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September 21, 2012

Via Electronic Mail Only

Ms. Susan Fry
Bureau of Reclamation
Mid-Pacific Region
Area Manager, Bay-Delta Office
801 I Street, Suite 140
Sacramento, CA 95814
RemandSEP@usbr.gov

Re: Glenn-Colusa Irrigation District's Comments on Draft Biological Assessment Project Description for the Coordinated Long-Term Operation of the Central Valley Project and State Water Project

Dear Ms. Fry:

This firm serves as General Counsel to Glenn-Colusa Irrigation District ("GCID"). As requested during the last Reclamation Stakeholder Engagement Process meeting, the following comments are submitted by GCID regarding the above-referenced matter:

1. The introduction should be modified to reflect the multiple purposes of the Central Valley Project ("CVP") and the State Water Project ("SWP") rather than simply reference reservoir releases for the Delta and export.

2. In the first paragraph under "The Proposed Action," the Project Description references a number of projects included in the consultation, but infers that those are future projects. This does not accurately reflect the status of most, if not all, of these projects. The Freeport Regional Water Project is operational. Construction of the Intertie is essentially complete. Similarly, improvements at the Red Bluff Diversion Dam are to be completed by December 2012. These projects are more appropriately included as current actions. See also Table 2-1.

3. The Project Description describes in detail the various obligations imposed upon the CVP and SWP that are not addressed in the 1986 Coordinated Operations Agreement ("COA"). For example, on page 6, the Project Description states that the COA does not address how D-1641 Delta outflow obligations are to be shared. Yet, in Table 2-1, the 2030 Future Proposed Actions states that the 1986 COA will continue to be operative. While it might not be possible at this time to define potential changes in the 1986 COA for purposes of this consultation, Table 2-1 should acknowledge that future changes in the COA are required.

4. On page 4, it is stated that under Article 6(g) of the COA, Reclamation and DWR have the responsibility (during excess water conditions) to store and export as much water as possible, within physical, legal, and contractual limits. While that is the language used in the COA, it should not be interpreted to require exports if sound water management practices dictate keeping water in storage. During critical conditions, there may be excess conditions in the second year of a drought for a brief period of time but because of increased exports, rather than keeping water in storage, reservoir reach dead pool during the third year of a drought, i.e. 1934.

5. Understandably, it is difficult to include all proposed actions that may affect the coordinated operations of the CVP and the SWP when new projects and actions continue to be proposed. The Project Description should, however, discuss ongoing activities. On page 8, the Project Description should state that the State Water Resources Control Board is currently engaged in Comprehensive (Phase 2) Review and Update to the Bay-Delta Plan.

6. The Project Description should distinguish between settlement contractors and CVP water service contractors, as appropriate, and revisions to that effect are proposed on pages 23, 33, and 34.

7. On page 36, there is discussion regarding minimum flows below Keswick of 3,250 cfs, which is less than the minimum flow requirement at Wilkins Slough, see Comment 9 below. This section should provide additional information regarding operations and flows on how these two differing flow requirements are resolved and how Reclamation meets one standard versus the other.

8. On page 36, the following statement is made, "The increased water demand for fall rice field flooding and decomposition on the Sacramento River during this timeframe affects Reclamation's ability to maintain a stable base flow." This statement should be removed from the Project Description or a subsequent statement added which reflects the fact that Settlement Contractors in the Sacramento Valley have approached Central Valley Operations multiple times to discuss operational alternatives to maintain a stable base flow. While flows may be incrementally higher to meet Rice Straw

Decomposition and Waterfowl Habitat Program demands, this need can be met while maintaining a stable base flow.

9. On page 37, within the discussion of the Wilkins Slough minimum navigation flow requirements, the Project Description states that, "No criteria have been established specifying when the navigation minimum flow should be relaxed." This discussion ignores the fact that compliance with the Wilkins Slough 5,000 cfs navigation flow standard is not discretionary, or subject to criteria allowing non-compliance. In this regard, Congress initially authorized the construction of certain facilities for the CVP under the Rivers and Harbors Act of 1935 (the "1935 Act"). (49 Stat. 1028, 1038.) The 1935 Act mandated in relevant part that, "the following works of improvement of rivers . . . are hereby adopted and authorized . . . in accordance with the plans recommended in the respective reports hereinafter designated and subject to the conditions set forth in such documents . . . Sacramento River, California; Rivers and Harbors Committee Document Numbered 35, Seventy-third Congress . . . ." (50 Stat. 1028, 1038.) As such, the 1935 Act incorporates by reference, and expressly requires the implementation of, the recommendations of the Rivers and Harbors Committee Document Number 35. This document is a 1934 report from the Corps' Chief Engineer recommending to Congress that Kennett Dam (predecessor to Shasta Dam) "*shall be operated* so as to provide a minimum flow of 5,000 cubic feet per second between Chico Landing and Sacramento." (See Central Valley Project Documents, Part I, 544, 548 [Committee Doc. 35, 73rd Cong.], emphasis added.)

