

**YUBA COUNTY WATER AGENCY**

**LOWER YUBA RIVER ACCORD**

**ENVIRONMENTAL IMPACT REPORT**

**ADDENDUM NO. 2**

**State Clearinghouse No. 200506211**



**JANUARY 2014**

# **SECTION 1 – BACKGROUND AND PURPOSE OF THIS ADDENDUM**

## **1.1 BACKGROUND**

Yuba County Water Agency (YCWA) is considering implementing a change to its Lower Yuba River Accord (Yuba Accord) Project (State Clearinghouse #2005062111) by adding San Luis Dam as a temporary point of rediversion to allow members of the San Luis & Delta-Mendota Water Authority (SLDMWA) to carry over Yuba Accord water that they purchased in 2013 into the 2014-2015 Central Valley Project (CVP) contract year to augment their CVP water supplies in the current drought. YCWA proposes to add that temporary point of rediversion to the Yuba Accord Project until the end of the 2014-2015 CVP contract year, which is February 28, 2015. YCWA has filed a temporary urgency petition with the State Water Resources Control Board (SWRCB) for a change to YCWA's water-right Permit 15026 to add San Luis Dam as a temporary point of rediversion for the maximum term allowed by statute, which is 180 days after the SWRCB's approval of the change. (Water Code § 1440.) If necessary, YCWA will consider petitioning to the SWRCB to renew the temporary urgency change or for a long-term change to Permit 15026.

### **1.1.1 BACKGROUND OF YUBA ACCORD**

YCWA is implementing the Yuba Accord. The Accord comprises several elements, including the following:

- YCWA's implementation of streamflow requirements for the lower Yuba River as approved as amendments to YCWA's water-right Permit 15026 by the SWRCB in its Corrected Order WR 2008-0014;
- The December 4, 2007 Agreement For The Long-Term Purchase Of Water From Yuba County Water Agency By The Department Of Water Resources (Water Purchase Agreement) between YCWA and DWR;
- Lower Yuba River Accord Agreements For The Conjunctive Use Of Surface And Groundwater Supplies between YCWA and, respectively, Brophy Water District, Browns Valley Irrigation District, Dry Creek Mutual Water Company, Hallwood Irrigation Company, Ramirez Water District, South Yuba Water District and Wheatland Water District; and
- The January 30, 2008 New Bullards Bar Reservoir Operations Amendment To The Yuba County Water Agency Power Purchase Contract between YCWA and Pacific Gas and Electric Company.

On October 23, 2007, YCWA's Board of Directors adopted Resolution No. 2007-23 and, as the lead agency under the California Environmental Quality Act (CEQA), certified the Final Environmental Impact Report/Environmental Impact Statement for the Proposed Lower Yuba River Accord (Final EIR). In Resolution No. 2007-23, YCWA's Board of Directors also:

- Adopted and approved certain CEQA Findings of Fact, a Statement of Overriding Considerations and a Mitigation Monitoring and Reporting/Environmental Commitments Plan; and
- Approved the Yuba Accord Alternative as described in the Final EIR as YCWA's project (Yuba Accord Project) and authorized and directed YCWA's General Manager to take the necessary steps to implement that Project.

As a responsible agency under CEQA, the SWRCB explicitly relied on the Final EIR in adopting Corrected Order WR 2008-0014, which approved not only the inclusion of the Yuba Accord streamflow requirements in YCWA's Permit 15026, but also the long-term transfer of certain water that YCWA releases under those requirements to the State Department of Water Resources (DWR) and, through DWR, the U.S. Bureau of Reclamation (Reclamation). Accordingly, in Corrected Order WR 2008-0014, the SWRCB approved the addition of the CVP's and the State Water Project's (SWP) south Delta export diversion facilities as points of rediversion on YCWA's Permit 15026. The SWRCB approved the addition of those points of rediversion for the term of the Water Purchase Agreement, which ends on December 31, 2025.

### **1.1.2 BACKGROUND OF PROPOSED CHANGE TO YUBA ACCORD**

YCWA is considering the addition of San Luis Dam<sup>1</sup> as an authorized temporary point of rediversion through the end of the next CVP contract year, which is February 28, 2015 would be used to enable storage of water for use within the CVP place of use that has been added to YCWA's Permit 15026. YCWA is considering the addition of the full period until February 28, 2015 as a change to the Yuba Accord Project. YCWA has petitioned the SWRCB to add San Luis Dam as an authorized temporary point of rediversion in Permit 15026 for the maximum term allowed by law, which is 180 days from the SWRCB's approval of YCWA's temporary urgency petition. (Water Code § 1440.) If necessary to allow the full use of the relevant water stored in San Luis Reservoir, YCWA will consider petitioning the SWRCB to renew the temporary change to Permit 15026 or to add San Luis Dam as an authorized point of rediversion in that permit for a longer term.<sup>2</sup>

As explained below, the water that would be stored by adding San Luis Dam as a temporary authorized point of rediversion in Permit 15026 and to the Yuba Accord Project already is present in San Luis Reservoir as a result of 2013 exports from the Delta under the Yuba Accord's Water Purchase Agreement.

Water exported from the Delta at the CVP Jones Pumping Plant is conveyed via the Delta-Mendota Canal and via the joint reach of the California Aqueduct to municipal and industrial (M&I) and agricultural contractors in the San Joaquin Valley (YCWA et al. 2007). Water from the Delta-Mendota Canal also is pumped into San Luis Reservoir, where the water commingles with SWP water exported at Banks Pumping Plant. CVP demands typically exceed Jones pumping capacity during the spring and summer months. During this period, the CVP depends on releases from San Luis Reservoir to augment pumping at the Jones Pumping Plant. San Luis

<sup>1</sup> Also known as B. F. Sisk Dam (Reclamation 2009).

<sup>2</sup> San Luis Dam and Reservoir are located in Merced County.

