

O'LAUGHLIN & PARIS, LLP

By: _____
TIM O'LAUGHLIN, Attorneys for the
SAN JOAQUIN TRIBUTARIES AUTHORITY

ATTACHMENT

1

CALIFORNIA
Water Boards

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

State Water Resources Control Board

July 18, 2012

Pablo R. Arroyave, Deputy Regional Director
U.S. Bureau of Reclamation
Mid-Pacific Regional Office
2800 Cottage Way
Sacramento, CA 95825-1898

Dear Mr. Arroyave:

NOTICE OF VIOLATION, UNITED STATES BUREAU OF RECLAMATION (USBR)

Notice is hereby given that you have violated the requirements of State Water Board Water Rights Decision 1641 (D-1641) to provide requisite spring pulse flow amounts in the San Joaquin River at Vernalis.

Pulse Flow Requirement

The 2006 Bay-Delta Water Quality Control Plan established spring pulse flow water quality objectives for the protection of fish and wildlife beneficial uses (Table 3, 2006 Plan). At the compliance location on the San Joaquin River at Vernalis, flows are required to be at 3,110 or 3,540 cubic feet per second (depending on the water year type) from April 15 – May 15. Based on this year's water designation, the flow requirement was 3,540.

USBR is required to meet these objectives pursuant to the water right permit for New Melones storage (D-1641), D-1641 provided as follows:

2. Permittee shall, on an interim basis until the Board adopts a decision assigning permanent responsibility for meeting the water quality objectives:

    a. Ensure that the water quality objective for fish and wildlife beneficial uses for San Joaquin River flow at Airport Way Bridge, Vernalis set forth in Table 3 is met, with the exception that during the April-May pulse flow period while the SJRA is in effect, experimental target flows set forth in (b) below may be provided in lieu of meeting this objective.

The SJRA agreement expired in 2011 and is no longer in effect. If it had still been applicable, the pulse flow requirement for this year would have been 3,200. By letter dated May 4, 2012, USBR took the position that the SJRA alternative requirements were still in effect and indicated it would provide such flows.

Permit Violation

In fact, USBR did not maintain pulse flows consistent with either the Table 3 objectives (3,540) or the SJRA alternative requirements (3,200). The average April 15 – May 15 Vernalis flows were 3,092. Accordingly, USBR was in violation of both the pulse flow objectives and the alternative requirement.

Corrective Action

To avoid future violations, the process established in the 2006 Plan should be followed in 2013 and thereafter until such time as the Plan is amended:

The pulse flow and time period of the pulse will be scheduled by the DWR and USBR in consultation with the applicable fishery agencies. The time schedule is subject to the approval of the Executive director of the State Water Board (Footnote 15, Table 3, 2006 Plan).

Consequences For Not Taking Corrective Action In 2013

Failure to establish and maintain required pulse flows in 2013 may subject the USBR to appropriate enforcement action.

If you have any questions regarding this notice, please contact me at (916) 445-5962 or by email at cwilson@waterboards.ca.gov.

Sincerely,

Craig M. Wilson
Delta Watermaster

cc: Allen Short
General Manager
Modesto Irrigation District
1231 Eleventh Street
P.O. Box 4060
Modesto, CA 95352

Phillip R. McMurray
General Counsel
Merced Irrigation District
744 West 20th Street
Merced, CA 95344-2088

Tom Howard
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95812-0100

Doug Obegi
Staff Attorney
Water Program
Natural Resources Defense Council
111 Sutter Street, 20th Floor
San Francisco, CA 94104

Chairman Charles Hoppin
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95812-0100

Barbara Evoy
State Water Resources Control Board
P.O. Box 2000
Sacramento, CA 95812-2000

Continued on next page.

Les Grober
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Erin Mahaney
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Diane Riddle
State Water Resources Control Board
P.O. Box 2000
Sacramento, CA 95812-2000

ATTACHMENT

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CALIFORNIA
Water Boards

State Water Resources Control Board

January 17, 2014

NOTICE OF SURFACE WATER SHORTAGE AND POTENTIAL FOR CURTAILMENT OF WATER RIGHT DIVERSIONS

With California facing water shortfalls in the driest year in recorded state history, Governor Edmund G. Brown Jr. has proclaimed a State of Emergency and directed state officials to take all necessary actions to prepare for these drought conditions.

The State Water Resources Control Board (State Water Board) administers California's water rights system and is closely monitoring water availability. The water rights system is designed to provide for the orderly allocation of water supplies in the event that there is not enough water to satisfy everyone's needs. In the coming weeks and months, if dry weather conditions persist, the State Water Board will notify water right holders in critically dry watersheds of the requirement to limit or stop diversions of water under their water right, based on their priority. The right to divert surface water in California is based on the type of right being claimed and when the right was initiated. In times of drought and limited supply, the most recent ("junior") right holder must be the first to discontinue use. Some riparian[1] and pre-1914[2] water right holders may also receive a notice to stop diverting water if their diversions are downstream of reservoirs releasing stored water and there is no natural flow available for diversion.

If you are in a water short area, you should be looking into alternative water supplies for your water needs. Alternative supplies include groundwater wells, purchased water supplies under contractual arrangements, and recycled wastewater. Water right holders are cautioned that groundwater resources are significantly depleted in some areas. Water right holders in these areas should make planting and other decisions accordingly.

We hope that significant precipitation occurs in the next few months and the need to curtail water diversions is unnecessary. However, this notice is to encourage you to plan ahead. Whether you are a water right holder or a residential or business customer of a water service provider, all of California's water users are urged to conserve and use water wisely.

For more information, go to: Drought State of Emergency
State Water Board Drought Information

[1] Riparian rights entitle the landowner to use a share of the water flowing past their property. While riparian rights require no permits or licenses, they apply only to the water that would naturally flow in the stream and they do not allow the user to divert water for storage or use it on parcels that are not adjacent to the stream or on land that is outside its watershed.

[2] An appropriative water right is one obtained for the use of water on non-riparian land, for diversion to storage, or otherwise beyond what can be done under a riparian right. An appropriative right claimed before 1914 is referred to as a "pre-1914 appropriative water right" and is not subject to permit or license requirements. Water right permits and licenses issued after 1914 by the State Water Board and its predecessors are referred to as "post-1914 appropriative water rights".

ATTACHMENT

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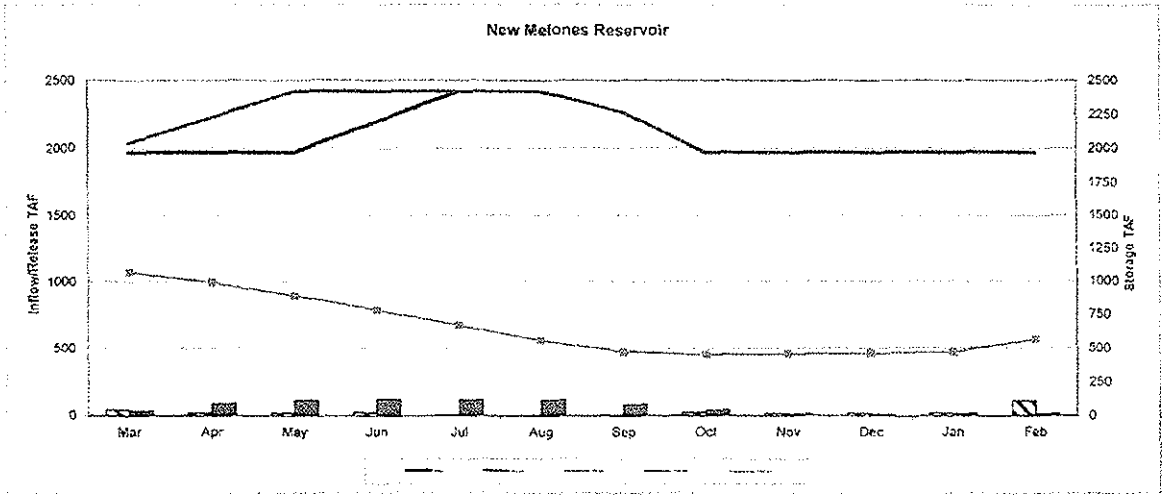
		Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
New Melones													
Inflow		45	23	21	22	9	7	6	25	20	20	20	110
Est. Evap.		1.5	2.9	3.6	3.9	4.7	4.0	3.0	1.4	0.6	0.4	0.7	0.6
Total Release		39	91	117	124	121	116	88	43	35	34	34	35
Tull. Stor.		58.5	62.6	67.0	67.0	67.0	67.0	63.8	57.0	57.0	57.0	57.0	57.0
Goodwin - cfs		368	755	722	564	425	346	240	577	200	200	213	214
Goodwin - TAF		23	29	25	34	26	21	14	35	12	12	13	12
OID/SSJID		12	51	76	56	80	80	63	12	0	0	0	0
CVP Contractors		3	7	11	14	15	15	14	3	3	2	1	1
Storage	1060	1064	994	894	789	672	559	474	454	459	464	469	566
Elevation (feet)		951	942	927	911	891	870	852	847	849	850	851	871
Area (acres)		7466	7466	7175	6701	6212	5623	5032	4548	4417	4469	4495	4521
S. J. above Stan - TAF		40	52	51	29	29	26	32	71	62	63	63	70
S. J. @ VNS. - cfs		1019	1355	1240	1051	897	769	778	1232	1242	1225	1238	1475



ATTACHMENT

4

Terri Brooks

From: Terri Brooks on behalf of Tim O'Laughlin
Sent: Friday, March 21, 2014 9:28 AM
To: 'Felicia Marcus'; fweber@waterboards.ca.gov; TDoduc@waterboards.ca.gov; smoore@waterboards.ca.gov; 'DeeDee D'Adamo'
Subject: Goodwin Release Change

Dear State Water Board Members,

Please see the email thread below.

Thanks, Tim

From: Tim O'Laughlin
Sent: Friday, March 21, 2014 9:13 AM
To: Craig Wilson (CWilson@waterboards.ca.gov)
Cc: Howard, Tom@Waterboards (Tom.Howard@waterboards.ca.gov)
Subject: FW: Goodwin Release Change

If the Bureau is already been under the flow standard for the month and the Bureau is cutting back, not increasing flow from New Melones how will the Feb-June flow objective for Vernalis be meet in the month of March.
There is no TUCP for the flow objective or order relieving the USBR of its obligation to meet the standard.

From: MORSTEIN-MARX, THOMAS [mailto:tmorsteinmarx@usbr.gov]
Sent: Thursday, March 20, 2014 9:10 AM
To: andreafuller@fishbio.com; Chu, Andy; Sandhu, Amerit; Giorgi, Bryant; brian@kiblers.com; COE Distribution List; chari.caglia@sbcglobal.net; chrisbecker@fishbio.com; clarkw@fishsciences.net; cnrfc@noaa.gov; Colin.Purdy@wildlife.ca.gov; cuthbert_patrick@yahoo.com; cvpassn@aol.com; DWR Dispatchers; dougdemko@comcast.net; Duane.Johnson@usace.army.mil; David Voortman; dwrflood@water.ca.gov; etaylor@water.ca.gov; ganderso@water.ca.gov; gregg@aorafting.com; Jason@TriDamProject.com; jasonfaridi@fishbio.com; jasonguignard@fishbio.com; jerhart1@pacbell.net; jhirabay@water.ca.gov; jkulpa@fielddata.biz; jmartin@aplustours.com; John Wikert; johnmontgomery@fishbio.com; JTankersley@ci.oakdale.ca.us; jtapia@water.ca.gov; kdh@volcano.net; kelly.flnn@noaa.gov; kharrigfeld@herumcrabtree.com; kirstens@fishsciences.net; Leahigh, John; lisa.dolling@usace.army.mil; mark.bettencourt@water.ca.gov; mbotto@ci.oakdale.ca.us; michael.a.carilli@usace.army.mil; miles.bettencourt@cdcr.ca.gov; Miller, Aaron; mnraineri@yahoo.com; White, Molly; OCO Export Management Group-DWR; operator@TriDamProject.com; pautry@scfpd.us; rfields@ci.oakdale.ca.us; Roger Guinee; s.wucherer@sbcglobal.net; smccarthy@oakdale.k12.ca.us; WAPA-Group; srknell@oakdaleirrigation.com; sschubert@dfg.ca.gov; STACEY SMITH; Bui, Tuan; tbuzzini@clearwire.net; Ttownsend@tridamproject.com; wintonorfd@sbcglobal.net; workin4peanuts@aol.com; Yin, Wenli; Audrey Merriweather; Barbara Byrne - NOAA Federal; BARRY MORTIMEYER; Ben Griffith; BOR CVO-400 EMPLOYEES; BOR CVO-650 EMPLOYEES; BOR MPR All Public Affairs Employees MP-140; Chris Campbell; Chrissy Sonke; Craig Anderson; Dan Pope; Daniel Steiner; Daniel Strait; David LeBlanc; Derek Hilts; Dirk Vermeulen; Elizabeth Kiteck; ELIZABETH VASQUEZ; EMMETT CARTIER; Gary Barton; Giudice, Domenic; Hank Bizz; Jackson, Zachary; Jesse Anderson; Jim Inman; john roeser; Jonathan Summerfield; joseph duncan; LARRY ANDERSON; Mike Doyle; Patricia L Clinton; Pettit, Tracy; Ramon Martin; Robert Adair; Robert Hilldale; Ron Berry; RONALD MILLIGAN; ROSEMARY STEFANI; Ryan Cuthbert; Shahcheraghi, Reza; Shiloh Foust; Singh, Amardeep; Tim Heyne; Tim O'Laughlin; Tom Boardman; Tran, Loi; Wilbur, Ryan; Yamanaka, Dan; Zach Gardner
Subject: Goodwin Release Change

Please make the following release changes at Goodwin Dam:

Date	Time	From(CFS)	To(CFS)
3/23/14	0100	475	425

Vernalis EC

Terri Brooks

From: Terri Brooks
Sent: Tuesday, March 25, 2014 10:12 AM
To: Tom Howard ; Tam Doduc ; Felicia Marcus; DeeDee D'Adamo; Fran Spivy-Weber; Steven Moore
Subject: FW: Vernalis Flow Objectives

Dear State Water Board Members,

Mr. O'Laughlin requested I forward the following email thread to the State Water Board members. Please let me know if I can be of further assistance to you-

Thank you,
Terri Brooks

From: Tim O'Laughlin
Sent: Tuesday, March 25, 2014 8:56 AM
To: 'Wilson, Craig@Waterboards'
Subject: RE: Vernalis Flow Objectives

Well the end of the month is almost here and Vernalis is now below 700 cfs. So, based on your discussions with "project folks" how is the Bureau planning to get into compliance? Are you going to issue the Bureau a CDO for this violation?

From: Wilson, Craig@Waterboards [mailto:Craig.Wilson@waterboards.ca.gov]
Sent: Wednesday, March 19, 2014 9:56 AM
To: Tim O'Laughlin
Subject: RE: Vernalis Flow Objective

Hi Tim,
The SJR flow objective is 1140 cfs for 29 days in March and 710 for the remainder. Since it is a monthly average, they are not out of compliance until the end of the month. We will be talking to the Project folks about this issue in the next few days.
Craig

Craig M. Wilson
Delta Watermaster
916-445-5962
cwilson@waterboards.ca.gov

From: Terri Brooks [mailto:tbrooks@olaughlinparis.com] **On Behalf Of** Tim O'Laughlin
Sent: Tuesday, March 18, 2014 9:45 AM
To: Wilson, Craig@Waterboards
Cc: Howard, Tom; Trgovcich, Caren@Waterboards; Marcus, Felicia@Waterboards; Spivy-Weber, Frances@Waterboards; Doduc, Tam@Waterboards; Moore, Steven@Waterboards; Dadamo, Dorene@Waterboards
Subject: Vernalis Flow Objectives

Dear Mr. Wilson:

Thank you for your response to our email inquiry regarding the Vernalis flow objectives. In your response, you stated that you "believed" the requirement was 710 cfs. Can you please provide us with the information upon which your "belief" is based?

The reason we are asking is because our numbers show the current requirement to be 1,120 cfs. The Department of Water Resources ("DWR") and the United States Bureau of Reclamation ("Reclamation") have sought relief from meeting the Delta outflow objective. It is our understanding the requirement is 11,200 cfs. Relief to meeting more of the objective does not change the Water Quality Control Plan's objective. Thus, while DWR and Reclamation's outflow obligation may go to 7,100 cfs, this does not change the objective.

The San Joaquin River flow objective has not changed. It is 1,120 cfs. Reclamation has not pursued relief from the objective, nor has the State Water Resources Control Board's Temporary Urgency Change Petition ("TUCP") Order granted Reclamation such relief. So, while the implementation of Delta outflow has changed due to the TUCP Order, it does not change the San Joaquin River flow objective, nor the obligation of Reclamation to meet that objective.

Tim O'Laughlin
O'Laughlin & Paris LLP
2617 K St., Suite 100
Sacramento, CA 95816
916-993-3962 (tel)
916-993-3688 (fax)
towater@olaughlinparis.com
www.olaughlinparis.com

Terri Brooks

From: Wilson, Craig@Waterboards <Craig.Wilson@waterboards.ca.gov>
Sent: Monday, March 31, 2014 11:23 AM
To: Tim O'Laughlin
Subject: RE: Goodwin Release Change

We will know for sure on 4/1 that the March flow objective was not met. I will be considering how to exercise enforcement discretion. I will not wait until after April/ May to decide what to do. Pretty sure the Board will get a Petition seeking modification of both the pulse and shoulder SJR objectives for at least Apeil/May.

From: Tim O'Laughlin [towater@olaughlinparis.com]
Sent: Monday, March 31, 2014 11:11 AM
To: Wilson, Craig@Waterboards
Cc: Howard, Tom
Subject: FW: Goodwin Release Change

Can you please inform us of what action the Delta Watermaster will be taking for the Bureau's violation of the February flow objective at Vernalis?
Also, no Temporary Urgency Change Petition has been filed by the Bureau for relief from the April-May pulse flow objective at Vernalis. The Bureau has made it clear in numerous public forums, just last Friday I believe M. Howard was on a call and Mr. Murillo from the Bureau stated, the Bureau would not meet the April-May pulse flow. Is the Delta Watermaster going to wait until after the April-May objective is violated to seek enforcement?
Your earliest responses to these questions would be appreciated, so my clients can evaluate what they may need to do.

From: MORSTEIN-MARX, THOMAS [mailto:tmorsteinmarx@usbr.gov]
Sent: Monday, March 31, 2014 9:02 AM
To: andreafuller@fishbio.com; Chu, Andy; Sandhu, Amerit; Giorgi, Bryant; brian@kiblers.com; COE Distribution List; chari.caglia@sbcglobal.net; chrisbecker@fishbio.com; clarkw@fishsciences.net; cnrfc@noaa.gov; cuthbert_patrick@yahoo.com; cvpassn@aol.com; DWR Dispatchers; dougdemko@comcast.net; Duane.Johnson@usace.army.mil; David Voortman; dwrflood@water.ca.gov; etaylor@water.ca.gov; ganderso@water.ca.gov; gregg@aorafting.com; Jason@TriDamProject.com; jasonfaridi@fishbio.com; jasonguignard@fishbio.com; jerhart1@pacbell.net; jhirabay@water.ca.gov; jkulpa@fielddata.biz; jmartin@aplustours.com; John Wikert; johnmontgomery@fishbio.com; JTankersley@ci.oakdale.ca.us; jtapia@water.ca.gov; kdh@volcano.net; kelly.finn@noaa.gov; kharrigfeld@herumcrabtree.com; kirstens@fishsciences.net; Leahigh, John; lisa.dolling@usace.army.mil; mark.bettencourt@water.ca.gov; mbotto@ci.oakdale.ca.us; michael.a.carilli@usace.army.mil; miles.bettencourt@cdcr.ca.gov; Miller, Aaron; mnraineri@yahoo.com; White, Molly; OCO Export Management Group-DWR; operator@TriDamProject.com; pautry@scfpd.us; rfields@ci.oakdale.ca.us; Roger Guince; s.wucherer@sbcglobal.net; smccarthy@oakdale.k12.ca.us; WAPA-Group; srknell@oakdaleirrigation.com; sschubert@dfg.ca.gov; STACEY SMITH; Bui, Tuan; tbuzzini@clearwire.net; Ttownsend@tridamproject.com; wintonorfd@sbcglobal.net; workin4peanuts@aol.com; Yin, Wenli; Audrey Merriweather; Barbara Byrne - NOAA Federal; BARRY MORTIMEYER; Ben Griffith; BOR CVO-400 EMPLOYEES; BOR CVO-650 EMPLOYEES; BOR MPR All Public Affairs Employees MP-140; Chris Campbell; Chrissy Sonke; Colin Purdy; Craig Anderson; Dan Pope; Daniel Steiner; Daniel Strait; David LeBlanc; Derek Hilts; Dirk Vermeulen; Elizabeth Kiteck; ELIZABETH VASQUEZ; EMMETT CARTIER; Gary Barton; Giudice, Domenic; Hank Bizz; Jackson, Zachary; Jay S Emami; Jesse Anderson; Jim Inman; john roeser; Jonathan Summerfield; joseph duncan; Kody Simons; LARRY ANDERSON; Mike Doyle; Patricia L Clinton; Pettit, Tracy; Ramon Martin; Robert Adair; Robert Hilldale; Ron Berry; RONALD MILLIGAN; ROSEMARY STEFANI; Ryan Cuthbert; Shahcheraghi, Reza; Shiloh Foust; Singh, Amardeep; Tim Heyne; Tim O'Laughlin; Tom Boardman; Tran, Loi; Wilbur, Ryan; Yamanaka, Dan; Zach Gardner
Subject: Goodwin Release Change

Please make the following release changes at Goodwin Dam:

Date	Time	From(CFS)	To(CFS)
3/31/14	1300	225	200

NOAA Appendix 2E Minimums

ATTACHMENT

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United States Department of the Interior

BUREAU OF RECLAMATION
Central Valley Operations Office
3310 El Camino Avenue, Suite 300
Sacramento, California 95821

IN REPLY
REFER TO:

CVO-100
WTR 4.10

APR 09 2014

Mr. Thomas Howard
Executive Director
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

Dear Mr. Howard,

Subject: Vernalis Change Petition

The Bureau of Reclamation (Reclamation) is requesting a modification of Table 3 of Water Rights Decision 1641 (D-1641), River Flows for the San Joaquin at Vernalis for the months of March through June 2014. This request is made in connection with Reclamation and California Department of Water Resources' January 29, 2014 petition, with modifications dated March 18, 2014 (Petition) for modifications to D-1641 in response to severe drought conditions. This request includes both the "base" flows from March 1 to April 14 and May 16 through June 30, and the spring "pulse" flows April 15 to May 15. This request is also consistent with the Central Valley Project (CVP) and State Water Project (SWP) Drought Operations Plan and Operational Forecast (attached) which provides a complete description of the current and projected hydrologic conditions and actions proposed to balance multiple needs in a third dry year.

Many San Joaquin River indicators are now running near 1977 levels. DWR's April 1, 2014, runoff forecast indicates that the San Joaquin Valley Index will most likely be classified as "critical" this year. The indices for the 99% through 10% exceedence forecasts all fall under the critical classification. Unimpaired inflow forecasts for the major tributaries to the San Joaquin River are only about a third of the historical average or less at the 50% exceedence level. Reservoir storage at New Melones Reservoir, Don Pedro Reservoir, and Lake McClure, are only at about 68%, 74%, and 42% of average for this date.

Granting relief for the base flow requirements for March through June will improve storage conditions at New Melones Reservoir which will improve water temperatures on the Stanislaus River and will assist in making water available for salinity control at Vernalis, Vernalis flows later in the year and in subsequent years, and the April to May pulse flow, discussed below.

Specifically, Reclamation requests that D-1641, River Flows for the San Joaquin at Vernalis be modified as follows:

- The monthly average for March base flows – 710 cubic feet per second (cfs)

- From April 1 to the start of the pulse flow period – maintain at or above 700 cfs for base flow (3-day running average)

- For the 31-day pulse flow period, create a 16-day pulse averaging 3,300 cfs with flows averaging 1,500 cfs for the remainder of the 31 days. The start date and flow schedule for the overall pulse flow volume may be modified with the concurrence of U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), and the California Department of Fish and Wildlife

- From the end of the pulse flow period through May 31 – maintain an average flow of 500 cfs

- For June, no minimum base flow requirement would be required. Given the extremely dry conditions throughout the basin, the outward fishery migration will likely end earlier this year due to anticipated low flows and elevated water temperatures in the southern Delta and lower San Joaquin River. Releases from New Melones Reservoir to the Stanislaus River will be made to achieve the D-1641 electrical conductivity objective at Vernalis and dissolved oxygen objective at Ripon, and to meet the NMFS's Reasonable and Prudent Alternative Table 2E flows

With respect to the April to May pulse flow requirement, Reclamation respectively maintains its position that the Board cannot reasonably or sustainably rely solely on project water supplies in New Melones Reservoir, on the Stanislaus River, to meet the Vernalis pulse flow requirements on the lower San Joaquin River.

Availability of Water

In the past, in order to assist with initial implementation of the Vernalis pulse flows, Reclamation participated in, and funded in large part, the San Joaquin River Agreement (SJRA) from approximately 2000 through 2009, including two extensions through 2011. Under the SJRA, Reclamation funded annually the availability of water from the senior water right holders on the Stanislaus River, the reservoir operators on the Tuolumne and Merced Rivers and the San Joaquin River Exchange Contractors Water Authority to contribute to the pulse flows.

In 2011, Reclamation attempted to negotiate a similar arrangement with the SJRA parties, but such efforts were not successful. Instead, Reclamation purchased water from Merced Irrigation District on the Merced River in 2012 and 2013 to ensure continued compliance with SJRA flows.

Reclamation has attempted to purchase water in 2014, but has found no such water available. Unfortunately, in sequential dry and critical years, no water is available for purchase.

Reclamation believes it should have a reasonable responsibility to contribute to the Vernalis pulse flow requirement. The modifications herein requested represent a reasonable contribution from New Melones Reservoir and the Stanislaus River to the Vernalis base and pulse flows under the current circumstances. In addition, the pulse flows are designed to most closely coincide with fish migration, and are the result of consultation with state and federal fish agencies.

Senior water rights holders on the Stanislaus River have been advised of the reduced availability of water this year consistent with their stipulated agreement with Reclamation. Allocations to water service contractors served form New Melones Reservoir are currently at 55% of their contract supply and Reclamation will continue to evaluate that allocation as the water progresses.

Reclamation is encouraged with the long-term settlement discussions underway for new basin plan objectives (minimum flow standards) and implementation mechanisms on the San Joaquin River; however, Reclamation remains concerned that there is no timeframe for completing these discussions.

Effects on Other Uses

Other legal users of water should not be injured by this action. Delta water quality objectives, protective of municipal/industrial and agricultural uses, remain in place and the continued operations of SWP/CVP diversions are expected to generally improve salinity conditions in the southern Delta. However, as occurs at times in the South Delta when other water quality objectives are met, there may be an exception in achieving the agricultural objective for Old River at Tracy Road.

This request has been considered and is supported by the Real Time Drought Operations Management Team established to recommend additional changes to the order approving the Petition necessary to address risks presented by the ongoing and severe drought.

This action also should not have an unreasonable impact to fish and wildlife. Reclamation has concurrence from NMFS and USFWS that these actions are consistent with the Federal Endangered Species Act (see attached).

If you have any questions or would like to discuss further, please contact Mr. Paul Fujitani at 916-979-2197.

Sincerely,

for Ronald Milligan
Manager, Operations

Enclosure -3

cc: Mr. Les Grober
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

Mr. Chuck Bonham
Director
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1416 Ninth Street
Sacramento, CA 95814

Mr. Mark Cowin
Director
California Department of Water Resources
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Mr. Ren Lohoefener
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Pacific Southwest Region
U.S. Fish and Wildlife Service
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Sacramento, CA 95825

Mr. Michael A. Chotkowski
Field Supervisor
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Sacramento, CA 95825

Mr. Dean Messer
Chief, Environmental Services
California Department of Water Resources
P.O. Box 942836
Sacramento, CA 94236-0001

Continued on next page.

cc: Continued from previous page.

Ms. Maria Rea
Assistant Regional Administrator
California Central Valley Area Office
National Marine Fisheries Service
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Sacramento, CA 95814

Mr. David Murillo
Regional Director
Mid-Pacific Region
Bureau of Reclamation
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South Delta Water Authority
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Sacramento, CA 95821

Mr. Steve Knell
General Manager
Oakdale Irrigation District
1205 East F Street
Oakdale, CA 95361

Mr. Jeff Shields
General Manager
South San Joaquin Irrigation District
11011 East Highway 120
Manteca, CA 95336-9750
(w/att to each)

ATTACHMENT

6

STATE OF CALIFORNIA
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
STATE WATER RESOURCES CONTROL BOARD

In the Matter of Specified License and Permits[1] of the Department of Water Resources and U.S. Bureau of Reclamation for the State Water Project and Central Valley Project

APRIL 11, 2014 ORDER MODIFYING AN ORDER THAT APPROVED A TEMPORARY URGENCY CHANGE IN LICENSE AND PERMIT TERMS AND CONDITIONS REQUIRING COMPLIANCE WITH DELTA WATER QUALITY OBJECTIVES IN RESPONSE TO DROUGHT CONDITIONS

BY THE EXECUTIVE DIRECTOR

1.0 INTRODUCTION

On January 29, 2014, the Department of Water Resources (DWR) and the United States Bureau of Reclamation (Reclamation) (hereinafter Petitioners) jointly filed a Temporary Urgency Change Petition (TUCP) pursuant to Water Code section 1435 et seq., to temporarily modify requirements in their water right permits and license for the State Water Project (SWP) and Central Valley Project (CVP) for the next 180 days in response to drought conditions. An order approving the TUCP was issued on January 31, 2014. That Order was modified on February 7, 2014, February 28, 2014, March 18, 2014, and April 9, 2014. This Order further modifies the TUCP Order.

2.0 BACKGROUND

In the January 29, 2014 TUCP the Petitioners requested temporary modification of requirements included in State Water Resources Control Board (State Water Board) Revised Decision 1641 (D-1641) to meet water quality objectives in the Water Quality Control Plan (Plan) for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta) (attached). Specifically, the TUCP requested modifications to the requirement to meet the Delta Outflow objective during February and the Delta Cross Channel (DCC) Gate closure objective from February through May 20.

[1] The petition was filed for Permits 16478, 16479, 16481, 16482 and 16483 (Applications 5630, 14443, 14445A, 17512 and 17514A, respectively) of the Department of Water Resources for the State Water Project and License 1986 and Permits 11315, 11316, 11885, 11886, 11887, 11967, 11968, 11969, 11970, 11971, 11972, 11973, 12364, 12721, 12722, 12723, 12725, 12726, 12727, 12860, 15735, 16597, 20245, and 16600 (Applications 23, 234, 1465, 5638, 13370, 13371, 5628, 15374, 15375, 15376, 16767, 16768, 17374, 17376, 5626, 9363, 9364, 9366, 9367, 9368, 15764, 22316, 14858A, 14858B, and 19304, respectively) of the United States Bureau of Reclamation for the Central Valley Project.

The TUCP also proposed limits on exports at the SWP and CVP pumping facilities in the south Delta and a process to determine other changes that will best balance protection of all beneficial uses. The Petitioners requested these temporary modifications in order to respond to unprecedented critically dry hydrological conditions as California enters its third straight year of below average rainfall and snowmelt runoff. Additional information concerning the drought and the TUCP can be found on the State Water Board's website at: http://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/tucp.shtml

2.1 January 31 Order

The January 31, 2014 TUCP Order allowed DWR and Reclamation to meet a lower Delta Outflow level of 3,000 cubic feet per-second (cfs) in February and allowed the DCC Gates to be operated flexibly from February 1 through May 20.[2] The Order restricted exports in the Delta at the SWP and CVP pumping facilities to health and safety needs of no more than 1,500 cfs, with the exception of transfers. The Order also required that DWR and Reclamation consult with the State Water Board, Department of Fish and Wildlife, National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (collectively the fisheries agencies) through a Real-Time Drought Operations Management Team (RTDOMT) to discuss real time operational issues. The Order further required DWR and Reclamation to calculate and maintain a record of the amount of water conserved by the changes and keep that water in storage for use later in the year for purposes of maintaining water supplies, improving water quality, or protecting flows for fisheries. The Order required DWR and Reclamation to develop a water balance and to conduct necessary modeling and monitoring to inform real time operational decisions. The Order stated that it may be modified based on additional public input or changed circumstances.

2.2 February 7 Modification

The February 7, 2014 modification to the TUCP Order clarified requirements that would apply when the requirements of D-1641 are met. The February 7 Modified Order adjusted the temporary export limitations when precipitation events occur that enable DWR and Reclamation to comply with the Delta Outflow and DCC Gate Closure requirements contained in Table 3 of D-1641. In these circumstances, exports greater than 1,500 cfs would be allowed up to the export limits contained in D-1641, except that any SWP and CVP exports greater than 1,500 cfs shall be limited to natural or abandoned flows, or transfers. The Order did not require DWR and Reclamation to meet the D-1641 Delta Outflow requirements unless exports were greater than 1,500 cfs. All other provisions of the January 31, 2014 Order were continued.

2.3 February 28 Modification

The February 28, 2014 modification to the TUCP Order continued the modified Delta Outflow levels of 3,000 cfs originally approved on January 31, 2014, through the month of March. It continued to allow DWR and Reclamation to conserve stored water needed to maintain water supplies, improve water quality, and protect fishery resources later in the year. All other provisions of the TUCP Order continued to be in effect.

---

[2] The required Delta Outflow pursuant to D-1641 without the temporary change in February was 7,100 cfs. In addition, without the temporary change, D-1641 requires that the DCC Gate be closed from February through May 20 of each year.

2.4 March 18 Modification

The March 18, 2014 modification of the TUCP Order provided additional flexibility to export water while Delta inflows were elevated following precipitation events by adding an alternate set of compliance requirements for the end of March that would be in effect while higher Delta inflows persisted. Specifically, when precipitation and runoff events occurred that allowed the DCC Gates to be closed and compliance with the flow or salinity requirements included in footnote 10 of D-1641, but the additional Delta Outflow requirements contained in Table 4 of D-1641 were not being met, the Order permitted exports of natural and abandoned flows up to the Export Limits contained in Table 3 of D-1641. The March 18, 2014 Modified TUCP Order also clarified the use of exported water when D-1641 Delta Outflow or DCC Gate requirements are not being met.

2.5 April 9, Modification

In response to an April 9, 2014 joint request from DWR and Reclamation, the TUCP Order was again modified on April 9, 2014. The April 9 joint request from DWR and Reclamation requested changes to the TUCP Order identified in DWR's and Reclamation's April 8, 2014 Drought Operations Plan (DOP), with the exception of the San Joaquin River flow requirements. The DOP was developed in coordination with the RTDOMT, and lays out DWR's and Reclamation's proposed range of coordinated operations from April through mid-November, including for the San Joaquin River flow requirements that are the subject of this Modified TUCP Order, other changes to D-1641 and Endangered Species Act requirements. Along with the April 9 joint request and DOP, DWR and Reclamation submitted letters from the fisheries agencies that included concurrence with the changes to the San Joaquin River flow requirements. The April 9 Modified TUCP Order extended the provisions of the March 18 Order into April but did not act upon the other requests in the April 9 joint request that are not needed in April. The April 9 Modified TUCP Order states that the other changes described in the DOP and April 9 joint request will be addressed in a comprehensive update to the TUCP Order that will be issued in the near future. The April 9 Modified TUCP Order further states that the comprehensive update will address objections received to date and other issues associated with the DOP. The April 9 Modified TUCP Order also states that another interim modified order for San Joaquin River flows would soon follow.

2.6 April 9 San Joaquin River Flows Request

In addition to the April 9 joint request from DWR and Reclamation to modify the TUCP Order, Reclamation submitted a separate request on April 9, 2014, to modify Reclamation's water right requirements to meet the San Joaquin River flow objectives included in Table 3 of D-1641 from March through June. Pursuant to D-1641, monthly average San Joaquin River flows are required to be 710 cfs or 1,140 cfs in critical water years (the current water year classification for the San Joaquin River) from March 1 through April 14 and May 16 through June, referred to as the base flow period. The higher flows apply when the 2 parts per thousand isohaline (X2) is required to be at or west of Chipps Island pursuant to Table 4 of D-1641. During the April 15 through May 15[3] time period, referred to as the pulse flow period, monthly average flows are required to be 3,100 cfs or 3,540 cfs in critical water years, again with the higher flows required when X2 is required to be at or west of Chipps Island.

[3] Pursuant to footnote 14 of D-1641, the time period may be varied and should be scheduled through consultation with the fisheries agencies.

In their April 9, 2014 letter, Reclamation requests that the San Joaquin River flow requirements in D-1641 be modified as follows this year:

- The monthly average for March base flows – 710 cfs
- From April 1 to the start of the pulse flow period – maintain at or above 700 cfs for base flow period (3-day running average)
- For the 31-day pulse flow period, create a 16-day pulse averaging 3,300 cfs with flows averaging 1,500 cfs for the remainder of the 31 days. The start date and flow schedule for the overall pulse flow volume may be modified with the concurrence of the fisheries agencies
- From the end of the pulse flow period through May 31 – maintain an average flow of 500 cfs
- For June, operate to achieve the Stanislaus River dissolved oxygen and NMFS Biological Opinion requirements and the San Joaquin River salinity requirements included in D-1641.[4]

Reclamation states that many San Joaquin Basin hydrologic indicators are now running near levels experienced during one of California's most severe droughts of 1977. Reclamation states that the San Joaquin Valley Hydrologic Index will most likely be critical this year and that unimpaired inflow forecasts for the major tributaries to the San Joaquin River are only at about a third of the historical average and that the major reservoirs on the tributaries to the lower San Joaquin River are all at below average storage levels.[5] Reclamation further states that it has attempted to purchase water in 2014 but has not been able to due to critically dry conditions throughout the basin. Accordingly, additional water from tributaries other than the Stanislaus River is not available for purchase by Reclamation to meet the pulse flow requirements as it has been in the past. In addition, contract delivers to New Melones contractors has been reduced to 55 percent. Based on the above, Reclamation believes the above proposal is a reasonable contribution from the Stanislaus River toward meeting the pulse flow requirements.

The above proposal was discussed by the fisheries agencies at the Stanislaus Operations Group (SOG). As provided for in Reclamation's request, the SOG proposed a different flow schedule that meets the total volume of flows indicated in the above proposal. The RTDOMT has concurred with their recommendation. Accordingly, upon approval by the Executive Director, the modified SOG proposal will be implemented.

3.0 MODIFIED TUCP ORDER

This Order modifies the TUCP Order based on the April 9, 2014 request from Reclamation. This modified TUCP Order changes Reclamation's San Joaquin River flow requirements included in D-1641 from now through June of this year to provide additional operational flexibility to help improve storage conditions in New Melones Reservoir, improve water temperatures needed for aquatic resources on the Stanislaus River and assist with salinity control at Vernalis on the San Joaquin River. The State Water Board cannot retroactively change the terms and

[4] Reclamation's water right permits for New Melones require it to maintain a dissolved oxygen concentration of 7.0 mg/L in the Stanislaus River as measured at Ripon, the NMFS Biological Opinion requires Reclamation to meet a flow of 150 cfs in June during critical water years and D-1641 requires Reclamation to meet an electrical conductivity level (a measure of salinity) of 0.7 millimhos per centimeter on the San Joaquin River at Vernalis.

[5] Reclamation's April 9 letter states that storage levels in New Melones Reservoir, Don Pedro Reservoir, and Lake McClure are only at about 68, 74 and 42 percent of average for this date.

conditions of a water right permit or license (see Order WR 2009-0013-EXEC). Accordingly the requested change for the time period prior to the date of this order is not approved. From the date of this Order through June, the modified order provides that minimum San Joaquin River flows at Vernalis shall be no less than 700 cfs on a 3-day average until the start of the pulse flow period. During the pulse flow period, minimum flows shall be no less than 3,300 cfs for 16 days and 1,500 cfs for the remaining 31 day pulse flow period, or a pulse or pulses with an equivalent flow volume that is approved by the fisheries agencies. From the end of the pulse flow period through May, flows shall average no less than 500 cfs. For June, Reclamation shall operate to achieve the applicable NMFS Biological Opinion flows, dissolved oxygen requirements on the Stanislaus River at Ripon and D-1641 salinity requirements at Vernalis.

4.0 APPLICABILITY OF THE CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) AND WATER CODE SECTION 13247

As discussed in section 4.0 of the January 31 TUCP Order, pursuant to the Governor's Drought Proclamation, CEQA and Water Code section 13247 are suspended as applied to action on the TUCP.

5.0 PROCEDURAL REQUIREMENTS CONCERNING THE TEMPORARY URGENCY CHANGE PETITION

The procedural requirements for a TUCP are described in section 5 of the January 31TUCP Order.

6.0 REQUIRED FINDINGS OF FACT

The required findings of fact for a TUCP order are described in section 6.0 of the January 31 TUCP Order. As necessary, additional findings of fact as they apply to this Order are described below.

6.1 Urgency of the Proposed Change

The urgency of the changes included in this modified TUCP Order is consistent with the previous versions of the TUCP Order. During February, March and early April the State received several precipitation events. Those precipitation events have, and continue to, improve hydrologic conditions in the San Joaquin River watershed for an interim period. However, as discussed in section 2.6 above, hydrologic conditions on the San Joaquin River are expected to remain critical for the remainder of the year. At the same time, storage levels in San Joaquin River reservoirs are at below average levels and opportunities for Reclamation to purchase water are not available. In addition, water supplies to New Melones contractors have been reduced, and remaining supplies will need to be stretched to meet multiple purposes this year and in 2015, including temperature management and salinity control. Based on the above information and additional information included in the previous versions of the TUCP Order, the proposed change is urgent.

6.2 No Injury to Any Other Lawful User of Water

Other lawful users of water will not be injured by the proposed change because Reclamation will continue to meet modified San Joaquin River flow requirements and adequate flows are expected to remain in the system to meet the demands of other lawful users of water.

Moreover, approval of the proposed modification does not affect Reclamation's obligation to curtail their diversions of natural and abandoned flows to the extent necessary to protect senior water right holders. A condition was added to the March 18 Modified TUCP Order to ensure that Reclamation (and DWR) bypasses adequate natural and abandoned flows to prevent injury to senior water right holders.

6.3 No Unreasonable Effect upon Fish, Wildlife, or Other Instream Beneficial Uses

This Modified TUCP Order provides a reasonable balance between protection of fish, wildlife and other instream beneficial uses of water and other needed uses for water from the Stanislaus River and does not result in unreasonable effects on those beneficial uses in this critically dry water year following two previous below average water years. This Modified TUCP Order provides for a significant increase in flows on the Stanislaus River above the NMFS Biological Opinion requirements that should aid in the survival of fall-run Chinook salmon, steelhead and other species in the Stanislaus and lower San Joaquin Rivers. At the same time, this Modified TUCP Order allows water to be maintained in storage to improve cold water pool resources for temperature management for fisheries and to meet other water needs on the Stanislaus River this year and in 2015. As discussed above, the fisheries agencies have also concurred with this proposal.

6.4 The Proposed Change is in the Public Interest

As discussed above, the temporary modifications to the San Joaquin River flow requirements are in the public interest because they balance the need for water for fisheries protection now with the need for flows and cold water pool later for fisheries protection and water supplies for other purposes now and in the future. The changes will help improve storage conditions in New Melones Reservoir, improve water temperatures needed for aquatic resources on the Stanislaus River and assist with salinity control at Vernalis on the San Joaquin River. Retained water supply will be available to meet multiple purposes later this year and in 2015, including temperature management and salinity control.

7.0 CONCLUSIONS

The State Water Board has adequate information in its files to make the evaluation required by Water Code section 1435 concerning the additional modifications of the TUCP Order discussed above. Changes to the TUCP Order from the April 9, 2014 version are provided in **bold underline** and ~~**bold strikethrough**~~ below.

I conclude that, based on the available evidence:

1. The Petitioners have an urgent need to make the proposed changes;

2. The petitioned changes, as conditioned by this Order, will not operate to the injury of any other lawful user of water;

3. The petitioned changes, as conditioned by this Order, will not have an unreasonable effect upon fish, wildlife, or other instream beneficial uses; and,

4. The petitioned changes, as conditioned by this Order, are in the public interest.

ORDER

NOW, THEREFORE, IT IS ORDERED that the petition for temporary urgency change in permit and license conditions under Permits 16478, 16479, 16481, 16482 and 16483 (Applications 5630, 14443, 14445A, 17512 and 17514A, respectively) of the Department of Water Resources (DWR) for the State Water Project (SWP) and License 1986 and Permits 11315, 11316, 11885, 11886, 11887, 11967, 11968, 11969, 11970, 11971, 11972, 11973, 12364, 12721, 12722, 12723, 12725, 12726, 12727, 12860, 15735, 16597, 20245, and 16600 (Applications 23, 234, 1465, 5638, 13370, 13371, 5628, 15374, 15375, 15376, 16767, 16768, 17374, 17376, 5626, 9363, 9364, 9366, 9367, 9368, 15764, 22316, 14858A, 14858B, and 19304, respectively) of the United States Bureau of Reclamation (Reclamation) for the Central Valley Project (CVP); is approved subject to the following terms and conditions. All other terms and conditions of the subject license and permits, including those added by the State Water Resources Control Board (State Water Board) in Revised Decision 1641 (D-1641) shall remain in effect. This Order shall be effective until July 30, 2014.

1. Except as otherwise provided in condition 2, below, for a period not to exceed 180 days or until such time as this Order is amended or rescinded based on changed circumstances, the requirements of D-1641 for DWR and Reclamation (or Petitioners) to meet specified water quality objectives are amended as follows:

    a. The minimum Delta Outflow levels specified in Table 3 are modified as follows: the minimum Net Delta Outflow Index (NDOI) described in Figure 3 of D-1641 during the months of February, March, and April shall be no less than 3,000 cubic-feet per second (cfs). In addition to base Delta Outflows, pursuant to this Order, a higher pulse flow may also be required through the Real-Time Drought Operations Management Process described below.

    b. The maximum Export Limits included in Table 3 are modified as follows: during March and April when footnote 10 of D-1641 is not being met, or the Delta Cross Channel (DCC) Gates are open, the combined maximum SWP and CVP export rate for SWP and CVP contractors at the Harvey O. Banks and C.W. "Bill" Jones pumping plants shall be no greater than 1,500 cfs on a 3-day running average. When precipitation and runoff events occur that allow the DCC to be closed and footnote 10 of D-1641 to be met (Delta Outflow of 7,100 cfs or electrical conductivity of 2.64 millimhos per centimeter on a daily or 14-day running average at the confluence of the Sacramento and the San Joaquin rivers (Collinsville station C2)), but the additional Delta Outflow requirements contained in Table 4 of D-1641 are not being met, then exports of natural and abandoned flows are permitted up to D-1641 Export Limits contained in Table 3. The use of the water exported pursuant this ordering provision 1.b, including previous versions of this ordering provision, is conditioned on DWR and Reclamation following the process described in their March 18, 2014 letter. These limitations do not apply to water transfers under non-SWP or CVP water rights or between SWP and CVP contractors. DWR and Reclamation shall refine estimates of export amounts and deliveries required to maintain health and safety and shall provide these estimates to the State Water Board by March 21. Based on additional information or changed circumstances, the export limits imposed

pursuant to this Order may be modified through the Real-Time Drought Operations Management Process described below.

c. The Delta Cross Channel (DCC) Gate Closure requirements included in Table 3 are modified as follows: the DCC gates may be opened from February 1 through May 20 as necessary to preserve limited storage in upstream reservoirs and reduce infiltration of high salinity water into the Delta while reducing impacts on migrating Chinook salmon. Requirements for closure of the DCC gates during March through May 20 shall be determined through the Real-Time Drought Operations Management Process described below.

d. **Table 3 San Joaquin River flow requirements at Airport Way Bridge, Vernalis, from the date of this order through June are modified as follows:**

   - **From the date of this Order to the start of the pulse flow period, flows shall be no less than 700 cfs, on a 3-day running average.**
   - **The 31-day pulse flow period shall consist of an overall pulse flow volume equivalent to 16-days of flow at 3,300 cfs, and 15 days of flow at 1,500 cfs. The start date and flow schedule for the overall pulse flow volume of water shall be determined through consultation with the Department of Fish and Wildlife, National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (fisheries agencies).**
   - **From the end of the pulse flow period through May 31, an average flow of 500 cfs shall be maintained.**
   - **For the month of June, flows shall be maintained on the Stanislaus River to meet the NMFS Biological Opinion requirements and water right permit requirements for dissolved oxygen on the Stanislaus River and water right permit salinity requirements on the San Joaquin River at Vernalis.**

2. During the effective period of this Order, if precipitation events occur that enable DWR and Reclamation to fully comply with the Delta Outflow and DCC Gate Closure requirements contained in D-1641, then D-1641 requirements shall be operative, except that any SWP and CVP exports greater than 1500 cfs shall be limited to natural or abandoned flow, or transfers as specified in condition 1b.

3. DWR and Reclamation shall convene a Real-Time Drought Operations Management Team with designated representatives from DWR, Reclamation, the State Water Board~~,~~ ~~Department of Fish and Wildlife, National Marine Fisheries Service and U.S. Fish~~ and **the** ~~Wildlife Service (~~fisheries agencies~~)~~. The Real-Time Drought Operations Management Team shall be convened to discuss potential changes to SWP and CVP operations to meet health and safety requirements and to reasonably protect all beneficial uses of water. The team shall meet on a regular basis, and no less than weekly, to discuss current conditions and may be combined with the existing Water Operations Management Team as appropriate. The State Water Board representative shall be designated by the Executive Director of the State Water Board and shall be authorized to make real-time operational decisions to modify requirements to meet pulse

flows associated with the modification to the Delta Outflow objective described above, Export Limits, DCC gate closures, and the associated requirements of this Order. If the State Water Board approves any additional temporary urgency changes pursuant to the temporary urgency change petition that is the subject of this Order, or otherwise modifies this Order, the State Water Board will provide notice and an opportunity for interested persons to comment or object. Based on public comments or objections, further changes may be made to this Order. Information concerning changes to this Order will be posted on the State Water Board's website within 24 hours.

4. DWR and Reclamation shall calculate and maintain a record of the amount of water conserved through the changes authorized by this Order. The water conserved shall be maintained in storage to protect flows for fisheries, used to maintain water supplies, or used to improve water quality. The use of such water shall be determined through the Real-Time Drought Operations Management Team Process described above.

5. DWR and Reclamation shall develop monthly water balance estimates indicating actual and proposed operations through the end of the water year. Specifically, actual and projected inflows, north of Delta contract deliveries, other channel depletions, exports, and Delta outflows shall be identified. The water balance shall be posted on DWR's website and updated as necessary based on changed conditions.

6. DWR and Reclamation shall conduct necessary modeling and monitoring to inform real time operational decisions. Required modeling and monitoring shall be determined through the Real-Time Drought Operations Management Team Process or as may be required pursuant to any modification to this Order.

7. DWR and Reclamation shall bypass natural and abandoned flows to the extent necessary to prevent injury to senior water right holders.

8. This Order may be further modified by the Executive Director based on additional public input or changed circumstances. Specifically, the State Water Board held a workshop on February 18 and 19, 2014, to receive public comment on what if any modifications should be made to this Order to ensure that the changes approved by this Order will not injure any lawful user of water, will not unreasonably affect fish and wildlife, and will be in the public interest.

9. This Order does not authorize any act that results in the taking of a candidate, threatened or endangered species, or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). If a "take" will result from any act authorized under this Order, the Petitioners shall obtain authorization for an incidental take permit prior to construction or operation of the project. Petitioners shall be responsible for meeting all requirements of the applicable Endangered Species Act for the temporary urgency change authorized under this Order.

10. Petitioners shall immediately notify the Executive Director of the State Water Board if any significant change in conditions occurs that warrants reconsideration of this Order.

STATE WATER RESOURCES CONTROL BOARD

Thomas Howard
Executive Director
Dated: April 11, 2014

TABLE 1
WATER QUALITY OBJECTIVES FOR
MUNICIPAL AND INDUSTRIAL BENEFICIAL USES

COMPLIANCE LOCATION	INTERAGENCY STATION NUMBER (RKI [1])	PARAMETER	DESCRIPTION (UNIT)	WATER YEAR TYPE [2]	TIME PERIOD	VALUE
Contra Costa Canal at Pumping Plant #1	*C-5 (CHCCC06)*	*Chloride (Cl)*	*Maximum mean daily 150 mg/l Cl for at least the number of days shown during the Calendar Year. Must be provided in intervals of not less than two weeks duration. (Percentage of Calendar Year shown in parenthesis)*			*No. of days each Calendar Year ≤ 150 mg/l Cl*
-or-				*W*		*240 (66%)*
San Joaquin River at Antioch Water Works Intake	*D-12 (near) (RSAN007)*			*AN*		*190 (52%)*
				BN		*175 (48%)*
				D		*165 (45%*
				C		*155 (42%)*
Contra Costa Canal at Pumping Plant #1	*C-5 (CHCCC06)*	*Chloride (Cl)*	*Maximum mean daily (mg/l)*	*All*	*Oct-Sep*	*250*
-and-						
West Canal at mouth of Clifton Court Forebay	*C-9 (CHWST0)*					
-and-						
Delta-Mendota Canal at Tracy Pumping Plant	*DMC-1 (CHDMC004)*					
-and-						
Barker Slough at North Bay Aqueduct Intake	*---- (SLSAR3)*					
-and-						
Cache Slough at City of Vallejo Intake [3]	*C-19 (SLCCH16)*					

[1] River Kilometer Index station number
[2] The Sacramento Valley 40-30-30 water year hydrologic classification index (see Figure 1) applies for determinations of water year type.
[3] The Cache Slough objective to be effective only when water is being diverted from this location.

TABLE 2
WATER QUALITY OBJECTIVES FOR AGRICULTURAL BENEFICIAL USES

COMPLIANCE LOCATION	INTERAGENCY STATION NUMBER (RKI [1])	PARAMETER	DESCRIPTION (UNIT) [2]	WATER YEAR TYPE [3]	TIME PERIOD	VALUE
WESTERN DELTA						
Sacramento River at Emmaton	D-22 (RSAC092)	Electrical Conductivity (EC)	Maximum 14-day running average of mean daily EC (mmhos/cm)		0.45 EC April 1 to date shown	EC from date shown to Aug 15 [4]
				W	Aug 15	----
				AN	Jul 1	0.63
				BN	Jun 20	1.14
				D	Jun 15	1.67
				C	----	2.78
San Joaquin River at Jersey Point	D-15\ (RSAN018)	Electrical Conductivity (EC)	Maximum 14-day running average of mean daily EC (mmhos/cm)		0.45 EC April 1 to date shown	EC from date shown to Aug 15 [4]
				W	Aug 15	----
				AN	Aug 15	----
				BN	Jun 20	0.74
				D	Jun 15	1.35
				C	----	2.20
INTERIOR DELTA						
South Fork Mokelumne River at Terminous	C-13 (RSMKL08)	Electrical Conductivity (EC)	Maximum 14-day running average of mean daily EC (mmhos/cm)		0.45 EC April 1 to date shown	EC from date shown to Aug 15 [4]
				W	Aug 15	----
				AN	Aug 15	----
				BN	Aug 15	----
				D	Aug 15	----
				C	----	0.54
San Joaquin River at San Andreas Landing	C-4 (RSAN032)	Electrical Conductivity (EC)	Maximum 14-day running average of mean daily EC (mmhos/cm)		0.45 EC April 1 to date shown	EC from date shown to Aug 15 [4]
				W	Aug 15	----
				AN	Aug 15	----
				BN	Aug 15	----
				D	Jun 25	0.58
				C	----	0.87
SOUTHERN DELTA						
San Joaquin River at Airport Way Bridge, Vernalis -and- San Joaquin River at Brandt Bridge site[5] -and- Old River near Middle River [5] -and- Old River at Tracy Road Bridge [5]	C-10 (RSAN112) C-6 (RSAN073) C-8 (ROLD69) P-12 (ROLD59)	Electrical Conductivity (EC)	Maximum 30-day running average of mean daily EC (mmhos/cm)	All	Apr-Aug Sep-Mar	0.7 1.0
EXPORT AREA						
West Canal at mouth of Clifton Court Forebay -and- Delta-Mendota Canal at Tracy Pumping Plant	C-9 (CHWST0) DMC-1 (CHDMC004)	Electrical Conductivity (EC)	Maximum monthly average of mean daily EC (mmhos/cm)	All	Oct-Sep	1.0

[1] River Kilometer Index station number.

[2] Determination of compliance with an objective expressed as a running average begins on the last day of the averaging period. The averaging period commences with the first day of the time period for the applicable objective. If the objective is not met on the last day of the averaging period, all days in the averaging period are considered out of compliance.

[3] The Sacramento Valley 40-30-30 water year hydrologic classification index (see Figure 1) applies for determinations of water year type.

[4] When no date is shown, EC limit continues from April 1.

[5] The 0.7 EC objective becomes effective on April 1, 2005. The DWR and the USBR shall meet 1.0 EC at these stations year round until April 1, 2005. The 0.7 EC objective is replaced by the 1.0 EC objective from April through August after April 1, 2005 if permanent barriers are constructed, or equivalent measures are implemented, in the southern Delta and an operations plan that reasonably protects southern Delta agriculture is prepared by the DWR and the USBR and approved by the Executive Director of the SWRCB. The SWRCB will review the salinity objectives for the southern Delta in the next review of the Bay-Delta objectives following construction of the barriers.

TABLE 3
WATER QUALITY OBJECTIVES FOR FISH AND WILDLIFE BENEFICIAL USES

COMPLIANCE LOCATION	INTERAGENCY STATION NUMBER (RKI [1])	PARAMETER	DESCRIPTION (UNIT) [2]	WATER YEAR TYPE [3]	TIME PERIOD	VALUE
SAN JOAQUIN RIVER SALINITY						
San Joaquin River at and between Jersey Point and Prisoners Point [4]	*D-15 (RSAN018) -and- D-29 (RSAN038)*	*Electrical Conductivity (EC)*	*Maximum 14-day running average of mean daily EC(mmhos/cm)*	*W,AN,BN,D*	*Apr-May*	*0.44 [5]*
EASTERN SUISUN MARSH SALINITY						
Sacramento River at Collinsville -and- Montezuma Slought at National Steel -and- Montezuma Slough near Beldon Landing	*C-2 (RSAC081) S-64 (SLMZU25) S-49 (SLMZU11)*	*Electrical Conductivity (EC)*	*Maximum monthly average of both daily high tide EC values (mmhos/cm), or demonstrate that equivalent or better protection will be provided at the location*	*All*	*Oct Nov-Dec Jan Feb-Mar Apr-May*	*19.0 15.5 12.5 8.0 11.0*
WESTERN SUISUN MARSH SALINITY						
Chadbourne Slough at Sunrise Duck Club -and- Suisun Slough, 300 feet south of Volanti Slough	*S-21 (SLCBN1) S-42 (SLSUS12)*	*Electrical Conductivity (EC)*	*Maximum monthly average of both daily high tide EC values (mmhos/cm), or demonstrate that equivalent or better protection will be provided at the location*	*All but deficiency period [6]*	*Oct Nov Dec Jan Feb-Mar Apr-May*	*19.0 16.5 15.5 12.5 8.0 11.0*
				Deficiency Period [6]	*Oct Nov Dec-Mar Apr May*	*19.0 16.5 15.6 14.0 12.5*

TABLE 3 (continued)
WATER QUALITY OBJECTIVES FOR FISH AND WILDLIFE BENEFICIAL USES

COMPLIANCE LOCATION	INTERAGENCY STATION NUMBER(RKI1[1])	PARAMETER	DESCRIPTION (UNIT) [2]	WATER YEAR TYPE [3]	TIME PERIOD	VALUE
DELTA OUTFLOW						
		Net Delta Outflow Index (NDOI) [7]	*Minimum monthly average [8] NDOI (cfs)*	*All*	*Jan*	*4,500 [9]*
				All	*Feb-Jun*	*[10]*
				W,AN	*Jul*	*8,000*
				BN		*6,500*
				D		*5,000*
				C		*4,000*
				W,AN,BN	*Aug*	*4,000*
				D		*3,500*
				C		*3,000*
				All	*Sep*	*3,000*
				W,AN,BN,D	*Oct*	*4,000*
				C		*3,000*
				W,AN,BN,D	*Nov-Dec*	*4,500*
				C		*3,500*
RIVER FLOWS						
Sacramento River at Rio Vista	*D-24 (RSAC101)*	*Flow rate*	*Minimum monthly average [11] flow rate (cfs)*	*All*	*Sep*	*3,000*
				W,AN,BN,D	*Oct*	*4,000*
				C		*3,000*
				W,AN,BN,D	*Nove-Dec*	*4,500*
				C		*3,500*
San Joaquin River at Airport Way Bridge, Vernalis	*C-10 (RSAN112)*	*Flow rate*	*Minimum monthly average [12] flow rate (cfs) [13]*	*W,AN*	*Feb-Apr 14 and May 16-Jun*	*2,130 or 3,420*
				BN,D		*1,420 or 2,280*
				C		*710 or 1,140*
				W	*Apr 15-May 15 [14]*	*7,330 or 8,620*
				AN		*5,730 or 7,020*
				BN		*4,620 or 5,480*
				D		*4,020 or 4,880*
				C		*3,110 or 3,540*
				All	*Oct*	*1,000 [15]*
EXPORT LIMITS						
		Combined export rate [16]	*Maximum 3-day running average (cfs)*	*All*	*Apr 15-May 15 [17]*	*[18]*
				All	*Feb-Jun*	*35% Delta inflow [21]*
			Maximum percent of Delta inflow diverted [19] [20]	*All*	*Jul-Jan*	*65% Delta inflow*
DELTA CROSS CHANNEL GATES CLOSURE						
Delta Cross Channel at Walnut Grove	—	*Closure of gates*	*Closed gates*	*All*	*Nov-Jan*	*[22]*
					Feb-May 20	----
					May 21-Jun 15	*[23]*

Table 3 Footnotes

[1] River Kilometer Index station number.

[2] Determination of compliance with an objective expressed as a running average begins on the last day of the averaging period. The averaging period commences with the first day of the time period of the applicable objective. If the objective is not met on the last day of the averaging period, all days in the averaging period are considered out of compliance.

[3] The Sacramento Valley 40-30-30 Water Year Hydrologic Classification Index (see Figure 1) applies unless otherwise specified.

[4] Compliance will be determined at Jersey Point (station D15) and Prisoners Point (station D29).

[5] This standard does not apply in May when the best available May estimate of the Sacramento River Index for the water year is less than 8.1 MAF at the 90% exceedence level. [Note: The Sacramento River Index refers to the sum of the unimpaired runoff in the water year as published in the DWR Bulletin 120 for the following locations: Sacramento River above Bend Bridge, near Red Bluff; Feather River, total unimpaired inflow to Oroville Reservoir; Yuba River at Smartville; and American River, total unimpaired inflow to Folsom Reservoir.]

[6] A deficiency period is: (1) the second consecutive dry water year following a critical year; (2) a dry water year following a year in which the Sacramento River Index (described in footnote 5) was less than 11.35 MAF; or (3) a critical water year following a dry or critical water year. The determination of a deficiency period is made using the prior year's final Water Year Type determination and a forecast of the current year's Water Year Type; and remains in effect until a subsequent water year is other than a Dry or Critical water year as announced on May 31 by DWR and USBR as the final water year determination.

[7] Net Delta Outflow Index (NDOI) is defined in Figure 3.

[8] For the May-January objectives, if the value is less than or equal to 5,000 cfs, the 7-day running average shall not be less than 1,000 cfs below the value; if the value is greater than 5,000 cfs, the 7-day running average shall not be less than 80% of the value.

[9] The objective is increased to 6,000 cfs if the best available estimate of the Eight River Index for December is greater than 800 TAF. [Note: The Eight River Index refers to the sum of the unimpaired runoff as published in the DWR Bulletin 120 for the following locations: Sacramento River flow at Bend Bridge, near Red Bluff; Feather River, total inflow to Oroville Reservoir; Yuba River flow at Smartville; American River, total inflow to Folsom Reservoir; Stanislaus River, total inflow to New Melones Reservoir; Tuolumne River, total inflow to Don Pedro Reservoir; Merced River, total inflow to Exchequer Reservoir; and San Joaquin River, total inflow to Millerton Lake.]

[10] The minimum daily net Delta outflow shall be 7,100 cfs for this period, calculated as a 3-day running average. This requirement is also met if either the daily average or 14-day running average EC at the confluence of the Sacramento and the San Joaquin rivers is less than or equal to 2.64 mmhos/cm (Collinsville station C2). If the best available estimate of the Eight River Index (described in footnote 9) for January is more than 900 TAF, the daily average or 14-day running average EC at station C2 shall be less than or equal to 2.64 mmhos/cm for at least one day between February 1 and February 14; however, if the best available estimate of the Eight River Index for January is between 650 TAF and 900 TAF, the Executive Director of the SWRCB is delegated authority to decide whether this requirement applies. If the best available estimate of the Eight River Index for February is less than 500 TAF, the standard may be further relaxed in March upon the request of the DWR and the USBR, subject to the approval of the Executive Director of the SWRCB. The standard does not apply in May and June if the best available May estimate of the Sacramento River Index (described in footnote 5) for the water year is less than 8.1 MAF at the 90% exceedence level.

Under this circumstance, a minimum 14-day running average flow of 4,000 cfs is required in May and June. Additional Delta outflow objectives are contained in Table 4.

[11] The 7-day running average shall not be less than 1,000 cfs below the monthly objective.

[12] Partial months are averaged for that period. For example, the flow rate for April 1-14 would be averaged over 14 days. The 7-day running average shall not be less than 20% below the flow rate objective, with the exception of the April 15-May 15 pulse flow period when this restriction does not apply.

[13] The water year classification for the San Joaquin River flow objectives will be established using the best available estimate of the 60-20-20 San Joaquin Valley Water Year Hydrologic Classification (see Figure 2) at the 75% exceedence level. The higher flow objective applies when the 2-ppt isohaline (measured as 2.64 mmhos/cm surface salinity) is required to be at or west of Chipps Island.

[14] This time period may be varied based on real-time monitoring. One pulse, or two separate pulses of combined duration equal to the single pulse, should be scheduled to coincide with fish migration in San Joaquin River tributaries and the Delta. The USBR will schedule the time period of the pulse or pulses in consultation with the USFWS, the NMFS, and the DFG. Consultation with the CALFED Operations Group established under the Framework Agreement will satisfy the consultation requirement. The schedule is subject to the approval of the Executive Director of the SWRCB.

[15] Plus up to an additional 28 TAF pulse/attraction flow during all water year types. The amount of additional water will be limited to that amount necessary to provide a monthly average flow of 2,000 cfs. The additional 28 TAF is not required in a critical year following a critical year. The pulse flow will be scheduled by the DWR and the USBR in consultation with the USFWS, the NMFS and the DFG. Consultation with the CALFED Operations Group established under the Framework Agreement will satisfy the consultation requirement.

[16] Combined export rate for this objective is defined as the Clifton Court Forebay inflow rate (minus actual Byron-Bethany Irrigation District diversions from Clifton Court Forebay) and the export rate of the Tracy pumping plant.

[17] This time period may be varied based on real-time monitoring and will coincide with the San Joaquin River pulse flow described in footnote 18. The DWR and the USBR, in consultation with the USFWS, the NMFS and the DFG, will determine the time period for this 31-day export limit. Consultation with the CALFED Operations Group established under the Framework Agreement will satisfy the consultation requirement.

[18] Maximum export rate is 1,500 cfs or 100% of 3-day running average of San Joaquin River flow at Vernalis, whichever is greater. Variations to this maximum export rate may be authorized if agreed to by the USFWS, the NMFS and the DFG. This flexibility is intended to result in no net water supply cost annually within the limits of the water quality and operational requirements of this plan. Variations may result from recommendations of agencies for protection of fish resources, including actions taken pursuant to the State and federal Endangered Species Act. Any variations will be effective immediately upon notice to the Executive Director of the SWRCB. If the Executive Director of the SWRCB does not object to the variations within 10 days, the variations will remain in effect. The Executive Director of the SWRCB is also authorized to grant short-term exemptions to export limits for the purpose of facilitating a study of the feasibility of recirculating export water into the San Joaquin River to meet flow objectives.

[19] Percent of Delta inflow diverted is defined in Figure 3. For the calculation of maximum percent Delta inflow diverted, the export rate is a 3-day running average and the Delta inflow is a 14-day running average, except when the CVP or the SWP is making storage withdrawals for export, in which case both the export rate and the Delta inflow are 3-day running averages.

[20] The percent Delta inflow diverted values can be varied either up or down. Variations are authorized subject to the process described in footnote 18.

[21] If the best available estimate of the Eight River Index (described in footnote 9) for January is less than or equal to 1.0 MAF, the export limit for February is 45% of Delta inflow. If the best available estimate of the Eight River Index for January is greater than 1.5 MAF, the February export limit is 35% of Delta inflow. If the best available estimate of the Eight River Index for January is between 1.0 MAF and 1.5 MAF, the DWR and the USBR will set the export limit for February within the range of 35% to 45%, after consultation with the USFWS, the NMFS and the DFG. Consultation with the CALFED Operations Group established under the Framework Agreement will satisfy the consultation requirement.

[22] For the November-January period, close Delta Cross Channel gates for a total of up to 45 days. The USBR will determine the timing and duration of the gate closure after consultation with the USFWS, the NMFS and the DFG. Consultation with the CALFED Operations Group established under the Framework Agreement will satisfy the consultation requirement.

[23] For the May 21-June 15 period, close Delta Cross Channel gates for a total of 14 days. The USBR will determine the timing and duration of the gate closure after consultation with the USFWS, the NMFS and the DFG. Consultation with the CALFED Operations Group established under the Framework Agreement will satisfy the consultation requirement.

Figure 1
Sacramento Valley
Water Year Hydrologic Classification

Year classification shall be determined by computation of the following equation:

$$\textbf{INDEX} = 0.4 * X + 0.3 * Y + 0.3 * Z$$

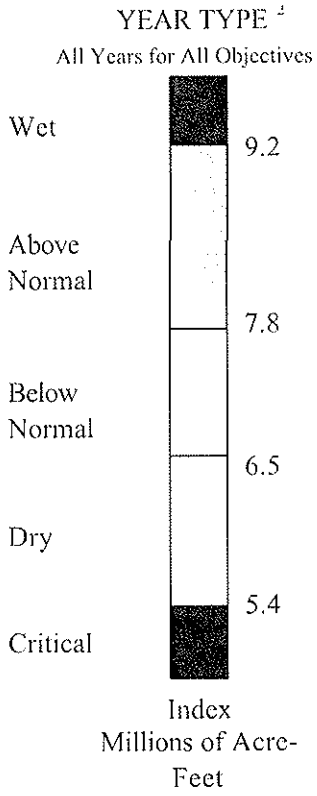
Where: X = Current year's April – July Sacramento Valley unimpaired runoff

Y = Current October – March Sacramento Valley unimpaired runoff

Z = Previous year's index[1]

The Sacramento Valley unimpaired runoff for the current water year (October 1 of the preceding calendar year through September 30 of the current calendar year), as published in California Department of Water Resources Bulletin 120, is a forecast of the sum of the following locations: Sacramento River above Bend Bridge, near Red Bluff; Feather River, total inflow to Oroville Reservoir; Yuba River at Smartville; American River, total inflow to Folsom Reservoir. Preliminary determinations of year classification shall be made in February, March, and April with final determination in May. These preliminary determinations shall be based on hydrologic conditions to date plus forecasts of future runoff assuming normal precipitation for the remainder of the water year.

Classification	Index Millions of Acre-Feet (MAF)
Wet.....	Equal to or greater than 9.2
Above Normal.....	Greater than 7.8 and less than 9.2
Below Normal.....	Equal to or less than 7.8 and greater than 6.5
Dry.....	Equal to or less than 6.5 and greater than 5.4
Critical.....	Equal to or less than 5.4



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[1] A cap of 10.0 MAF is put on the previous year's index (Z) to account for required flood control reservoir releases during wet years.

[2] The year type for the preceding water year will remain in effect until the initial forecast of unimpaired runoff for the current water year is available.

Figure 2
San Joaquin Valley
Water Year Hydrologic Classification

Year classification shall be determined by computation of the following equation:

$$\textbf{INDEX} = 0.6 * X + 0.2 * Y + 0.2 * Z$$

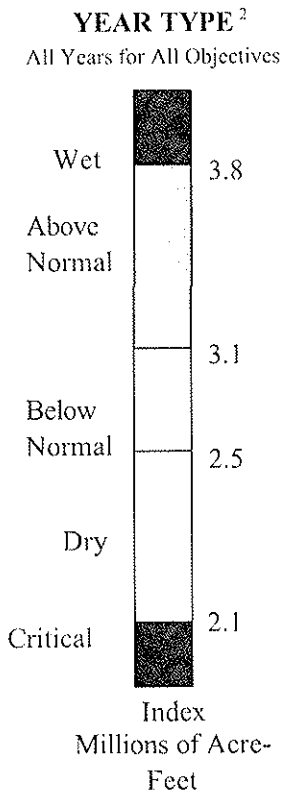
Where: X = Current year's April – July
San Joaquin Valley unimpaired runoff

Y = Current October – March
San Joaquin Valley unimpaired runoff

Z = Previous year's index[1]

The San Joaquin Valley unimpaired runoff for the current water year (October 1 of the preceding calendar year through September 30 of the current calendar year), as published in California Department of Water Resources Bulletin 120, is a forecast of the sum of the following locations: Stanislaus River, total flow to New Melones Reservoir; Tuolumne River, total inflow to Don Pedro Reservoir; Merced River, total flow to Exchequer Reservoir; San Joaquin River, total inflow to Millerton Lake. Preliminary determinations of year classification shall be made in February, March, and April with final determination in May. These preliminary determinations shall be based on hydrologic conditions to date plus forecasts of future runoff assuming normal precipitation for the remainder of the water year.

Classification	Index Millions of Acre-Feet (MAF)
Wet.....	Equal to or greater than 3.8
Above Normal.....	Greater than 3.1 and less than 3.8
Below Normal.....	Equal to or less than 3.1 and greater than 2.5
Dry.....	Equal to or less than 2.5 and greater than 2.1
Critical.....	Equal to or less than 2.1



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[1] A cap of 4.5 MAF is put on the previous year's index (Z) to account for required flood control reservoir releases during wet years.

[2] The year type for the preceding water year will remain in effect until the initial forecast of unimpaired runoff for the current water year is available.

Figure 3
NDOI and PERCENT INFLOW DIVERTED [1]

The NDOI and the percent inflow diverted, as described in this footnote, shall be computed daily by the DWR and the USBR using the following formulas (all flows are in cfs):

NDOI = DELTA INFLOW - NET DELTA CONSUMPTIVE USE - DELTA EXPORTS

PERCENT INFLOW DIVERTED = (CCF + TPP) ÷ DELTA INFLOW

where *DELTA INFLOW = SAC + SRTP + YOLO + EAST + MISC + SJR*

SAC	=	Sacramento River at Freeport mean daily flow for the previous day; the 25-hour tidal cycle measurements from 12:00 midnight to 1:00 a.m. may be used instead.
SRTP	=	Sacramento Regional Treatment Plant average daily discharge for the previous week.
YOLO	=	Yolo Bypass mean daily flow for the previous day, which is equal to the flows from the Sacramento Weir, Fremont Weir, Cache Creek at Rumsey, and the South Fork of Putah Creek.
EAST	=	Eastside Streams mean daily flow for the previous day from the Mokelumne River at Woodbridge, Cosumnes River at Michigan Bar, and Calaveras River at Bellota.
MISC	=	Combined mean daily flow for the previous day of Bear Creek, Dry Creek, Stockton Diverting Canal, French Camp Slough, Marsh Creek, and Morrison Creek.
SJR	=	San Joaquin River flow at Vernalis, mean daily flow for the previous day.

where *NET DELTA CONSUMPTIVE USE = GDEPL - PREC*

GDEPL	=	Delta gross channel depletion for the previous day based on water year type using the DWR's latest Delta land use study.[2]
PREC	=	Real-time Delta precipitation runoff for the previous day estimated from stations within the Delta.

and where *DELTA EXPORTS*[3] *= CCF + TPP + CCC + NBA*

CCF	=	Clifton Court Forebay inflow for the current day.[4]
TPP	=	Tracy Pumping Plant pumping for the current day.
CCC	=	Contra Costa Canal pumping for the current day.
NBA	=	North Bay Aqueduct pumping for the current day.