Congress re-authorized the CVP under the Rivers and Harbors Act of 1937 (the "1937 Act"). (50 Stat. 844, 850.) This re-authorization mandated in relevant part that, "the $12,000,000 recommended for expenditure for a part of the Central Valley project, California, in accordance with the plans set forth in Rivers and Harbors Committee Document Numbered 35, Seventy-third Congress, and adopted and authorized by the provisions of section 1 of the Act of August 30, 1935 (49 Stat. 1028, at 1038) . . . shall, when appropriated, be available for expenditure in accordance with the said plans of the Secretary of Interior instead of the Secretary of War." (50 Stat. 844, 850.) As such, the 1937 Act also incorporates by reference, and expressly requires the implementation of, the recommended minimum flow of 5,000 cfs between Chico Landing and Sacramento. There has been no subsequent action by Congress that has "discontinued" or otherwise changed this minimum navigation flow requirement.

Lastly, we have attached hereto a redline version of the draft Project Description with proposed revisions and further comments. If you have any questions, please contact the undersigned at (916) 446-7979.

Very truly yours,

Andrew M. Hitchings

Enc.
cc (*via electronic mail only*):
Thaddeus Bettner
David Guy
Kevin O'Brien
Steve Saxton
AMH:cr

Project Description for the Central Valley Project and State Water Project

Introduction

Reclamation and DWR propose to continue to operate the CVP and SWP to divert, store, and convey Project water consistent with applicable law. See map in Figure 2.1. The CVP's major storage facilities are Shasta, Trinity, Folsom and New Melones. The upstream reservoirs release water for inbasin uses, including the Delta and for export through Jones pumping plant to store in the joint reservoir San Luis or deliver down the Delta Mendota Canal. The SWP owns Lake Oroville upstream and releases water for the Delta that can be exported at Harvey O. Banks Pumping Plant (Banks) for delivery through the California Aqueduct. These operations are summarized in this BA with more detail.

The Proposed Action

The proposed action is the continued operation of the CVP and SWP. The proposed action includes the operation of the temporary barriers project in the south Delta and the 500 cfs increase in SWP Delta export limit July through September. In addition, several other recently completed actions are included in this consultation. These actions are: (1) an intertie between the California Aqueduct (CA) and the Delta-Mendota Canal (DMC), (2) Freeport Regional Water Project (FRWP), (3) changes in the operation of the Red Bluff Diversion Dam (RBDD),

All site-specific/localized activities of the actions such as construction/screening and any other site-specific effects will be addressed in separate action-specific section 7 consultations. In addition, DWR will need to consult with the California Department of Fish and Game (DFG), as may be appropriate, to address applicable requirements of the State Endangered Species Act. This BA may assist DWR and DFG in their consultation to ensure that DWR is in compliance with the State ESA.

Table 2-1 summarizes the differences between current operational actions and future operational actions to be covered by this consultation. A detailed summary of all operational components and associated modeling assumptions are included in Table 9-5.

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Table 2-1 Major Proposed Future Operational Actions for Consultation.

Area of Project	Today 2011	Future 2030
Trinity & Whiskeytown	Trinity Restoration Flows 368,600-815,000 af	Same
Shasta/Sacramento River	Red Bluff Diversion Dam (RBDD) 8 months gates out	10 months gates out with pumping plant
Oroville and Feather River	Old FERC License and NMFS 2004 BO	Expect New FERC License
Folsom and American River	Current Demands Freeport Regional Water Project	Build out of demands, New American River Flow Management,
New Melones and Stanislaus River	Interim Plan of Operations Guidance	Interim Plan of Operations Guidance
Friant Division	Historic Operations	Same
Sacramento-San Joaquin Delta	Current Demands	2030 Demands
Suisun Marsh	Same	Expect to Implement New Charter
WQCP	D-1641	Same
COA	1986 Guidance	
CVPIA	May 9, 2003 Decision	Same
Banks Pumping Plant	6680* cfs and Temporary Barriers	6680* cfs and Temporary Barriers
Jones Pumping Plant	Max of 4600 cfs with Flexibility of Intertie	Max 4600 cfs with Flexibility of Intertie

- This diversion rate is normally restricted to 6,680 cfs as a three-day average inflow to Clifton Court Forebay, although between December 15 and March 15, when the San Joaquin River is above 1,000 cfs, one-third of the San Joaquin River flow at Vernalis may be pumped in addition. Furthermore, the SWP is permitted to pump an additional 500 cfs between July 1 and September 30 to offset water costs associated with fisheries actions making the summer limit effectively 7,180 cfs.

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Comment [3]: Given that the 1986 COA does not address many of the shared obligations of the Projects, it is likely that the 1986 COA will be modified or replaced.