Reservoir is used to meet demand when water demands and schedules for CVP contractors served from the Delta-Mendota Canal exceed the combined capacity of the Jones Pumping Plant and the capacity of the State facilities (i.e., Banks Pumping Plant) to wheel water for the CVP. CVP water in San Luis Reservoir is subsequently either delivered to municipal & industrial or agricultural water users in Santa Clara and San Benito counties or released back into the Delta-Mendota Canal or the California Aqueduct (YCWA et al. 2007).

San Luis Reservoir typically provides little carry-over storage, and undergoes an annual drawdown and refill cycle (YCWA et al. 2007). More specifically, San Luis Reservoir enables the CVP and SWP to pump water into the reservoir during the wet season (October through March) and release water into the conveyance facilities during the dry season (April through September) when demands are higher. The CVP and SWP try to fill San Luis Reservoir by the end of March of each year. In April and May, export pumping from the Delta is limited by the San Joaquin River pulse period standards established by the SWRCB's Decision 1641, as amended, as well as fishery management actions under the Environmental Water Account and Section 3406(b)(2) of the Federal Central Valley Project Improvement Act. As a result, demand in the export service area (i.e., south of the Delta) exceeds Delta exports, and San Luis Reservoir begins its drawdown cycle. In July and August, irrigation demands typically peak, and San Luis Reservoir continues to be drawn down. Historically, San Luis Reservoir has usually reached its low-point in August or September (YCWA et al. 2007).

During the three-month (July-September) transfer window when Yuba Accord water was conveyed through the Delta in 2013, three SLDMWA members – Westlands Water District (Westlands), Pacheco Water District (Pacheco), and Panoche Water District (Panoche) – were able to reduce demands, with the intent of conserving Yuba Accord water for 2014, as forecasts during that period were already suggesting very low allocations in 2014. These SLDMWA members have conserved up to 7,353 AF of Yuba Accord water, and seek to store that water to increase their 2014 supplemental supplies. Of that 7,353 AF, up to 6,500 AF would be provided to Westlands, 15 AF would be provided to Pacheco and 838 AF would be provided to Panoche.<sup>3</sup> With the current, critically dry hydrologic conditions,<sup>4</sup> Westlands, Panoche, and Pacheco may receive no allocation under their CVP water-service contracts in 2014. Therefore, the ability of those districts to store and reschedule transfer water is imperative.

SLDMWA is interested in storing Yuba Accord transfer water that was purchased from DWR during 2013 in San Luis Reservoir for use during the upcoming 2014-2015 CVP contract year. Under existing operational and regulatory conditions, SLDMWA is not allowed to seasonally store CVP contract water in San Luis Reservoir from one CVP contract year to another. SLDMWA anticipates acquiring the right to store that water in San Luis Reservoir during the 2014-2015 CVP contract year by executing a Warren Act contract with Reclamation to use a portion of Reclamation's storage space in the reservoir. Reclamation has informed SLDMWA that Reclamation cannot sign such a contract without the addition of the proposed point of rediversion on YCWA's Permit 15026. SLDMWA's service area is already part of the place of use of YCWA's Permit 15026 because SLDMWA is a CVP contractor and Corrected Order WR 2008-0014 added the entire CVP service area to Permit 15026's place of use.

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<sup>3</sup> Westlands, Pacheco and Panoche collectively serve areas in Fresno, Kings and Merced counties.

<sup>4</sup> The Governor declared a drought emergency on January 17, 2014.

According to information from SLDMWA, if YCWA's temporary urgency petition were not granted, then the 7,353 AF of 2013 Yuba Accord water currently stored in San Luis Reservoir could not put to beneficial use in the 2014-2015 CVP contract year, harming farmers within the districts by stranding, at least in part, the investments in Yuba Accord water and forcing the fallowing of nearly 3,000 acres of productive farm land. Such fallowing would result in the loss of agriculture-related jobs in the areas served by Westlands, Pacheco and Panoche in Fresno, Merced and Kings Counties - among the most economically vulnerable populations in the State.

YCWA is interested in enabling the storage of Yuba Accord transfer water to SLDMWA by adding San Luis Dam to YCWA's Permit 15026 as a temporary point of rediversion. YCWA is seeking the SWRCB's approval of the addition of the proposed temporary point of rediversion to Permit 15026 for the maximum allowed term, which is 180 days after the SWRCB's approval. If necessary to allow the use by Westlands, Pacheco and Panoche of the 2013 Yuba Accord water that is stored in San Luis Reservoir during the 2014-2015 CVP contract year – which ends February 28, 2015 – YCWA will consider seeking renewal of the temporary urgency change to Permit 15026 or petition for that change to be extended for a longer term. For purposes of changing YCWA's Yuba Accord Project, the proposed authorized temporary point of rediversion at San Luis Dam would be added until February 28, 2015. The maximum quantity of water that may be stored in San Luis Reservoir as a result of this change would be up to 7,400 acre feet (AF).

Diversions at the proposed authorized temporary point of rediversion would be subject to all terms of any biological opinions and incidental take permits that apply to the operation of San Luis Reservoir by Reclamation and DWR. Also, the addition of San Luis Dam as an authorized temporary point of rediversion would not authorize any diversions of water under Permit 15026 at Clifton Court Forebay and Jones Pumping Plant in addition to those authorized by Corrected Order WR 2008-0014.

## **1.2 PURPOSE OF THE EIR ADDENDUM**

As discussed above, YCWA certified the Final EIR for the Yuba Accord Project in 2007. CEQA limits lead agencies' authority to prepare additional EIRs for a project after certifying the initial EIR. Specifically, Public Resources Code Section 21166 states:

When an environmental impact report has been prepared for a project pursuant to this division, no subsequent or supplemental environmental impact report shall be required by the lead agency or by any responsible agency, unless one or more of the following events occurs:

- (a) Substantial changes are proposed in the project which will require major revisions of the environmental impact report.
- (b) Substantial changes occur with respect to the circumstances under which the project is being undertaken which will require major revisions in the environmental impact report.