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1 Not all of the Delta tributary streams are gaged and telemetered. When appropriate, other methods of estimating stream flows, such as correlations with precipitation or runoff from nearby streams, may be used instead.

2 The DWR is currently developing new channel depletion estimates. If these new estimates are not available, DAYFLOW channel depletion estimates shall be used.

3 The term "Delta Exports" is used only to calculate the NDOI. It is not intended to distinguish among the listed diversions with respect to eligibility for protection under the area of origin provisions of the California Water Code.

4 Actual Byron-Bethany Irrigation District withdrawals from Clifton Court Forebay shall be subtracted from Clifton Court Forebay inflow. (Byron-Bethany Irrigation District water use is incorporated into the GDEPL term.

Table 4. Number of Days When Maximum Daily Average Electrical Conductivity of 2.64 mmhos/cm Must Be Maintained at Specified Location

Number of Days When Maximum Daily Average Electrical Conductivity of 2.64 mmhos/cm Must Be Maintained at Specified Location [a]

PMI[b] (TAF)	Chipps Island (Chipps Island Station D10)					PMI[b] (TAF)	Port Chicago (Port Chicago Station C14)[d]					PMI[b] (TAF)	Port Chicago (Port Chicago Station C14)[d]				
	FEB	MAR	APR	MAY	JUN		FEB	MAR	APR	MAY	JUN		FEB	MAR	APR	MAY	JUN
≤ 500	0	0	0	0	0	0	0	0	0	0	0	5250	27	29	25	26	6
750	0	0	0	0	0	250	1	0	0	0	0	5500	27	29	26	28	9
1000	28[c]	12	2	0	0	500	4	1	0	0	0	5750	27	29	27	28	13
1250	28	31	6	0	0	750	8	2	0	0	0	6000	27	29	27	29	16
1500	28	31	13	0	0	1000	12	4	0	0	0	6250	27	30	27	29	19
1750	28	31	20	0	0	1250	15	6	1	0	0	6500	27	30	28	30	22
2000	28	31	25	1	0	1500	18	9	1	0	0	6750	27	30	28	30	24
2250	28	31	27	3	0	1750	20	12	2	0	0	7000	27	30	28	30	26
2500	28	31	29	11	1	2000	21	15	4	0	0	7250	27	30	28	30	27
2750	28	31	29	20	2	2250	22	17	5	1	0	7500	27	30	29	30	28
3000	28	31	30	27	4	2500	23	19	8	1	0	7750	27	30	29	31	28
3250	28	31	30	29	8	2750	24	21	10	2	0	8000	27	30	29	31	29
3500	28	31	30	30	13	3000	25	23	12	4	0	8250	28	30	29	31	29
3750	28	31	30	31	18	3250	25	24	14	6	0	8500	28	30	29	31	29
4000	28	31	30	31	23	3500	25	25	16	9	0	8750	28	30	29	31	30
4250	28	31	30	31	25	3750	26	26	18	12	0	9000	28	30	29	31	30
4500	28	31	30	31	27	4000	26	27	20	15	0	9250	28	30	29	31	30
4750	28	31	30	31	28	4250	26	27	21	18	1	9500	28	31	29	31	30
5000	28	31	30	31	29	4500	26	28	23	21	2	9750	28	31	29	31	30
5250	28	31	30	31	29	4750	27	28	24	23	3	10000	28	31	30	31	30
≤ 5500	28	31	30	31	30	5000	27	28	25	25	4	>10000	28	31	30	31	30

[a] The requirement for number of days the maximum daily average EC (EC) of 2.64 mmhos per centimeter (mmhos/cm) must be maintained at Chipps Island and Port Chicago can also be met with maximum 14-day running average EC of 2.64 mmhos/cm, or 3-day running average NDOIs of 11,400 cfs and 29,200 cfs, respectively. If salinity/flow objectives are met for a greater number of days than the requirements for any month, the excess days shall be applied to meeting the requirements for the following month. The number of days for values of the PMI between those specified in this table shall be determined by linear interpolation.

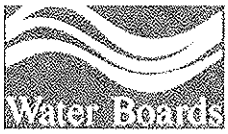
[b] PMI is the best available estimate of the previous month's Eight River Index. (Refer to Footnote 10 for Table 3 for a description of the Eight River Index.)

[c] When the PMI is between 800 TAF and 1000 TAF, the number of days the maximum daily average EC of 2.64 mmhos/cm (or maximum 14-day running average EC of 2.64 mmhos/cm, or 3-day running average NDOI of 11,400 cfs) must be maintained at Chipps Island in February is determined by linear interpolation between 0 and 28 days.

[d] This standard applies only in months when the average EC at Port Chicago during the 14 days immediately prior to the first day of the month is less than or equal to 2.64 mmhos/cm.

ATTACHMENT

7



This is a message from the State Water Resources Control Board.

SUBJECT: 4-11-14 Revised Order on Temporary Urgency Change Petition

Date: April 11, 2014

On April 9, 2014, the U. S. Bureau of Reclamation (Reclamation) submitted a request for modifications to the Order, revised on March 18, 2014, that approved a temporary urgency change in license and permit terms and conditions for the State Water Project and the Central Valley Project requiring compliance with Delta water quality objectives in response to drought conditions (Revised Order). Attached is an April 11, 2014 State Water Board, Executive Director Order modifying the Revised Order in response to Reclamation's request. The April 11, 2014 Order incorporates the modifications to the Revised Order that were included in the State Water Board, Executive Director's Order dated April 9, 2014 in response to a separate request.

The April 9, 2014 request from Reclamation and other information concerning this matter are posted on the State Water Board's website at: http://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/tucp.shtml.

In order to be fully considered, comments on the April 11, 2014 order must be submitted by **noon on Monday, April 21, 2014**.

If you have any questions regarding this matter, please contact Diane Riddle at diane.riddle@waterboards.ca.gov or (916) 341-5297.

ATTACHMENT

8

STATE OF CALIFORNIA
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
STATE WATER RESOURCES CONTROL BOARD

In the Matter of Specified License and Permits[1] of the Department of Water Resources and U.S. Bureau of Reclamation for the State Water Project and Central Valley Project

ORDER APPROVING A TEMPORARY URGENCY CHANGE IN LICENSE AND PERMIT TERMS AND CONDITIONS REQUIRING COMPLIANCE WITH DELTA WATER QUALITY OBJECTIVES IN RESPONSE TO DROUGHT CONDITIONS (WITH MODIFICATIONS DATED FEBRUARY 7, 2014 AND FEBRUARY 28, 2014)

BY THE EXECUTIVE DIRECTOR

1.0 INTRODUCTION

On January 29, 2014, the Department of Water Resources (DWR) and the United States Bureau of Reclamation (Reclamation) (hereinafter Petitioners) jointly filed a Temporary Urgency Change Petition (TUCP) pursuant to Water Code section 1435 et seq., to temporarily modify requirements in their water right permits and license for the State Water Project (SWP) and Central Valley Project (CVP) (hereinafter Projects) for the next 180 days, with specific requests for February 2014. The TUCP requests temporary modification of requirements included in State Water Resources Control Board (State Water Board) Revised Decision 1641 (D-1641) to meet water quality objectives in the Water Quality Control Plan (Plan) for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta). Specifically, the TUCP requests modifications to the Delta Outflow and Delta Cross Channel (DCC) Gate closure objectives. The TUCP also proposes limits on exports at the SWP and CVP pumping facilities in the south Delta and a process to determine other changes that will best balance protection of all beneficial uses. The Petitioners are requesting these temporary modifications in order to respond to unprecedented critically dry hydrological conditions as California enters its third straight year of below average rainfall and snowmelt runoff.

[1] The petition was filed for Permits 16478, 16479, 16481, 16482 and 16483 (Applications 5630, 14443, 14445A, 17512 and 17514A, respectively) of the Department of Water Resources for the State Water Project and License 1986 and Permits 11315, 11316, 11885, 11886, 11887, 11967, 11968, 11969, 11970, 11971, 11972, 11973, 12364, 12721, 12722, 12723, 12725, 12726, 12727, 12860, 15735, 16597, 20245, and 16600 (Applications 23, 234, 1465, 5638, 13370, 13371, 5628, 15374, 15375, 15376, 16767, 16768, 17374, 17376, 5626, 9363, 9364, 9366, 9367, 9368, 15764, 22316, 14858A, 14858B, and 19304, respectively) of the United States Bureau of Reclamation for the Central Valley Project.

The proposed changes are requested to conserve storage in upstream reservoirs for use later in the year if the drought continues, and to assure that salinity levels in the Delta are maintained at levels that protect public health and safety. Conserved storage will be available for minimum instream flows, temperature control, and to continue to repel salinity in the Delta. Without this change, stored water would likely be depleted by late spring or early summer. Also without this change, salinity levels in the Delta could rise to levels that would require much more water to be released from storage later in the year to restore water quality to levels that protect public health and safety.

The petition and supporting information are available via the State Water Board's website at http://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/index.shtml.

2.0 BACKGROUND

The Bay-Delta Plan specifies water quality objectives for the protection of beneficial uses of water in the Bay-Delta, including fish and wildlife, agricultural, and municipal and industrial uses. In part, D-1641 assigns responsibility for meeting the water quality objectives included in the Bay-Delta Plan.[2] D-1641 places responsibility on DWR and Reclamation for measures to ensure that specified water quality objectives included in Tables 1, 2, and 3 of D-1641 (attached) are met, in addition to other requirements. The flow objectives are intended to assist with fish migration, and also to keep the Delta and water exported from the Delta from getting too salty for municipal and agricultural uses. Flow and salinity objectives in the Bay-Delta Plan and D-1641 were developed based on historic hydrologic conditions. Provisions for the extreme dry conditions currently being experienced were therefore not considered in either the Bay-Delta Plan or D-1641.

The Delta Outflow objective is intended to protect estuarine habitat for anadromous fish and other estuarine dependent species. Delta outflows affect migration patterns of both estuarine and anadromous species and the availability of habitat. Freshwater flow is an important cue for upstream migration of adult salmon and is a factor in the survival of smolts moving downstream through the Delta. The populations of several estuarine-dependent species of fish and shrimp vary positively with flow as do other measures of the health of the estuarine ecosystem. Freshwater inflow also has chemical and biological consequences through its effects on loading of nutrients and organic matter, pollutant concentrations, and residence time.

The Delta Outflow objective includes requirements for calculated minimum net flows from the Delta to Suisun and San Francisco Bays (the Net Delta Outflow Index or NDOI) and maximum salinity requirements (measured as electrical conductivity or EC). Since salinity in the Bay-Delta system is closely related to freshwater outflow, both types of objectives are indicators of the extent and location of low salinity estuarine habitat. Listed in Table 3 of the Bay-Delta Plan, the Delta outflow objectives vary by month and water year type. With some flexibility provided through a limited set of compliance alternatives, the basic outflow objective sets minimum outflow requirements that apply year round. The Delta Outflow objectives included in the Bay-Delta Plan and D-1641 for the February through June time frame are identified in Footnote 10 of Table 3 and Table 4 of Footnote 10. For this year, the requirements of Table 4 will likely not apply. In the event they do, this Order will be revisited. From February through June, Footnote 10 requires minimum daily net Delta outflows of 7,100 cubic-feet per second (cfs), calculated as a 3-day running average. The footnote specifies that the requirement may also be met if either the daily average or 14-day running average electrical conductivity of 2.64 mmhos/cm is met at the confluence of the Sacramento and the San Joaquin

[2] D-1641 originally implemented the 1995 Bay-Delta Plan. Later, minor modifications were made to the Bay-Delta Plan in the 2006 Bay-Delta Plan.

rivers near Collinsville (Station C2). Footnote 10 specifies that the Executive Director may relax the standard in March under specified low flow conditions. The footnote also specifies that the 7,100 cfs standard does not apply in May and June under specified low flow conditions and is replaced by a minimum 14-day running average flow of 4,000 cfs.

The DCC gates are located near Walnut Grove and at times allows for the transport of up to 3,500 cfs of water from the Sacramento River to Snodgrass Slough and the North Fork Mokelumne River to the interior Delta. The DCC was constructed in the early 1950s to convey Sacramento River water to the interior and southern Delta to improve water quality at the SWP and CVP export facilities. The DCC also benefits recreational uses by providing boat passage. The DCC gate objective was designed to protect fish and wildlife beneficial uses (specifically Chinook salmon) while simultaneously recognizing the need for fresh water to be moved through the interior Delta to the southern Delta for SWP and CVP uses. The current objective states that the DCC gates shall be closed for a total of up to 45 days for the November through January period, stay closed from February through May 20, and be closed for a total of 14 days for the May 21 through June 15 period. Closure of the DCC gates is important for the protection of salmon survival. Opening the DCC gates during winter and spring months can negatively affect juvenile Chinook salmon survival by causing straying into the interior and then southern Delta where survival is much lower than for fish that stay in the mainstem of the Sacramento River. Opening the DCC gates significantly improves water quality (e.g. lowers salinity) in the interior and southern Delta including at the SWP and CVP export facilities and Contra Costa Water District's diversions, particularly when Delta outflow is low.

2.1 Drought Conditions

In May 2013, due to near record-low precipitation, Governor Edmund G. Brown, Jr. issued Executive Order B-21-13, which directed the State Water Board and DWR, among other things, to take immediate action to address dry conditions and water delivery limitations by expediting the review and processing of voluntary transfers of water. In December 2013, the Governor formed a Drought Task Force to review expected water allocations and the state's preparedness for a drought.

Calendar year 2013 was the driest year in recorded history for many parts of California, and water year 2014 is the driest to date. So far this water year, the Northern Sierra 8-station precipitation accumulation is 4.5 inches; this is 9 percent of the annual average and 17 percent of the average to date. Statewide snow water content was at 9 percent of the April 1 average and 15 percent of the average to date, when measured by DWR snow survey on January 30, 2014. California generally receives half of its annual precipitation by mid- to late January. The three-month outlook weather forecast from the National Oceanic and Atmospheric Administration predicts below normal precipitation for California from now through the forecast horizon. Preceding dry years also add to the strain currently experienced on California's water resources. Water year 2012 was categorized as below normal.

On January 17, 2014, Governor Brown issued a Drought Emergency Proclamation. The Proclamation recited that California is experiencing record dry conditions, with calendar year 2014 projected to become the driest year on record. The Proclamation also recited that water supplies have dipped to alarming levels, as indicated by the fact that the snowpack is approximately 20 percent of the normal average for January[3], the SWP and CVP reservoirs have very low water levels for January, California's major river systems, including the Sacramento and San Joaquin rivers, have significantly reduced surface water flows, and groundwater levels throughout the State have dropped significantly.

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[3] As of January 30, 2014, the current snow pack is estimated at 12 percent of normal for this time of year and 7 percent of the average April 1 measurement when snowpack is normally at its peak.

The Governor directed the State Water Board, among other things, to expedite processing of water transfers as called for in Executive Order B-21-13; to consider immediately petitions requesting consolidation of the places of use of the SWP and CVP; to accelerate funding for water supply enhancement projects; to put water right holders throughout the state on notice that they may be directed to reduce water diversions; and to consider petitions, such as this TUCP, to modify requirements for reservoir releases or diversion limitations that were established to implement a water quality control plan. As indicated in the Proclamation, such modifications may be necessary to conserve cold water stored in upstream reservoirs that may be needed later in the year to protect salmon and steelhead, to maintain water supply, and to improve water quality.

On January 17, 2014, the State Water Board issued a Notice of Surface Water Shortage and Potential for Curtailment of Water Right Diversions. The notice advised that if dry weather conditions persist, the State Water Board will notify water right holders in critically dry watersheds of the requirement to limit or stop diversions of water under their water right, based on their priority. The notice suggested that water right holders look into the use of alternative water supplies, such as groundwater wells, purchased water supplies under contractual arrangements, and recycled wastewater. Following persistent dry hydrologic conditions, the Board plans to issue Water Diversion Curtailment Notices to water right holders in water short areas in the near future.

On January 31, 2014, DWR also announced that except for a small amount of carryover water from 2013, customers of the SWP will get no deliveries in 2014 if current dry conditions persist and deliveries to agricultural districts with long-standing water right claims in the Sacramento Valley may be cut 50 percent – the maximum permitted by contract – depending upon future snow survey results. The first official 2014 CVP water allocation announcement is planned for late-February as required by contract terms. Water supply updates will then be made monthly or more often as appropriate and will be posted on Reclamation's website at: http://www.usbr.gov/mp/pa/water.

2.2 Effects of the Drought on Hydrologic Conditions

The permit terms and conditions contained in D-1641 were derived from the flow and water quality objectives contained in the Bay-Delta Plan. In adopting those objectives, the State Water Board considered the beneficial uses of water (municipal and industrial, agricultural, and fish and wildlife) based on a set of assumptions about the State's water supply, including the expected variability of this water supply. The magnitude of the current drought was not considered in the establishment of the Bay-Delta objectives or in the terms and conditions contained in D-1641. Water year 2013 was the driest year on record and 2014 is projected to be as dry or drier. Storage in major reservoirs is low, with Shasta, Oroville, Trinity, Folsom, San Luis, Exchequer, and Millerton Reservoirs all trending at or below the storage levels observed during the 1976 – 1977 drought, previously the most severe drought on record. Current projections indicate that without the requested change, there exists a substantial risk that by late spring 2014 and into 2015 the Petitioners' major reservoirs will be drafted to dead pool or near dead pool levels at which point reservoir release capacities will be substantially diminished.

3.0 SUBSTANCE OF TEMPORARY URGENCY CHANGE PETITION

The flow and water quality requirements established by the State Water Board in D-1641 are summarized in the tables and figures contained in Attachment 1 to this Order: Table 1 (Municipal and Industrial Beneficial Uses), Table 2 (Agricultural Beneficial Uses), and Table 3 (Fish and Wildlife Beneficial Uses). Included in Attachment 1 are the footnotes to Table 3 that refer to definitions and other requirements contained in Figure 1 (Sacramento Valley Water Year Hydrologic Classification),

Figure 2 (San Joaquin Valley Water Year Hydrologic Classification), Figure 3 (Formulas for Net Delta Outflow Index and Percent Inflow Diverted), and Table 4 (Chipps Island and Port Chicago Maximum Daily Average Electrical Conductivity).

The Petitioners have requested the following temporary modifications to D-1641 requirements:

1. **Temporary Modification of Delta Outflow and Export Requirements**

   The Petitioners request a combined modification of D-1641 requirements to help preserve water in storage to protect future cold water pool needs for listed species, future water supply, and maintain in-Delta water quality.

   The TUCP requests modification of Delta Outflow requirements described in D-1641, Table 3, Footnote 10, by modifying the Delta Outflow to the outflow that is expected to occur while maintaining SWP and CVP exports at health and safety levels of 1,500 cfs. Reclamation and DWR estimate that Delta outflow will range between 3,000 and 4,500 cfs. The petition states that this modification would provide some protection of Delta salinity levels and some protection of cold water pool for listed species later in the year. The 4,500 cfs Delta outflow level is the Petitioners' estimate of the flows that are needed to maintain salinity levels below 250 mg/l chloride at all export locations specified under Table 1 of D-1641. The Petitioners state that there are significant depletions of surface water flow that affect the certainty of the 4,500 cfs Delta Outflow estimate.

   The proposed Delta Outflow modification is based on an assumption that 1,500 cfs of combined SWP/CVP exports would be maintained to provide minimum health and safety flows to municipal and industrial diverters who rely solely on supplies from the Delta or the canal between the export pumps and San Luis Reservoir. The Petitioners requested that this modification to the maximum Export Limits, contained in D-1641 Table 3, be combined with the modification to Delta Outflow. The minimum health and safety flow level has been acknowledged by the 2009 National Marine Fisheries Service (NMFS) Biological Opinion and the 2008 U.S. Fish and Wildlife Service (USFWS) Biological Opinion. Through the Reporting and Management Plan described below, the Petitioners intend to review current conditions and health and safety needs, which might support periods of lower export levels that would be protective of health and safety.

2. **Temporary Modification of Delta Cross Channel (DCC) Gate Operation Requirements**

   D-1641 requires the closure of the DCC gates from February 1 through May 20. The Petitioners request permission to open the DCC gates for human health and safety purposes, based on consultation with the Department of Fish and Wildlife (DFW), USFWS, and NOAA Fisheries (fishery agencies). The Petitioners state that they are currently discussing alternative operational strategies with the fishery agencies, and will continue to evaluate and discuss these strategies in consultation with the fishery agencies. As discussed above, opening of the DCC gate can help improve in-Delta salinity conditions. Normally, runoff and the Delta inflow/outflow needed to meet the Delta Outflow requirement would assist in meeting salinity requirements in the Delta with the DCC gates closed. Due to the critically dry hydrologic conditions, the TUCP states that there is a need to open the DCC gates to help achieve the salinity conditions in the interior and southern Delta needed for protection of municipal and industrial beneficial uses without expending large quantities of water needed for later use.

3. **Reporting and Management Plan**

   In recognition of ordering paragraphs 8, 14, and 16 of the Governor's Proclamation, the Petitioners propose that this Order include regular monitoring, to ensure that this Order's terms and conditions and the requirements of Water Code Section 1435 are met.

   The Petitioners also propose convening a team of managers, who would meet weekly during the period this Order is in effect, to review monitoring and operations data. These managers would be authorized to act to coordinate management of water supplies and protection of natural resources. The team of managers would consist of representatives from the Petitioners, the State Water Board, DFW, NMFS and USFWS.

4. **Future Requests for Temporary Modifications**

   As a result of the reporting and management plan described above, the Petitioners state that they may submit to the State Water Board additional information regarding any further adjustments needed to regulatory requirements in order to balance the protection of beneficial uses, while protecting environmental resources and meeting health and safety needs. The TUCP states that future requests for temporary changes could include requests for possible modifications of other water quality objectives found in D-1641 Table 1 "Municipal and Industrial Beneficial Uses," Table 2 "Agricultural Beneficial Uses," and Table 3 "Fish and Wildlife Beneficial Uses."

5. **Extension of Temporary Modification of Delta Outflow Requirements**

   On February 27, 2014, the Petitioners requested modification of Delta Outflow requirements for March, to continue to conserve stored water that will be needed to protect fishery resources, maintain water supplies, and improve water quality later in the year. This Order continues for the month of March the modified Delta Outflow levels of 3,000 cfs originally approved on January 31, 2014.

4.0 APPLICABILITY OF THE CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) AND WATER CODE SECTION 13247

Ordinarily, the State Water Board must comply with any applicable requirements of the California Environmental Quality Act (CEQA) prior to issuance of a temporary urgency change order pursuant to Water Code section 1435. (See Cal. Code Regs., tit. 23, § 805.) The Governor's Proclamation concludes, however, that strict compliance with CEQA would "prevent, hinder, or delay the mitigation of the effects of the emergency." Accordingly, as authorized by Government Code section 8571, ordering paragraph 9 of the Governor's Proclamation suspends CEQA, and the regulations adopted pursuant to it, to the extent that CEQA would otherwise apply to specified actions necessary to mitigate the effects of the drought, including the State Water Board's action on the TUCP.

The Governor's Proclamation also suspends Water Code section 13247 to the extent that it would otherwise apply to specified activities, including action on the TUCP. Section 13247 requires state agencies, including the State Water Board, to comply with water quality control plans unless otherwise directed or authorized by statute. Absent suspension of section 13247, the State Water Board could not approve a change petition that modifies permits and licenses in a way that does not provide for full attainment of the water quality objectives in the Bay-Delta Plan, even during a drought emergency.

5.0 PROCEDURAL REQUIREMENTS CONCERNING THE TEMPORARY URGENCY CHANGE PETITION

The State Water Board may issue a temporary urgency change order in advance of public notice. (Wat. Code, § 1438, subd. (a).) Public notice must be provided as soon as practicable, unless the change will be in effect less than 10 days. (*Id.*, § 1438, subds. (a), (b) & (c).) Any interested person may file an objection to a temporary urgency change. (*Id.*, subd. (d).) The Board must promptly consider and may hold a hearing on any objection. (*Id.*, subd. (e).) State Water Board Resolution 2012-0029 delegates to the Board Members individually and to the Executive Director the authority to hold a hearing, if necessary, and act on a temporary urgency change petition. (Resolution 2012-0029, ¶¶ 2.2, 4.4.1.)[4]

The State Water Board will issue and deliver to Petitioners as soon as practicable, a notice of the temporary urgency change petition pursuant to Water Code section 1438, subdivision (a). Petitioners will be required to publish the notice in newspapers in accordance with Water Code section 1438, subdivision (b)(1).

As soon as practicable, the State Water Board will provide formal notice of a public workshop to receive comments regarding drought-related activities, including the Petitioners' TUCP and this Order. The public workshop will not be an evidentiary hearing, and any comments on the TUCP will not be treated as testimony. If necessary, the State Water Board will hold an evidentiary hearing on any objections at a later date. The State Water Board will post on its website: (1) the notice of the TUCP, (2) the notice of the public workshop, (3) a copy of the TUCP and accompanying materials, and (4) this Order. The State Water Board also will distribute the notices through an electronic notification system.

6.0 REQUIRED FINDINGS OF FACT

Water Code section 1435 provides that a permittee or licensee who has an urgent need to change the point of diversion, place of use, or purpose of use from that specified in the permit or license may petition for a conditional temporary change order. The State Water Board's regulations set forth the filing and other procedural requirements applicable to TUCPs. (Cal. Code Regs., tit. 23, §§ 805, 806.) The State Water Board's regulations also clarify that requests for changes to permits or licenses other than changes in point of diversion, place of use, or purpose of use may be filed, subject to the same filing and procedural requirements that apply to changes in point of diversion, place of use, or purpose of use. (*Id.*, § 791, subd. (e).)

Before approving a temporary urgency change, the State Water Board must make the following findings:

1. the permittee or licensee has an urgent need to make the proposed change;
2. the proposed change may be made without injury to any other lawful user of water;
3. the proposed change may be made without unreasonable effect upon fish, wildlife, or other instream beneficial uses; and
4. the proposed change is in the public interest.

(Wat. Code, § 1435, subd. (b)(1-4).)

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[4] The Deputy Director for Water Rights may act on a temporary urgency change petition if there are no objections to the petition. (Resolution 2012-0029, ¶ 4.4.1.)

The State Water Board exercises continuing supervision over temporary urgency change orders and may modify or revoke temporary urgency change orders at any time. (Wat. Code, §§ 1439, 1440.) Temporary urgency change orders expire automatically 180 days after issuance, unless they are revoked or an earlier expiration date is specified. (*Id.*, § 1440.) The State Water Board may renew temporary urgency change orders for a period not to exceed 180 days. (*Id.*, § 1441.)

6.1 Urgency of the Proposed Change

Under Water Code section 1435, subdivision (c), an "urgent need" means "the existence of circumstances from which the board may in its judgment conclude that the proposed temporary change is necessary to further the constitutional policy that the water resources of the state be put to beneficial use to the fullest extent of which they are capable and that waste of water be prevented . . . ."

An urgent need exists for changes in the Petitioners' requirement to meet specified Delta Outflows, Export Limits and Delta Cross Channel Gate Closure objectives included in D-1641. As described in the Governor's drought proclamation and the petition, California is experiencing unprecedented dry conditions that were not foreseen or accounted for in the development of these requirements. Operations to meet the objectives, starting in February, would have a significant impact on stored water and the ability to meet minimum flows for the remainder of the season. Failure to act quickly to reduce releases from storage will further deplete already low storage levels in the reservoirs available for use throughout the year.

As stated in the petition, California is entering the third straight year of below average rainfall and very low snowmelt runoff. As a result of the dry hydrology, reservoir levels throughout the state were already significantly below average in October at the beginning of the 2013/2014 water year. The low initial storage and historically dry conditions experienced in the last 12 months, since January 2013, have resulted in significant reductions in water supplies and will likely lead to critical water shortages in 2014.

According to the petition, in order to meet the requirements of D-1641, the SWP and CVP have released water from storage to meet in-basin demands since April 2014. These demands upon the stored water of the SWP and CVP have been exacerbated by the unprecedentedly high use of river water on the Sacramento River and Feather River systems, referred to as depletions. DWR and Reclamation believe these depletions to be much greater than typically assumed which is resulting in further reductions in storage to meet Bay-Delta Plan water quality objectives.

According to the petition, at this time, total storage at the SWP's Lake Oroville is roughly 1.2 million acre-feet (MAF), and the total combined storage at the CVP's Shasta and Folsom reservoirs is also very low at about 1.8 MAF. Storage in all three reservoirs is below what they were at this time of year in 1977 when the state was in a severe drought. Of even more concern is the lack of snowpack in the watersheds feeding into the Projects' major Sacramento Valley reservoirs. The current water year's lack of precipitation has resulted in a northern California snowpack which is a mere 4 percent of the typical seasonal peak.

The continuation of extremely dry conditions in the Bay-Delta watershed poses great challenges to the effective management of water resources, and the Petitioners do not believe that there is an adequate water supply to meet all obligations under D-1641. As discussed above, current projections indicate that without the requested change to the Petitioners' water right permits and license conditions, a substantial risk exists that by late spring 2014 and into 2015 the Petitioners' major reservoirs will be drafted to dead pool or near dead pool levels, at which point reservoir release

capacities will be substantially diminished. As a result, there will be significant risks to temperature control, minimum instream flow requirements, and an inability to repel salinity in the Sacramento-San Joaquin Delta later this season. Under the current circumstances, the most prudent course of action is to conserve storage in upstream reservoirs until significant improvement of that storage is realized. Conservation of stored water supplies requires temporary modification of some terms and conditions contained in D-1641.

6.2 No Injury to Any Other Lawful User of Water

The proposed changes will not injure any other lawful user of water because the changes will not result in a decrease in natural flows. As used in Water Code section 1435, the term "injury" means invasion of a legally protected interest. (*State Water Resources Control Board Cases* (2006) 136 Cal.App.4th 674, 738-743.) Riparian and appropriative water right holders with rights to divert water below Project reservoirs only are entitled to divert natural and abandoned flows, and in the case of riparians only natural flows; they are not entitled to divert water previously stored or imported by the Projects that is released for use downstream. (*Id.* at pp. 738, 743, 771.)

Since March 2013, the Projects have been augmenting natural flows in the Delta with water released from storage in Project reservoirs in order to meet water quality objectives. If the proposed change to the requirement to meet the Delta Outflow objective is implemented, the Projects will reduce releases from storage, but the Projects will continue to augment natural flows with releases from storage. Accordingly, implementation of the proposed change will not reduce the natural or abandoned flows to which downstream riparian and appropriative water right holders may be entitled, and no water right holders will be injured by the proposed change.

At the present time, DWR and Reclamation have proposed changes to requirements to meet certain water quality objectives established to protect fish and wildlife beneficial uses. DWR and Reclamation have not yet requested any changes to requirements to meet water quality objectives established to protect municipal, industrial, or agricultural beneficial uses. For this reason, the proposed changes will not injure other water users due to a change in water quality. (See *State Water Resources Control Bd. Cases, supra* at pp. 744-45.) Moreover, it is questionable whether any other users could support a valid claim of injury due to a change in water quality under circumstances where the Projects are augmenting natural flows with stored water. Finally, it is worth pointing out that any impairment to water quality in the near term is likely to be outweighed by the significant impact to water quality that would occur if the proposed changes are not granted. Absent the proposed change, Project storage would be depleted, and DWR and Reclamation would no longer be able to control salinity encroachment in the Delta.

6.3 No Unreasonable Effect upon Fish, Wildlife, or Other Instream Beneficial Uses

As conditioned by this Order, the proposed changes to Delta Outflows, Export Limits and DCC Gate Closure requirements will not unreasonably impact fish, wildlife, or other instream beneficial uses of water. In determining whether the impact of the proposed changes on fish and wildlife is reasonable, the short-term impact to fish and wildlife must be weighed against the long-term impact to all beneficial uses of water, including fish and wildlife, if the changes are not approved.

According to the petition, the estimated impact to reservoir storage of not making the changes to the requirement to meet the Delta Outflow objective during February could be approximately 144 thousand acre-feet.[5] As discussed above, if the Delta Outflow requirements remain in effect through June, it could result in a "loss of control" over salinity levels in the Delta by late spring 2014 and into 2015 in a worst case scenario. If such a condition occurs, much of the Delta would be too salty to support health and safety and agricultural uses of water. It would also likely require more water than is currently available in storage to push salt back out of the Delta. This salty Delta condition would persist until Northern California receives a rainy season with sufficient runoff to flush the Delta of ocean water to once again allow for these in-Delta beneficial uses.

The DCC gates, when opened, allow high quality Sacramento River water to flow through the Central Delta, thus "freshening" the Delta. This flow path keeps water in the central Delta less saline than when the DCC gates are closed. The DCC gates are generally kept closed in the spring, however, to keep outmigrating salmon from straying into the central Delta where their survival is reduced.

A reduction in Delta outflow within the proposed range of 3,000 to 4,500 cfs may result in rapidly increasing salinity in the interior Delta if the gates are not opened at the same time this occurs which may pose a risk to minimum exports for public health and safety. Restoring Delta salinity to a range that would support public health and safety would take a much larger quantity of water than is required to maintain salinity at these levels. This would necessitate release of stored water to maintain public health and safety, and therefore jeopardize storage of water to maintain temperature control and for other environmental purposes later in the year.

The Petitioners propose to open the gates as soon as possible to reduce salinity in the central Delta. The principal benefit of opening the DCC gates in February is to move more fresh water to the interior Delta, using less storage releases than would be needed to achieve the same salinity with the gates closed. This freshening of the Delta will maintain water quality at the CVP and SWP export pumps and the intakes of Contra Costa Water District (CCWD) that are needed for the protection of public health and safety.

With the DCC gates open, there is potential for decreased survival of Sacramento River-origin species as they move through the central Delta. Potential hazards include increased entrainment, predation, and salvage. The Petitioners provided a detailed analysis of how these issues will not result in decreased survival, and state that they will continue to consult with the fishery agencies on these issues. The State Water Board concludes that the potential for impairment to instream beneficial uses from this temporary modification is not unreasonable considering the potential impacts to agricultural and municipal water supply that could occur if the temporary change in not approved. This Order includes a requirement for the Petitioners to continue consulting with the fish agencies on these issues.

In addition to protecting water supplies needed for consumptives uses, the proposed changes will serve to protect fish and wildlife and other instream beneficial uses of water by conserving water for use throughout the season to maintain minimal stream flows and Delta Outflows and to prevent excessive salinity intrusion into the Delta. As discussed above, without the changes, the Projects' limited water supplies would be released for short term benefits to fish and wildlife at the expense of storage and flows later in the season, which would likely have severe effects on fish and wildlife and other instream beneficial uses of water.

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[5] According to the petition, this is the difference between the currently projected minimum outflow of 4,500 cfs and 7,100 cfs over the 28-day period.

Providing year round Delta inflows and outflows is critically important to the survival of numerous fish and wildlife species in the Delta and upstream areas. Tributary flows, including adequate cold water resources, are needed throughout the season to provide appropriate habitat and passage conditions for anadromous species, including Endangered Species Act (ESA) listed Winter-Run and Spring-run Chinook Salmon, steelhead, and green sturgeon. Delta outflows and inflows are also needed throughout the year for the anadromous species listed above as well as various ESA listed pelagic species including long-fin smelt and Delta smelt. As discussed above, if the required Delta outflow objectives are met and the DCC gates are kept closed, the reservoirs will likely reach dead pool storage by spring, leaving little or no water in storage for later in the season for instream flows and Delta outflows needed for fish and wildlife and other instream uses. This would have serious detrimental impacts to fish and wildlife and other beneficial uses of water.

The proposed changes as conditioned by this Order balance the short-term and long-term habitat needs of fish and wildlife and other instream uses of water during the entirety of water year 2014. This Order requires the development of a Real-Time Drought Operations Management Team with designated representatives from DWR, Reclamation, the State Water Board, DFW, USFWS, and NMFS to coordinate operations consistent with this Order, and to protect fish and wildlife, other beneficial uses of water and public health and safety. The Real-Time Drought Operations Management Team will coordinate real time operations based on current conditions and fisheries information to ensure that the proposed changes pursuant to this Order do not unreasonable affect fish and wildlife and other instream uses of water. The State Water Board has ultimate authority regarding any changes.

While the TUCP does not request a specific Delta outflow level due to the uncertainty of channel depletions, to ensure that some minimal level of Delta outflow is provided to protect fish and wildlife and other instream uses of water without draining reservoir storage dramatically, the Order requires a minimum Delta outflow level of 3,000 cfs during February and also provides for a higher pulse flow to be scheduled to benefit fish species. The magnitude, timing, and duration of this pulse flow will be determined by the Real-Time Drought Operations Management Team. Further changes to Delta Outflows for the remainder of the season may be requested. At that time, State Water Board staff will evaluate current circumstances and information and determine what if any changes should be made to Delta Outflow requirements for the remainder of the year to reasonably protect fish and wildlife and other instream uses and meet the other requirements of the Water Code.

The Order limits SWP and CVP exports to SWP and CVP contractors to minimum health and safety levels to further conserve water in storage for future use to protect fish and wildlife and other purposes. This export limitation is not intended to apply to transfers under non-Project water rights or between Project contractors. The Order requires DWR and Reclamation to refine their estimates of export needs for health and safety and provide such information to the State Water Board to inform decisions regarding changes to the allowable export limits.

This Order allows the DCC gates to be opened from February through May to reduce the need for upstream releases to maintain salinity conditions in the interior Delta. To ensure that gate opening avoids impacts to fish, decisions regarding operations of the gates are required to be made in consultation with the Real-Time Drought Operations Management Team based on real-time fisheries and hydrologic information.

To ensure that water conserved by the proposed change is available to use later in the season to reasonably protect fish and wildlife and other beneficial uses, the Order requires that DWR and Reclamation calculate and maintain a record of the amount of water conserved through the changes authorized by this Order. The Order requires that water conserved be maintained in storage to

protect water needed for salmon and steelhead and other fish species, used to maintain water supplies, or used to improve water quality. The Order requires the use of the water to be coordinated through the Real-Time Drought Operations Management Team. To inform future decisions of the Real-Time Drought Operations Management Team and the State Water Board, the Order also requires DWR and Reclamation to develop monthly water balance estimates indicating actual and proposed operations through the end of the water year. In addition, the Order requires DWR and Reclamation to conduct necessary modeling and monitoring to inform real time operational decisions. The Order reserves the Executive Director's authority to require modifications to the Order to protect fish and wildlife or other uses of water based on additional information including the State Water Board workshop on February 18 and 19, 2014, concerning this Order and other drought issues.

Based on the above, the State Water Board concludes that the potential for impairment to instream beneficial uses from this temporary modification is not unreasonable considering the potential negative impacts to fish, wildlife and instream uses later in the year and the potential impacts to municipal and industrial water supply, instream beneficial uses, and recreation that could occur if the temporary change in not approved.

6.4 The Proposed Change is in the Public Interest

The proposed temporary change will help conserve stored water so that it can be released throughout 2014 to maintain instream flows for the benefit and protection of North of Delta, in-Delta, and South-of-Delta uses, including public trust uses. It is in the public interest to preserve these water supplies for these beneficial uses when hydrologic circumstances cause severe reductions to water supplies.

The changes, or temporary modifications, authorized in this Order will make the best use of a limited water supply in the near term. The temporary modifications contained in this Order are in the public interest because the changes will preserve water supplies to meet health and safety needs, and will increase the duration and likelihood of maintaining salinity control in the Delta later in year. As described in this Order, the retained water supply will be available later in the year for export flows adequate for maintaining health and safety and North-of-Delta and in-Delta environmental protection.

7.0 CONCLUSIONS

The State Water Board has adequate information in its files to make the evaluation required by Water Code section 1435.

I conclude that, based on the available evidence:

1. The permittee has an urgent need to make the proposed changes;

2. The petitioned changes, as conditioned by this Order, will not operate to the injury of any other lawful user of water;

3. The petitioned changes, as conditioned by this Order, will not have an unreasonable effect upon fish, wildlife, or other instream beneficial uses; and,

4. The petitioned changes, as conditioned by this Order, are in the public interest.

ORDER

NOW, THEREFORE, IT IS ORDERED that the petition for temporary urgency change in permit and license conditions under Permits 16478, 16479, 16481, 16482 and 16483 (Applications 5630, 14443, 14445A, 17512 and 17514A, respectively) of the Department of Water Resources (DWR) for the State Water Project (SWP) and License 1986 and Permits 11315, 11316, 11885, 11886, 11887, 11967, 11968, 11969, 11970, 11971, 11972, 11973, 12364, 12721, 12722, 12723, 12725, 12726, 12727, 12860, 15735, 16597, 20245, and 16600 (Applications 23, 234, 1465, 5638, 13370, 13371, 5628, 15374, 15375, 15376, 16767, 16768, 17374, 17376, 5626, 9363, 9364, 9366, 9367, 9368, 15764, 22316, 14858A, 14858B, and 19304, respectively) of the United States Bureau of Reclamation (Reclamation) for the Central Valley Project (CVP); is approved subject to the following terms and conditions. All other terms and conditions of the subject license and permits, including those added by the State Water Resources Control Board (State Water Board) in Revised Decision 1641 (D-1641) shall remain in effect. This Order shall be effective until July 30, 2014.

1. Except as otherwise provided in condition 2, below, for a period not to exceed 180 days or until such time as this Order is amended or rescinded based on changed circumstances, the requirements of D-1641 for DWR and Reclamation to meet specified water quality objectives are amended as follows:

    a. The minimum Delta Outflow levels specified in Table 3 are modified as follows: the minimum Net Delta Outflow Index (NDOI) described in Figure 3 of D-1641 during the months of February and March shall be no less than 3,000 cubic-feet per second (cfs). In addition to base Delta Outflows, pursuant to this Order, a higher pulse flow may also be required through the Real-Time Drought Operations Management Process described below.

    b. The maximum Export Limits included in Table 3 are modified as follows: the combined maximum SWP and CVP export rate for SWP and CVP contractors at the Harvey O. Banks and C.W. "Bill" Jones pumping plants shall be no greater than the minimum pumping levels required for health and safety purposes and shall be no greater than 1,500 cfs on a 3-day running average. Deliveries to SWP and CVP export contractors from the SWP and CVP shall also be limited to health and safety needs. These limitations do not apply to water transfers under non-SWP or CVP water rights or between SWP and CVP contractors. DWR and Reclamation shall refine what export amounts and deliveries are required to maintain health and safety and shall provide documentation to the State Water Board to support that determination by February 14. Based on additional information or changed circumstances, the export limits imposed pursuant to this Order may be modified through the Real-Time Drought Operations Management Process described below.

    c. The Delta Cross Channel (DCC) Gate Closure requirements included in Table 3 are modified as follows: the DCC gates may be opened from February 1 through May 20 as necessary to preserve limited storage in upstream reservoirs and reduce infiltration of high salinity water into the Delta while reducing impacts on migrating Chinook salmon. Requirements for closure of the DCC gates during March through May 20 shall be determined through the Real-Time Drought Operations Management Process described below.

2. During the effective period of this Order, if precipitation events occur that enable DWR and Reclamation to comply with the Delta Outflow and DCC Gate Closure requirements contained in Table 3 of D-1641, then D-1641 requirements shall be operative, except that any SWP and CVP exports greater than 1500 cfs shall be limited to natural or abandoned flow, or transfers as specified in condition 1b.

3. DWR and Reclamation shall convene a Real-Time Drought Operations Management Team with designated representatives from DWR, Reclamation, the State Water Board, Department of Fish and Wildlife, National Marine Fisheries Service and U.S. Fish and Wildlife Service (fisheries agencies). The Real-Time Drought Operations Management Team shall be convened to discuss potential changes to SWP and CVP operations to meet health and safety requirements and to reasonably protect all beneficial uses of water. The team shall meet on a regular basis, and no less than weekly, to discuss current conditions and may be combined with the existing Water Operations Management Team as appropriate. The State Water Board representative shall be designated by the Executive Director of the State Water Board and shall be authorized to make real-time operational decisions to modify requirements to meet pulse flows associated with the modification to the Delta Outflow objective described above, Export Limits, DCC gate closures, and the associated requirements of this Order. If the State Water Board approves any additional temporary urgency changes pursuant to the temporary urgency change petition that is the subject of this Order, or otherwise modifies this Order, the State Water Board will provide notice and an opportunity for interested persons to comment or object. Based on public comments or objections, further changes may be made to this Order. Information concerning changes to this Order will be posted on the State Water Board's website within 24 hours.

4. DWR and Reclamation shall calculate and maintain a record of the amount of water conserved through the changes authorized by this Order. The water conserved shall be maintained in storage to protect flows for fisheries, used to maintain water supplies, or used to improve water quality. The use of such water shall be determined through the Real-Time Drought Operations Management Team Process described above.

5. DWR and Reclamation shall develop monthly water balance estimates indicating actual and proposed operations through the end of the water year. Specifically, actual and projected inflows, north of Delta contract deliveries, other channel depletions, exports, and Delta outflows shall be identified. The water balance shall be posted on DWR's website and updated as necessary based on changed conditions.

6. DWR and Reclamation shall conduct necessary modeling and monitoring to inform real time operational decisions. Required modeling and monitoring shall be determined through the Real-Time Drought Operations Management Team Process or as may be required pursuant to any modification to this Order.

7. This Order may be further modified by the Executive Director based on additional public input or changed circumstances. Specifically, the State Water Board will hold a workshop on February 18 and 19, 2014, to receive public comment on what if any modifications should be made to this Order to ensure that the changes approved by this Order will not injure any lawful user of water, will not unreasonably affect fish and wildlife, and will be in the public interest.

8. This Order does not authorize any act that results in the taking of a candidate, threatened or endangered species, or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). If a "take" will result from any act authorized under this Order, the Petitioners shall obtain authorization for an incidental take permit prior to construction or operation of the project. Petitioners shall be responsible for meeting all requirements of the applicable Endangered Species Act for the temporary urgency change authorized under this Order.

9. Petitioners shall immediately notify the Executive Director of the State Water Board if any significant change in conditions occurs that warrants reconsideration of this Order.

STATE WATER RESOURCES CONTROL BOARD

ORIGINAL SIGNED BY:

Thomas Howard
Executive Director

Dated: February 28, 2014

TABLE 1
WATER QUALITY OBJECTIVES FOR
MUNICIPAL AND INDUSTRIAL BENEFICIAL USES

COMPLIANCE LOCATION	INTERAGENCY STATION NUMBER (RKI [1])	PARAMETER	DESCRIPTION (UNIT)	WATER YEAR TYPE [2]	TIME PERIOD	VALUE
Contra Costa Canal at Pumping Plant #1	*C-5 (CHCCC06)*	*Chloride (Cl)*	*Maximum mean daily 150 mg/l Cl for at least the number of days shown during the Calendar Year. Must be provided in intervals of not less than two weeks duration. (Percentage of Calendar Year shown in parenthesis)*			*No. of days each Calendar Year ≤ 150 mg/l Cl*
-or-				*W*		*240 (66%)*
San Joaquin River at Antioch Water Works Intake	*D-12 (near) (RSAN007)*			*AN*		*190 (52%)*
				BN		*175 (48%)*
				D		*165 (45%*
				C		*155 (42%)*
Contra Costa Canal at Pumping Plant #1	*C-5 (CHCCC06)*	*Chloride (Cl)*	*Maximum mean daily (mg/l)*	*All*	*Oct-Sep*	*250*
-and-						
West Canal at mouth of Clifton Court Forebay	*C-9 (CHWST0)*					
-and-						
Delta-Mendota Canal at Tracy Pumping Plant	*DMC-1 (CHDMC004)*					
-and-						
Barker Slough at North Bay Aqueduct Intake	*---- (SLSAR3)*					
-and-						
Cache Slough at City of Vallejo Intake [3]	*C-19 (SLCCH16)*					

[1] River Kilometer Index station number.
[2] The Sacramento Valley 40-30-30 water year hydrologic classification index (see Figure 1) applies for determinations of water year type.
[3] The Cache Slough objective to be effective only when water is being diverted from this location.

TABLE 2
WATER QUALITY OBJECTIVES FOR AGRICULTURAL BENEFICIAL USES

COMPLIANCE LOCATION	INTERAGENCY STATION NUMBER (RKI [1])	PARAMETER	DESCRIPTION (UNIT) [2]	WATER YEAR TYPE [3]	TIME PERIOD	VALUE
WESTERN DELTA						
Sacramento River at Emmaton	D-22 (RSAC092)	Electrical Conductivity (EC)	Maximum 14-day running average of mean daily EC (mmhos/cm)		0.45 EC April 1 to date shown	EC from date shown to Aug 15 [4]
				W	Aug 15	----
				AN	Jul 1	0.63
				BN	Jun 20	1.14
				D	Jun 15	1.67
				C	----	2.78
San Joaquin River at Jersey Point	D-15\ (RSAN018)	Electrical Conductivity (EC)	Maximum 14-day running average of mean daily EC (mmhos/cm)		0.45 EC April 1 to date shown	EC from date shown to Aug 15 [4]
				W	Aug 15	----
				AN	Aug 15	----
				BN	Jun 20	0.74
				D	Jun 15	1.35
				C	----	2.20
INTERIOR DELTA						
South Fork Mokelumne River at Terminous	C-13 (RSMKL08)	Electrical Conductivity (EC)	Maximum 14-day running average of mean daily EC (mmhos/cm)		0.45 EC April 1 to date shown	EC from date shown to Aug 15 [4]
				W	Aug 15	----
				AN	Aug 15	----
				BN	Aug 15	----
				D	Aug 15	----
				C	----	0.54
San Joaquin River at San Andreas Landing	C-4 (RSAN032)	Electrical Conductivity (EC)	Maximum 14-day running average of mean daily EC (mmhos/cm)		0.45 EC April 1 to date shown	EC from date shown to Aug 15 [4]
				W	Aug 15	----
				AN	Aug 15	----
				BN	Aug 15	----
				D	Jun 25	0.58
				C	----	0.87
SOUTHERN DELTA						
San Joaquin River at Airport Way Bridge, Vernalis -and- San Joaquin River at Brandt Bridge site[5] -and- Old River near Middle River [5] -and- Old River at Tracy Road Bridge [5]	C-10 (RSAN112) C-6 (RSAN073) C-8 (ROLD69) P-12 (ROLD59)	Electrical Conductivity (EC)	Maximum 30-day running average of mean daily EC (mmhos/cm)	All	Apr-Aug Sep-Mar	0.7 1.0
EXPORT AREA						
West Canal at mouth of Clifton Court Forebay -and- Delta-Mendota Canal at Tracy Pumping Plant	C-9 (CHWST0) DMC-1 (CHDMC004)	Electrical Conductivity (EC)	Maximum monthly average of mean daily EC (mmhos/cm)	All	Oct-Sep	1.0

[1] River Kilometer Index station number

[2] Determination of compliance with an objective expressed as a running average begins on the last day of the averaging period. The averaging period commences with the first day of the time period for the applicable objective. If the objective is not met on the last day of the averaging period, all days in the averaging period are considered out of compliance.

[3] The Sacramento Valley 40-30-30 water year hydrologic classification index (see Figure 1) applies for determinations of water year type

[4] When no date is shown, EC limit continues from April 1.

[5] The 0.7 EC objective becomes effective on April 1, 2005. The DWR and the USBR shall meet 1.0 EC at these stations year round until April 1, 2005. The 0.7 EC objective is replaced by the 1.0 EC objective from April through August after April 1, 2005 if permanent barriers are constructed, or equivalent measures are implemented, in the southern Delta and an operations plan that reasonably protects southern Delta agriculture is prepared by the DWR and the USBR and approved by the Executive Director of the SWRCB. The SWRCB will review the salinity objectives for the southern Delta in the next review of the Bay-Delta objectives following construction of the barriers.

TABLE 3
WATER QUALITY OBJECTIVES FOR FISH AND WILDLIFE BENEFICIAL USES

COMPLIANCE LOCATION	INTERAGENCY STATION NUMBER (RKI [1])	PARAMETER	DESCRIPTION (UNIT) [2]	WATER YEAR TYPE [3]	TIME PERIOD	VALUE
SAN JOAQUIN RIVER SALINITY						
San Joaquin River at and between Jersey Point and Prisoners Point [4]	*D-15 (RSAN018)* **-and-** *D-29 (RSAN038)*	*Electrical Conductivity (EC)*	*Maximum 14-day running average of mean daily EC(mmhos/cm)*	*W,AN,BN,D*	*Apr-May*	*0.44 [5]*
EASTERN SUISUN MARSH SALINITY						
Sacramento River at Collinsville **-and-** *Montezuma Slought at National Steel* **-and-** *Montezuma Slough near Beldon Landing*	*C-2 (RSAC081)* *S-64 (SLMZU25)* *S-49 (SLMZU11)*	*Electrical Conductivity (EC)*	*Maximum monthly average of both daily high tide EC values (mmhos/cm), or demonstrate that equivalent or better protection will be provided at the location*	*All*	*Oct* *Nov-Dec* *Jan* *Feb-Mar* *Apr-May*	*19.0* *15.5* *12.5* *8.0* *11.0*
WESTERN SUISUN MARSH SALINITY						
Chadbourne Slough at Sunrise Duck Club **-and-** *Suisun Slough, 300 feet south of Volanti Slough*	*S-21 (SLCBN1)* *S-42 (SLSUS12)*	*Electrical Conductivity (EC)*	*Maximum monthly average of both daily high tide EC values (mmhos/cm), or demonstrate that equivalent or better protection will be provided at the location*	*All but deficiency period [6]*	*Oct* *Nov* *Dec* *Jan* *Feb-Mar* *Apr-May*	*19.0* *16.5* *15.5* *12.5* *8.0* *11.0*
				Deficiency Period [6]	*Oct* *Nov* *Dec-Mar* *Apr* *May*	*19.0* *16.5* *15.6* *14.0* *12.5*

TABLE 3 (continued)
WATER QUALITY OBJECTIVES FOR FISH AND WILDLIFE BENEFICIAL USES

COMPLIANCE LOCATION	INTERAGENCY STATION NUMBER(RKI)[1]	PARAMETER	DESCRIPTION (UNIT) [2]	WATER YEAR TYPE [3]	TIME PERIOD	VALUE
DELTA OUTFLOW						
		Net Delta Outflow Index (NDOI) [7]	*Minimum monthly average [8] NDOI (cfs)*	*All*	*Jan*	*4,500 [9]*
				All	*Feb-Jun*	*[10]*
				W,AN	*Jul*	*8,000*
				BN		*6,500*
				D		*5,000*
				C		*4,000*
				W,AN,BN	*Aug*	*4,000*
				D		*3,500*
				C		*3,000*
				All	*Sep*	*3,000*
				W,AN,BN,D	*Oct*	*4,000*
				C		*3,000*
				W,AN,BN,D	*Nov-Dec*	*4,500*
				C		*3,500*
RIVER FLOWS						
Sacramento River at Rio Vista	*D-24 (RSAC101)*	*Flow rate*	*Minimum monthly average [11] flow rate (cfs)*	*All*	*Sep*	*3,000*
				W,AN,BN,D	*Oct*	*4,000*
				C		*3,000*
				W,AN,BN,D	*Nove-Dec*	*4,500*
				C		*3,500*
San Joaquin River at Airport Way Bridge, Vernalis	*C-10 (RSAN112)*	*Flow rate*	*Minimum monthly average [12] flow rate (cfs) [13]*	*W,AN*	*Feb-Apr 14 and May 16-Jun*	*2,130 or 3,420*
				BN,D		*1,420 or 2,280*
				C		*710 or 1,140*
				W	*Apr 15-May 15 [14]*	*7,330 or 8,620*
				AN		*5,730 or 7,020*
				BN		*4,620 or 5,480*
				D		*4,020 or 4,880*
				C		*3,110 or 3,540*
				All	*Oct*	*1,000 [15]*
EXPORT LIMITS						
		Combined export rate [16]	*Maximum 3-day running average (cfs)*	*All*	*Apr 15-May 15 [17]*	*[18]*
				All	*Feb-Jun*	*35% Delta inflow [21]*
			Maximum percent of Delta inflow diverted [19] [20]	*All*	*Jul-Jan*	*65% Delta inflow*
DELTA CROSS CHANNEL GATES CLOSURE						
Delta Cross Channel at Walnut Grove	---	*Closure of gates*	*Closed gates*	*All*	*Nov-Jan*	*[22]*
					Feb-May 20	---
					May 21-Jun 15	*[23]*

Table 3 Footnotes

[1] River Kilometer Index station number.

[2] Determination of compliance with an objective expressed as a running average begins on the last day of the averaging period. The averaging period commences with the first day of the time period of the applicable objective. If the objective is not met on the last day of the averaging period, all days in the averaging period are considered out of compliance.

[3] The Sacramento Valley 40-30-30 Water Year Hydrologic Classification Index (see Figure 1) applies unless otherwise specified.

[4] Compliance will be determined at Jersey Point (station D15) and Prisoners Point (station D29).

[5] This standard does not apply in May when the best available May estimate of the Sacramento River Index for the water year is less than 8.1 MAF at the 90% exceedence level. [Note: The Sacramento River Index refers to the sum of the unimpaired runoff in the water year as published in the DWR Bulletin 120 for the following locations: Sacramento River above Bend Bridge, near Red Bluff; Feather River, total unimpaired inflow to Oroville Reservoir; Yuba River at Smartville; and American River, total unimpaired inflow to Folsom Reservoir.]

[6] A deficiency period is: (1) the second consecutive dry water year following a critical year; (2) a dry water year following a year in which the Sacramento River Index (described in footnote 5) was less than 11.35 MAF; or (3) a critical water year following a dry or critical water year. The determination of a deficiency period is made using the prior year's final Water Year Type determination and a forecast of the current year's Water Year Type; and remains in effect until a subsequent water year is other than a Dry or Critical water year as announced on May 31 by DWR and USBR as the final water year determination.

[7] Net Delta Outflow Index (NDOI) is defined in Figure 3.

[8] For the May-January objectives, if the value is less than or equal to 5,000 cfs, the 7-day running average shall not be less than 1,000 cfs below the value; if the value is greater than 5,000 cfs, the 7-day running average shall not be less than 80% of the value.

[9] The objective is increased to 6,000 cfs if the best available estimate of the Eight River Index for December is greater than 800 TAF. [Note: The Eight River Index refers to the sum of the unimpaired runoff as published in the DWR Bulletin 120 for the following locations: Sacramento River flow at Bend Bridge, near Red Bluff; Feather River, total inflow to Oroville Reservoir; Yuba River flow at Smartville; American River, total inflow to Folsom Reservoir; Stanislaus River, total inflow to New Melones Reservoir; Tuolumne River, total inflow to Don Pedro Reservoir; Merced River, total inflow to Exchequer Reservoir; and San Joaquin River, total inflow to Millerton Lake.]

[10] The minimum daily net Delta outflow shall be 7,100 cfs for this period, calculated as a 3-day running average. This requirement is also met if either the daily average or 14-day running average EC at the confluence of the Sacramento and the San Joaquin rivers is less than or equal to 2.64 mmhos/cm (Collinsville station C2). If the best available estimate of the Eight River Index (described in footnote 9) for January is more than 900 TAF, the daily average or 14-day running average EC at station C2 shall be less than or equal to 2.64 mmhos/cm for at least one day between February 1 and February 14; however, if the best available estimate of the Eight River Index for January is between 650 TAF and 900 TAF, the Executive Director of the SWRCB is delegated authority to decide whether this requirement applies. If the best available estimate of the Eight River Index for February is less than 500 TAF, the standard may be further relaxed in March upon the request of the DWR and the USBR, subject to the approval of the Executive Director of the SWRCB. The standard does not apply in May and June if the best available May estimate of the Sacramento River Index (described in footnote 5) for the water year is less than 8.1 MAF at the 90% exceedence level.

Under this circumstance, a minimum 14-day running average flow of 4,000 cfs is required in May and June. Additional Delta outflow objectives are contained in Table 4.

[11] The 7-day running average shall not be less than 1,000 cfs below the monthly objective.

[12] Partial months are averaged for that period. For example, the flow rate for April 1-14 would be averaged over 14 days. The 7-day running average shall not be less than 20% below the flow rate objective, with the exception of the April 15-May 15 pulse flow period when this restriction does not apply.

[13] The water year classification for the San Joaquin River flow objectives will be established using the best available estimate of the 60-20-20 San Joaquin Valley Water Year Hydrologic Classification (see Figure 2) at the 75% exceedence level. The higher flow objective applies when the 2-ppt isohaline (measured as 2.64 mmhos/cm surface salinity) is required to be at or west of Chipps Island.

[14] This time period may be varied based on real-time monitoring. One pulse, or two separate pulses of combined duration equal to the single pulse, should be scheduled to coincide with fish migration in San Joaquin River tributaries and the Delta. The USBR will schedule the time period of the pulse or pulses in consultation with the USFWS, the NMFS, and the DFG. Consultation with the CALFED Operations Group established under the Framework Agreement will satisfy the consultation requirement. The schedule is subject to the approval of the Executive Director of the SWRCB.

[15] Plus up to an additional 28 TAF pulse/attraction flow during all water year types. The amount of additional water will be limited to that amount necessary to provide a monthly average flow of 2,000 cfs. The additional 28 TAF is not required in a critical year following a critical year. The pulse flow will be scheduled by the DWR and the USBR in consultation with the USFWS, the NMFS and the DFG. Consultation with the CALFED Operations Group established under the Framework Agreement will satisfy the consultation requirement.

[16] Combined export rate for this objective is defined as the Clifton Court Forebay inflow rate (minus actual Byron-Bethany Irrigation District diversions from Clifton Court Forebay) and the export rate of the Tracy pumping plant.

[17] This time period may be varied based on real-time monitoring and will coincide with the San Joaquin River pulse flow described in footnote 18. The DWR and the USBR, in consultation with the USFWS, the NMFS and the DFG, will determine the time period for this 31-day export limit. Consultation with the CALFED Operations Group established under the Framework Agreement will satisfy the consultation requirement.

[18] Maximum export rate is 1,500 cfs or 100% of 3-day running average of San Joaquin River flow at Vernalis, whichever is greater. Variations to this maximum export rate may be authorized if agreed to by the USFWS, the NMFS and the DFG. This flexibility is intended to result in no net water supply cost annually within the limits of the water quality and operational requirements of this plan. Variations may result from recommendations of agencies for protection of fish resources, including actions taken pursuant to the State and federal Endangered Species Act. Any variations will be effective immediately upon notice to the Executive Director of the SWRCB. If the Executive Director of the SWRCB does not object to the variations within 10 days, the variations will remain in effect. The Executive Director of the SWRCB is also authorized to grant short-term exemptions to export limits for the purpose of facilitating a study of the feasibility of recirculating export water into the San Joaquin River to meet flow objectives.

[19] Percent of Delta inflow diverted is defined in Figure 3. For the calculation of maximum percent Delta inflow diverted, the export rate is a 3-day running average and the Delta inflow is a 14-day running average, except when the CVP or the SWP is making storage withdrawals for export, in which case both the export rate and the Delta inflow are 3-day running averages.

[20] The percent Delta inflow diverted values can be varied either up or down. Variations are authorized subject to the process described in footnote 18.

[21] If the best available estimate of the Eight River Index (described in footnote 9) for January is less than or equal to 1.0 MAF, the export limit for February is 45% of Delta inflow. If the best available estimate of the Eight River Index for January is greater than 1.5 MAF, the February export limit is 35% of Delta inflow. If the best available estimate of the Eight River Index for January is between 1.0 MAF and 1.5 MAF, the DWR and the USBR will set the export limit for February within the range of 35% to 45%, after consultation with the USFWS, the NMFS and the DFG. Consultation with the CALFED Operations Group established under the Framework Agreement will satisfy the consultation requirement.

[22] For the November-January period, close Delta Cross Channel gates for a total of up to 45 days. The USBR will determine the timing and duration of the gate closure after consultation with the USFWS, the NMFS and the DFG. Consultation with the CALFED Operations Group established under the Framework Agreement will satisfy the consultation requirement.

[23] For the May 21-June 15 period, close Delta Cross Channel gates for a total of 14 days. The USBR will determine the timing and duration of the gate closure after consultation with the USFWS, the NMFS and the DFG. Consultation with the CALFED Operations Group established under the Framework Agreement will satisfy the consultation requirement.

Figure 1
Sacramento Valley
Water Year Hydrologic Classification

Year classification shall be determined by computation of the following equation:

$$\textbf{INDEX} = 0.4 * X + 0.3 * Y + 0.3 * Z$$

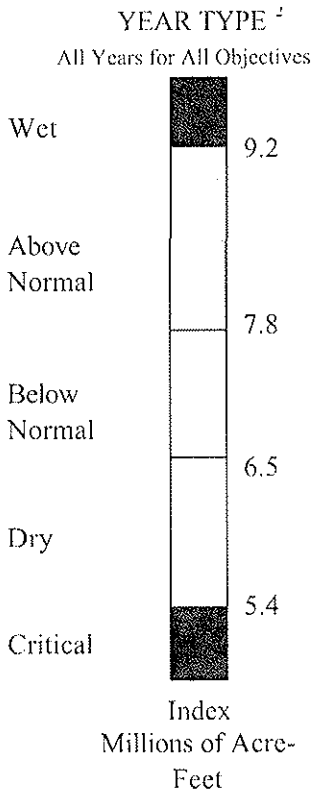
Where: X = Current year's April – July Sacramento Valley unimpaired runoff

Y = Current October – March Sacramento Valley unimpaired runoff

Z = Previous year's index[1]

The Sacramento Valley unimpaired runoff for the current water year (October 1 of the preceding calendar year through September 30 of the current calendar year), as published in California Department of Water Resources Bulletin 120, is a forecast of the sum of the following locations: Sacramento River above Bend Bridge, near Red Bluff; Feather River, total inflow to Oroville Reservoir; Yuba River at Smartville; American River, total inflow to Folsom Reservoir. Preliminary determinations of year classification shall be made in February, March, and April with final determination in May. These preliminary determinations shall be based on hydrologic conditions to date plus forecasts of future runoff assuming normal precipitation for the remainder of the water year.

Classification	Index Millions of Acre-Feet (MAF)
Wet.....	Equal to or greater than 9.2
Above Normal.....	Greater than 7.8 and less than 9.2
Below Normal.....	Equal to or less than 7.8 and greater than 6.5
Dry.....	Equal to or less than 6.5 and greater than 5.4
Critical.....	Equal to or less than 5.4



[1] A cap of 10.0 MAF is put on the previous year's index (Z) to account for required flood control reservoir releases during wet years.

[2] The year type for the preceding water year will remain in effect until the initial forecast of unimpaired runoff for the current water year is available.

Figure 2
San Joaquin Valley
Water Year Hydrologic Classification

Year classification shall be determined by computation of the following equation:

$$\mathbf{INDEX = 0.6 * X + 0.2 * Y + 0.2 * Z}$$

Where: X = Current year's April – July
San Joaquin Valley unimpaired runoff

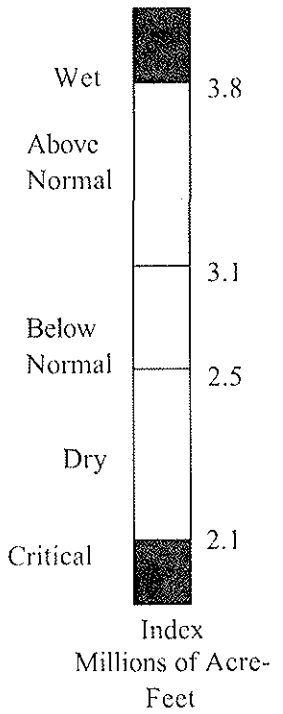
Y = Current October – March
San Joaquin Valley unimpaired runoff

Z = Previous year's index[1]

The San Joaquin Valley unimpaired runoff for the current water year (October 1 of the preceding calendar year through September 30 of the current calendar year), as published in California Department of Water Resources Bulletin 120, is a forecast of the sum of the following locations: Stanislaus River, total flow to New Melones Reservoir; Tuolumne River, total inflow to Don Pedro Reservoir; Merced River, total flow to Exchequer Reservoir; San Joaquin River, total inflow to Millerton Lake. Preliminary determinations of year classification shall be made in February, March, and April with final determination in May. These preliminary determinations shall be based on hydrologic conditions to date plus forecasts of future runoff assuming normal precipitation for the remainder of the water year.

Classification	Index Millions of Acre-Feet (MAF)
Wet.....	Equal to or greater than 3.8
Above Normal.....	Greater than 3.1 and less than 3.8
Below Normal.....	Equal to or less than 3.1 and greater than 2.5
Dry.....	Equal to or less than 2.5 and greater than 2.1
Critical.....	Equal to or less than 2.1

YEAR TYPE [2]
All Years for All Objectives



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[1] A cap of 4.5 MAF is put on the previous year's index (Z) to account for required flood control reservoir releases during wet years.

[2] The year type for the preceding water year will remain in effect until the initial forecast of unimpaired runoff for the current water year is available.

Figure 3
NDOI and PERCENT INFLOW DIVERTED [1]

The NDOI and the percent inflow diverted, as described in this footnote, shall be computed daily by the DWR and the USBR using the following formulas (all flows are in cfs):

NDOI = DELTA INFLOW - NET DELTA CONSUMPTIVE USE - DELTA EXPORTS

PERCENT INFLOW DIVERTED = (CCF + TPP) ÷ DELTA INFLOW

where *DELTA INFLOW = SAC + SRTP + YOLO + EAST + MISC + SJR*

SAC	=	Sacramento River at Freeport mean daily flow for the previous day; the 25-hour tidal cycle measurements from 12:00 midnight to 1:00 a.m. may be used instead.
SRTP	=	Sacramento Regional Treatment Plant average daily discharge for the previous week.
YOLO	=	Yolo Bypass mean daily flow for the previous day, which is equal to the flows from the Sacramento Weir, Fremont Weir, Cache Creek at Rumsey, and the South Fork of Putah Creek.
EAST	=	Eastside Streams mean daily flow for the previous day from the Mokelumne River at Woodbridge, Cosumnes River at Michigan Bar, and Calaveras River at Bellota.
MISC	=	Combined mean daily flow for the previous day of Bear Creek, Dry Creek, Stockton Diverting Canal, French Camp Slough, Marsh Creek, and Morrison Creek.
SJR	=	San Joaquin River flow at Vernalis, mean daily flow for the previous day.

where *NET DELTA CONSUMPTIVE USE = GDEPL - PREC*

GDEPL	=	Delta gross channel depletion for the previous day based on water year type using the DWR's latest Delta land use study.[2]
PREC	=	Real-time Delta precipitation runoff for the previous day estimated from stations within the Delta.

and where *DELTA EXPORTS*[3] *= CCF + TPP + CCC + NBA*

CCF	=	Clifton Court Forebay inflow for the current day.[4]
TPP	=	Tracy Pumping Plant pumping for the current day.
CCC	=	Contra Costa Canal pumping for the current day.
NBA	=	North Bay Aqueduct pumping for the current day.

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1 Not all of the Delta tributary streams aregaged and telemetered. When appropriate, other methods of estimating stream flows, such as correlations with precipitation or runoff from nearbystreams, may be used instead.

2 The DWR is currently developing new channel depletion estimates. If these new estimates are not available, DAYFLOW channel depletion estimates shall be used.

3 The term "Delta Exports" is used only to calculate the NDOI. It is not intended todistinguish among the listed diversions with respect to eligibility for protection under the area of origin provisions of the California Water Code.

4 Actual Byron-Bethany Irrigation District withdrawals fro m Clifton CourtForebay shall be subtracted from Clifton Court Forebay inflow. (Byron-Bethany Irrigation District water use is incorporated into the GDEPL term.

Table 4. Number of Days When Maximum Daily Average Electrical Conductivity of 2.64 mmhos/cm Must Be Maintained at Specified Location

Number of Days When Maximum Daily Average Electrical Conductivity of 2.64 mmhos/cm Must Be Maintained at Specified Location [a]

PMI[b] (TAF)	Chipps Island (Chipps Island Station D10)					PMI[b] (TAF)	Port Chicago (Port Chicago Station C14) [d]					PMI[b] (TAF)	Port Chicago (Port Chicago Station C14)[d]				
	FEB	MAR	APR	MAY	JUN		FEB	MAR	APR	MAY	JUN		FEB	MAR	APR	MAY	JUN
≤ 500	0	0	0	0	0	0	0	0	0	0	0	5250	27	29	25	26	6
750	0	0	0	0	0	250	1	0	0	0	0	5500	27	29	26	28	9
1000	28[c]	12	2	0	0	500	4	1	0	0	0	5750	27	29	27	28	13
1250	28	31	6	0	0	750	8	2	0	0	0	6000	27	29	27	29	16
1500	28	31	13	0	0	1000	12	4	0	0	0	6250	27	30	27	29	19
1750	28	31	20	0	0	1250	15	6	1	0	0	6500	27	30	28	30	22
2000	28	31	25	1	0	1500	18	9	1	0	0	6750	27	30	28	30	24
2250	28	31	27	3	0	1750	20	12	2	0	0	7000	27	30	28	30	26
2500	28	31	29	11	1	2000	21	15	4	0	0	7250	27	30	28	30	27
2750	28	31	29	20	2	2250	22	17	5	1	0	7500	27	30	29	30	28
3000	28	31	30	27	4	2500	23	19	8	1	0	7750	27	30	29	31	28
3250	28	31	30	29	8	2750	24	21	10	2	0	8000	27	30	29	31	29
3500	28	31	30	30	13	3000	25	23	12	4	0	8250	28	30	29	31	29
3750	28	31	30	31	18	3250	25	24	14	6	0	8500	28	30	29	31	29
4000	28	31	30	31	23	3500	25	25	16	9	0	8750	28	30	29	31	30
4250	28	31	30	31	25	3750	26	26	18	12	0	9000	28	30	29	31	30
4500	28	31	30	31	27	4000	26	27	20	15	0	9250	28	30	29	31	30
4750	28	31	30	31	28	4250	26	27	21	18	1	9500	28	31	29	31	30
5000	28	31	30	31	29	4500	26	28	23	21	2	9750	28	31	29	31	30
5250	28	31	30	31	29	4750	27	28	24	23	3	10000	28	31	30	31	30
≤ 5500	28	31	30	31	30	5000	27	28	25	25	4	>10000	28	31	30	31	30

[a] The requirement for number of days the maximum daily average EC (EC) of 2.64 mmhos per centimeter (mmhos/cm) must be maintained at Chipps Island and Port Chicago can also be met with maximum 14-day running average EC of 2.64 mmhos/cm, or 3-day running average NDOIs of 11,400 cfs and 29,200 cfs, respectively. If salinity/flow objectives are met for a greater number of days than the requirements for any month, the excess days shall be applied to meeting the requirements for the following month. The number of days for values of the PMI between those specified in this table shall be determined by linear interpolation.

[b] PMI is the best available estimate of the previous month's Eight River Index. (Refer to Footnote 10 for Table 3 for a description of the Eight River Index.)

[c] When the PMI is between 800 TAF and 1000 TAF, the number of days the maximum daily average EC of 2.64 mmhos/cm (or maximum 14-day running average EC of 2.64 mmhos/cm, or 3-day running average NDOI of 11,400 cfs) must be maintained at Chipps Island in February is determined by linear interpolation between 0 and 28 days.

[d] This standard applies only in months when the average EC at Port Chicago during the 14 days immediately prior to the first day of the month is less than or equal to 2.64 mmhos/cm.

ATTACHMENT

9

STATE WATER RESOURCES CONTROL BOARD
RESOLUTION NO. 2012-0029

DELEGATION OF AUTHORITY TO STATE WATER RESOURCES CONTROL BOARD MEMBERS INDIVIDUALLY AND TO THE DEPUTY DIRECTOR FOR WATER RIGHTS

WHEREAS:

1. Pursuant to Water Code section 7, the State Water Resources Control Board (State Water Board or Board) is authorized to delegate authority to the Board Members individually and to the Deputy Director for Water Rights;

2. Water Code section 186, subdivision (b) directs the State Water Board to appoint a chief of the Division of Water Rights (Division), who shall supervise the work of the Division and act as a technical advisor to the Board on functions under his or her jurisdiction. The State Water Board refers to the chief of the Division as the Deputy Director for Water Rights (Deputy Director);

3. The State Water Board has delegated authority to the Board Members individually and to the Deputy Director as specified in the delegation document approved by Resolution No. 2007-0057; and

4. To promote efficiency in administering the water right program, it is desirable to delegate authority to the Board Members individually and to the Deputy Director to act on behalf of the State Water Board.