Under the proposed action the goal for real time decision-making to assist fishery management is to minimize adverse effects for listed species while meeting contractual obligations for water deliveries:

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Framework for Actions

Reclamation and DWR work closely with FWS, NMFS, and DFG to coordinate the operation of the CVP and SWP with fishery needs. This coordination is facilitated through several forums in a cooperative management process that allows for modifying operations based on real-time data that includes current fish surveys, flow and temperature information, and salvage or loss at the project facilities, (hereinafter "triggering event").

Water Operations Management Team

The Water Operations Management Team (WOMT) is comprised of representatives from Reclamation, DWR, FWS, NMFS, and DFG. This management-level team was established to facilitate timely decision-support and decision-making at the appropriate level. The WOMT first met in 1999, and will continue to meet to make management decisions as part of the proposed project. Routinely, it also uses the CALFED Ops Group to communicate with stakeholders about its decisions. Although the goal of WOMT is to achieve consensus on decisions, the participating agencies retain their authorized roles and responsibilities.

Process for Real Time Decision- Making to Assist Fishery Management

Decisions regarding CVP and SWP operations to avoid and minimize adverse effects on listed species must consider factors that include public health, safety, and water supply reliability. To facilitate such decisions, the Project Agencies and the fishery agencies (consisting of FWS, NMFS, and DFG) have developed and refined a set of processes for various fish species to collect data, disseminate information, develop recommendations, make decisions, and provide transparency. This process consists of three types of groups that meet on a recurring basis. Management teams are made up of management staff from Reclamation, DWR, and the fishery agencies. Information teams are teams whose role is to disseminate and coordinate information among agencies and stakeholders. Fisheries and Operations technical teams are made up of technical staff from state and Federal agencies. These teams review the most up-to-date data and information on fish status and Delta conditions, and develop recommendations that fishery agencies' management can use in identifying actions to protect listed species.

The process to identify actions for protection of listed species varies to some degree among species but follows this general outline: A Fisheries or Operations Technical Team compiles and assesses current information regarding species, such as stages of reproductive development, geographic distribution, relative abundance, physical habitat conditions, then provides a recommendation to the agency with statutory obligation to enforce protection of the species in question. The agency's staff and management will review the recommendation and use it as a basis for developing, in cooperation with Reclamation and DWR, a modification of water operations that will minimize adverse effects to listed species by the Projects. If the Project

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Comment [4]: Since this is in the section entitled "Real Time Decision-Making to Assist Fishery Management" it might not be obvious why meeting contractual obligations for water deliveries is an appropriate goal. See suggested revision.

Water Service Contracts, Allocations and Deliveries

Water Needs Assessment

Water needs assessments have been performed for each CVP water contractor eligible to participate in the CVP long-term contract renewal process. Water needs assessments confirm a contractor's past beneficial use and determine future CVP water supplies needed to meet the contractor's anticipated future demands. The assessments are based on a common methodology used to determine the amount of CVP water needed to balance a contractor's water demands with available surface and groundwater supplies. All of the contractor assessments have been finalized.

Future American River Operations - Water Service Contracts and Deliveries

Surface water deliveries from the American River are made to various water rights entities and CVP contractors. Total American River Division annual demands on the American and Sacramento Rivers are estimated to increase from about 324,000 acre-feet in 2005 and 605,000 acre-feet in 2030 without the Freeport Regional Water project maximum of 133,000 acre-feet during drier years. Reclamation is negotiating the renewal of 13 long-term water service contracts, four Warren Act contracts, and has a role in six infrastructure or Folsom Reservoir operations actions influencing the management of American River Division facilities and water use.

Water Allocation – CVP

In most years, the combination of carryover storage and runoff into CVP reservoirs is insufficient to provide the water to meet all CVP contractors' contractual demands. Since 1992, increasing constraints placed on operations by legislative and ESA requirements have removed significant operational flexibility to deliver water to all CVP contractors. This reduction in flexibility has its greatest allocation effect on CVP water service contractors south of the Delta.

The water allocation process for CVP begins in the fall when preliminary assessments are made of the next year's water supply possibilities, given current storage conditions combined with a range of hydrologic conditions. These preliminary assessments may be refined as the water year progresses. Beginning February 1, forecasts of water year runoff are prepared using precipitation to date, snow water content accumulation, and runoff to date. All of CVP's Sacramento River Settlement water rights contracts and San Joaquin River Exchange contracts require that contractors be informed no later than February 15 of any possible deficiency in their supplies. In recent years, February 20th has been the target date for the first announcement of all CVP contractors' forecasted water allocations for the upcoming contract year. Forecasts of runoff and operations plans are updated at least monthly between February and May.

Reclamation uses the 90 percent probability of exceedance forecast as the basis of water allocations. Furthermore, NMFS reviews the operations plans devised to support the initial water allocation, and any subsequent updates to them, for sufficiency with respect to the criteria for Sacramento River temperature control.