- (c) New information, which was not known and could not have been known at the time the environmental impact report was certified as complete, becomes available.

Pursuant to Public Resources Code Section 21166, and according to Section 15164(a) of the CEQA Guidelines, the lead agency shall prepare an addendum to a previously certified EIR if some changes or additions are necessary, but none of the conditions described in Section 15162 of those Guidelines requiring preparation of a subsequent EIR have occurred. Guidelines Section 15162 lists the conditions that would require the preparation of a subsequent EIR rather than an EIR addendum. Specifically, Guidelines Section 15162(a) states:

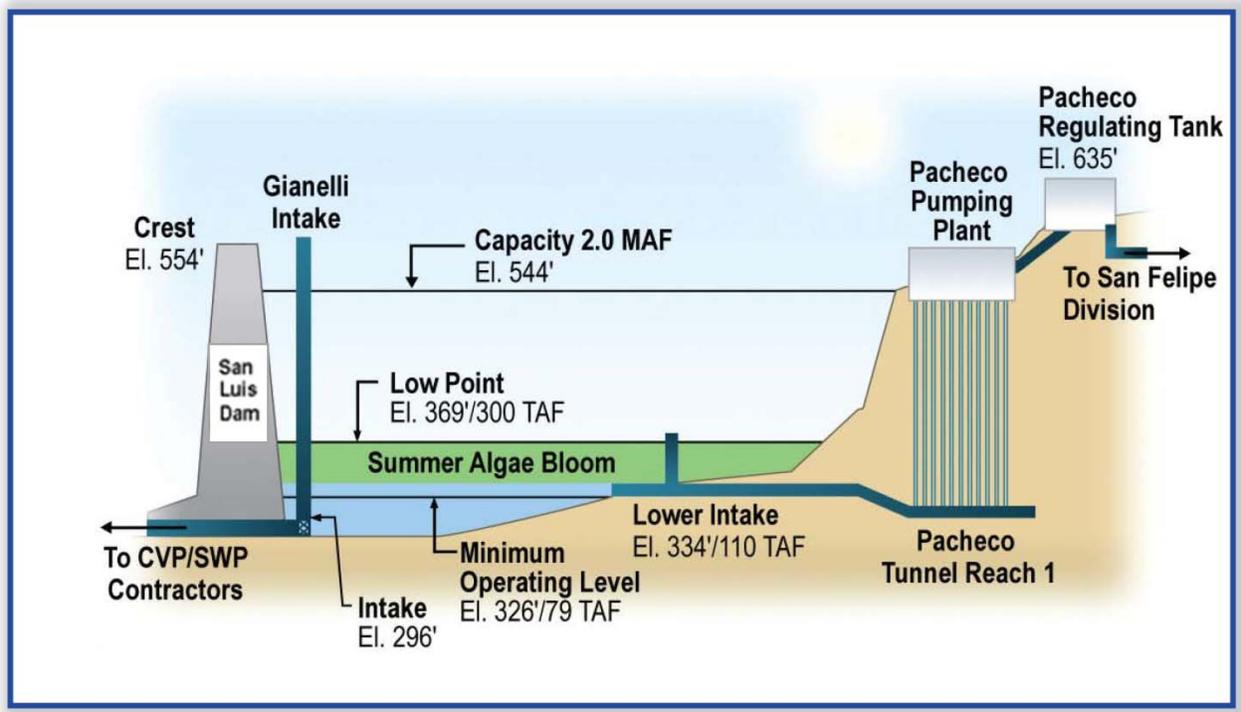
- (a) When an EIR has been certified or a negative declaration adopted for a project, no subsequent EIR shall be prepared for that project unless the lead agency determines, on the basis of substantial evidence in the light of the whole record, one or more of the following:
  - (1) Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;
  - (2) Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or
  - (3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the negative declaration was adopted, shows any of the following:
    - (A) The project will have one or more significant effects not discussed in the previous EIR or negative declaration;
    - (B) Significant effects previously examined will be substantially more severe than shown in the previous EIR;
    - (C) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or
    - (D) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

Authorizing the addition of a new temporary authorized point of diversion of Yuba Accord water through February 28, 2015 would constitute a change to the project that YCWA analyzed in the Yuba Accord EIR under CEQA, because that EIR did not describe its proposed project as including an authorized point of diversion located at San Luis Dam (see Section 2, below). This Addendum demonstrates that the addition of San Luis Dam as a temporary authorized point of diversion of Yuba Accord transfer water on YCWA's Permit 15026 would not trigger any of CEQA Guidelines Section 15162(a)'s conditions for the preparation of a subsequent EIR and that YCWA's adoption of an addendum to the Final EIR, therefore, is appropriate for that change to the Yuba Accord Project.

## **SECTION 2 – DESCRIPTION OF PROJECT CHANGES AND ANALYTICAL APPROACH**

The proposed change to the Yuba Accord Project is the addition of a new temporary point of diversion on YCWA's Permit 15026 to allow SLDMWA to store in San Luis Reservoir, through the next CVP contract year extending from March 1, 2014 through February 28, 2015, up to 7,400 AF of Yuba Accord water that was previously exported through the Delta during 2013. The proposed new point of diversion would be located on San Luis Creek at the point of diversion for San Luis Dam (**Figure 1**) within the SW  $\frac{1}{4}$  of SE  $\frac{1}{4}$  of projected Section 15, T10S, R8E, MDB&M at North 1,845,103 feet and East 6,393,569 feet by California Coordinate system in Zone 3 (NAD 83). YCWA has filed with the SWRCB a temporary urgency petition to add this temporary authorized point of diversion to YCWA's water-right Permit 15026 for the maximum allowed term, which 180 days after the SWRCB's approval of the petition. (Water Code § 1440.) If necessary to allow the full use of the stored water, YCWA will consider filing a petition to renew the temporary urgency addition of San Luis Dam as a temporary authorized point of diversion or a petition to add that point of diversion in Permit 15026 for a longer term.