THEREFORE BE IT RESOLVED THAT:

The State Water Board:

1. That Resolution No. 2007-0057 is revoked.

2. That the State Water Board delegates to the Board Members individually the authority to:

   2.1. Act on an application or request for renewal of a conditional temporary water right permit pursuant to chapter 6.5 (commencing with section 1425) of part 2 of division 2 of the Water Code. This delegation includes the authority to:

      2.1.1. Hold a hearing on any application or request for renewal made pursuant to chapter 6.5.

      2.1.2. Make the findings required by chapter 6.5 as conditions precedent to the issuance or renewal of a temporary permit.

      2.1.3. Make any findings required by the California Environmental Quality Act (CEQA), Public Resources Code section 21000 et seq.

2.2. Act on a petition or request for renewal of a conditional temporary urgency change pursuant to chapter 6.6 (commencing with section 1435) of part 2 of division 2 of the Water Code. This delegation includes the authority to:

2.2.1. Hold a hearing on any petition or request for renewal made pursuant to chapter 6.6.

2.2.2. Make the findings required by chapter 6.6 as conditions precedent to the issuance or renewal of a temporary change order.

2.2.3. Make any findings required by CEQA as conditions precedent to the issuance or renewal of a temporary change order.

2.3. During the trial review period, act on a request for review by an applicant or protestant of Division staff determinations regarding application and petition processing under the Policy for Maintaining Flows in the Northern California Coastal Streams (Policy), prior to final Board action. The scope of issues subject to such review shall be determined by the Division pursuant to Section 3.4.3 of the Policy.

3. That the State Water Board delegates the authority herein to the Deputy Director with the following direction:

3.1 The enumeration of delegated authorities in this resolution shall not be interpreted as revoking authorities already delegated, or hereafter delegated, to the Executive Director or to the Deputy Director, from the State Water Board or the Executive Director.

3.2. Unless otherwise specified in this resolution, the authorities delegated to the Deputy Director under this resolution may not be redelegated except in the absence of the Deputy Director. The Deputy Director may delegate to a senior member of the Division staff the authority to act on his or her behalf when the Deputy Director is absent or recused. Where this resolution authorizes the redelegation of authority, and the Deputy Director makes such redelegation, the staff member to whom the authority has been redelegated may further delegate to a member of the Division staff the ability to act on his or her behalf when the Division staff member is absent or recused, unless the Deputy Director directs otherwise.

3.3. For purposes of this resolution, and for any purposes of any other resolution, decision, or order assigning or delegating responsibility to Chief of the Division of Water Rights, that reference means the Deputy Director for Water Rights, Assistant Deputy Director for Water Rights, or other officer or employee of the State Water Board who is responsible for managing the activities of the Division of Water Rights.

3.4. The Deputy Director shall administer and implement the delegation under this resolution as follows:

3.4.1. Maintain the delegation, including any appendices, redelegation memoranda, and subsequent resolutions that add to, amend, or revoke the authorities identified therein.

3.4.2. Every two years, review the authority delegated herein and recommend to the State Water Board whether or not to revise the delegation.

3.4.3. In exercising the authority delegated herein, and without restricting the authority specified, bring the following matters to the attention of the members of the State Water Board by appropriate communication:

3.4.3.1. Matters of a unique or unusual nature;

3.4.3.2. Matters that appear to depart from the policies of the State Water Board;

3.4.3.3. Matters involving significant policy questions;

3.4.3.4. Highly controversial matters;

3.4.3.5. Matters that involve a substantial risk of litigation;

3.4.3.6. Any matter that a Board Member requests to be brought to the attention of the State Water Board; and

3.4.3.7. Any matter that, in the judgment of the Deputy Director, should be brought to the attention of the State Water Board.

4. That the State Water Board delegates to the Deputy Director the authority to take the following actions:

4.1. General Administration.

4.1.1. Conduct and supervise the general administrative activities of the Division, including preparing and signing documents, transmitting documents adopted or approved by the State Water Board, and maintaining custody of records. This general administrative authority may be redelegated.

4.1.2. Issue subpoenas for the attendance of witnesses and the introduction of evidence before the State Water Board with respect to all proceedings for which the Division has program responsibility. This authority may be redelegated.

4.1.3. Amend or modify a decision or order to correct any obvious typographical or clerical error or oversight, pursuant to Water Code section 1124. This authority may be redelegated.

4.1.4. Develop and maintain a list of standard permit terms in accordance with California Code of Regulations, title 23, section 780. This authority may be redelegated.

4.1.5. Request the Attorney General to institute appropriate proceedings in the superior court in accordance with Water Code section 1052 or 1845.

4.1.6 Assess and collect fees in accordance with chapter 8 (commencing with section 1525) of part 2 of division 2 of the Water Code or section 13160.1 of the Water Code. This authority may be redelegated.

4.1.7 Cancel an application, registration, petition, request, or claim for failure to pay a fee when due pursuant to Water Code section 1535, subdivision (b).) This delegation may be redelegated.

4.1.8 Amend or modify water quality control plans adopted by the State Water Board to correct any obvious typographical or clerical error or oversight, or to make clarifying changes requested by the Office of Administrative Law, after notice to the Executive Director.

4.2 Appropriation of Water.

4.2.1 Prepare and sign notices of applications to appropriate water. This authority may be redelegated.

4.2.2 Act on a request by an applicant for an extension of time to complete an application to appropriate water in accordance with California Code of Regulations, title 23, section 681. This authority may be redelegated.

4.2.3 Request additional information from an applicant or petitioner in accordance with Water Code sections 1275, 1334, 1701.3, or 1703.5. This authority may be redelegated.

4.2.4 Act on applications and change petitions pursuant to Water Code sections 1340 et seq., and 1701 et seq. after proceedings in accordance with Water Code sections 1345-1348 or 1704.1-1704.4 or in proceedings where no hearing is required in accordance with Water Code section 1351 or 1704, subdivision (c). In the case of change petitions, this authority includes the authority to issue an amended permit or license if the change petition is approved. This authority may be redelegated.

4.2.5 Act on a request to allow additional time to submit information pursuant to Water Code section 1276 or 1701.4. This authority may be redelegated.

4.2.6 Act on a request to approve a compliance plan, monitoring plan, conservation plan, and other programs, plans, reports, or evaluations required to be submitted to the State Water Board as a condition of a permit, license, or enforcement order. This authority may be redelegated.

4.2.7 Act on a request for an extension of time to complete construction or beneficial use of water under a permit in accordance with California Code of Regulations, title 23, sections 840-848, provided that an extension may be granted only if (a) there are no competing projects that would be adversely affected; (b) there are no outstanding protests; and (c) either: (1) the extension is for ten years or less and the period of the extension in

combination with all extensions previously granted under delegated authority does not exceed 15 years; or (2) the extension is for a municipality, the period of extension in combination with all extensions previously granted under delegated authority does not exceed 25 years, and the Deputy Director finds that the time extension is necessary to serve development allowable under the applicable land-use plan for the place of use identified in the permit. This includes the authority to issue an amended permit if the extension of time is approved, consistent with the order approving the extension of time. This authority may be redelegated to the Assistant Deputy Directors.

4.2.8 Act on a request for an extension of time to meet a deadline, other than the time to complete construction or put water to beneficial use, contained in a permit if no Board Member objects after being informed by appropriate communication. This authority may be redelegated.

4.2.9 Issue permits or licenses, amendments thereto, change orders, and extension orders after the State Water Board issues a decision or order. This authority may be redelegated to the Assistant Deputy Directors.

4.2.10 Prepare and sign licenses when the terms and conditions have been accepted by the permittee. This authority may be redelegated.

4.2.11 Correct the description in an application, permit, or license of the point of diversion, place of use, purpose of use, or name of source if (a) there is no physical change in project facilities already constructed or the current use of water, or no change in the intent of the applicant or permittee regarding the proposed location of project facilities or use of water, and (b) no one could have been misled by the original description. This authority may be redelegated.

4.2.12 Make changes to cover incidental uses of a reservoir in accordance with California Code of Regulations, title 23, section 798. This authority may be redelegated.

4.2.13 Issue separate permits or licenses or act on a request to split applications to replace an existing application, permit or license when the place of use has been divided into two or more ownerships and each owner succeeds to a separate interest in the permit or license. Cancel or revoke the existing application, permit or license provided that no objection is received from any of the owners. This authority may be redelegated.

4.2.14 Act on an application or a request for renewal of a temporary water right permit pursuant to chapter 6.5 (commencing with section 1425) of part 2 of division 2 of the Water Code if there are no outstanding objections. This authority may be redelegated to the Assistant Deputy Directors in the absence of the Deputy Director.

4.3 Protests.

4.3.1 Request information from a protestant in accordance with Water Code sections 1332, 1334, 1703.3, or 1703.5. This authority may be redelegated.

4.3.2 Act on requests to extend time for filing protests and answers to protests and approve a request upon finding that good cause has been shown. This authority may be redelegated.

4.3.3 Cancel a protest in accordance with Water Code section 1335 or 1703.6. This authority may be redelegated to the Assistant Deputy Directors.

4.3.4 Reject protests which do not substantially comply with the requirements of the Water Code or title 23 of the California Code of Regulations. This authority may be redelegated.

4.4 Transfers or Temporary Changes.

4.4.1 Act on a petition for a temporary urgency change, or a request for renewal of a temporary change order, pursuant to chapter 6.6 (commencing with section 1435) of part 2 of division 2 of the Water Code. If the State Water Board receives any objections to a petition for a temporary urgency change, the Deputy Director shall refer the matter to the Executive Director for action under section 2.2. This authority may be redelegated to the Assistant Deputy Directors in the absence of the Deputy Director.

4.4.2 Act on a petition for a temporary change due to a transfer of water or water rights in accordance with Water Code sections 1725-1732 if the State Water Board does not hold a hearing. This authority may be redelegated to the Assistant Deputy Directors in the absence of the Deputy Director.

4.4.3 Act on a petition for a long-term transfer of water or water rights involving a change of point of diversion, place of use, or purpose of use in accordance with Water Code sections 1735-1737, following notice of the proposed transfer, if the State Water Board does not hold a hearing. This authority may be redelegated to the Assistant Deputy Directors in the absence of the Deputy Director.

4.5 Cancellation or Revocation.

4.5.1 Issue a notice of proposed cancellation of an application pursuant to California Code of Regulations, title 23, section 845, a notice of proposed revocation of a permit pursuant to Water Code section 1410 et seq., or a notice of proposed revocation of a license pursuant to Water Code section 1675 et seq.

4.5.2 Prepare and sign orders canceling or revoking an application, petition, permit, or license to appropriate water, under any of the following circumstances:

4.5.2.1 When requested by the applicant, petitioner, permittee, or licensee. This authority may be redelegated.

4.5.2.2 When an applicant or petitioner fails to timely provide information in accordance with Water Code sections 1276, 1335, 1701.4, or 1703.6, and does not show good cause for additional time to submit the requested information under Water Code section 1276 or 1701.4. This authority may be redelegated to the Assistant Deputy Directors.

4.5.2.3 When the application or petition is defective or incomplete and has not been perfected within the time allowed for that purpose, and no request for extension of time is filed. This authority may be redelegated to the Assistant Deputy Directors.

4.5.2.4 When the applicant or petitioner fails to submit complete or adequate information in accordance with Government Code section 65956. This authority may be redelegated to the Assistant Deputy Directors.

4.5.2.5 When fees have not been paid within the time required by law. This authority may be redelegated to the Assistant Deputy Directors.

4.5.2.6 When the applicant or petitioner fails to file an affidavit of posting or publication of notice as required by law. This authority may be redelegated to the Assistant Deputy Directors.

4.5.2.7 When an application is conditionally approved and the applicant fails to comply with the conditions or to inform the State Water Board that it has complied, within a reasonable time or the time provided, pursuant to California Code of Regulations, title 23, section 845, except when the applicant requests a hearing after notice of the proposed cancellation. This authority may be redelegated to the Assistant Deputy Directors.

4.5.2.8 When a permit is issued subject to continuing compliance with one or more specified conditions and the permittee fails to certify compliance with the conditions, or it is discovered that the permittee is not complying with a specified condition, pursuant to California Code of Regulations, title 23, section 845, except when the permittee requests a hearing after notice of proposed revocation. This authority may be redelegated to the Assistant Deputy Directors.

4.5.2.9 After notice of proposed revocation pursuant to Water Code section 1410 or 1675 has been sent to the permittee or licensee and no request for hearing has been received. This authority may be redelegated.

4.5.2.10 When the stream has been declared fully appropriated in accordance with Water Code section 1206, subdivision (a), Board Order WR 98-08, and any orders that supersede or modify Order WR 98-08. This authority may be redelegated to the Assistant Deputy Directors.

4.5.3 Act on requests to set aside the revocation of a permit or license, in accordance with Water Code section 1410.2 or 1675.2.

4.6 Small Domestic Use, Small Irrigation Use or Livestock Stockpond Use.

4.6.1 Act on claims for stockpond certificates and registrations (including renewal of registrations) for small domestic use, small irrigation use, or livestock stockpond use in accordance with Water Code sections 1226 et seq. and 1228 et seq., including revoking a certificate or registration pursuant to Water Code section 1226.4 or 1228.4, except that the Deputy Director is not authorized to revoke a certificate or registration if a notice of proposed revocation has been sent to the certificate holder or registrant and a request for hearing has been received. This authority may be redelegated.

4.6.2 Establish and revise a list of general conditions to be applied to small domestic use or livestock stockpond use registrations as authorized by Water Code section 1228.6, and to small irrigation use registrations as authorized by Water Code sections 1228.6 and 1229. This authority may be redelegated.

4.7 Determination of Rights.

4.7.1 Prepare and announce draft reports of referee in accordance with Water Code section 2010 et seq.

4.7.2 Apportion the State Water Board's expenses among the parties, request the court to order interim or partial payment of expenses, and take steps necessary to ensure collection of the expenses in accordance with Water Code section 2040 et seq.

4.7.3 Perform the following duties pursuant to "Order of Appointment of California State Water Resources Control Board as Special Master," issued by the United States District Court for the District of Nevada, on April 9, 1990, in *United States of America v. Walker River Irrigation District*, In Equity No. C-125 ("the Walker River Action"), and the accompanying Administrative Rules and Regulations (as amended by "Final Order Pursuant to Stipulation," issued on June 3, 1996):

4.7.3.1 Accept, or reject as defective or incomplete, compliance applications (as defined in the Administrative Rules and Regulations) and applications to change point of diversion, manner of use, or place of use of water in the exercise in California of water rights identified in the decree in the Walker River Action. This authority may be redelegated to the Assistant Deputy Directors.

4.7.3.2 Process applications in the manner required by the Order of Appointment, including publishing and mailing notices, acting on protests, conducting a field investigation, preparing and announcing the draft report of Special Master, accepting objections to the draft report and, if there are no issues that require a hearing before the State Water Board, adopting the final report of Special Master. This authority may be redelegated to the Assistant Deputy Directors.

4.7.3.3 Following final action by the State Water Board to approve or reject the change application, prepare a statement of total expense incurred by the State Water Board in conducting the proceeding, together with an equitable apportionment of such total expense among the parties to the proceeding. This authority may be redelegated to the Assistant Deputy Directors.

4.7.3.4 Prepare, announce, serve, and file the Report of Special Master, including therein the statement of total expense and the equitable apportionment thereof. This authority may be redelegated to the Assistant Deputy Directors.

4.7.3.5 Prepare and transmit to the court a certified copy of the record of proceeding for judicial review of the Report of Special Master. This authority may be redelegated to the Assistant Deputy Directors.

4.8 Statutory Adjudications.

4.8.1 Prepare, issue, cause to be published, and record notices of statutory adjudication proceedings in accordance with Water Code sections 2526-2529. This authority may be redelegated.

4.8.2 Conduct investigations of stream systems in accordance with Water Code section 2550 et seq., including providing notice of investigations, conducting field investigations, and determining facts. This authority may be redelegated.

4.8.3 Issue any notices, copies of factual determinations, reports, objections, orders, or other correspondence or documents authorized by chapter 3 (commencing with section 2500) of part 3 of division 2 of the Water Code. This authority may be redelegated.

4.8.4 Prepare and issue a notice of inspection of proofs and evidence in accordance with Water Code section 2625 et seq. This authority may be redelegated.

4.8.5 Prepare and issue the report, preliminary order of determination, and notice in accordance with Water Code sections 2600-2604.

4.8.6 Take actions to file the final State Water Board order with the superior court in accordance with Water Code sections 2750-2756, including filing the required documents and communicating with the superior court, and mailing and causing the order to be published.

4.8.7 Furnish copies of the decree or supplemental decree and notice of entry to water right claimants in accordance with Water Code sections 2825-2826.

4.8.8 Take actions to apportion and collect the State Water Board's expenses and costs against the parties to the proceeding in accordance with Water Code section 2850 et seq., including mailing statements of expense, ordering interim or partial payments, and taking steps necessary to ensure collection of the expenses.

4.9 Enforcement of Water Rights and Complaints.

4.9.1 Issue a notice of cease and desist order and, when a hearing has not been timely requested, issue a cease and desist order in accordance with Water Code section 1831 et seq. This authority may be redelegated to the Assistant Deputy Directors.

4.9.2 Issue an order imposing administrative civil liability when a complaint has been issued and no hearing has been requested within the period provided under Water Code section 1055. This authority may be redelegated to the Assistant Deputy Directors.

4.9.3 Take actions to collect unpaid fees and initiate subsequent enforcement actions, including revocation of permits or licenses, pursuant to Water Code section 1535 et seq. This authority may be redelegated to the Assistant Deputy Directors.

4.9.4 Dismiss an incomplete complaint filed pursuant to California Code of Regulations, title 23, section 820. This authority may be redelegated.

4.9.5 Dismiss a complaint filed under California Code of Regulations, title 23, sections 820 or 856, or under the public trust, where: (a) the complainant does not show good cause for the State Water Board to investigate an allegation of misuse of water; (b) an investigation results in the determination that no violation or misuse of water has occurred; (c) the alleged violation or misuse of water that forms the basis of the complaint has been remedied; or (d) the State Water Board declines to exercise its discretion to investigate or prosecute an allegation that a violation has occurred. This authority may be redelegated to the Assistant Deputy Directors.

4.10 California Environmental Quality Act.

4.10.1 Take actions to comply with CEQA for all projects carried out or approved by the State Water Board in connection with the administration of the water right program to the extent authorized under section 15025 of the State CEQA Guidelines (Cal. Code Regs., tit. 14, § 15000 et seq.). This authority shall be

exercised in conformity with the State CEQA Guidelines and the State Water Board's regulations. This authority may be redelegated.

4.11 Certification of Water Right.

4.11.1 In response to a request for certification made pursuant to Public Resources Code section 26013 or Public Utilities Code section 2821, certify or decline to certify that:

4.11.1.1 The State Water Board has issued a water right permit for the appropriation of water for the operation of a hydroelectric facility; or

4.11.1.2 In the opinion of the State Water Board, the energy producer possesses riparian or other water rights that authorize the operation of a hydroelectric facility.

4.12 Water Quality.

4.12.1 Enter into or decline to enter into collaborative communication protocol agreements for licensing and relicensing of hydroelectric projects pursuant to the Federal Energy Regulatory Commission's regulation at 18 Code of Federal Regulations part 4.34(i)(3)(ii). In recognition of the State Water Board's adjudicative responsibilities, and the requirement that it avoid bias, prejudice, or interest in contested matters subject to its approval, this delegation applies only to agreements that do not bind or commit the State Water Board to approve or disapprove an application for water quality certification, water right permit application, or petition for water right change order, or any term or condition of such an approval. This authority may be redelegated to the Assistant Deputy Directors.

4.12.2 Establish monitoring, inspection, entry, reporting and recordkeeping requirements and require other information as may reasonably be required, pursuant to Water Code section 13383, for activities subject to water quality certification under section 401 of the Clean Water Act that involve the diversion of water for beneficial use. This authority may be redelegated.

4.12.3 Request the Attorney General to institute appropriate proceedings in the superior court in accordance with Water Code sections 13350, 13385 or 13386, if the violation relates to water quality certification of an activity involving the diversion of water for beneficial use.

4.13 Groundwater Extraction Recordation Program.

4.13.1 Designate local agencies, in accordance with the requirements of Water Code section 5009, to administer the groundwater extraction recordation program. This authority may be redelegated to the Assistant Deputy Director.

4.14 Policy for Maintaining Instream Flows in Northern California Coastal Streams

4.14.1 Implement the Policy for Maintaining Instream Flows in Northern California Coastal Streams (Policy) by approving, denying approval, or retracting approval of watershed group project charters and diversion management plans; making the preliminary determinations necessary to process applications, petitions and registrations pursuant to the policy; and approving or denying exceptions to policy provisions as outlined in the policy, except case-by-case exceptions to policy provisions sought pursuant to section 9.0 of the policy. This authority does not include the authority to act on the merits of applications or petitions where there are unresolved protests, or any other authority not subject to delegation. This authority may be redelegated.

CERTIFICATION

The undersigned Clerk to the Board, does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the State Water Board held on June 5, 2012.

AYE:	Chairman Charles R. Hoppin Vice Chair Frances Spivy-Weber Board Member Tam M. Doduc Board Member Steven Moore
NAY:	None
ABSENT:	None
ABSTAIN:	None

Jeanine Townsend
Clerk to the Board

ATTACHMENT

10

STATE WATER RESOURCES CONTROL BOARD
RESOLUTION NO. 2012-0061

DELEGATION OF AUTHORITY TO THE EXECUTIVE DIRECTOR

1. The Executive Director is delegated the authority to conduct and supervise the activities of the State Water Board.

2. Such activities include, but are not limited to, noticing Board meetings and hearings, management of the staff, meeting with other agency officials, implementing the State Water Board's policies and regulations, meeting with Regional Water Quality Control Board (Regional Water Board) Executive Officers, approval of Clean Water Act section 205, subdivision (j)(2) project final products and grant closures, and the actions identified in 4 through 9, below.

3. Except as otherwise provided in 4 through 9 below, the Executive Director is specifically precluded from taking the following actions:

   3.1 Adopting regulations; except that emergency regulations, once adopted by the Board, may be revised or readopted by the Executive Director;

   3.2 Adopting state policy for water quality control;

   3.3 Adopting or approving water quality control plans or plan amendments;

   3.4 Any final action pursuant to Water Code section 13320, subdivision (c) finding that a Regional Water Board action was inappropriate or improper;

   3.5 Any final action closing a tank case or requiring closure of a tank case pursuant to Health and Safety Code section 25299.39.2 or section 25296.40;

   3.6 Adopting an order issuing or declining to issue a stay in a proceeding where the Board holds a hearing to consider a stay in connection with a petition, or the Board's review on its own motion, pursuant to Health and Safety Code section 25297.1, subdivision (h) or Water Code section 13320, subdivision (e).

4. The Executive Director may issue a final written determination on an appeal filed by a project applicant, under Public Resources Code section 71035.6, subdivision (e)(3).

5. The Executive Director may issue a decision or order by settlement of the parties under Government Code section 11415.60.

6. The Executive Director may set aside a State Water Board decision or order, in whole or in part, as commanded by a peremptory writ of mandate issued to the State Water Board.

7. The Executive Director may close or require the closure of any underground storage tank case if the case meets the criteria found in the State Water Board's Low-Threat Underground Storage Tank Closure Policy adopted by State Water Board Resolution No. 2012-0016.

8. The Executive Director may amend, modify, rescind, or revoke any permit, license, certificate, waste discharge requirements, decision, or order if an appellate court opinion published in the official reports establishes that the State Water Board has a ministerial duty to do so.

9. The Executive Director, after consultation with the Board Chairperson, may select the hearing officer for hearings and investigations covered under Water Code section 183.

10. Except as limited by paragraph 11, the Executive Director may further delegate his or her functions, in writing, as the Executive Director deems appropriate.

11. With respect to closures pursuant to paragraph 7, the Executive Director may further delegate his or her functions, in writing, to either a Chief Deputy Director or a Deputy Director, as the Executive Director deems appropriate.

12. In exercising the authority herein delegated, the Executive Director is directed, without restricting the authority specified, to bring the following matters to the attention of the members of the Board at workshop or by other appropriate communication:

    12.1 Matters of a unique or unusual nature;

    12.2 Matters that appear to depart from the policies of the Board;

    12.3 Matters involving significant policy questions;

    12.4 Highly controversial matters;

    12.5 Matters that involve a substantial risk of litigation;

    12.6 Any matter involving the execution of a contract or amendment thereto for which authority has not been expressly delegated by Board resolution;

    12.7 Any matter that a Board Member requests to be brought to the attention of the Board; and

    12.8 Any matter that, in the judgment of the Executive Director, should be brought to the attention of the Board.

13. The Board may revoke in whole or in part any specific or implied delegation to the Executive Director.

14. This resolution supersedes Board Resolution No. 2002-0104.

CERTIFICATION

The undersigned Clerk to the Board does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the State Water Resources Control Board held on November 6, 2012

AYE:	Vice Chair Frances Spivy-Weber Board Member Tam M. Doduc Board Member Steven Moore Board Member Felicia Marcus
NAY:	None
ABSENT:	Chairman Charles R. Hoppin
ABSTAIN:	None

Jeanine Townsend
Clerk to the Board

ATTACHMENT

11

CALIFORNIA
Water Boards

State Water Resources Control Board

TO: [via e-mail]
Board Members
STATE WATER RESOURCES CONTROL BOARD AND CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARDS

FROM: Michael A.M. Lauffer
Chief Counsel
OFFICE OF CHIEF COUNSEL

DATE: April 25, 2013

SUBJECT: TRANSMITTAL OF EX PARTE COMMUNICATIONS QUESTIONS AND ANSWERS DOCUMENT

Attached please find an updated document on ex parte communications. This memorandum and the accompanying Ex Parte Questions and Answers supersede all previous Office of Chief Counsel memoranda on the same subject.[1]

The changes in the attached reflect recent legislation that amends the Porter-Cologne Water Quality Control Act effective January 1, 2013. The changes resulting from Senate Bill 965 (Wright) (Stats. 2012, ch. 551) generally allow ex parte communications about issues concerning certain pending general orders of the water boards, but make certain interested persons subject to reporting requirements. Questions 28 through 35 and question 45 of the Ex Parte Questions and Answers document address these new ex parte communication rules and reporting requirements for general orders.

The State Water Resources Control Board and the nine California Regional Water Quality Control Boards perform a variety of functions. The boards convene to set broad policy consistent with the laws passed by Congress and the Legislature. In this regard, the boards perform a legislative function. The boards also routinely determine the rights and duties of individual dischargers or even a class of dischargers. In this regard, the boards perform a judicial function. The judicial function manifests itself when the boards adopt permits and conditional waivers or take enforcement actions. Some water board actions, such as the adoption of general permits, straddle the line between judicial and legislative functions because they establish rights and duties of future, unnamed dischargers.

[1] The most recent memorandum was a December 28, 2012 memorandum from me to members of the State Water Resources Control Board and the California Regional Water Quality Control Boards. That memo superseded prior memoranda from the Office of Chief Counsel concerning ex parte communications. The only change since my December 28, 2012 memorandum is the addition of question 45 addressing site visits and pending general orders.

Different rules apply depending on the type of action pending before a water board. One of the distinctions between legislative and judicial proceedings is the prohibition against ex parte communications. An ex parte communication is a communication to a board member about a pending water board matter that occurs in the absence of other parties to the matter and without notice and opportunity for all parties to participate in the communication. In legislative-type proceedings, ex parte communications are allowed. In judicial-type proceedings, ex parte communications are prohibited. In hybrid proceedings, such as the issuance of certain general permits, ex parte communications are generally allowed, but communications from certain interested persons must be disclosed. The accompanying questions and answer document addresses common issues pertaining to ex parte communications.

I have structured the questions and answers document to serve as a reference document for board members and the attorneys within the Office of Chief Counsel. By breaking the subject matter into discrete questions, my intent is to provide a list that board members can quickly scan to identify relevant issues and the accompanying legal answer.

There are four broad themes pertaining to communications with board members.

1. If a proceeding is not pending or impending before a water board, board members may communicate with the public and governmental officials regarding general issues within the water board's jurisdiction. Water board members may also participate in information gathering efforts such as tours or site visits.

2. If a proceeding is pending or impending before a water board for the issuance of general waste discharge requirements, a categorical waiver, or a general 401 certification, board members may communicate with the public and government officials about the pending order. Special disclosure requirements apply to communications that involve certain persons with an interest in the proceeding.

3. If any other adjudicative proceeding is pending or impending before a water board, ex parte communications with that water board's members regarding an issue in that proceeding are prohibited.

4. If a rulemaking or other proceeding is pending or impending before a water board, a board member may, if he or she chooses to do so, have ex parte communications regarding issues in that proceeding.

The questions and answer document does not and cannot address all the issues pertaining to ex parte communications. Over time additional questions may be added based on feedback from board members.

Attachment

cc: [All via e-mail only]
Tom Howard, EXEC
Jonathan Bishop, EXEC
Caren Trgovcich, EXEC
All Executive Officers, Regional Water Boards
All Assistant Executive Officers, Regional Water Boards
Branch Offices
All Office of Chief Counsel attorneys

EX PARTE QUESTIONS AND ANSWERS

EX PARTE QUESTIONS AND ANSWERS

I. EX PARTE SUMMARY

Summary of ex parte framework:

1. If a proceeding is not pending or impending before a water board, board members may communicate with the public and governmental officials regarding general issues within the water board's jurisdiction. Water board members may also participate in information gathering efforts such as tours or site visits.
2. If a proceeding is pending or impending before a water board for the issuance of general waste discharge requirements, a categorical waiver, or a general 401 certification, board members may communicate with the public and government officials about the pending order. Special disclosure requirements apply to communications that involve certain persons with an interest in the proceeding.
3. If any other adjudicative proceeding is pending or impending before a water board, ex parte communications with that water board's members regarding an issue in that proceeding are prohibited.
4. If a rulemaking or other proceeding is pending or impending before a water board, a board member may, if he or she chooses to do so, have ex parte communications regarding issues in that proceeding.

1. Q. What is an ex parte communication?

A. An ex parte communication is a communication to a board member from any person[1] about a pending water board matter that occurs in the absence of other parties to the matter and without notice and opportunity for all parties to participate in the communication. People often refer to these communications as "one-sided," "off-the-record," or private communications between a board member and any person concerning a matter that is pending or impending before the applicable water board.

One-sided communications does not mean that the communication must occur in privacy or among two people in order to be an ex parte communication. Even a public communication before a large audience may still be an ex parte communication if other parties to the proceeding do not have notice of and an opportunity to participate in the communication.

Examples of ex parte communications include:
1. A water board has scheduled a hearing to consider the assessment of administrative civil liability against a discharger for an illegal discharge. Before the hearing, a representative of an environmental group attempts to speak to a new board member regarding the discharger's alleged long-term violations of environmental laws. Such a communication would be ex parte.

2. A water board has scheduled a hearing to consider the issuance of a new discharge permit to Dairy X. The president of Dairy X invites a board member out to the site to

[1] There are special rules for certain staff who advise the board member. Please see Question 22.

show him/her the facility and explain its operation. Such a communication would be ex parte.

2. **Q. What is a communication?**

Communications include face-to-face conversations, phone calls, written correspondence, e-mails, instant messaging, and the next level of technology that presents itself. The Office of Chief Counsel also considers site visits and tours to be ex parte communications. By their very nature, site visits communicate evidentiary information to board members. Site visits can be a useful part of the decision-making process and special procedures should be used for site visits. (Please see Questions 43-45.)

3. **Q. What purposes are served by limitations on ex parte communications?**

Rules regarding ex parte communications have their roots in constitutional principles of due process and fundamental fairness. With public agencies, ex parte communications rules also serve an important function in providing transparency. Ex parte communications may contribute to public cynicism that decisions are based more on special access and influence than on the facts, the laws, and the exercise of discretion to promote the public interest.

Ex parte communications are fundamentally offensive in adjudicative proceedings because they involve an opportunity by one party to influence the decision maker outside the presence of opposing parties, thus violating due process requirements. Such communications are not subject to rebuttal or comment by other parties. Ex parte communications can frustrate a lengthy and painstaking adjudicative process because certain decisive facts and arguments would not be reflected in the record or in the decisions. Finally, ex parte contacts may frustrate judicial review since the record would be missing such communications.

4. **Q. Do ex parte communications rules prevent water board members from understanding the issues and people's concerns?**

Ex parte communications rules do not prevent the flow of information to water board members. Instead, ex parte rules shape how the board members receive that information and are intended to ensure that board members receive relevant information in a fair and transparent manner. A person can share issues and concerns by filing appropriate documents with the board and during a public meeting consistent with the water boards' administrative procedures.

Essentially, ex parte rules allow everyone to know and, if desired, rebut the information upon which the water boards make decisions before they make their decisions. The rules are also intended to ensure that all board members have a common record upon which to make their decisions and that a court will be able to ascertain the bases for such decisions.

5. **Q. How can board members educate themselves without violating the prohibition on ex parte communications?**

Rules on ex parte communications should not serve to prevent board members from understanding the matters to be considered and decided by the board. If a board member needs additional information about a matter, there are appropriate processes that can be used. There is no substitute for an active, engaged board member when it comes to understanding an issue. Asking questions on the record, or requesting staff and interested persons to specifically address certain issues on the record, helps provide the necessary foundation for board action. In addition, staff assigned to advise the board (see Question 22) may provide assistance and advice, and may help evaluate evidence in the record, so long as the staff does not furnish, augment, diminish, or modify the evidence in the record.

6. **Q. How can water board members explain ex parte rules to the public?**

This is a decision for individual board members to make. Board members are free to refer callers to the Office of Chief Counsel. If the board member chooses to explain ex parte limitations with a person, there are certain themes to keep in mind when explaining ex parte rules.

First, ex parte rules do not prevent anyone from providing information to the water boards or requesting specific actions from the water boards. Ex parte rules simply require that the information come into the record through a writing subject to public review or in a duly noticed, public meeting. Second, ex parte rules are designed to ensure fairness for everyone. No person or interest uniquely benefits from ex parte rules. The rules apply to everyone, and prevent any one person or interest from having special access to water board members. Third, ex parte rules provide transparency, allowing everyone to understand and to appreciate how the water boards reach a decision. By encouraging persons to submit written comments or speak on the record, a person's comments will be heard by all the water board members and other stakeholders. If a person persists, however, a board member can explain that s/he might become subject to disqualification, in which case the person's efforts to communicate with the board member will have been to no avail.

7. **Q. What proceedings are subject to the prohibition on ex parte communications?**

Only adjudicative proceedings are subject to the prohibition on ex parte communications. The water boards function in many capacities, from setting broad policies on water quality control, to planning to implement those policies, to implementing those policies through specific regulatory actions that determine the rights and duties of a person or class of persons. Adjudicative proceedings fall in the latter category of implementing policies through actions that determine the specific rights and duties of persons. (Please see Questions 8-10.)

The continuum from policy-setting to policy-implementing does not have discrete breakpoints. This question and answer document is designed to answer some of the most common questions and provide a useful framework for understanding ex parte issues. It does not create any rules beyond those contained in the Administrative

Procedure Act or court decisions. Board members will need to work closely with legal counsel at times to determine whether the prohibition on ex parte communications applies to a specific action or proceeding.

II. ADJUDICATIVE PROCEEDINGS

A. Types of Adjudicative Actions

8. Q. What actions are adjudicative?

Adjudicative actions are those actions where the water boards make a decision after determining specific facts and applying laws and regulations to those facts. Adjudicative proceedings are the evidentiary hearings used to determine the facts by which a water board reaches a decision that determines the rights and duties of a particular person or persons. Adjudicative proceedings include, but are not limited to, enforcement actions and permit issuance. For example, any person who proposes to discharge waste to waters of the state must apply for a discharge permit. The proceeding to consider whether to issue the permit and the conditions to include in the permit would be adjudicative.

Below is a partial list of common water board actions that often follow adjudicative proceedings:

- National Pollutant Discharge Elimination System (NPDES) permits;
- Waste discharge requirements (WDRs);
- Water right permits and requests for reconsideration;
- Orders conditionally waiving waste discharge requirements;
- Administrative civil liability (ACL) orders;
- Cease and desist orders;
- Cleanup and abatement orders;
- Water quality certification orders (401 certification);
- Permit revocations.

A list of common actions that are not subject to the ex parte prohibition is provided in Part III.

9. Q. Are ex parte communications prohibited for pending adjudicative actions?

Yes. The ex parte communications prohibition for adjudicative proceedings originates in court decisions and has been codified in Chapter 4.5 of the Administrative Procedure Act. The Administrative Procedure Act prohibits "direct or indirect" communications to water board members about an issue in a pending adjudicative proceeding.

10. Q. Does the ex parte communications prohibition apply to a conditional waiver of waste discharge requirements that identifies a specific person or persons?

Yes. The issuance of a conditional waiver pursuant to Water Code section 13269 that identifies a specific person or persons is more appropriately considered an adjudicative proceeding. These types of waivers determine the rights and duties of those persons identified in the order. The orders are directly enforceable against the persons. Conditional waivers are specifically exempt from the rulemaking provisions of the

Administrative Procedure Act. The water boards adopt conditional waivers following the same procedures that are used for any other permitting decision, as opposed to the legislative procedures used to adopt water quality control plans or for administrative rulemaking. Conditional waivers are also subject to the same judicial review standards as any other permit. Together these attributes mean that the issuance of a conditional waiver is an adjudicative action.

11. Q. May discrete policy issues within an adjudicative proceeding be considered separately in a non-adjudicative proceeding?

Under appropriate circumstances, a discrete, significant policy issue may be segregated from the adjudicative proceeding and decided using suitable procedures for policy-setting (e.g., regulations, amendments to a water quality control plan, or state policy for water quality control). The Court of Appeal recently sanctioned this approach in the *State Water Resources Control Board Cases*,[2] while noting the importance of recognizing the different requirements that apply to matters decided in an adjudicative proceeding and those decided separately in legislative proceedings. Those issues considered in the policy-setting procedure would not be subject to the prohibitions on ex parte communications during the policy-setting proceeding. However, the ex parte communications prohibition still applies to the adjudicative proceeding (including those issues not involved in the policy-setting proceeding and those issues addressed in the policy-setting proceeding once the policy-setting proceeding has concluded).

B. Pending Adjudicative Proceeding

12. Q. When is a proceeding pending?

A proceeding is pending from the time the water board issues an initial pleading in an evidentiary proceeding, or from the time an application for a decision is filed that will require an evidentiary hearing, whichever is earlier. In many circumstances, the "initial pleading" will be a notice of hearing with the staff's proposed action.

For example, an adjudicative proceeding is pending for an administrative civil liability order from the time an administrative civil liability compliant is issued. A proceeding for issuance of waste discharge requirements is pending before a regional water board when the board receives a report of waste discharge, because that is an application for decision that will occur in a hearing before the board. For general waste discharge requirements, the notice of an evidentiary hearing makes the matter pending. For water rights permits, the best legal interpretation is that the proceeding is pending when the State Water Board issues a notice of hearing, because prior to that time there is no assurance that there will be an evidentiary hearing since the division chief may issue certain water rights permits.

13. Q. What is an impending matter?

The Administrative Procedure Act only addresses "pending" proceedings, however, there may be circumstances where board members are aware that an adjudicative

[2] *State Water Resources Control Board Cases* (2006) 136 Cal.App.4th 674.

action is impending. The fairness and transparency of the process are no less compromised if an ex parte communication takes place a few days before the issuance of a notice of hearing or the filing of a report of waste discharge. The desire of a person to speak with a board member about a specific site should generally be viewed as a signal that something is impending. Where a proceeding is clearly impending, water board members should consider ex parte communications to be prohibited based on due process considerations. For example, if a water board member knows that a notice on an enforcement action is to be signed on a Tuesday, it would be inappropriate for the board member to receive an ex parte communication concerning the enforcement matter on Monday night. On the other hand, a matter would generally not be considered impending if the issuance of a notice of hearing or the filing of a report of waste discharge is not reasonably expected to occur until several months after the communication in question.

The issues concerning impending matters can be difficult and fact-specific. The most important issue with impending matters is to avoid a situation where it appears the communication was timed to avoid the Administrative Procedure Act's prohibition on ex parte communications for pending adjudicative actions. In the event there is a communication received on an impending matter, the board member may want to consider whether an appropriate disclosure should be made to avoid a subsequent allegation of impropriety. (Please see Question 26.) Water board members should consult with legal counsel if they have any questions on a specific communication in an impending matter.

14. Q. How can a board member determine whether an action is pending?

Some regional water boards maintain a list of applications under consideration and outstanding notices. Confer with your regional water board's Executive Officer (or for State Water Board members, the Executive Director) to determine how your water board maintains a list of pending adjudicative actions.

15. Q. Are adjudicative matters pending before the regional water boards also pending before the State Water Board?

No, but once the State Water Board receives a petition requesting the State Water Board to commence review of a regional water board action, the ex parte communications prohibition applies to the petition proceeding. The State Water Board has the authority to review the regional water boards' adjudicative actions. Most regional water board adjudicative actions are not petitioned to the State Water Board. It would be inappropriate to consider a matter pending before the State Water Board while it is still pending before the regional water board and it might never be challenged to the State Water Board.

A State Water Board member may wish to confer with the Office of Chief Counsel before having a communication about a controversial regional water board adjudicative action where there is a substantial likelihood that a petition will be filed with the State Water Board. In certain circumstances, the more cautious legal advice may be to regard the adjudicative proceeding as *impending* before the State Water Board, even though it is still pending before the regional water board. Determining whether the matter is

impending would be a fact-specific inquiry, and would only be the advice of legal counsel in light of those facts.

Once the State Water Board receives a petition, the basis for the State Water Board's review will generally be the evidentiary and administrative record before the regional water board. As a result, the same prohibition on ex parte communications that applies to regional water board members in the region taking the action applies to the State Water Board members deciding the petition on the merits. The prohibition on communications with the State Water Board members concerning a petition begins when the State Water Board receives a petition requesting the State Water Board to commence review of a regional water board's action or inaction.

The State Water Board's regulations authorize an interested person to submit a petition and hold that petition abeyance. The regulations also authorize a petitioner to request that a petition be removed from active review and placed in abeyance. Consistent with the Administrative Procedure Act, a petition in abeyance is not pending before the State Water Board because a petition in abeyance does not request the State Water Board to make a decision. The petition in abeyance serves as placeholder that allows the interested person to request a decision from the State Water Board at a later date. Until and unless a petition in abeyance is activated, there is no application for a decision pending before the State Water Board.

16. Q. Does a reopener provision in a permit mean an action is pending?

No, not until a specific reopener or permit modification action is noticed for board action. Many permits include provisions that allow the regional water board to modify the permit based on subsequent information or conditions. The ability for a regional water board to reopen and modify the permit in the future does not trigger the prohibition on ex parte communication. However, once a water board issues a notice to reopen the permit, the rules concerning pending adjudicative proceedings would apply to the consideration of permit amendments.

C. Scope of Ex Parte Communications Prohibition

17. Q. What subjects are covered by the ex parte communications prohibition?

The Administrative Procedure Act's prohibition on ex parte communications is very broad. It extends to "direct and indirect" communications. Board members must be mindful that persons who ordinarily would not be subject to the prohibition (e.g., secretaries, staff assigned to advise the board) cannot be used as a conduit for a prohibited ex parte communication, and thereby a source of an indirect communication.

The ex parte communications prohibition also extends to "any issue in the proceeding." With limited exceptions discussed in Questions 19-20, if the communication involves any issue in the proceeding, be it a factual issue, a legal issue, or a policy issue, it is subject to the ex parte communications prohibition.

18. Q. Are all communications prohibited with a person interested in an adjudicative proceeding pending before a water board?

No. Communications are only prohibited to the extent they reach an issue in the proceeding. Even where a matter is pending before a water board, a communication with a party to the matter is not considered ex parte if the communication does not relate to the matter.

19. Q. Are there exceptions to the prohibition?

There are certain limited exceptions to the prohibition on ex parte communications. First, as discussed in Questions 28-3534, different rules apply to proceedings involving general orders. Second, as discussed in Question 22, certain staff advising the board are not subject to the prohibition. Second, there are limited statutory exemptions, but generally they should only be used after consultation with legal counsel. The first statutory exemption is typically not available to the water boards, and involves communications to resolve an ex parte matter specifically authorized by statute. The second statutory exemption is for communications that concern a matter of procedure or practice that is not in controversy.

20. Q. What is a matter of practice or procedure that is not in controversy?

The Law Revision Commission comments supporting the Administrative Procedure Act give several examples of the types of "practice and procedure" matters that are not in controversy. Matters of practice and procedure include the format of papers to be submitted, the number of copies, manner of service, and calendaring meetings. The Administrative Procedure Act also identifies continuances, as a matter of practice or procedure. Delays associated with a continuance request, however, may often be controversial. As a result, a request for continuance ordinarily should be made through more formal procedures to ensure that all parties are aware of the request and have an opportunity to respond.

Generally, staff or counsel, as opposed to a board member, would handle the types of matters embraced by this exception to the Administrative Procedure Act's prohibition on ex parte communications.

D. Persons Subject to the Ex Parte Communications Prohibition

21. Q. Who is subject to the rules prohibiting ex parte communications?

Generally, the prohibition on ex parte communications extends to any person attempting to communicate with a board member about an issue in a pending adjudicative proceeding. The Administrative Procedure Act broadly defines person to include "an individual, partnership, corporation, governmental subdivision or unit of a governmental subdivision, or public or private organization or entity of any character." As a result, essentially anyone expressing an interest in a water board action and attempting to communicate with a board member is subject to the prohibition on ex parte communications in adjudicative proceedings.

The notable exceptions to the prohibition are for communications between board members and from certain staff of the water boards (see Question 22), as well as the exception to the prohibition for certain general orders (see Questions 28-35). Because board members collectively serve as the presiding officer for an adjudicative hearing, communications among the board members are not subject to the ex parte prohibition. Obviously the members remain subject to other substantive and procedural laws (such as the Bagley-Keene Open Meeting Act, which prohibits a quorum of a state board from discussing an issue either collectively or through serial discussions).

22. Q. May staff communicate with board members without violating ex parte rules?

Certain staff may communicate with the board members without violating ex parte rules. Staff may communicate with water board members about a pending adjudicative proceeding under three circumstances. Staff and legal counsel will generally be responsible for knowing their assignments on specific proceedings, and will only contact board members if appropriate pursuant to one of the following circumstances. If a board member wishes to communicate with staff and does not know which staff may be an appropriate contact, the board member should contact the Office of Chief Counsel to determine the appropriate staff contact. (Please see Question 51.)

(1) *Staff Assigned to Assist and Advise the Board:* In virtually all circumstances, there are some staff (including at least one attorney) assigned to assist and advise a water board. These staff members are not advocates for a particular action, and in fact, cannot have served as investigators, prosecutors, or advocates in the proceeding or its pre-adjudicative stage for the ex parte exception to apply. These staff members may evaluate the evidence in the record but shall not furnish, augment, diminish, or modify the evidence in the record. For certain proceedings, the water board may issue a memorandum detailing staff responsibilities and identifying the staff assigned to assist and advise the board.

(2) *Staff Advising the Board on a Settlement Offer:* A staff member of the water boards, even if s/he has previously served as an investigator or advocate in the pending adjudicative proceeding, may communicate with a board member concerning a settlement proposal advocated by the staff member. In order to fit within this exception, the settlement proposal must be a specific proposal, supported by the staff member and another party to the proceeding, and the staff member must be advocating for the specific proposal. While the Administrative Procedure Act permits such communications, the more cautious approach would be for the water board to receive the proposed settlement communication in writing to avoid any subsequent claims of irregularity and to allow the water board to receive a candid assessment from advisory staff who have not participated in the investigation or advocacy of a specific action. A written communication should be used when the proposed settlement is not supported by all the parties to the proceeding.

(3) *Staff Advising the Board in Nonprosecutorial Proceedings:* A staff member of the water boards, even if s/he has previously served as an investigator or advocate in the pending adjudicative proceeding may communicate with a board member concerning issues in a non-prosecutorial proceeding. These discussions are not subject to the ex parte communications prohibition.

23. Q. Are other government officials subject to the ex parte rules?

Yes. Persons representing other government officials and agencies (local, state, or federal) are subject to the Administrative Procedure Act's prohibition on ex parte communications if they attempt to communicate with a water board member about a pending adjudicative proceeding. Keep in mind that the State Water Board and regional water boards are separate state agencies. As a result, the ex parte rules extend to communications between members of different water boards. However, the limitations on communications from governmental officials generally will not apply to certain general orders as discussed in Questions 28-35.

24. Q. May a board member attend a publicly noticed staff-level workshop on an adjudicative matter?

Yes. When water board staff notice a meeting, even as a staff-level workshop, interested persons are on notice that issues pertaining to the adjudicative matter will be discussed. The staff workshop record (including, for example, the audio tape from the workshop) would become part of the record and basis for the subsequent action by the water board. It is permissible for a board member or multiple board members to attend such a workshop, and the communications received during such a workshop are not ex parte communications. If a quorum of the water board may be present, a Bagley-Keene Open Meeting Act notice may also be necessary.

E. Consequences of Prohibited Ex Parte Communications

25. Q. What are the consequences of violating the ex parte communications prohibition?

Prohibited ex parte communications can have a number of consequences. First, board members must disclose a prohibited ex parte communication on the record and the board may be required to hear comments or additional evidence in response to the ex parte communication. Second, a prohibited ex parte communication may be grounds for disqualifying the board member from participating in the adjudicative proceeding. Third, a prohibited ex parte communication could be used as a basis for a subsequent legal challenge to the board's adjudicative action, especially if the communication is not properly disclosed and the board member participates in the proceeding. The Administrative Procedure Act also authorizes a water board to sanction a person violating the prohibition on ex parte communications, although this is likely to be used only for egregious or recurring violations.

26. Q. How may a board member cure an inadvertent ex parte communication?

The Administrative Procedure Act provides explicit procedures that a board member is required to follow if there has been an ex parte communications. These procedures do not subsume the rule or provide a mechanism for circumventing the Legislature's prohibition on ex parte communications in adjudicative proceedings.

In the event of receiving a prohibited ex parte communication, the water board member must disclose the communication on the record. Disclosure requires either (1) including

a written ex parte communication in the record, along with any response from the board member, or (2) memorializing an oral communication by including a memorandum in the record stating the substance of the communication, identifying who was present at the time of the communication, and any response from the board member. The board member must notify all parties of the ex parte disclosures. Additional proceedings may be necessary if a party timely requests an opportunity to address the disclosure.

In the event a board member receives what may be a prohibited ex parte communication, it is important to work with legal counsel to determine whether the communication is indeed prohibited, and, if the communication is prohibited, that it is disclosed as required by the Administrative Procedure Act.

27. **Q. What if a board member received a communication about an adjudicative proceeding before becoming a board member?**

The Administrative Procedure Act requires a water board member to disclose any communications the member received, prior to becoming a board member, about adjudicative proceedings pending before the water board at the time the member received the communication. This provision recognizes that the communication was not per se prohibited (because the person was not yet a board member), but still provides a mechanism to disclose such communications in the interest of fairness. The disclosure follows the same procedure discussed in Question 26.

Importantly, this provision of the Administrative Procedure Act does not require all communications the new board member has ever received to be disclosed simply because the communication involves an issue in the adjudicative proceeding. Instead, the provision only reaches back to the time the adjudicative proceeding was pending before the water board. Further, the factual circumstances requiring disclosure rarely occur because there are three necessary elements to trigger this disclosure requirement: (1) a communication the member recalls receiving prior to serving on the board, (2) the communication involves an adjudicative matter pending before the board, and (3) the communication occurred at a time the adjudicative matter was already pending before the board.

F. Exception for Certain General Orders

28. **Q. Are proceedings on general waste discharge requirements, categorical waivers, and general 401 certifications (general orders) considered adjudicative proceedings?**

Yes. A general order determines the rights and duties of those persons subject to the general order. A general order does not identify the specific dischargers it covers by name, but instead allows discharges to enroll for coverage under the general order. Upon enrollment, these general orders are directly enforceable against the dischargers who enroll under them. In addition, general orders are specifically exempt from the rulemaking provisions of the Administrative Procedure Act. The water boards also issue general orders following the same procedures that are used for any other permitting decision. Finally, general orders are subject to the same judicial review standards as any other permit. In function and form, the issuance of general orders is an adjudicative

action. The proceedings culminating in the issuance of general waste discharge orders are, therefore, more appropriately considered adjudicative proceedings.

29. Q. Does the ex parte communications prohibition apply to general orders?

No. Effective January 1, 2013, the Water Code exempts general orders from the ex parte communications prohibition. A general order for this purpose is an order that does not name specific dischargers, but instead allows persons to enroll for coverage under the order. Any person may engage in oral or written ex parte communications with board members regarding a pending or impending general order, but certain categories of persons must provide public disclosure of those ex parte communications.

The ex parte exception for general orders only applies to the water board's adoption of the order. Once a facility enrolls in a general order, enforcement actions are subject to the usual ex parte communications prohibition.

30. Q. Who must disclose ex parte communications regarding general orders?

The Water Code requires three categories of persons to disclose ex parte communications with a water board member about a pending general order. These categories are:

(i) a potential enrollee in the general order, and representatives or employees of such person;
(ii) any person with a financial interest in the general order, and the representatives or employees of such person; and
(iii) a representative acting on behalf of any formally organized civic, environmental, neighborhood, business, labor, trade, or similar association who intends to influence the board's decision.

For purposes of ex parte communications concerning general orders, these persons are considered "interested persons," and the ex parte communication disclosure requirements for general orders only apply to these three categories of interested person.

The Water Code places the disclosure obligation for general orders on the interested person engaged in ex parte communications with a board member. A board member who participates in ex parte communications regarding general orders is not required to make any oral or written disclosures; however, nothing precludes a board from assisting an interested person in making the required disclosure. Further, if for some reason an interested person neglects or refuses to make the required disclosure, then the board member should disclose the ex parte communication at the board meeting where the general order is considered to ensure completeness of the record and to afford an opportunity for other persons to address the communication.

There is no disclosure requirement for members of the public who do not fall within one of the three categories above. Board members are nevertheless encouraged to disclose ex parte communications in the same manner as in rulemaking proceedings. (Please see Questions 38-39.)

31. Q. What disclosure requirements apply to ex parte communications regarding general orders?

As with other adjudicative proceedings, no disclosure is required for an ex parte communication about a matter of procedure or practice that is not in controversy. (Please see Question 20.) For all other ex parte communications concerning a general order, interested persons in the three categories identified in Question 30 must provide a written disclosure to the applicable water board within seven working days after the communication takes place. The disclosure must include the date, time, location, and type of communication (written, oral or both); identify all participants; state who initiated the communication; and describe the substance of the communication. All materials (including PowerPoint presentations) used as part of a meeting or other communication must be included.

Board members are encouraged to request meeting agendas in advance to facilitate the meeting participants' timely preparation of disclosure materials. Board members should remind any interested person requesting ex parte communications on a general order of the disclosure requirement, and provide contact information for the staff member designated to receive the disclosure documents.

Water board staff must post the disclosure on the board's website and email a copy to any available electronic distribution lists for the general order. Before posting and distributing a disclosure, the staff should provide a copy of the disclosure to the member and any water board staff who were present during the ex parte communication to ensure the disclosure accurately summarizes the communication.

Although the statute only refers to "pending" general orders, the same disclosure process should be used for "impending" general orders. (Please see Question 13.)

32. Q. How can a board member determine whether a member of a group is a "representative" for purposes of the disclosure requirements for general orders?

The special disclosure requirements for general orders apply to "representatives acting on behalf of" an association that intends to influence the board's decision. If it is not clear whether an individual represents an interest group or is simply a member, board members may ask what the individual's position is with the organization; whether the individual is speaking on behalf of the organization; whether the organization has formally or tacitly authorized the individual to speak on its behalf; and what the individual's role will be in preparing formal written comments or speaking at the hearing.

Because the disclosure requirement is intended to ensure fairness and transparency in water board proceedings, the term "representative" should be interpreted broadly. In cases where it is unclear whether a particular individual is acting in a representative capacity, board members should request the individual to provide the disclosure. Any questions about the requirements may be addressed to the board's legal counsel.

33. Q. Can a water board limit ex parte communications regarding a pending general order?

Yes. A water board may prohibit ex parte communications during the 14 days prior to the board meeting at which the board is scheduled to adopt the general order. If the item is continued, the board may lift any existing 14-day prohibition on ex parte communications, in which case it then has the option to impose a new prohibition for the 14 days prior to any rescheduled adoption meeting. Individual board members may decline invitations to meet with members of the public at any time, even if no prohibition is in place.

34. Q. Are all region-wide or statewide permits "general orders"?

No. The ex parte exception only applies to orders that do not name specific dischargers but instead require eligible dischargers to enroll or file a notice of intent to be covered by the general order. Several regional water boards have issued region-wide or regional municipal separate storm sewer system (MS4) permits that identify specific dischargers. Issuance, reissuance, or modification of these orders is subject to the same prohibition on ex parte communications that applies to individual waste discharge requirements. Any other waste discharge requirement, waiver, or 401 certification issued to a group of named entities would also be subject to the ex parte communications prohibition.

35. Q. What are the consequences of violating the special disclosure requirements for general orders?

Board staff or legal counsel should contact the interested person for further information if a disclosure does not meet the statutory requirements. If the disclosure does not accurately summarize the communication, the board member or staff may request the interested person to correct the disclosure or the board member or staff may supplement the disclosure either in writing or at the board meeting where the general order is considered.

In appropriate circumstances, a water board may impose sanctions on an interested person who violates the disclosure requirements.

III. RULEMAKING AND OTHER PROCEEDINGS

36. Q. What actions are rulemaking?

Rulemaking proceedings are proceedings designed for the adoption, amendment, or repeal of any rule, regulation, or standard of general application. Rulemaking proceedings include proceedings to adopt regulations, water quality control plans, policies, or guidelines. The water boards adopt most total maximum daily loads (TMDLs) as basin plan amendments, so TMDLs typically are rulemaking proceedings.

Below is a partial list of common water board actions resulting from rulemaking proceedings:

- Water quality control plans (e.g., basin plan amendments, statewide plans such as the Ocean Plan);

- State Policy for Water Quality Control (e.g., the State Water Board's Water Quality Enforcement Policy);
- Regulations;
- Guidelines.

37. Q. Is there a prohibition on private communications in rulemaking actions?

No. The Administrative Procedure Act contains no prohibition against private communications during rulemaking proceedings. However, information obtained outside of the public record for the rulemaking action may not form the basis for a board's action and the board's action must be supported by the information contained in the record. Some of the same policy rationales for the ex parte communications prohibition exist for rulemaking. Nothing prevents individual water board members from choosing to avoid such communications during rulemaking proceedings.

38. Q. What is the Office of Chief Counsel's recommendation on handling communications in rulemaking proceedings?

There is no constitutional or statutory duty to disclose private communications in rulemaking proceedings, but the Office of Chief Counsel advises water board members to disclose on the record any private communications received during rulemaking proceedings. The reasons for this recommendation are multifold. First, the water boards must base rulemaking decisions on the public record, because the public record is a water board's justification for defending an action in court. If a board member supports a specific rulemaking decision because of technical information the member receives from an ex parte communication but fails to disclose the communication, that information will not be in the record to support the board's action.

Second, the same fairness and transparency issues that underlie the ex parte prohibition for adjudicative proceedings support disclosing private communications in rulemaking proceedings. The water boards only have limited jurisdiction within the ambit delegated by the Legislature. It is appropriate that the public know the information and basis for the water boards' decisions to ensure that those decisions are being made not only in conformance with the law, but also within the scope of the considerations identified by the Legislature and water board regulations.

39. Q. If a member chooses to disclose a communication, what is the preferred procedure?

If a board member chooses to participate in private communications in rulemaking proceedings and chooses to disclose those communications, the Office of Chief Counsel recommends a procedure similar to that described in Question 26 for adjudicative proceedings. First, the board member would notify the person that a full disclosure of the private communication will be entered in the water board's record. Second, the board member would disclose the private communication in the water board's record. The disclosure would include the identity of the persons involved in the communication, the approximate date of the communication, and the substance of the communication.

40. Q. May a board member communicate with a person about how a general requirement may be translated into a subsequent permit requirement?

Yes, as long as the subsequent permit proceeding is not pending or impending. When a water board is considering a general provision of rulemaking action it is appropriate to hear testimony about how the general provision may be converted into specific, subsequent permit requirements. The fact that this information is received during a rulemaking proceeding does not trigger the ex parte communications prohibition for the subsequent adjudicative proceeding that implements the requirements of the rulemaking. The ex parte communications prohibition will attach when the subsequent adjudicative action is pending. (Please see Questions 12-13.)

41. Q. What are "other proceedings"?

Certain proceedings before the water boards are neither adjudicative nor rulemaking proceedings. For example, the water boards often have informational items presented by staff or stakeholders. Informational items do not necessarily lead to a specific board action, but inform members about general water quality or water rights matters. In addition, the State Water Board takes some actions that are neither rulemaking or adjudicative actions (e.g., certain contracting and grants actions).

Below is a list of common, other proceedings:

- Information items;
- Workshops not conducted as part of an adjudicative or rulemaking proceeding;
- Contracting;
- Grant awarding;
- Hiring decisions and awards for employee accomplishments;
- Adopting or making comments to other entities conducting their own proceedings, such as comments on a federal Environmental Impact Statement;
- Discretionary actions to initiate or consider initiating proceedings, not amounting to a decision on the merits, such as referral of a matter to the Attorney General for enforcement.

42. Q. Are "other proceedings" subject to ex parte rules?

These other proceedings do not trigger ex parte communications prohibitions under the Administrative Procedure Act and do not have the same factors supporting the Office of Chief Counsel's recommendation to disclose ex parte communications in rulemaking proceedings. Where these proceedings involve closed sessions, communications subject to the attorney-client privilege, or certain law enforcement related information, confidentiality protections may apply. Otherwise, nothing prevents individual water board members from choosing to avoid such communications or to disclose such communications.

IV. SITE VISITS

43. Q. Is a site visit a form of ex parte communication?

Yes. Unless a tour or site visit is publicly noticed, the Office of Chief Counsel considers a site visit or tour of a facility, while an adjudicative proceedings is pending for that facility, to be an ex parte communication. By their very nature, site visits communicate evidentiary information to water board members. In addition, site visits frequently result in communications from the site operator about the pending matter.

44. Q. Can a board member visit a regulated facility when an adjudicative action is pending?

Yes, but only if the board provides interested persons notice and an opportunity to participate. Site visits can be a useful part of the decision-making process and special procedures should be used for site visits. A site visit essentially moves part of the evidentiary proceeding from the board hearing to a visit of the site. It is not necessary that all board members participate in the site visit for it to be permissible. In fact, a single board member can participate in a staff-level site visit if the board properly notices the visit.

To notice a site visit, the interested party list for an adjudicative proceeding should be provided sufficient notice with information about the tour and how to participate. There may be special concerns about accessibility and liability that may raise other legal issues. It is important to work with legal counsel when arranging site visits during a pending adjudicative proceeding.

45. Q. Can a board member visit a facility that will be regulated by a pending general order when an adjudicative action is pending?

If a site visit concerns a facility that will be regulated by a pending general order subject to the special disclosure requirements of Questions 29-31, then the board member should work with legal counsel to determine the extent to which any special disclosure or notice requirements apply. The most transparent and fair way to handle site visits while a general order is pending is to provide notice and an opportunity for interested persons to participate as described in Question 44. Providing public notice also reduces potential evidentiary concerns. For these reasons, the Office of Chief Counsel recommends the procedure described in Question 44 for site visits to a facility that will be regulated by a pending general order.

If notice and an opportunity for public participation is not provided, then the disclosure requirements in Questions 29-31 apply to any site visit concerning a pending general order. Moreover, because site visits are inherently evidentiary in nature, steps should be taken either by the person hosting the site visit, the board member, or the water board staff to visually document the portions of the site visit relevant to the proceeding (e.g., photo documenting physical features, best management practices, etc.). Unlike most ex parte communications, which discuss or explain evidence that is already in the record, the visual documentation is evidentiary in nature. Therefore, any site visits should occur and be reported before the close of the evidentiary record. Board members should work

closely with staff and counsel to ensure the appropriate timing and documentation of these types of site visits.

46. Q. Can a board member visit a regulated facility when no adjudicative action is pending for that facility?

Yes. When there is no adjudicative action pending or impending, a water board member may visit a site that is subject to the water board's regulations. Before scheduling such a visit, it is important to coordinate with water board staff to ensure there is no pending enforcement action involving the facility and to ensure that the owner has no objection to a visit.

V. GENERAL ISSUES

47. Q. Why can legislators talk to anyone and the board members cannot?

Ex parte communications rules reflect the water boards' hybrid powers. Unlike the Legislature, the water boards have attributes of both legislative power and judicial power. The ex parte communications prohibition arises when the water boards are exercising their judicial power. Rules and due process preclude judges from receiving ex parte communications on matters pending before them or inferior courts. Similarly, even when exercising legislative power, the water boards do so within the narrow confines of power granted by the Legislature. Ex parte rules can help ensure that the water boards are exercising the powers conferred by the Legislature within the confines of the power conferred by the Legislature.

48. Q. Why can the public talk to city council members and not board members?

There is some overlap between ex parte communications prohibitions for city council members and water board members. To the extent the prohibition is broader for water board members it reflects the greater number of adjudicative matters decided by the water boards and the breadth of the Administrative Procedure Act. The Administrative Procedure Act is not directly applicable to city councils. As a result, ex parte communications with city council members do not necessarily reach "direct and indirect" communications on "any issue in the proceeding."

49. Q. How should a board member handle comments concerning pending adjudicative proceedings raised in connection with other proceedings in which the board member participates?

As part of a board member's participation in other matters, a board member may receive communications relating to specific adjudicative proceedings. For example, a legislator may ask a State Water Board member to participate in a meeting related to proposed proceedings relating to application processing. As part of that meeting the legislator or another participant may complain about how a particular application, that is the subject of a pending adjudicative proceeding, is being handled. The meeting does not involve an improper ex parte contact, because it concerns proposed legislation, not an adjudicative proceeding, but the specific complaint involves an inappropriate ex parte contact.

To avoid this problem, board members should make clear at the outset that they cannot discuss specific adjudicative proceedings pending before the water boards. If, despite this warning, a participant begins to raise issues concerning a specific pending proceeding, the board member should interrupt to remind the participants that the board member cannot discuss those issues. Any ex parte communications that occur as part of the meeting should be disclosed following the procedures discussed in Question 26.

50. Q. Is a communication about a pending adjudicative matter, received during a public forum, an ex parte communication?

Yes. While the water boards traditionally allow members of the public to briefly address during a "public forum" any items not on the agenda, persons interested in a pending adjudicative proceeding do not have notice that their issue may be discussed during a specific public forum. Therefore, even though the board receives the communication during a public meeting, the communication may violate the ex parte prohibition if it concerns a pending adjudicative proceeding. Legal counsel will typically work with a water board's chair if this circumstance occurs. Fortunately, such communications can typically be cured by including a copy of the public forum transcript or tape into the administrative record for the adjudicative proceeding.

51. Q. Whom can a board member speak with to clarify ex parte concerns?

Water board members should contact the Office of Chief Counsel with questions about ex parte issues. A regional water board member should contact the attorney assigned to represent the member's region or the assistant chief counsel for regional board services. State Water Board members should contact the chief counsel.

In all circumstances, a water board member should indicate that he or she has a question about ex parte communications in *Matter X*—identifying the specific matter. It is important to identify the specific matter, because at times certain attorneys within the Office of Chief Counsel (even the chief counsel) may be recused from a matter or may be assigned to prosecute the matter. By identifying the matter from the outset of the communication, the attorney can make sure you are getting the correct advice from the correct person.

52. Q. Who is responsible for complying with the ex parte rules – the board members or the public?

There is a shared responsibility for complying with the ex parte communications prohibition of the Administrative Procedure Act. Water board members are expected to know the rules and remain vigilant in their application of the rule. If a person attempts to violate the prohibition on ex parte communications, the board member should be prepared to stop the communication, because of the risk the communication could result in disqualification of the board member.

Persons participating in adjudicative proceedings also have an obligation to understand and follow the rules, particularly attorneys and professional lobbyists. As discussed in

Question 25, in egregious circumstances violating the prohibition on ex parte communications can subject a person to civil contempt proceedings.

ATTACHMENT

12

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
650 Capitol Mall, Suite 5-100
Sacramento, California 95814-4700

April 8, 2014

Mr. David Murillo
Regional Director
Bureau of Reclamation
2800 Cottage Way
Sacramento, California 95825

Mr. Mark Cowin
Director
California Department of Water Resources
1416 Ninth Street
Sacramento, California 95814

Re: Drought Operations Plan for the Central Valley Project and State Water Project from April 1 through November 15, 2014

Dear Mr. Murillo and Mr. Cowin:

This letter is in response to the U.S. Bureau of Reclamation's (Reclamation) April 8, 2014, letter, wherein Reclamation and the California Department of Water Resources (DWR) propose operations described in the Central Valley Project (CVP) and State Water Project (SWP) Drought Operations Plan (Plan) for April 1 through November 15, 2014. The Plan was developed in coordination with Reclamation, DWR, U.S. Fish and Wildlife Service, California Department of Fish and Wildlife, State Water Resources Control Board (State Water Board), and NOAA's National Marine Fisheries Service (NMFS, collectively "six agencies") and outlines a likely range of coordinated operations for the CVP and SWP through November 15, 2014, including modifications, as deemed prudent under the current low storage conditions, to several reasonable and prudent alternative[1] actions from NMFS' June 4, 2009, biological and conference opinion on the long-term operation of the CVP and SWP (NMFS BiOp). Reclamation has requested concurrence that the operations described in the Plan serve as the Contingency Plan for the remainder of Water Year 2014 in accordance with Reasonable and Prudent Alternative (RPA) Action 1.2.3.C and that the biological effects of implementing the Plan will be within the limits of the existing Incidental Take Statement. Additionally, Reclamation requests concurrence that CVP and SWP operations described in the Plan concerning RPA Action IV.2.1 are within the limits of the Incidental Take Statement.

[1] On April 7, 2011, NMFS issued an amended RPA (http://www.westcoast.fisheries.noaa.gov/publications/Central_Valley/Water%20Operations/Operations,%20Criteria%20and%20Plan/040711_ocap_opinion_2011_amendments.pdf).

NMFS understands that California is continuing to experience unprecedented drought conditions, and is currently in its third straight year of below-average rainfall and very low snowpack. Calendar year 2013 was the driest year in recorded history for many parts of California, resulting in the low initial storage at the beginning of water year 2014. On January 17, 2014, the Governor of California announced an Emergency Proclamation, finding that "conditions of extreme peril to the safety of persons and property exist in California due to water shortage and drought conditions." Since that declaration, NMFS has acted to provide the assistance needed to manage through drought conditions in California. NMFS has continued to work quickly and collaboratively with the other fish agencies and the operators of the CVP and SWP to protect health and safety while providing needed protections for and minimizing adverse effects to listed anadromous fish species under the Endangered Species Act (ESA), as demonstrated in the exchange of letters[2] in January, February and March regarding requested changes in specific operating parameters.

Over the last two weeks, the six agencies have been engaged in intense and extensive discussions towards the development of a comprehensive Plan that will chart out operations, given the current hydrology and modeling, through November 15, 2014. We have had extensive discussions about the predicted effects on ESA-listed fish resulting from the drought, including limited cold-water pools and carryover storage in the major CVP and SWP reservoirs that limit the ability to provide for adequate water quality throughout the life cycle of the anadromous fish in freshwater habitat. In light of real-time physical and biological data, both on hydrology and fish distribution, NMFS has examined all the required RPA actions, and endeavored to balance water needs while not deepening the harm to listed species. In order to augment storage south of the Delta in San Luis Reservoir for future critical needs, the operators of the CVP and SWP have requested flexibility to export water above health and safety levels during rain pulses, and then to taper off quickly to minimum combined 1,500 cfs exports. NMFS has engaged Reclamation and DWR on this flexibility while also clearly identifying the highest risks to species this year, including the possible loss of an entire year class of endangered winter-run Chinook salmon on the Sacramento River due to poor storage conditions in Shasta Reservoir.

It has been advantageous to look at real-time conditions and the operation of the CVP and SWP as a whole. Throughout these six agency discussions, we have focused on the highest priority opportunities and needs to minimize adverse effects of operations within the framework of the NMFS BiOp. As a result of these discussions, we have reached agreement on the following key improvements for fish that would not have otherwise occurred.

1. Winter-run Chinook salmon viability and Sacramento Settlement Contractor deliveries: Reclamation is working with Sacramento River Settlement Contractors on options to shift a significant portion of their diversions this year out of the April and May period and into the time frame where Keswick releases are higher to achieve temperature objectives on the upper Sacramento River. The willingness and cooperation of the settlement contractors in this effort would allow a modified diversion pattern and create the benefit of increased Shasta Reservoir storage at the beginning of the temperature control

[2] All NMFS letters regarding 2014 drought operations are posted online under "Biological Opinion Actions" at: http://www.westcoast.fisheries.noaa.gov/central_valley/water_operations/

operations and increased availability of water to these senior water rights holders in this critically-dry year. This deferral of irrigation would allow implementation closer to the lower range of the Keswick release schedule for April and May, as identified in Section V of the DOP. During April and May, estimates of water volume differences if the revised (lower) maximum, rather than the original maximum, releases are implemented could translate to gains of up to 151-174 thousand acre-feet (TAF) in Shasta storage. From April through September, implementing the revised minimum, rather than the revised maximum, releases represents a water volume difference that could translate to gains of up to 544-556 TAF in Shasta Reservoir. These calculations, summarized in the enclosure, are estimates of the *maximum* potential storage gain – more modest storage gains are expected to be actually realized. Given this large range, NMFS intends to work closely with Reclamation and the affected water districts to achieve April and May Keswick releases towards the lower end of the range, if at all possible. As forecasts are updated, NMFS also intends to work closely with Reclamation and the Sacramento River Temperature Task Group to optimize June – September releases within the identified range for temperature management for winter-run, while also being mindful of effects on end of September storage.

In addition, the delivery of water for the purpose of decomposition of rice straw will not be made available from the CVP this year unless hydrologic conditions change substantially. This measure will benefit winter-run, spring-run and fall-run Chinook salmon by preserving storage and, perhaps, helping to avoid large flow fluctuations during spawning and egg incubation seasons.

2. Listed species needs and timing of emergency drought barriers: DWR has agreed to defer the start of in-water construction of the drought barriers at Sutter and Steamboat sloughs to no earlier than May 22, which is largely outside of the emigration window for listed anadromous fish species into the Delta (see Table 6-34 on page 402 in the NMFS BiOp[3]; end of mandatory DCC gate closure in RPA Action IV.1.2). They have also agreed to remove the Sutter and Steamboat drought barriers by October 31, 2014, which again is largely outside of the range of impacts to this year's juvenile listed species emigration into the Delta. These drought barriers may not be necessary at all, given the recent rains, and their necessity will continue to be evaluated by DWR.

3. San Joaquin River steelhead offset measures: Reclamation and DWR have agreed to offset the desired flexibility in implementing the San Joaquin inflow-to-export ratio Action IV.2.1 with two additional measures not included in the RPA, as written, and that were not previously analyzed. These measures provide benefits to San Joaquin River origin steelhead (the Southern Sierra Nevada Diversity group of the California Central Valley steelhead distinct population segment):
   a. Provide for additional flows in the San Joaquin River in a subsequent year to benefit outmigration of San Joaquin steelhead: Reclamation and DWR will make an amount of water equivalent to half the volume of increased exports realized over the

[3]http://www.westcoast.fisheries.noaa.gov/publications/Central_Valley/Water%20Operations/Operations,%20Criteria%20and%20Plan/nmfs_biological_and_conference_opinion_on_the_long-term_operations_of_the_cvp_and_swp.pdf

April/May 2014 period available in a future year to provide for a larger pulse flow, for the fishery agencies to shape, in the next "dry" or better water year type[4] for the San Joaquin River Basin. For example, if there is a 60 TAF gain in exports above the 1:1 I:E ratio (or minimum health and safety diversion of 1,500 cfs, whichever is greater), then 30 TAF of additional water (from some source within the San Joaquin River Basin in addition to the Appendix 2-E flows or that required to meet in-river regulatory obligations on the other tributaries) would be made available in a future year for the spring pulse flow on the San Joaquin River. The release timing of this additional flow would be scheduled at the discretion of the fishery agencies.

b. Shift exports to Jones Pumping Plant (CVP) for all of April and May up to the federal capacity (either pumping or canal capacity); remainder of exports to be pumped at the Banks Pumping Plant (SWP) up to the operable constraint (likely the OMR limit before the pulse period; I:E ratio (or minimum 1,500 cfs) after the pulse period unless wet). Slight adjustments would be allowed to maintain minimal deliveries to the SWP South Bay Aqueduct, if necessary. The rationale for this action is that loss at the Banks Pumping Plant is much higher than at the Jones Pumping Plant, therefore the shift in exports is expected to minimize take associated with increased exports. This action was developed and vetted by a team of interagency staff in 2011.