CVP M&I Water Shortage Operational Assumptions-

The CVP has 253 water supply contracts (including water service contracts and settlement contracts). The water service contracts have had varying water shortage provisions (e.g., in some

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contracts, municipal and industrial (M&I) and agricultural uses have shared shortages equally; in most of the larger M&I contracts, agricultural water has been shorted 25 percent of its contract entitlement before M&I water was shorted, after which both shared shortages equally).

The M&I minimum shortage allocation does not apply to contracts for the (1) Friant Division, (2) New Melones interim supply, (3) Hidden and Buchanan Units, (4) Cross Valley contractors, (5) Wildlife refuges, (6) San Joaquin River Exchange settlement contractors, and (7) Sacramento River settlement contractors. Any separate shortage- related contractual provisions will prevail.

There will be a minimum shortage allocation for M&I water supplies of 75 percent of a contractor's historical use (i.e., the last 3 years of water deliveries unconstrained by the availability of CVP water). Historical use can be adjusted for growth, extraordinary water conservation measures, and use of non-CVP water as those terms are defined in the proposed policy. Before the M&I water allocation is reduced, the irrigation water allocation would be reduced below 75 percent of contract entitlement.

When the allocation of irrigation water is reduced below 25 percent of contract entitlement, Reclamation will reassess the availability of CVP water and CVP water demand; however, due to limited water supplies during these times, M&I water allocation may be reduced below 75 percent of adjusted historical use during extraordinary and rare times such as prolonged and severe drought. Under these extraordinary conditions allocation percentages for both South of Delta and North of Delta irrigation and M&I contractors will be reduced, once irrigation allocations drop by 25 percent by the same increment.

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Reclamation will deliver CVP water to all M&I contractors at not less than a public health and safety level if CVP water is available, if an emergency situation exists, but not exceeding 75 percent on contract total (and taking into consideration water supplies available to the M&I contractors from other sources). This is in recognition, however, that the M&I allocation may, nevertheless, fall to 50 percent as the irrigation allocation drops below 25 percent and approaches zero due to limited CVP supplies.

Allocation Modeling Assumptions:

Ag 100% to 75% then M&I is at 100%

Ag 70%	M&I 95%
Ag 65%	M&I 90%
Ag 60%	M&I 85%
Ag 55%	M&I 80%
Ag 50% to 25%	M&I 75%

Dry and Critical Years:

Ag 20%	M&I 70%
Ag 15%	M&I 65%
Ag 10%	M&I 60%
Ag 5%	M&I 55%

efforts in the Spring Creek drainage basin, Reclamation now operates SCDD targeting the more stringent Central Valley Region Water Quality Control Plan (Basin Plan) criteria in addition to the MOU goals. Instead of the total copper and total zinc criteria contained in the MOU, Reclamation operates SCDD releases and Keswick dilution flows to not exceed the Basin Plan standards of 0.0056 mg/L dissolved copper and 0.016 mg/L dissolved zinc. Release rates are estimated from a mass balance calculation of the copper and zinc in the debris dam release and in the river.

In order to minimize the build-up of metal concentrations in the Spring Creek arm of Keswick Reservoir, releases from the debris dam are coordinated with releases from the Spring Creek Powerplant to keep the Spring Creek arm of Keswick Reservoir in circulation with the main water body of Keswick Lake.

The operation of SCDD is complicated during major heavy rainfall events. SCDD reservoir can fill to uncontrolled spill elevations in a relatively short time period, anywhere from days to weeks. Uncontrolled spills at SCDD can occur during major flood events on the upper Sacramento River and also during localized rainfall events in the Spring Creek watershed. During flood control events, Keswick releases may be reduced to meet flood control objectives at Bend Bridge when storage and inflow at Spring Creek Reservoir are high.

Because SCDD releases are maintained as a dilution ratio of Keswick releases to maintain the required dilution of copper and zinc, uncontrolled spills can and have occurred from SCDD. In this operational situation, high metal concentration loads during heavy rainfall are usually limited to areas immediately downstream of Keswick Dam because of the high runoff entering the Sacramento River adding dilution flow. In the operational situation when Keswick releases are increased for flood control purposes, SCDD releases are also increased in an effort to reduce spill potential.

In the operational situation when heavy rainfall events will fill SCDD and Shasta Reservoir will not reach flood control conditions, increased releases from CVP storage may be required to maintain desired dilution ratios for metal concentrations. Reclamation has voluntarily released additional water from CVP storage to maintain release ratios for toxic metals below Keswick Dam. Reclamation has typically attempted to meet the Basin Plan standards but these releases have no established criteria and are dealt with on a case-by-case basis. Since water released for dilution of toxic spills is likely to be in excess of other CVP requirements, such releases increase the risk of a loss of water for other beneficial purposes.

Shasta Division and Sacramento River Division

The CVP's Shasta Division includes facilities that conserve water in the Sacramento River for (1) flood control, (2) navigation maintenance, (3) agricultural water supplies, (4) M&I water supplies (5) hydroelectric power generation, (6) conservation of fish in the Sacramento River, and (7) protection of the Sacramento-San Joaquin Delta from intrusion of saline ocean water. The Shasta Division includes Shasta Dam, Lake, and Powerplant; Keswick Dam, Reservoir, and Powerplant, and the Shasta Temperature Control Device.