The proposed change to the Yuba Accord Project would improve the reliability of SLDMWA's water supplies on a temporary basis only (i.e., 2014-2015 CVP contract year), would not increase SLDMWA's overall long-term water supplies and, therefore, would not support additional growth or conversion of additional land to agricultural use. Additionally, the proposed project change would not alter any of YCWA's releases of water from its facilities, YCWA's compliance with Corrected Order WR 2008-0014 or YCWA's implementation of the Yuba Accord conjunctive use program under its Lower Yuba River Accord Agreements for the Conjunctive Use of Surface and Groundwater Supplies with its member units. The proposed project change also would not involve any construction at any site, including San Luis Dam and Reservoir.



**Figure 1. San Luis Reservoir Intake and Outlet Facilities, including San Luis Dam (Modified from Reclamation et al. 2011).**

The Final Yuba Accord EIR considered the Yuba Accord's potential environmental impacts for the following resource categories:

- Surface Water Supply and Management;
- Groundwater Resources;
- Power Production and Energy Consumption;
- Flood Control;
- Surface Water Quality;
- Fisheries and Aquatic Resources;
- Terrestrial Resources;
- Recreation;
- Visual Resources;
- Cultural Resources;
- Air Quality;
- Land Use;
- Socioeconomics;
- Growth Inducement;

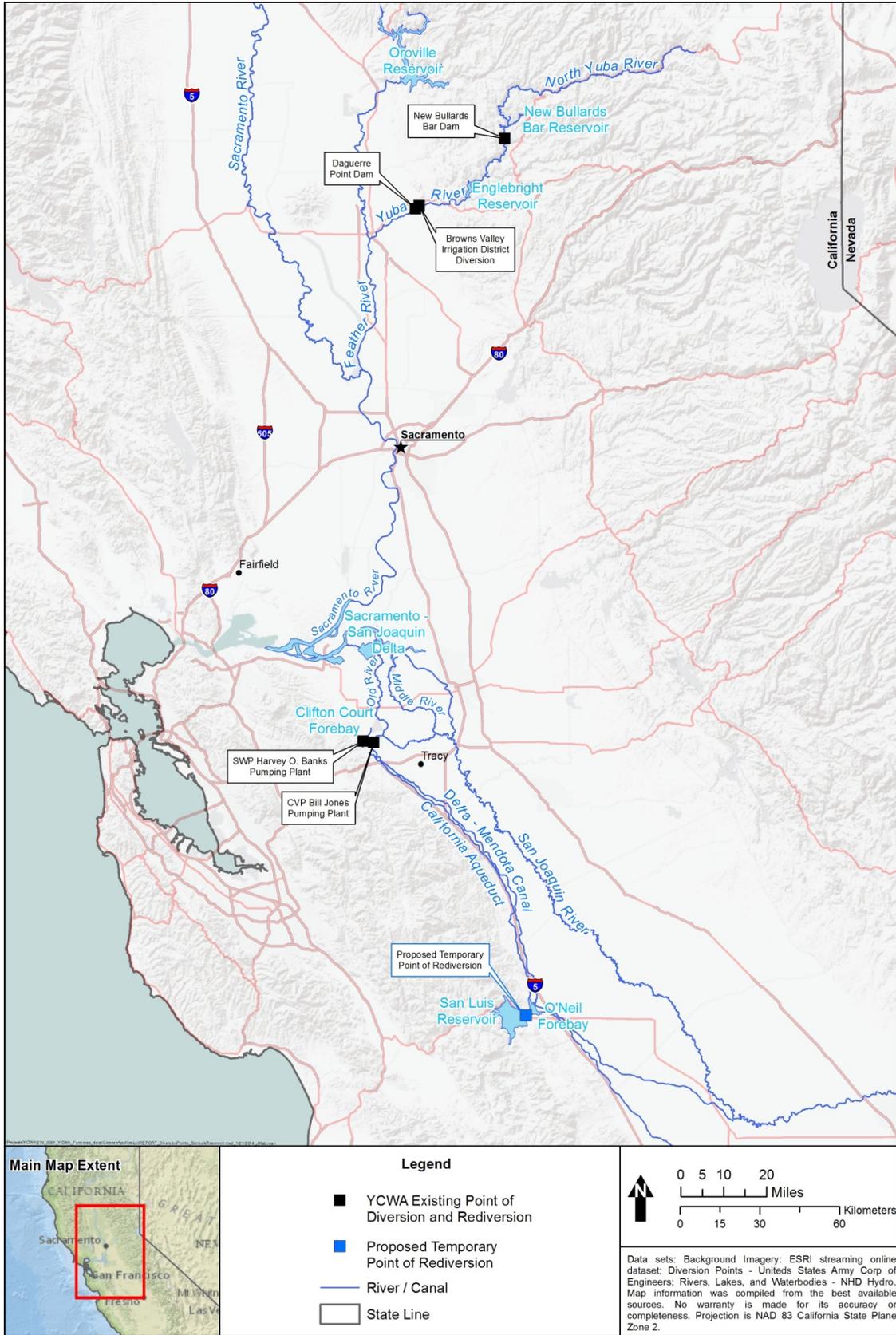
- Environmental Justice;
- Indian Trust Assets;
- Cumulative Impacts; and
- Climate Change Considerations

Because the proposed change to the Yuba Accord Project would not involve any changes to: (1) YCWA's operations in the Yuba River Basin; or (2) flow and water temperatures in the Feather and Sacramento rivers and the Delta, there is no potential for environmental impacts for many resource categories to be different than those that were analyzed in the Yuba Accord EIR. In fact, because the proposed project change would only enable 7,353 AF of Yuba Accord water previously exported through the Delta during 2013 to be temporarily stored in San Luis Reservoir for conveyance to, and use in, the service areas of SLDMWA members' Westlands, Pacheco and Panoche during the 2014-2015 CVP contract year, the only resource category that warrants evaluation in addition to the analysis conducted in the Yuba Accord EIR is fisheries and aquatic resources in San Luis Reservoir.