4. Other key points of the Plan for species protection include:
   a. Conserving storage in Shasta Reservoir by limiting releases from Keswick Dam to no greater than 3,250 cfs, or as determined necessary to reasonably target no more than 4,000 cfs at Wilkins Slough, unless necessary to meet nondiscretionary obligations or legal requirements. In addition, Keswick releases will not be increased to directly support CVP Delta diversions;
   b. Minimum human health and safety pumping (as defined in the NMFS Biop as 1,500 cfs) throughout the April 1 to May 31 timeframe when there is no natural or abandoned flow in the Delta;
   c. Utilizing power bypasses at Trinity Dam and Shasta Dam to access colder water, as necessary;
   d. A commitment to implement the two pulse flows in Clear Creek to attract adult spring-run Chinook salmon, as provided in RPA Action I.1.1, and per advice from the Clear Creek Technical Team; and
   e. Consideration of increasing flows into the American River as hydrology improves to improve in-river conditions this spring, summer, and fall for salmonids; and decrease the reliance on Shasta Reservoir for meeting Delta legal requirements. Temperature model runs are forthcoming to help us better manage and balance the trade-offs between providing improved in-river conditions now and maintaining a limited cold water pool in Folsom Reservoir for management this summer.

Although recent storms in February and March have relieved some of the most urgent water needs, NMFS recognizes that if the drought conditions continue beyond water year 2014, the CVP and SWP must continue minimum operations, as needed, in water year 2015, to provide for minimum human health and safety, and also minimum protections for ESA-listed anadromous fish species.

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[4] Year type according to the San Joaquin Basin Hydrologic Index, based on the 75% forecast.

Flexible drought provisions were built in to the NMFS BiOp and RPA, which anticipated these types of conditions. RPA Action I.2.3.C (pages 26-27 of the 2009 RPA with 2011 amendments) provides drought exception procedures and requires that Reclamation develop and submit to NMFS a drought contingency plan if the February forecast, based on 90 percent hydrology, shows that the Clear Creek temperature compliance point or 1.9 million acre feet end of September storage at Shasta Reservoir is not achievable. The rationale for this action explicitly recognizes that in drought conditions, there is potential for conflict between the need to maintain storage at Shasta Reservoir and other legal and ecological requirements in the Delta, including outflow and salinity standards. Our ESA review of the proposed 8-month Plan is a continuation of the interim contingency plans that were provided for February and March 2014, with specific linkages to the underlying NMFS BiOp, as follows:

1. RPA Action I.2.3.C: Based on the most recent assessments of Shasta, Trinity, Whiskeytown, and Folsom Reservoirs, and Delta operations under this provision, as supported by Reclamation's biological review for salmonids and green sturgeon provided as Appendix G of the Plan (Biological Review), NMFS finds that these proposed operations are consistent with Action 1.2.3.C of the NMFS BiOp and meets the specified criteria for a drought contingency plan.

2. RPA Action IV.2.1: The RPA provides for flexibility in modifying operational elements, as provided in section 11.2.1.1 (pages 8-9 in the 2009 RPA with 2011 amendments). In addition, the proposed modification to RPA Action IV.2.1 (specifically, to increase export pumping to capture abandoned or natural flows in the Delta for a duration of 10-30 days during April 1-May 31) was vetted through the Real-Time Drought Operations Management Team, which was convened as a result of the State Water Board's first Order on January 31, 2014. NMFS has reviewed the proposed operational modification and evaluated differences as compared to the RPA language in IV.2.1, including the biological rationale, action statement, implementation procedures, and related components of the Incidental Take Statement. NMFS also evaluated the two proposed offsetting measures described above, and which are not included in the RPA. Our analysis reviewed whether the modified action and the two proposed offsetting measures provided roughly equivalent protection to that of Action IV.2.1. These two additional measures provide benefits to San Joaquin River origin steelhead [the Southern Sierra Nevada Diversity group of the California Central Valley (CCV) steelhead distinct population segment (DPS)], and meet the objectives of Action IV.2.1[5], as follows:
   a. Additional flows in the San Joaquin River: One of the objectives of Action IV.2.1 is to provide greater net downstream flows. This measure is intended to partially offset reductions in flow during this critically dry year with increases in flow in a future year. The Biological Review (page 27) states that, "Part of the action includes a measure to provide an additional Spring pulse of water down the San Joaquin River in

[5] The objectives of Action IV.2.1 are, "To reduce the vulnerability of emigrating CV steelhead within the lower San Joaquin River to entrainment into the channels of the South Delta and at the pumps due to the diversion of water by the export facilities in the South Delta, by increasing the inflow to export ratio. To enhance the likelihood of salmonids successfully exiting the Delta at Chipps Island by creating more suitable hydraulic conditions in the main stem of the San Joaquin River for emigrating fish, including greater net downstream flows.

a future year to benefit outmigration of San Joaquin steelhead. The release timing would be scheduled at the discretion of the fishery agencies. This measure will have no effect on steelhead in WY 2014, but could increase run-time diversity and outmigration survival down the San Joaquin through the Delta to benefit the emigrating cohort in the year that it occurs."

b. Shift exports to Jones Pumping Plant: The Biological Review (pages 36-37) states that, "An element of the proposed action to offset potentially greater exports during April and May 2014 than would occur under an unmodified RPA Action IV.2.1 is a facility shift in exports so that minimal pumping will occur at the SWP Banks Pumping Plant and the majority will occur at the CVP Jones Pumping Plant. This export shift, because it will not increase combined exports and is not expected to increase overall entrainment, will increase survival of salmonids through these facilities, since fewer fish will enter the SWP, where loss has been measured to range between 63-99% for Chinook (Gingras 1997) and 44-100% for steelhead (Clark et al. 2009). Loss at the SWP is higher due to substantial pre-screen mortality associated with Clifton Court. Based on the values and equations used by agencies to estimate loss, shifting exports from equivalent (e.g. 700 SWP and 800 CVP) to six-times greater exports at the CVP than SWP (e.g. 700 SWP and 4200 CVP) may increase overall survival from 42% to 59% (an approximately 40% increase in survival). There is a low level of uncertainty in this conclusion."

Based on the above, NMFS concludes that the additional steelhead conservation measures will ensure that the operation of Action IV.2.1, modified from the way the RPA was written in 2009, will have roughly equivalent effects as what was previously analyzed in the NMFS BiOp and will result in a level of take that is within the incidental take authorized by the NMFS BiOp. As noted above, the additional flows in the San Joaquin River will not provide protection to those juvenile steelhead emigrating this year, but will provide extra protection to those emigrating in a future year, thereby providing protections to the Southern Sierra Nevada diversity group as a whole.

The Biological Review includes status updates on the abundance and distribution in water year 2014 of ESA-listed salmonids and sturgeon covered by the NMFS BiOp, and summarizes the generalized effects of project operations, including most of the proposed modifications, on those species. Inherent in the Plan is the objective to meet multiple needs with limited water resources. Most of the adverse effects to species identified in the Biological Review (*e.g.*, the potential for reduced survival of outmigrating salmonids from the Sacramento Basin due to modifications to outflow criteria in D-1641) are the consequences of actions intended to result in conditions (*e.g.*, greater Shasta Reservoir storage and a greater cold water pool) that will pre-empt more severe adverse effects to species (*e.g.*, potentially running out of cold water in Shasta Reservoir to meet the needs of winter-run and spring-run egg incubation throughout the temperature management season). Some adverse effects to species identified in the Biological Review (*e.g.*, the potential for reduced survival of outmigrating steelhead from the San Joaquin Basin due to modifications to the I:E ratio implementation period) are the consequences of actions intended to result in conditions (*e.g.*, greater south-of-delta storage) that will pre-empt adverse effects to non-fish-and-wildlife beneficial uses of CVP and SWP project water (*e.g.*, municipal and agricultural

purposes). The latter trade-offs are offset by some of the "additional" actions described above in 2a and 2b.

The Biological Review describes the direction of effect expected and assigns a qualitative level of certainty to each effect conclusion. Quantifying the specific effects of any particular Plan element, or of the full suite of proposed actions, is difficult as a result of combined uncertainties relating to:

- specific timing and duration of any particular component of the modified action (for example, it is not known when or if the DCC might open, though the opening is provided for under certain conditions; hydrology will play an important role in whether or not the modification to the I:E ratio will be in effect in late May).
- specific migration timing of listed species and presence in the "footprint" of any particular component of the modified action (for example, if temperatures in the lower San Joaquin and delta are unsuitable for salmonid migration in late May, few listed salmonids may be exposed to the effects of implementing a modified I:E action).
- uncertainty in the quantitative relationship between any underlying factor (*e.g.*, outflow) and the response variable of interest (*e.g.*, survival).

NMFS supports the general conclusions in the Biological Review, though notes that the effects are, for the most part, considered singly rather than in concert. As we have noted above, it is difficult to assess the cumulative effect of the Plan because of the uncertainties described. While the Biological Review does not draw a conclusion about the balancing embedded in the Plan, NMFS supports the implementation of the Plan as a reasonable approach to minimize adverse effects to species given the constraints this water year. NMFS is particularly concerned about winter-run Chinook salmon temperature management and has developed a winter-run Chinook salmon contingency plan if the actions to preserve Shasta storage are not sufficient to protect some extent of spawning habitat through fry emergence. Specifically, the state and federal agencies have developed a winter-run Chinook salmon contingency plan that includes: (1) infrastructure needs at Livingston Stone National Fish Hatchery, (2) increased monitoring of redds and temperature impacts, and (3) rescue and relocation to more suitable habitats including Battle Creek. This contingency plan will protect winter-run Chinook salmon from an entire year class failure.

In conclusion, Reclamation and DWR have proposed a drought operations plan for April 1 through November 15, 2014, that includes adjustments in the implementation of several operating criteria in the NMFS BiOp and RPA to address changing conditions associated with the drought. Reclamation has characterized the effects of the drought operations plan as follows:

> "Cumulatively, the continuation of modification to the D-1641 flow and operational criteria and modification of the I:E ratio (Action IV.2.1) may reduce through-Delta survival of juvenile listed salmonids, steelhead and green sturgeon, and may modify their designated critical habitat during April and May. The reductions of juvenile survival on the majority of outmigrating BY13 Winter-run, BY 13 Spring-run Chinook salmon, and outmigrating steelhead would occur primarily in the Sacramento River and North Delta, if outflow levels drop below D-1641 flow and operational criteria due to limited releases of CVP/SWP storage during April and May. Increased exports during April and May, as part of the proposed

action, may also reduce survival of these populations by increasing loss at the CVP/SWP collection facilities and from exposure in the interior Delta to degraded habitats and predaceous invasive species. The offsetting action to shift exports from the SWP to the CVP during the spring reduces the risks associated with entrainment loss for the remainder of the WY 2014 salvage season compared to the RPA baseline with normal export operations.

Changes in Sacramento River outflow during April and May may delay adult Winter-run and Spring-run Chinook and green sturgeon migration. Additionally, adult migration of these species may be affected to a lesser extent by operation of three drought barriers in June and July. These drought barriers are unlikely to have an appreciable effect on juvenile outmigration of these species or Central Valley steelhead. Modification to D-1641 Municipal and Industrial and Agricultural water quality standards in the Delta between April and November will not affect Winter-run or Spring-run Chinook, steelhead, or green sturgeon.

Current reservoir storage levels and forecasted operations are likely to impact temperatures in the upper Sacramento River, Trinity River, Clear Creek, American River, and Stanislaus River. While the proposed drought operation plan incorporates numerous operational actions to minimize temperature effects compared to normal CVP/SWP operations, egg mortality of BY14 Winter-run may be substantial in the upper Sacramento River. Even improved temperature conditions may have substantial effects on the Winter-run Chinook salmon population since two brood classes are being impacted by WY 14 operation during winter and summer. Temperature effects on Clear Creek and in the Upper Sacramento may lead to substantial pre-spawn mortality of adult Spring-run Chinook. Temperature effects on the Clear Creek, Stanislaus, American, and Trinity rivers may exceed that expected under RPA actions regarding temperature compliance, but may still be able to provide restricted coolwater refugia for juvenile *O. mykiss*, Spring-run Chinook and Coho salmon. If temperature compliance points are not met on the Trinity River, the amount of habitat available to rearing coho salmon is expected to be lower than it would otherwise, and the probability of mortality of returning adults will increase.

Listed juvenile salmonids still to enter the Delta, particularly young-of-the-year Spring-run Chinook salmon (approximately 50-75%) and San Joaquin origin steelhead (approximately 70%) may have reduced survival due to increased residence times in the interior Delta. The offsetting action to augment flow on the San Joaquin River in the next dry or better year may improve freshwater, and possibly south Delta, survival compared to the RPA baseline without these augmented flow. Hydrodynamic changes in the Delta increasing the risk of entrainment into the Old and Middle River corridors as these flows become more negative may increase loss at the CVP/SWP fish collection facilities, if they enter the South Delta. Similar to the existing biological opinion, exports will conform to existing BiOps when NMFS BiOp Action IV.2.3's fish triggers are exceeded. While the proposed action may increase the likelihood of exceeding these triggers, it does not pose any additional risk to exceeding the annual take limit of Winter- run or Spring-run Chinook salmon or steelhead."

Based on the proposed drought operations plan and summary of effects provided above, and described in detail in the Biological Review, NMFS has determined that the anticipated incidental take associated with the drought operations plan falls within the incidental take

statement issued as part of the NMFS BiOp. In addition, NMFS evaluated the drought operations plan, and specifically Reclamation's proposed adjustments in the implementation of one or two RPA actions, for a limited duration in 2014, due to existing circumstances of the drought.

We look forward to continued close coordination with you and your staff throughout this extremely challenging water year. If you have any questions regarding this letter, please contact me at will.stelle@noaa.gov, (206) 526-6150, or contact Maria Rea at (916) 930-3600, maria.rea@noaa.gov.

Sincerely,

William W. Stelle, Jr.
Regional Administrator

Enclosure:
1. Estimates of Potential Storage Gains in Shasta Reservoir under Drought Operations Plan

cc: Copy to file 151422SWR2006SA00268

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ATTACHMENT

13

Song Her
Clerk to the Board
State Water Resources Control Board
1001 "I" Street, 2nd Floor
Sacramento, CA 95814

Subject: 2006 Bay-Delta WQCP Hearing

Dear Ms. Her:

Enclosed please find comments by the U.S. Department of the Interior, regarding the 2006 Bay-Delta WQCP Hearing. We are submitting one electronic copy, one original hard copy, and 15 paper copies as requested in the Notice of Public Hearing.

Please feel free to call either Amy Aufdemberge, (916) 978-5688 or Kaylee Allen, (916) 978-5686 if you have any questions or require any additional information.

Sincerely,

Daniel G. Shillito
Regional Solicitor

Enclosures

cc: Kirk Rodgers, Bureau of Reclamation
David Harlow, U.S. Fish and Wildlife Service
Roger Givinee, U.S. Fish and Wildlife Service
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Comments Regarding the California State Water Resources Control Board's Consideration of an Amended Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary

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The United States Department of the Interior (Interior) generally supports the State Water Resources Control Board's (SWRCB or "the Board") Draft Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary, September 2006 (Draft Plan), with a few key exceptions. Over the last decade, since the 1995 Water Quality Control Plan for the Bay-Delta (1995 Plan) was first adopted, and since the implementation of that plan through Decision 1641 (D-1641) in 2000, Interior's experience in operating the Central Valley Project (CVP) through its Bureau of Reclamation (Reclamation), and in protecting Delta fish and wildlife resources through its Fish and Wildlife Service (FWS), has provided important data, new information, and a valuable perspective on the Delta's water supplies and water quality. The Draft Plan purports to make no substantive changes to the 1995 Plan objectives or beneficial uses. Yet, Interior believes that important facts have changed since the 1995 Plan, especially with respect to salinity in the southern Delta. These changes impact the underlying assumptions of the San Joaquin objectives and the environmental analyses of those objectives. In addition, consistent with Interior's comments to the Board during the 2004-05 workshops for the periodic review of the 1995 Plan, Interior believes that flexibility should be built into some of the objectives and their respective programs of implementation to account for potential conflicts between competing upstream and downstream fishery objectives, and the limited supplies to meet those objectives in some years.

Interior has reviewed the Draft Plan and the Draft Plan Amendment Report, Appendix 1 to the 2006 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Draft Plan Report). Interior's new information and experience indicate that while many of the water quality objectives in the 1995 Plan have worked well to achieve a balance of competing demands for fishery and water quality flow needs and other consumptive, beneficial uses of water, there may be problems with the achievability of all of the objectives on the San Joaquin in certain conditions. These problems are exacerbated by the recent developments in the Board's implementation of the Southern Delta Salinity Objectives. However, Interior has reviewed each of the issues outlined in the Draft Plan Report and offers the following more specific comments for the Board's consideration in adopting an amended plan.

1. Changes to Water Quality and Baseline Monitoring Program

Interior believes that the changes made to the Water Quality and Baseline Monitoring Program are appropriate given the evidence that was provided at the workshop. Interior makes

no further recommendations regarding the Water Quality and Baseline Monitoring Program at this time.

2. Delta Cross Channel Gate Closure

Interior makes no further recommendations regarding the Delta Cross Channel Gate Closure at this time.

3. Narrative Objective for Salmon Protection

Interior supports the Board in maintaining the Narrative Objective for Salmon Protection in the 2006 Draft Plan. This objective is important in assisting Interior with meeting the anadromous fish doubling goals included in the Central Valley Project Improvement Act (CVPIA) and the Final Anadromous Fish Restoration Program (AFRP) Plan developed pursuant to CVPIA. Because accomplishment of the Narrative Objective for Salmon Protection requires a watershed or basin-wide approach, efforts in the Delta and upstream must continue to be actively coordinated to ensure that these actions are effective and consistent with the ongoing recovery processes for listed winter-run Chinook salmon, spring-run Chinook salmon and Central Valley steelhead.

In the Program of Implementation for the Narrative Objective for Salmon Protection, the Board notes that actions of other agencies are necessary to meet the Narrative Objective for Salmon Protection if implementation of the flow-dependent objectives does not result in meeting the Narrative Objective for Salmon Protection. While Interior agrees that actions of other agencies are needed, Interior believes that the Board can do more to facilitate the coordination of actions among agencies to ensure that the Narrative Objective for Salmon Protection is met. Interior proposed these actions in testimony presented at the public workshop in October 2004 (Ex. DOI-09, DOI-22[1], incorporated herein) and reiterates the recommendations below.

In order to implement the Narrative Objective for Salmon Protection and provide protection for threatened Central Valley steelhead, Interior recommends, again, that the Board coordinate with state and federal agencies when either Delta or upstream actions, including determination of flow and water quality objectives to address Chinook salmon doubling, are undertaken by the Board regarding the Plan so that such actions meet overall goals and do not conflict with each other. In addition, the Board should consider the overall goal of doubling of Chinook salmon in any other actions that come before the Board, as well as consider the specific protection needs of Central Valley steelhead and the recently listed Green Sturgeon in any actions that the Board undertakes. The Board should also provide the coordination and assistance required to improve water quality and biological monitoring and mitigation for anadromous fish populations in the Sacramento-San Joaquin Rivers/San Francisco Bay-Delta watershed.

[1] Unless otherwise stated, all exhibit references are from the "Draft Referenced Documents, Appendix 3 to the 2006 -Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary" dated September 2006.

Based on current monitoring programs, the natural production of all races of salmon in the Sacramento Valley Basin appears to be stable (and in some notable instances has improved) since the passage of the 1995 Plan. However, Interior is concerned that the natural production of fall-run Chinook salmon in the San Joaquin Basin continues to decline. In the last six years natural production estimates for the Stanislaus, Tuolumne, and Merced rivers (combined) have steadily declined from an estimated 79,000 Chinook in the year 2000 to approximately 12,000 Chinook in 2005 (data from FWS ChinookProd spreadsheet). This does not appear to be a one-year phenomenon; the five-year average production for 2001-2005 is approximately 25,000 Chinook, representing a 69 percent decrease from the year 2000. FWS is concerned because: (1) smolt survival through the south Delta has been low in the past few years; (2) the timing of installation and operation of the Head of Old River barrier is uncertain, and (3) dredging of the Port of Stockton's ship channel may result in increased salmon smolt mortality.

Interior continues to recommend the Narrative Objective for Salmon Protection be addressed through an interactive and collaborative process between state and federal agencies (including the Board) responsible for these public trust resources. The San Joaquin Chinook salmon model developed in 2005 by the California Department of Fish and Game (DFG) has been peer reviewed and revisions/improvements to the model will be incorporated in the spring of 2007. Interior anticipates that this model will prove useful in examining the relationship between San Joaquin spring flows and salmon production in subsequent years.

Interior has made operational changes to New Melones releases in an effort to meet all 1995 Plan requirements (including the Narrative Objective for Salmon Protection) as well as the needs of other beneficial uses. However, under the current regulatory requirements, releases from New Melones alone are not sufficient to meet all the flow and salinity requirements in the 2006 draft Plan. It is Interior's position that the Board should conduct a coordinated review of all the elements of the Plan that relate to the broader realities in the San Joaquin Basin, including the Narrative Objective for Salmon Protection, as well as the Vernalis Spring Flow Objectives, Vernalis Pulse Flow Objectives and Southern Delta Salinity Objectives.

The Board now has access to new information in the form of CALSIM II and the updated San Joaquin basin planning hydrology. The availability of the new information means that the D-1641 FEIR must be supplemented with new environmental analyses of the San Joaquin. The need for a new analysis of the San Joaquin Basin is critical because the Draft Plan fails to recognize the water supply issues with achieving the Vernalis Spring Flow Objectives, and fails to recognize the relationships among the Narrative Objective for Salmon Protection, the Vernalis Spring Flow Objectives, and the Southern Delta Salinity Objectives.

Recommendation. Based on the recent low fry/smolt survival estimates and the continued decline in natural production of Chinook salmon, Interior strongly recommends that the Board re-examine the entire suite of 2006 draft Plan flow and salinity objectives that pertain to the San Joaquin Basin in light of recent developments in San Joaquin Basin hydrology and the newly-revised San Joaquin Chinook salmon model. This recommendation is consistent with Interior's recommendation for a workshop regarding the Vernalis Spring Flow Objective, discussed below. Furthermore, Interior recommends that the Board conduct this workshop in the summer of 2007.

Interior strongly recommends that the Board recognize in the Chloride Objectives Program of Implementation that the Projects can only control and achieve objectives related to ocean based salinity intrusion near the Holland Tract station. The Board heard testimony during the workshops from all parties that the Holland Tract salinity information best represents the Projects' influence on salinity intrusion. In order for the Draft Plan to provide for reasonable and achievable objectives, the Draft Plan should be amended to recognize the fact that the Projects can only have meaningful influence of Chloride Objectives at the Holland Tract station. The Board claims it does not have enough information to change the compliance location from PP#1 to the Holland Tract station. Yet, the Board can provide in its Program of Implementation for the Projects to achieve the Chloride Objectives at the Holland Tract station, while keeping the PP#1 objective in place, and implemented by other reasonable and achievable means.

Interior strongly disagrees with the Board's analysis in the Draft Plan Report, p. 39, that the Projects must petition for a water rights hearing and point to other responsible parties before the Board can provide for partial responsibility of a water quality objective. The Board can make such provisions in a program of implementation for any water quality objective in a water quality control plan, especially in a case such as the Chloride Objectives, where the evidence shows, and the parties agree, that CVP operations can only have a limited influence on chloride concentrations at specific locations. Otherwise, the Board would be implementing objectives through certain water rights that are not achievable through those water rights. Such is the case with the Draft Plan with respect to the Chloride Objectives. The Projects only have meaningful influence over salinity intrusion at the Holland Tract station. The Chloride Objectives in the Draft Plan may well be illusory under the Draft Plan's Program of Implementation.

5. Delta Outflow Objective

Interior supports the determination of the Board in the Draft Plan to not amend the numeric values established for the Delta Outflow Objective in the 1995 Plan. A decade ago, the Board adopted the Delta Outflow Objective to protect beneficial uses of Delta waters by the State's fishery resources. The Delta Outflow Objective formed the foundation for one of the major new concepts in the 1995 Plan. Over the last 10 years, implementation of this Objective has, in general, improved environmental conditions for a number of fish species, particularly those listed as threatened or endangered pursuant to the federal Endangered Species Act (ESA). Compliance with the Delta Outflow Objective provides important protection for the Delta's fishery resources and contributes to maintenance of Delta habitat.

During the 2004-05 periodic review workshops, Interior requested that the Board adopt further flexibility in the implementation of the Delta Outflow Objective. Interior incorporates its exhibits from the workshops by reference (Ex. DOI-23, DOI-24). Interior appreciates the Board's acknowledgement that flexibility may be appropriate and added in the future through the Program of Implementation.

Recommendation. As articulated in exhibits provided for the workshops, under certain circumstances, meeting the Delta Outflow Objective may be in conflict with and create

operational challenges in meeting upstream reservoir management objectives for fishery purposes, such as maintaining the coldwater pool or reducing reservoir release fluctuations. While the potential for such conflict is fairly limited, Interior believes it is important for the Board to acknowledge the potential for conflict between upstream and downstream fishery objectives and outline a process in the Program of Implementation to address these competing needs and develop specific operational recommendations in a timely manner.

Interior proposes an amendment to the language in the Program of Implementation acknowledging the potential for conflict under specific conditions between meeting the Delta Outflow Objective and upstream reservoir management objectives for fishery purposes. Further, Interior requests that the Board outline the process to be followed in the event such a conflict between upstream and downstream fishery objectives occurs. Interior believes that the appropriate process should be the filing of a temporary urgency change petition with the Board. The petition would contain a proposal to address significant competing needs and develop specific operational recommendations that would be supported by all agencies on the Water Operations Management Team (Reclamation, FWS, National Marine Fisheries Service, California DFG and the California Department of Water Resources).

In order to address the potential for conflict between upstream and downstream fishery objectives, Interior is proposing the following change to the Program of Implementation section of the Draft Plan. This paragraph would follow the existing paragraph under "1. Delta Outflow Objective" on page 22 of the Draft Plan:

The State Water Board recognizes that under certain limited circumstances achieving the Delta Outflow Objective may be in conflict with the Projects' ability to meet upstream fishery objectives for threatened and endangered salmonids in the upper Sacramento River, Feather River and lower American River. If DWR or USBR determines that such a conflict exists and creates an unacceptable risk of harm to threatened or endangered species, DWR or USBR may petition for a temporary urgency change order pursuant to Cal. Water Code § 1435 et seq., and the Board's regulations, to temporarily allow the Projects to implement the Delta Outflow Objective in a flexible manner to address competing needs of upstream and downstream fishery objectives. The temporary urgency change petition, in addition to the requirements for approval set forth under Cal. Water Code § 1435, shall include specific operational alternatives to address the competing needs of upstream and downstream fishery objectives, and shall be supported by all agencies on the Water Operations Management Team (U.S. Bureau of Reclamation, U.S. Fish and Wildlife Service, National Marine Fisheries Service, California Department of Fish and Game and the California Department of Water Resources). It is the intent of the Board that the Board, or its authorized delegee, will act on such a petition for temporary urgency change within five (5) days of its receipt.

Interior believes that acknowledging the potential for conflicts between upstream and downstream fishery objectives, and the potential need for temporary urgency changes, in the Program of Implementation is essential for reasonable implementation of the Delta Outflow Objective. While the potential for conflict exists, Interior finds that the circumstances of such conflict are sufficiently limited so as to not warrant an amendment to the Delta Outflow

Objective. However, in the event that competing needs between upstream and downstream fishery objectives occur, Interior believes that the statutory temporary urgency change process can be an appropriate tool for flexibility, as originally requested by Interior, provided that Interior has some assurance that such a petition will be acted upon in a timely manner.

Interior supports the Board's decision to not amend the numeric values established for the Delta Outflow Objective. Interior recommends that the Board recognize the potential for conflicts between implementation of the Delta Outflow Objective and upstream reservoir management objectives for fisheries, and provide for timely resolution of such competing needs through the use of a temporary urgency change petition. Recognition of the potential conflicts between upstream and downstream fishery objectives in the Draft Plan will allow the Board to issue a temporary urgency change order, under the appropriate circumstances, consistent with the Program of Implementation for the Delta Outflow Objective.

6. Export Limits

Interior makes no further recommendations regarding the Export Limits Objectives at this time.

7. River Flows: Sacramento at Rio Vista

Interior supports the determination of the Board in the Draft Plan to not amend the numeric values established for the Sacramento River at Rio Vista Flow Objectives in the 1995 Plan. The Sacramento River at Rio Vista Flow Objectives were adopted in the 1995 Plan to protect beneficial uses of river and Delta waters by the State's fishery resources. The Sacramento River at Rio Vista Flow Objectives apply to the fall months and are primarily intended to maintain sufficient net downstream flow in the lower Sacramento River to facilitate adult Chinook salmon upstream migration. The salmon objective reflects the minimum flows that the California DFG believes would be suitable for adult salmon migration (Bay-Delta WQCP, August, 1978). The Sacramento River at Rio Vista Flow Objectives provide concurrent benefits for federally listed adult steelhead during their upstream migration through the Delta to their spawning habitat in several Central Valley streams. Further, federally listed juvenile winter-run, and spring-run Chinook salmon, as well as late fall-run Chinook salmon, migrate downstream toward the ocean in the fall and winter months. The Sacramento River at Rio Vista Flow Objectives contribute flows for these species' downstream migration.

While Interior recognizes the benefits of the Sacramento River at Rio Vista Flow Objectives, under certain circumstances, achieving the Sacramento River at Rio Vista Flow Objectives may be in conflict with other upstream fishery objectives. Evidence of this conflict was presented at the 2004-05 periodic review workshops. Interior incorporates its exhibit from the workshops by reference. (Ex. DOI-25). Under certain dry fall conditions, meeting the Sacramento River at Rio Vista Flow Objectives may result in greater than desired flow fluctuations in the upper Sacramento River, Feather River and lower American River during the fall salmon spawning period. An alternative to meeting the Sacramento River at Rio Vista Flow Objectives by flow releases is to close the Delta Cross Channel gates. However, closure of the gates in dry fall conditions creates other conflicts, primarily a likely increase in salinity in the

Southern Delta. This option could be exercised only for short periods of time and possibly balanced with export reductions to maintain water quality objectives.

The Sacramento River at Rio Vista Flow Objectives may also affect the upstream reservoirs' fall cold-water reserves. Such conflict can arise because in order to meet the Sacramento River at Rio Vista Flow Objective, the Projects may be required to make storage releases, or to bypass flows that would otherwise be diverted into storage. Such releases, or bypasses, may result in the additional depletion of limited cold-water resources during the fall. In extreme circumstances, these releases and lowered reservoir levels may affect the Projects' ability to achieve temperature objectives for anadromous fish in the following year, including threatened or endangered salmon species. These temperature objectives have been set by the Board, and are included in the Biological Opinion issued by the National Marine Fisheries Service regarding the effects of Central Valley Project/State Water Project operations on listed salmonids. Failure to meet the temperature requirements in the Biological Opinion triggers reinitiation of Endangered Species Act (ESA), Section 7, consultation, which allows for NMFS to consider whether the failure to meet temperature requirements will cause jeopardy to the continued existence of listed species or whether additional measures are needed to minimize take. This process provides protection for species when hydrologic conditions are such that it is not possible to meet the operations analyzed in the Biological Opinion for CVP operations.

Recommendation. While the potential for such conflict between upstream and downstream fishery objectives is fairly limited to dry fall conditions, Interior believes it is important for the Board to acknowledge the potential for conflict in the Program of Implementation of the Sacramento River at Rio Vista Flow Objectives. Therefore, Interior proposes an amendment to the language in the Program of Implementation acknowledging the potential for conflict under specific conditions between meeting the Sacramento River at Rio Vista Flow Objective and other upstream fishery objectives, including requirements in the Biological Opinions for CVP operations. Interior requests that the Board outline a process to be followed in the event such a conflict between upstream and downstream fishery objectives occurs. Interior believes that the appropriate process should be the filing of a temporary urgency change petition with the Board. The petition would contain one or more proposals to address the significant competing needs and develops specific operational recommendations that would be supported by all agencies on the Water Operations Management Team (Reclamation, FWS, National Marine Fisheries Service, California DFG and the California Department of Water Resources).

In order to address the potential for conflict between meeting the upstream and downstream fishery objectives, Interior is proposing the following change to the Program of Implementation section of the Draft Plan. This paragraph would follow the existing paragraph under "2. River Flows: Sacramento River at Rio Vista" on page 22 in the Draft Plan:

The Board recognizes that under certain limited circumstances during dry fall conditions, achieving the Sacramento River at Rio Vista Flow Objective may be in conflict with the Projects' ability to meet upstream fishery objectives for threatened and endangered salmonids in the upper Sacramento River, Feather River and lower American River. If USBR, or DWR, determines that such a conflict exists and creates an

unacceptable risk of harm to threatened or endangered species, USBR, or DWR, may petition for a temporary urgency change order pursuant to Cal. Water Code § 1435 et seq., and the Board's regulations, to temporarily allow the Projects to implement the Sacramento River at Rio Vista Flow Objective in a flexible manner to address competing needs of upstream and downstream fishery objectives. The temporary urgency change petition, in addition to the requirements for approval set forth under Cal. Water Code § 1435, shall include specific operational alternatives to address the competing needs of the upstream and downstream fishery objectives, and shall be supported by all agencies on the Water Operations Management Team (U.S. Bureau of Reclamation, U.S. Fish and Wildlife Service, National Marine Fisheries Service, California Department of Fish and Game and the California Department of Water Resources). It is the intent of the Board that the Board, or its authorized delegee, will act on such a petition for temporary urgency change within five (5) days of its receipt.

Interior believes that acknowledging the potential for conflicts between upstream and downstream fishery objectives, and the potential need for temporary urgency change orders in the Program of Implementation is essential for reasonable implementation of the Sacramento River at Rio Vista Flow Objective. While the potential for conflict between upstream and downstream fishery objectives exists, Interior finds that the circumstances of such conflict are sufficiently limited so as to not warrant an amendment to the Sacramento River at Rio Vista Flow Objectives. However, in the event of those competing needs between upstream and downstream fishery objectives, Interior believes that the statutory temporary urgency change process can be an appropriate tool for flexibility, as originally requested by Interior, provided that Interior has some assurance that such a petition will be acted upon in a timely manner.

Interior supports the Board's decision to not amend the numeric values established for the Sacramento River at Rio Vista Flow Objectives. Interior recommends that the Board recognize the potential for operational challenges and ESA conflicts between implementation of the Rio Vista Flow Objectives and upstream fishery objectives, and provide for timely resolution of such competing needs through the use of a temporary urgency change petition. Recognition of the potential conflicts between upstream and downstream fishery objectives in the Draft Plan will allow the Board to issue a temporary urgency change order, under the appropriate circumstances, consistent with the Program of Implementation for the Sacramento River at Rio Vista Flow Objectives.

8. February-April 14 and May 16-June San Joaquin River Flow Objectives (Spring Flow Objectives);

9. 31-Day April 15-May 15 San Joaquin River Pulse Flow Objectives (Pulse Flow Objectives); and

10. Southern Delta Electrical Conductivity Objectives for the Protection of Agricultural Beneficial Uses (Southern Delta Salinity Objectives)

Interior would like to consolidate its comments on issues 8, 9, and 10 (the San Joaquin Spring Flow and Pulse Flow Objectives, and the Southern Delta Salinity Objectives), because while each merit individual comment, set forth below, the objectives all depend on water from the San Joaquin Basin. Interior believes that the Vernalis Spring and Pulse Flow objectives

provide important protection for emigrating salmonids and federally listed delta smelt. However, as Reclamation and FWS have previously acknowledged, compliance with the San Joaquin flow objectives may create reservoir operational challenges, fishery flow management challenges and potential conflicts with federal ESA obligations. These conflicts can be exacerbated by the fact that the formula for the San Joaquin Spring Flow Objectives is largely influenced by hydrology of the Sacramento Basin, and not the San Joaquin Basin. In addition, these conflicts are exacerbated by the "new" Southern Delta Salinity Objectives being imposed upon the CVP, as further discussed below.

While Interior believes that the Vernalis Spring and Pulse Flow Objectives are necessary to protect fish, the history is that Reclamation has agreed to be responsible, to the best of its ability, for the Vernalis Spring Flow (or baseflow) Objectives, generally for the term of the San Joaquin River Agreement (SJRA). While the Board has interpreted Reclamation's promise on this point much more broadly than intended,[2] Reclamation has not challenged the Board's interpretation in an effort to keep the SJRA in place and to achieve comity in the San Joaquin Basin. However, as originally predicted by Reclamation, there are questions of reasonableness and achievability of the Vernalis Spring Flow Objectives in dry years, in light of the entire responsibility falling on Reclamation, and especially in connection with the "new" Southern Delta Salinity Objectives, discussed below. The Board often cites to the fact that Reclamation is not required to meet either the Spring Flow or Southern Delta Salinity Objectives solely from New Melones storage water. Yet the reality remains: there is not enough water in the Basin, from purchase, from storage, from recirculation, or otherwise, to meet the Vernalis Spring Flow Objectives, and the Southern Delta Salinity Objectives, in all conditions.

Reclamation has sought temporary urgency change orders from the Board in all years from 2002-2005, to get flexibility in implementing the Vernalis Spring Flow Objectives due to dry conditions. In 2005, Reclamation's temporary urgency change petition was denied. The order denying the petition (Order WRO 2005-0010, at page 6) states, "Delaying until a violation is imminent does not create an urgent need for a change, although it may well create an urgent need to take enforcement action." This statement does not recognize the need for Reclamation to respond in real-time to operational conditions and conflicts between upstream and downstream fishery objectives that may change daily. Such a statement places the Board and Interior in adversarial positions. Interior believes that such adversarial approaches are not productive.

The Board has often relied on this periodic review process as the appropriate opportunity for Reclamation to achieve flexibility to deal with the operational challenges and difficulties with implementing the Vernalis Spring Flow objectives and upstream fishery objectives, yet the Draft Plan includes no such flexibility. The flexibility requested by Interior during the periodic review workshops has not been seriously considered or analyzed in the Draft Plan Report. The need for flexibility is increased due to the Southern Delta Salinity Objectives. Interior is, therefore, concerned about the future implementation of these three related objectives. However, Interior believes that if the Board acknowledges the potential for certain conflicts between upstream and downstream fishery objectives, and the Southern Delta Salinity Objectives, in the Programs of Implementation and the potential need for temporary urgency change orders, such

[2]See D-1641, p. 45, footnote 35.

acknowledgment in the Draft Plan will go a long way toward working together to resolve conflicts in the San Joaquin and Southern Delta inherent in the Board's objectives.

A. Vernalis Spring Flow (Baseflow) Objectives. The Board is well aware that Reclamation has a history of not fully achieving the Vernalis Spring Flow Objectives in dry conditions. (Order WRO 2005-0010, p, 4). When the objectives were originally adopted in the 1995 Plan, it was known that the Vernalis Spring Flow Objectives would be difficult for Reclamation to achieve in dry conditions. In the hearings for D-1641, Reclamation testified, as it did before the Board in 1995, that, "it may not be possible or prudent to meet all the standards under all conditions, but we will make our best effort to do so." (See D-1641, p. 45, citing to USDI 4, p. 4, Testimony of Lowell Ploss, citing 1995 testimony of Roger Patterson). Now that Reclamation has over six years of experience implementing the Vernalis Spring Flow Objective, it is clear that Reclamation's initial concerns are coming to bear, as evidenced by the history of requests for temporary urgency change orders seeking flexibility in implementing the Vernalis Spring Flow Objectives filed by Reclamation.

Reclamation sought temporary urgency change orders on March 13, 2002, (DOI Exhibit A, attached hereto and incorporated herein), on May 16, 2003 (DOI Exhibit B, attached hereto and incorporated herein), on January 30, 2004, (DOI Exhibit C, attached hereto and incorporated herein), and again on February 1, 2005 (DOI Exhibit D, attached hereto and incorporated herein). Reclamation sent a letter to the Board's Executive Director on November 18, 2004, detailing Reclamation's difficulties with achieving the Vernalis Spring Flow Objectives during dry conditions. (DOI Exhibit E, attached hereto and incorporated herein). The November 18, 2004, letter also describes Reclamation's difficulties in achieving the Vernalis Spring Flow Objectives through other means than New Melones storage water, including purchases, recirculation, south of Delta storage releases, and finally Reclamation requests flexibility in implementing the objective. In addition, Reclamation has submitted to the Board a "Summary of 1997 Analysis of PROSIM and SANJASM Results Demonstrating Instances of Failure to Meet Vernalis Base Flow Required for X2 Compliance." (DOI Exhibit F, attached hereto and incorporated herein). This document further details Reclamation's experience with implementing the Vernalis Spring Flow Objectives.

However, as previously stated, Interior believes that the Vernalis Spring Flow Objectives are important and necessary to protect fish and wildlife beneficial uses. The Vernalis Spring Flow Objectives benefit juvenile fall-run Chinook salmon, and federally listed adult steelhead during their downstream migration, and federally listed adult delta smelt during spawning, as well as larval and juvenile delta smelt. The fishery benefits afforded by the Vernalis Spring Flow Objectives are especially important in light of the recent pelagic organism decline (POD) in the Delta and the continuing decline in San Joaquin basin salmon production. Therefore, Reclamation stands by its promise to meet the Vernalis Spring Flow Objectives, to the best of its ability. However, neither Interior nor the Board should continue to ignore Reclamation's difficulties in achieving the objectives during dry conditions. Interior believes that providing flexibility in implementing the Vernalis Spring Flow Objectives will prevent further adversarial positions between Interior and the Board. At the very least, Interior believes that the Board should recognize in the Draft Plan that the Vernalis Spring Flow Objectives, during this time that they are implemented solely through water rights for the CVP, may conflict and create

operational challenges with upstream fishery objectives, and the Southern Delta Salinity Objectives, and may be difficult, if not impossible, to achieve in certain dry conditions.

Recommendation. Interior believes that the language similar to that suggested for the Delta Outflow Objective and the Sacramento River at Rio Vista Flow Objectives will also help with the San Joaquin Spring Flow issue, as follows:

The State Water Board recognizes that under certain limited circumstances during dry conditions, there are limited water resources available in the San Joaquin Basin to achieve the San Joaquin Vernalis Spring Flow Objectives, and the Objectives may be in conflict with upstream fishery objectives, and Southern Delta Salinity Objectives. If USBR determines that such circumstances exist, USBR may file a temporary urgency change petition, pursuant to Cal. Water Code § 1435 et seq., and the Board's regulations, to temporarily allow Reclamation to implement the Vernalis Spring Flow Objectives in a flexible manner to address competing needs of upstream and downstream fishery objectives, or salinity objectives. The temporary urgency petition, in addition to the requirements for approval set forth under Cal. Water Code § 1435, shall include specific operational alternatives to address the competing needs, and shall be supported by all agencies on the Water Operations Management Team (U.S. Bureau of Reclamation, U.S. Fish and Wildlife Service, National Marine Fisheries Service, California Department of Fish and Game and the California Department of Water Resources). It is the intent of the Board that the Board, or its authorized delegee, will act on such a petition for temporary urgency change within five (5) days of its receipt.

Interior believes that this recognition of the limited water supply of the San Joaquin Basin during dry conditions, and the potential for operational challenges and conflicts between upstream and downstream fishery objectives and the Southern Delta Salinity Objectives in the Program of Implementation for the San Joaquin Spring Flow Objectives is critical to reasonable and achievable implementation of the objectives.

In making the above recommendation, Interior acknowledges that conflicts between the Vernalis Spring Flow Objectives and the Southern Delta Salinity Objectives (further discussed below) may occur only in certain dry conditions, and that the use of a temporary urgency petitions process is appropriate for the short-term. However, there continues to be a need for a long-term solution to the over-allocation of San Joaquin Basin water. Therefore, Interior strongly recommends that the Board re-examine, in a workshop, the Vernalis Spring Flow Objectives in light of recent developments in San Joaquin Basin hydrology, as well as the newly revised San Joaquin Chinook salmon model. Interior recommends that the Board conduct this focused workshop in the summer of 2007, or alternatively, broaden the scope of the January, 2007, workshop on Southern Delta Salinity Objectives recently noticed by the Board.

B. Vernalis Pulse Flow Objectives (April 15-May 15). Interior supports the Draft Plan's changes to the Program of Implementation for the Vernalis Pulse Flow Objectives. The Program of Implementation now has provisions allowing a staged implementation of the Vernalis Pulse Flow Objectives until December 31, 2011. Until that time, the objectives will be implemented as set forth in the Vernalis Adaptive Management Plan (VAMP) experiment, and as

set forth in the SJRA. Interior notes that the Draft Plan commits the Board to holding a water right hearing immediately following the termination of the SJRA. Interior supports this commitment by the Board.

While Interior has no issue with the Draft Plan being made consistent with D-1641 for the Vernalis Pulse Flow Objectives, Interior strongly disagrees that the Board can rely on the *Final Environmental Impact Report for Implementation of the 1995 Water Quality Control Plan* (D-1641 FEIR) as adequate analyses of the environmental impacts of the Vernalis Pulse Flow Objectives. The D-1641 FEIR's analysis with respect to the San Joaquin River flows is fundamentally flawed. The analysis is not based upon accurate hydrologic conditions or supplies of the San Joaquin Basin. The analysis assumes water is added to the basin to meet particular objectives (the "add water" analysis), but does not account for where this water would actually come from in the Basin. The analysis is based on the DWRSIM model. The Board now has access to new information in the form of CALSIM II and the updated San Joaquin basin planning hydrology. The availability of the new information, and the need to correct the faulty assumption of the D-1641 FEIR "add water" analysis, means that the D-1641 FEIR must be supplemented with new environmental analyses of the San Joaquin. The need for new analyses of the San Joaquin Basin is critical because the Draft Plan fails to recognize the water supply issues with meeting the Vernalis Spring Flow Objectives, and fails to recognize the relationship between the Vernalis Spring Flow Objectives and the Southern Delta Salinity Objectives, as discussed below.

Recommendation. While Interior supports the changes in the Program of Implementation for the Vernalis Pulse Flow Objectives, Interior recommends that the Board supplement its analysis in the D-1641 FEIR before relying upon that analysis to support the new Program of Implementation for the Vernalis Pulse Flow Objectives.

C. Southern Delta EC Objectives for Agricultural Uses (Southern Delta Salinity Objectives). Interior fundamentally disagrees with the Board's approach in the Draft Plan that no changes have been made to the Southern Delta Salinity Objectives, or the Program of Implementation, and, therefore, the Draft Plan represents the status quo. Under the Board's "status quo" approach, no additional environmental analysis is required. However, the reality is that much has changed with respect to the Program of Implementation for the Southern Delta Salinity Objectives since the 1995 Plan. When the Southern Delta Salinity Objectives were adopted in the 1995 Plan, it was anticipated that a water rights hearing would set forth the responsibilities of water right holders concerning the objectives. That hearing was held and resulted in D-1641.

In D-1641, because of evidence showing that a permanent operable barrier program could improve salinity conditions in the Southern Delta, but still not achieve full compliance with the Southern Delta Salinity Objectives (D-1641, p. 88), the Board imposed a relaxed objective on the water rights of the CVP and SWP with respect to Southern Delta salinity. The Board found that the projects were "partially" responsible for salinity degradation in the Southern Delta. The Board imposed an objective of 1.0 EC, instead of the 0.7 EC called for in the 1995 Plan. (D-1641, p. 88). This made sense, because of the numerous other causes for salinity degradation in the Southern Delta (D-1641, p. 86), and because the Board had anticipated achieving the 0.7 EC

through its authority over other programs of implementation, such as non-point source regulation and discharge permits. (1995 Plan, pp. 29-33).

However, the Board made clear that it supported the barrier program discussed by DWR during the D-1641 hearings, and, in effect, made the water rights of the CVP and SWP conditioned upon construction of the permanent operable barriers. The Board did not directly require the barrier program, but provided an incentive to DWR and Reclamation to construct the barrier program in footnote 5, of Table 3 in D-1641. In that footnote, the Board linked Reclamation and DWR with a salinity objective of 1.0 EC (consistent with the findings in D-1641, D-1641 p. 88), until April 1, 2005. If, as of April 1, 2005, the barriers were not constructed, Interior and DWR were assigned an objective of 0.7 EC at the three Southern Delta stations below Vernalis. After the barriers are constructed, the objective, as implemented in D-1641, returns to 1.0 EC. In 2000, the Board, DWR, and Interior, were all optimistic that progress could be made on the barrier program and footnote 5 was not an issue, even throughout the 2004-05 workshops for periodic review. However, the barriers were not constructed by April 1, 2005, and now DWR and Reclamation are subject to the "new" 0.7 EC objective. The Board cannot now transform the incentive in footnote 5 into a factual finding of full responsibility on the part of the Projects.

In the D-1641 FEIR, **the Board only analyzed the environmental impacts of achieving the Southern Delta Salinity Objectives in context of the barrier program.**[3] **The Board has never analyzed the impacts of the 0.7 EC objective being implemented by Reclamation and DWR without the barriers.** However, as we know the realities of today, the barrier program has experienced delays beyond the control of either DWR or Reclamation (February 14, 2005, Petition to Temporarily Change Effective Date of Condition Imposed in Water Right Decision 1641, pp. 5-7), and the barriers are not yet constructed.[4]

The Board's D-1641 FEIR never analyzed the impacts of DWR and Reclamation being fully responsible for the Southern Delta 0.7 EC objectives. The FEIR analysis assumes that Reclamation achieves the Vernalis salinity objective of 0.7 EC with dilution flows, and then shows that the permanent operable barriers improve salinity at the two Old River stations, but has little impact on the Brandt Bridge station. (D-1641 FEIR, Chapter IX, Figures IX-21 through IX-26). Evidence presented at the Delta Salinity Draft Cease and Desist Order (CDO) and Water Quality Response Plan (WQRP) Hearing shows that the degradation between Vernalis and Brandt Bridge (a distance of approximately 25 river miles) is approximately eight percent (8%) (Delta Salinity Draft CDO and WQRP Hearing, Exhibit DWR-20,[5] p. 4). Reclamation has no

[3] This omission is further complicated by the fact that the analysis for the south Delta salinity objectives in the FEIR is also flawed in that it does not accurately represent the true water supplies of the San Joaquin basin. The analysis adds water to the basin without analysis of where that water may derive.

[4] In order for Reclamation to comply with a requirement to construct a project as a condition to a water right, it must have Congressional authorization for the project, Congress must fund the project, the project must, among other legal requirements, undergo federal Endangered Species Act consultation, National Environmental Policy Act procedures, as well as achieve all necessary approvals for construction, such as a 404 permit granted by the U.S. Army Corps of Engineers. Reclamation, as a bureau within a single executive branch agency, has little control over each of these processes.

[5] entitled, "Investigation of the Factors Affecting Water Quality at Brandt Bridge, Middle River at Union Point, and Old River at Tracy, by Tara Smith."

Recirculation or use of San Luis water could be problematic because of potential adverse

agreement with any willing sellers, or Congressional appropriations to fund those agreements, at any given time.

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[6] Evidence presented at the Delta Salinity Draft CDO and WQRP Hearing shows that export pumping has only negligible impact on salinity in the Southern Delta, and under certain conditions, may actually improve salinity in the Southern Delta. (Delta Salinity Draft CDO and WQRP Hearing, Exhibit DWR-20, pp. 9-13).

on the San Joaquin River at Vernalis currently contribute to achieving the salinity objectives in the southern Delta." This statement reveals a fundamental difference in the views of Interior and the Board on this issue. From Interior's perspective, the Vernalis Spring Flow Objectives and the Southern Delta Salinity Objectives actually compete. The more flow needed in the spring for the Spring Flow Objective, the less flow available for the April through August Southern Delta Salinity Objectives. Because the Board has not analyzed the Southern Delta Salinity Objectives as a flow objective, in concert with the other demands it has, in fact, made on New Melones, the Board does not have a full understanding of the implications of the Southern Delta Salinity Objectives on the water supplies of the San Joaquin. For example, a preliminary analysis using CALSIM II data shows that a small, incremental change in the salinity objective at Brandt Bridge (as measured by "overshooting" the 0.7 EC objective at Vernalis) can result in a need for approximately double the volume of water required for dilution flows.

The Draft Plan states, at page 22, that, "Salinity, though a water quality objective, is still implemented, **in part**, through the State Water Board's water rights authorities." (Emphasis added). In the Draft Plan, the Board continues a Program of Implementation for Southern Delta Salinity Objectives that includes more than just water rights. The Board plans to implement the objectives through water rights, discharge permits, Total Maximum Daily Load (TMDL) programs, funding of financial assistance programs, and other projects and actions implemented by other agencies. (Draft Plan, pp. 27-31). Interior supports this approach. However, the difficulty is that the Board has taken the position in the past that now that the barriers are <u>not</u> constructed, the Southern Delta Salinity Objectives are now fully implemented through Reclamation and DWR's water rights.

The Board has taken this position despite language in D-1641 that the Projects are only "partially" responsible and language holding Reclamation and DWR responsible only for exceedances within their control (D-1641, pp. 88 and 161). In addition, the Board granted a waiver of the Southern Delta Salinity Objectives to the City of Manteca through Order WQ 2005-0005. The City of Manteca, a discharger, was granted a waiver from its effluent limitation of 0.7 EC to a 1.0 EC in March of 2005, near the same time that Reclamation and DWR were issued a draft CDO, Order WR 2006-0006, for "threatening" to violate Southern Delta Salinity Objectives. There apparently is no incentive to implement the Southern Delta Salinity Objectives through other Board programs, as called for in the Program of Implementation, so long as the Board's view is that the objectives are fully implemented through the water rights of Reclamation and DWR.

<u>Recommendation</u>. The Board must supplement its analysis in the D-1641 FEIR to sufficiently analyze the impacts, and reasonableness and achievability, of the Southern Delta Salinity Objectives without the barriers. Interior supports the Board's multi-programmatic approach to implementing the Southern Delta Salinity Objectives. However, Reclamation does not cause, and has little control over salinity degradation below Vernalis. While construction of the operable barriers would improve Delta salinity conditions, they would not consistently achieve a 0.7 EC objective at the three stations below Vernalis. The reality is that the barriers are not constructed. Dilution flows are currently a feasible means of achieving the objectives, but such may cause an unreasonable use of water. (D-1641, p. 10). Therefore, Interior proposes that the Board consider a phased implementation of the 0.7 EC objective in the Southern Delta.

The Plan should provide that Reclamation and DWR will not cause or contribute to an exceedance of 1.0 EC year round, consistent with the numerous other causes of salinity degradation below Vernalis, with their "partial" responsibility, and consistent with the Board's findings in D-1641. The April through August 0.7 EC objective should be phased in the Plan until a date that the Board expects other programs in the Draft Plan's Program of Implementation, such as discharge controls and TMDL programs, to be fully implemented.

1. Additional issues regarding the 1995 Plan

a. Suisun Objectives

1) Numeric Objectives for Suisun Marsh

The Draft Plan outlines numeric objectives (measured as EC) for protection of fish and wildlife beneficial uses in the eastern and western Suisun Marsh. As outlined below, Interior recommends changes in the Draft Plan to more accurately reflect the current status of actions being implemented by Reclamation, DWR, DFG, and the Suisun Resource Conservation District (SRCD) for protection of beneficial uses in Suisun Marsh. These four agencies are the signatories to the Suisun Marsh Preservation Agreement (SMPA), which was executed in 1987. A Revised SMPA was executed by the agencies in 2005.

During the 2004-05 periodic review workshops for the 1995 Plan, the SMPA signatories were in the process of completing an amendment to the SMPA. On June 20, 2005, the agencies executed the amendment, in the form of a Revised SMPA and its companion Revised Mitigation and Monitoring Agreements. These three agreements were revised, in part, to address changes resulting from the 1995 Plan and to implement actions that would provide equivalent or better protection than channel water salinity standards at Suisun Marsh stations S-35 (Morrow Island) and S-97 (Ibis).

During hearings on D-1641, the Board received information on the then-proposed amendment to the SMPA and concluded that actions identified for the amendment would provide equivalent protection. Such actions were incorporated in the Revised SMPA (June 20, 2005) and include: establishment of a Water Manager Program, Portable Pumps Program, and Drought Response Program; funding to improve Roaring River Distribution System turnouts; and conversion of stations S-35 and S-97 from compliance stations to monitoring stations.

Interior also recommends revisions to update sections of the draft Plan that describe the Suisun Marsh Charter Group (SMCG), including current efforts of the involved agencies to prepare a programmatic EIS/EIR for the Habitat Management, Preservation, and Restoration Plan for the Suisun Marsh (Suisun Marsh Plan).

The work of the SMCG was originally noted in the Board's September 2004 Staff Report on the Periodic Review of the 1995 Plan. As outlined on page 42 of the 2004 report, the staff recommendation was to defer changes to numeric objectives at stations S-35 and S-97 to the next period review of the Plan, with the expectation that the Suisun Marsh Plan would be completed by that time.

The Suisun Marsh Plan (being developed via the programmatic EIS/EIR) has not been completed. Accordingly, implementation of numeric objectives at S-35 and S-97 should be deferred until completion of the Suisun Marsh Plan. While Interior supports the intent of the Board to use the results of the programmatic EIS/EIR for the Suisun Marsh Plan in its next periodic review, information from the completed Suisun Marsh Plan should be used to evaluate and to determine appropriate objectives at stations S-35 and S-97, if needed.

Interior does not agree that DWR and Reclamation should be required to meet existing objectives at S-35 and S-97 if new salinity objectives at these stations have not been determined by January 1, 2015. The SMPA was revised, in part, to address changes resulting from the 1995 WQCP and to implement actions that would provide equivalent or better protection than channel water salinity standards at stations S-35 and S-97. The Revised SMPA was executed in June 2005, and the SRCD began implementation of actions (funded by DWR and Reclamation) to provide equivalent protection. Based upon implementation of these actions, supported by the substantial evidence received by the SWRCB during the D-1641 hearings and the review provided in the DWR report "Comprehensive Review of Suisun Marsh Monitoring Data, 1985-1995" (March 2001), we believe that DWR and Reclamation have mitigated for the impacts of the SWP and CVP operations on the managed wetlands.

Recommendation. Interior recommends that the second sentence in paragraph 6.ii. on page 25 be revised to read:

Due to evidence showing that implementation of the objectives at S-35 and S-97 would require an unreasonable amount of water and might freshen the western part of the Suisun Marsh more than is appropriate for certain species that require a brackish marsh, the SWRCB in Decision 1641 (D-1641) did not require Reclamation or DWR to meet the objectives at these stations (D-1641, pp. 54-55).

Interior further recommends that the Narrative Objectives for Western Suisun Marsh should be amended to remove S-97 and S-35 as compliance points for measuring EC in the Marsh. This change is consistent with D-1641 and consistent previous evidence presented to the Board. Interior believes that the Board is correct that the results of the Programmatic EIS/EIR are important to this process, and thus Interior recommends that S-97 and S-35 be removed as compliance points until analysis is completed that supports use of those stations as compliance points.

2) Narrative Objective for Brackish Tidal Marshes of Suisun Bay

Interior supports the statement that the Board will use the results of the Suisun Marsh Plan to convert the narrative objective for the brackish tidal marshes of Suisun Bay to a numeric objective, as appropriate. However, Interior believes that any changes must be based on the analysis currently being worked on in the Suisun Marsh Plan. Waiting until the Plan is completed will allow for a comprehensive strategy for addressing water quality in the Suisun Marsh and Brackish Tidal Marshes of Suisun Bay.

Recommendation. The first paragraph on page 33 incorrectly states that the Suisun Marsh Charter Group was formed as a result of the inability of Suisun Marsh Ecological Workgroup (SEW) to determine a single numeric objective for the tidal marshes. To help correct this mischaracterization, Interior recommends that the first paragraph end with the sentence: "**However, the SEW was unable to determine a single numeric objective for the tidal marshes.**"

ggested revision of the balance of the first paragraph is:

The Suisun Marsh Charter Group (SMCG) was formed in 2001 to develop a plan to balance the competing needs in Suisun Marsh. The principal agencies of the SMCG are the U.S. Fish and Wildlife Service, National Marine Fisheries Service, U.S. Bureau of Reclamation, California Bay-Delta Authority, Department of Fish and Game, Department of Water Resources, and Suisun Resource Conservation District. The SMCG is currently preparing a programmatic EIS/EIR for the Habitat Management, Preservation, and Restoration Plan for the Suisun Marsh (Suisun Marsh Plan). In preparation of the programmatic EIS/EIR, the agencies are evaluating plan alternatives with a tidal wetland habitat restoration component ranging from 3,000 to 36,000 acres.

As stated in the Draft Plan Report, the purpose of the Dissolved Oxygen (DO) Objective at 6.0 mg/l is to protect migrating fall-run Chinook salmon in the San Joaquin River. However, all potential solutions and impacts should be evaluated using the best available science with supporting data.

The Draft Plan Report identifies three main factors (upstream nutrient loading, channel geometry, and flow) contributing to the DO impairment and further describes in detail the impacts of each contributing factor. The report did not discuss an alternative solution (such as aeration) to resolve the dissolved oxygen impairment.

A multi-agency public stakeholder process has been ongoing since the initial development of the DO TMDL and the aeration solution is the preferred stakeholder alternative. A pilot aeration study has been funded by CALFED, and construction of the aeration units will be completed by the end of 2006. The evaluation of the effectiveness of the new aeration units should begin in early 2007. Interior believes that the Board should continue to allow the stakeholder process to evaluate the effectiveness of the aeration solution.

Closing

Thank you for the opportunity to comment on the 2006 Draft Plan. Interior generally supports the Board's 2006 Draft Plan, with the exceptions noted above, and appreciates the opportunity to provide specific recommendations on certain objectives contained in the Plan. Interior looks forward to the opportunity to provide additional comments and evidence at future

workshops on Central Valley Salinity, Pelagic Organism Decline, Climate Change and San Joaquin Basin issues.

ATTACHMENT

14

San Joaquin River Group

Modesto Irrigation District
Merced Irrigation District
Turlock Irrigation District
Oakdale Irrigation District
South San Joaquin Irrigation District
Friant Water Users Authority
San Joaquin River Exchange Contractors

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Bay–Delta Unit
Division of Water Rights
State Water Resources Control Board
901 P Street
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Sacramento, CA 95812-0100

RE: **San Joaquin River Group Comments on the Draft Environmental Impact Report on the Implementation of the 1995 Water Quality Control Plan for the San Francisco Bay/Sacramento–San Joaquin Delta Estuary**

Dear Ms. Whitney:

Enclosed are two copies of the comments of the San Joaquin River Group ("SJRG") on the Draft Environmental Impact Report ("DEIR") on the Implementation of the 1995 Water Quality Control Plan for the San Francisco Bay/Sacramento–San Joaquin Delta Estuary ("1995 Bay–Delta Plan"). These comments are filed on behalf of the SJRG, its members, and the City and County of San Francisco. The SJRG includes the Merced Irrigation District, the Modesto Irrigation District, the Oakdale Irrigation District, the South San Joaquin Irrigation District, the Turlock Irrigation District, the Friant Water Users Authority, and the San Joaquin River Exchange Contractors Water Authority and its member agencies. Individual agencies may file separate comments on the Draft EIR. Of course we recognize that we have the opportunity to file additional comments and any allegations of noncompliance with the California Environmental Quality Act prior to the close of the public hearing on the project and before the issuance of the notice of determination. (Public Resources Code § 21177; *Galante Vineyards v. Monterey Peninsula Water Management Dist.* 57 Cal.App.4th 13, 66 Cal.Rptr.2d 547.) As pointed out in your letter dated March 16, 1998 and subsequent discussions with you, we are reserving the right to make additional comments on the revised chapters V, VI, and XIII, as well as any additional comments in the remainder of the DEIR necessitated by the revised chapters.

If you have any questions regarding these comments please contact Arthur F. Godwin at (209) 667-5501 or the San Joaquin River Group at the above address.

Very truly yours,

Arthur F. Godwin
for the San Joaquin River Group

Attachments

cc: San Joaquin River Group
City and County of San Francisco

COMMENTS OF THE SAN JOAQUIN RIVER GROUP[1] ON THE DRAFT ENVIRONMENTAL IMPACT REPORT ON THE IMPLEMENTATION OF THE 1995 WATER QUALITY CONTROL PLAN FOR THE SAN FRANCISCO BAY/SACRAMENTO–SAN JOAQUIN DELTA ESTUARY

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1.	I–1	The stated purpose of the EIR is to disclose and analyze the significant effects of implementing the 1995 Bay–Delta Plan. The ER for the 1995 Bay–Delta Plan was a programmatic document designed to analyze the effects of the proposed water quality objectives. The ER did not address specific impacts of implementing the 1995 Bay–Delta Plan; that analysis was deferred to this EIR. This document, however, does an inadequate job of evaluating the impacts of implementing the 1995 Bay–Delta Plan. In most cases the real impacts on upstream areas are totally ignored. Where they are discussed, it is only in a cursory fashion. The SWRCB has placed too much emphasis on the use of other programmatic documents such as the ER, the draft Programmatic EIS for the implementation of the CVPIA, and draft CALFED Bay–Delta documents, rather than spend the time and effort required to do a thorough analysis and fully disclose and evaluate the environmental and economic impacts of implementing the Bay–Delta water quality objectives.
2.	II–1	The SWRCB's goals 3 and 6 are incompatible—the appropriation and use of water under the California water rights is based on priority, not on equity. The priority system has been the primary mechanism for allocating water in California for more than a century. (E.g., *Ortman v. Dixon* (1859) 13 Cal. 33; *Smith v. O'Hara* (1872) 43 Cal. 371.) In addition, Alternative 5 by definition does not meet goal #3 because it is not based on water rights.
3.	II–13	The EIR assumes that absent an order allocating responsibility for the 1995 Bay–Delta Plan flows, Delta requirements would be D-1485 plus the upstream biological opinion for winter run Chinook salmon. This hardly seems the case, and the EIR concludes that Alternative 1 is "likely to jeopardize the continued existence of Delta smelt." (EIR, p. VI–29.) Therefore, it seems reasonable that the "no project" condition include the biological opinion for Delta smelt and apply the reasonable prudent actions against the export projects.
4.	II–14	Including the new Tuolumne River FERC flows in the base case is more than a minimal variation from the existing conditions used in the 1995 Bay–Delta Plan as far as the San Joaquin River is concerned. Attachment B of the Bay–Delta Accord and the implementation plan for the 1995 Bay–Delta Plan recognized that decisions by FERC or other regulatory orders may increase the contribution from other upstream water users into the Estuary. The SWRCB stated (1995 Bay–Delta Plan, p. 28) that it would consider these flows in its assignment of responsibility among the water right holders. Contrary to the Accord and the 1995 Bay–Delta Plan, there is

1 These comments are filed on behalf of the SJRG, its members, and the City and County of San Francisco. The SJRG includes the Merced Irrigation District, the Modesto Irrigation District, the Oakdale Irrigation District, the South San Joaquin Irrigation District, the Turlock Irrigation District, the Friant Water Users Authority, and the San Joaquin River Exchange Contractors Water Authority and its member agencies. Individual agencies may file separate comments on the Draft EIR.

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		no consideration (affirmative or negative) of the improved hydrologic and environmental setting provided by the revised FERC flows on the Tuolumne River. For years, the SWRCB has been admonishing the Bay–Delta participants to solve water issues proactivley. Unfortunately, the SWRCB has not lived up to its promises. Other than including these flows in the base case, there has been no consideration by the SWRCB of the additional flows provided by MID and TID.
5.	II–15	We agree that the USBR should be responsible for the release of water, to meet the salinity objectives at Vernalis based on the language in D–1422 and the observation that the construction of the CVP has substantially increased salinity loads and reduced flows in the San Joaquin River, except that no releases should be made from Friant Dam.
6.	II–16	Friant project's responsibility under Flow Alternative 3 and 4 is provided by New Melones. What happens when New Melones is unable to provide both its share and the Friant share? Doesn't this methodology decrease the availability of water from New Melones in subsequent years and thus shift Vernalis requirements to other water users on the San Joaquin River to make up the difference?
7.	II–16	The EIR states that pre–1914 and riparian water right holders would not be affected until all post–1914 appropriators had ceased diversions. How does the SWRCB propose to assign responsibility to this group of water right holders? The EIR has not analyzed the impacts to this group of users, although it clearly proposes to include them the assignment of responsibility under some of the alternatives. The EIR is deficient in that fails to state how it would assign responsibility to pre–1914 and riparian water right holders and how the SWRCB would evaluate the impacts of assigning responsibility for Bay–Delta flows to this class of water right holders.
8.	II–16	Pre–1914 appropriators cannot be considered until <u>all</u> post–1914 appropriators have been curtailed. The EIR does not address the potential impacts to small post–1914 appropriators; therefore, implementation of the objectives cannot include small post–1914 appropriators until they are given notice and further environmental documentation occurs.
9.	II-17	The SWRCB assumes that once the CVP and SWP are releasing previously stored water in excess of their inbasin obligations and exports, that they have somehow met their Bay–Delta obligation. In other words, the CVP and SWP export projects2 have no storage obligation to meet Bay–Delta water quality objectives. Alternatives 3 and 4 use a modified "Term 91" approach to determine when the projects are providing storage releases in excess of exports and in-basin obligations (i.e., providing storage releases for Delta outflow and other in-basin and Delta depletions). This approach presumes that the projects have no storage release obligation to maintain the Delta in a condition suitable to allow the projects to continue export operations. Prior to the 1995 Bay–Delta Plan objectives, Delta outflow requirements were generally responsive to water quality objectives for Contra Costa Canal diversions (an export operation). The CVP has always been obligated to maintain adequate

2 As used in these comments, the term "CVP and SWP export projects" refers to CVP and SWP operations to meet the demands of their water service contract holders.