The Sacramento River Division was authorized after completion of the Shasta Division. Total authorized diversions for the Sacramento River Division are approximately 2.8 maf. Historically the total diversion has varied from 1.8 maf in a critically dry year to the full 2.8 maf in a wet year, including diversions by Sacramento River Settlement Contractors and CVP water service

contractors. Sacramento River Settlement Contractors divert water via their own facilities and under their own claimed water rights which pre-existed the CVP. The Sacramento River Division includes facilities for the diversion and conveyance of water to CVP water service contractors on the west side of the Sacramento River. The division includes the Sacramento Canals Unit, which was authorized in 1950 and consists of the RBDD, the Corning Pumping Plant, and the Corning and Tehama-Colusa Canals.

The unit was authorized to supply irrigation water to over 200,000 acres of land in the Sacramento Valley, principally in Tehama, Glenn, Colusa, and Yolo counties. Black Butte Dam, which is operated by the U.S. Army Corps of Engineers (Corps), also provides supplemental water to the Tehama-Colusa Canals as it crosses Stony Creek. The operations of the Shasta and Sacramento River divisions are presented together because of their operational inter-relationships.

Shasta Dam is located on the Sacramento River just below the confluence of the Sacramento, McCloud, and Pit Rivers. The dam regulates the flow from a drainage area of approximately 6,649 square miles. Shasta Dam was completed in 1945, forming Shasta Lake, which has a maximum storage capacity of 4,552,000 af. Water in Shasta Lake is released through or around the Shasta Powerplant to the Sacramento River where it is re-regulated downstream by Keswick Dam. A small amount of water is diverted directly from Shasta Lake for M&I uses by local communities.

Keswick Reservoir was formed by the completion of Keswick Dam in 1950. It has a capacity of approximately 23,800 af and serves as an afterbay for releases from Shasta Dam and for discharges from the Spring Creek Powerplant. All releases from Keswick Reservoir are made to the Sacramento River at Keswick Dam. The dam has a fish trapping facility that operates in conjunction with the Coleman National Fish Hatchery on Battle Creek.

Flood Control

Flood control objectives for Shasta Lake require that releases be restricted to quantities that will not cause downstream flows or stages to exceed specified levels. These include a flow of 79,000 cfs at the tailwater of Keswick Dam, and a stage of 39.2 feet in the Sacramento River at Bend Bridge gauging station, which corresponds to a flow of approximately 100,000 cfs. Flood control operations are based on regulating criteria developed by the Corps pursuant to the provisions of the Flood Control Act of 1944. Maximum flood space reservation is 1.3 maf, with variable storage space requirements based on an inflow parameter.

Flood control operation at Shasta Lake requires the forecasting of runoff conditions into Shasta Lake, as well as runoff conditions of unregulated creek systems downstream from Keswick Dam, as far in advance as possible. A critical element of upper Sacramento River flood operations is the local runoff entering the Sacramento River between Keswick Dam and Bend Bridge.

The unregulated creeks (major creek systems are Cottonwood Creek, Cow Creek, and Battle Creek) in this reach of the Sacramento River can be very sensitive to a large rainfall event and produce large rates of runoff into the Sacramento River in short time periods. During large rainfall and flooding events, the local runoff between Keswick Dam and Bend Bridge can exceed 100,000 cfs.

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The 1960 MOA between Reclamation and the DFG provides that releases from Keswick Dam (from September 1 through December 31) are made with minimum water level fluctuation or change to protect salmon to the extent compatible with other operations requirements. Releases from Shasta and Keswick Dams are gradually reduced in September and early October during the transition from meeting Delta export and water quality demands to operating the system for flood control and fishery concerns from October through December.

Reclamation proposes a minimum flow of 3,250 cfs from October 1 through March 31 and ramping constraints for Keswick release reductions from July 1 through March 31 as follows:

- Releases must be reduced between sunset and sunrise.
- When Keswick releases are 6,000 cfs or greater, decreases may not exceed 15 percent per night. Decreases also may not exceed 2.5 percent in one hour.
- For Keswick releases between 4,000 and 5,999 cfs, decreases may not exceed 200 cfs per night. Decreases also may not exceed 100 cfs per hour.
- For Keswick releases between 3,250 and 3,999 cfs, decreases may not exceed 100 cfs per night.
- Variances to these release requirements are allowed under flood control operations.

Reclamation usually attempts to reduce releases from Keswick Dam to the minimum fishery requirement by October 15 each year and to minimize changes in Keswick releases between October 15 and December 31. Releases may be increased during this period to meet unexpected downstream needs such as higher outflows in the Delta to meet water quality requirements, or to meet flood control requirements. Releases from Keswick Dam may be reduced when downstream tributary inflows increase to a level that will meet flow needs. Reclamation attempts to establish a base flow that minimizes release fluctuations to reduce impacts to fisheries and bank erosion from October through December.