## **2.1 FISHERIES IMPACT CONSIDERATIONS**

As described in the Yuba Accord EIR (YCWA et al. 2007), San Luis Reservoir is located in Merced County at an elevation of 544 feet mean sea level (msl) and has a storage capacity of approximately 2 million acre feet (MAF). It was constructed as a storage facility south of the Delta, operated jointly by the CVP and SWP. Water is stored during the fall and winter months when Delta pumps can export more water than is needed for scheduled water demands. Similarly, water is released from San Luis Reservoir during spring and summer months when water demands are greater than the CVP's Delta export capacity. Water flows from the Delta to San Luis Reservoir via the California Aqueduct and the Delta-Mendota Canal (**Figure 2**). Water is then pumped from the O'Neil Forebay into San Luis Reservoir during the winter and spring. During normal CVP/SWP operations the reservoir is drawn down by 100 feet or more during the late-summer and early-fall (YCWA et al. 2007).

San Luis Dam impounds San Luis Creek, but San Luis Reservoir is primarily an off-stream facility – one of the largest off-stream reservoirs in the world – so there is no natural fishery in the reservoir (Reclamation et al. 2008). San Luis Reservoir provides habitat for both coldwater and warmwater fish species which include largemouth bass, striped bass, crappie, bluegill, bullhead catfish, shad, yellow perch and occasional white sturgeon (California State Parks Website 2007). Fish production in San Luis Reservoir is generally limited by changes in water elevations during critical spawning periods, overall reservoir levels, and the availability of shallow near-shore rearing habitat. Stocking by the California Department of Fish and Wildlife (CDFW) keeps the reservoir well supplied with trout. Bass fishing derbies are often held here, and crappie and bluegill are also caught. Fish species in the reservoir have either been directly introduced or transported via the California Aqueduct and Delta-Mendota Canal (Reclamation et al. 2008). San Luis Reservoir does not contain any populations of fish species that are either listed or proposed for listing under the Federal or State Endangered Species Acts (DWR 2007).



**Figure 2. Vicinity Map.**

## **2.2 ANALYTICAL APPROACH FOR EVALUATING FISHERIES AND AQUATIC RESOURCES**

Implementation of the proposed project change could temporarily alter storage levels and water surface elevations in San Luis Reservoir. Fluctuations in San Luis Reservoir, in response to operations and changes in runoff patterns, potentially can affect reservoir fish species due to alterations in the timing and magnitude of reservoir drawdowns. The methodologies and significance criteria used to analyze potential impacts on reservoir warmwater and coldwater fish species in San Luis Reservoir in this Addendum are similar to those used in the Yuba Accord EIR, which are summarized below.

This analysis evaluates and compares two environmental cases: (A) the basis of comparison, under which San Luis Dam would not be added to the Yuba Accord Project or YCWA's water-right Permit 15026 as a temporary authorized point of rediversion and the 7,353 AF of water currently stored in San Luis Reservoir would be accounted for as used before the end of the 2013-2014 CVP contract year on February 28, 2014; and (B) the proposed project change, under which San Luis Dam is added to the Yuba Accord Project and Permit 15026 as a temporary authorized point of rediversion and that up to 7,400 AF is carried over into the 2014-2015 CVP contract year and Westlands, Pacheco and Panoche use their respective portions of it during that period.

The reservoir parameters used to determine potential Yuba Accord impacts (YCWA et al. 2007) included:

- End-of-month reservoir storage levels under the proposed project change compared to the basis of comparison
- End-of-month water surface elevations under the proposed project change compared to the basis of comparison

As an additional consideration, algae occurs naturally near the surface of reservoirs, and when reservoir levels are high, water is pumped from intakes located considerably below the surface of the reservoir, thus avoiding the algae blooms. Elevated water temperatures and typically low reservoir levels during the summer months create conditions that foster algae growth in the surficial waters of San Luis Reservoir (Reclamation 2013). As water is released to meet CVP/SWP contract requirements, San Luis Reservoir levels decline, and the surface of the water in the reservoir moves closer to the level of the intake pumps (see Figure 1). During most years, the storage level in San Luis Reservoir remains above 300 thousand acre feet (TAF), which corresponds to the water surface elevation at which "low point" conditions are likely to occur (Reclamation et al. 2011). Fish populations in San Luis Reservoir can be affected by drawdown of San Luis Reservoir below 300 TAF (369 feet msl). When the reservoir surface elevation drops during summer months, and algae blooms form, oxygen levels in the water column begin to fall as decomposing algae is broken down by bacteria that consume oxygen in the water. In general, the effect of the algae bloom on reservoir oxygenation intensifies as the reservoir is drawn down and algae blooms become more concentrated. The potential for adverse affects to fisheries resources in San Luis Reservoir resulting from reduced dissolved oxygen concentrations associated with the proposed project change, relative to the basis of comparison, also are discussed in the effects assessment section of this Addendum.

## **Warmwater Fisheries**

Because warmwater fish species of San Luis Reservoir (including largemouth bass, smallmouth bass, spotted bass, green sunfish, bluegill, crappie, and catfish) use the warm upper layer of the reservoir and nearshore littoral habitats throughout most of the year, seasonal changes in reservoir storage, as it affects reservoir water surface elevation (feet msl), and the rates at which water surface elevation change during specific periods of the year, can directly affect the reservoir's warmwater fish. Reduced water surface elevations can potentially reduce the availability of nearshore littoral habitats used by warmwater fish for rearing, thereby potentially reducing rearing success and subsequent year-class strength. In addition, decreases in reservoir water surface elevation during the primary spawning period for warmwater fish nest building may result in reduced initial year-class strength through warmwater fish nest “dewatering” (YCWA et al. 2007).