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		water quality to meet its obligations to the Exchange Contractors ("Tracy Standards"). Since they have been in operation, both the CVP and SWP have been required to make storage releases to meet water quality obligations/requirements at the export pumps and Contra Costa Canal. Alternatives 3 and 4 look past the historical obligations and force non-export project appropriators to curtail the use of natural flows within the watershed whenever the export projects begin using stored water for purposes other than deliveries and exports under Flow Alternatives 3 and 4. Non-export project appropriators would be responsible for maintaining Delta water quality under the premise of environmental protection. The burden of dealing with project-created impacts cannot be transferred to other entities. Both the CVP and the SWP were conceived and authorized on the concept that water surplus to the needs of upstream users in the Sacramento and San Joaquin valleys, in-Delta uses, and presumably public trust uses could be transferred to water deficient areas, and both projects were given certain responsibilities for Delta water quality. The watershed protection statute (Water Code § 11460) was adopted to ensure that only surplus water was exported from areas of origin. These statutes are meant to protect upstream users from water supply impacts created by the projects. To the extent that mitigation of project impacts on Delta public trust values or the maintenance of water quality for the purpose of export requires additional water to flow into the Delta, it would not only be grossly unfair but a violation of both the text and the intent of the watershed protection statute to require upstream, non-project water right holders to provide such flows. The projects alone must be held responsible for flows necessary to permit export pumping, whether those flows are operational carriage water (as traditionally defined) or additional flows to offset and mitigate project impacts. The EIR's analysis of the water rights alternatives (Flow Alternatives 3 and 4) is deficient and must be modified to take into account these issues.
10.	II–17	The SWRCB assumes that water right holders in the Sacramento basin will contract for supplemental supplies. The viability of this assumption is questionable given the water-short state of the projects' water supplies—if the diversions in the basin are being curtailed and the export projects are making releases from storage, it seems unlikely that the export projects would have surplus water available to supplement basin water right holders' water supplies. Furthermore, expansion of contractual obligations by the projects may be challenged by other water right holders since such expanded obligations could exacerbate the flow obligation burdens to other users. The SWRCB must model the effects of the flow alternatives without supplemental water purchases. This would give a more accurate picture of the water supply impacts of the flow alternatives.
11.	II–18	Flow Alternative 3 assumes there are no export projects in the San Joaquin Basin. What about the state and federal export pumps in the southern Delta and San Luis Reservoir? At page IV–14, the EIR states that the export projects include the export pumps and CVP/SWP storage reservoirs.
12.	II–18	The stated purpose for the San Joaquin River flow standards is to move salmon smolts past the export pumps (an export-related impact). If the pumps are a significant cause of the decline to the species, then it is the export projects that must mitigate for their own project-related impacts. It is not only grossly unfair but a

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		violation of California water right laws to require upstream, non-project senior water right holders to provide flows in lieu of export project pumping reductions. Requiring upstream water right holders on the San Joaquin River to release water and still allow the export projects to pump from the San Joaquin River also violates Water Code § 11460 by directly and indirectly depriving the watershed of the prior right to all of the water reasonably required to adequately supply the beneficial needs of the watershed, area, and the inhabitants and property owners therein. The Vernalis Adaptive Management Plan (VAMP) with a barrier at the head of Old River is an appropriate alternative to implementing the 1995 Bay–Delta Plan as proposed in the EIR.
13.	II–19:27	The state and federal permits for the export pumps were not included in Table II–5. Those permits should be listed on Table II–5 as major water rights within the Central Valley. The state and federal permits for San Luis Reservoir were not included in Table II–5. Those permits should be listed on Table II–5 as major water rights within the Central Valley. The SWRCB must make a first call for water from the CVP and SWP export projects to mitigate export impacts in the San Joaquin River and south Delta prior to spreading the responsibility to non-export project water right holders.
14.	II–28	The state and federal permits for the export pumps were not included in Table II–6. Those permits should be listed on Table II–6 as major water rights within the San Joaquin Basin. The state and federal permits for San Luis Reservoir were not included in Table II–6. Those permits should be listed on Table II–6 as major water rights within the San Joaquin Basin. The SWRCB must make a first call for water from the CVP and SWP export projects to mitigate export impacts in the San Joaquin River and south Delta prior to spreading the responsibility to non-export project water right holders.
15.	II–29	Under Alternative 4, what happens when New Melones is unable to provide both its share and the Friant share? See Comment 6.
16.	II–29	Under Alternative 5, does the SWRCB intend to assign any responsibility to any direct diverters downstream of the major reservoirs? If not, then this alternative assigns the entire Bay–Delta obligation on the largest upstream reservoirs based solely on unimpaired flow and without regard to a particular water user's actual impact on the Bay–Delta.
17.	II–29	How did the SWRCB determine the appropriate watershed flow contributions? Where is the supporting data and analysis? How did the SWRCB allocate responsibility in basins where there was more than 1 user? The EIR states that responsibility was based on depletions, but there is no supporting data and analysis to show how the SWRCB arrived at the figures it used in the EIR.
18.	II–29	There are other watersheds within the Central Valley that provide runoff into the Delta as evidenced *California Central Valley Unimpaired Flow Data* (2nd Ed., DWR, 1987). The SWRCB's modeling of the flows required under Alternative 5 should take the existence of historical flows from such other watersheds into consideration

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		so that contributions required from other watersheds are not overstated.
19.	II–33	On Table II–8, does "USBR Contractors" on the Stanislaus River include the Oakdale and South San Joaquin irrigation districts?
20.	II–33	How were San Joaquin River flows modeled under Alternative 7? Did the SWRCB assume that the Letter of Intent flows were the maximum flows? The Letter of Intent was not limited to the flows specified therein, only that the SJRG would guarantee certain minimum flows in order to assist the USBR in meeting the Vernalis flows. The difference between the Letter of Intent flows and the 1995 Bay–Delta Plan flows could be met by the USBR, other water users not providing water under the Letter of Intent, or by water purchases from willing sellers. The Vernalis Adaptive Management Plan (VAMP) with a barrier at the head of Old River is an appropriate alternative to implementing the 1995 Bay–Delta Plan as proposed in the EIR.
21.	II–34	Are the values in Table II–9 required to maintain water quality objectives, support irrigation requirements, or both? Are there any data to support these values?
22.	III–24, III–25	Table III–6 is incorrect and misleading and should be eliminated. According to SWRCB staff, these cumulative values were not used by the SWRCB in its water rights analysis but are only for comparative purposes. Because many of the water rights listed in the table are supplemental and not cumulative, the rights listed in the table far exceed the actual water rights held by some of the listed water right holders.
23.	III–80	The third paragraph is confusing. No new minimum flow requirements have been proposed for the Tuolumne River or the Merced River. In fact, the final AFRP report recommends the FERC flows for the Tuolumne River. What is the "December 1994 Water Agreement"? It is not defined anywhere in the EIR.
24.	IV–1	For a discussion regarding the SWRCB's methodology in analyzing the water supply impacts of implementing the 1995 Bay–Delta Plan, see the attached Technical Comments on the Draft Environmental Impact Report for Implementation of the 1995 Bay/Delta Water Quality Control Plan.
25.	IV–4	The instream flow requirements used for DWRSIM assumed the new Tuolumne River FERC flow requirements. The use of these flows is not appropriate to describe base conditions in the context of the SWRCB EIR since the new minimum flows were approved by FERC after the 1995 Bay–Delta Plan was adopted by the SWRCB The base conditions used in the 1995 Bay–Delta Plan and the ER are not consistent with the base conditions used in this EIR.
26.	IV–8	What happens under Alternative 2 when New Melones goes to dead storage? What are the impacts to the Stanislaus River and the San Joaquin River?
27.	IV–12	If the statistical validity of the USFWS model is so criticized, why is the State Board using it for their analysis? The SJRG and others have presented testimony at previous State Board hearings and workshops regarding the suitability and use of the USFWS smolt survival model. As pointed out by the San Joaquin Tributaries Association at the October 13 and October 19, 1994 workshops, the model

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		incorrectly uses and interprets the smolt survival data. The San Joaquin Tributaries Association's presentations to the SWRCB showed that the smolt survival model developed by the USFWS does not use an appropriate statistically sound method of analyzing the data and that with a correct interpretation of the USFWS data, salmon smolts can survive at temperatures substantially higher than those recommended by the USFWS. As a result, it is inappropriate to use the model for the purpose of justifying the outflows in the 1995 Bay–Delta Plan and to use as justification for allocating responsibility to upstream water users on the San Joaquin River. The use of flawed and inaccurate data in an EIR precludes informed decision-making and informed public participation, thereby thwarting the statutory goals of the environmental impact report process. (*Kings Co. Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692; *Citizens to Preserve Ojai v. Ventura County* (1985) 176 Cal.App.3d 421.) The SJRG has previously presented to the SWRCB a copy of Baker, P., et al, "Estimating the influence of temperature on the survival of chinook salmon smolts (*Oncorhynchus tshawytscha*) migrating through the Sacramento-San Joaquin Delta of California." The paper points out that with a correct interpretation of the USFWS data, salmon smolts can survive at temperatures substantially higher than those being recommended by the USFWS. The USFWS analysis indicates that increases in temperature between 61 and 72 degrees F will result in a linear increase in smolt mortality. Our analysis indicates that survival is relatively insensitive to temperature until about 70 degrees F. Also the SWRCB should refer to the previously submitted report entitled "Hydrological and Biological Explanation of the Letter of Intent Among Export Interests and San Joaquin River Interests to Resolve San Joaquin River Issues Related to Protection of Bay–Delta Environmental Resources" for an analysis of some of the factors relating to salmon smolts as they travel through the Delta.
28.	IV–14	What happens when New Melones is unable to provide both its share and the Friant share under Flow Alternatives 3 and 4? See also Comment 6.
29.	IV–15	Explain the statement that there are no SWP or CVP export projects in the San Joaquin River basin. Why aren't the state and federal pumps and San Luis Reservoir considered export projects within the San Joaquin Basin even though they are clearly within the basin as shown on Figure III–11?
30.	IV–15	The Vernalis calculation for Flow Alternative 3 would require upstream water right holders on the San Joaquin River to release water while still allowing the export projects to pump from the San Joaquin River. This violates the California water right priority system and also violates Water Code § 11460 by directly and indirectly depriving the watershed of the prior right to all of the water reasonably required to adequately supply the beneficial needs of the watershed, area, and the inhabitants and property owners therein.
31.	IV–15	Explain how the SWRCB would implement the Vernalis flow under Flow Alternative 3 and 4 in "real time". The SWRCB has not stated how it would coordinate the bypass of flows from the Stanislaus, Tuolumne, Merced, Chowchilla, Fresno, and San Joaquin rivers, plus coordinate the cessation of direct diversions, in order to achieve the desired Vernalis flows within the time period contemplated in the 1995

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		Bay–Delta Plan. The Draft EIR provides no explanation of how this would be accomplished nor is there is a discussion of the potential impacts What happens if the SWRCB's estimate is incorrect? Do upstream water right holders receive a credit for water contributed in excess of the actual requirements? Who will be responsible for flow coordination and implementation?
32.	IV–15	Does the SWRCB plan to use runoff forecasts and monthly operations models when directing water right holders to curtail diversions? These tools have severe limitations (EIR, p. IV–2) and should not be used as the basis for dictating real time operations.
33.	IV–16	We recognize the export projects' obligation to meet inbasin needs, if necessary, with releases from storage. The SWRCB's modeling approach assumes, however, that all Sacramento Valley inbasin users are placed ahead of all other water rights in the Bay–Delta watershed, regardless of the priority of the inbasin water user. Water users on the San Joaquin River, because the SWRCB has determined that there are no export projects in the basin, have to make releases of water so that the export projects can continue to meet Sacramento Valley inbasin needs and to export water from the Bay–Delta. This approach violates the priority system which is the primary mechanism for allocating water in California.
34.	IV–22	Where is the supporting data for the calculation of the direct diversion (DD) term? Appendix 3 merely shows the DD terms themselves without any supporting data.
35.	V–1	For a discussion of the SWRCB's analysis of the water supply impacts of the flow alternatives, see the attached Technical Comments on the Draft Environmental Impact Report for Implementation of the 1995 Bay/Delta Water Quality Control Plan.
36.	V–2	The EIR states that Flow Alternative 5 significantly exceeds the Delta outflow objectives. As such it is inconsistent with the SWRCB's goals stated in Chapter I. Requiring outflows of this magnitude and in excess of what is required to meet the SWRCB's objectives would violate California Constitution, Article X, section 2 and the public trust. This alternative should be deleted from further consideration by the SWRCB.
37.	V–2	According to the SWRCB, the modeling of Alternative 5 will require "further refinement." When does the SWRCB propose to do the additional modeling? Will participants have an opportunity to comment? The SWRCB should issue a supplemental EIR which includes the refined modeling of Alternative 5. If no further refinement is provided, how can the participants provide meaningful comments on an alternative which the SWRCB admits does not accurately portray the hydrologic impacts? To state that the results are "useful indicators of trends in water supply impacts" only states the obvious—more outflow will result in greater impacts. The SWRCB has failed to provide decision-makers and participants with meaningful information enabling them to make decisions which intelligently take account of the environmental consequences.
38.	V–2	How can the SWRCB claim in the third paragraph that the model results are a "good tool for comparing the alternatives for relative impacts" when the modeling results

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		show an increase in storage in New Don Pedro under Alternative 7 even with increased releases (EIR, Figure V–7)? The SWRCB attempts to pass this off as a mere anomaly. How many other anomalies are present in the model? The SWRCB should re-evaluate the use of DWRSIM, and if necessary, do additional studies that more accurately reflect the environmental consequences of its proposed alternatives.
39.	V–3	It appears that the SWRCB staff did not capture the potential effect that one year's modified operation for providing flows has upon subsequent year's determination of required supplemental water. The result of this flaw is that the timing and magnitude of required supplemental water is, at times, in error, and thereby affecting the identification of responsible parties and the frequency with which they are responsible for providing supplemental flows. In particular, if this flawed approach was applied to simulated New Melones operations, then the flows necessary to meet the Vernalis standards would be in error and the subsequent allocation of responsibility for those flows would also be in error.
40.	V–3	How did the SWRCB determine the water delivery changes in Tables V–1 and V–2? There is no supporting data in the EIR or the Appendixes showing how this was calculated. The EIR is deficient because it presents only the SWRCB's bare conclusions without any supporting analysis or meaningful detail. (Pub. Res. Code § 21002; 14 Cal. Code Regs. § 15126(d).)
41.	V–3	The water delivery impacts summaries in Tables V–1 and V–2 are inconsistent with the water delivery impacts summaries in Table XI–2. The EIR should be revised to clearly indicate whether or not there will be any water delivery impacts. Tables V–1 and V–2 indicate no water delivery changes to the Merced, Modesto, and Turlock irrigation districts except under Alternative 5. There appear to be no impacts to the Oakdale and South San Joaquin irrigation districts as well. However, Table XI–2 indicates there will be greater water supply impacts to the Merced, Modesto, Oakdale and Turlock irrigation districts.
42.	V–3	How do you explain that Merced Irrigation District critical year water deliveries in Table V–2 actually increase under Alternative 5 as compared to Alternative 1?
43.	V–4	For the purposes of water supply planning and impact analysis, storage at the end of a critical period is much more important than critical period averages. Averages mask the significant impacts that may occur in any year or at the end of a drought period. Table V–4 should include additional columns indicating storage following a critical period, such as 1928-34 or 1987-92.
44.	V–5	The SWRCB assumes that water right holders will contract for supplemental supplies. This is an erroneous assumption—if the diversions in the basin are being curtailed and the export projects are making releases from storage, it seems unlikely that the export projects would have surplus water available to supplement basin water right holders' water supplies. The SWRCB should also model the effects of the flow alternatives without supplemental water purchases. This would give a more accurate picture of the water supply impacts of the flow alternatives.

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45.	V–8	Figure V–5 shows carryover storage in Pardee Reservoir increasing as a result of Alternatives 3 and 4. Intuitively, one would expect that if a water user is required to bypass some or all of the natural flow at a time when they normally would be diverting to storage, then storage would instead decrease. The SWRCB should re-evaluate the use of DWRSIM, and if necessary, do additional studies that more accurately reflect the environmental consequences of its proposed alternatives. (*Kings Co. Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692; *Citizens to Preserve Ojai v. Ventura County* (1985) 176 Cal.App.3d 421.)
46.	V-9	Figure V–9 shows carryover storage in Eastman Lake increasing as a result of Alternatives 3 and 4. Intuitively, one would expect that if a water user is required to bypass some or all of the natural flow at a time when they normally would be diverting to storage, then storage would instead decrease. The SWRCB should re-evaluate the use of DWRSIM, and if necessary, do additional studies that more accurately reflect the environmental consequences of its proposed alternatives. Based on data supplied by the SWRCB, this facility is junior in priority to other major users on the San Joaquin River, yet the SWRCB's analysis indicates significant decreases in carryover storage to senior water right holders, while Eastman Lake increases in carryover storage. This is contrary to the SWRCB's own methodology and indicates that either DWRSIM or the SWRCB or both are not accurately modeling the water supply impacts.
47.	V–9	Figure V–10 shows carryover storage in Hensley Lake increasing as a result of Alternative 3. Intuitively, one would expect that if a water user is required to bypass some or all of the natural flow at a time when they normally would be diverting to storage that storage would instead decrease. The SWRCB should re-evaluate the use of DWRSIM, and if necessary, do additional studies that more accurately reflect the environmental consequences of its proposed alternatives. The SWRCB's analysis indicates significant decreases in carryover storage to senior water right holders, while Hensley Lake increases in carryover storage. This is contrary to the SWRCB's own methodology and indicates that either DWRSIM or the SWRCB or both are not accurately modeling the water supply impacts.
48.	V–11	The EIR is deficient for failing to analyze the significant environmental effects to riparian and pre–1914 water right holders even though the SWRCB clearly intends to assign responsibility to this class of users (EIR, p. II–16). The EIR did not identify specific pre–1914 rights for curtailment because many are not documented or quantified. Without knowing which users would be affected and in what quantities, the EIR falls woefully short in its analysis. Merely indicating that this class of users would be affected is insufficient.
49.	V–11	Is the SWRCB's analysis of pre–1914 and riparian users affected by this project limited only to those entities who filed Statements of Diversion and Use and who are identified in Enclosure 2(a) of the Notice of Public Hearing? If the answer is yes, why didn't the SWRCB include *all* pre–1914 and riparian users in its analysis? If the SWRCB intends to apply this proceeding to pre–1914 and riparian water users, how does it propose to do so?
50.	V–12; 13	The figures beginning on page V–12 indicate that post–1914 appropriators are not able to completely meet the required flows during April, May, and October. The draft

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		EIR is deficient because it fails to disclose the outcome of this circumstance, i.e., the objective will not be met with this implementation plan. The results of these figures are also in error as a result of the analysis flaws described in comment 39 above. Those results are also influenced by the assumed "baseline" operations for New Melones. To the extent that New Melones baseline operation does not depict current and future operations, supplemental water required to meet the Vernalis objectives is also in error. The indication that post–1914 water is exhausted more often under Alternative 4 is curious. How are these graphs to be used in determining the frequency of which there is either insufficient post-1914 water to meet the objectives or if there will be a need to allocate flow responsibility to pre-1914 water right holders?
51.	V–14	The EIR is deficient for failing to analyze the significant environmental effects to riparian and pre–1914 water right holders even though the SWRCB clearly intends to assign responsibility to this class of users. See Comment 48.
52.	V–17: 18	Figures V–22 through V–30 indicate that under Alternative 4 (Friant is an export project), the various priority groups are curtailed more often especially in July and August. Intuitively, one would expect that as more water comes into the system representing Friant's share, less water would be required from the non–project upstream water users. Please explain why the curtailment frequency increases under Alternative 4.
53.	V–18	Please provide the facts and data to support the SWRCB's conclusion that water right holders with storage rights in New Don Pedro and Lake McClure do not have any delivery reductions under Flow Alternative 3 because, through reservoir re-operations, they have adequate storage to meet delivery needs and Bay–Delta flow obligations? (*Kings Co. Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692.) With over 15 million acre-feet of storage in Lakes Trinity, Shasta, Oroville, Folsom, Millerton and New Melones and San Luis Reservoir, one might just as easily conclude that the CVP and SWP could be re-operated so as to result in no delivery impacts to their contractors. The EIR must consider the impacts of extended droughts on water users in addition to normal water year impacts.
54.	V–18	Regarding the water supply impacts of Alternatives 3 and 4 see the attached Technical Comments on the Draft Environmental Impact Report for Implementation of the 1995 Bay/Delta Water Quality Control Plan.
55.	V–18	It appears that the SWRCB staff did not capture the potential effect that one year's modified operation for providing flows has upon subsequent year's determination of required supplemental water. The result of this flaw is that the timing and magnitude of required supplemental water is, at times, in error, and thereby affecting the identification of responsible parties and the frequency with which they are responsible for providing supplemental flows.
56.	V–19	It is inconceivable that the SWRCB, under the guise of a "water right" proceeding, would permit the evaluation of Flow Alternative 5. Clearly this alternative violates California water right law and ignores the watershed protection statutes. The results show that the CVP and SWP storage and exports would actually increase. These

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		two projects were designed and built on the assumption that water surplus to the needs of northern California could be conserved and transported to areas of need in the San Francisco Bay area, the San Joaquin Valley and southern California. Any "surplus" created by the SWRCB's action should not be available for export. If this water is truly needed for the Bay–Delta, then it should remain in the Bay–Delta. The burden of dealing with project-created impacts cannot be transferred to other entities. Both the CVP and the SWP were conceived and authorized on the concept that water surplus to the needs of upstream users in the Sacramento and San Joaquin valleys, in-Delta uses, and presumably public trust uses could be transferred to water deficient areas. In addition both projects were given certain responsibilities for Delta water quality. The watershed protection statute (Water Code § 11460) was adopted to ensure that only surplus water was exported from areas of origin. These statutes are meant to protect upstream users from water supply impacts created by the projects. To the extent that mitigation of project impacts on Delta public trust values requires additional water to flow into the Delta, it would not only be grossly unfair but a violation of both the text and the intent of the watershed protection statute to require upstream, non-project water right holders to provide such mitigation flows. The projects alone must be held responsible for flows necessary to permit export pumping, whether those flows are operational carriage water (as traditionally defined) or additional flows to offset and mitigate project impacts.
57.	V–19	Please provide the facts and data to support the SWRCB's conclusion that water right holders with storage rights in New Don Pedro and Lake McClure do not have any delivery reductions under Flow Alternative 5 because, through reservoir re-operations, they have adequate storage to meet delivery needs and Bay–Delta flow obligations? (*Kings Co. Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692.) With over 15 million acre-feet of storage in Lakes Trinity, Shasta, Oroville, Folsom, Millerton, and New Melones and San Luis Reservoir, one might just as easily conclude that the CVP and SWP could be re-operated so as to result in no delivery impacts to their contractors. The EIR must consider the impacts of extended droughts on water users in addition to normal water year impacts.
58.	V–19	Regarding the water supply impacts of Alternative 5 see the attached Technical Comments on the Draft Environmental Impact Report for Implementation of the 1995 Bay/Delta Water Quality Control Plan.
59.	VI-5	Tables VI–9 and VI–10 show exports increasing in October at the same time the SWRCB is requiring senior water right holders in the San Joaquin River basin to bypass water and provide an additional 28,000 acre-feet allegedly for fish attraction flows. Table VI–9 shows exports increasing during the months of May, June and July at a time when upstream users on the San Joaquin River are required to provide water to push salmon smolts pass the export pumps and provide water for Delta outflow. Table V–10 shows exports increasing during the months of April and June at a time when upstream users on the San Joaquin River are required to provide water to push salmon smolts pass the export pumps. The report points out that the salmon populations have been severely affected by pumping operations in the Delta and that peak chinook salmon losses occur at the state and federal export pumps in April to June when the fall run smolts are passing

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		through the Delta. The burden of dealing with these project-created impacts cannot be transferred to other entities. The projects alone must be held responsible for flows necessary to permit export pumping, whether those flows are operational carriage water or additional flows to offset and mitigate these project impacts. The State Board's greatest opportunities during this water right proceeding may be in the creative design of operational parameters, such as the VAMP, that will permit CVP and SWP operators, in consultation with the fishery agencies, to most efficiently manage their integrated export and water supply systems to meet both water user and environmental needs. If the pumps are the cause of the decline to the species, then it is the export projects that must mitigate for their own project-related impacts. It is not only grossly unfair but a violation of California water right laws to require upstream, non-project senior water right holders to provide such obvious mitigation flows. Requiring upstream water right holders on the San Joaquin River to release water and still allow the export projects to pump from the San Joaquin River violates the California water right priority system and also violates Water Code § 11460 by directly and indirectly depriving the watershed of the prior right to all of the water reasonably required to adequately supply the beneficial needs of the watershed, area, and the inhabitants and property owners therein.
60.	VI–7	The insignificant effect of San Joaquin River flows on the position of X2 is evident from Table VI–11. As stated on page VI–6, "[t]he effects of Alternatives 2, 3, 4 and 7 are virtually indistinguishable from each other." Alternative 7 provides far less water on the San Joaquin River in February through June than Alternatives 2, 3, or 4 yet the effect on X2 is minimal. In some cases, X2 actually moves downstream with less San Joaquin River flows. In many months X2 under Alternative 7 is in the same location or within 0.1 km (328 feet) of the X2 position during the same months under Alternatives 2, 3, and 4. It is both unreasonable and a waste of water to require the San Joaquin River basin users to provide so much additional water with little or no measurable benefit to the Bay–Delta.
61.	VI–10: 17	Figures VI–2 through VI–17 show virtually no difference in monthly salinity with Alternative 7 as compared to Alternatives 2, 3, and 4. It is both unreasonable and a waste of water to require the San Joaquin River basin users to provide so much additional water with little or no measurable benefit to the Bay–Delta.
62.	V–10:17	Why is there any variation in San Joaquin River salinity under Alternatives 2, 3, and 4? Each of these alternatives requires the same level of flow at Vernalis and the same pumping levels. All things being equal, one would expect the salinity to remain constant. Please explain these discrepancies. (*Kings Co. Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692.)
63.	VI–20	Of the nine general factors significantly impacting aquatic resources in the Bay–Delta, factors (b) through (i) are not the responsibility of upstream water right holders.
64.	VI–21	Do you have a reference for the statement that "[t]he reduction in spring outflows is

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		considered to have the most adverse impacts on the aquatic resources"?
65.	VI–25	If the statistical validity of the USFWS model is so criticized, why is the State Board using it for their analysis? See Comment 27.
66.	VI–25	The salmon smolt survival index says nothing about the status and relative condition of the natural population of salmon in the basin. The index is merely a mathematical estimate of Delta smolt survival based on coded wire tag releases of hatchery smolts and their subsequent recapture. The index does not address upstream habitat conditions, ocean condition, or harvest rates. It is inappropriate to ignore other factors affecting salmon and instead use the salmon smolt survival index as a basis for requiring additional San Joaquin River flows in an effort to improve salmon populations.
67.	VI–28	Despite our objections to the use of the models, the EIR clearly shows that the Old River Barrier alone with baseline flows (Alternative 1) provides a greater increase to the protection of salmon smolts than providing the incremental flows associated with Flow Alternatives 2, 3, 4, 6, or 7 without the barrier. Comparing Figures VI–21 and VI–22, shows an SSI of 0.14 under Alternative 1 with an Old River Barrier as compared to an SSI of only 0.12 under Alternatives 2, 3, 4, and 6 with no barrier. The need for the barrier is evident in Figure VI–21: the SSI only increases 0.01 between the base case (Alternative 1) and Alternatives 2, 3, and 4 (full compliance). It is both unreasonable and a waste of water to require the San Joaquin River basin users to provide so much water when an alternative with no additional water cost and minimal environmental costs provides a significantly greater benefit.
68.	VI–28	How were the San Joaquin River flows under Alternative 7 modeled? See our previous comment at page II–33. If the SWRCB assumed flows equal to the 1995 Bay–Delta Plan flows, it would seem that the SSI under Alternative 7 should be the same as Alternatives 2, 3, and 4.
69.	VI–28	The SSI numbers are different in the draft EIR than in the 1995 Bay–Delta Plan, even though the SWRCB was evaluating the same flows and export levels. Please explain the reason for the differences.
70.	VI–28	What is the significance of 0.01 or a 0.02 increase in the SSI? The EIR only shows an increase or decrease without explaining its significance. Does a 0.02 increase in the SSI result in a doubling of salmon populations? Why is a 0.12 SSI better than a 0.11 SSI? The EIR is deficient in that it fails to disclose and evaluate the impacts of the alternatives. (Pub. Res. Code § 21002; 14 Cal. Code Regs. § 15126(d).) Without more, the fact that a particular alternative produces an SSI of 0.12 is meaningless. The SWRCB has presented only a bare conclusion without an explanation of its factual and analytical basis. (Pub. Res. Code § 21002; 14 Cal. Code Regs. § 15126(d).)
71.	VI–28	Figures VI–21 and VI–22 should use the same vertical scale. It is misleading to show the same information on different scales.
72.	VI–30	Figure VI–23 shows that all of the flow alternatives have a higher longfin smelt abundance index than the base case. What is the significance of an increase in the

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		abundance index? The EIR only shows an increase or decrease without explaining its significance. Why is an index of 3879 better than an index of 3794? It is interesting that an alternative that proposes less flow on the San Joaquin River (Alternative 7) results in a higher index than the higher flows proposed in Alternatives 2, 3, 4, and 6. The EIR is deficient in that it fails to disclose and evaluate the impacts of the alternatives. (Pub. Res. Code § 21002; 14 Cal. Code Regs. § 15126(d).) Without more, the fact that a particular alternative produces an abundance index higher than another alternative is meaningless. The SWRCB has presented only a bare conclusion without an explanation of its factual and analytical basis. (Pub. Res. Code § 21002; 14 Cal. Code Regs. § 15126(d).)
73.	VI–31	Figure VI–24 shows that all of the flow alternatives have a higher Sacramento splittail abundance index than the base case. What is the significance of an increase in the abundance index? The EIR only shows an increase or decrease without explaining its significance. Why is an index of 20.9 better than an index of 19.7? It is interesting that an alternative that proposes less flow on the San Joaquin River (Alternative 7) results in the same index as the higher flows proposed in Alternatives 2, 3, and 4. See Comment 72.
74.	VI–34	Figure VI–26 shows that all of the flow alternatives have a higher starry flounder abundance index than the base case. What is the significance of an increase in the abundance index? The EIR only shows an increase or decrease without explaining its significance. Why is an index of 381.7 better than an index of 380.6? Why isn't the index for Alternative 2 the same as Alternatives 3 and 4 since they all require the same flows and exports? It is interesting that an alternative that proposes less flow on the San Joaquin River (Alternative 7) results in a higher index as the higher flows proposed in Alternatives 2, 3, and 4. See Comment 72.
75.	VI–35	Figure VI–27 shows that all of the flow alternatives have a higher immature *C. franciscorum* abundance index than the base case. What is the significance of an increase in the abundance index? The EIR only shows an increase or decrease without explaining its significance. Why is an index of 158 better than an index of 154? It is interesting that an alternative that proposes less flow on the San Joaquin River (Alternative 7) results in the same index as the higher flows proposed in Alternatives 2, 3, 4, and 6. See Comment 72.
76.	VI–36	Figure VI–28 shows that all of the flow alternatives have a higher *Neomysis* abundance index than the base case. What is the significance of an increase in the abundance index? The EIR only shows an increase or decrease without explaining its significance. Why is an index of 47.70 better than an index of 47.57? Why isn't the index for Alternative 2 the same as Alternatives 3 and 4 since they all require the same flows and exports? It is interesting that an alternative that proposes less flow on the San Joaquin River (Alternative 7) results in the same index as the higher flows proposed in Alternatives 2, 3, and 4. See Comment 72.
77.	VI–40	Why are summer flows higher on the Feather River in Alternative 7 for July?
78.	VI–43	If Friant is not contributing water to the San Joaquin River under Alternatives 3 and 4, why does San Joaquin River flow at Newman increase as compared to the base

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		case?
79.	VI–45	We question the validity and accuracy of the models when an alternative that requires more water than the base condition results in less water in the river. To say this is an "artifact" of the way FERC flows are modeled on the Tuolumne River simply ignores the problems inherent with the model. How many other "artifacts" exist? The use of flawed and inaccurate data in an EIR precludes informed decision-making and informed public participation, thereby thwarting the statutory goals of the environmental impact report process. (*Kings Co. Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692; *Citizens to Preserve Ojai v. Ventura County* (1985) 176 Cal.App.3d 421.)The SWRCB's attempt to implement the 1995 Bay–Delta Plan will have obvious impacts to the upstream areas, yet the model used by the SWRCB is showing little or no impact to those areas. The modeling effort by the SWRCB, while it may be useful to show the relative differences of monthly averages, is an inappropriate tool for the task assigned to it by the SWRCB. By relying so heavily on DWRSIM with its artifacts and other problems, the SWRCB has failed to effectively evaluate the impacts to the upstream water users. The EIR is deficient for failing to fully disclose and evaluate the impacts to the upstream water users. (*Kings Co. Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692; *Citizens to Preserve Ojai v. Ventura County* (1985) 176 Cal.App.3d 421.)
80.	VI–46	The fact that construction of dams blocked the passage of anadromous fish is irrelevant in this proceeding and should be deleted. All the major dams were constructed long before the aquatic resources base case of 1984–1994 used in the EIR.
81.	VI–46	On what basis can the SWRCB claim that the flow alternatives will have "little or no effect on habitat access, entrainment, predation, and harvesting and collection"? Has the SWRCB analyzed the instream effects of the flow alternatives on the streams tributary to the Bay–Delta? The EIR is deficient for failing to fully disclose and evaluate the impacts of its alternatives on the upstream anadromous fish habitat.
82.	VI–46: 55	We object to the use of the AFRP Working Paper for analyzing the effects of the flow alternatives on anadromous fish. The AFRP Working Paper admittedly did not consider whether or not the recommended flows were reasonable. The AFRP Working Paper was issued as a draft document and only for the purpose of generating discussion and feedback. It was subsequently rejected by the U. S. Fish and Wildlife Service after substantial stakeholder criticism and critical peer review. The use of the AFRP Working Paper for the SWRCB's evaluation of the project's impacts fails to meet the "rule of reason" test required for an adequate EIR. (14 Cal. Code Regs. § 15151.) The EIR fails to adequately analyze the effects of the flow alternatives on anadromous fish. It merely compares the flows that could result from implementation of the 1995 Bay–Delta Plan with recommended flows in the draft AFRP Working Paper. The draft EIR fails to analyze and describe how the 1995 Bay–Delta Plan flows would affect anadromous fish. Apparently the reader is to conclude that somehow because the 1995 Bay–Delta Plan flows are within the range of flows identified by the AFRP Working Paper, then the 1995 Bay–Delta Plan flows

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		provide better habitat. Instead of relying on the vast amount of research that has been conducted in the San Joaquin basin tributaries, the SWRCB relies on simplistic assumptions about the benefits of increased flows as the basis for evaluating the effects of different alternatives on salmon. While flow undoubtedly is important, the SWRCB is aware of the of the scientific data that is available regarding factors other than flow that are important for restoring salmon populations. This information on additional factors controlling salmon populations allows for the development of restoration strategies and adaptive management programs such as VAMP that make more efficient use of water.
83.	VI–55	The AFRP Final Draft recommended the new Tuolumne River FERC flows for meeting the AFRP goals on the Tuolumne River. The EIR should use the flows identified in the AFRP Final Draft Report for the Tuolumne River.
84.	VI–58	It should be noted that New Don Pedro and Lake McClure are not SWP or CVP reservoirs.
85.	VI–59	The EIR states that implementation of the flow alternatives will result in significant impacts to reservoir fisheries, and then concludes that the impacts can not be mitigated. It is not sufficient to merely state that the effects on reservoir fisheries are not mitigable; under CEQA the SWRCB is required to propose and describe identify potential mitigation measures to minimize for each significant environmental effect identified in the EIR. (Pub. Res. Code § 21002.1(a); § 21100(b)(3); 14 Cal. Code Regs. § 15126(c).) If there are in fact no feasible mitigation measures, then the EIR must state the reasons for its conclusion.
86.	VI–70	The SWRCB assumes that water right holders will contract to purchase supplemental supplies. This is an erroneous assumption—if the diversions in the basin are being curtailed and the export projects are making releases from storage, it seems unlikely that the export projects would have surplus water available to supplement basin water right holders' water supplies. The SWRCB should also model the effects of the flow alternatives without supplemental water purchases. This would give a more accurate picture of the water supply impacts of the flow alternatives. See Comment 44.
87.	VI–70	The EIR assumes that water right holders will pump groundwater when surface water supplies become limited. Water right holders in the San Joaquin Valley cannot always turn to groundwater if diversions are curtailed. In 1988, the Turlock Irrigation District rented pumps from individual farmers and increased groundwater withdrawals over previous amounts in an effort to reduce the impact of surface water delivery curtailments due to the ongoing drought. The lowered groundwater table resulted in a lawsuit against the district which was eventually dismissed. The Turlock Irrigation District paid claims totaling more than $200,000 to claimants allegedly impacted by the district's pumping operations in 1988.
88.	VI–71	The statement that no major urban suppliers will incur surface water delivery reductions is incorrect. The City of Modesto obtains its surface water supplies from the Modesto Irrigation District. In the event of delivery curtailments, the City of Modesto's supplies are reduced in the same proportion as other Modesto Irrigation

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		District customers.
89.	VI–78	The EIR is deficient in that it fails to analyze the impacts on hydroelectric power operations at New Exchequer and New Don Pedro. The SWRCB has only provided its opinion that the alternatives will reduce the flexibility of upstream operators to meet peak hydropower demands. (*Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553.) The SWRCB has provided no facts or analysis to support its opinion. Nor is there any economic analysis of the impacts caused by this reduced flexibility. (*Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553.)
90.	VI–78	Groundwater impacts are not accurately portrayed. See Comment 87.
91.	VI-78	The EIR must analyze the effects on air quality in the San Joaquin Valley Air Basin. Increased emissions in a region that is already a non-attainment area will have serious economic repercussions. The region is already experiencing economic hardship from its non-attainment status even though a large percentage of the valley's air pollution is from sources outside the valley.
92.	VI–78	It is not sufficient to merely state that the effects on energy production and energy consumption are not mitigable; under CEQA the SWRCB is required to propose and describe mitigation measures to minimize each significant environmental effect identified in the EIR. (Pub. Res. Code § 21002.1(a); § 21100(b)(3); 14 Cal. Code Regs. § 15126(c).) If there are in fact no feasible mitigation measures, then the EIR must state the reasons for its conclusion.
93.	VI–94	There is no environmental or economic analysis of the recreation impacts to New Melones, McClure, New Don Pedro, or Millerton. The mitigation measures are only programmatic in nature; some of these measures may not be available at some reservoirs. What is the cost to modify or relocate facilities at each of the reservoirs listed in Table VI–67? Relocating a marina can have significant economic and environmental costs. In addition to moving the piers and related facilities, fuel tanks and sewer handling equipment must be relocated as well. What are the environmental effects of the proposed mitigation measures? CEQA requires that the SWRCB address the significant environmental effects of mitigation measures proposed in the EIR.
94.	VI–117	Please recite all instances in which the SWRCB has used its authority to limit groundwater pumping as an unreasonable method of diversion pursuant to Article X, section 2 of the California Constitution?
95.	VI–119	Some of the San Joaquin River Group members have submitted separate comments regarding groundwater impacts within their districts. Please refer to those comments for specific information regarding the EIR's analysis of groundwater impacts within those regions.
96.	VI–121	The EIR assumes that surface water delivery impacts in the San Joaquin Valley will be mitigated by groundwater pumping, and in the case of the two parties incurring most of the delivery reductions, either groundwater or a CVP contract will provide replacement water. The availability of a CVP contract is illusive at best—the result of no CVP contract would then be a significant impact on groundwater overdraft in

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		the San Joaquin Valley. The EIR cannot rely on mitigation measures that are not available. (*Kings Co. Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692.)
97.	VI–122	The EIR lists several potential mitigation measures to mitigate groundwater overdraft. The measures listed require speculative multi-agency support and development. Furthermore, some of the measures may not be suitable in all areas or economically feasible (e.g., conjunctive use, water transfers). In addition, the EIR is deficient because the mitigation measures themselves could have significant environmental effects that were not analyzed in the EIR. (14 Cal. Code Regs. § 151126(c).)
98.	VIII–7	Table VIII–1 should show the dates of completion and capacity for all the major reservoirs in the basin, including those that are no longer operational (e.g., Melones, Don Pedro, and Exchequer). Looking at the table, one could conclude that the major developments occurred fairly recently on the Stanislaus River, the Tuolumne River and the Merced River.
99.	VIII–7	The 1980 report cited also concluded that the CVP was responsible for 36% of the flow reduction on the San Joaquin River in below normal years, 37% of the flow reduction on the San Joaquin River in above normal years, and 50% of the flow reduction on the San Joaquin River in wet years.
100.	VIII–11	The major cause of the increase in salinity levels in the San Joaquin River has been from the discharge of saline drainage water from subsurface drains and the discharge of surface drainage water from wetlands into the San Joaquin River.
101.	VIII–28	The SWRCB should not assume full implementation of the 1995 Bay–Delta Plan and evaluate the salinity control alternatives as compared to all of the flow alternatives. The SWRCB has effectively eliminated one of its alternatives from further consideration without explanation.
102.	XI–3	The data on Table XI–2 is inconsistent with Chapter 5. Chapter 5 indicated no delivery impacts to the Oakdale, Merced, Modesto and Turlock Irrigation Districts under Alternatives 3, 4, or 5. Also, water supply impacts were the highest under Alternative 5, although the EIR predicts no water delivery impacts because of reservoir re-operation. Table XI–2 shows significantly different water delivery impacts than those indicated in Chapter 5. Table XI–2 also indicates that impacts are greatest under Alternatives 3 and 4, not 5. Table XI–2 did not indicate any economic impacts to Region E which includes eastern San Joaquin County and northern Stanislaus County, although according to Tables V–1 and V–2 there are severe water delivery reductions to this region. The remainder of the analysis in Chapter XI is based on the water delivery numbers in Table XI–2. If these numbers are incorrect, than the entire chapter needs to be re-written. If that is the case, the SWRCB should issue a supplemental EIR so that the public can have an opportunity to provide comments on the new economic analysis. Alternatively, if the hydrologic analysis presented in Chapter V is incorrect, that chapter should be re-written and a supplemental EIR issued by the SWRCB.

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103.	XII–13	The EIR is deficient in that it fails to address the cumulative impacts of implementing the 1995 Bay–Delta Plan on the upstream areas. (14 Cal. Code Regs. § 15130.) Again, the SWRCB has attempted to address the impacts in a programmatic way, even though this document is supposed to identify the significant impacts of the various implementation alternatives. The DEIR should address the cumulative impacts of all of the State and Federal programs which seek surface water from the San Joaquin basin, including, but not limited to, the State Board's implementation of the 1995 Water Quality Control Plan; the CVPIA Anadromous Fish Restoration Program, Central Valley Refuge Water Supply Program, and Interim and Long-term Water Acquisition Program; and implementation of the CALFED Bay–Delta Program including the Ecosystem Restoration Program Plan.
104.	XII–19	The cumulative impact assessment indicates that San Joaquin salmon smolt survival will decrease from the baseline in the future as exports increase. The EIR fails to indicate whether or not the impact to salmon is significant, and, if so, it fails to identify any mitigation measures. An EIR must discuss a project's cumulative impacts when they are significant (Pub. res. Code § 21083(b); 14 Cal. Code Regs. § 15130) and must also examine reasonable options for mitigating or avoiding significant cumulative impacts (14 Cal. Code Regs. § 15130(b)(3)).
105.	XIII–34	The EIR is deficient because the Joint POD analysis does not consider impacts to San Joaquin River salmon. The EIR fails to analyze or even mention potential impacts to San Joaquin River salmon.

Technical Comments on the
Draft Environmental Impact Report for Implementation of
the 1995 Bay/Delta Water Quality Control Plan

1. THE MODIFIED TERM 91 SUPPLEMENTAL WATER FORMULA FOR ALTERNATIVES 3 AND 4 IS FLAWED DUE TO NON-RECOGNITION OF SURPLUS DELTA OUTFLOWS CAUSED BY CVP AND SWP UPSTREAM FLOW REQUIREMENTS AND EXPORT PUMPING RESTRICTIONS

The table contained on Page A3-5 (Alternative 3—Supplemental Water for Delta Outflow) illustrates the determination of Supplemental Water for Alternative 3. As can be seen in the table, the Supplemental Water threshold typically occurs during the June through August period, a result of diminishing uncontrolled flow within the watershed and increased in-basin water diversions. In the old days of no export/inflow ratio constraints and lower instream flow requirements, pumping capacity at the export pumps was normally sufficient to "recapture" required upstream releases. During the summer period, the Delta would typically be in "balanced" conditions and releases were set to meet Delta outflow, in-basin requirements, and desired exports. Under those circumstances a traditional definition of "balanced" conditions existed and the Supplemental Water equation would work.

However, the current above-Delta instream objectives for the CVP and SWP in combination with the 1995 Bay/Delta Plan pumping restrictions (i.e., 35 percent export/inflow ratio) make it difficult not to incidentally create "surplus" Delta outflow conditions in the Delta during June. As the result of upstream depletions and above-Delta instream objectives, large storage releases are required; however, the pumping restrictions do not allow the recapture of all of the releases and, in effect, some of the storage releases become Delta outflow in excess of that needed to meet the 1995 Bay/Delta Plan objectives. The table on page A3-5 and additional information from SWRCB Study 469 illustrate this circumstance.

Example - June 1923

Supplemental Water	*330 TAF*	*(Table, DEIR Page A3-5)*
Surplus Delta Outflow	*92 TAF*	*(DWRSIM Output, Study 469)*
Computed Export Ratio	*35 percent*	*(DWRSIM Output, Study 469)*
Delta Exports	*474 TAF*	*(DWRSIM Output, Study 469)*

Study 469 (which is the basis for the DEIR's allocation of Supplemental Water for Alternative 3) illustrates when the Delta will be in a "surplus" condition (i.e., Delta outflow is greater than the outflow required by the 1995 Bay/Delta Plan) but the CVP and SWP are constrained at the pumps and not able to utilize (recapture) the surplus Delta outflow. Consequently, the DEIR analyzes the entire amount of Supplemental Water (330 TAF) is put into the allocation procedure as a responsibility to other water users. Non-CVP/SWP water users

should not be responsible for contributing towards surplus Delta outflow caused by the upstream flow requirements of the Projects and constraints specifically assigned to the export pumps.

As currently formulated, the above illustrated circumstance occurs in 34 out of the 73 Junes of Alternative 3, with the surplus Delta outflow in question ranging from 3 TAF up to 202 TAF (average 133 TAF).

If the CVP/SWP storage release comparison remains the standard against which it is determined when all water users enter into responsibility for Delta outflow, then it is appropriate that only those CVP and SWP storage releases that actually are required to maintain a "balanced" Delta outflow condition are counted in the equation. This may be accomplished by simply adding another term to the Supplemental Water equation which subtracts from storage releases that flow that is surplus to Delta minimum flow requirements.

This form of adjustment is also needed under a condition when the CVP and SWP may elect to export greater quantities of water to maintain higher south-of-the-Delta delivery and storage conditions than they would otherwise be able to maintain with minimum upstream releases (assuming the pumps are already constrained by the export/inflow ratio). These instances (during June) would require the projects to release 100 units of water to be able to export an additional 35 units of water. If the Delta was already in a traditionally "balanced" condition the ability to export the additional 35 units of water will also result in 65 units of surplus Delta outflow. If the 100 units of additional release is from Project storage, the Supplemental Water equation would require that the 65 units of surplus Delta outflow created to increase export pumping be potentially allocated to non-Project water users. Again, an adjustment is needed to the Supplemental Water equation to avoid the establishment of responsibility to non-Project users for CVP and SWP export operations.

Revision of the allocation procedure would mean that the impact analysis for Alternatives 3 and 4 is flawed. Results of Study 469 appear to indicate that this circumstance of creating surplus Delta outflow (and subsequently requiring its allocation to non-CVP/SWP water users) occurs in 24 out of the 34 surplus Delta outflow Junes discussed above under Alternative 3.

2. FAILURE TO ACCURATELY ASSESS POTENTIAL IMPACTS

A. The DEIR Does Not Adequately Disclose Either the Allocation of Responsibility for the 1995 Bay/Delta Plan to Pre-1914 and Riparian Water Users or the Potential Impacts Associated with Such an Allocation

An EIR must identify the significant effects of the proposed project. The direct and indirect effects of the proposed project must be clearly identified and described, giving due consideration to short-term and long-term effects. "An EIR should be prepared with a sufficient degree of analysis to provide decision-makers with information which enables them to make a decision which intelligently takes account of environmental consequences." (Guidelines, § 15151.)

Alternatives 3 and 4, as described in the DEIR, use a modified Term 91 methodology to determine the time and amount of water to be allocated among water users to meet the Delta outflow requirements of the 1995 Bay/ Delta Plan. In summary, the methodology allocates flow responsibility to all water users, in the order of most junior user to most senior user, when the amount of CVP/SWP reservoir storage withdrawals exceed the amount of water needed to meet CVP/SWP export operations and in-basin obligations.

In terms of modeling, a base study is performed to provide the underlying information to determine the amount of "Supplemental Water (SW)" required of all water users. The analysis then allocates the amount of SW required among nine groups of water users as necessary. There is a "lump sum" of water assumed available from each group as a whole. The current methodology does not take water from a group unless the summation of the water available from the group is fully needed to meet the SW required in a month; e.g., Group 1 provides water if the amount of required SW is at least equal to the amount of water available from Group 1, then Group 2, and so on. In almost all years this approach leaves "unallocated water" (the result of the SW exceeding the amount of water available from the more junior group(s) but not as great as the amount of water available from the next more senior group) to balance the allocation and hydrology (see Pages A3-147 and A3-148). The DEIR's methodology currently assumes that the unallocated water is currently assumed to be met by the Projects.

Of the nine groups of water users in the analysis, Group 1 through Group 8 represent post-1914 appropriators. Not specifically described in the DEIR, although deduced from the existence of Group 9, a group of pre-1914 water rights is assumed (and apparently modeled) within Alternatives 3 and 4. Within the DEIR, Group 9 is occasionally called upon for water (Figure V-30, Page V-17 and appendices). The magnitude of this call, which is a call beyond the availability of post-1914 non-stored flow, can be derived from tables included in the DEIR (Pages A3-23/24, A3-27 and A3-147). The occurrences happen during the simulation of 1928 (July), 1939 (June), 1961 (July), 1976 (June), 1977 (February and April) and 1985 (June), and respectively amount to approximately 375,000, 278,000, 305,000, 296,000, 165,000, 128,000, and 293,000 acre-feet of water. These values include both the water assumed available from Group 9 and the "unallocated water" in excess of water assumed available from Group 9. These values appear to represent the amount of water that would be required from pre-1914 and riparian water users.

For the Delta Outflow obligation (Alternatives 3 and 4) we believe it is assumed that Glenn-Colusa Irrigation District (GCID), Anderson-Cottonwood Irrigation District (ACID) and certain Feather River pre-1914 rights comprise the water available from Group 9. Since diversions to these entities are within the Sacramento River basin, it appears that the water generated from Group 9 is actually modeled as a release from CVP and SWP reservoirs (under assumed supplemental water contracts).

In several instances the DEIR states that the limited availability of information regarding pre-1914 and riparian water users prevents the SWRCB from providing a mechanism or methodology to address implementation among pre-1914 and riparian users. **(Cite)** However, the above illustrates that at least one version of an implementation mechanism among pre-1914 and riparian users has been included in this DEIR, i.e., it is assumed that the pre-1914 water rights of GCID, ACID and certain Feather River users are curtailed first among the pre-1914 and riparian users. The inclusion of a pre-1914 and riparian allocation methodology is both contradictory to the stated coverage of the DEIR and reflects the SWRCB's lack of information and corresponding analysis. Is the inclusion of this analysis intended to use only certain pre-1914 right holders as surrogates to assess impacts to the pre-1914 and riparian water users? Is the inclusion of pre-1914 rights intended to support findings regarding potential impacts on pre-1914 and riparian water users?

The threshold issue of full compliance with only a post-1914 water users implementation plan is illustrated by the graphics on pages V-12 and V-13 of the DEIR. For example, full compliance with October, April and May Bay/Delta objectives (Vernalis) is not possible with only post-1914 water users. The DEIR does not disclose that the outcome of this circumstance is that the objective will not be met with this implementation plan, or alternatively, the SWRCB will have to come up with some additional process to obtain the water.

Furthermore, the SWRCB currently does not address the potential impacts to small post-1914 diverters (DEIR at II-17); therefore, apparently no implementation of the 1995 Bay/Delta objectives could include them until further environmental analysis occurs. The stated rationale for failing to address small diverters is that their diversion "is insufficient to have a significant effect on meeting the objectives in the 1995 Bay/Delta Plan" (Page II-17). Given the priority method of shutting off diversions, a small, but just qualifying post-1914 diverter may not appreciate having the cumulative diversion of several "small" junior diverters receiving water when curtailed. Further, pre-1914 appropriators should not even be considered until <u>all</u> post-1914 diverters have ceased diverting. Without addressing the SWRCB's ability to exhaust all post-1914 direct diversion rights before stepping into the forum of pre-1914 rights and the corresponding environmental effects of doing so, the DEIR fails to consistently follow the DEIR's assertion that "[p]re-1914 appropriative water right holders and riparian water right holders would not be affected until all post-1914 appropriators ceased diversions" (Page II-16).

If the DEIR is intended to stop at impact analysis associated with post-1914 appropriators, the DEIR does not specifically disclose the amount of required Supplemental Water that <u>cannot</u> be generated with the alternative and thus fails to provide the reader with the logical conclusion and corresponding analysis of the fact that the alternative <u>cannot</u> fulfill the stated goal of fully complying with the 1995 Bay/Delta Plan objectives. As currently formulated (although not well described), the SWP and CVP end up with responsibility for coming up with water even after curtailment of surrogate pre-1914 water rights; the Projects are made ultimately responsible for meeting any objective of the 1995 Water Quality Control Plan not met under Alternative 3/4's modified Term 91 process.

3. ALTERNATIVE 5 SHOULD NOT BE CONSIDERED FURTHER

A. Alternative 5 Arbitrarily Assigns Responsibility to the Sacramento and San Joaquin Watersheds.

The alternative is arbitrary because it only includes certain water users within the Bay-Delta watershed, and is arbitrary in its methodology of assignment of responsibility for 1995 Bay-Delta Plan objectives.

Alternative 5 methodology begins with three flow volumes being identified for allocation: 1) Bay-Delta outflow, 2) within Delta consumptive use, and 3) Vernalis flow standards. The flow requirements for San Joaquin River entities is developed from two requirements. First, the Vernalis flow requirements during February through June and October are allocated to only certain San Joaquin River watersheds, the upper San Joaquin River (Friant), Tuolumne River, Merced River, Stanislaus River, Fresno River and Chowchilla watersheds according to each watershed's proportionate contribution to their combined unimpaired flow. Since this simple approach to establishing flow requirements from each tributary does not consider the occurrence of accretions or depletions between the established control points and Vernalis, at times there can be flow that is above or below the Vernalis requirement. This is an arbitrary methodology, and execution of the study which leads to non-representative analytical results. The DEIR contains no discussion regarding the magnitude of surpluses or deficits, or the manner in which deficits were balanced with additional releases from one or more of the reservoirs (above that required by the minimum flow tables).

The second flow requirement established for San Joaquin River entities is Delta outflow. This calculation establishes a flow requirement for each San Joaquin River watershed based on its respective contribution to the combined unimpaired flow of all Delta tributary watersheds.

The flow requirements for the San Joaquin River entities are ultimately assumed to be a combination of "Vernalis" requirements during February through June and October, and Delta outflow requirements during the remainder of the year. Although the San Joaquin River's proportion of the Delta outflow requirement is larger in certain instances, the two separate forms of requirements are not overlaid to develop a requirement which is the greater of the two, but instead the requirement is either one or the other based on the time of year. Again, this is an arbitrary assumption.

For the Sacramento River watershed entities, their allocation is determined as the proportion of each entity's respective contribution of combined Delta unimpaired flow multiplied by required Delta outflow, plus their Sacramento River watershed proportionate share of providing Delta consumptive use. This is also an arbitrary assignment of responsibility.

Given the arbitrary nature of defining which specific watershed is responsible for various requirements (e.g., Delta outflow, Delta consumptive use, and Vernalis). Alternative 5 is nothing more than a straw man settlement proposal, based on arbitrary assumptions and without any support in law. If this form of alternative is carried forward, additional analysis is required to disclose the sensitivity of the methodology to alternative arbitrary assumptions for each entity's responsibility. By assuming other *mixes* of assumptions the impacts to different water users could be beyond the envelope developed by the DEIR.

B. Alternative 5 Arbitrarily Assigns Responsibility to Certain Watersheds and to Certain Water Users Within Those Selected Watersheds

Responsibility to provide flow for Alternative 5 appears to be arbitrarily assigned to entities who are circumstantially associated with water development projects situated on the major tributaries of the Sacramento and San Joaquin Rivers.

The structure and designation of flow requirements at a limited number of control points within the Bay/Delta watershed narrows the group of responsible entities that provide for 1995 Bay/Delta Plan compliance. Essentially the entire burden of the Bay/Delta Plan objectives is placed on the operators of certain storage facilities within the Bay/Delta watershed. Valley-floor direct diverters (many junior in seniority) are not held responsible for Bay-Delta Plan objectives. To further confound basic water right theory, providing Delta outflow will at times require the use of previously stored water from non-CVP/SWP projects, while correspondingly junior direct diverters have no obligation for Delta requirements.

C. The Methodology of Alternative 5 Creates an Hydrologic/Environmental Outcome Not Comparable to the Other Alternatives.

The Alternative 5 analysis provides for excess flows into the system resulting in an overstatement of Alternative 5's environmental benefits and a windfall to the Projects. The environmental benefits of Alternative 5 in terms of Delta aquatic resources are overstated due to the unequal outcome (in terms of flows at Vernalis and as Delta outflow) caused by the methodology applied within the alternative. SWRCB recognized that "[a]s formulated, Alternative 5 significantly exceeds Delta flow objectives ..." (Page V-2); however, the SWRCB continued the analysis of Alternative 5 under the apparent guise that the information would be helpful with the identification of potential impact trends. This is not the case, since the outcome is not comparable to the other alternatives. The alternative, if it is to continue to be considered, needs to be reformulated to result in a viable method that will meet the project's objective to implement the Bay/Delta Plan and not unrealistically exceed the Plan objectives.

The approach used by the DEIR to provide flows to Vernalis lead to occasions where the objective will be exceeded, providing a false indication that the environmental outcome associated with Alternative 5 exceeds the other alternatives. The average annual flow at Vernalis is approximately 1,000,000 acre-feet greater than the other alternatives, and far in excess of Vernalis

flow objectives. The appearance of *extra water* at Vernalis is the outcome of not attempting to create an implementation mechanism that will just meet the same objectives as the other alternatives, i.e., the numeric 1995 Bay-Delta Plan objectives.

The same problem occurs with the methodology applied to Eastside streams and Sacramento Valley streams. Again, the DEIR approach gives no consideration to accretions or depletions that occur below the assumed control points and without an assumption for a balancing facility (Project), the Delta hydrology will not balance into controlled operations (as was assured for the other alternatives. The arbitrary assumption used in the Alternative 5 analysis provides for the CVP and SWP to balance Delta operations, to the extent possible, by modifying their exports and reservoir releases. If there is surplus water in the system because the established minimum storage releases by "non-Project" entities would push the Delta into surplus condition, the Projects would be likely to export or store the surplus amount. Hence, Alternative 5 results in windfall water supply benefits to the Projects. (See DEIR at V-3.) Further, Alternative 5 results in circumstances when Delta outflow so far exceeds the required outflow of Bay/Delta Plan objectives that the CVP and SWP would not be able to export or store all of the windfall of water created from the non-CVP/SWP systems. (*See* DEIR at VI-3 to VI-5.) On the flip side, the arbitrary assumption is made that, when deficits in flow will lead to a non-compliance of the Bay/Delta Plan objectives, the CVP and SWP are assumed to provide supplemental flows to meet the objectives.

D. The Impact Analysis of Alternative 5 is Flawed Because Potential Impacts Are Not Identified, Some of Which May be Significant.

To illustrate the inadequate analysis concerning potential impacts that could occur as a result of implementing Alternative 5, the DEIR's analysis of the Tuolumne River basin was reviewed. The presumption that groundwater pumpage (without significant impact) will mitigate the impacts of implementing Alternative 5 is questionable, especially in light of the level of pumpage already assumed for the area in the "no-project" alternative.

A brief description of the underlying assumptions for the Tuolumne River basin is necessary to comprehend the potential outcome of Alternative 5. The no-project alternative assumes a constant use of the same amount of applied water every year within the service areas of the Modesto Irrigation District (MID) and Turlock Irrigation District (TID). It is assumed that the effect of limited surface water availability during times of drought is a decrease in surface water diversion and a corresponding increase in groundwater pumpage (to maintain the same amount of applied water). Within the no-project analysis, it is represented that pumpage within the combined service areas of the districts would amount to over 2,260,000 acre-feet during a recurrence of the 1928-1934 drought and 2,500,000 acre-feet during a recurrence of the 1987-1992 drought period. The values assumed for the 1987-1992 appear to be at the optimistic edge of the amount of groundwater pumpage that can be pumped from the basin without significant impacts to groundwater basin users as evidenced by actual user response during the recent drought. The ability to sustain these rates for the long term is questionable given the effects of significant

municipal, industrial and domestic pumping already occurring within the two districts. Nor has the SWRCB considered the impacts to the existing overdraft situation within the TID area as a result of substantial groundwater pumping in the region immediately east of the district. Historical numbers for the 1928-1934 period are not available.

SWRCB's analysis indicates that during the 1928-1934 period Alternative 5 will lead to an incremental surface water diversion deficiency of over 400,000 acre-feet during the period. A question rises as to the reasonableness of the assumption that this surface water diversion impact will be offset by additional incremental groundwater pumpage, when in fact the groundwater pumpage source of supply may already be pushed to its limit in the no-project condition. SWRCB's DEIR analysis does not attempt to evaluate this outcome through groundwater/surface water modeling; thus, a finding that there are no adverse impacts associated with a groundwater substitution is unsubstantiated.

E. The DEIR's Operation Assumptions for the Tuolumne River are Erroneous and Thus Impacts are Not Correctly Determined.

Two flawed operational assumptions inherent to the DEIR's simulation of Tuolumne River operations lead to a flawed impact analysis: 1) the DEIR analysis assumes that the minimum operating level of New Don Pedro Reservoir is 100,000 acre-feet, and 2) the DEIR analysis assumes no operating rule for carry-over storage.

The DEIR's analysis does not recognize this reservoir constraint in terms of determining power generation impacts to the districts when the alternative requires the reservoir to go below this threshold. Alternatively, the DEIR's analysis of surface water shortages, ergo the ability to mitigate impacts with groundwater pumpage, needs to be revised to recognize the different reservoir and diversion operation required to maintain a higher minimum storage. Even using staff's approach to modeling, the higher minimum storage requirement will result in an additional incremental 200,000 acre-feet increased dependence (above that already assumed in the DEIR) on groundwater mitigation during critical drought periods.

Regarding the second item concerning an operating rule for New Don Pedro Reservoir, other than an underlying assumption for surface water diversion reductions during dry and critical years, the DEIR's modeling approach essentially ignores any operation rule that would manage water supplies through drought periods. The DEIR's approach essentially works backwards into determining what incremental diversion reductions are required to maintain minimum reservoir storage through perfect foresight of when a drought will end and when the lowest reservoir level will occur. In actual operations, perfect foresight is not available and operators maintain some level of carry-over storage to protect against events not yet experienced. This universal form of operating rule will result in an additive requirement of storage (potentially hundreds of thousands of acre-feet) above the minimum power pool storage described above, and its maintenance will subsequently further increase diversion shortages during critical drought periods (and possibly

during other hydrologic periods). In effect, the DEIR's results understate the magnitude and frequency of water supply impacts.

4. TECHNICAL INSUFFICIENCIES IN THE DEIR ANALYSIS

A. The Impact Analysis for Alternatives 3 and 4 Is Flawed Because SWRCB's Modeling of Supplemental Water and Allocation Was Not Performed Dynamically.

SWRCB's modeling approach for Alternatives 3 & 4 involved several calculation and modeling steps: 1) extracting/developing data from a base study, 2) processing that data into the "Supplemental Water" calculation, 3) assigning responsibility for the Supplemental Water, e.g., developing "bypass" or "diversion" reductions for specific users, and 4) re-simulating operations using the previously identified bypass and diversion reduction values for specific users. This process to determine responsibility and to simulate resulting operations is flawed because it does not capture the effect of one month's re-operation upon the next month, thereby potentially altering the amount of required Supplemental Water in a subsequent month. If the determination of Supplemental Water is flawed, the allocation of responsibility for Supplemental Water is flawed, which will result in a flawed impact analysis. This latter flaw does not allow water users to assess the magnitude of water reductions and frequency of occurrence for which they would be required to alter operations to comply with the Bay-Delta Plan.

An illustration of this flaw in analysis is the circumstance when Vernalis requires "Add Water" in April. Staff calculates the amount of Add Water needed from the base study and then proceeds to allocate that specific amount of water among San Joaquin River water users; for instance, assume Exchequer Reservoir must bypass the entire amount of water that it originally gained in storage during April in the base study. This bypass of storage gain could potentially affect Exchequer Reservoir's operation the following month; for instance, Exchequer Reservoir operations in May may attempt to fill the storage it was not allowed to fill in April due to the bypass requirement. If, under the base study, releases to the river during May were more than minimum releases to the river, the surplus release would likely be reduced under the new operation and thus reduce the flow at Vernalis in that following month. This reduction of flow at Vernalis would not be accounted for in SWRCB's analysis in terms of correctly determining subsequent "Add Water" to be allocated. In effect, Staff takes a *snapshot* of Add Water which results from a base study, and then specifically allocates that water without considering that Add Water may change subsequently.

We note that the modeling actually balances releases with Vernalis requirements by using what we understand to be additional releases from New Melones. However, although the operation will appear correct at Vernalis, the allocation of responsibility for those flows will be flawed. Although only illustrated for Vernalis "Add Water," this flaw will also occur within the "Delta Obligation" calculations.

This flaw can likely be remedied by incorporating logic into DWRSIM which calculates Supplemental Water and allocates responsibility "dynamically" each month. Short of reprogramming, a series of iterations would be required to assure that one month's revised operation (after allocation) did not affect the results of a subsequent month. This approach would likely be tedious and time consuming.

B. Protocols for Allocation and Modeling lead to Inappropriate Results Under Alternatives 3 and 4.

There are also flaws within the current protocols of modeling Alternatives 3 and 4. The impact analysis for Alternatives 3 and 4 are flawed as a result of the SWRCB's analytical modeling approach. Review of the hydrology assuming implementation of Alternative 3 raises several questions regarding the correctness of the impact assessment associated with implementation of the Alternatives 3 and 4. Illustrated below are the comparable Delta conditions for the period described in Section 1 above subsequent to modeled implementation of Alternative 3 (SWRCB Study 506).

Example - June 1923

Supplemental Water	*330 TAF*	*(Table, DEIR Page A3-5)*
Surplus Delta Outflow	*92 TAF*	*(DWRSIM Output, Study 469)*
Computed Export Ratio	*35 percent*	*(DWRSIM Output, Study 469)*
Delta Exports	*474 TAF*	*(DWRSIM Output, Study 469)*

Example - June 1923 after allocation of Supplemental Water

Surplus Delta Outflow	*135 TAF*	*(DWRSIM Output, Study 506)*
Computed Export Ratio	*35 percent*	*(DWRSIM Output, Study 506)*
Delta Exports	*497 TAF*	*(DWRSIM Output, Study 506)*

Review of the releases at the Projects reservoirs indicates that Nimbus and Keswick releases remained about the same after the allocation pursuant to Alternative 3 (apparently not able to reduce releases) and Oroville reduced its releases. Delta exports and surplus Delta outflow increased after the allocation. It hardly makes sense that greater Delta outflow surpluses should be a result of implementation of the 1995 Bay/Delta Plan objectives. Furthermore, exports should not increase (during the export constraint period) from the allocation (which is merely a windfall to the Projects of the greater Delta inflow caused by non-Project sources).

ATTACHMENT

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CVP Contracts

Reclamation entered into water service contracts for the delivery of water from New Melones Reservoir, based on a 1980 hydrologic evaluation of the long-term availability of water in the Stanislaus River Basin. Based on this study, Reclamation entered into a long-term water service contract for up to 49,000 af per year of water annually (based on a firm water supply), and two long-term water service contracts totaling 106,000 af per year (based on an interim water supply). Water deliveries under these contracts were not immediately available prior to 1992 for two reasons: 1) new diversion facilities were required to be constructed and prior to 1992 were not yet fully operational; and 2) water supplies were severely limited during the 1987 to 1992 drought.

New Melones Operations

Since 1997, the New Melones IPO has guided CVP operations on the Stanislaus River. The IPO was developed as a joint effort between Reclamation and the Service, in conjunction with the Stanislaus River Basin Stakeholders (SRBS). The process of developing the plan began in 1995 with a goal to develop a long-term management plan with clear operating criteria, given a fundamental recognition by all parties that New Melones Reservoir water supplies are over-committed on a long-term basis, and consequently, unable to meet all the potential beneficial uses designated as purposes. Reclamation will continue to use the interim plan.

The IPO defines categories of water supply based on storage and projected inflow. It then allocates annual water quantities for in-stream fishery enhancement (1987 DFG Agreement and CVPIA Section 3406(b)(2) management), SWRCB D-1641 San Joaquin River water quality requirements (Water Quality), SWRCB D-1641 Vernalis flow requirements (Bay-Delta), and use by CVP contractors.

Table 9 Inflow characterization for the New Melones IPO

Annual water supply category	March-September forecasted inflow plus end of February storage (thousand af)
Low	0 – 1400
Medium-low	1400 – 2000
Medium	2000 – 2500
Medium-high	2500 – 3000
High	3000 – 6000

Table 10 New Melones IPO flow objectives (in thousand af)

Storage plus inflow		Fishery		Vernalis water quality		Bay-Delta		CVP contractors	
From	To	From	To	From	To	From	To	From	To
1400	2000	98	125	70	80	0	0	0	0
2000	2500	125	345	80	175	0	0	0	59
2500	3000	345	467	175	250	75	75	90	90

3000	6000	467	467	250	250	75	75	90	90

when the water supply condition is determined to be in the "Low" IPO designation, the IPO proposes no operations guidance. In this case, Reclamation would meet with the SRBS group to coordinate a practical strategy to guide annual New Melones Reservoir operations under this very limited water supply condition. In addition, the IPO is limited in its ability to fully provide for the D-1641 Vernalis salinity and base flow objectives using Stanislaus River flows in all year types. If the Vernalis salinity standard cannot be met using the IPO designated Goodwin release pattern, then an additional volume of water is dedicated to meet the salinity standard. This permit obligation is met before an allocation is made to CVPIA (b)(2) uses or CVP Eastside contracts.

CVPIA Section 3406 (b)(2) releases from New Melones Reservoir consist of the portion of the fishery flow management volume utilized that is greater than the 1987 DFG Agreement and the volume used in meeting the Vernalis water quality requirements and/or Ripon dissolved oxygen requirements.

New Melones Reservoir – Future Operations

To provide a basis to develop a long-term operating plan, Reclamation sponsored updates to the San Joaquin River Basin component of CalSim-II to better represent and model how river flows and water quality in the San Joaquin River are likely to affect operations at New Melones Reservoir.

This new information and the resulting CalSim-II model improvements were peer reviewed in 2004 and additional refinements were made to the model based on that review. The resulting model is considered by Reclamation to be the best representation of the significant hydrologic and water quality dynamics that currently affect New Melones operations.

The relationships developed for the current model are significantly different than the assumptions used to develop the 1997 IPO. Given that the 1997 IPO was only meant to be a temporary management tool and that water quality conditions are changing in the basin, the fundamental operating assumptions of the 1997 IPO are not entirely consistent with the improved CalSim-II model.

As an important first step in evaluating the effects of a permanent operating plan for New Melones, Reclamation concludes that the following general assumptions best represents future New Melones operations for the purpose of this consultation. These operational parameters recognize existing priorities in beneficial uses, and the 1928 to 1934 drought is used as the basis to evaluate risks associated with successive dry years. The current analysis of future New Melones operations is based on two sets of project beneficial uses: a primary set of uses tied to pre-existing water rights and long-standing permit terms, and a secondary set of uses that came into effect after the primary set.

The operational parameters for allocation to Eastside Division water service contracts and CVPIA (b)(2) are based on available yield over the 1928-34 drought period. The available project quantity is allocated between water service contracts and CVPIA (b)(2) use.

Table 11 Fundamental considerations used to define the New Melones Reservoir operations parameters.

CVP Beneficial Uses (Pior to 1992). The pre-1992 long-term beneficial uses for Reclamation's water supply/water rights at New Melones Reservoir are as follows:

- Existing OID/SSJID Settlement Contract
- D-1641 Vernalis Salinity Objective
- Stanislaus River Dissolved Oxygen
- 1987 DFG Fishery Agreement

CVP Beneficial Uses (After 1992). The beneficial uses for Reclamation's water supply/water rights at New Melones Reservoir established after 1992 are as follows:

- D-1641 Vernalis Feb-June Base Flow objective
- CVPIA (b)(2) water to increase Goodwin Dam releases for AFRP instream flow objectives
- CVP Eastside Division water services contracts

Basic Allocation Bands. Similar to the 1997 IPO, the representation of future New Melones operations defines categories of water supply based on projected storage and inflows.

1) High Allocation Years (Projected New Melones Melones Carryover Storage greater than 1.7 MAF End of September)

- DFG allocation is 302 taf
- Vernalis flow objectives are met
- CVPIA (b)(2) water allocation is 155 taf
- CVP Eastside contract allocation is 155 taf
- Vernalis Salinity and Stanislaus River DO objectives are met

2) Mid-Allocation Years

- DFG allocation is 98.3 taf
- Vernalis flow objectives are met
- CVPIA B2 water allocation to meet instream fishery needs is to be determined in coordination with USFWS, DFG and NOAA fisheries in a collaborative planning process
- Vernalis Salinity and Stanislaus River DO objectives are met
- CVP Eastside contract allocation is to be determined after all the instream needs are met

3) "Conference Year" conditions - New Melones Index is less than 1.0 MAF.

- As with the IPO, if the projected end of September New Melones Index (i.e. projected inflow plus storage) is less than 1.0 MAF, Reclamation would meet with USFWS stakeholders, DFG, and NOAA Fisheries to coordinate a practical strategy to guide New Melones Reservoir operations to meet the most basic needs associated with Stanislaus River instream flows, DO, and Vernalis salinity. Allocation for CVPIA (b)(2) flows would be determined in coordination with USFWS, DFG and NOAA Fisheries.

ATTACHMENT

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NEW MELONES RESERVOIR *(NML)*

Elevation: 1135' · STANISLAUS R basin · Operator: US Bureau of Reclamation

Provisional data, subject to change.

Query executed Monday at 9:06:44

Select a sensor type for a plot of data.
Note: Reservoir Flows are daily averages.

Earlier

Date	*RES ELE*	*STORAGE*	*RES CHG*	*TOC STO*	*ABV TOC*	*OUTFLOW*	*INFLOW*	*EVAP*	*FNF*	*RIV REL*	*PPT INC*	*SPILL*	*DIS PWR*
	FEET	AF	AF	AF	AF	CFS	CFS	CFS	CFS	CFS	INCHES	CFS	CFS
03/23/2014	949.81	1054120	-2461	1988800	-934680	1618	425	48	556	0	0.00	0	1618
03/24/2014	949.44	1051366	-2754	1995000	-943634	1756	421	53	-757	0	0.00	0	1756
03/25/2014	949.02	1048241	-3125	2001200	-952959	2087	570	58	2060	0	0.00	0	2087
03/26/2014	948.62	1045277	-2964	2007500	-962223	2085	617	26	818	0	0.22	0	2085
03/27/2014	948.31	1042980	-2297	2013800	-970820	1786	640	12	792	0	0.70	0	1786
03/28/2014	947.99	1040610	-2370	2020000	-979390	1552	376	19	491	0	0.00	0	1552
03/29/2014	947.83	1039430	-1180	2026200	-986770	1251	682	26	844	0	0.00	0	1251
03/30/2014	947.67	1038250	-1180	2032500	-994250	1057	653	191	826	0	0.97	0	1057
03/31/2014	947.45	1036628	-1622	2038800	-1002172	1395	620	43	--	0	0.07	0	1395
04/01/2014	947.47	1036775	147	2045000	-1008225	720	823	29	950	0	0.40	0	720
04/02/2014	947.34	1035817	-958	2051200	-1015383	1228	774	29	904	0	0.40	0	1228
04/03/2014	947.06	1033752	-2065	2057500	-1023748	1504	496	33	607	0	0.40	0	1504
04/04/2014	946.99	1033236	-516	2063800	-1030564	827	605	38	734	0	0.00	0	827
04/05/2014	946.98	1033162	-74	2070000	-1036838	429	394	2	504	0	0.03	0	429
04/06/2014	946.80	1031840	-1322	2076200	-1044360	1156	535	45	692	0	0.00	0	1156
04/07/2014	946.55	1030005	-1835	2082500	-1052495	1604	719	40	988	0	0.00	0	1604
04/08/2014	946.57	1030152	147	2088800	-1058648	632	765	59	1160	1	0.00	0	631
04/09/2014	946.42	1029050	-1102	2095000	-1065950	1283	786	59	1210	0	0.00	0	1283
04/10/2014	946.26	1027875	-1175	2101200	-1073325	1367	825	50	1478	0	0.00	0	1367
04/11/2014	946.09	1026627	-1248	2107500	-1080873	1516	958	71	1557	0	0.00	0	1516
04/12/2014	945.78	1024358	-2269	2113800	-1089442	1553	452	43	1088	0	0.00	0	1553
04/13/2014	945.49	1022239	-2119	2120000	-1097761	1676	660	52	1343	0	0.00	0	1676
04/14/2014	944.57	1015529	-6710	2126200	-1110671	4139	805	49	1407	0	0.00	0	4139
04/15/2014	943.72	1009354	-6175	2132500	-1123146	3640	590	63	1251	0	0.00	0	3640
04/16/2014	942.80	1002697	-6657	2138800	-1136103	3981	683	58	1360	0	0.00	0	3981
04/17/2014	942.02	997073	-5624	2145000	-1147927	3694	920	61	1664	0	0.00	0	3694
04/18/2014	941.23	991403	-5670	2151200	-1159797	3517	711	53	1521	0	0.00	0	3517
04/19/2014	940.33	984966	-6437	2157500	-1172534	3782	599	62	1525	0	0.00	0	3782
04/20/2014	939.47	978839	-6127	2163800	-1184961	3582	548	55	1381	0	0.00	0	3582
04/21/2014	--	--	--	--	--	--	--	--	--	--	--	--	--

Later | Latest

Warning! This data is preliminary and subject to revision.

Download Data Now | Show NML Map | Plot NML Data | 1 Month NML Data | Real-Time NML Data | NML Info

ATTACHMENT

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B120 (04/08/14 1132)

Department of Water Resources
California Cooperative Snow Surveys

April 1, 2014 FORECAST
OF UNIMPAIRED RUNOFF
(in thousands of acre-feet)

April-July Forecast

	April thru July	Percent of Average	80% Probability Range
NORTH COAST			
Trinity River at Lewiston Lake	150	33%	65 - 310
Scott River near Fort Jones	52	31%	
SACRAMENTO RIVER			
Sacramento River above Shasta Lake	100	33%	
McCloud River above Shasta Lake	220	56%	
Pit River above Shasta Lake	610	59%	
Total inflow to Shasta Lake	970	54%	700 - 1630
Sacramento River above Bend Bridge	1270	51%	970 - 2130
Feather River at Oroville	640	36%	430 - 1240
Yuba River at Smartsville	380	38%	210 - 670
American River below Folsom Lake	480	39%	280 - 1010
SAN JOAQUIN RIVER			
Cosumnes River at Michigan Bar	40	31%	10 - 100
Mokelumne River inflow to Pardee	220	48%	140 - 370
Stanislaus River below Goodwin Res.	280	41%	170 - 530
Tuolumne River below La Grange	550	45%	380 - 920
Merced River below Merced Falls	185	29%	130 - 420
San Joaquin River inflow to Millerton Lk	400	32%	280 - 740
TULARE LAKE			
Kings River below Pine Flat Res.	410	33%	300 - 710
Kaweah River below Terminus Res.	70	24%	50 - 160
Tule River below Lake Success	8	13%	2 - 40
Kern River inflow to Lake Isabella	100	22%	70 - 200
NORTH LAHONTAN			
Truckee River,Tahoe to Farad accretions	59	23%	
Lake Tahoe Rise, in feet	0.5	36%	
West Carson River at Woodfords	33	43%	
East Carson River near Gardnerville	90	48%	
West Walker River below Little Walker	65	42%	
East Walker River near Bridgeport	13	21%	

Water-Year (WY) Forecast and Monthly Distribution

	Oct thru Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Water Year	80% Probability Range	WY % Avg
Trinity, Lewiston	38	49	154	69	59	17	5	3	1	395	305 - 560	29
Inflow to Shasta	697	284	588	325	370	205	170	165	156	2860	2525 - 3615	48
Sacramento, Bend	922	419	977	440	350	260	220	190	187	3865	3505 - 4970	44
Feather, Oroville	308	258	462	270	180	110	80	66	56	1790	1540 - 2455	40
Yuba, Smartville	91	188	245	180	145	40	15	8	8	920	740 - 1225	40
American, Folsom	48	237	232	225	200	50	5	1	2	1000	795 - 1550	37
Cosumnes, Mich.Bar	7	20	28	24	11	4	1	0	0	95	65 - 158	25
Mokelumne, Pardee	9	33	47	80	110	26	4	1	0	310	230 - 470	41
Stanislaus, Gdw.	25	36	62	110	130	42	8	2	0	415	295 - 670	36
Tuolumne, LaGrange	20	52	94	175	250	105	20	7	2	725	550 - 1130	37
Merced, McClure	10	13	33	70	90	20	5	0	0	241	186 - 490	24
San Joaquin, Mil.	45	23	46	115	180	80	25	11	5	530	405 - 900	29
Kings, Pine Flat	39	20	45	120	190	75	25	13	8	535	410 - 850	31
Kaweah, Terminus	8	6	12	25	33	9	3	1	1	98	77 - 195	21
Tule, Success	3	2	3	4	3	1	0	0	0	16	10 - 50	11
Kern, Isabella	37	11	17	28	40	22	10	8	7	180	145 - 285	25

Notes:
50 year averages are based on years 1961 to 2010.
Unimpaired runoff represents the natural water production of a river basin,
unaltered by upstream diversions, storage, or by export or import of water
to or from other watersheds. Groundwater changes due to human activity or not considered.
Forecasted runoff assumes median conditions subsequent to the date of forecast.
Runoff probability ranges are statistically derived from historical data.
The 80% probability range is comprised of the 90% exceedance level value
and the 10% exceedance level value.
The actual runoff should fall within the stated limits eight times out of ten.
Forecast point names are based on USGS gage names.