A recent change in agricultural water diversion practices has affected Keswick Dam release rates in the fall. This program is generally known as the Rice Straw Decomposition and Waterfowl Habitat Program. Historically, the preferred method of clearing fields of rice stubble was to systematically burn it. Today, rice field burning has been phased out due to air quality concerns and has been replaced by a program of rice field flooding that decomposes rice stubble and provides additional waterfowl habitat. The result has been an increase in water demand to flood rice fields in October and November, which has increased the need for higher Keswick releases in all but the wettest of fall months.

The changes in agricultural practice over the last decade related to the Rice Straw Decomposition and Waterfowl Habitat Program have been incorporated into the systematic modeling of agricultural use and hydrology effects, and the CalSim-II model used here incorporates these effects.

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mment [5]: Settlement Contractors in the amento Valley have approached CVO multiple to discuss operational alternatives to maintain ble base flow.

Minimum Flow for Navigation – Wilkins Slough

Historical commerce on the Sacramento River resulted in a CVP authorization to maintain minimum flows of 5,000 cfs at Chico Landing to support navigation. Currently, there is no

required Reclamation to establish the Sacramento River Temperature Task Group (SRTTG) to formulate, monitor, and coordinate temperature control plans for the upper Sacramento and Trinity Rivers. This group consists of representatives from Reclamation, SWRCB, NMFS, FWS, DFG, Western, DWR, and the Hoopa Valley Indian Tribe.

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Comment [6]: To insure better coordinated operations on the Sacramento River, the SRTTG should be open to inbasin diverters as well. Either Reclamation should make this change, or make a request to the SWRCB to expand participation in this group.

Each year, with finite cold water resources and competing demands usually an issue, the SRTTG will devise operation plans with the flexibility to provide the best protection consistent with the CVP's temperature control capabilities and considering the annual needs and seasonal spawning distribution monitoring information for winter-run and fall-run Chinook salmon. In every year since the SWRCB issued the orders, those plans have included modifying the RBDD compliance point to make best use of the cold water resources based on the location of spawning Chinook salmon. Reports are submitted periodically to the SWRCB over the temperature control season defining our temperature operation plans. The SWRCB has overall authority to determine if the plan is sufficient to meet water right permit requirements.

Shasta Temperature Control Device

Construction of the Temperature Control Device (TCD) at Shasta Dam was completed in 1997. This device is designed for greater flexibility in managing the cold water reserves in Shasta Lake while enabling hydroelectric power generation to occur and to improve salmon habitat conditions in the upper Sacramento River. The TCD is also designed to enable selective release of water from varying lake levels through the power plant in order to manage and maintain adequate water temperatures in the Sacramento River downstream of Keswick Dam.

Prior to construction of the Shasta TCD, Reclamation released water from Shasta Dam's low-level river outlets to alleviate high water temperatures during critical periods of the spawning and incubation life stages of the winter-run Chinook stock. Releases through the low-level outlets bypass the power plant and result in a loss of hydroelectric generation at the Shasta Powerplant. The release of water through the low-level river outlets was a major facet of Reclamation's efforts to control upper Sacramento River temperatures from 1987 through 1996.

The seasonal operation of the TCD is generally as follows: during mid-winter and early spring the highest elevation gates possible are utilized to draw from the upper portions of the lake to conserve deeper colder resources (see Table 2-9). During late spring and summer, the operators begin the seasonal progression of opening deeper gates as Shasta Lake elevation decreases and cold water resources are utilized. In late summer and fall, the TCD side gates are opened to utilize the remaining cold water resource below the Shasta Powerplant elevation in Shasta Lake.

Table 2-9 Shasta Temperature Control Device Gates with Elevation and Storage

Upper Gates	1035	~3.65 MAF
Middle Gates	935	~2.50 MAF
Pressure Relief Gates	840	~0.67 MAF
Side Gates	720*	~0.01 MAF

Keswick release rate decreases required for the ACID operations are limited to 15 percent in a 24-hour period and 2.5 percent in any one hour. Therefore, advance notification is important when scheduling decreases to allow for the installation or removal of the ACID diversion dam.

Red Bluff Diversion Dam Operations

The Red Bluff Diversion Dam (RBDD), located on the Sacramento River approximately two miles southeast of Red Bluff, is a gated structure with fish ladders at each abutment. When the gates are lowered, the impounded water rises about 13 feet, creating Lake Red Bluff and allowing gravity diversions through a set of drum fish screens into the stilling basin servicing the Tehama-Colusa and Corning canals. Construction of RBDD was completed in 1964.

The Tehama-Colusa Canal is a lined canal extending 111 miles south from the RBDD and provides irrigation service on the west side of the Sacramento Valley in Tehama, Glenn, Colusa, and northern Yolo counties. Construction of the Tehama-Colusa Canal began in 1965, and it was completed in 1980.