Given the differences in geography and altitude among the reservoirs within the area of analysis for the Yuba Accord, warmwater fish spawning and rearing periods varied somewhat among reservoirs analyzed in the Yuba Accord EIR. Although black bass spawning may begin as early as February, or as late as May, in southern and northern California reservoirs, respectively, and may possibly extend to July in some waters, the majority of black bass and other centrarchid spawning in California occurs from March through May (Lee 1999; Moyle 2002). However, to examine the potential of nest dewatering events to occur given the geographic and altitudinal variation among CVP/SWP and non-Project reservoirs, the Yuba Accord EIR assumed that the warmwater fish-spawning period extends from March through June (YCWA et al. 2007). Additionally, the period of April through November is appropriate for assessing impacts on warmwater juvenile fish rearing (YCWA et al. 2007).

For analytical purposes in this Addendum, and consistent with the certified Yuba Accord EIR's analysis, the warmwater fish-spawning period is assumed to extend from March through June, and the warmwater fish-rearing period is assumed to extend from April through November. These periods encompass the majority, if not the entire, primary warmwater fish spawning and rearing periods for San Luis Reservoir.

To assess potential reservoir water surface elevation change-related impacts on the warmwater fish of San Luis Reservoir, the following approach was used. The magnitude of change (feet msl) in reservoir water surface elevation expected to occur during the primary spawning period for nest-building fish (March through June) was considered for both the basis of comparison and the proposed project change. Review of the available literature suggests that, on average, self-sustaining black bass populations in North America experience a nest success (i.e., the nest produces swim-up fry) rate of 60% (Friesen 1998; Goff 1986; Hunt and Annett 2002; Hurley 1975; Knotek and Orth 1998; Kramer and Smith 1962; Latta 1956; Lukas and Orth 1995; Neves 1975; Philipp *et al.* 1997; Raffetto *et al.* 1990; Ridgway and Shuter 1994; Steinhart 2004; Turner and MacCrimmon 1970).

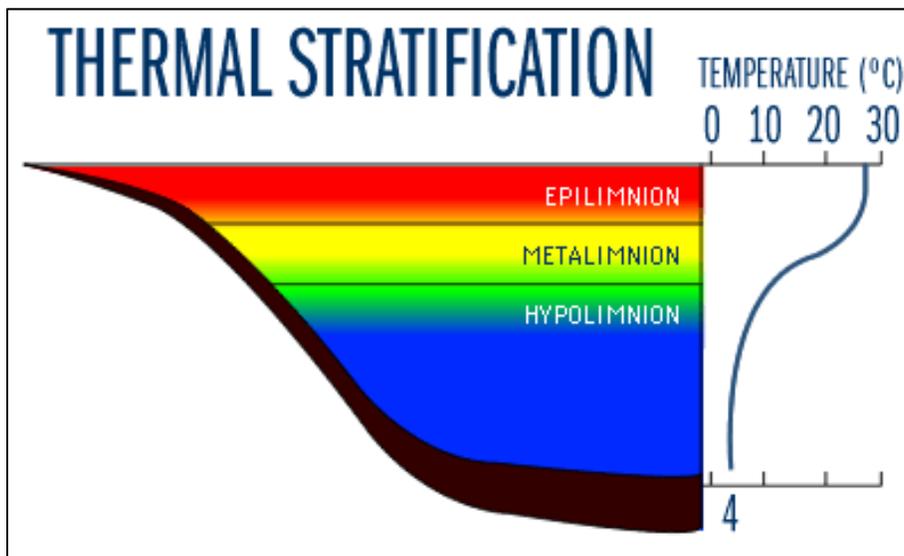
A study by CDFW, which examined the relationship between reservoir water surface elevation fluctuation rates and nesting success for black bass, suggests that a reduction rate of approximately six feet per month or greater would result in 60% nest success for largemouth bass and smallmouth bass (Lee 1999). Therefore, a decrease in reservoir water surface elevation

of six feet or more per month was selected as the threshold beyond which spawning success of nest-building, warmwater fish could potentially result in long-term population declines (YCWA et al. 2007). To evaluate potential impacts on largemouth bass, smallmouth bass, and ultimately warmwater fish in general, the assessment considered the potential for San Luis Reservoir reductions of six feet or more per month to occur with implementation of the proposed project change compared to the basis of comparison.

Criteria for reservoir water surface elevation increases (nest flooding events) have not been developed by CDFW (YCWA et al. 2007). Because of overall reservoir fishery benefits (e.g., an increase in the availability of littoral habitat for warmwater fish rearing), greater reservoir elevations that would be associated with rising water levels would offset negative impacts due to nest flooding (Lee 1999). Therefore, the likelihood of spawning-related impacts from nest flooding was not addressed for reservoir fisheries.

### Coldwater Fisheries

During the period when San Luis Reservoir is thermally stratified (generally April through November), coldwater fish (e.g., trout) within the reservoir primarily reside in the reservoir's metalimnion and hypolimnion (**Figure 3**) where water temperatures remain suitable.



**Figure 3. Example of the thermal stratification process that occurs in lakes and reservoirs. Deeper lakes and reservoirs generally become physically stratified into three identifiable layers, known as the epilimnion, metalimnion, and hypolimnion (Taken from EPA 2014).**

Reduced reservoir storage during this period could reduce the reservoir's coldwater pool volume, thereby reducing the quantity of habitat available to coldwater fish species during these months. Reservoir coldwater pool size generally decreases as reservoir storage decreases, although not always in direct proportion because of the influence of reservoir basin morphometry. Therefore, to evaluate storage-related impacts on coldwater fish habitat availability in San Luis Reservoir, the assessment considered the potential for end-of-month storage under the proposed change to the Yuba Accord Project to reduce coldwater pool volume, as compared to expected end-of-

month storage under the basis of comparison during the April through November period. Substantial reductions in reservoir storage are considered to result in substantial reductions in coldwater pool volume and, therefore, in habitat availability for coldwater fish. Potential impacts on the coldwater fisheries were further assessed in the Yuba Accord EIR (YCWA et al. 2007) by determining whether seasonal changes in reservoir storage, and associated changes in water-surface elevation, would be expected to indirectly affect coldwater fish species by adversely affecting the productivity of their primary prey species (e.g., threadfin shad (*Dorosoma petenense*)).