ATTACHMENT

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ATTACHMENT E

BIOLOGICAL REVIEW – SALMONIDS AND STURGEON

Status of Species

Winter-run Chinook salmon

An estimate of 6,075 Winter-run Chinook salmon returned to the upper Sacramento River in 2013 [broodyear (BY)], which was larger than the spawning run that produced these fish in the Sacramento River during the summer of 2010. Redd surveys detected 1 of the 569 Winter-run Chinook salmon redds built in 2013 to be downstream of the 2013 temperature compliance point at Airport Bridge. Typically a pulse of fry outmigrates from the upper Sacramento River in early October and rear in the middle Sacramento River. In fact, a pulse of Winter-run Chinook fry appeared to have moved downstream of Red Bluff Diversion Dam (RBDD) during early October, although monitoring of this pattern is uncertain due to the federal government shutdown that kept biologists from monitoring this site (Figure 1 and 2). Of the estimated 4.3 million juvenile Winter-run Chinook expected to migrate past RBDD (based on the 2013 spawner escapement and JPE survival values), approximately 1.8 million fish were estimated to have migrated past RBDD by March 26, 2014 [United States Fish and Wildlife Service (USFWS), Red Bluff, biweekly data]. Based on these monitoring data, it is hypothesized that a significant proportion of the juvenile Winter-run Chinook salmon migrated out of the upper Sacramento River during the lapse in RBDD fish monitoring.

Typically, Keswick releases are high in the fall and a substantial proportion of Winter-run Chinook are transported downstream of RBDD. However, during WY2014 fall and winter Sacramento River flows downstream of RBDD have been low due to a seasonal lack of precipitation and minimal releases to conserve Shasta Reservoir storage since February 2014 (Figure 3). While a substantial portion of juvenile Winter-run Chinook salmon appear to have passed RBDD during fall, numerous larger-sized Winter-run Chinook were observed weekly in fish monitoring at RBDD during the winter months than compared to other years (Figure 2). Of 179 stranding sites along the Sacramento River from Tehama (Los Molinos) to Keswick Dam (about RM70), 21 completely isolated sites have been identified to have winter-run salmon trapped in them [Doug Killam, California Department of Fish and Wildlife (CDFW), pers. comm.]. Based on these monitoring data, it is hypothesized that a larger proportion of Winter-run Chinook salmon underwent a longer residency and rearing period in the upper Sacramento River between Keswick Dam and RBDD than during years with higher fall and winter Keswick releases and/or natural flows. On recent weekly DOSS calls, the topic of the position of Winter-run Chinook salmon has been discussed. There has been agreement that between 10-15% of BY13 Winter-run Chinook salmon remains upstream of Knights Landing. It is hypothesized that an extremely small proportion of these fish remain above RBDD.

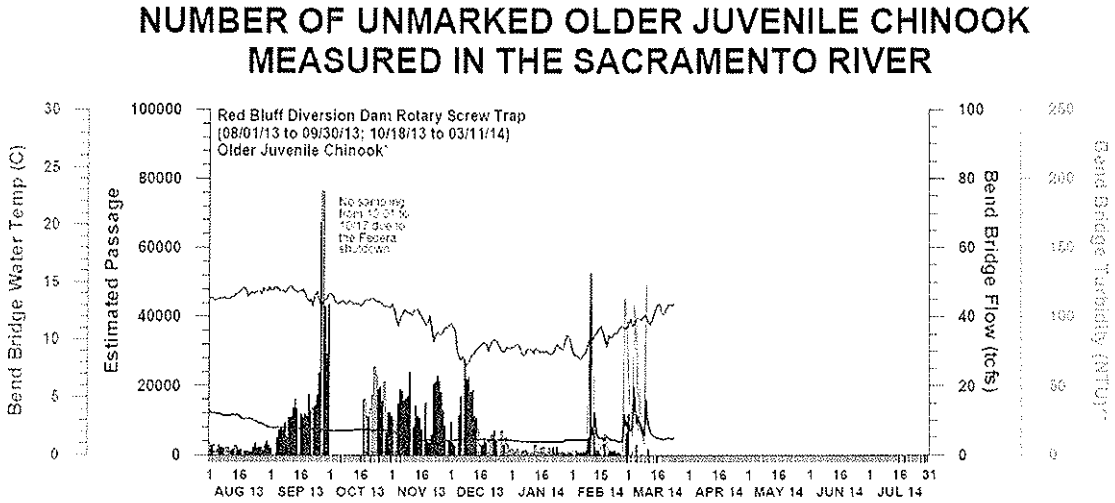

Figure 1. Red Bluff Diversion Dam Passage of Juvenile Older Chinook Salmon and Associated Environmental Data. [1]

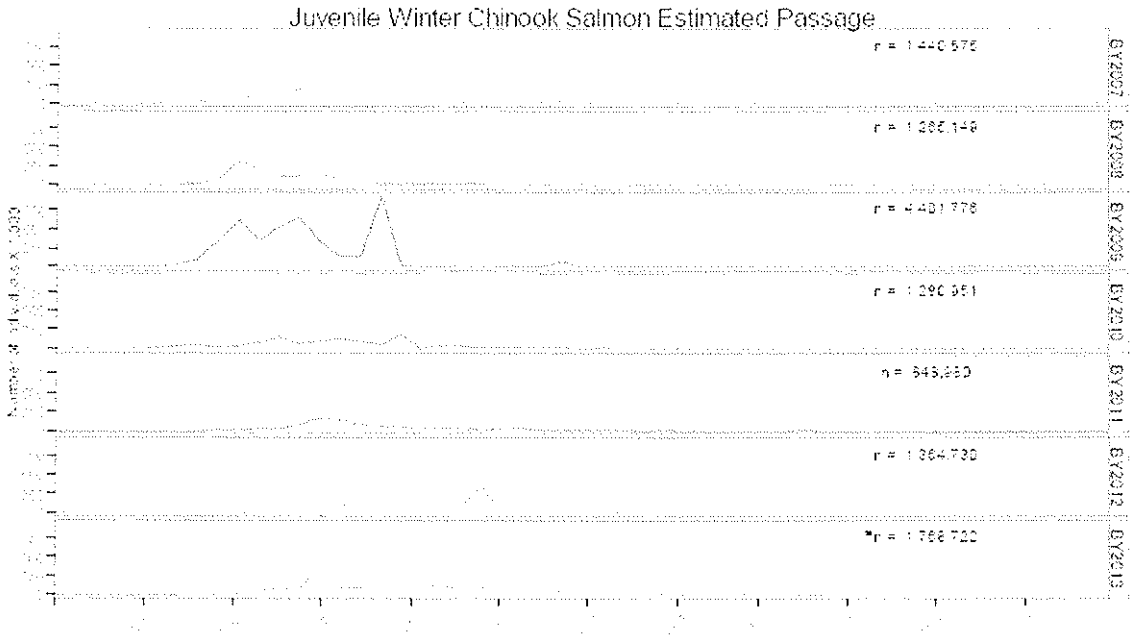

Figure 2. Weekly Estimated Passage of Juvenile Winter-run Chinook Salmon at Red Bluff Diversion Dam (RK 391) by Brood-Year (BY). [2]

[1] Figure supplied by DWR on March 25, 2014.

[2] Fish were sampled using rotary-screw traps for the period July 1, 2007 to present. Winter-run passage value interpolated using a monthly mean for the period of October 1 through October 17, 2013, due to partial federal government shutdown. Figure supplied by USFWS on March 26, 2014.

Winter-run Chinook juveniles have been passing the location of the rotary screw trap monitoring station at the Glen-Colusa Irrigation District (GCID) intake canal in the middle section of the Sacramento River since October 2013 (Figure 4). It is hypothesized that the steady recovery trend of outmigrating Winter-run Chinook in GCID's screw traps during the majority of the winter was caused by a prolonged residency period of juvenile Winter-run Chinook, which passed RBDD earlier in the fall and winter as fry and parr, having abandoned outmigration to rear between RBDD and GCID. Typically, fry and parr that cannot sustain territories in river flows outmigrate past Knights Landing and into the Lower Sacramento River with late fall/early winter Sacramento Valley rainstorms increase flows to greater than 7,500 cfs at Wilkins Slough. Rosario et al (2013) described multiple pulses of distinctly different sized Winter-run Chinook salmon typically moving through the Lower Sacramento River at Knights Landing between November and January. Juvenile Winter-run Chinook were infrequently observed at the Tisdale Weir (Figure 5) and Knights Landing (Figure 6) fish monitoring station on the Middle and Lower Sacramento River, respectively, until this winter's February and March storms caused Sacramento River flows greater than 7,500 cfs at Wilkins Slough. It is hypothesized that in WY 2014, a significantly greater proportion of juvenile Winter-run Chinook salmon reared as parr and smolts in the Sacramento River between Hamilton City (close to the GCID intake) and Knights Landing waiting for physiological or environmental cues to emigrate into the Delta than reared in the upper Sacramento River or Delta.

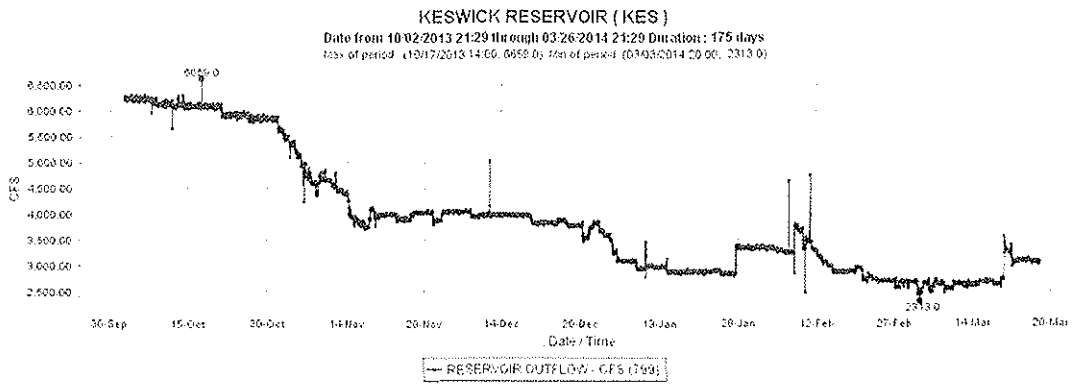

Figure 3. Keswick Reservoir Outflow for WY 2014.[3]

[3] Downloaded from CDEC on March 26, 2014.

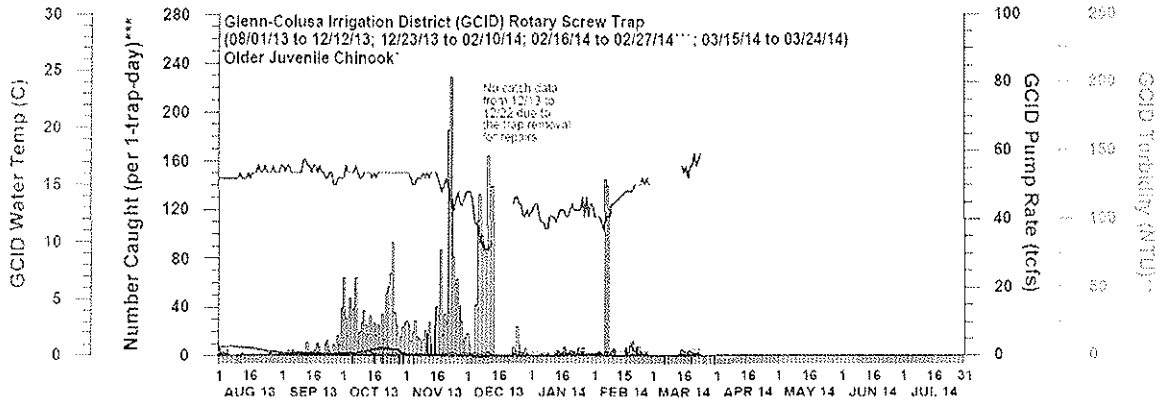

Figure 4. Glen-Colusa Irrigation District Rotary Screw Trap older juvenile Chinook salmon catch data and associated environmental data. No catch data from 2/28 to 3/14 since trap cone was raised due to high flow and debris.[4]

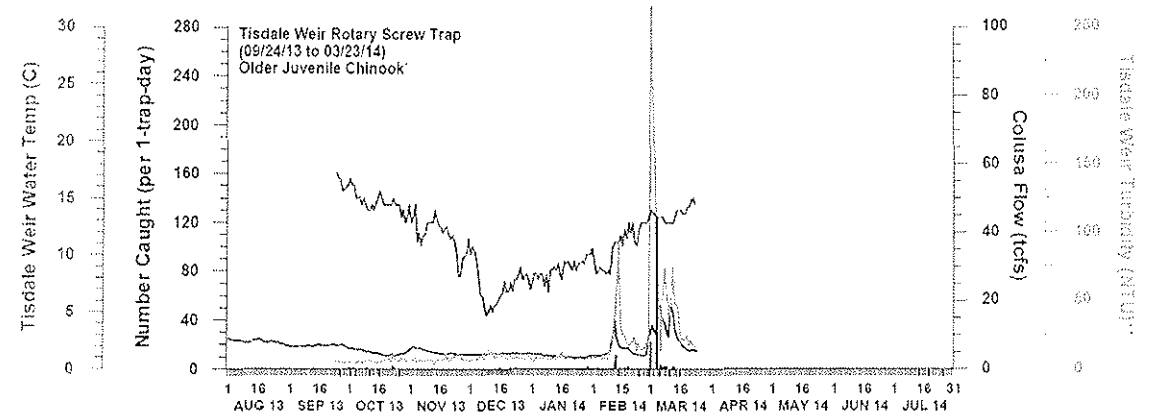

Figure 5. Tisdale Weir Rotary Screw Trap older juvenile Chinook salmon catch data and associated environmental data.[5]

[4] Figure supplied by DWR on March 26, 2014.

[5] Figure supplied by DWR on March 26, 2014.

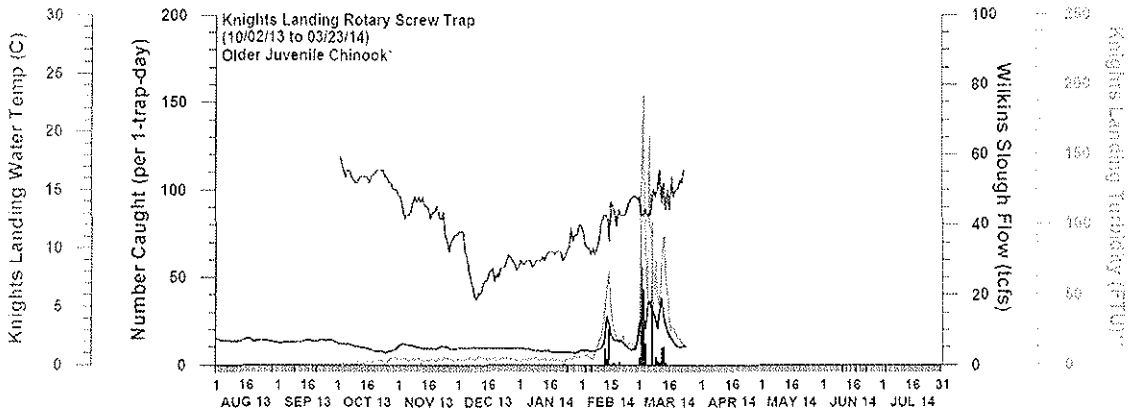

Figure 6. Knights Landing Rotary Screw Trap older juvenile Chinook salmon catch data and associated environmental data.[6]

Juvenile Winter-run Chinook salmon have been observed in lower Sacramento River and Delta beach seine and trawl fish monitoring surveys during storm periods in February and March when river outmigration flows stimulated migration into the Delta (Figure 7). Through March 20, 2014 expanded salvages of 106.5 natural origin juvenile Winter-run sized Chinook salmon have been estimated at the federal fish collection facility at the South Delta CVP export pumps and 50 natural origin juvenile Winter-run sized juvenile Chinook have been estimated at the state fish collection facility at the South Delta SWP export pumps through March 20. All of these fish were recovered since March 3rd. No hatchery Winter-run sized juvenile Chinook have been salvaged as of March 26, 2014. As of March 24, an estimated cumulative loss of 346 Winter-run Chinook salmon has occurred. The incidental take limit for WY 2014 is 23,928 natural Winter-run Chinook salmon. On the April 1 DOSS calls, multiple opinions suggest that 60-70% of the BY 2013 juvenile population of Winter-run Chinook remains in the Delta as of April 1. It was hypothesized that the remainder of the population rearing in the Sacramento River will enter the Delta in the next ten days during the current storm period (Figure 8).

On the weekly DOSS calls, the topic of the proportion of the population of Winter-run Chinook salmon that has exited the Delta has also been discussed. Based on data from Chipps Island (Figure 9), DOSS estimated that 20-25% of the BY13 juvenile Winter-run Chinook salmon have exited the Delta region.

[6] Figure supplied by DWR on March 26, 2014.

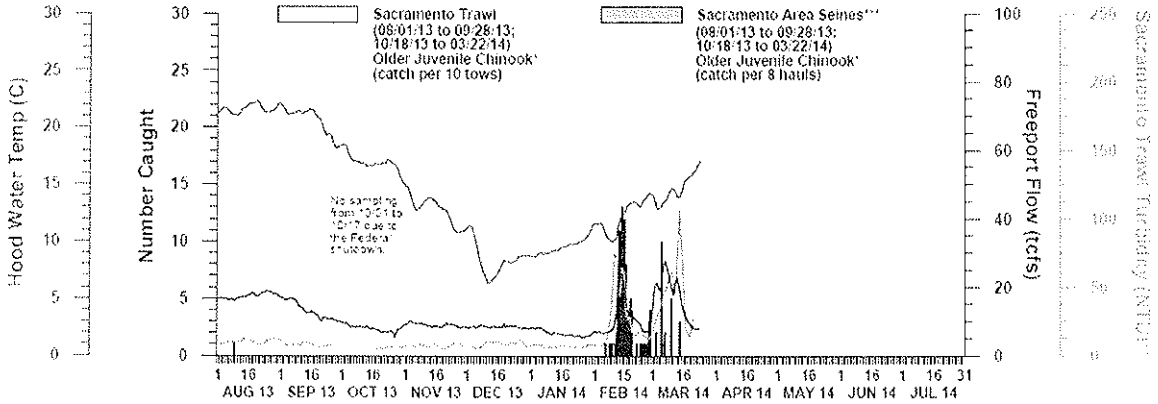

Figure 7. Sacramento Trawl and Sacramento Area Seines older juvenile Chinook salmon catch data and associated environmental data.[7]

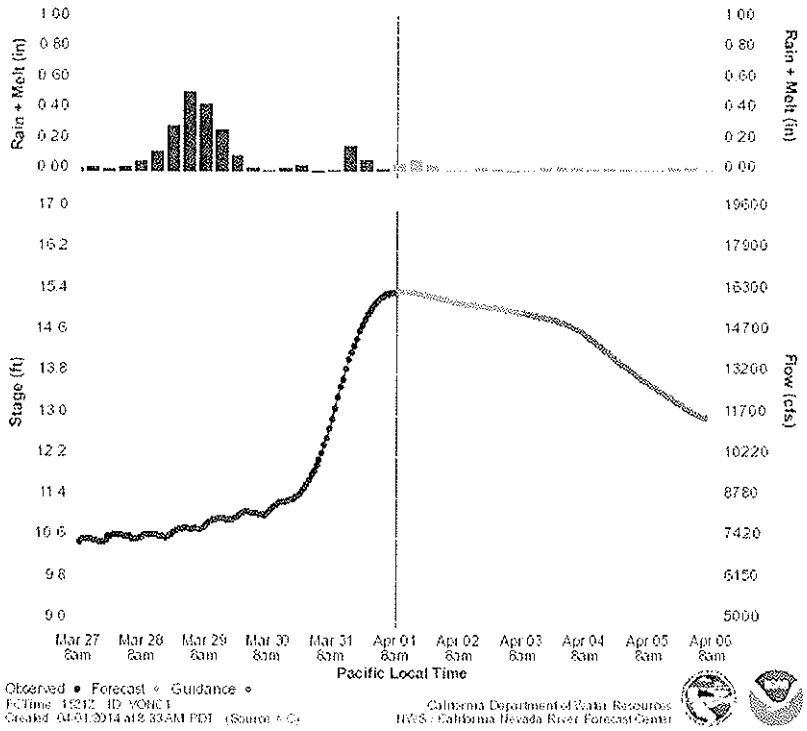

Figure 8. Observed and forecasted precipitation and Sacramento River flows for Verona on the Lower Sacramento River. [8]

[7] Figure supplied by DWR on March 26, 2014.

[8] Figure downloaded on April 1, 2014.

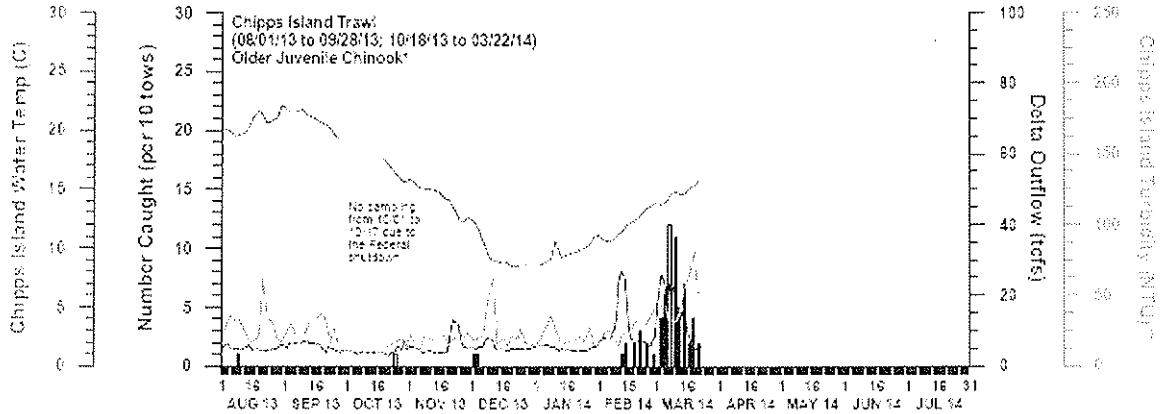

Figure 9. Chipps Island Trawl older juvenile Chinook salmon catch data and associated environmental data.[9]

Adult winter-run Chinook salmon are currently entering the Sacramento River and migrating to the upper reaches of the river in preparation for spawning during the summer of 2014 (Table 1). These adult Winter-run Chinook will hold in the upper Sacramento River between RBDD and Keswick Dam until they are ready to spawn during the summer. These fish require coldwater holding habitat for several months prior to spawning as their gonads mature, and then require cold water to ensure the proper development of their fertilized eggs, which are highly sensitive to thermal conditions during this embryo development period. As of March 26, 82 adult Winter run Chinook have been collected and retained at the Keswick Dam Fish Trap for Livington Stone National Fish Hatchery. These fish include 26 wild males, 7 adipose-clipped males, 48 wild females, 17 adipose-clipped females. Also, eight prespawn mortalities have been collected, sampled, but were not retained.

[9] Figure supplied by DWR on March 26, 2014.

Month	Fall-run	Late fall-run	Winter-run	Spring-run	Steelhead	Green sturgeon
January	0	17.5	3.75	0	0	0
Febraury	0	17.5	13.75	0	0	5
March	0	6.25	37.5	1.25	0	35
April	0	1.25	25	1.25	0	35
May	0	0	10	3.75	0	20
June	0	0	7	11.25	0	5
July	2.5	0	1.5	15	0	0
August	10	0	1.5	25	15	0
September	32.5	0	0	27.5	50	0
October	40	20	0	15	30	0
November	12.5	17.5	0	0	5	0
December	2.5	20	0	0	0	0

Source: Adapted salmon data from Vogel and Marine (1991), averaging wet and dry period and assuming midpoints for values denoted as 'greater than' or 'less than' by Vogel and Marine (1991). Adapted steelhead data from Hallock (1957). Green sturgeon data provided by David Woodbury, NOAA-Fisheries, Pers. Comm.

Table 1. Percentage of adult Chinook salmon passing above Red Bluff Diversion Dam, percentage of adult Steelhead passing above Fremont Weir, and percentage of adult green sturgeon passing above the Middle Sacrament River.

Adults returning to the river in 2014 are predominantly members of the cohort from brood year 2011. Based on cohort replacement rate (CRR) estimates, the 2011 brood year was the third lowest CRR since 1992. It is likely that the escapement of Winter-run Chinook in 2014 will be approximately half the number of adults that spawned in 2013 or less, based on the smaller number of adults that returned in 2011 compared to 2010. Fewer returning adults will typically result in lower juvenile production for that year, thus the juvenile production for 2014 is expected to be lower than in 2013.

Spring-run Chinook salmon

In 2013, a small, but greater than average spawning run of Spring-run Chinook returned to the upper Sacramento River. This greater-than-average return of spawners was observed across many tributaries supporting Spring-run Chinook salmon. The adult escapement estimate for Central Valley Spring-run in 2013 was 20,057 fish returning to the Feather River Fish Hatchery and 18,499 fish returning to the tributaries. This is the largest return in the past 25 years. Spring-run Chinook will be entering Clear Creek in the spring and into summer and then holding until they spawn starting in September. Spawning in Clear Creek occurs upstream of a barrier weir installed at river mile 7 to separate Spring-run and fall-run spawning and protect Spring-run eggs from superimposition by fall-run spawners. Table 2 shows Spring-run spawning distribution in Clear Creek. Distribution has shifted upstream somewhat through the years after removal of McCormick-Seltzer diversion dam (approximately RM 6.2) in 2000 and with repeated gravel additions.

Table 6. Distribution of spring Chinook salmon redds (SCS) in Clear Creek, 2003–2011. River miles (RM) begin at the confluence at RM 0, and end at Whiskeytown Dam at RM 18.3. River miles 11–18 are upstream of IGO. Both RM 7 (0.6 miles) and RM 18 (0.3 miles) are incomplete miles. The SCS redd count is redds upstream of the picket weir location. From 2003 through 2005, and in 2011, the picket weir was located at RM 8.2 (Reading Bar), so RM 7 was not available for SCS spawning. From 2006 through 2009, the location of the picket weir was at RM 7.4 (Shooting Gallery). In 2010, weirs were installed at both sites.

Year	RM 7	RM 8	RM 9	RM 10	RM 11	RM 12	RM 13	RM 14	RM 15	RM 16	RM 17	RM 18	Total
2003	NA	4	5	9	2	3	0	15	3	4	5	3	**53**
2004	NA	9	1	9	2	0	2	4	3	3	4	0	**37**
2005	NA	4	2	11	4	0	1	4	10	3	11	2	**52**
2006	4	11	8	12	13	7	0	4	8	10	5	0	**82**
2007	0	6	1	5	0	2	1	1	7	15	11	0	**49**
2008	8	18	3	11	4	6	0	11	5	13	6	1	**86**
2009	3	8	2	15	4	1	4	6	4	4	13	0	**64**
2010	1[a]	1	0	3	0	0	0	1	1	2	1	0	**10**
2011	NA	1	0	5	0	2	1	5	0	2	0	0	**16**

[a] The SCS redd count includes one redd from Reach 5b (between weirs). Other redds in Reach 5b were counted as fall Chinook and not included here.

Table 2. Clear Creek spring Chinook spawning distribution, copied from Giovannetti and Brown (2013).

Juvenile Spring-run begin emigration from Clear Creek soon after emergence, with passage near the mouth peaking in November through December and continuing to around May. Recent year passage indices are shown in Table 3. Unlike fall-run Chinook in Clear Creek, Spring-run have not appeared to show population increases relative to other central valley populations.

Broodyear	95% LCI	90% LCI	Passage Index	90% UCI	95% UCI
1999	272,930	275,736	292,323	310,697	314,778
2000	90,576	92,331	101,347	113,299	116,274
2001	68,446	70,733	86,836	107,359	112,386
2002	156,297	158,835	172,708	189,998	192,685
2003	29,432	30,130	33,902	38,705	39,638
2004	9,570	9,915	11,906	14,701	15,644
2005	17,808	18,163	20,401	22,733	23,384
2006	70,716	72,560	86,918	105,130	113,960
2007	149,395	155,897	202,011	279,553	319,016
2008	39,129	39,999	45,903	53,145	54,452
2009	61,181	61,979	68,624	76,913	79,425
2010	19,929	20,231	22,853	26,166	27,111

Table 3. Spring-run Chinook passage indices at a rotary screw trap at river mile 1.7 on Clear Creek, in Shasta County, CA from Early et al (2013).

Rain events during mid-November 2013 increased daily average flows in upper Sacramento River tributaries conducive to triggering outmigration of yearling Spring-run Chinook into the mainstem, although the rapid return to stable tributary flows and low temperatures may have limited the extent to which yearling Spring-run Chinook exited these watersheds. There were short periods of the winter, when Mill and Deer creeks were not connected to the Sacramento River due to lack of tributary flows. A substantial outmigration of young-of-year Spring-run Chinook salmon juveniles passed RBDD with an increase in Sacramento River flows during the February 2014 storm and thousands continue to be observed daily in fish monitoring at RBDD (Figure 10). These smaller sized Spring-run Chinook may have been subjected to stranding risks during reservoir release reductions earlier this winter similar to juvenile Winter-run Chinook salmon.

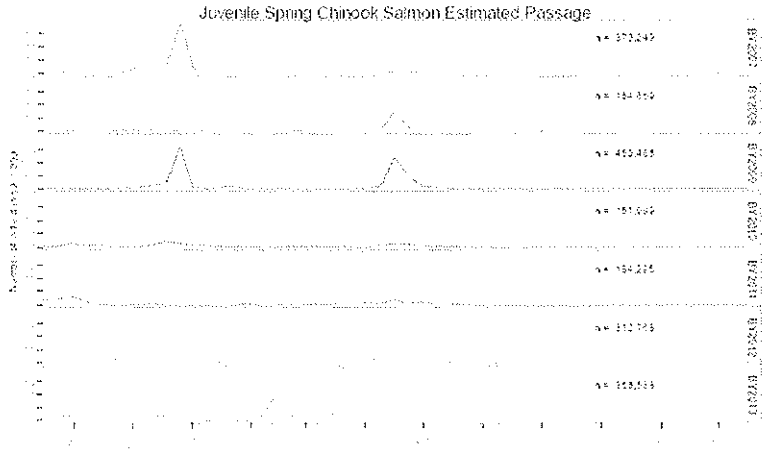

Figure 10. Weekly Estimated Passage of Juvenile Spring-run Chinook Salmon at Red Bluff Diversion Dam (RK 391) by Brood-Year (BY).[10]

Recovery of juvenile Spring-run Chinook salmon migrating past Tisdale and Knights Landing rotary screw trap monitoring stations in the middle and lower Sacramento River has been increasing. Between October 1, 2013 and January 30, 2014, 95 juvenile, but no smolting, Spring-run Chinook salmon were observed at GCID's rotary screw trap. In February, 310 young-of-year Spring-run Chinook salmon were recovered in GCID's rotary screw trap. In March, reduced monitoring effort occurred ten days, and 180 juvenile Spring-run Chinook were recovered in the GCID rotary screw trap. At the Tisdale Weir and Knights Landing fish monitoring stations, greater catches of older juvenile Chinook salmon, which would include

[10] Fish were sampled using rotary-screw traps for the period July 1, 2007 to present. Figure supplied by USFWS (March 26, 2014).

yearling Spring-run Chinook salmon, were observed during the February and March storms than had been observed prior to the storms (Figures 5-6). Similar to February, Spring-run Chinook salmon from Butte Creek, and the Feather and Yuba rivers are outmigrating into the Delta during March. Since February, Spring-run Chinook salmon have been observed in the lower Sacramento and Delta beach seine and trawl fish monitoring surveys in addition to being observed exiting at Chipps Island (Table 4).

	Wild juveniles					Ad clipped		
Seine region	Fall	Late Fall	Spring	Winter	Steelhead	Steelhead	Chinook	Region Tot
Bay East	0	0	0	0		0	0	0
Bay West	0	0	0	0	0	0	0	0
Central Delta	195	0	1	0	1	1	0	198
Lower Sac	466	0	5	0	0	0	0	471
North Delta	1550	1	3	3		0	2	1559
*Sacramento	27,144	0	86	67	0	40	4	27341
South Delta	0	0	0	0	0	0	0	0
San Joaquin	0	0	0	0	0	0	0	0
Trawl								0
Chipps	0	5	3	31	3	42	38	122
Sacramento	21089	0	102	69	5	261	33	21550
Species Total	50444	6	200	161	9	344	77	

*Includes lower Sac & Sacramento, and N.Delta & Sac. Sites from FWS metadata.

Table 4. Lower Sacramento River and Delta beach seine recoveries of salmonids during WY 2014.[11]

The first Spring-run Chinook salmon salvage occurred at the state and federal fish collection facilities at the South Delta CVP/SWP export pumps on March 13, 2014. As of March 24, there has been a combined expanded salvage of 55 and combined loss of 67 young-of-the-year Spring-run Chinook, respectively. As of March 23, no Spring-run surrogate, adipose-clipped Late fall Chinook salmon have been recovered at the fish collection facilities. Of 25 salvaged Winter-run sized, which were genetically tested, close to 50% (12 samples) were genetically identified as yearling Spring-run Chinook from the Upper Sacramento River. It is hypothesized that the dry spring of WY2013 and resultant lack of spring natural flow variability increased the proportion of Upper Sacramento River Spring-run Chinook that oversummered and reared in the coldwater refugia below Keswick Dam compared to normal conditions. It is hypothesized that this is the mechanism behind the substantial misclassification of juvenile Spring-run Chinook as Winter-run Chinook at the state and federal fish collection facilities during the earliest portion (March 3-20, 2014) of the WY2014 salvage season. On the weekly DOSS calls, the topic of the proportion of the population of Spring-run Chinook salmon that have entered the Delta has been discussed. DOSS

[11] Trawl and beach seine data updated through March 10, 2014. Provided by USFWS Delta Juvenile Fish Monitoring Program.

participants agreed that most yearling Spring-run Chinook salmon have entered and exited the Delta. Regarding young-of-year Spring-run Chinook salmon, on the April 1 DOSS call, participants estimated between 30% and 60% are in the Delta with 5-10% having exited the Delta past Chipps Island.

Adult Spring-run Chinook will migrate into the upper Sacramento River from May to July 2014. These adults oversummer in the upper Sacramento River before spawning and require coldwater holding habitat for the maturation of their gonads before spawning in September and October. Lack of cold water habitat will decrease the viability of their gametes as they mature and exposes adult fish to increased mortality through other avenues, such as disease and thermal stress. Additionally, the brood year 2014 eggs will require continued cold water thermal conditions as they develop in the gravel during the September through November 2014 incubation period.

Steelhead

American River

Steelhead spawning in the American River occurs from late December to about late March or early April. Reclamation conducts bi-weekly steelhead spawning surveys throughout the spawning period. Seining surveys conducted by CDFW throughout the summer and fall have shown that summer rearing distribution for steelhead essentially mirrors the spawning distribution. Mark and recapture of rearing steelhead has shown strong natal site fidelity. Although few recaptures of marked fish occur, the recaptures that do occur all happen within close proximity to the marking site (i.e. at the same riffle or the next riffle upstream or downstream). No thermal refugia have ever been found in the lower American River. The coolest water is essentially in the faster flowing sections of the river and the steelhead rear and feed primarily in the faster water areas (riffles predominantly) of the river through the summer. The American River in-river steelhead population consists primarily of hatchery-produced fish that spawn in the river, and the steelhead return is dominated by fish that return to the hatchery or are harvested prior to spawning in the river (Figure 11).

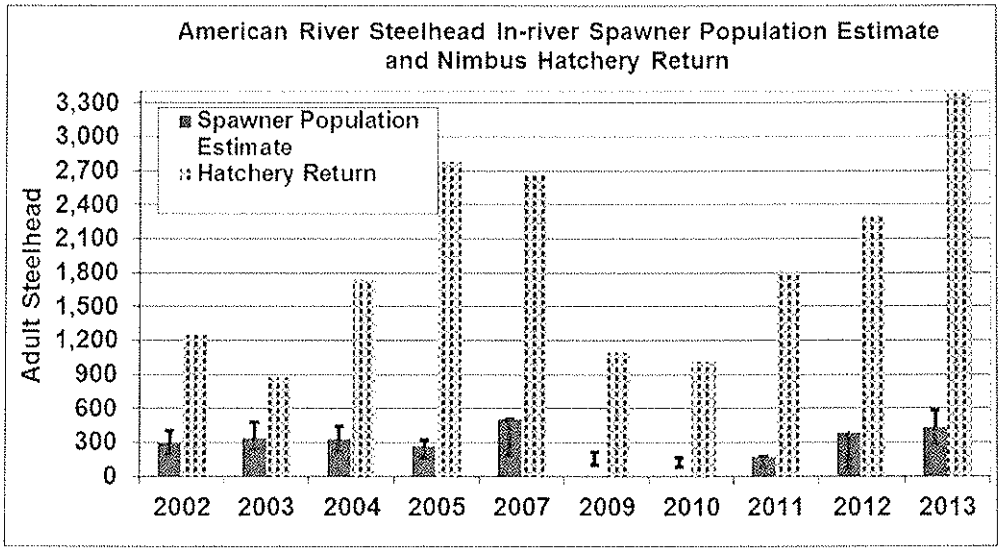

Figure 11. American River steelhead spawner population estimates compared to Nimbus hatchery steelhead return (from Hannon 2013). The red bars are area under the curve population estimates (based on observations of adults holding on redds) and the error bars are the redd count based estimates. No 'area under the curve' based estimates are available for 2009 and 2010.

Steelhead spawning survey surveys have identified 110 steelhead redds in the American River in 2014 from January through March 21. Nimbus release flows were dropped from 1,300 cfs at the end of December 2013 down to 500 cfs by January 10. The flow drop was conducted at a time to minimize effects on steelhead by dropping prior to most spawning. No steelhead redd dewatering was documented as a result of this flow drop. The change in stage at the Fair Oaks USGS gauge for this flow drop was about 10 inches. The majority of spawning is now complete based on the timing of spawning from past surveys (Hannon 2013). Figure 13 shows a comparison of spawning timing and distribution between the years surveys occurred. The 2014 redd count has been slightly below the median redd count.

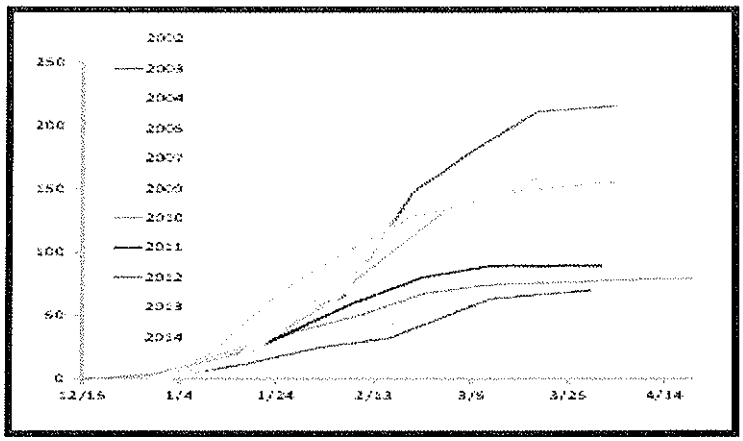

Figure 13. American River steelhead redd timing and abundance, 2002 - 2014.

Stanislaus River

A weir on the Stanislaus near Riverbank identifies trout passage using a VAKI camera. A total of 25 *O. mykiss* > 16" and 14 *O. mykiss* <16" were counted at the weir between October 15, 2013 and March 23, 2014 with 26% of the total identified as being adipose clipped indicating hatchery origin. Assuming a 50/50 sex distribution for the assumed steelhead (those *O. mykiss* > 16") approximately 60,000 eggs could be produced at 5,000 eggs/female. A 25% egg to fry survival would produce 15,000 emergent fry. A much larger number of fry would be produced from the resident trout in the Stanislaus River.

Bergman et al. (2014) estimated a population of *O. mykiss* in an approximately 300 meter reach of the river immediately below Goodwin Dam to be 3,427 (SE =1,522) (95% CI = 1,492-7,873) using mark and recapture of trout identified using spot pattern recognition. This reach probably represents the highest density of trout in the river (based on snorkel survey observations) but indicates a much greater resident than anadromous component to the population. The stable cool water conditions in this area should allow at least the resident component of the population to persist through most drought conditions.

Steelhead in the Stanislaus River likely spawn at a timing similar to other CVP rivers. Formal spawning surveys have not been conducted, but a trial survey was conducted by Reclamation and CDFW on February 5, 2014 between Knights Ferry and Horseshoe Bar and near Goodwin Dam. Ten redds were found in the Knights Ferry reach (Figure 14) and two were found in Goodwin Canyon at the cable crossing area. The redds are likely a mixture of resident and potentially anadromous *O.mykiss*. One of the redds was occupied by spawners with estimated lengths of 25 cm (10 inches) and 35 cm (14 inches). The California regulatory cutoff between steelhead and rainbow trout is 40 cm (16 inches) for anglers. The absence of abundant spawning near Goodwin Dam during this survey probably indicates mostly resident (later spawning) fish in that area.

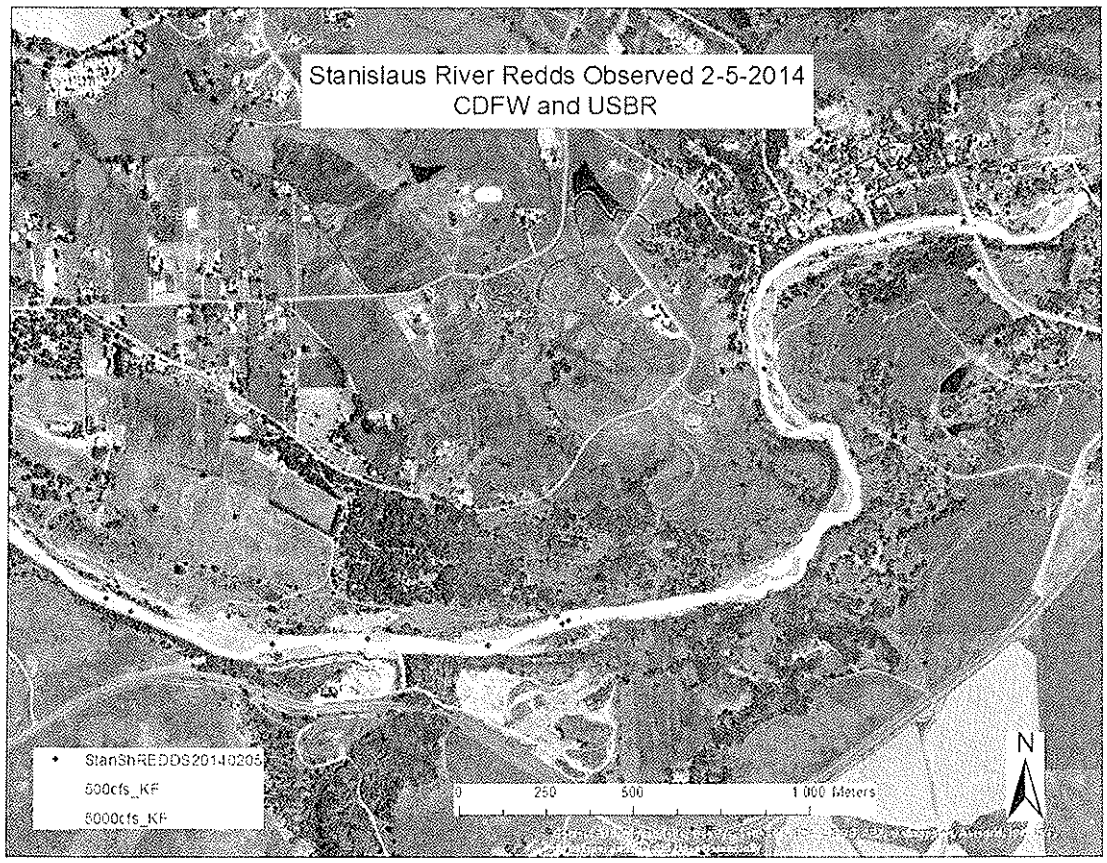

Figure 14. Fresh redd locations identified in a redd survey conducted February 5, 2014 by CDFW and Reclamation between Knights Ferry and Horsheshoe Bar.

Snorkel surveys conducted in 2003 – 2005 identified the first steelhead fry observations around mid-March to early April each year. Fry were observed between Goodwin Dam and Orange Blossom with observations in one year down to Valley Oak. None were observed below Valley Oak. This indicates that spawning was limited to the area mostly upstream of Orange Blossom Bridge. Higher rearing densities were always found from Goodwin Dam down to the Lover's Leap area. This probably coincides with the area of most spawning for both resident trout and steelhead. A majority of outmigrating steelhead smolts leave the Stanislaus River during the late winter and early spring. Based on recoveries of steelhead in the Caswell and Oakdale rotary screw traps, approximately 70% of steelhead smolts have exited the Stanislaus River by the end of March (Figure 15).

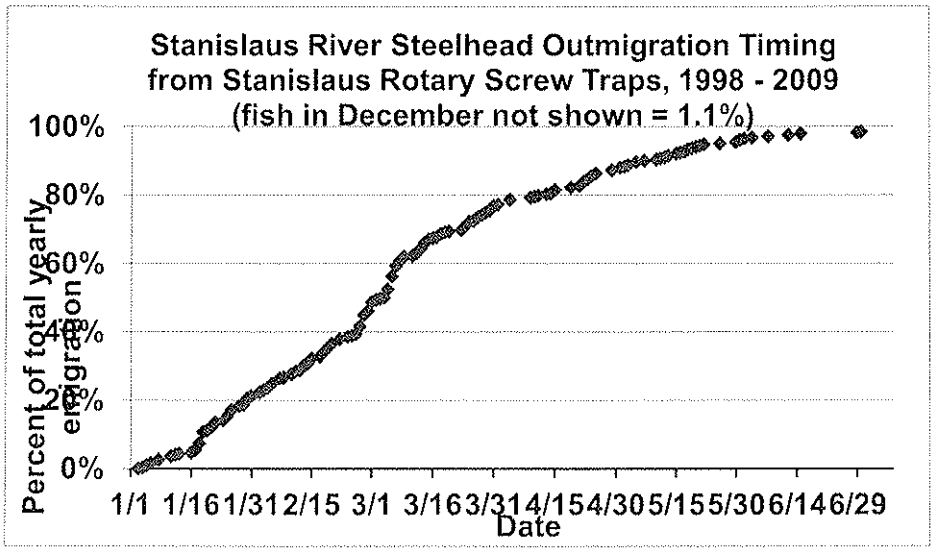

Figure 15. Stanislaus River *O. mykiss* timing from Caswell Park and Oakdale screw traps, 1998-2009 (includes only fish rated as smolt index 5). Fish leaving in December constitute 1.1% of migrants and are not shown.

Clear Creek

Steelhead spawning has completed for the 2014 season in Clear Creek as of March 26, 2014. The steelhead redd index count for 2014 was 432 which is the highest ever observed in Clear Creek. Figure 16 shows redd index results for prior years up through 2011. The redd index values include some mix of resident and anadromous *O.mykiss*.

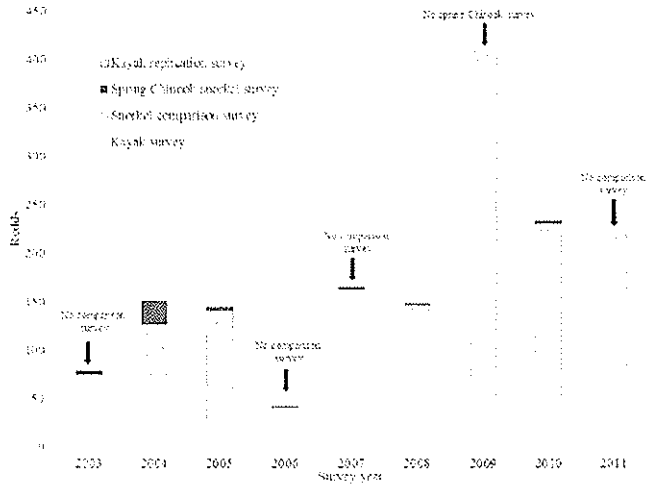

Figure 4. Clear Creek steelhead redd index, 2003–2011. Redd index includes redds counted during (1) kayak surveys (approximately two surveys per month from December through April), (2) snorkel comparison surveys or kayak replication surveys (single survey in January or February in select reaches and years), and (3) spring Chinook salmon snorkel surveys (monthly surveys generally April–June).

Figure 16. Clear Creek steelhead redd index 2003 – 2011, copied from Giovannetti et al, 2012.

Delta

Information on steelhead in the Delta is extremely limited. Observed 2013 patterns of outmigrating *O. mykiss* parr (young of year) during the summer at RBDD were similar to previously observed patterns, although a greater abundance appears to have passed than in the past previous five years (Figure 17). Steelhead smolts are seldom observed in Sacramento River and Delta fish monitoring due to sampling biases related to their larger fish size and their enhanced swimming ability. False negatives are more likely with steelhead smolts than smaller older juvenile Chinook salmon, but historic data can be assessed to consider their typical periodicity in Delta monitoring efforts. Since October 2013, GCID fish monitoring has detected 10 wild steelhead, eight of which were in October. The temporal occurrence of Sacramento steelhead around the Delta is informed by recovery of natural steelhead in various monitoring surveys (Table 5). Numerous steelhead smolts were recovered in American River fish monitoring and will not be observed anywhere before entering the Delta due to the American River confluence being downstream of the mainstem rotary screw traps.

Month	Knights Landing	DJFMP Beach Seines	Chipps Island
January	5	25	5
Febraury	32	20	10
March	60	30	15
April	0	5	30
May	0	10	35
June	0	0	5
July	0	>5	0
August	0	0	0
September	1	0	0
October	0	0	0
November	1	0	0
December	1	<5	0

Table 5. Percentage of Juvenile Sacramento River steelhead entering the Delta, as recovered at various monitoring locations, by month.

As of March 22, 2014, 16 wild steelhead (7 in Sacramento trawl, 9 in Chipps trawl) and 319 adipose-clipped steelhead (262 in Sacramento trawl, 57 in Chipps trawl) have been recovered. As of March 22, an expanded salvage of 137 natural origin and 242 clipped steelhead have been estimated at the state and federal fish collection facilities at the South Delta CVP/SWP export pumps. As of March 22, 1 outmigrating steelhead has been observed in the Mossdale trawl this water year. A majority of steelhead smolts recovered at Mossdale pass this location during April and May (Figure 18).

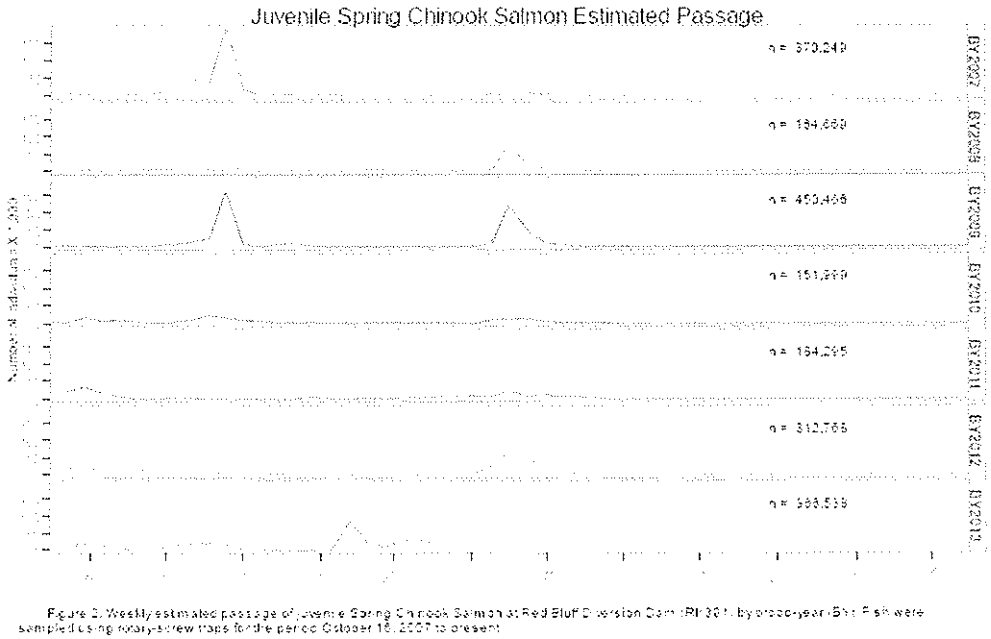

Figure 17. Weekly Estimated Passage of *O. mykiss* at Red Bluff Diversion Dam (RK 391) by Brood-Year (BY).[12]

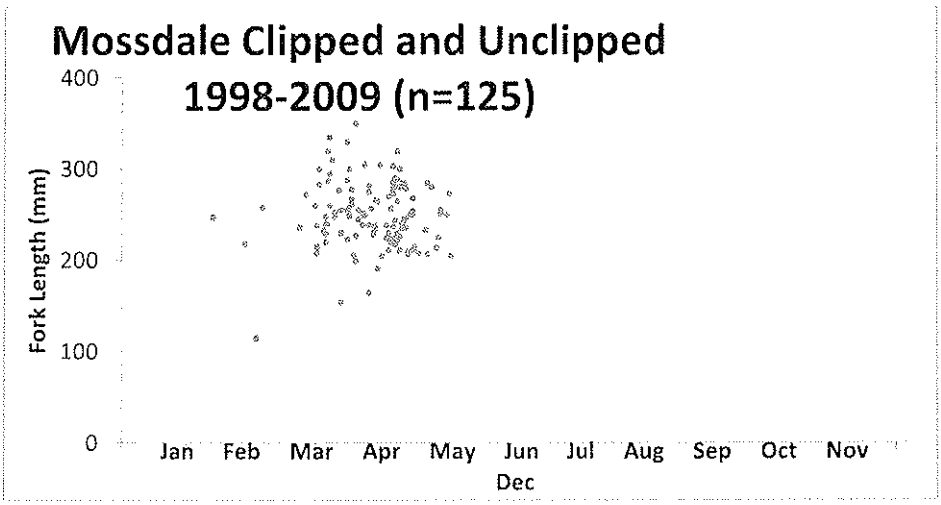

Figure 18. Fork length by date of clipped and unclipped juvenile steelhead captured in the USFWS and CDFG Mossdale trawl fish monitoring study.

[12] Fish were sampled using rotary-screw traps for the period July 1, 2007 to present. Figure supplied by USFWS (March 26, 2014).

Green sturgeon

Information on green sturgeon is extremely limited and their recovery in current fish monitoring efforts is limited due to their low vulnerability to monitoring techniques. In 2013, more juveniles were observed at RBDD (n=443) than the long-term average of 426 fishes (Figure 19). At the GCID rotary screw trap, two green sturgeon were observed during June 2013. Green sturgeon observations are extremely rare in the Delta and none have been observed in lower Sacramento and Delta fish monitoring surveys or at the state and federal fish collection facilities at the South Delta CVP/SWP export pumps in recent years. In 2011, over a thousand juvenile green sturgeons were enumerated at RBDD and none were observed in river, Delta, or Bay fish monitoring. While this absence in the monitoring may suggest no impact due to Delta Cross Channel operations or outflow operations, it may also suggest the recruitment of juveniles may be limited before the species reaches one year old due to habitat, predation, or multiple stressors; which is a phenomenon that has been observed in other North American sturgeon species. More monitoring needs to be conducted in order to reduce this uncertainty.

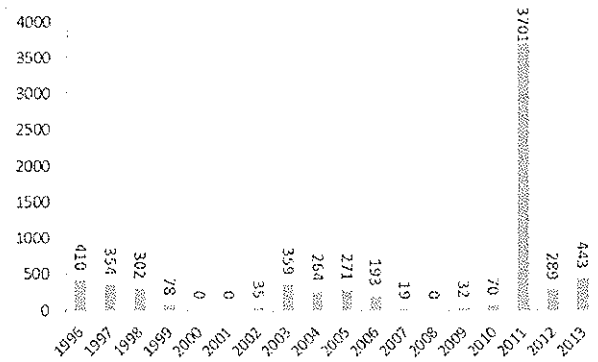

Figure 19. Juvenile green sturgeon counted at Red Bluff Diversion Dam rotary screw traps.[13]

On February 9, 2014, one juvenile green sturgeon (212mm TL) was recovered in RBDD fish monitoring. As of March 22, no green sturgeon were observed in lower Sacramento and Delta fish monitoring surveys or at the state and federal fish collection facilities at the South Delta CVP/SWP export pumps. Based on Israel and Klimley (2009), BY 2013 juvenile green

[13] The dataset annual average is 426 fish. In 2011, an egg was observed directly above the rotary screw traps, thus the large number of fish in 2011 is a unique annual sampling of a spawning event (Josh Gruber, USFWS, pers comm.) If these data are removed, the annual average of fish counted in 183 fishes.

sturgeon have likely migrated downstream from their natal spawning areas and are overwintering in the Lower Sacramento River and Delta.

Adult green sturgeon will emigrate through the Delta and into the upper Sacramento River through the Delta from March to June to spawn. Spawning in the upper Sacramento River was documented during 2013. Already in 2014, four acoustically tagged green sturgeon have been recorded in the Sacramento River between Deer Creek and RBDD.

Southern Oregon and Northern California Coast Coho (SONCC) Salmon

Artificial propagation (62 FR 24588, May 6, 1997), predation by marine mammals (60 FR 38011, July 25, 1995) and disease are the most prevalent factors affecting SONCC coho salmon. Factors affecting Critical Habitat of SONCC coho salmon and related to the proposed action are the water temperatures and flows released into the Trinity River at Lewiston Dam. Three population units of SONCC coho salmon are in the Trinity River including the Upper Trinity, Lower Trinity, and South Fork Trinity River population units. The Upper Trinity River population unit is currently at a moderate risk of extinction, while the Lower Trinity River and South Fork Trinity River population units are at a high risk of extinction (NMFS 2012).

Adult coho salmon pass upstream past the Willow Creek weir predominantly in late September through November. During fall of 2012, 15,288 coho passed upstream at the Willow Creek weir (location where marking occurs for population estimation) with 88% of them having right maxillary clips indicating they were of hatchery origin. This passage is more than in the 2009 parent brood of 4,633 adults. At Trinity Hatchery 7,356 coho returned in 2012 and 97% of them had right maxillary clips indicating hatchery origin. The return to the hatchery was greater than the 2009 return of 2,477 coho (CDFW, unpublished data). Trinity River coho salmon spawn in November and December and fry emerge three to four months after spawning.

Juvenile rearing occurs mostly upstream of Canyon Creek, with the highest densities upstream of Douglas City, close to the dam. The upstream concentration of spawning and rearing is likely due to the preponderance of hatchery produced spawners making up the returning adult population. Based on repeated sampling and snorkel surveys, juvenile densities decrease from summer through fall and by winter densities are low. High survival of juveniles has been found in pools isolated from access to the main river during summer through winter. It is hypothesized that factors in the main channel, such as predation, may be reducing juvenile survival in comparison with these isolated pools where the coho are not exposed to the same predation as in the main channel. Juvenile coho rear in the river for about a year and emigrate during winter and spring as yearlings at around 100 mm. Chase et.al. (2013) found apparent

survival of emigrating yearlings to be much lower in the first 10 km downstream of the dam than in other areas between Lewiston Dam and the Klamath River estuary. Apparent survival was generally lowest in areas upstream from the North Fork of the Trinity River. The Trinity River Restoration Program has been implementing yearly habitat restoration projects to increase habitat capacity and survival of coho salmon.

Proposed Action

See Drought Operation Plan (Reclamation 2014).

Analytical Framework

Methods and Metrics

To evaluate impacts to listed species due to Delta hydrodynamics caused by the proposed action's changes in outflow and exports, DSM2 output from between 1991 and 2011 for Freeport, Vernalis, and Old and Middle flows were examined for those that fell into relevant ranges for comparison. There were no Freeport flows for less than 4,000cfs, restricting our analysis from this portion of the proposed action range potentially lower than this during the action's period. It is likely the patterns observed in the results will extend further upstream and could be amplified in some locations as outflow is reduced. Since the full range of the proposed action's NDOI includes values less than 4,000 cfs, assessments of these effects have greater uncertainty regarding their conclusion. The range of flows at Vernalis evaluated when Vernalis flows are greater than 1000cfs averaged 2616 cfs with 75% of the values between 1000 and 2824 cfs. In the South Delta, the evaluation of hydrodynamics was limited to DSM2 outputs from periods when a physical barrier was present at Head of Old River. Because the physical Head of Old River barrier (HORB) is not expected to be completed until April 10, 2014, there is greater uncertainty regarding conclusions about the effect of the proposed actions modification to RPA IV.2.2 regarding San Joaquin River steelhead. Hydrodynamics metrics such as daily proportion positive velocity and daily mean velocity were used to assess changes in the Delta caused by Sacramento and San Joaquin outflow reduction independently. Also, distributions of these metrics under different outflow and export ranges are examined to qualitatively describe comparisons between different operational conditions likely to occur under the proposed action.

To evaluate impacts to listed species dues to tributary outflow changes, DCC gate configuration, and Delta hydrodynamics caused by the proposed drought operational plan relevant peer-reviewed literature on these factors and fish biology, behavior, and survival are reported. Results from these sources were used to describe modified operation of the DCC gates on reach-specific and through Delta survival. The NMFS BiOp (2009) was reviewed regarding biological rationale for various RPA actions. Review of the development of relevant

biological and physical triggers regarding historic DCC gate operations was compared to the current status of the species.

We discuss effects within the tributaries using currently available species distribution and abundance data along with expected upcoming lifestage periodicity information and made comparisons to projected flows and temperature conditions available from monthly forecasts and historical temperature conditions. Where available, spawning timing and distribution was used to estimate fry emergence timing based on past and estimated near future incubation temperatures. The spawning distributions were used to approximate likely juvenile rearing distribution over the summer for steelhead.

Effects Analysis

Sacramento River Actions

CDFW and USFWS will conduct regular carcass surveys and aerial redd surveys during the summer. Surveys will be conducted in close proximity to spawning areas and will enable an assessment of egg and alevin survival in the expected stressful water temperatures. Discussions on fish distribution and temperature management will occur throughout the year in the Sacramento River Temperature Task Group to iteratively inform and update temperature control operations. Temperature plan submittals to NMFS will be made according to what is laid out in RPA Action I.2.4- May 14 Through October Keswick Release Schedule (Summer Action). Regardless, temperature operations during the drought, described in the March operation forecasts, may cause river temperatures below Keswick Dam to affect incubating brood year 2014 Winter-run Chinook salmon.

Based on the 90% operations forecast with salinity barriers, temperature control at 56°F may be feasible through the end of July at the Clear Creek temperature compliance point, with projected temperatures below Keswick Dam between 56°F and 62°F during the remainder of the temperature control season (August until October). Based on the 50% operation forecast with salinity barriers, a temperature control criterion of 56°F may be met through the end of September at the Clear Creek temperature compliance point, with projected temperatures below Keswick Dam to be approximately 56°F in October. Although these projected forecasts do not assume an evaluation of temperature operations including power bypass or a relaxation of the Wilkin Slough flow standard, these operational actions are incorporated into the proposed action and should further improve temperature management. The 90% operations forecast with salinity barriers used a range of NDOI values to project operations between 2505 and 5110 cfs, required to meet outflows and other Delta regulatory standard included in the DOP (Reclamation 2014). It is unknown where and when Winter-run Chinook salmon will spawn in 2014, but the potential to lose control of temperature below Keswick Dam during the egg incubation stage (i.e., 90% forecast) could lead to complete loss of the BY 2014

Winter run Chinook salmon. Since it is unknown where Winter-run Chinook salmon may spawn in 2014, it is hypothesized that meeting a temperature compliance point with a restricted spawning area only above Clear Creek (i.e., 50% forecast) may still lead to substantial egg mortality, possibly as significant as 50%. There is a moderate level of uncertainty in these conclusions based on uncertainty in the winter run spawning distribution and the assumptions in the temperature modeling.

American River Actions

As part of the proposed action described in the March operational forecasts, monthly flows in the American are projected to be greater than 500 cfs and may increase during the summer months. Currently, the lower than normal flows now may preserve storage and enable cold water releases from Folsom to be maintained as long as possible through the summer but will also result in an increase in the rate of heating as water moves downstream. It is hypothesized that at higher flows, the rate of heating downstream would be reduced potentially providing greater habitat, although possibly for the shorter time period.

Operations during the drought, described in the March operation forecasts, may cause river temperatures below Folsom Dam to affect American River steelhead. American River water temperatures were modeled using the automated temperature selection procedure of the coldwater pool management model based on the March 90% forecast with barriers. The model was unable to meet the highest (warmest) temperature schedule (schedule 78). The model indicated that temperature could exceed 70°F at Nimbus Dam by the end of September. Reclamation will submit a draft temperature management plan to NMFS by May 1 per RPA Action II.2.

American River at Hazel Avenue water temperatures were used to estimate steelhead emergence timing based on spawning timing (Figure 20). Temperatures after March 26 were estimated based on the near term weather forecast and additional warming expected to occur through April. The spawning timing for 2014 based on the bi-weekly spawning surveys is shown in Table 6. Nimbus release flows were dropped from 1,300 cfs at the end of December 2013 down to 500 cfs by January 10. The flow drop was conducted at a time to minimize effects on steelhead by dropping prior to most spawning. No steelhead redd dewatering was documented as a result of this flow drop. The change in stage at the Fair Oaks USGS gauge for this flow drop was about 10 inches. The emergence timing estimate used 600 accumulated temperature units to emergence (degrees C). Hazel Avenue temperatures reflect the coolest temperatures in the American River, thus emergence will be slightly earlier further downstream as water temperatures increase downstream outside of the limited locality of American River coolwater refugia. The difference will be around a three to four day earlier

emergence at Watt Avenue for the later season redds. Emergence of fry from current year spawners should be completed by about May 3 (Table 6).

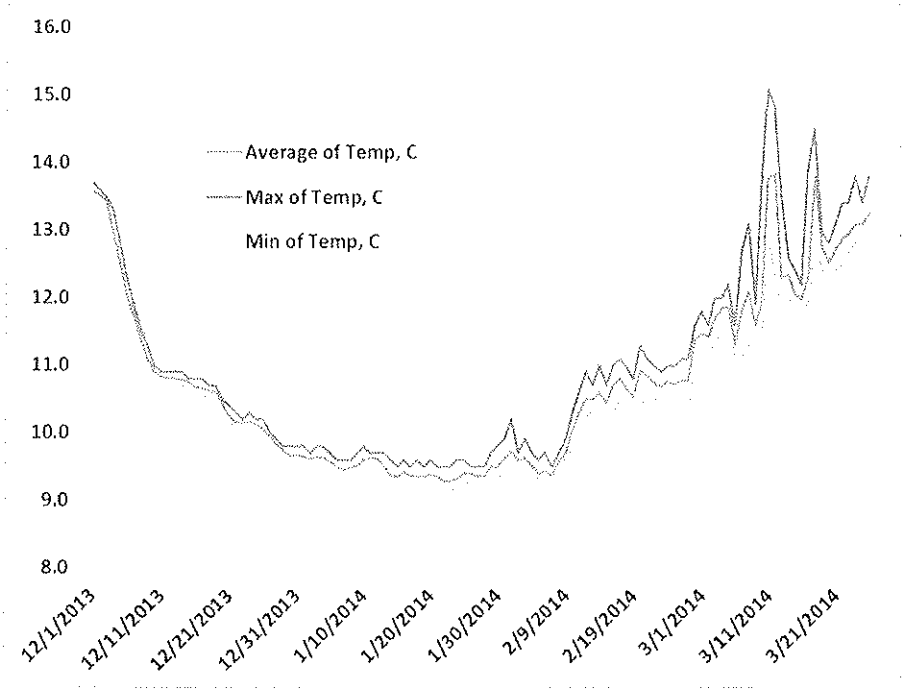

Figure 20. American River at Hazel Avenue daily water temperature, December 2013 – March 26, 2014.

Survey Date	Nimbus to Sunrise	Sunrise to below Ancil Hoffman	Ancil Hoffman to Gristmill	Gristmill to Watt	Below Watt	Cumulative Redds	Fry Emerged by
1/15 - 1/17	1	1	14	1	0	17	14-Mar
1/30 - 1/31	22	7	15	0	0	61	24-Mar
2/18 - 2/19	14	5	8	0	0	88	8-Apr
3/5 - 3/6	5	2	6	0	0	101	20-Apr
3/14 - 3/21	2	1	6	0	0	110	3-May

Table 6. American River steelhead spawning distribution (number of redds by date and reach) for 2014 based on ground spawning surveys and emergence dates calculated using Hazel Avenue temperatures (estimated past March 26). Note: surveys were generally not conducted downstream of Watt Avenue.

The spawning data should still be considered preliminary for 2014 but based on the current results at a 50/50 sex ratio and fecundity of 6,200 eggs/ female (based on recent past hatchery data) about 682,000 eggs would be produced by the observed redds. A 25% egg to fry survival (lower than typically assumed due to currently warmer water that will reach levels that may affect egg to fry survival for later spawners this year) would produce about 170,500

emergent fry. The spawning distribution in 2014 showed a higher than typical proportion in the reach between Ancil Hoffman and Gristmill. This will likely result in a higher than typical proportion of juvenile steelhead rearing occurring in this reach. A downstream rearing distribution is not ideal for achieving survival under drought temperature and flow operations. CDFW is planning to conduct juvenile steelhead monitoring during the summer. Surveys would be conducted in close proximity to spawning areas and would enable an assessment of survival in the expected stressful water temperatures. There is a moderate level of uncertainty in the conclusions about American River steelhead.

The steelhead smolts leaving the American River in spring of 2014 are expected to complete emigration by around the end of April when temperatures are expected to begin affecting survival for fish leaving the river later. Under the 90% and 50% forecasts, releases into the American River are equivalent to or greater than current flows, and juvenile stranding should not occur under these release patterns. Monitoring for stranding when flows dropped from 1,300 cfs down to 500 cfs in early January found no isolated steelhead. The steelhead were large (~200 mm) at that time and not highly prone to isolation at the level of flow drop that occurred. Little spawning had occurred and no steelhead fry were present. Estimates of fry to smolt survival for naturally spawned steelhead have ranged from 4% to 11% between 2002 and 2010 brood years (Table 7). The survival rate is likely to be lower under the drought conditions.

Adult Spawning Year	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000
Year smolts released or outmigrated	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998
Hatchery smolts released in Jan/Feb. of above year	426,920	439,490	250,440	422,380	394,292	454,570	410,330	455,140	419,160	281,705	467,023	402,300	400,060	385,887
In-river spawning adults	437	389	172	121	155		504		266	330	343	300		
Total Hatchery Produced Adult Return[1]	4,449	3,124	2,318	1,905	1,885	853	3,613	2,660	3,472	2,425	1,386	1,745	3,392	2,057
Unclipped Adults in hatchery	57	41	34	34	58	47	116		118	17	27	69	50	
Percent return of hatchery fish (clipped adult return divided by smolts released two years prior)	1.04%	0.71%	0.93%	0.45%	0.48%	0.19%	0.88%	0.58%	0.83%	0.86%	0.30%	0.43%	0.85%	0.53%
Wild smolts that outmigrated (two years prior)[2]	9,664	11,241	5,531	10,222	15,374	25,041	18,900		17,457	5,808	20,661	22,827	5,896	
Estimate of fry produced based on redd surveys[3]	825,864	182,125	181,323	175,564	246,592		272,340		230,640	402,931	447,057	325,897		
Fry to smolt survival estimated	In 2016	In 2015	In 2014	6%	5%	No Estir	4%	No Estir	11%	5%	No Estir	5%		
[1] assumes 20% recreational harvest based on angler surveys in 1999 and 2001 except 2009 and 2010 use actual creel survey estimates														
[2] assumes same smolt to adult survival of wild smolts as for hatchery released smolts and that 10% of in-river spawners are naturally produced fish														
[3] no adjustments made for potential missed redds														

Table 7. Estimates of American River wild smolt production and hatchery smolt survival based on adult hatchery counts, spawner surveys and hatchery yearling releases (from Hannon 2013).

Stanislaus River Actions

Current flows on the Stanislaus River fall within the range of operations per the NMFS BiOp and the spring pulse flow will incorporate recommendation from the Stanislaus Operations Group, as described in RPA III.1.3. Monthly flows in the Stanislaus are described in the March monthly operations forecasts. The projected summer flows along with the reservoir storage should be protective of juvenile steelhead rearing conditions through the summer in

the highest density upstream rearing reaches. Summer operations on the Stanislaus may not be able to meet the temperature compliance schedule described in NMFS RPA III.1.2, and the RPA will be followed regarding notification and SOG recommendation. There is a moderate uncertainty in these conclusions.

As of March 26, the steelhead eggs that were spawned up through February 3 are projected to have emerged based on Orange Blossom Bridge water temperatures (Figure 21) and 600 accumulated temperature units (degrees C) to emergence. We expect that spawning of steelhead will be complete by the end of March based on observations in other watersheds. At a temperature of 56 F (13.3°C) emergence of steelhead fry should be completed by May 15. If water temperature becomes greater than a mean daily temperature of 56°F in the redd locations, then emergence would be completed sooner. Resident trout often spawn later than steelhead, so it is likely that the fry from resident fish will continue to emerge past the May 15 date. Since temperature operation should provide some summer coolwater refugia , it is hypothesized that *O. mykiss* populations will remain stable as the resident population continues to maintain spawner abundance and juvenile productivity of *O. mykiss* on the Stanislaus River. There is a moderate level of uncertainty in conclusions regarding Stanislaus River steelhead.

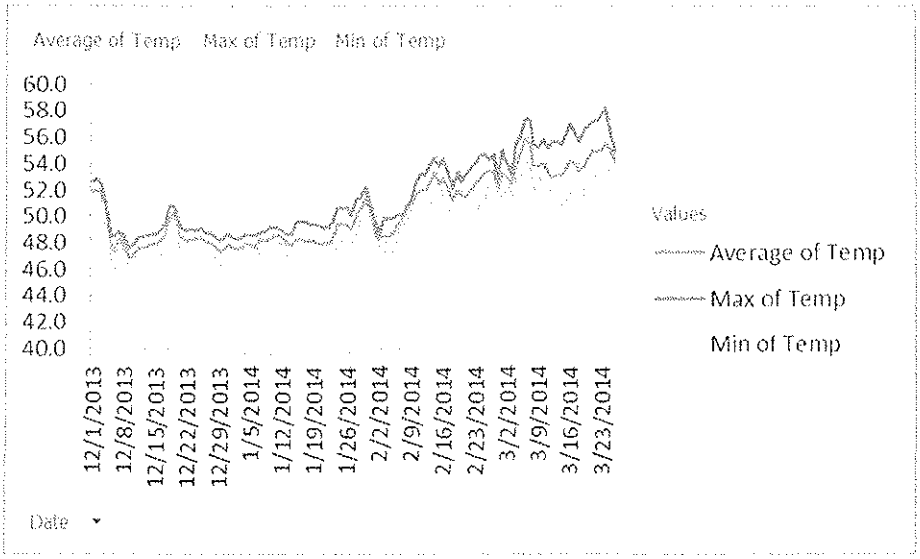

Figure 21. Stanislaus River at Orange Blossom Bridge water temperature 12/1/2013 – 3/26/2014.

Steelhead outmigration timing is not linked to emergence date, and Central Valley steelhead typically rear for a few seasons in their natal tributaries and migrate a year or more after emergence. Rotary screw traps in the Stanislaus at Caswell provide information on size and timing of steelhead emigrating from the Stanislaus. During late 2013 through March 26, 2014 one steelhead smolt was caught in the in the traps, on 3/11/14, 250mm long and weighing

103.9g. The most recent efficiency calibration for the Caswell trap was 14.1% for Chinook salmon and the calibrations from 1996 – 2012 had a mean efficiency of 6.9% (SE = 0.54%). Calibrations are not conducted for *O.mykiss* but since capture rate is size-dependent for Chinook, larger steelhead are likely much less susceptible (Joe Merz, pers comm). Therefore the one steelhead captured likely represents close to 20 additional fish. The median date of steelhead exit from the Stanislaus based on screw trap data was about March 1 for the period between the mid-1990s and mid-2000s (NMFS 2009).