The Corning Pumping Plant lifts water approximately 56 feet from the screened portion of the settling basin into the unlined, 21 mile-long Corning Canal. The Corning Canal was completed in 1959, to provide water to the CVP contractors in Tehama County that could not be served by gravity from the Tehama-Colusa Canal. The Tehama-Colusa Canal Authority (TCCA) operates both the Tehama-Colusa and Corning canals.

Since 1986, the RBDD gates have been raised during winter months to improve passage conditions for winter-run Chinook salmon and spring-run Chinook salmon. As documented in the 2004 NMFS biological opinion addressing the long-term CVP and SWP operations and in the recent past, the gates are raised from approximately September 15 through May 14, each year. Future gate operations are further modified by the Red Bluff Fish Passage Improvement Project as detailed below.

Red Bluff Fish Passage Improvement Project and Red Bluff Diversion Dam Pumping Plant

Reclamation signed a ROD on July 16, 2008 for the Red Bluff Fish Passage Improvement Project. The project includes reoperation of the RBDD to allow future unrestricted fish passage and features construction of a new pumping plant to enhance pumping capacity while the RBDD gates are open. Reclamation completed ESA section 7 consultations with FWS and the NMFS to address construction and operation of the new pumping plant at a maximum capacity of 2,500 cfs.

The new pumping plant is currently under construction, and is scheduled to be operational by May 2012. In 2009 Reclamation agreed to only operate the RBDD with the gates in from June 15 to August 31 during the construction of the new pumping plant. In the absence of any unforeseen or unavoidable pumping plant construction delays, the RBDD will be operated with gates out permanently after May 15, 2012.

American River Division

Reclamation's Folsom Lake, the largest reservoir in the watershed, has a capacity of 977,000 af. Folsom Dam, located approximately 30 miles upstream from the confluence with the Sacramento River, is operated as a major component of the CVP. The American River Division includes facilities that provide conservation of water on the American River for flood control, fish and wildlife protection, recreation,

Tribal governments and others to implement improvements within the FERC Boundary. The FERC boundary includes all of the Oroville Project facilities, extends upstream into the tributaries of Lake Oroville, includes portions of the LFC on the lower Feather River and downstream of the Thermalito Afterbay Outlet into the HFC. In addition to the SA, a Habitat Expansion Agreement was negotiated to address the fish passage issue over Oroville Dam and NMFS and FWS' Section 18 Authority under the Federal Power Act.

The Oroville FERC license may be issued in 2011. The Final EIS was prepared by FERC and completed in 2007. The Final EIR was prepared by DWR and completed in 2008. A draft Biological Opinion was prepared by NMFS in 2009 but is not yet final. The SWRCB issued the Clean Water Act Section 401 Certification (401 Cert) for the project in 2010. The new FERC license, when issued, will include the FERC license terms and conditions, the 401 Cert and the terms and conditions therein, and DWR will also comply with the requirements in the NMFS Final Biological Opinion.

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Comment [8]: This discussion should be brought up to date.

The new FERC license may include most if not all of the commitments from the SA so a summary is provided below. The SA does not change the flows in the HFC although there will be a proposed increase in minimum flows in the LFC. The SA includes habitat restoration actions such as side-channel construction, structural habitat improvement such as boulders and large woody debris, spawning gravel augmentation, a fish counting weir, riparian vegetation and floodplain restoration, and facility modifications to improve coldwater temperatures in the low and high flow channels. The SA, EIR, and the FERC Biological Assessment provide substantial detail on the SA restoration actions in the Lower Feather River.

Below is a summary of articles in the SA referred to by number and is by no means a complete description of the terms and conditions therein. The numbering of the tables in this section is consistent with the numbering in the SA for direct comparison. The reader is encouraged to read the source document for a full understanding of the terms and related details.

Minimum Flows in the Low Flow and High Flow Channels

In the SA, a minimum flow of 700 cfs will be released into the Low Flow Channel (LFC). The minimum flow shall be 800 cfs from September 9 to March 31 of each year to accommodate spawning of anadromous fish, unless the NMFS, FWS, DFG, and California SWRCB provide a written notice that a lower flow (between 700 cfs and 800 cfs) substantially meets the needs of anadromous fish. If the DWR receives such a notice, it may operate consistent with the revised minimum flow. HFC flows will remain the same as the existing license, consistent with the 1983 DWR and DFG Operating Agreement to continue to protect Chinook salmon from redd dewatering (A108.2).

Water Temperatures for the Feather River Fish Hatchery

When the FERC license is issued, DWR will use the temperatures in Table 0-91 as targets, and will seek to achieve them through the use of operational measures described below.

Table 0-91 Maximum Mean Daily Temperatures,

September 1-September 30	56 °F
October 1 – May 31	55 °F

agencies and stakeholders will help determine if the temporary rock barriers operations need to be modified during the transition period.