## **SECTION 3 – ENVIRONMENTAL ANALYSIS**

The Yuba Accord EIR contains a comprehensive analysis of the potential environmental impacts of the Yuba Accord Project. Under CEQA (Public Resources Code Section 21166) and CEQA Guidelines Section 15162, the environmental analysis of a change to a project associated with a certified final CEQA document is limited to the potential incremental environmental impacts that could be associated with the project change. (*Temecula Band of Luiseno Mission Indians v. Rancho California Water District* (1996) 43 Cal.App.4<sup>th</sup> 425; *Sierra Club v. City of Orange* (2008) 163 Cal.App.4<sup>th</sup> 523.) Through consultation with SLDMWA and HDR, YCWA determined that the potential incremental environmental impacts resulting from the proposed project change would be limited to one environmental resource category – Fisheries and Aquatic Resources in San Luis Reservoir – because, among other reasons: (A) the project change is a short-term matter that will not support any growth or conversion of land to agricultural use; and (B) there will be no changes to operations concerning any natural stream, including the Yuba River, the Delta or any Delta tributary.

As discussed in the analysis below, YCWA has determined that the proposed change to the Yuba Accord Project and the circumstances in which it will be implemented will not result in any new significant environmental effects not addressed in the Yuba Accord EIR, a substantial increase in the severity of the environmental effects addressed in the Yuba Accord EIR, or in any other conditions that could require the preparation of a subsequent or supplemental EIR under CEQA and the CEQA Guidelines.

### **3.1 SAN LUIS RESERVOIR FISHERIES AND AQUATIC RESOURCES**

On January 13, 2014, storage in San Luis Reservoir was reported to be 626,350 AF, which is substantially lower than historical average reservoir storage levels, as well as the dry year conditions that occurred during 1976-1977 (**Figure 4**). As of January 13, 2014, San Luis Reservoir storage was about 31% of the total reservoir capacity, and about 42% of the historical average storage during mid-January.

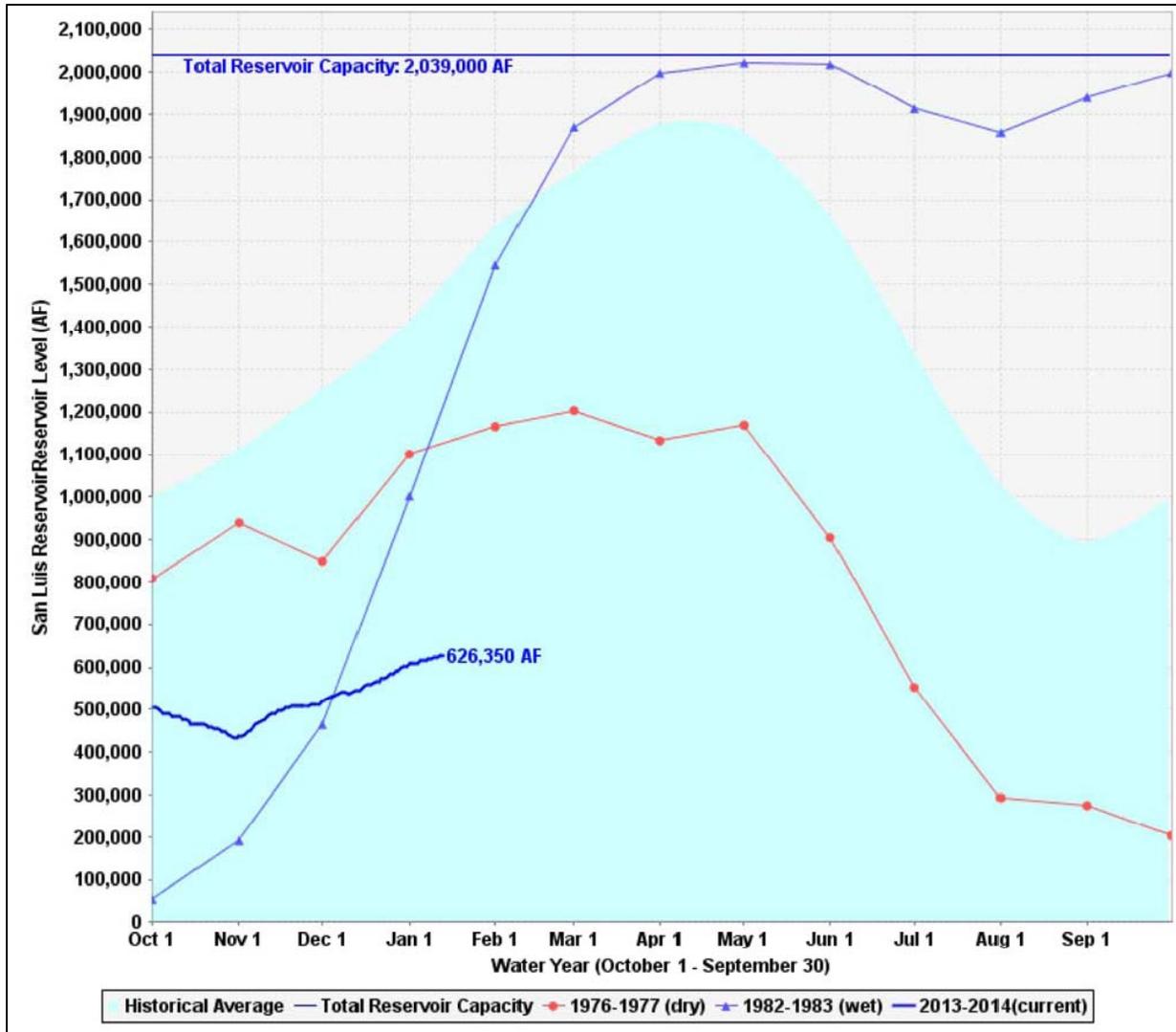


Figure 4. San Luis Reservoir Storage Levels (CDEC 2014).