A pulse flow as specified in the NMFS BiOp (2011) will be scheduled to occur during April and May to provide migratory cues and flows for the last of the emigrating juvenile steelhead before downstream temperatures become too inhospitable. The timing is being coordinated between the San Joaquin tributaries. The low quality habitat along routes to the ocean likely results in low emigration survival, especially in critically dry years such as this and is likely a large contributor to why the steelhead component of the *O. mykiss* population in the San Joaquin basin is small. It is hypothesized that steelhead escapement in two years will be lower than during previous wetter years due to poorer steelhead survival through the lower San Joaquin River between Durham Ferry (proximal to the confluence of the Stanislaus River) and Lathrop than during previous wetter years (see San Joaquin River I:E ratio and San Joaquin River flow downstream of the Head of Old River section).

Part of the action includes a measure to provide an additional Spring pulse of water down the San Joaquin River in a future year to benefit outmigration of San Joaquin steelhead. The release timing would be scheduled at the discretion of the fishery agencies. This measure will have no effect on steelhead in WY 2014, but could increase run-time diversity and outmigration survival down the San Joaquin through the Delta to benefit the emigrating cohort in the year that it occurs.

Clear Creek Actions

Temperature management on Clear Creek attempts to achieve a temperature compliance schedule to reduce thermal stress to over-summering steelhead and Spring run Chinook salmon during the holding, spawning, and incubation periods. Under the March 90% forecast, the proposed action is predicted to not meet a 60°F temperature criterion starting in early August or a 56°F temperature criterion starting in mid-September. Under the March 50% forecast, the proposed action is predicted to exceed a 60°F temperature criterion starting in early July and the 56°F temperature criterion starting with in mid- September. There is low uncertainty in this conclusion. The temperature management for Clear Creek will be coordinated through the Sacramento River Temperature Task Group under the SWRCB 90-5 requirements and as outlined in RPA Action I.1.5.

The temperature criteria are based on the Spring-run requirements and are expected to be protective of steelhead rearing through the summer. If these criteria are not met, juvenile steelhead habitat will be further restricted, predation by nonnatives may reduce survival, and disease may become more prevalent. Adults Spring-run Chinook salmon may experience higher pre-spawn mortality, and those surviving may have reduced egg viability. Spring –run Chinook are just now entering Clear Creek and will be holding through the summer. If temperatures exceed 56°F after September 15, there will be greater mortality of incubating eggs and pre-emergent fry. There is a moderate level of uncertainty in the Clear Creek effects discussion. USFWS adult and juvenile monitoring in Clear Creek during WY14 may provide useful information to evaluate the magnitude of possible temperature criteria exceedances due to drought operations and conditions.

Trinity River Actions

Preliminary water temperature modeling provides forecasted release temperatures at Lewiston Dam for the current period until the end of October 2014 under the critically dry year release schedule. Although the 50% forecast is used for Trinity River temperature planning and modeling, contingency planning for a Critical Dry year, suggest the 90% forecast may be more conservative for evaluating effects. The modeled end of September carry-over storage level of Trinity Reservoir for the 90 exceedance forecast is 455 TAF, the second lowest level on record. Given the low refill probability of Trinity Reservoir, the effects of low end-of-September reservoir storage in 2014 are likely to affect WY2015 operations. Starting in early November, natural cooling is expected to dominate mechanisms influencing water temperature. Temperature objectives for the Trinity River are to meet a 60°F mean daily temperature at Douglas City (RM 93.8) July 1 – September 14 for coho over-summer rearing. For the period September 15-30 the objective drops to 56°F and for October 1 – December 1 the 56°F temperature objective point changes to the confluence with the North Fork of the Trinity. Temperature modeling is showing that temperature is likely to exceed compliance temperatures by September and remain above into November. Releases through the auxiliary outlet works have not been modeled for the March forecast but are expected to be needed in order to meet the temperature targets. Current modeling is showing that stressful temperatures for juvenile rearing and adult migration could occur by September and extend through October, reducing the conservation value of critical habitat in the Trinity River. Discussions on fish distribution and temperature management will occur throughout the year in the Sacramento River Temperature Task Group to iteratively inform and update temperature control operations in the Trinity and Sacramento Rivers.

Delta Drought Barriers

Current planning and permitting efforts have identified possible scenarios where up to three physical barriers may be implemented between Jun1 and November 30 in the North and Central Delta as part of this proposed drought operation plan. Deployments of these barriers

will be determined by the Real Time Drought Operation Management Team, and implementation is more likely if observed precipitation and reservoir storage reflect the characteristics of the March 90% forecasted operational plan. If implemented, construction of the first barriers, at West False River, may start as soon as May 1, 2014 with operation of the barriers as early as June 1, 2014. While juvenile listed Winter-run and Spring-run Chinook salmon are expected to have completed their outmigration by this time, less than 5% of juvenile steelhead may still be migrating out of the Delta (Table 5). Greater than 25% of adult Spring-run Chinook salmon and less than 5% of adult green sturgeon may still be emigrating to holding habitats in tributaries and spawning ground in the Sacramento River, respectively after June 1. Migration of these adult fish migration may be delayed by operation of these barriers through Sutter and Steamboat slough. Water quality effects are not likely to affect any listed salmonid, due to their absence from the Delta during the summer, or green sturgeon, due to their mobility and ability to seek broadly-optimal conditions. There is a moderate level of uncertainty in this conclusion.

Sacramento River Outflow

Drought operational actions impacting Sacramento River outflow proposed during the remainder of WY2014 are intended to preserve storage in Shasta Reservoir and increase the coldwater pool available for management of temperatures for Winter-run and Spring-run Chinook salmon. However, the reduction in Keswick release to meet modified spring D-1641 Outflow standards may affect outmigrating salmonids during the remainder of spring 2014 and, to a lesser extent, green sturgeon. These effects have been described previously (NMFS 2014a, USBR 2014a, USBR 2014b), but are reviewed here again since the distribution and proportion of listed salmonids in the Delta and Sacramento River have changed since these prior assessments. These changes in hydrodynamics are representative of a range of conditions possible during April and May, and do not reflect potential barriers. The barriers will be operated starting in June, once listed salmonids are no longer outmigrating through the Sacramento and San Joaquin river migration corridors.

Although the NMFS BiOp (2009) does not contain outflow standards, the BiOp assumed that D-1641 standards would be met, which would afford protection to listed species and their critical habitat. The reduction in outflow standards, which is a continuation of the Temporary Urgency Change Order's provision (SWRCB 2014) and included in this proposed action may impact juvenile salmonids migrating through the North Delta between Sacramento and Rio Vista, where Sacramento River flows meet the tidally dominated western Delta. This reduction in Delta inflow to as low as 3000 cfs may reduce survival of outmigrating Winter-run Chinook salmon, rearing and migrating Spring-run Chinook salmon, and juvenile salmonids migrating through the North Delta through increased predation mediated by hydrodynamic and habitat mechanisms. Once outmigrating fish reach the tidally dominated western Delta (i.e. Rio Vista towards Chipps Island) or San Joaquin River under the minimum

outflows identified in the drought operational action (3000 cfs), they are likely to encounter daily proportion of positive velocities and mean velocity that are similar to outflow conditions observed when D-1641 delta outflow standards are being achieved (Figure 22-23). There is a moderate level of uncertainty in these conclusions.

In the North Delta, a decrease in outflow will reduce survival due to changing juvenile salmonids exposure to predators through the North Delta and other relevant reaches (i.e. Georgiana Slough, Delta Cross Channel). First, reduced outflow may increase tidal excursion (reduced daily proportion of positive velocities) into the North Delta region, which may increase the duration of reverse flows into Georgiana Slough and/or an open Delta Cross Channel (Figure 22). Increased reverse flows and slower mean velocities result in longer travel times for migrating fish, which has been shown to reduce outmigration survival (Singer et al 2013, Perry 2010, Romine et al 2013). Georgiana Slough flows become less positive as tidal excursion causes reversal in this channel when outflow is reduced. Reducing outflow also causes a decrease in the daily proportion of positive velocities through the Sacramento River downstream of Sutter and Steamboat sloughs confluence with the Sacramento River (Figure 23). These increased tidal excursions are likely to increase juvenile entrainment into Georgiana Slough and, if open, the Delta Cross Channel. When the DCC gates are open, the daily mean channel velocity becomes even less positive in these reaches (Figure 23). When the DCC gates are open, the daily proportion of positive velocities further decreases in the Sacramento River upstream of the DCC gates and more noticeably between the DCC gate and Georgiana Slough. When the DCC is open, there is a reduction in the daily proportion of positive flows through Georgiana Slough. There is a low level of uncertainty in this conclusion. The possible reductions in outflow through multiple distributaries in the North Delta may increase straying and travel time of adult Winter-run and Spring-run Chinook salmon and green sturgeon in this region during April and May. During these months, a substantial portion of all three of these populations will migrate through the North Delta (Table 4).

At low outflow, channel margin habitat is lost below the surface of the water. This lack of cover may reduce juvenile survival. It is hypothesized lower outflow may intensify the density of littoral predators into a smaller, shallower area and/or decrease the quantity of cover available to outmigrating salmonids to avoid predators. There is a high level of uncertainty in this conclusion. Decreased daily mean velocities may result in increased residence time of Winter-run and Spring-run Chinook salmon, which is hypothesized to result in an increased size at ocean entry. There is a high level of uncertainty in this conclusion.

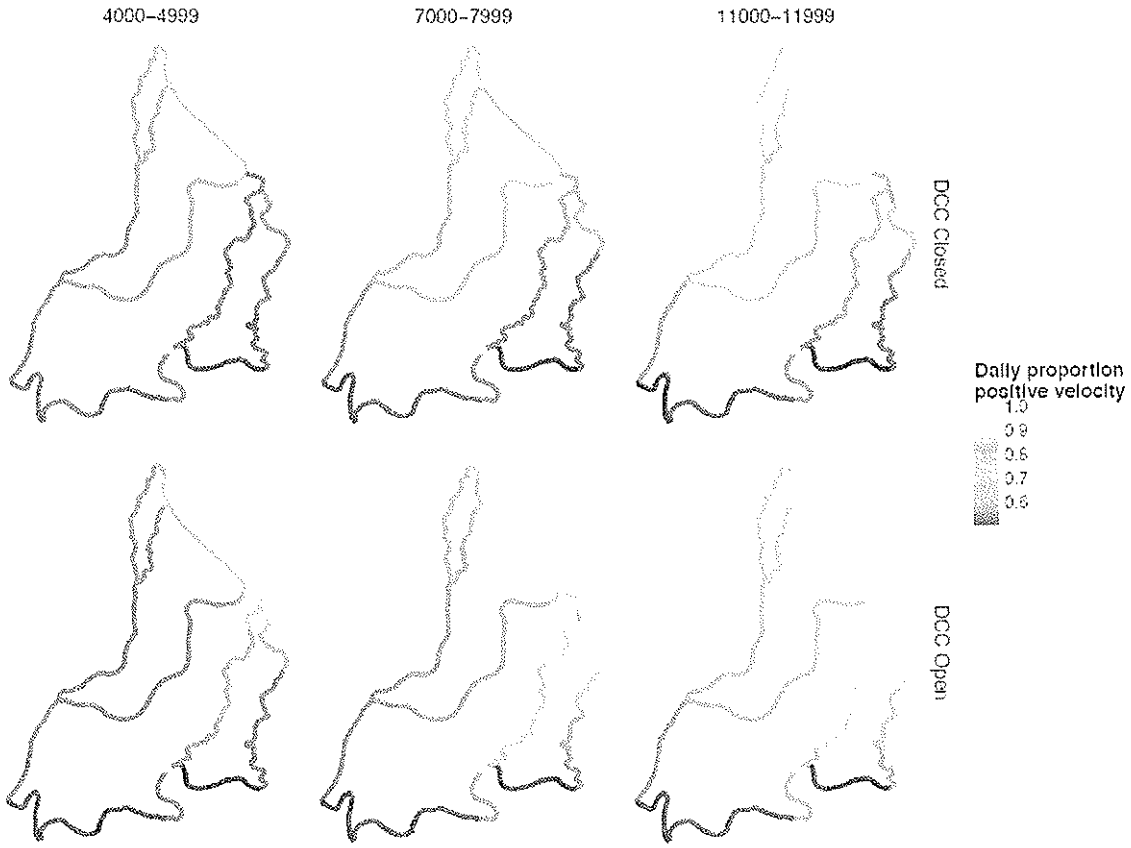

Figure 22. Maps of the North, Interior, and western Delta regions with the channels color coded for daily proportion positive velocity. Columns represent range of outflow values for that panel.

Since February 1, 2014, Sacramento River outflow and Delta hydrodynamics have differed from what would be realized under the NMFS BiOp (2011) and D-1641 outflow standards for multiple periods of various durations due to drought contingency operations (Attachment B. February and March Actual Delta Operations). During these periods, outmigrating and rearing Winter-run and Spring-run Chinook and steelhead in the Sacramento River and Delta have experienced lower survival rates than if the D-1641 outflow standard could be met. As these lower outflow conditions persist into April and May greater proportions of these populations will experience these effects. There is a low level of uncertainty in this conclusion.

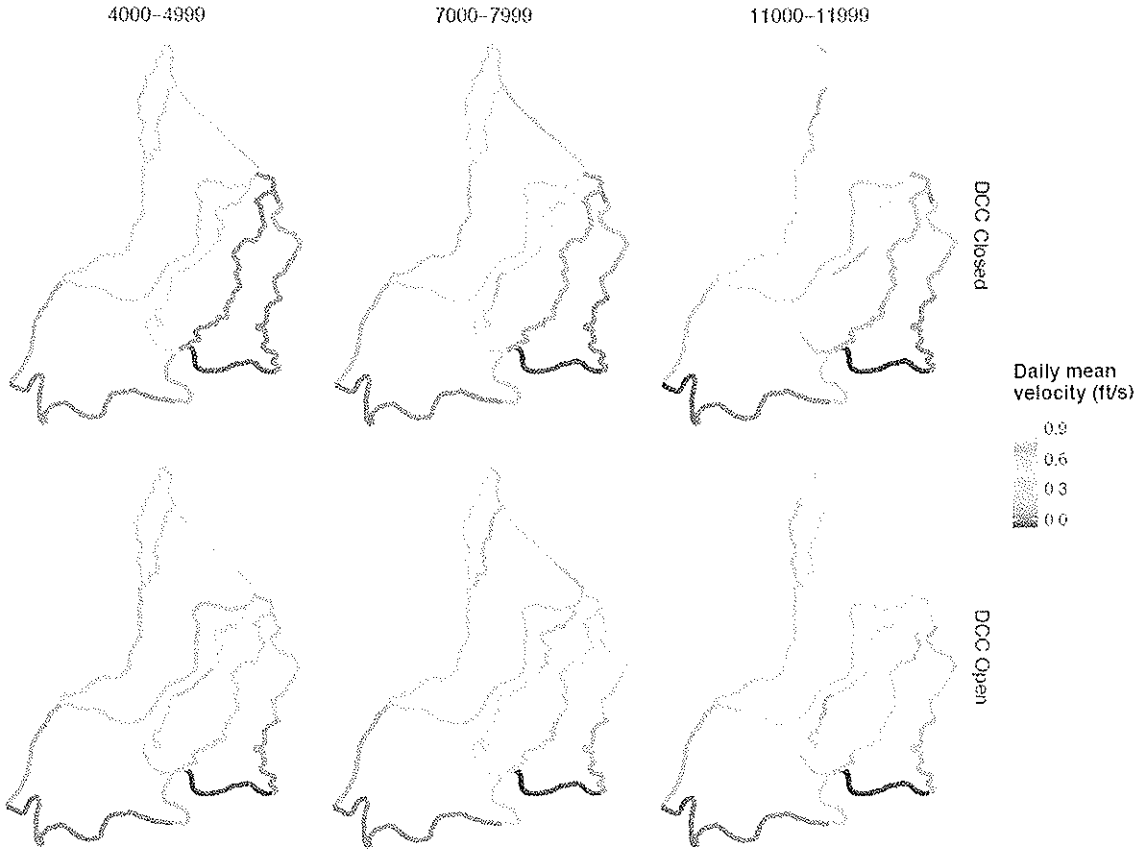

Figure 23. Maps of the North, Interior, and western Delta regions with the channels color coded for daily mean velocity.

The frequency of 15-minute velocities under flow ranges similar to D-1641 outflow objective (>7100 cfs) and the continuation of outflow objectives in the TUC Order (>3000 cfs), which may be observed during April and May are similar in the western Delta downstream of Freeport, the Lower San Joaquin, and Three Mile Slough (Figure 24-26). In these western and central regions of the Delta, hydrodynamic effects are dominated by tidal conditions and thus fish in these regions will not experience an appreciable change in outflow. There is a low level of uncertainty in these conclusions.

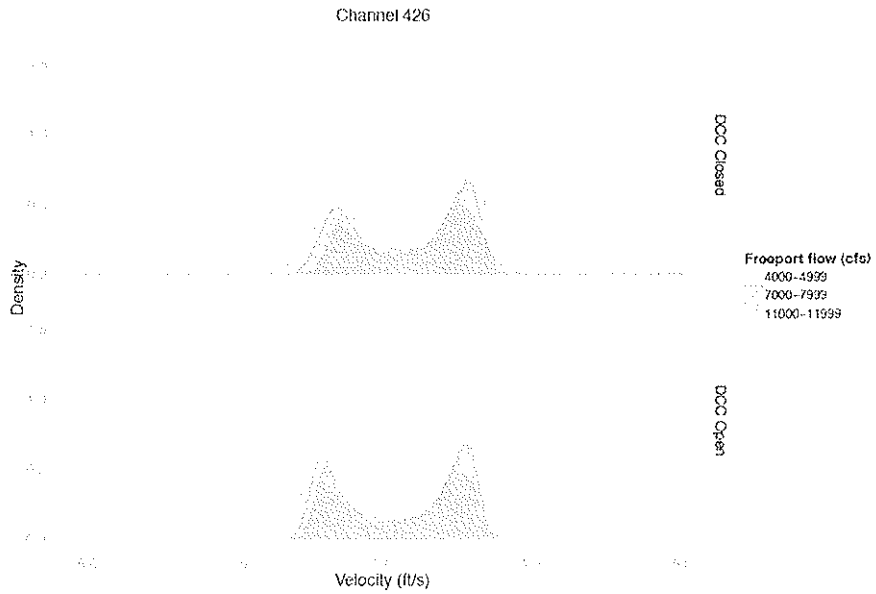

Figure 24. Density plot of velocity (ft/s) observed at DSM2 node 426 (approximately Rio Vista) for three outflow ranges.

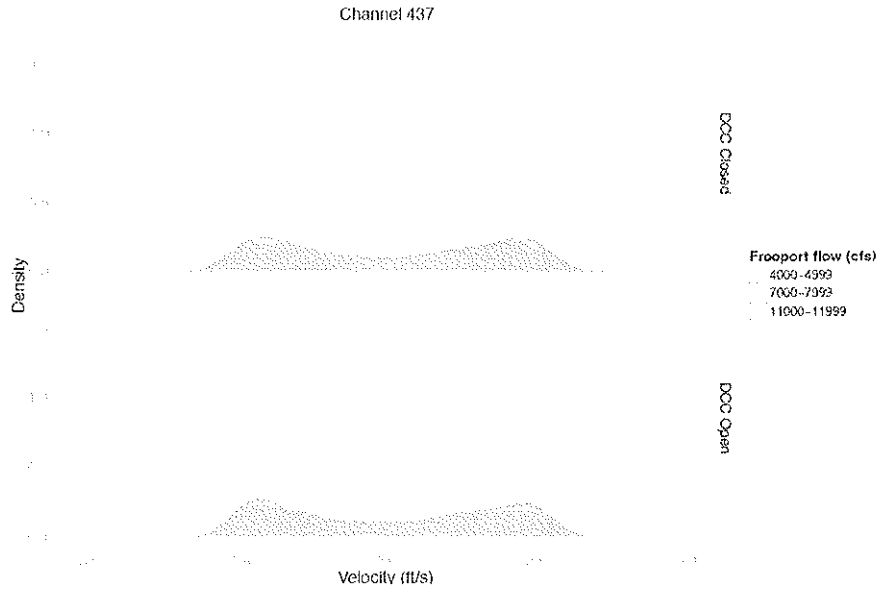

Figure 25. Density plot of velocity (ft/s) observed at DSM2 node 437 (approximately Chipps Island) for three outflow ranges.

Figure 26. Density plot of velocity (ft/s) observed at DSM2 node 50 (approximately West False River) for three outflow ranges.

San Joaquin River I:E ratio and San Joaquin River flow downstream of the Head of Old River

Steelhead in the San Joaquin River basin were once abundant and widely distributed, but currently face numerous limiting factors. The NMFS Public Draft Central Valley Recovery Plan identified that 'Very High' stressors for juvenile steelhead outmigration on the San Joaquin River include habitat availability, changes in hydrology, water temperature, reverse flow conditions, contaminants, habitat degradation, and entrainment. It is possible that reduced survival of emigrating smolts may be the greatest management concern to preserving anadromy in *O. mykiss* (Satterthwaite et al. 2010). A conceptual model, developed by the South Delta Salmonid Research Collaborative (Anchor QEA 2016), demonstrates how multiple stressors may affect physical and biological processes in the Delta that influence the steelhead population through multiple mechanisms (i.e. entrainment, predation, survival, Figure 27).

The NMFS Biological Opinion includes two actions that influence CVP/SWP export and flows through the Old and Middle River corridors during April and May, when outmigrating listed juvenile salmonids and green sturgeon are present. Action IV.2.1 identifies maximum levels of export volume as a function of San Joaquin discharge at Vernalis. This action is calendar based and occurs from April 1 to May 31. The action hypothesizes to increase survival of emigrating salmonids by reducing fishes' vulnerability to entrainment into the south Delta and at the CVP/SWP facilities by limiting export to less than 100% of San

Joaquin River inflow, except in critical years. In the proposed drought operation plan for April and May 2014, implementation of this action is projected to be limited to the period of coordinated San Joaquin River pulse flows. Action IV.2.3 limits the extent of reverse negative flows through the South Delta along Old and Middle rivers and adjacent channels. Similar to Action IV.2.1, this action attempts to increase survival of emigrating Sacramento and San Joaquin origin listed salmonids by reducing their vulnerability to entrainment into the south Delta and pumps. The initial OMR limit of -5,000 cfs is calendar-based and runs between January 1 and June 15, but increased entrainment of listed salmon ESUs and steelhead can trigger more positive OMR limits of -3,500cfs or -2,500cfs. Action IV.2.3's implementation will not be modified as part of the proposed drought operation plan, but OMR flow calculations will continue to utilize the Index equation methodology described in the OMR Index Demonstration Project (USBR 2014c, NMFS 2014b).

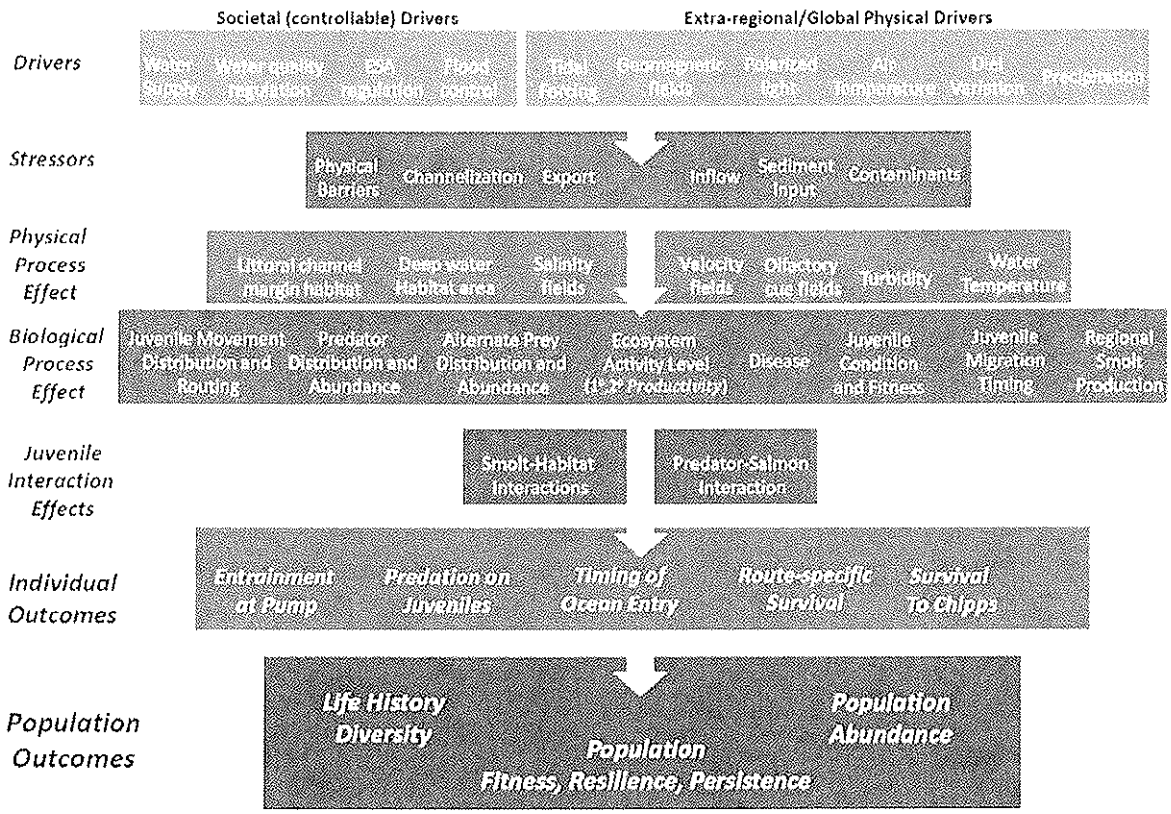

Figure 27. Conceptual Model for South Delta Salmonid Smolt Survival

The portions of the juvenile Central Valley steelhead, Winter-run and Spring-run Chinook still migrating through the Delta will be affected by more unfavorable hydrodynamic conditions in the South and Central Delta than under unmodified implementation of NMFS RPA IV.2.1.

Based on the conceptual model, the proposed drought operation plan to have greater exports with minimal San Joaquin and Sacramento River outflow than would have been allowed under the 1:1 I:E ratios required in a Critical WY may reduce outmigration survival of Winter-run and Spring-run Chinook salmon and Sacramento River origin steelhead that have entered the Interior Delta by entraining them into the South Delta and exposing them to loss at the CVP/SWP export facilities and increasing their travel time and exposure to degraded habitats and predators. There is moderate uncertainty in this conclusion. The modified I:E ratio of the proposed drought operation plan may also reduce outmigration survival of San Joaquin River steelhead through the same set of mechanisms. Since all San Joaquin steelhead emigrate through the South Delta, all San Joaquin emigrants that transit the delta during the implementation of the proposed modified operations will experience these poorer hydrodynamic conditions. There is a low level of uncertainty in this conclusion.

The increase in exports expected under the proposed modification of the I:E ratio and operation of the HORB may result in hydrodynamic changes in the daily proportion of positive velocity and daily mean velocity in the Central and South Delta (Figure 28 and 29). Although no data is available to compare the proposed action's modified I:E ratio to the RPA's 1:1 ratio at the Vernalis flows likely to be achieved in WY2014, Figure 28 shows the substantial tidal portions of the Central Delta start to show a minority of daily proportion of positive flows at nodes along the Old and Middle River as negative flows in these channels increase with increased export. Figure 29 shows the substantial tidal portions of the Central Delta have greater negative mean daily flows along the Old and Middle River and into the Central Delta as negative OMR flows increase with increased exports. These hydrodynamic characteristics may reduce juvenile salmonid survival as fish are exposed to increased travel duration and longer exposure times in highly degraded habitat impacted by invasive plants and aquatic predators along the lower San Joaquin River and Central Delta. There is a high level of uncertainty in this conclusion given actual operations during April and May are within a range of potential effects and the mechanisms causing reduced survival of salmonids in relationship to South and Central hydrodynamics are just beginning to be understood (Anchor 2014, DWR 2014, RPA Action IV.2.2).

The increase in exports expected under the proposed modification of the I:E ratio may affect juvenile fish that enter the South Delta to be exposed to greater mean daily negative velocities through Old and Middle rivers, which may shorten travel times to the fish collection facilities and increase survival of these fishes to the western Delta compared to fish outmigrating along the San Joaquin River or through the Central Delta. There is a high level of uncertainty in this conclusion. An element of the proposed action to offset potentially greater exports during April and May 2014 than would occur under an unmodified RPA Action IV.2.1 is a facility shift in exports so that minimal pumping will occur at the SWP Banks Pumping Plant and the majority will occur at the CVP Jones Pumping Plant. This export shift, because it will not

increase combined exports and is not expected to increase overall entrainment, will increase survival of salmonids through these facilities, since fewer fish will enter the SWP, where loss has been measured to range between 63-99% for Chinook (Gingras 1997) and 44-100% for steelhead (Clark et al. 2009). Loss at the SWP is higher due to substantial pre-screen mortality associated with Clifton Court. Based on the values and equations used by agencies to estimate loss, shifting exports from equivalent (e.g. 700 SWP and 800 CVP) to six-times greater exports at the CVP than SWP (e.g. 700 SWP and 4200CVP) may increase overall survival from 42% to 59% (an approximately 40% increase in survival). There is a low level of uncertainty in this conclusion.

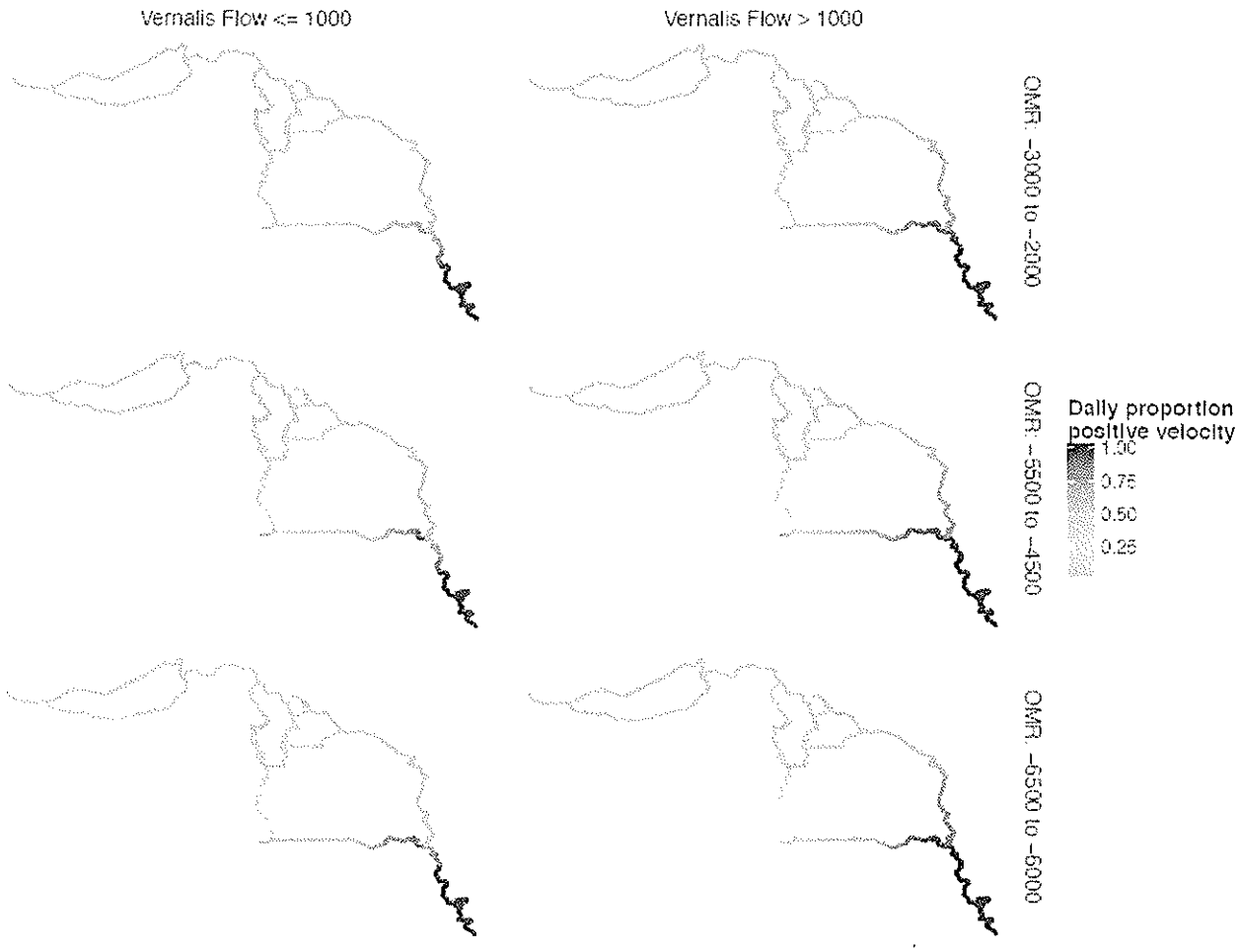

Figure 28. Maps of the San Joaquin River and south and western Delta regions with the channels color coded for daily proportion positive velocity. HORB operation is included in these panels.

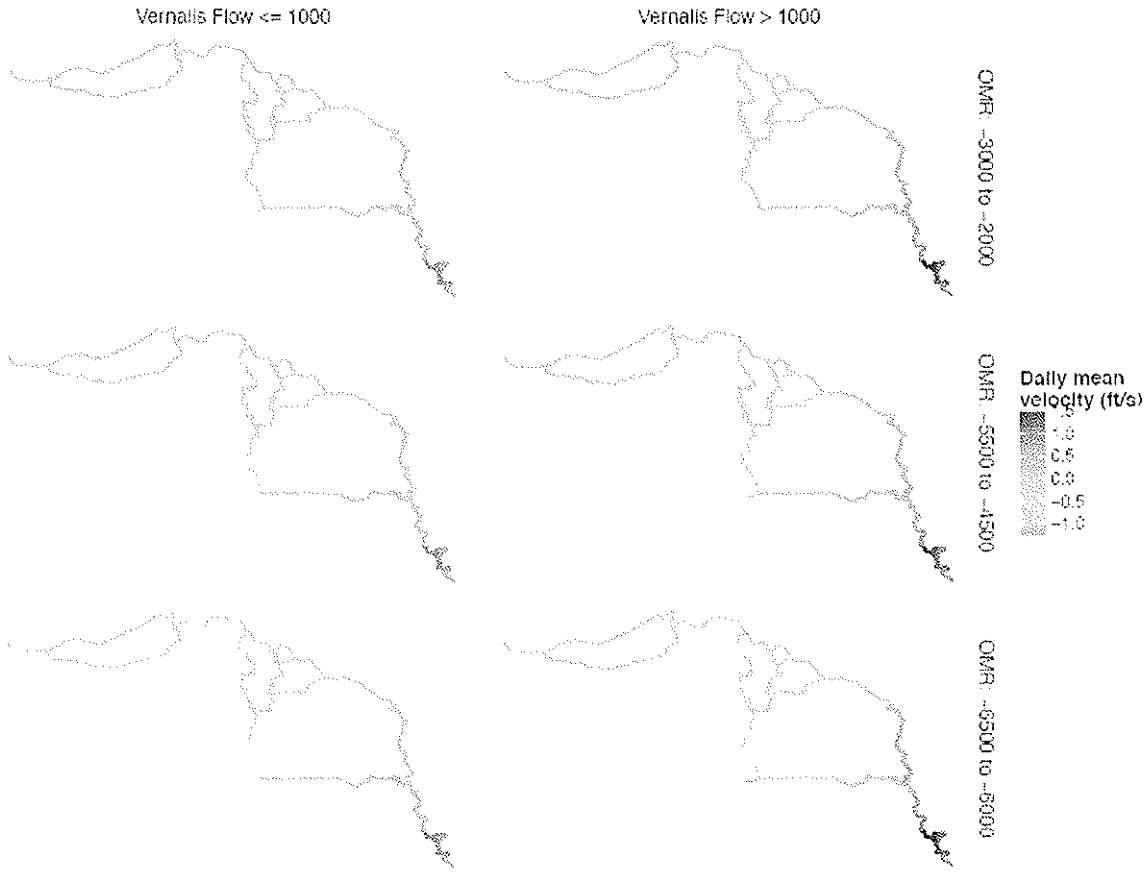

Figure 29. Maps of the San Joaquin River and south and western Delta regions with the channels color coded for daily mean velocity. HORB operation is included in these panels.

The modified I:E ratio, proposed in the drought operation plan causes appreciable differences in hydrodynamics of the Central Delta. This region is a predominantly tidal environment when Vernalis outflows are low and OMR flows are in the -2000 to -3000 cfs range (Figure 29) In these conditions, the daily proportion of positive flows is close to 50% across the lower San Joaquin River migration corridor, although considerably less than 50% close to the fish collection facilities on Old River (Figure 28 and 29). If exports were further limited to reflect an I:E of 1:1, the daily proportion of positive flows would be even greater than observed in Figure 28 in the Central Delta and potentially positively flowing toward the western Delta. Exports greater than Vernalis inflow during April and May will make Old and Middle River flow more negative than under the unmodified RPA Action IV.2.1. At OMR flow values (more negative than -5000 cfs), the daily proportion of positive flows in the Central Delta and at South Delta distributaries entering from the Lower San Joaquin River can be less than half the day even when Vernalis inflow is greater than 1000 cfs (Figure 28). As this entrainment footprint enters the Central Delta, Sacramento origin listed salmonids may have a greater risk

to entrainment into the South Delta than under the RPA Action IV.2.1. A minority of the daily flow measurements along the Lower San Joaquin River migration corridor are positive when OMR values range between -6500 and -6000 at Vernalis inflow values examined, suggesting a greater risk of entrainment by San Joaquin River steelhead into the South Delta than under the RPA Action IV.2.1. There is a moderate level of uncertainty in these conclusions.

The changes in daily velocities are small at Turner Cut, in northern Old River, and along the Lower San Joaquin River (Figure 30-32) under the OMR ranges likely to be observed in April and May as part of the proposed drought operation plan. It is hypothesized the likelihood of entrainment of fish into the South Delta is more a function of the time of arrival at these junctions then OMR flows in this range. However, once in the South Delta, daily velocities become substantially more negative, as observed along Grant Line Canal, and thus loss at the CVP/SWP facilities is much greater at OMR flows in the ranges more negative than -4500 cfs compared to the OMR range between -2000 and -3000 cfs (Figure 33). Thus, Old and Middle river flows that are more negative under the proposed modification of Action IV.1.2 than under implementation of RPA IV.2.1 will expose migrating salmonids to greater entrainment risk and lower outmigration survival in the South Delta and potentially Central Delta. There is a moderate level of uncertainty in these conclusions.

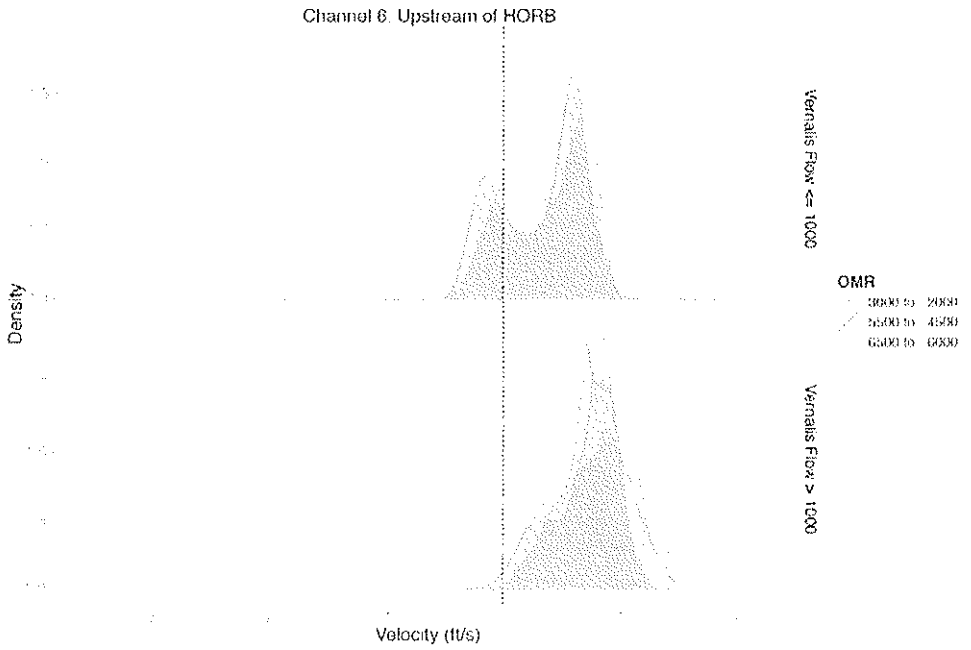

Figure 30. Density plot of velocity (ft/s) observed at DSM2 node 6 for three OMR ranges. HORB operation is included in these panels.

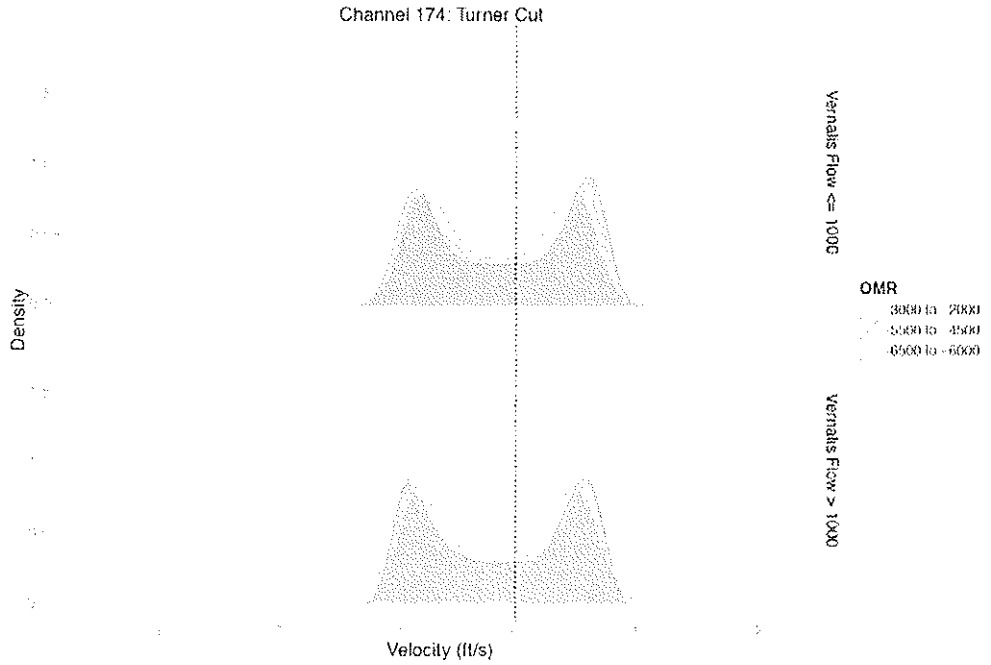

Figure 31. Density plot of velocity (ft/s) observed at DSM2 node 174 for three ranges. HORB operation is included in these panels.

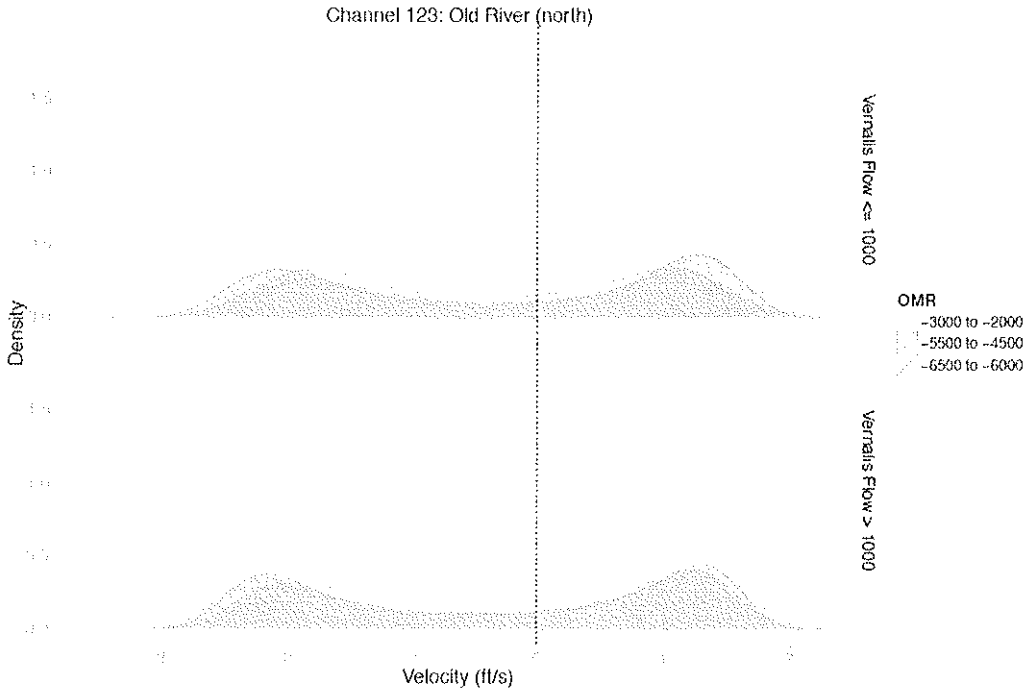

Figure 32. Density plot of velocity (ft/s) observed at DSM2 node 123 for three OMR ranges. HORB operation is included in these panels.

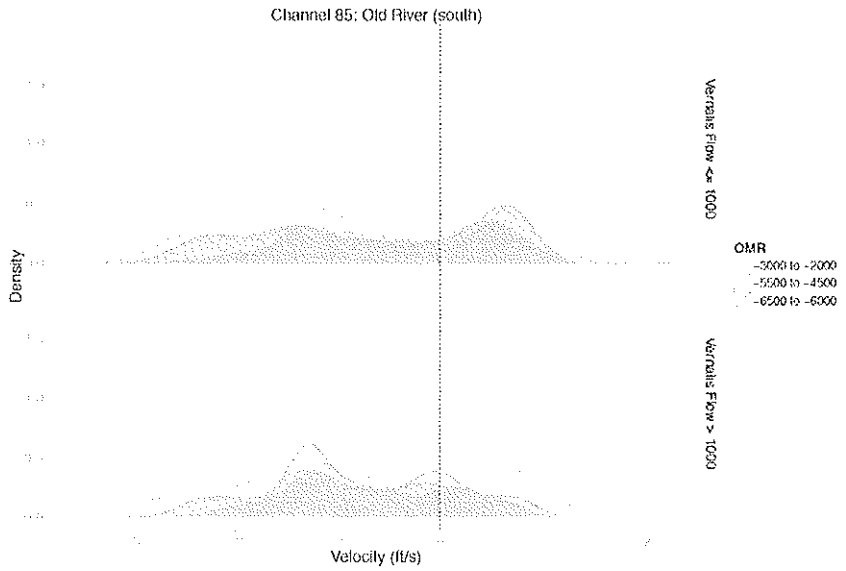

Figure 33. Density plot of velocity (ft/s) observed at DSM2 node 85 for three ranges. HORB operation is included in these panels.

Summary of Proposed Action's Effects

Cumulatively, the continuation of modification to the D-1641 flow and operational criteria and modification of the I:E ratio (Action IV.2.1) may reduce through-Delta survival of juvenile listed salmonids, steelhead and green sturgeon, and may modify their designated critical habitat during April and May. The reductions of juvenile survival on the majority of outmigrating BY13 Winter-run, BY 13 Spring-run Chinook salmon, and outmigrating steelhead would occur primarily in the Sacramento River and North Delta, if outflow levels drop below D-1641 flow and operational criteria due to limited releases of CVP/SWP storage during April and May. Increased exports during April and May, as part of the proposed action, may also reduce survival of these populations by increasing loss at the CVP/SWP collection facilities and from exposure in the interior Delta to degraded habitats and predaceous invasive species. The offsetting action to shift exports from the SWP to the CVP during the spring reduces the risks associated with entrainment loss for the remainder of the WY 2014 salvage season compared to the RPA baseline with normal export operations.

Changes in Sacramento River outflow during April and May may delay adult Winter-run and Spring-run Chinook and green sturgeon migration. Additionally, adult migration of these species may be affected to a lesser extent by operation of three drought barriers in June and July. These drought barriers are unlikely to have an appreciable effect on juvenile outmigration of these species or Central Valley steelhead. Modification to D-1641 Municipal

and Industrial and Agricultural water quality standards in the Delta between April and November will not affect Winter-run or Spring-run Chinook, steelhead, or green sturgeon.

Current reservoir storage levels and forecasted operations are likely to impact temperatures in the upper Sacramento River, Trinity River, Clear Creek, American River, and Stanislaus River. While the proposed drought operation plan incorporates numerous operational actions to minimize temperature effects compared to normal CVP/SWP operations, egg mortality of BY14 Winter-run may be substantial in the upper Sacramento River. Even improved temperature conditions may have substantial effects on the Winter-run Chinook salmon population since two brood classes are being impacted by WY 14 operation during winter and summer. Temperature effects on Clear Creek and in the Upper Sacramento may lead to substantial pre-spawn mortality of adult Spring-run Chinook. Temperature effects on the Clear Creek, Stanislaus, American, and Trinity rivers may exceed that expected under RPA actions regarding temperature compliance, but may still be able to provide restricted coolwater refugia for juvenile *O. mykiss*, Spring-run Chinook and Coho salmon. If temperature compliance points are not met on the Trinity River, the amount of habitat available to rearing coho salmon is expected to be lower than it would otherwise, and the probability of mortality of returning adults will increase.

Listed juvenile salmonids still to enter the Delta, particularly young-of-the-year Spring-run Chinook salmon (approximately 50-75%) and San Joaquin origin steelhead (approximately 70%) may have reduced survival due to increased residence times in the interior Delta. The offsetting action to augment flow on the San Joaquin River in the next dry or better year may improve freshwater, and possibly south Delta, survival compared to the RPA baseline without these augmented flow. Hydrodynamic changes in the Delta increasing the risk of entrainment into the Old and Middle River corridors as these flows become more negative may increase loss at the CVP/SWP fish collection facilities, if they enter the South Delta. Similar to the existing biological opinion, exports will conform to existing BiOps when NMFS BiOp Action IV.2.3's fish triggers are exceeded. While the proposed action may increase the likelihood of exceeding these triggers, it does not pose any additional risk to exceeding the annual take limit of Winter- run or Spring-run Chinook salmon or steelhead.

References

Anchor QEA. 2014. Progress Report South Delta Salmonid Research Collaborative. Prepared for National Marine Fisheries Service and California Department of Water Resources. Seattle, WA. 193 p.

Bergman, P, D.Delaney, J.Merz, C.Watry, Memo: A Pilot Mark-Recapture Study using Spot Patterns of *Oncorhynchus mykiss* in the Stanislaus River, California. Cramer Fish Sciences. March 10, 2014 Submitted to Erwin Van Nieuwenhuyse, USBR.

CDFW 2014. 2013 Trinity River program trapping summary update JW52.xls. unpublished data. CDFW Arcata.

Chase, R., N.Hemphill, J.Beeman, S.Juhnke, J.Hannon, and A. Jenkins. 2013. Assessment of juvenile coho salmon movement and behavior in relation to rehabilitation efforts in the Trinity River, California, using PIT tags and radiotelemetry. Environmental Biology if Fishes. 96:303-314.

Clark, K.W, D. Bowen, R.B. Mayfield, K.P. Zehfuss, J.D. Taplin, and C.H. Hanson. 2009. Quantification of Pre-screen Loss of Juvenile Steelhead in Clifton Court Forebay. Department of Water Resources The Natural Resources Agency, Sacramento California.

Del Rosario, R.B, Y.J. Redler, K. Newman, P.L. Brandes, T. Sommer, K. Reece, and R. Vincik. 2013. Migration Patterns of Juvenile Winter-run-sized Chinook Salmon (*Oncorhynchus tshawytscha*) through the Sacramento-San Joaquin Delta. San Francisco Estuary and Watershed Science 11(1): 24p.
Delaney, D, P. Bergman, B. Cavallo, J. Melgo, and K. Clark. 2014. Stipulation Study: Steelhead Movement and Survival in the South Delta with Adaptive Management of Old and Middle River Flows. Prepared for Department of Water Resources, California Natural Resources Agency, State of California.

Department of Water Resources. 2014. Stipulation Study: Steelhead Movement and Survival in the South Delta with Adaptive Management of Old and Middle River Flows. Report to Department of Water Resources, Sacramento, California. 150 p.

EPA Region 10 Guidance For Pacific Northwest State and Tribal Temperature Water Quality Standards, april 2003 EPA 910-B-03-002.

Earley, J. T., D. J. Colby, and M. R. Brown. 2013. Juvenile salmonid monitoring in Clear Creek, California, from October 2010 through September 2011. U.S. Fish and Wildlife Service, Red Bluff Fish and Wildlife Office, Red Bluff, California.

Gingras, M. 1997. Mark/recapture experiments at Clifton Court Forebay to estimate prescreening loss to juvenile fishes: 1976-1993. Report to the Interagency Ecological Program.

Giovannetti, S. L., RJ Bottaro, and M. R. Brown. 2013. Adult steelhead and late-fall Chinook salmon Monitoring on Clear Creek, California: 2011 Annual report. U.S. Fish and Wildlife Service, Red Bluff Fish and Wildlife Office, Red Bluff, California.

Giovannetti, S. L., and M. R. Brown. 2013. Adult spring Chinook salmon monitoring in Clear Creek, California, 2011 annual report. USFWS Report. U.S. Fish and Wildlife Service, Red Bluff Fish and Wildlife Office, Red Bluff, California.

Hannon, J. 2013. American River Steelhead (*Oncorhynchus mykiss*) Spawning - 2013 with comparisons to prior years. US Bureau of Reclamation. Sacramento, CA. 32 p.

Israel, J.A. and A.P. Klimley, 2009. Life History Conceptual Model North American Green Sturgeon (*Acipenser medirostris*). Sacramento-San Joaquin Delta Regional Ecosystem Restoration Implementation Plan. 49 p.

National Marine Fisheries Service. 2009. Biological and Conference Opinion on the Long-Term Operations of the Central Valley Project and State Water Project. Central Valley Office, Sacramento CA.

National Marine Fisheries Service. 2011. Amended Biological and Conference Opinion on the Long-Term Operations of the Central Valley Project and State Water Project. Central Valley Office, Sacramento CA.

National Marine Fisheries Service. 2012. SONCC coho salmon recovery plan (public review draft). National Marine Fisheries Service Southwest Region. Long Beach, CA.

National Marine Fisheries Service. 2014a. Letter from Mr. William Stelle to Mr. David Murillo. Interim Contingency Plan for March Pursuant to Reasonable and Prudent Alternative Action I.2.3.C of the Biological and Conference Opinion on the Coordinated Long-term Operation of the Central Valley Project and State Water Project CA.

National Marine Fisheries Service. 2014b. Letter from Ms. Maria Rea to Mr. Paul Fujitani Central Valley Office, Sacramento CA. Subject: Old and Middle River Index Demonstration Project. Central Valley Office, Sacramento CA.

Perry, R.W. 2010. Survival and Migration Dynamics of Juvenile Chinook Salmon (*Oncorhynchus tshawytscha)* in the Sacramento-San Joaquin River Delta. Dissertation. School of Aquatic and Fisheries Science, University of Washington, Seattle, WA p. 237.

Romine, J.G., R.W. Perry, S.J. Brewer, N.S. Adams, T.L. Liedtke, A.R. Blake, and J.R. Burau. 2013. The Regional Salmon Outmigration Study- Survival and Migration Routing of Juvenile Chinook Salmon in the Sacramento-San Joaquin River Delta during the Winter of 2008-2009. U.S. Geological Survey, Open File Report 2013-1142, 36 p.

San Joaquin River Group Authority (SJRGA). 2013. 2011 Annual Technical Report On Implementation and Monitoring of the San Joaquin River Agreement and the Vernalis Adaptive Management Plan (VAMP). 339 p.

Singer, G.P, A.R Hearn, E.D Chapman, M.L. Peterson, P.E. LaCivita, W.N. Brostoff, A. Bremmer, and A.P. Klimley. 2013. Interannual Variation of Reach Specific Migratory Success for Sacramento River Hatchery Yearling Late Fall-run Chinook Salmon (*Oncorhynchus tshawytscha*) and Steelhead Trout (*Oncorhynchus mykiss*). Environmental Biology of Fishes 96: 363-379.

State Water Resource Control Board. 2014. March 18, 2014 Order Modifying an Order that Approved a Temporary Urgency Change in License and Permit Terms and Conditions Requiring Compliance with Delta Water Quality Objectives in Response to Drought Conditions. State of California, California Environmental Protection Agency. 20 p.

U.S Bureau of Reclamation. 2014a. Letter from Mr. Paul Fujitani to Mrs. Maria Rea. Re: Contingency Plan for February Pursuant to Reasonable and Prudent Alternative (RPA) Action I.2.3.C of the 2009 Coordinated Long-term Operation of the Central Valley Project (CVP) and State Water Project (SWP) Biological Opinion (2009 BiOp). Mid-Pacific Region, Sacramento CA

U.S Bureau of Reclamation. 2014b. Letter from Ms. Susan Fry to Ms. Maria Rea. Re: Interim Contingency Plan for March Pursuant to Reasonable and Prudent Alternative (RPA) Action I.2.3.C of the 2009 Coordinated Long-term Operation of the Central Valley Project (CVP) and State Water Project (SWP) Biological Opinion (2009 BiOp). Mid-Pacific Region, Sacramento CA.

U.S Bureau of Reclamation. 2014c. Letter from Mr. Paul Fujitani to Ms. Maria Rea. Subject: Implementation of Old and Middle River Index Demonstration Project. Mid-Pacific Region, Sacramento CA.

ATTACHMENT

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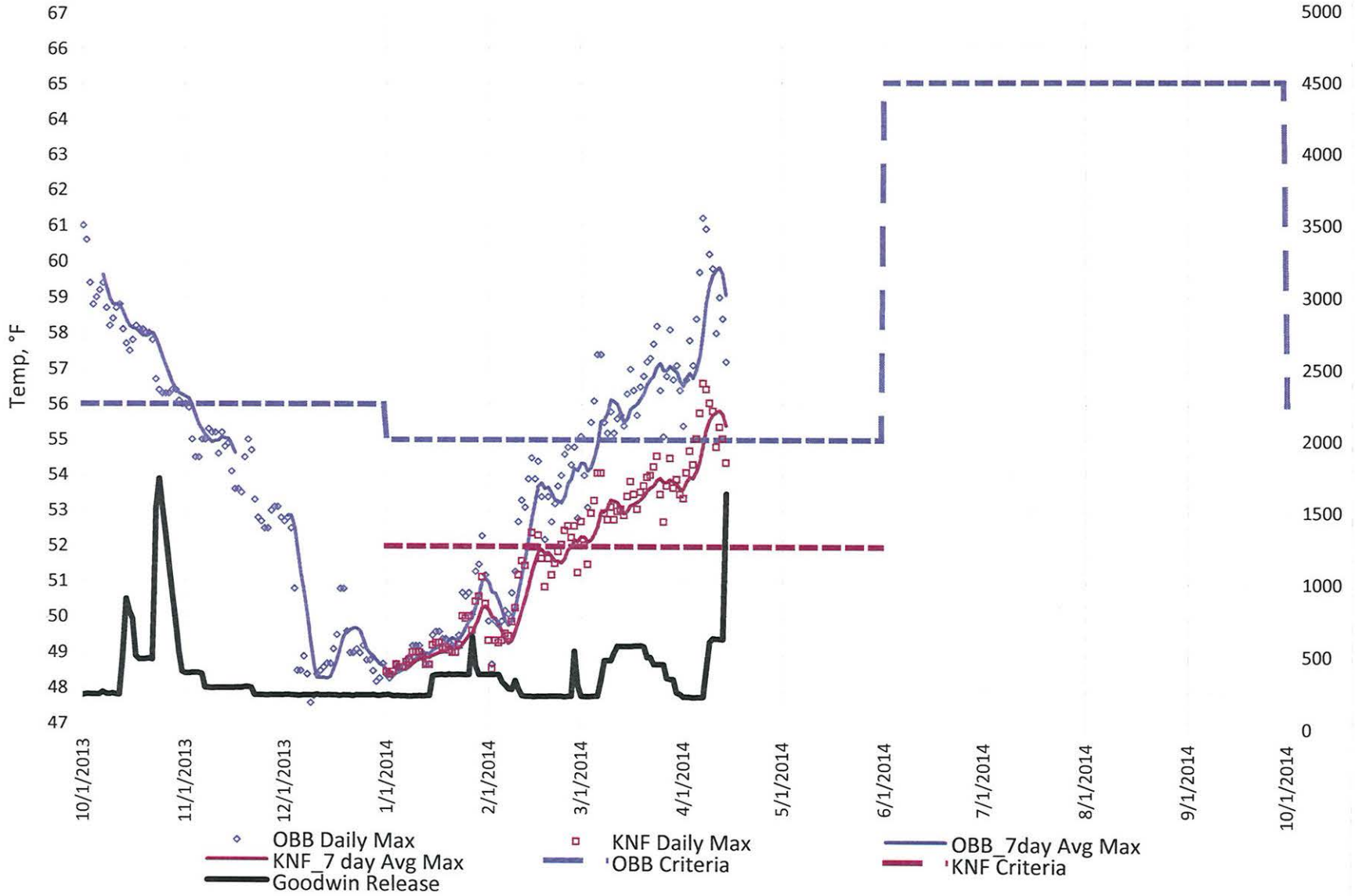
WY 2014 Stanislaus River Releases and Temperatures



ATTACHMENT

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ATTACHMENT B

MARCH OPERATIONS FORECASTS – 90% WITH BARRIERS, 90% WITHOUT BARRIERS, 50% WITHOUT BARRIERS

Storages

Federal End of the Month Storage/Elevation (TAF/Feet)

		Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Trinity	1187	1382	1416	1271	1084	907	725	546	522	519
	Elev.	2293	2296	2283	2264	2244	2221	2193	2189	2188
Whiskeytown	206	206	238	238	238	238	238	238	206	206
	Elev.	1199	1209	1209	1209	1209	1209	1209	1199	1199
Shasta	1773	2105	1977	1819	1599	1346	1141	1081	1102	1217
	Elev.	963	956	946	932	914	898	893	894	904
Folsom	305	435	509	525	446	382	339	305	329	368
	Elev.	408	418	420	409	400	394	388	392	398
New Melones	1060	1070	1028	949	855	760	665	597	586	606
	Elev.	952	946	935	921	906	890	877	875	879
San Luis	369	470	431	347	190	93	155	290	426	583
	Elev.	448	437	422	399	376	376	392	418	452
Total		5667	5600	5148	4412	3725	3263	3058	3171	3498

State End of the Month Reservoir Storage (TAF)

Oroville	1407	1630	1696	1583	1373	1197	1096	1072	1102	1110
	Elev.	745	752	740	715	693	678	675	679	681
San Luis	307	478	414	358	324	254	192	173	250	413
Total San Luis (TAF)	676	948	845	705	513	347	347	464	676	996

Monthly River Releases (TAF/cfs)

Trinity	TAF	18	36	92	47	28	28	27	28	18
	cfs	300	600	1,498	783	450	450	450	450	300
Clear Creek	TAF	12	11	12	12	5	5	9	12	13
	cfs	200	190	190	200	85	85	150	200	225
Sacramento	TAF	200	461	530	550	562	505	357	246	193
	cfs	3250	7750	8615	9250	9149	8214	6000	4000	3250
American	TAF	37	71	92	131	105	83	72	52	51
	cfs	600	1200	1500	2201	1710	1357	1202	850	850
Stanislaus	TAF	15	29	25	32	22	23	14	35	12
	cfs	243	480	410	536	364	368	240	577	200
Feather	TAF	49	48	68	94	137	108	65	58	57
	cfs	800	800	1100	1575	2225	1750	1100	950	950

Trinity Diversions (TAF)

	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Carr PP	10	50	117	156	155	156	154	8	17
Spring Crk. PP	35	30	120	150	150	150	145	30	10

Delta Summary (TAF)

	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Tracy	185	59	71	50	50	180	265	227	200
USBR Banks	0	0	0	0	0	0	0	0	0
Contra Costa	6.35	6.35	6.35	4.9	5.55	6.35	7	8.4	9.2
Total USBR	191	65	78	55	56	186	272	235	209
State Export	185	33	71	71	30	29	45	183	208
Total Export	376	98	149	126	86	215	317	418	417
COA Balance	0	0	0	0	-1	4	5	5	5
Old/Middle R. std.									
Old/Middle R. calc.	-4,404	-974	-1,556	-1,623	-1,212	-2,851	-4,260	-5,000	-5,242
Computed DOI	12444	8438	5303	4001	4002	2993	3009	3367	4270
Excess Outflow	2294	50	1301	0	0	0	0	374	773
% Export/Inflow	31%	13%	23%	20%	15%	39%	53%	63%	63%
% Export/Inflow std.	35%	35%	35%	35%	65%	65%	65%	65%	65%

Hydrology

	Trinity	Shasta	Folsom	New Melones
Water Year Inflow (TAF)	544	2,732	1,017	413
Year to Date + Forecasted % of mean	45%	49%	37%	39%

90% -
Minimum Regulatory Standards - No Salinity Barriers

Storages

Federal End of the Month Storage/Elevation (TAF/Feet)

		Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
Trinity	1187	1374	1264	1076	913	761	606	457	400	395			
	Elev.	2292	2282	2263	2245	2226	2203	2177	2165	2164			
Whiskeytown	206	206	238	238	238	238	238	230	230	201			
	Elev.	1199	1209	1209	1209	1209	1209	1207	1207	1197			
Shasta	1773	2053	1897	1669	1329	957	711	656	603	620			
	Elev.	960	951	937	913	881	855	849	842	844			
Folsom	305	422	440	455	430	381	316	293	285	280			
	Elev.	406	409	411	407	400	390	386	384	384			
New Melones	1060	1064	994	894	789	672	559	474	454	459			
	Elev.	951	942	927	911	891	870	852	847	849			
San Luis	369	444	412	344	246	117	39	95	234	369			
	Elev.	442	433	415	396	370	347	351	388	419			
Total		5563	5246	4676	3945	3127	2468	2205	2205	2324			

State End of the Month Reservoir Storage (TAF)

Oroville	1407	1625	1637	1509	1326	1150	1012	971	943	944			
	Elev.	745	746	732	709	686	666	660	655	655			
San Luis	307	449	392	301	249	188	130	99	194	317			
Total San Luis (TAF)	676	893	805	645	495	305	169	194	428	686			

Monthly River Releases (TAF/cfs)

Trinity	TAF	18	36	92	47	28	28	27	23	18			
	cfs	300	600	1,498	783	450	450	450	373	300			
Clear Creek	TAF	12	11	12	9	7	5	9	12	12			
	cfs	200	190	190	150	120	85	150	200	200			
Sacramento	TAF	200	464	510	601	627	483	294	281	230			
	cfs	3250	7800	8300	10100	10200	7860	4945	4573	3874			
American	TAF	34	30	31	39	61	84	36	44	45			
	cfs	550	500	500	647	991	1368	613	714	749			
Stanislaus	TAF	23	29	25	34	26	21	14	35	12			
	cfs	368	480	410	564	425	346	240	577	200			
Feather	TAF	49	48	49	59	86	77	71	59	57			
	cfs	800	800	800	1000	1400	1250	1200	960	960			

Trinity Diversions (TAF)

	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Carr PP	1	149	125	127	128	127	122	41	0
Spring Crk. PP	8	120	120	120	120	120	120	30	19

Delta Summary (TAF)

	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Tracy	153	60	61	55	53	50	130	185	160
USBR Banks	0	0	0	0	0	0	0	0	0
Contra Costa	7	6.4	6.4	6.4	4.9	5.6	6.4	7	8.4
Total USBR	160	66	68	61	58	56	136	192	168
State Export	153	60	54	41	12	10	16	104	125
Total Export	313	126	122	102	70	66	152	296	293
COA Balance	0	0	0	0	0	0	0	0	1
Old/Middle River Std.									
Old/Middle R. calc.	-4,052	-1,614	-1,561	-1,442	-1,062	-1,066	-2,213	-3,518	-3,829
Computed DOI	10411	5194	4360	4001	2993	2993	3009	2993	3496
Excess Outflow	1220	1193	358	0	0	0	0	0	0
% Export/Inflow	32%	24%	24%	19%	13%	13%	30%	51%	53%
% Export/Inflow std.	35%	35%	35%	35%	65%	65%	65%	65%	65%

Hydrology

	Trinity		Shasta		Folsom		New Melones	
Water Year Inflow (TAF)	433		2,367		727		275	
Year to Date + Forecasted % of mean	36%		43%		27%		26%	

Storages

Federal End of the Month Storage/Elevation (TAF/Feet)

		Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
Trinity	1187	1374	1264	1075	912	760	605	455	399	394			
	Elev.	2292	2282	2263	2245	2225	2203	2176	2165	2164			
Whiskeytown	206	206	238	238	238	238	238	230	230	201			
	Elev.	1199	1209	1209	1209	1209	1209	1207	1207	1197			
Shasta	1773	2053	1897	1669	1371	1029	783	728	674	691			
	Elev.	960	951	937	916	888	864	857	851	853			
Folsom	305	422	440	455	439	389	335	297	286	296			
	Elev.	406	409	411	409	401	393	387	385	386			
New Melones	1060	1064	994	894	789	672	559	474	454	459			
	Elev.	951	942	927	911	891	870	852	847	849			
San Luis	369	444	417	352	276	153	84	170	329	450			
	Elev.	442	433	416	403	378	358	368	405	432			
Total		5563	5250	4682	4024	3241	2604	2354	2371	2490			

State End of the Month Reservoir Storage (TAF)

Oroville	1407	1625	1637	1508	1330	1163	1032	1003	975	976			
	Elev.	745	746	731	710	688	669	665	660	660			
San Luis	307	449	394	304	268	206	150	122	230	353			
Total San Luis (TAF)	676	893	810	655	543	359	234	292	559	802			

Monthly River Releases (TAF/cfs)

Trinity	TAF	18	36	92	47	28	28	27	23	18			
	cfs	300	600	1,498	783	450	450	450	373	300			
Clear Creek	TAF	12	12	12	9	7	5	9	12	12			
	cfs	200	200	200	150	120	85	150	200	200			
Sacramento	TAF	200	464	510	559	596	483	294	281	230			
	cfs	3250	7800	8300	9400	9700	7860	4945	4573	3874			
American	TAF	34	30	31	30	62	72	52	47	30			
	cfs	550	500	500	506	1007	1176	880	763	500			
Stanislaus	TAF	23	29	25	34	26	21	14	35	12			
	cfs	368	480	410	564	425	346	240	577	200			
Feather	TAF	49	48	51	54	77	71	59	59	57			
	cfs	800	800	822	900	1250	1150	1000	960	960			

Trinity Diversions (TAF)

	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Carr PP	1	149	126	127	128	127	122	41	0
Spring Crk. PP	8	120	120	120	120	120	120	30	19

Delta Summary (TAF)

	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Tracy	153	64	65	72	45	60	160	205	145
USBR Banks	0	0	0	0	0	0	0	0	0
Contra Costa	7	6.4	6.4	6.4	4.9	5.6	6.4	7	8.4
Total USBR	160	71	71	78	50	66	166	212	153
State Export	153	61	56	57	11	12	20	117	125
Total Export	313	132	127	135	61	78	186	329	278
COA Balance	0	0	0	0	1	1	9	9	10
Old/Middle River Std.									
Old/Middle R. calc.	-4,052	-1,685	-1,624	-1,869	-949	-1,216	-2,653	-3,932	-3,634
Computed DOI	10411	5110	4311	2505	2505	2505	2505	2505	3496
Excess Outflow	1220	1109	309	0	0	0	0	0	0
% Export/Inflow	32%	25%	25%	28%	12%	16%	37%	56%	52%
% Export/Inflow std.	35%	35%	35%	35%	65%	65%	65%	65%	65%

Hydrology

	Trinity	Shasta	Folsom
Water Year Inflow (TAF)	433	2,367	727
Year to Date + Forecasted % of mean	36%	43%	27%

ATTACHMENT

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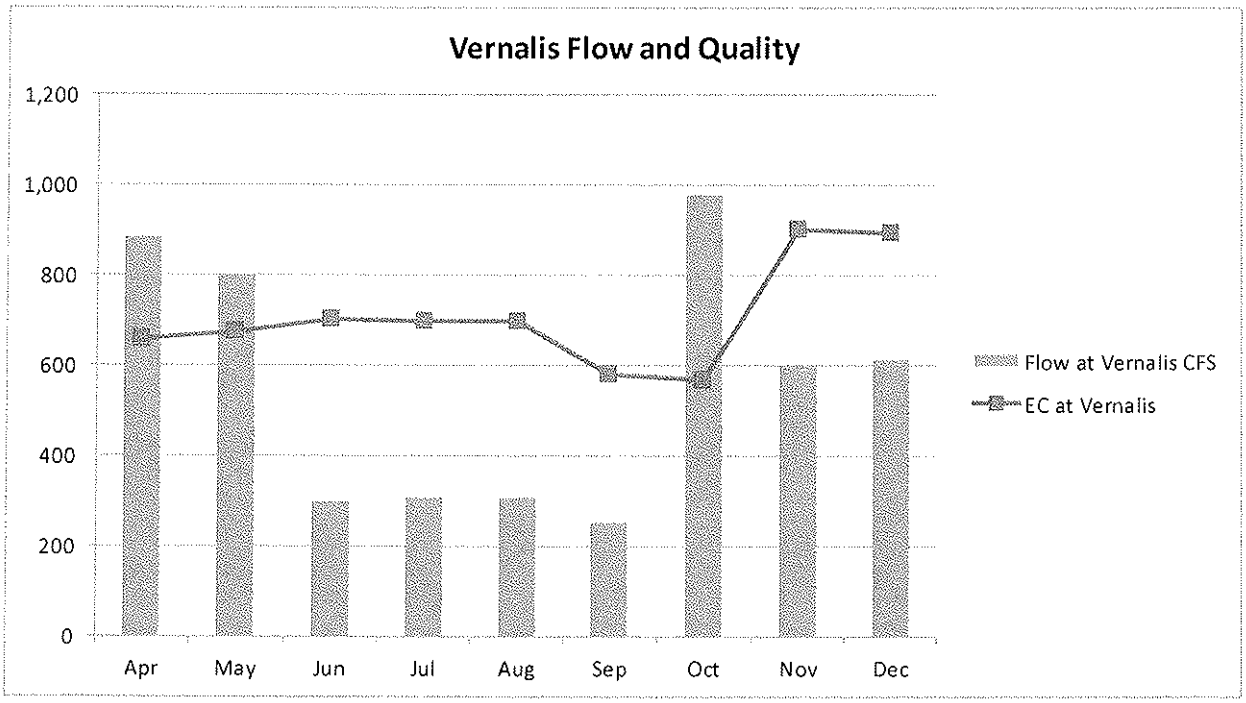
Vernalis Estimate
March 31, 2014

- Tuolumne River FERC Minimum, critical year schedule 94,000 acre-feet. Outmigration flows during 10 days spanning across April/May
- Merced River minimum schedule, estimated flow at Cressey

"Best" Estimate – Stanislaus RPA flow only

	SJR River																
	TAF Merced CRS	TAF Tuolumne La Grange	TAF Total U/S Maze	CFS U/S Maze	CFS A/D Maze	CFS Maze Flow	EC Maze Flow	EC-Load Maze Flow	TAF Stanislaus Goodwin	TAF A/D GDW - Stan	TAF Stanislaus Mouth	CFS Stanislaus Mouth	EC Stanislaus Mouth	EC-Load Stanislaus Mouth	Flow at Vernalis CFS	EC at Vernalis	TAF Vernalis
Oct 2013																	
Nov																	
Dec																	
Jan 2014																	
Feb																	
Mar																	
Apr	6	16	22	362	50	412	1,300	535,578	28	0	28	472	100	47,171	884	659	53
May	6	14	20	333	50	383	1,300	497,824	25	0	25	418	100	41,837	801	673	49
Jun	3	3	6	100	50	150	1,300	195,000	9	0	9	150	100	15,001	300	700	18
Jul	3	3	6	103	50	153	1,300	199,357	9	0	9	155	100	15,501	308	697	19
Aug	3	3	6	103	50	153	1,300	199,357	9	0	9	155	100	15,501	308	697	19
Sep	3	3	6	100	0	100	1,300	130,005	9	0	9	150	100	15,001	250	580	15
Oct	3	8	11	182	200	382	1,300	496,199	36	0	36	597	100	59,672	978	568	60
Nov	3	9	12	200	200	400	1,300	520,016	12	0	12	200	100	20,002	600	900	36
Dec	3	9	12	207	200	407	1,300	528,702	12	0	12	207	100	20,668	613	896	38

- Stanislaus operating to RPA fish flow RPA only. (Schedule adapted from Appendix 2E)

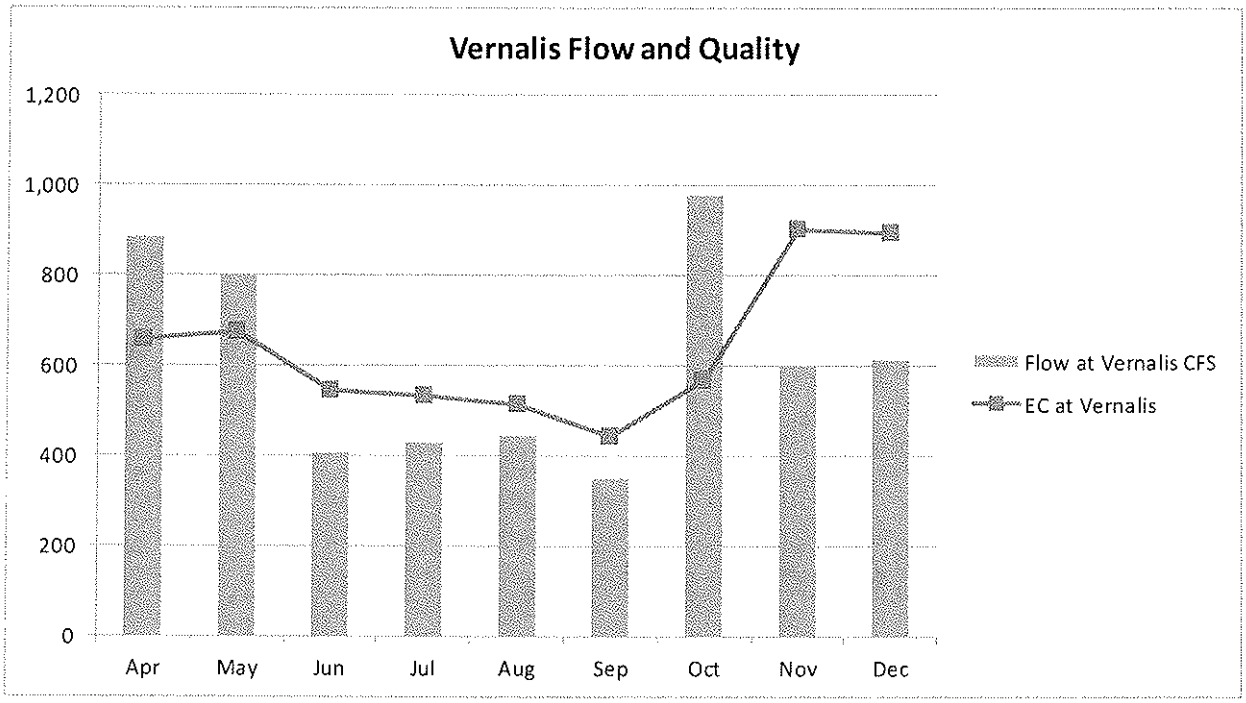


- Flow anticipated at Vernalis during April/May, ranging from 500 cfs during non-pulse during April up to a peak pulse of 1,570 cfs. A peak pulse about the same during the first of May, then receding to about 450 cfs after the pulse.
- Salinity at Vernalis barely in compliance, and needing monthly averaging of pulses during April/May.