DMC/CA Intertie

DMC and CA Intertie (DMC/CA Intertie) is currently under construction. The project consists of a pumping plant and pipeline connections between the DMC and the CA. The DMC/CA Intertie Pumping Plant is located at DMC milepost 7.2 where the DMC and the CA are about 500 feet apart.

The DMC/CA Intertie will be used in a number of ways to achieve multiple benefits, including meeting current water supply demands, allowing for the maintenance and repair of the CVP Delta export and conveyance facilities, and providing operational flexibility to respond to emergencies. The Intertie will allow flow in both directions, which would provide additional flexibility to both CVP and SWP operations. The Intertie includes a pumping plant at the DMC that will allow up to 467 cfs to be pumped from the DMC to the CA. Up to 900 cfs can be conveyed from the CA to the DMC using gravity flow.

The DMC/CA Intertie will be operated by the San Luis and Delta-Mendota Water Authority (Authority). Agreements between Reclamation, DWR, and the Authority will identify the responsibilities and procedures during operation of the Intertie.

Operations

The Intertie will be used under three different scenarios:

1. Up to 467 cfs may be pumped from the DMC to the CA to ease DMC conveyance constraints and help meet water supply demands of CVP contractors. This would allow Jones Pumping Plant to pump to its design capacity of up to 4,600 cfs, subject to all applicable export pumping restrictions for water quality and fishery protections.
2. Up to 467 cfs may be pumped from the DMC to the CA to minimize impacts to water deliveries due to temporary restrictions in flow or water levels on the lower DMC (south of the Intertie) or the upper CA (north of the Intertie) for system maintenance or due to an emergency shutdown.
3. Up to 900 cfs may be conveyed from the CA to the DMC using gravity flow to minimize impacts to water deliveries due to temporary restrictions in flow or water levels on the lower CA (south of the Intertie) or the upper DMC (north of the Intertie) for system maintenance or due to an emergency shutdown.

The DMC/CA Intertie provides operational flexibility between the DMC and CA. It will not result in any changes to authorized pumping capacity at Jones Pumping Plant or Banks Delta Pumping Plant.

Water conveyed at the Intertie to minimize reductions to water deliveries during system maintenance or an emergency shutdown on the DMC or CA can include pumping of CVP water at Banks Pumping Plant or SWP water at Jones Pumping Plant through use of JPOD. In accordance with COA Articles 10(c) and 10(d), JPOD may be used to replace conveyance opportunities lost because of scheduled maintenance, or unforeseen outages. Use of JPOD for this purpose can occur under Stage 2 operations defined in SWRCB D-1641, or could occur as a result of a Temporary Urgency request to the SWRCB. Use of JPOD in this case does not result

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Comment [9]: This is completed and should be updated.

The availability of water for transfer and the demand for transferred water may also vary with hydrologic conditions. Accordingly, since many transfers are negotiated between willing buyers and sellers under prevailing market conditions, price of water also may be a factor determining how much is transferred in any year. This document does not attempt to identify how much of the available and useable surplus export capacity of the CVP and SWP will actually be used for transfers in a particular year, but given the recent history of water transfer programs and requests for individual water transfers, trends suggest a growing reliance on transfers to meet increasing water demands.

Under both the present and future conditions, capability to export transfers will often be capacity-limited, except in Critical and some Dry years. In Critical and some Dry years, both Banks and Jones will likely have surplus capacity for transfers. As a result, export capacity is less likely to limit transfers in these years. During such years, low project exports and high demand for water supply could make it possible to transfer larger amounts of water.

Proposed Exports for Transfers

Although transfers may occur at any time of year, this BA covers proposed exports for transfers during only the months July through September. For transfers outside those months, or in excess of the proposed amounts, Reclamation and DWR would request separate consultation. In consideration of the estimates of available capacity for export of transfers during July-September, and in recognition of the many other possible operations contingencies and constraints that may limit actual use of that capacity for transfers, the proposed use of SWP/CVP export capacity for transfers is as follows:

Water Year Class	Maximum Transfer Amount
Critical	up to 600 kaf
Dry (following Critical)	up to 600 kaf
Dry (following Dry)	up to 600 kaf
All other Years	up to 360 kaf

Other Future Projects

These projects are potential future actions that have not been approved; however, the effects of these actions are analyzed in this BA.

Sacramento River Reliability Project

The Sacramento River Reliability Project (SRRP) consists of constructing an in-river intake and fish screens (Elverta Diversion) on the Sacramento River at RM 74.6 and support facilities, north of Elverta Road, in Sacramento County. The SRRP includes realignment of 0.3 miles of the Garden Highway near the new Elverta intake structure; constructing a 235 mgd (365 cfs) North Natomas water treatment plant near the new intake facility, water pipelines from the intake structure to the North Natomas water treatment plant, a booster pump station, and 27 to 30 miles of new underground treated water pipelines from the North Natomas water treatment plant to

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Comment [10]: The current status of this project should be verified to determine whether it is appropriately part of this consultation.