"Best" Estimate – Stanislaus RPA flow with DO surrogate flows during June-Sep

	SJR River																
	TAF Merced CRS	TAF Tuolumne La Grange	TAF Total U/S Maze	CFS U/S Maze	CFS A/D Maze	CFS Maze Flow	EC Maze Flow	EC-Load Maze Flow	TAF Stanislaus Goodwin	TAF A/D GDW - Stan	TAF Stanislaus Mouth	CFS Stanislaus Mouth	EC Stanislaus Mouth	EC-Load Stanislaus Mouth	Flow at Vernalis CFS	EC at Vernalis	TAF Vernalis
Oct 2013																	
Nov																	
Dec																	
Jan 2014																	
Feb																	
Mar																	
Apr	6	16	22	362	50	412	1,300	535,578	28	0	28	472	100	47,171	884	659	53
May	6	14	20	333	50	383	1,300	497,824	25	0	25	418	100	41,837	801	673	49
Jun	3	3	6	100	50	150	1,300	195,000	15	0	15	255	100	25,546	405	544	24
Jul	3	3	6	103	50	153	1,300	199,357	16	0	16	274	100	27,395	427	531	26
Aug	3	3	6	103	50	153	1,300	199,357	17	0	17	292	100	29,244	446	513	27
Sep	3	3	6	100	0	100	1,300	130,005	15	0	15	249	100	24,874	349	444	21
Oct	3	8	11	182	200	382	1,300	496,199	36	0	36	597	100	59,672	978	568	60
Nov	3	9	12	200	200	400	1,300	520,016	12	0	12	200	100	20,002	600	900	36
Dec	3	9	12	207	200	407	1,300	528,702	12	0	12	207	100	20,668	613	896	38

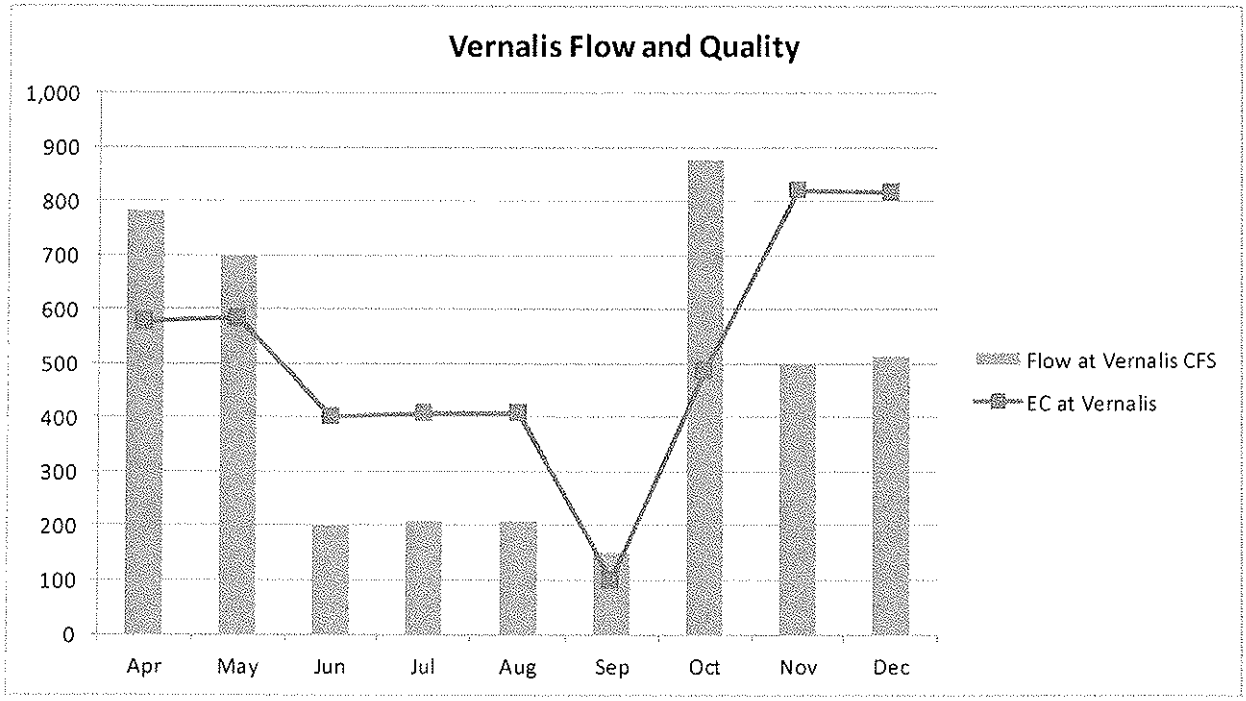
- Flow at Goodwin during June-September increases from about 150 cfs to up to 270 cfs according to the flow surrogate we have historically used to meet DO in the river.
- Salinity at Vernalis would be easily met with this additional flow after May.



Drier San Joaquin River A/D, no DO releases

	SJR River																
	TAF Merced CRS	TAF Tuolumne La Grange	TAF Total U/S Maze	CFS U/S Maze	CFS A/D Maze	CFS Maze Flow	EC Maze Flow	EC-Load Maze Flow	TAF Stanislaus Goodwin	TAF A/D GDW - Stan	TAF Stanislaus Mouth	CFS Stanislaus Mouth	EC Stanislaus Mouth	EC-Load Stanislaus Mouth	Flow at Vernalis CFS	EC at Vernalis	TAF Vernalis
Oct 2013																	
Nov																	
Dec																	
Jan 2014																	
Feb																	
Mar																	
Apr	6	16	22	362	-50	312	1,300	405,578	28	0	28	472	100	47,171	784	578	47
May	6	14	20	333	-50	283	1,300	367,824	25	0	25	418	100	41,837	701	584	43
Jun	3	3	6	100	-50	50	1,300	65,000	9	0	9	150	100	15,001	200	400	12
Jul	3	3	6	103	-50	53	1,300	69,357	9	0	9	155	100	15,501	208	407	13
Aug	3	3	6	103	-50	53	1,300	69,357	9	0	9	155	100	15,501	208	407	13
Sep	3	3	6	100	-100	0	1,300	5	9	0	9	150	100	15,001	150	100	9
Oct	3	8	11	182	100	282	1,300	366,199	36	0	36	597	100	59,672	878	485	54
Nov	3	9	12	200	100	300	1,300	390,016	12	0	12	200	100	20,002	500	820	30
Dec	3	9	12	207	100	307	1,300	398,702	12	0	12	207	100	20,668	513	817	32

- Lowered the Maze A/D by 100 cfs throughout. (The "best estimate" was already assumed to be at levels lower than ever computed)
- Salinity throughout the summer will not exceed objective since the water at Vernalis will be mostly from the Stanislaus.



ATTACHMENT

22

Stanislaus Operations Group – Emergency Meeting
April 9, 2014
Phone Conference
3:00 PM to 4:00 PM
Draft Meeting Notes

On the call: Diane Riddle – State Board; Barb Byrne, Rhonda Reed, and Monica Gutierrez – NMFS; JD Wikert, Craig Anderson and Julie Zimmerman -- FWS, Colin Purdy and Tim Heyne (Tim unable to stay on for entire call) – DFW; Aaron Miller and Dan Yamanaka – DWR; Liz Kiteck, Paul Fujitani, John Hannon, and Patti Clinton – Reclamation.

An emergency meeting was scheduled to discuss the spring pulse SOG advice to coordinate with the recently developed Drought Operations Plan (DOP). The group reviewed the two elements in the DOP (posted at http://www.ca.gov/drought/managementactions.html) which affected Stanislaus operations – item #2 on p. 19 (no change to the spring pulse volume in the NMFS RPA 2-E schedule, but some specifics on timing) and item #5 on p. 20 (relating to modifications of the Vernalis flow requirement in D-1641) and reviewed a draft flow schedule put together by Byrne (NMFS) that included Stanislaus flows that met the 2-E schedule and contributed an amount expected to meet the Vernalis requirement, given what was projected for, e.g. the Tuolumne.

The group discussed implementing the highest flow first, to move fish out of the system early since temperatures were warmer than usual during April; an option to implement the highest flow later, to ameliorate the higher temperatures later, was also discussed. At the time of this discussion, it was agreed to implement the highest flows (both on the Stan and at Vernalis) during the last two weeks of April, and the lower flows during the first two weeks of May. Because the flows needed to meet the modified Vernalis requirement in the DOP will depend on actual flows (still somewhat uncertain) during April, a check-in meeting is planned for late April to adjust the flow schedule so that no more water is released from New Melones than necessary to achieve the Vernalis target.

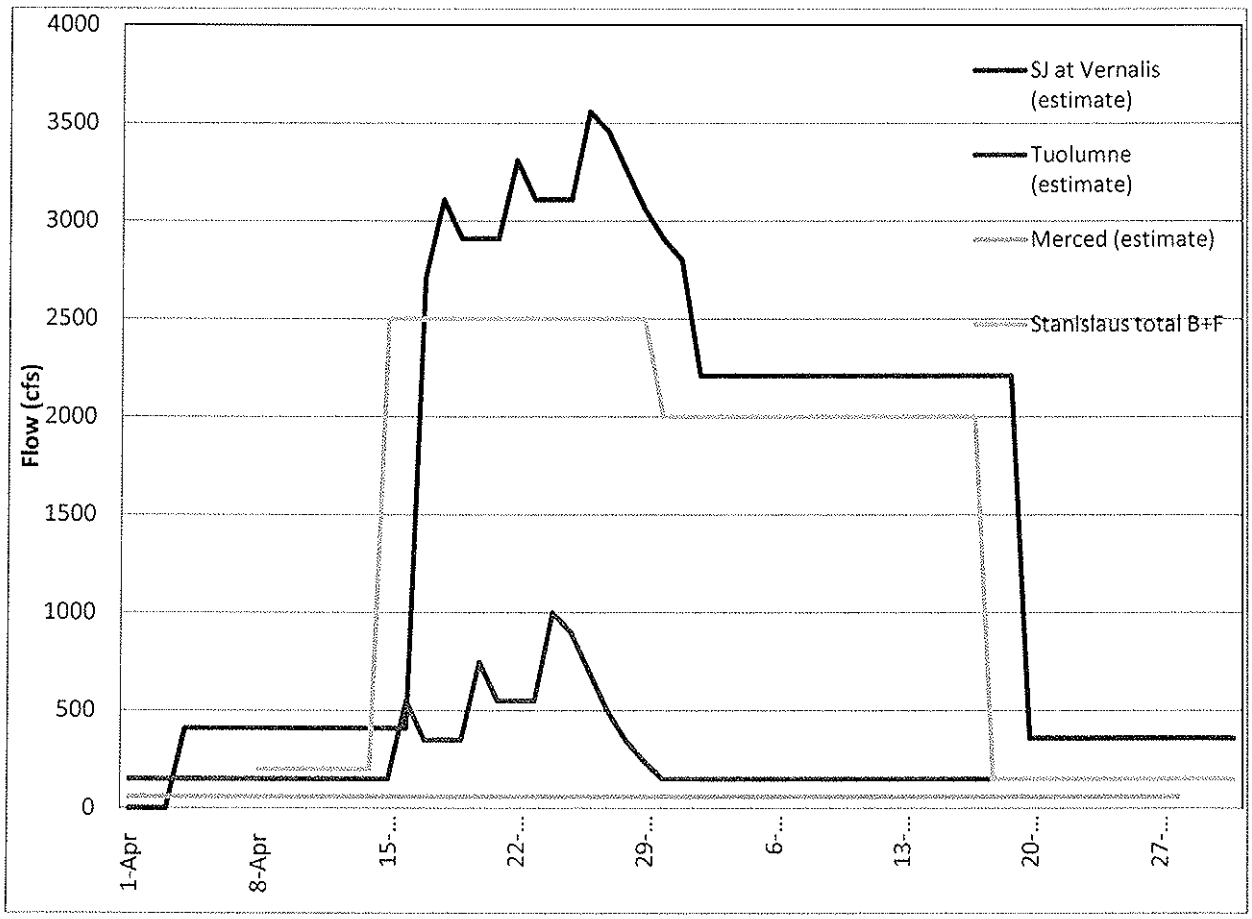
TIMELINE & PROCESS
Recommendations would be drafted this evening and sent to SOG by 8am the following day; Reclamation to forward to real time drought operations team (RTDOT). Comments due by 2:30 pm tomorrow; **final by COB tomorrow.**

SCHEDULE HIGHLIGHTS/CONSIDERATIONS: The rough schedule (below), to start Tuesday, 4/15, achieves the following:

1. at least the min 2-E flows
2. at least the min '87 Agreement CDFW flows
3. higher peak to start with on April 16th (high temperatures in the lower San Joaquin and delta expected in May; temperatures already quite warm)
4. not greater than 3,000 cfs (for rafting, potential seepage, and inundation at Caswell State Park concerns)
5. Over 31 days, the Vernalis averages for the D-1641 pulse flows in the DOP will be met, but rather than 16 days averaging 3300 and 15 days averaging 1500, we are going to loosen up the averaging period...

6. in order to accommodate the survival study on the Stanislaus which would like two 14-day periods of steady flows. Flows of 2000 cfs and 2500 cfs would provide additional information; the study already has data for 3,000 cfs. State Board would accept some variation of the averaging period as long as the 31-day average is the equivalent of 16 days at 3300 and 15 days at 1500; not also that the Tuolumne's pulse will contribute to Vernalis flows for the second half of April so Vernalis will likely be higher than the Stanislaus contribution.
7. Tuolumne contributions to Vernalis: 11,000 AF or 22,000 AF pulse.
8. Merced contribution – may not be substantial but CDFW suggested it may be more than SOG was aware of.
9. Very blocky water but makes it simple for RTDOT to analyze.
10. Stanislaus shaping may contribute to Vernalis curve

SOG agreed on a schedule with a built-in "check-in" in late April to allow any needed adjustments to the early May flows.


4000
3500
3000
2500
2000
1500
1000
500
0
Flow (cfs)
1-Apr
8-Apr
15-...
22-...
29-...
6-...
13-...
20-...
27-...
SJ at Vernalis (estimate)
Tuolumne (estimate)
Merced (estimate)
Stanislaus total B+F

ATTACHMENT

23

United States Department of the Interior

BUREAU OF RECLAMATION
Mid-Pacific Regional Office
2800 Cottage Way
Sacramento, CA 95825-1898

IN REPLY REFER TO:

AUG 08 2012

HAND DELIVERY

Craig Wilson, Delta Watermaster
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95812-0100

Subject: Notice of Violation (Notice) of State Water Resources Control Board Decision 1641 (D-1641) by United States Bureau of Reclamation (Your Letter dated July 18, 2012)

Dear Mr. Wilson:

Reclamation is in receipt of the subject Notice. This Notice states the following:

- The spring pulse flow requirements for Vernalis contained in Table 3 of the 2006 Bay-Delta Water Quality Control Plan (2006 Plan) were set for 2012 at a minimum monthly average of 3,540 cfs;
- The San Joaquin River Agreement (SJRA) expired in 2011;
- The pulse flow target for 2012 under the SJRA would be a minimum monthly average of 3,200 cfs;
- The flows at Vernalis on the San Joaquin River for the period April 15 – May 15 averaged 3,092 cfs;
- This average flow failed to meet either the Table 3 or SJRA requirement;
- Therefore, Reclamation is in violation of D-1641.

Reclamation has questions and concerns regarding aspects of this Notice. The first issue is procedural - it is unclear under what authority the Delta Watermaster is proceeding by issuing a "Notice of Violation" to Reclamation. Under Water Code § 85230, the Delta Watermaster is delegated the authority to issue proposed cease and desist orders or proposed administrative civil liability complaints.[1] However, we can find no authority for the Delta Watermaster to issue a "Notice of Violation" under Water Code § 1834. There is a crucial distinction between the Delta Watermaster's authority under § 85230, and State Board authority under § 1834 - the distinction

[1] The State Board delegated this authority to the Watermaster in Paragraph 1.5 of the State Board's Resolution No. 2010-0048:

> Issue notices of proposed cease and desist orders, and, when a hearing has not been timely requested, issue cease and desist orders in accordance with Water Code section 1831 et seq.

C SJTA

is whether Reclamation is required to request a hearing, in writing, under § 1834(b). The Notice of Violation does not cite any authority under which the Delta Watermaster is proceeding, and is silent with respect to any right or obligation to request a hearing as required by § 1834(a). Under § 1834(b), if the recipient of a Notice of Violation does not request a hearing, in writing, the State Board may issue a cease and desist order without such hearing:

> Unless a written request for a hearing signed by or on behalf of the notified party is delivered to or received by mail by the board within 20 days after receipt of the notice, the board may adopt a cease and desist order, based on the statement of facts and information set forth in the notice, without a hearing.

We respectfully request further clarification as to precisely where the "Notice of Violation" fits into the Delta Watermaster's or the State Board's statutory enforcement authority, so that Reclamation can clearly understand its substantive and procedural rights and obligations under the law with respect to this Notice. If the State Board or the Delta Watermaster finds that the Notice of Violation does fall under § 1834(b), it would be Reclamation's view that the 20 day timeframe to request a hearing does not run until Reclamation receives clarification on this point.

In addition to the procedural ambiguity of the Notice of Violation, Reclamation respectfully disagrees with the Delta Watermaster's assertions with respect to Reclamation's substantive D-1641 requirements. The State Board's view that Reclamation is solely responsible for the entire instream flow requirements for the San Joaquin River basin at Vernalis is not supported by any rational basis in the record, nor otherwise. When D-1641 was originally adopted by the State Board, the expectation was that the State Board would permanently assign responsibility to other diverters in the basin by 2012. However, the State Board has yet to do that, and Reclamation's diversions in the basin are not solely responsible for depletions to flow at Vernalis. Therefore, Reclamation reiterates its position previously set forth in our May 4, 2012 letter to State Board Executive Director Tom Howard.

Second, the Notice states that the requirement contained in Table 3 of the 2006 Plan (3,540 cfs) is the applicable pulse flow requirement. Reclamation maintains its position that the modified SJRA target[2] as negotiated in our agreement with Merced Irrigation District (MID) is in effect. The SJRA did expire at the end of 2011, and Reclamation entered into discussions with several water districts about extending the spring pulse flow provisions of the SJRA. MID was willing to enter into an agreement to coordinate operations with Reclamation to help meet a SJRA-like spring pulse flow target for 2012 and 2013. As noted in our May 4 letter, it is Reclamation's position that the San Joaquin River flow provisions of the SJRA are essentially still in effect through the end of 2013 due to the agreement with MID. Therefore, under the terms of D-1641, the applicable flow requirement at Vernalis during the spring pulse flow period of 2012 was the SJRA target of 3,200 cfs.

[2] The negotiated terms of the Reclamation-MID agreement specify a SJRA spring pulse flow requirement that explicitly excludes the double-step requirement of paragraph 5.6 of the SJRA.

Finally, the Notice states that the flow at Vernalis of 3,092 cfs failed to meet either requirement. As noted above, Reclamation is of the opinion that the applicable standard for 2012 was 3,200 cfs. The Annual Technical Reports submitted to the Board pursuant to the implementation of the SJRA from 2000 through 2010 describe in detail the inherent complexities in meeting an absolute flow objective through the coordinated operation of three upstream reservoirs managed by three different agencies, combined with factors such as accretions and depletions of unpredictable amounts along the San Joaquin River and accuracy of the gage measurements[3]. Under the SJRA, the real-time coordination of releases to meet the SJRA spring flow target required significant resources throughout the life of the SJRA. For these reasons, the parties coordinating this program (including the State Board, the Fish and Wildlife Service, National Marine Fisheries Service (NMFS), and Department of Fish and Game) have long considered compliance with these flow targets in the SJRA to be within ±7% of the target. Furthermore, with Reclamation operating New Melones Reservoir releases to meet the requirements of the NMFS Biological Opinion, only Lake McClure was available in 2012 to adjust releases to meet this target. Despite the inability to schedule releases from a third reservoir, a 30 day average minimum monthly flow of 3,092 cfs[4] was achieved during April 15 – May 15 (96.6% of the SJRA target for 2012).

Our May 4 letter describes some of the challenges faced by Reclamation in meeting spring pulse flow requirements at Vernalis – unfortunately, it is not a simple matter of making releases from reservoirs until the target flow is met. All reservoir operators face significant operational constraints that make meeting these objectives challenging.

In summary, we are however committed to improving coordination of release of flows in 2013 to the extent possible. We believe that a meeting with you to discuss all the complexities involved in meeting these standards will be beneficial to both of us in understanding these issues, and in determining a common path forward.

---

[3] The U.S. Geological Survey's *Policy Statement on Stage Accuracy* (available at http://water.usgs.gov/admin/memo/SW/sw93.07.html) states that "Accuracies of discharge records for individual days commonly are about 5 to 10 percent." *Policy Statement*, at p. 1. The Survey warns that "Data users are cautioned to consider carefully the provisional nature of the information before using it for decisions that concern personal or public safety or the conduct of business that involves substantial monetary or operational consequences." *USGS Frequently Asked Questions - Real-Time Streamflow Data* – "Why might USGS streamflow data reports not be accurate?" Retrieved from http://md.water.usgs.gov/faq/realtime.html#A2.

[4] This figure is preliminary estimate; the final figure will be determined upon completion of the customary USGS review of hydrological data.

If you are amenable to such a meeting, please contact Mary Johannis at 916-978-5082 with your availability. We look forward to meeting with you soon. In the interim, please feel free to contact me at 916-978-5013 if you have any questions.

Sincerely,

Pablo R. Arroyave
Deputy Regional Director

cc: Allen Short
General Manager
1231 Eleventh Street
P.O Box 4060
Modesto, CA 95352

Phillip R. McMurray
General Counsel
Merced Irrigation District
744 west 20th Street
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Erin Mahaney
State Water Resources Control Board
P.O Box 2000
Sacramento, CA 95812-2000

ATTACHMENT

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Table 3
WATER QUALITY OBJECTIVES FOR FISH AND WILDLIFE BENEFICIAL USES

COMPLIANCE LOCATIONS	INTERAGENCY STATION NUMBER (RKI [1])	PARAMETER	DESCRIPTION (UNIT) [2]	WATER YEAR TYPE [3]	TIME PERIOD	VALUE
DISSOLVED OXYGEN						
San Joaquin River between Turner Cut & Stockton	*(RSAN050-RSAN061)*	*Dissolved Oxygen (DO)*	*Minimum DO (mg/L)*	*All*	*Sep-Nov*	*6.0*
SALMON PROTECTION						
			narrative	*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.*		
SAN JOAQUIN RIVER SALINITY						
San Joaquin River at and between Jersey Point and Prisoners Point [4]	*D-15 (RSAN018)* **-and-** *D-29 (RSAN038)*	*Electrical Conductivity (EC)*	*Maximum 14-day running average of mean daily EC(mmhos/cm)*	*W,AN,BN, D*	*Apr-May*	*0.44 [5]*
EASTERN SUISUN MARSH SALINITY[6]						
Sacramento River at Collinsville	*C-2 (RSAC081)*	*Electrical Conductivity (EC)*	*Maximum monthly average of both daily high tide EC values (mmhos/cm), or demonstrate that equivalent or better protection will be provided at the location*	*All*	*Oct*	*19.0*
-and-					*Nov-Dec*	*15.5*
Montezuma Slough at National Steel	*S-64 (SLMZU25)*				*Jan*	*12.5*
					Feb-Mar	*8.0*
-and-					*Apr-May*	*11.0*
Montezuma Slough near Beldon Landing	*S-49 (SLMZU11)*					
WESTERN SUISUN MARSH SALINITY[6]						
Chadbourne Slough at Sunrise Duck Club	*S-21 (SLCBN1)*	*Electrical Conductivity (EC)*	*Maximum monthly average of both daily high tide EC values (mmhos/cm), or demonstrate that equivalent or better protection will be provided at the location*	*All but deficiency period*	*Oct*	*19.0*
-and-					*Nov*	*16.5*
Suisun Slough, 300 feet south of Volanti Slough	*S-42 (SLSUS12)*				*Dec*	*15.5*
					Jan	*12.5*
-and-					*Feb-Mar*	*8.0*
Cordelia Slough at Ibis Club	*S-97 (SLCRD06)*				*Apr-May*	*11.0*
-and-				*Deficiency period [7]*		
Goodyear Slough at Morrow Island Clubhouse	*S-35 (SLGYR03)*				*Oct*	*19.0*
					Nov	*16.5*
-and-					*Dec-Mar*	*15.6*
Water supply intakes for waterfowl management areas on Van Sickle and Chipps islands	*No locations specified*				*Apr*	*14.0*
					May	*12.5*
BRACKISH TIDAL MARSHES OF SUISUN BAY						
			narrative	*Water quality conditions sufficient to support a natural gradient in species composition and wildlife habitat characteristic of a brackish marsh throughout all elevations of the tidal marshes bordering Suisun Bay shall be maintained. Water quality conditions shall be maintained so that none of the following occurs: (a) loss of diversity; (b) conversion of brackish marsh to salt marsh; (c) for animals, decreased population abundance of those species vulnerable to increased mortality and loss of habitat from increased water salinity; or (d) for plants, significant reduction in stature or percent cover from increased water or soil salinity or other water quality parameters.*		

Table 3 (continued)
WATER QUALITY OBJECTIVES FOR FISH AND WILDLIFE BENEFICIAL USES

COMPLIANCE LOCATIONS	INTERAGENCY STATION NUMBER (RKI [1])	PARAMETER	DESCRIPTION (UNIT) [2]	WATER YEAR TYPE [3]	TIME PERIOD	VALUE
DELTA OUTFLOW						
		Net Delta Outflow Index (NDOI) [8]	*Minimum monthly average [9] NDOI(cfs)*	*All*	*Jan*	*4,500 [10]*
				All	*Feb-Jun*	*[11]*
				W,AN	*Jul*	*8,000*
				BN		*6,500*
				D		*5,000*
				C		*4,000*
				W,AN,BN	*Aug*	*4,000*
				D		*3,500*
				C		*3,000*
				All	*Sep*	*3,000*
				W,AN,BN,D	*Oct*	*4,000*
				C		*3,000*
				W,AN,BN,D	*Nov-Dec*	*4,500*
				C		*3,500*
RIVER FLOWS						
Sacramento River at Rio Vista	*D-24 (RSAC101)*	*Flow rate*	*Minimum monthly average [12] flow rate (cfs)*	*All*	*Sep*	*3,000*
				W,AN,BN,D	*Oct*	*4,000*
				C		*3,000*
				W,AN,BN,D	*Nov-Dec*	*4,500*
				C		*3,500*
San Joaquin River at Airport Way Bridge, Vernalis	*C-10 (RSAN112)*	*Flow rate*	*Minimum monthly average [13] flow rate (cfs) [14]*	*W,AN*	*Feb-Apr 14 and May 16-Jun*	*2,130 or 3,420*
				BN,D		*1,420 or 2,280*
				C		*710 or 1,140*
				W	*Apr 15-May 15 [15]*	*7,330 or 8,620*
				AN		*5,730 or 7,020*
				BN		*4,620 or 5,480*
				D		*4,020 or 4,880*
				C		*3,110 or 3,540*
				All	*Oct*	*1,000 [16]*
EXPORT LIMITS						
		Combined export rate [17]	*Maximum 3-day running average (cfs)*	*All*	*Apr 15-May 15 [18]*	*[19]*
				All	*Feb-Jun*	*35% Delta inflow [22]*
			Maximum percent of Delta inflow diverted [20] [21]	*All*	*Jul-Jan*	*65% Delta inflow*
DELTA CROSS CHANNEL GATES CLOSURE						
Delta Cross Channel at Walnut Grove	*---*	*Closure of gates*	*Closed gates*	*All*	*Nov-Jan*	*[23]*
					Feb-May 20	*---*
					May 21-Jun 15	*[24]*

Table 3 Footnotes:

[1] River Kilometer Index station number.

[2] Determination of compliance with an objective expressed as a running average begins on the last day of the averaging period. The averaging period commences with the first day of the time period of the applicable objective. If the objective is not met on the last day of the averaging period, all days in the averaging period are considered out of compliance.

[3] The Sacramento Valley 40-30-30 Water Year Hydrologic Classification Index (see Figure 2) applies unless otherwise specified.

[4] Compliance will be determined at Jersey Point (station D15) and Prisoners Point (station D29).

[5] This standard does not apply in May when the best available May estimate of the Sacramento River Index for the water year is less than 8.1 MAF at the 90% exceedance level. [Note: The Sacramento River Index refers to the sum of the unimpaired runoff in the water year as published in the California Department of Water Resources' (DWR) Bulletin 120 for

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CALIFORNIA
Water Boards

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

State Water Resources Control Board

FIRST CLASS MAIL AND EMAIL

September 4, 2012

Tim O'Laughlin
O'Laughlin & Paris LLP
2617 K Street, Suite 100
Sacramento, CA 95816
towater@olaughlinparis.com

Dear Mr. O'Laughlin:

RECLAMATION'S FAILURE TO MEET VERNALIS FLOW OBJECTIVES

I am responding to your letter of August 30, 2012 entitled "Reclamation's Failure to Meet Vernalis Flow Objectives". Specifically, you ask whether a response from the State Water Resources Control Board (State Water Board) to the Bureau of Reclamation's (Reclamation) letter of August 8, 2012 is forthcoming.

The short answer is "no". In lieu of responding to the letter I met with Reclamation personnel on August 16, 2012. During the course of that meeting I responded to the major concerns raised in the letter as follows:

- The procedural question about my authority to issue the "Notice of Violation" (NOV).

  I clarified that I was acting under authority delegated to me by the State Water Board to conduct informal fact-finding: State Water Board Resolution No. 2010-0048, Resolved 1.4. Delegation of such authority is consistent with the statute creating the Delta Watermaster position which states that the "board may provide additional duties or needs of the Delta Watermaster." Water Code section 85230(b). I further indicated that the NOV was not a notice of a proposed cease and desist order.

- Reclamation's position that the San Joaquin River Agreement (SJRA) target levels for spring pulse flows at Vernalis are in effect rather the Table 3 water quality objectives.

  I reiterated my position in that the plan's wording of both the 2006 Bay-Delta Water Quality Control Plan and Decision D-1641 is that the Table 3 objectives are now in effect and that they were exceeded during the required period of April 15 - May 15, 2012. In response to Reclamation's assertion that its contract with Merced Irrigation District somehow reinstated the SJRA target levels, I stated that such a position was without persuasive merit.

- Reclamation's description of challenges they face in meeting spring pulse flow requirements at Vernalis.

  I indicated that I recognized those challenges and took them into account before taking the temperate and measured response of issuing the NOV in lieu of other options.

- Developing a path going forward.

  I requested that my Office be involved in planning for the 2013 pulse flows and that the process be started as early as possible next spring. Reclamation agreed.

Please feel free to contact me at (916) 445-5962 if you have any further questions regarding this matter.

Sincerely,

Craig M. Wilson
Delta Watermaster

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Appendix K

Revised Water Quality Control Plan

Draft Lower San Joaquin River Fish and Wildlife Flow Objectives and Program of Implementation

Draft Lower San Joaquin River (LSJR) Fish and Wildlife Flow Objectives

TABLE 3
WATER QUALITY OBJECTIVES FOR FISH AND WILDLIFE BENEFICIAL USES

RIVER FLOWS						
COMPLIANCE LOCATION	***STATION***	***PARAMETER***	***DESCRIPTION***	***WATER YEAR***	***TIME***	***VALUE***
Inflows from the LSJR at Airport Way Bridge, Vernalis to the Delta	*C-10*	*Flow Rate*	*Narrative*	*All*	*February through June*	*Maintain flow conditions from the San Joaquin River Watershed to the Delta at Vernalis, together with other reasonably controllable measures in the San Joaquin River Watershed, sufficient to support and maintain the natural production of viable native San Joaquin River watershed fish populations migrating through the Delta. Flow conditions that reasonably contribute toward maintaining viable native migratory San Joaquin River fish populations include, but may not be limited to, flows that mimic the natural hydrographic conditions to which native fish species are adapted, including the relative magnitude, duration, timing, and spatial extent of flows as they would naturally occur. Indicators of viability include abundance, spatial extent or distribution, genetic and life history diversity, migratory pathways, and productivity.*
Inflows from the Tuolumne River to the LSJR	*TBD*					
Inflows from the Merced River to the LSJR	*TBD*					
Inflows from the Stanislaus River to the LSJR	*TBD*					
LSJR at Airport Way Bridge, Vernalis	*C-10*	*Flow Rate*	*Minimum Average Monthly Flow Rate (cfs)*	*All*	*Oct*	*1,000* [1]

[1] Plus up to an additional 28 thousand acre-feet (TAF) pulse/attraction flow shall be provided during all water year types. The amount of additional water will be limited to that amount necessary to provide a monthly average flow of 2,000 cfs. The additional 28 TAF is not required in a critical year following a critical year. The pulse flow will be scheduled in consultation with the U.S. Fish and Widlife Service (USFWS), National Marine Fisheries Service (NMFS), and the Department of Fish and Game (DFG).

Draft Lower San Joaquin River Fish and Wildlife Flow Objectives Program of Implementation

Delete existing text in Chapter IV. Program of Implementation, A. Implementation Measures within State Water Board Authority, 3. River Flows: San Joaquin River at Airport Way Bridge, Vernalis, and add the following new text to Section B. Measures Requiring a Combination of State Water Board Authorities and Actions by Other Entities:

Consistent with the Porter-Cologne Water Quality Control Act, Water Quality Control Plans shall include a description of the nature of actions which are necessary to achieve the objectives, including actions by the State Water Resouces Control Board (State Water Board) and recommendations for appropriate actions by any other entity, public or private. In addition, a description of surveillance to be undertaken to determine compliance with the objectives is required. This Program of Implementation for the Lower San Joaquin River (LSJR) flow objectives describes the flow actions that the State Water Board will take to implement the narrative objective and the monitoring, special studies, and reporting requirements that the State Water Board will implement to determine compliance. Actions by the State Water Board alone will, however, be insufficient to fully implement the narrative objective's goal of protecting native LSJR fish populations. Actions outside of LSJR flows and the State Water Board's direct regulatory authority must also be part of the comprehensive approach to protect fish and wildlife beneficial uses in the LSJR and San Francisco Bay-Sacramento/San Joaquin Delta Estuary (Bay-Delta). Further, the need for, and effectiveness of, flow and other water quality objectives included in the Water Quality Control Plan for the Bay-Delta (Bay-Delta Plan) to protect fish and wildlife beneficial uses is intricately linked to the successful implementation of these other actions. Other actions, such as habitat restoration, are needed in combination with flow to protect fish and wildlife beneficial uses. At the same time, successful implementation of habitat restoration actions may reduce the need for flows or other actions required by the State Water Board. Accordingly, actions that need to be implemented by other entities are also included in this program of implementation.

State Water Board Actions

The State Water Board will require implementation of the narrative LSJR objective described in Table 3 of the Bay-Delta Plan through water rights actions, Federal Energy Regulatory Commission (FERC) hydropower licensing processes, other water quality actions, or actions by other entities. The implementation framework described below provides for adaptive management of flows informed by required monitoring, special studies, and reporting. The purpose of this program of implementation, in part, is to achieve the narrative LSJR flow objective by providing more natural flow conditions, including more flow of a more natural spatial and temporal pattern; providing for adaptive management in order to respond to changing information on flow needs and to minimize water supply costs; and allowing for and encouraging coordination and integration of existing and future regulatory processes. To allow for refinement of implementation measures and coordination with ongoing FERC proceedings in the LSJR watershed, implementation of the narrative flow objective may be phased in order to achieve full compliance with the narrative objective by no later than 2020.

Although the lowest downstream compliance location for the LSJR narrative flow objective is at Vernalis, the objective is intended to protect migratory fish in a larger area, including areas upstream and within the Delta where fish that migrate to or from the LSJR watershed depend on adequate flows from the LSJR and its tributaries. To assure that flows required to meet the LSJR narrative flow objective are not rediverted for other purposes, the State Water Board may take water right and other actions to assure that the flows are used for their intended purpose.

In addition, the State Water Board may take actions to assure that provision of flows to meet the narrative LSJR flow objective does not result in redirected impacts to groundwater resources. During the implementation proceeding for the narrative LSJR flow objective, the State Water Board may establish requirements, including minimum reservoir carryover storage or other requirements, to assure that provision of flows to meet the narrative flow objective does not have adverse impacts on cold water pool levels and related fisheries impacts.

It is the State Water Board's intention that an agency's implementation of the narrative LSJR flow objective, including implementation through flow requirements imposed in a FERC process, will serve to meet any responsibility to contribute to the LSJR inflow component of the Delta outflow objective in this plan that would be otherwise imposed on that agency. The State Water Board, however, may further consider and reallocate responsibility for implementing the Delta outflow objective in any subsequent proceeding, including a water right proceeding.

February through June Flows Requirements

The State Water Board has determined that more flow of a more natural pattern is needed from February through June from the LSJR watershed to Vernalis to achieve the narrative LSJR flow objective. Specifically, more flow is needed from the existing salmon and steelhead bearing tributaries in the LSJR watershed down to Vernalis in order to provide for connectivity with the Delta and more closely mimic the natural hydrographic conditions to which native migratory fish are adapted. Salmon bearing tributaries to the San Joaquin River currently include the Merced, Tuolumne, and Stanislaus Rivers.[1]

Thus, the State Water Board has determined that 35 percent of unimpaired flow is required from February through June from each of the Merced, Tuolumne, and Stanislaus Rivers on a 14-day running average, unless otherwise approved by the State Water Board through the adaptive management framework described below. This flow is in addition to flows in the LSJR from sources other than the Merced, Tuolumne, and Stanislaus Rivers. The 35 percent of unimpaired flow requirement would not apply when such flows would exceed levels that would cause or contribute to flooding or other related public safety concerns as determined through consultation with federal, state, and local agencies and other appropriate interests with expertise in flood management.

In addition, the State Water Board has determined that base flows of 1,000 cfs on a 14-day running average are required at Vernalis on the LSJR at all times during the February through June period. If the base flows at Vernalis are reduced below 1,000 cfs, then water needed to achieve the base flows should be provided on a basis relative to the average February through June unimpaired flow contributions from each of the Merced, Tuolumne, and Stanislaus Rivers until the base flows reach 1,000 cfs at Vernalis. Specifically, the Merced shall provide 24 percent, the Tuolumne 47 percent, and the Stanislaus 29 percent of the flow needed to achieve

[1] Currently, the San Joaquin River (SJR) does not support salmon runs upstream of the Merced River confluence (upper SJR). However, pursuant to the San Joaquin River Restoration Program (SJRRP), spring-run Chinook salmon are planned to be reintroduced to the upper SJR no later than December 31, 2012. Flows needed to support this reintroduction are being determined and provided through the SJRRP. During the next review of the Bay-Delta Plan, the State Water Board will consider information made available through the SJRRP process, and any other pertinent sources of information, in evaluating the need for any additional flows from the upper SJR to contribute to protection of fish and wildlife beneficial uses in the SJR.

a base flow of 1,000 cfs at Vernalis unless otherwise approved through the Implementation Plan or adaptive management processes described below.

Implementation of February Through June Flow Requirements

Implementation of the February through June LSJR flow requirements will require the development of specific measures to achieve, monitor, and evaluate compliance with the February through June flow requirements, including compliance with the percent unimpaired flow and base flow requirements. Accordingly, State Water Board staff will convene an Implementation Workgroup consisting of persons with expertise in fisheries management, unimpaired flows, and operations on the LSJR, Merced, Tuolumne, and Stanislaus Rivers to develop recommendations for such measures that will best achieve the February through June flow requirements while minimizing water supply costs. The recommendations shall be included in an Implementation Plan that shall be submitted to the Executive Director of the State Water Board for approval within 180 days from the date of the Office of Administrative Law's (OAL) approval of this amendment to the Bay-Delta Plan. The Implementation Plan will then be considered in State Water Board water right proceedings, FERC licensing proceedings, or other implementation actions to achieve the February through June flows.

Annual Adaptive Management of February through June Flow Requirements

The February through June percent of unimpaired flow requirement described above may be adaptively managed on an annual basis in order to achieve the narrative LSJR flow objective and minimize water supply impacts, as described below. Any adaptive management of flows must not result in flows of less than 25 percent of unimpaired flow from each of the Merced, Tuolumne, and Stanislaus Rivers over the entire February through June period.[2] Specifically, instantaneous flows and monthly, daily, and 14-day running average flows may be changed over the particular averaging period on each tributary as long as average flows over the entire five-month period are no less than 25 percent of unimpaired flow on each tributary. This flow is in addition to flows in the LSJR from sources other than the Merced, Tuolumne, and Stanislaus Rivers. At all times, base flows must be met. The adaptive management of flows does not have to rely on the unimpaired flow percentage method, but instead can use pulse flows or other management approaches, as long as the requisite unimpaired flow percentage for the entire February through June period is met.

The State Water Board or other responsible entity will establish a Coordinated Operations Group (COG), which will be comprised of the Department of Fish and Game (DFG); National Marine Fisheries Service (NMFS); United State Fish and Wildlife Service (USFWS); representatives of water users on the Merced, Tuolumne, and Stanislaus Rivers; and any other representatives deemed appropriate by the Executive Director. In order to inform implementation actions, State Water Board staff will work with the COG and interested persons to develop procedures for an adaptive management process, to be submitted for approval by the Executive Director within one year following the date of OAL's approval of this amendment to the Bay-Delta Plan. The procedures shall allow the COG or its members to propose annual adaptive management of flows during the February through June period by preparing a proposed adaptive management plan, subject to approval by the Executive Director. Any member of the COG may submit a proposed adaptive management plan to modify the timing of flows during the February through June time frame in order to better protect fishery resources in the LSJR, Stanislaus, Merced, and Tuolumne Rivers. Any adaptive management plan that

[2] Flows may exceed 35 percent of unimpaired flow from each of the tributaries, but the annual adaptive management does not require such flows.

would modify the total quantity of flow over the entire February through June period must be agreed to by all members of the COG prior to submitting it to the Executive Director. Other interested persons may provide information to inform the COG process and the Executive Director's consideration of any adaptive management plan.

The State Water Board recognizes that an adaptive management plan may not be able to accurately forecast conditions that may actually occur during the February through June period. Accordingly, as long as the approved adaptive management plan is designed to achieve the applicable unimpaired flow range described above, compliance with the plan will be deemed compliance with those flows.

Long-term Adaptive Management of February through June Flow Requirements
Based on future monitoring and evaluation of flow information developed for the LSJR, Merced, Tuolumne, and Stanislaus Rivers, the State Water Board may allow modifications to the numeric requirements in this program of implementation that will achieve the narrative LSJR flow objective. For example, FERC licensing proceedings on the Merced and Tuolumne Rivers are expected to yield specific information on in-stream flow needs for those tributaries. To obtain similar information for the Stanislaus River, the State Water Board will require the development of any additional information needed to inform specific instream flow needs on the Stanislaus River. The State Water Board expects this information to inform specific measures that may be used to adaptively implement the narrative LSJR flow objective.

Specifically, the State Water Board may use subsequently developed information to approve modifications to the required base flow, percentage of unimpaired flows, and upper end of flows at which a percentage of unimpaired flows are no longer required. The required percentage of unimpaired flow may range between 25 and 45 percent of unimpaired flow from any one tributary over the entire February through June period and the base flows at Vernalis may range from 800 to 1200 cfs. The State Water Board may authorize these modifications at its own discretion. In addition, the Executive Director of the State Water Board may approve a request made by the COG for such modifications. Any modification to the February through June flow requirements do not have to rely on the unimpaired flow percentage method, but instead can use other management approaches (such as requiring specific flow levels to support identified ecosystem functions achieved at those levels), as long as the total quantity of water that would be provided over the entire February through June period is between 25 percent and 45 percent of unimpaired flow.

October Flow Requirements
The State Water Board will reevaluate the assignment of responsibility for meeting the October pulse flow requirement during a water right proceeding, FERC licensing proceeding, or other proceeding, in order to optimize protection for fish and wildlife beneficial uses and minimize impacts to water supplies.

The State Water Board will require monitoring and special studies (discussed below) during the water rights and FERC processes to determine what, if any, changes should be made to the October pulse flow requirement and its implementation to achieve the narrative LSJR flow objective. Based on the analyses of fall flow needs, the State Water Board will evaluate the need to modify the October pulse flow requirements in the next update of the Bay-Delta Plan.

Flow Requirements at Other Times of Year (July through September and November through January)

The State Water Board has not established flow requirements for the July through September and November through January time frames that are necessary to implement the narrative LSJR flow objective. The State Water Board will require monitoring and special studies (discussed below) during the water rights and FERC processes to be conducted to determine what, if any, flow requirements should be established for these time frames to achieve the narrative LSJR flow objective. Results from the monitoring and special studies program shall be used to inform the FERC proceedings on the Merced and Tuolumne Rivers and to inform potential changes to the LSJR flow objectives and program of implementation, and other changes to the Bay-Delta Plan.

Variance for State of Emergency

At its discretion or at the request of any affected responsible agency or person, the State Water Board may authorize a temporary variance to the implementation of the narrative LSJR flow objective or October flow objective if the State Water Board determines that either (i) there is an emergency as defined in the California Environmental Quality Act (Pub. Resources Code, § 21060.3); or (ii) the Governor of the State of California or a local governing body has declared a state or local emergency pursuant to the California Emergency Services Act (Gov. Code, § 8550 et seq.). Before authorizing any temporary variance, the State Water Board must finds that measures will be taken to reasonably protect the beneficial use in light of the circumstances of the emergency.

Other State Water Board Activities

In addition to the actions listed above, the State Water Board is currently in the process of conducting a comprehensive review and update of the remainder of the Bay-Delta Plan focused on needed changes to protect fish and wildlife beneficial uses not addressed by the current amendment to establish revised LSJR flows. Specifically, the comprehensive review and update to the Bay-Delta Plan will address inflows from other tributaries to the Bay-Delta, Delta outflows, Old and Middle River flows, and State Water Project (SWP) and Central Valley Project (CVP) operational constraints. In conjunction with the updates to the Bay-Delta Plan, the State Water Board will undertake proceedings to implement changes to the Bay-Delta Plan through water right or other measures. In addition to the updates to the Bay-Delta Plan and its implementation, the State Water Board is also in the process of establishing and implementing flow requirements for priority Delta tributaries. As discussed above, hydropower projects on the Merced and Tuolumne Rivers are also currently in the FERC relicensing process. Pursuant to its Clean Water Act section 401 approval authority, the State Water Board will assure that renewed licenses are appropriately conditioned to ensure compliance with the LSJR flow objectives and other applicable water quality requirements. It is expected that all of the actions listed above will contribute to the protection of fish and wildlife beneficial uses in the Bay-Delta Estuary.

Actions by the Regional Water Quality Control Boards

The Central Valley Regional Water Quality Control Board (Central Valley Board) and San Francisco Bay Regional Water Quality Control Board (San Francisco Bay Board) (collectively Regional Water Boards) are undertaking various actions that will assist in achieving the narrative LJSR flow objective, including actions to monitor, study, and regulate water quality conditions in the LSJR and Bay-Delta watershed. The Regional Boards should continue to develop and implement their regional monitoring programs, Surface Water Ambient Monitoring Program activities, and other special studies and monitoring projects to fully understand the effects of water quality conditions in the LSJR and Bay-Delta on fish and wildlife beneficial uses.

Regional Water Board regulatory programs should continue to use this information to develop appropriate policies and regulatory requirements including: Clean Water Act section 303(d) impaired water bodies listings, Total Maximum Daily Loads, Waste Discharge Requirements, and National Pollution Discharge Elimination System permit requirements to protect native fish and wildlife in the LSJR and Bay-Delta. Specifically, water quality conditions should be evaluated and regulated from an ecosystem perspective and should address direct and indirect effects and synergistic effects of the following high priority water quality issues for the protection of fish and wildlife: nutrients, pesticides, temperatures, dissolved oxygen, cyanotoxins, endocrine disruptors, and other priority water quality issues.

[NOTE: THE FOLLOWING SECTION ON ACTIONS BY OTHER ENTITIES IS UNDER DEVELOPMENT. THE STATE WATER BOARD IS SPECIFICALLY REQUESTING COMMENTS ON THE ACTIONS THAT SHOULD BE INCLUDED IN THIS SECTION AND THE AGENCIES AND ENTITIES THAT SHOULD BE RESPONSIBLE FOR THEIR IMPLEMENTATION.]

Actions by Other Entities

Water quality and flow related actions alone, under the administration of the State and Regional Water Boards, will be inadequate to implement the narrative LSJR flow objective's goal of protecting native fish and wildlife in the LSJR and larger Bay-Delta watershed. Comprehensive planning and implementation activities must be taken that address the responsibilities of a broad group of entities outside of the State and Regional Water Boards to address the wide array of issues affecting the protection of fish and wildlife beneficial uses in the LSJR and Bay-Delta. As native anadromous fish inhabit and traverse a number of different environments, including riverine, delta, bay and ocean habitats, the actions described below involve activities within the LSJR watershed as well as activities in the Bay-Delta watershed and ocean environment. The State Water Board will use its authority, as needed and appropriate, to encourage and where appropriate, require that necessary actions by other entities are completed.

Major Planning and Restoration Activities

Several major planning and restoration activities are currently underway that are expected to greatly contribute to the protection of fish and wildlife in the Bay-Delta Watershed and LSJR when implemented. The State Water Board will work to assure that its Bay-Delta planning and implementation processes are coordinated and integrated with these other processes to protect fish and wildlife in the LSJR and Bay-Delta.

Delta Plan

As part of the 2009 Delta Reform Act (Act), the Delta Stewardship Council (Council) was formed with the responsibility for developing a Delta Plan to achieve the coequal goals established in the Act of a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. The Delta Plan lays out a number of regulatory policies and recommendations to others for actions that must be taken to achieve the coequal goals, including action by the State Water Board discussed above. When implemented, the Delta Plan is expected to achieve the following: improve California's water supply reliability, protect and enhance the Delta ecosystem, protect and enhance the Delta as a place, improve water quality, reduce risk related to flooding issues, and encourage and further the use of best available science. The State Water Board and Regional Water Boards are working to implement their associated activities described in the Delta Plan and will continue to work closely with the Council to implement measures identified in the Delta Plan.

Bay Delta Conservation Plan

The Bay Delta Conservation Plan (BDCP) is a 50-year plan being prepared by a group of local water agencies, environmental and conservation organizations, State and federal agencies, and other interest groups to address threatened and endangered species concerns in the Bay-Delta. Specifically, the BDCP is being developed in compliance with the Federal Endangered Species Act and the California Natural Communities Conservation Planning Act. When complete, the BDCP will provide the basis for the issuance of endangered species permits for the operation of the SWP and CVP. At the center of the BDCP is a long-term conservation strategy that sets forth actions needed to protect native fish species and other uses. It is expected that when approved and implemented, the BDCP will provide the foundation for many of the actions that are needed to protect fish and wildlife beneficial uses in the Bay-Delta, including habitat restoration activities and changes to the operations of the SWP and CVP. The State Water Board has water right and Clean Water Act section 401 water quality certification authority over the BDCP and will assure that any permits or approvals it issues related to BDCP are appropriately conditioned to assure the protection of fish and wildlife, including native LSJR fish and wildlife that may be affected by the project.

San Joaquin River Restoration Program

The San Joaquin River Restoration Program (SJRRP) is a comprehensive long-term effort to restore flows to the upper SJR from Friant Dam to the confluence with the Merced River in order to restore a self-sustaining Chinook salmon fishery in the river while reducing or avoiding adverse water supply impacts from restoration flows. The SJRRP Plan covers 153 miles of the SJR from Friant Dam to the mouth of the Merced River and involves restoring flows to approximately 60 miles of dry river bed along with significant channel and fish passage improvements. Under the SJRRP, interim flows commenced in 2009 and full restoration flows are intended to begin no later than January of 2014, with salmon reintroduction starting by the end of 2012. The State Water Board will continue to coordinate adaptive management and future changes to the Bay-Delta Plan with the SJRRP to assure the protection of fish and wildlife in the SJR basin. Following full implementation of the SJRRP, the State Water Board will also evaluate whether additional changes should be made to flow and water right or other requirements to protect fish and wildlife in the SJR.

Develop and Implement a Comprehensive Habitat Restoration Effort in the LSJR Basin

Flow and flow related measures will not be adequate to fully protect and restore fish and wildlife beneficial uses in the LSJR. Suitable quantities and qualities of flow and habitat must be provided together to protect fish and wildlife. As discussed above, existing efforts are underway in the Bay-Delta and upstream SJR to address habitat issues in combination with flows, but these efforts do not extend into the LSJR, Merced, Tuolumne and Stanislaus Rivers. Similar efforts should be pursued on the LSJR to take actions to improve habitat conditions in the LSJR in coordination with implementation of the LSJR flow objectives and other local and regional habitat restoration efforts. Specifically, water users, government agencies, and others, should work together to develop and implement a comprehensive plan to address habitat impairments in the LSJR in coordination with other existing and planned efforts, including the SJRRP, BDCP, and the Delta Plan. Specific measures that should be pursued as part of that effort are discussed below.

Improve the Quantity, Quality, and Access to Suitable Riparian and Floodplain Habitat for the Benefit of Native Fish and Wildlife

The quality and quantity of accessible seasonal floodplain habitat in the LSJR has been heavily altered over the last century, reducing or eliminating much of the suitable historic habitat. Numerous studies over the past two decades have demonstrated that aquatic and terrestrial

organisms and ecosystems benefit from inundation of and access to seasonal floodplains. Junvenile salmonids and other fish that rear in seasonal floodplain habitats have been shown to have improved growth and survival rates from improved foraging, spawning, and refuge conditions. Actions should be taken by local, State, and federal agencies and others in the LSJR and Merced, Tuolumne and Stanislaus Rivers to improve the quality, quantity, and access to floodplain habitat in the LSJR and its major salmon bearing tributaries.

Improve Riparian Habitat

Riparian habitat in the LSJR and Merced, Tuolumne, and Stanislaus Rivers has been degraded for over a hundred years by water supply, flood control, changes in land use, and resource extraction activities. In addition to improving seasonal floodplain habitat discussed above, riparian habitat below the floodplain should be restored to better protect fish and wildlife beneficial uses, including improvements to provide foraging, cover, and rearing habitat and to improve temperature conditions.

Maximize Gravel Replacement and Maintenance Programs for Salmonid Spawning and Rearing Habitat

Dams on the major tributaries of the Bay-Delta, including tributaries to the LSJR, block the movement of gravel eroding from upstream areas needed for salmonid spawning and rearing habitat. Recruitment of these critical habitat materials is practically lost without gravel replacement and maintenance programs. Dam operators, including those on the Merced, Tuolumne, and Stanislaus Rivers, should implement and improve on existing gravel augmentation programs in coordination with fisheries agencies and other restoration activities to maximize protection of native fish and wildlife.

Reduce Predator Habitat

Physical modifications to river channels, including scour pits, pilings and other structures in the LSJR, Merced, Tuolumne, and Stanislaus Rivers and the Bay-Delta provide habitat and refuge for predatory fish species and increased opportunities to prey upon native LSJR fish. Actions should be taken to identify and, where appropriate, modify these habitat structures to reduce the opportunity for predation on native LSJR fish and other Bay-Delta fish of concern.

Regulatory, Planning, and Implementation Activities of Other Agencies

Regulatory and planning activities of other local, State and federal agencies affect protection of fish and wildlife beneficial uses in the LSJR and Bay-Delta. The purpose and goals for these activities is often different than the narrative LSJR flow objective. Efforts to better coordinate and integrate these activities with activities to protect native LSJR and Bay-Delta fish and wildlife should be made, including the following:

Improve Hatchery Programs

Anadromous fish hatcheries on the Merced River and other tributaries to the Bay-Delta are operated to provide mitigation for the loss of stream spawning and rearing habitat due to the construction of dams. However, operations of these hatcheries also adversely affects the viability of natural fish populations due to increased harvesting pressure, increased competition, reduced genetic integrity due to hybridization, increased prevalence of disease, and other factors. The DFG, in coordination with other appropriate entities,should develop and implement improvements to its anadromous fish hatcheries through the Fish and Game Commission policy review process to address impacts from fish hatcheries on wild stocks.

Reduce the Impacts of Introduced Species on Native Species in the Bay-Delta Estuary
Over time, the intentional and accidental introduction of non-native species has caused major changes in the composition of aquatic resources in the Bay-Delta Estuary. Actions are recommended for local, state and federal agencies to take corrective measures to reduce the impacts of introduced species and prevent the future introduction of non-natives species. Specifically, under the National Invasive Species Act of 1996 the DFG, USFWS, and NOAA fisheries should continue to pursue programs to determine the impacts of introduced species, on the native aquatic resources, and potential control measures. The DFG should also continue the efforts under Fish and Game Code section 6430-6439, concerning introduced species.

Review and Modify, if Necessary, Practices Promoting Non-Native Predators
The California Fish and Game Commission, DFG, NOAA Fisheries, and the USFWS and other responsible agencies should evaluate the appropriateness of existing practices designed to protect and promote non-native predatory fish species (including striped bass) to determine whether changes to those practices would benefit native LSJR and Bay-Delta fish species. Where appropriate, changes should be implemented to improve the protection of native species. Appropriate analysis and documentation of the decision-making process for fishing regulations, fish stocking programs and other decisions should be made available to the public and other decision makers and reviewed on a regular basis to incorporate evolving scientific information.

Review and Modify, if Necessary, Existing Commercial and Recreational Fishing Regulations for Salmon and Steelhead
The California Fish and Game Commission and Pacific Fisheries Management Council (PFMC) should continue the evaluation of Chinook salmon and Steelhead stocks and revise existing commercial and recreational fishing regulations to better protect and restore wild populations as necessary.

Reduce Illegal Harvesting
Illegal harvesting has a certain but un-quantified impact on fisheries that reside within the Bay-Delta Estuary and watershed. DFG and other appropriate agencies should take actions to reduce illegal harvesting of native LSJR and Bay-Delta fish species and should continue to develop and implement educational programs to discourage poaching of fishery resources.

Develop and Implement Improvements to Barrier Programs
Results from the Vernalis Adaptive Management Plan studies have shown that installation of a physical barrier at the Head of Old River during April and May helps to improve survival of outmigrating juvenile LSJR Chinook salmon. However, from 2009 to 2011, the physical barrier was prohibited due to endangered species concerns and a non-physical barrier was installed, yielding uncertain benefits. In 2012, it was agreed that a physical barrier could be installed as long as flows were below 6,000 cfs. The USFWS, NOAA Fisheries, DFG, DWR and USBR should work together to evaluate the potential impacts and benefits of installing physical or non-physical barriers at the Head of Old River and other locations in the Delta, and should implement appropriate changes to protect native fish and wildlife.

Evaluate Entrainment of Fish Species by the SWP and CVP in the Bay-Delta Estuary
The CVP and the SWP pumping facilities in the southern Delta entrain large numbers of fish from the LSJR and Bay-Delta Watershed every year. DWR and USBR should pursue efforts to address these effects on an interim and long-term basis, including measures being developed through the BDCP planning process.

Complete a Working Salmonid Life-Cycle model for the LSJR Basin

The DFG in coordination with other appropriate entities should complete the development of a salmonid life-cycle model for the LSJR basin that predicts population level responses to changes in ecological conditions with reasonable accuracy. The life-cycle model should address flow and non-flow related factors and should undergo regular updating with accompanying peer review. This model should be made available to decision makers and the public to inform adaptive management and other decision making.

Evaluate and Implement Improvements to the Flood Control Measures

The USACOE and other appropriate local and state flood control agencies should evaluate whether changes could be made to flood control requirements to improve the protection of native LSJR and Bay-Delta fish and wildlife while maintaining equivalent flood control infrastructure and practices. Specifically, reservoir storage requirements, levee setback criteria, levee vegetation limitations and other issues should be addressed to identify and implement improvements where appropriate.

New Special Studies, Monitoring, and Reporting Requirements

Add new section with the text below to the end of Chapter IV. Program of Implementation, Section D. Monitoring and Special Studies Program:

LSJR Fish and Wildlife Flow Objectives

In order to inform real time adaptive management and long-term management of flows on the LSJR for the protection of fish and wildlife beneficial uses, the State Water Board will require the development of a comprehensive monitoring, special studies, evaluation, and reporting program, referred to as the San Joaquin River Monitoring and Evaluation Program (SJRMEP). During the water right and FERC proceedings to implement the narrative LSJR flow objective, the State Water Board will establish responsibility for the development and implementation of the SJRMEP. The SJRMEP shall be developed with input from the COG and shall be subject to approval by the Executive Director of the State Water Board. The SJRMEP shall, at a minimum, include monitoring, special studies, and evaluations of flow related factors on the viability of native San Joaquin River watershed fish populations, including abundance, spatial extent (or distribution), diversity (both genetic and life history), and productivity. The SJRMEP shall include regular reporting and evaluation of monitoring and special studies data. Evaluations of monitoring and special studies data shall be subject to regular outside scientific review. The Executive Director may direct or approve changes to the SJRMEP based on monitoring and evaluation needs. The SJRMEP shall be integrated and coordinated with existing monitoring and special studies programs on the LSJR, including monitoring and special studies being conducted pursuant to federal biological opinion requirements and as part of the FERC licensing proceedings for the Merced and Tuolumne Rivers.

Specifically, the SJRMEP shall evaluate the effect of flow conditions at various times of year, including spring (February through June), fall (including October), summer, and winter months on the abundance, spatial extent, diversity, and productivity of native LSJR fish species in order to inform adaptive management and future changes to the LSJR flow objectives and their implementation. The SJRMEP shall be integrated with existing and new monitoring and science programs being developed by the Central Valley Regional Board and the Delta Science Program.

Draft Southern Delta Agricultural Water Quality Objectives and Program of Implementation

Draft Southern Delta Agricultural Water Quality Objectives

TABLE 2
WATER QUALITY OBJECTIVES FOR AGRICULTURAL BENEFICIAL USES

COMPLIANCE LOCATIONS	STATION	PARA-METER	DESCRIPTION	WATER YEAR	TIME	VALUE
SOUTHERN DELTA SALINITY						
San Joaquin River at Airport Way Bridge, Vernalis	*C-10* [5] *(RSAN112)*	*Electrical Conductivity (EC)*	*Maximum 30-day running average of mean daily EC (dS/m)*	*All*	*All*	*1.0*
- and -						
San Joaquin River from Vernalis to Brandt Bridge	*C-6* [5] *(RSAN073)*					
- and -						
Middle River from Old River to Victoria Canal	*C-8* [5] *(ROLD69)*					
- and -						
Old River/Grant Line Canal from head of Old River to West Canal	*P-12* [5] *(ROLD59)*					

[5] *Monitoring for attainment of the numeric salinity objectives may be modified as part of the Monitoring and Reporting Protocol described in the implementation plan. Prior to establishing the Monitoring and Reporting Protocol, attainment of these numeric salinity objectives will be determined at the indicated locations.*

Draft Southern Delta Agricultural Water Quality Objectives Program of Implementation

Replace entirely Chapter IV. Program of Implementation, B. Measures Requiring a Combination of State Water Board Authorities and Actions by Other Entities, 1. Southern Delta Agricultural Salinity Objectives with the following:

1. Southern Delta Agricultural Water Quality Objectives

Table 2 of the Bay-Delta Plan includes numeric salinity objectives that provide reasonable protection of agricultural beneficial uses of the southern Delta. These objectives supersede the southern Delta salinity objectives contained in the 2006 Water Quality Control Plan for the San Francisco Bay-Sacramento-San Joaquin Delta Estuary and the reference to these objectives in the Central Valley Regional Water Quality Control Board's (Central Valley Board) Water Quality Control Plan for the Sacramento and San Joaquin River Basins.

Salinity conditions in the southern Delta are affected by salt loading from the San Joaquin River as it enters the southern Delta at Vernalis and by local sources and evapo-concentration of salinity within the southern Delta. Salinity conditions are also affected by the capacity of the southern Delta water bodies to assimilate these salinity inputs. This assimilative capacity is potentially affected by hydrodynamic conditions such as water levels and the direction and magnitude of flow in the various channels of the southern Delta.

Existing salinity conditions in the southern Delta have been determined to be suitable for all agricultural crops, therefore individual elements of the program of implementation for these numeric salinity objectives are intended to either maintain, or improve upon existing conditions.

State Water Board Regulatory Actions

The southern Delta water quality objectives for protection of agricultural beneficial uses listed in Table 2 will be implemented as follows:

i. In order to maintain current protective salinity levels in the southern Delta, USBR's water rights will continue to be conditioned to require compliance with a salinity level of 0.7 deciSiemens per meter (dS/m) from April through August and 1.0 dS/m from September through March in the San Joaquin River at the Airport Way Bridge near Vernalis[1]. This water right responsibility may be modified after adoption of a TMDL or other salinity management plan by the State Water Board or Central Valley Board that identifies more appropriate salinity concentrations in the San Joaquin River at Vernalis. DWR and USBR's water rights will be conditioned to require the development and implementation of a Comprehensive Operations Plan to fully address the impacts of SWP and CVP export operations on water levels and flow conditions that might affect the assimilative capacity for local sources and evapo-concentration of salinity in the southern Delta. The plan shall include detailed information regarding the configuration and operations of any facilities relied upon in the plan, and shall identify specific performance goals (i.e. water levels, flows, etc.) for these facilities. Monitoring requirements needed to measure compliance with these specific performance goals in this plan should be included in the Monitoring and Reporting Protocol, discussed below. DWR and USBR will be required

[1] Water rights Decision 1641 includes conditions on USBR's water rights requiring implementation of EC levels of 0.7 mmhos/cm from April through August and 1.0 mmhos/cm from September through March. Units of mmhos/cm are equal to units of dS/m.

to work together with the South Delta Water Agency (SDWA), State Water Board staff, other state and federal resource agencies, and local stakeholders to develop the plan, and will be required to hold periodic coordination meetings, no less than quarterly, throughout implementation of the plan.

The State Water Board requests DWR and USBR to submit the Comprehensive Operations Plan to the Executive Director for approval within six months from the date of the Office of Administrative Law's (OAL) approval of this amendment to the Bay-Delta Plan. Notwithstanding voluntary compliance with this measure, at a minimum, the State Water Board will require DWR and USBR to submit the plan within six months after the board has adopted a final order in a water right proceeding to require compliance with this measure. Once approved, the plan shall be reviewed annually, and updated as needed, with a corresponding report submitted by December 31 each year to the Executive Director for approval.

ii. DWR and USBR's water rights will be conditioned to require continued operations of the agricultural barriers at Grant Line Canal, Middle River, and Old River at Tracy, or other reasonable measures, to address the impacts of SWP and CVP export operations on water levels and flow conditions that might affect the assimilative capacity for local sources and evapo-concentration of salinity in the southern Delta. This shall include modified design or operations as determined by the Comprehensive Operations Plan.

iii. DWR and USBR's water rights will be conditioned to require completion of the Monitoring Special Study, Modeling Improvement Plan, and Monitoring and Reporting Protocol described in this Chapter, Section D. Monitoring and Special Studies Program, Part 2. Southern Delta Agricultural Water Quality Objectives.

The Monitoring and Reporting Protocol will provide the data necessary to assess attainment of the numeric salinity objectives for the southern Delta through the above program of implementation. Prior to establishing the Monitoring and Reporting Protocol, attainment of the numeric salinity objectives for the southern Delta will be assessed at stations C-10, C-6, C-8, and P-12, which USBR and DWR will be required to continue to operate.

iv. In addition to the above requirements, implementation of revised San Joaquin River flow objectives will increase inflow of low salinity water into the southern Delta during February through June which will assist in achieving the southern Delta water quality objectives during that time.

State Water Board Funding of Programs

i. State Water Board administered funding assistance for salinity-related projects will aid in implementing the Vernalis and interior southern Delta salinity objectives. Potential funding sources include the Clean Water State Revolving Fund Loan Program, the Agricultural Drainage Loan Program, the Agricultural Drainage Management Loan Program, and Federal Clean Water Act Section 319 Nonpoint Source Implementation Program.

To the extent necessary, the State Water Board may take other water right actions and water quality actions, in concert with actions by other entities, to implement the objectives.

Central Valley Board Regulatory Actions

The Central Valley Board is undertaking the following efforts, which will assist in implementing the Vernalis and interior southern Delta salinity objectives:

i. Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS): CV-SALTS is a stakeholder-led effort initiated by the State Water Board and the Central Valley Board in 2006 to develop comprehensive long-term measures to address salinity and nitrate problems in California's Central Valley, including a basin plan amendment and implementation actions. The State Water Board may consider future modifications to the southern Delta salinity objectives and program of implementation based on information and recommendations generated from the CV-SALTS efforts.

ii. Upstream of Vernalis San Joaquin River Salinity Objectives: CV-SALTS has established a subcommittee to develop a Basin Plan amendment containing numerical salinity objectives and a program of implementation for the Lower San Joaquin River. upstream of Vernalis.

iii. National Pollutant Discharge Elimination System (NPDES) Regulation: In coordination with the ongoing CV-SALTS process, the Central Valley Board regulates salt discharges upstream and within the southern Delta using its NPDES and other permitting authorities. The Central Valley Board, in coordination with various Central Valley stakeholders, is also developing an interim program to grant temporary exceptions from meeting water quality based effluent limits for salinity while CV-SALTS is in progress.

iv. Irrigated Lands Regulatory Program: Under the Irrigated Lands Regulatory Program the Central Valley Board issues waste discharge requirements to coalition groups and individual dischargers requiring surface water quality monitoring and the preparation and implementation of management plans to address identified water quality problems, including those associated with salinity.

v. San Joaquin River at Vernalis Salt and Boron Total Maximum Daily Load (TMDL): The Central Valley Board is implementing the salinity and boron TMDL at Vernalis. This effort includes a Management Agency Agreement with USBR addressing salt imported into the San Joaquin River basin via the Delta-Mendota Canal.

Actions by Other Entities

Other agencies are undertaking the following actions, which will assist in implementing the Vernalis and interior southern Delta salinity objectives:

i. San Luis Unit Feature Re-evaluation Project: The purpose of the San Luis Unit Feature Re-evaluation Project, led by the USBR, is to provide agricultural drainage service to the San Luis Unit of the Central Valley Project, with the goal of providing a long-term sustainable salt and water balance for the associated irrigated lands. The project will consist of: drainage reduction measures, draingage water reuse facilities, treatment systems, evaporation ponds, and retirement of drainage impacted lands from irrigated agriculture in the San Luis Unit.

ii. West Side Regional Drainage Plan: The West Side Regional Drainage Plan is an effort by local stakeholders in the western San Joaquin Valley, including the Grasslands Bypass Project, to meet Central Valley Board requirements to reduce salt and other contaminant loads to the San Joaquin River upstream of Vernalis. The projects implemented by this plan are coordinated with the USBR San Luis Unit Feature Re-evaluation project.

New Special Studies, Monitoring, and Reporting Requirements

Add new section with the text below to the end of Chapter IV. Program of Implementation, Section D. Monitoring and Special Studies Program:

2. Southern Delta Agricultural Water Quality Objectives

To assist in implementing the numeric salinity objectives in the southern Delta, the State Water Board will establish water right conditions, if not already established, to require the collection of information through the following monitoring and special studies programs in the southern Delta:

i. Monitoring Special Study: DWR and USBR will be required to work with State Water Board staff and solicit stakeholder input to develop and implement a special study to characterize the spatial and temporal distribution and associated dynamics of water level, flow, and salinity conditions in the southern Delta waterways. The extent of low or null flow conditions and any associated concentration of local salt discharges should be documented. The State Water Board will request local agricultural water users and municipal dischargers to provide data regarding local diversions and return flows or discharges.

   The State Water Board requests DWR and USBR to submit a plan for this special study to the Executive Director for approval within six months from the date of OAL's approval of this amendment to the Bay-Delta Plan. Notwithstanding voluntary compliance with this measure, at a minimum, the State Water Board will require DWR and USBR to submit the plan within six months after the board has adopted a final order in a water right proceeding to require compliance with this measure. Once approved, the monitoring contained in this plan shall be implemented until the Monitoring and Reporting Protocol (described below) is approved.

ii. Modeling Improvement Plan: State Water Board Order WR 2010-0002, which modifies paragraph A.3 of Order WR 2006-0006, requires DWR and USBR to provide modeling and other technical assistance necessary to assist the State Water Board in reviewing and implementing the Bay-Delta Plan. DWR and USBR will continue to provide this assistance as required by the State Water Board's order.

iii. Monitoring and Reporting Protocol: In coordination with State Water Board staff, DWR and USBR will be required to solicit stakeholder input to develop specific monitoring requirements to measure compliance with the specific performance goals of the Comprehensive Operations Plan. It will also provide the data necessary to assess attainment of the numeric salinity objectives for the southern Delta through the program of implementation. The Monitoring and Reporting Protocol will be required to be integrated and coordinated with existing monitoring and special studies programs in the Delta.

   The State Water Board requests DWR and USBR to submit a plan for the Monitoring and Reporting Protocol to the Executive Director for approval within 18 months from the date of OAL's approval of this amendment to the Bay-Delta Plan. Notwithstanding voluntary compliance with this measure, at a minimum, the State Water Board will require DWR and USBR to submit the plan within 18 months after the board has adopted a final order in a water right proceeding to require compliance with this measure.