SLDMWA members Westlands, Pacheco and Panoche currently have 7,353 AF of Yuba Accord water stored in San Luis Reservoir. Compared to the existing volume (~626,350 AF) of San Luis Reservoir storage, this 7,353 AF of Yuba Accord water that was purchased from DWR by these SLDMWA members during 2013 represents about 1.2% of current San Luis Reservoir storage.

For analytical purposes in this Addendum, the proposed project change would allow about 7,353 AF of Yuba Accord water to remain in San Luis Reservoir from March 1, 2014 through February 28, 2015. Under the basis of comparison, the 7,353 AF of water would not be allowed to carryover during the March 1, 2014 through February 28, 2015 CVP contract year and it is assumed that San Luis Reservoir storage would be reduced by the same amount (i.e., 7,353 AF) prior to March 1, 2014.

San Luis Reservoir currently is a regulating facility for south-of-Delta deliveries, and San Luis Reservoir operations under the proposed project change would be expected to slightly increase

storage and water surface elevations during the 2014-2015 CVP contract year. Because the maximum proposed change in storage is relatively minor (1.2%), water surface elevation fluctuations and changes in storage resulting from San Luis Reservoir operations associated with the proposed change to the Yuba Accord Project are not expected to substantially differ from operations that would occur under the basis of comparison.

Both 1976 and 1977 were among the driest years on record in California. As shown in Figure 4, San Luis Reservoir storage during the dry conditions that occurred in August and September of 1976-1977 ranged from about 300 TAF to 200 TAF. Because current San Luis Reservoir storage (626,350 AF on January 13, 2014) is below the levels experienced during January 1976-1977 (~1.1 MAF), it is reasonable to assume that a similar pattern of storage reductions could occur over the course of the summer during 2014, eventually approaching August/September storage levels similar to, or below those that occurred during 1976-1977. Thus, under both the proposed project change and the basis of comparison, the potential exists for warmwater and coldwater fish populations in San Luis Reservoir to be exposed to reduced levels of dissolved oxygen as algal blooms become more concentrated and reservoir storage approaches the “low point” of 300 TAF during August and September. However, potential reductions in dissolved oxygen concentrations in San Luis Reservoir under the proposed project change would be expected to be less severe than reductions occurring under the basis of comparison because a slightly greater amount of water (7,353 AF) would remain in storage with the proposed project change, relative to the basis of comparison.

Because San Luis Reservoir storage and water surface elevations would be slightly higher under the proposed project change, it is expected that dissolved oxygen levels would remain similar to those that would occur under the basis of comparison. Therefore, during the 2014-2015 CVP contract year, the proposed project change would not be expected to reduce habitat suitability for warmwater and coldwater fish species in the reservoir as a result of reduced dissolved oxygen concentrations related to the low point issue, relative to conditions that would occur without implementation of the proposed project change.

### **3.1.1 WARMWATER FISH**

#### *Habitat Availability During the Spawning/Nesting Season (March through June)*

Consistent with the Yuba Accord EIR, the spawning period for warmwater reservoir fish is believed to generally extend from March through June. Although fluctuations in San Luis Reservoir water surface elevation would occur during the March through June spawning/nesting season, slightly more water, or the same amount, would remain in storage under the proposed change to the Yuba Accord Project, relative to the basis of comparison.

For illustrative purposes, between January 7, 2014 and January 12, 2014, San Luis Reservoir storage increased by 8,142 AF, which generally corresponds to the amount of water associated with the maximum proposed change to the Yuba Accord Project. Based upon recent records provided by the California Data Exchange Center (2014), San Luis Reservoir storage was reportedly 617,613 AF on January 7, 2014, corresponding to a water surface elevation of 411.54 feet msl. Storage on January 12, 2014 was 625,755 AF, which corresponded to a water surface elevation of 412.50 feet msl (CDEC 2014). The change in water surface elevation associated

with this recently observed increase of 8,142 AF was about 0.96 feet msl (CDEC 2014). Water surface elevation variations associated with the proposed change to the Yuba Accord Project would be expected to be of a similar magnitude.

Taking into consideration current reservoir storage amounts and the amount (7,353 AF) of water that is proposed to be stored during the 2014-2015 CVP contract year, the area-capacity relationship for San Luis Reservoir (**Attachment 1**) was used to identify a range of potential water surface elevation changes that may be expected if the proposed change to the Yuba Accord Project were not approved and the 7,353 AF of water was not stored in the reservoir. A few representative examples of the magnitude of changes that could occur at different storage levels are provided in **Table 1**, and are discussed below.

**Table 1. Proposed Changes in San Luis Reservoir Storage and Water Surface Elevations with and without implementation of the Proposed Change to the Yuba Accord Project.**

Storage with Yuba Accord Transfer Water (AF)	Water Surface Elevation with Yuba Accord Transfer Water (ft)	Storage without Yuba Accord Transfer Water (AF)	Water Surface Elevation without Yuba Accord Transfer Water (ft)	Change in Water Surface Elevation Due to the Yuba Accord Transfer Water (ft)
626,095	412.5	618,742	411.6	0.9
526,095	400.4	518,742	399.5	0.9
726,095	424.0	718,742	423.1	0.9

- Assuming: (1) a storage of 626,095 AF and a water surface elevation of 412.5 feet on January 16, 2014; and (2) that 7,353 AF of water purchased from DWR by SLDMWA members is currently stored in San Luis Reservoir, the elimination of that 7,353 AF of water from the reservoir would result in an assumed volume of 618,742 AF of storage and a water surface elevation of approximately 411.6 feet. Thus, at a storage of 626,095 AF, there would be an approximate decrease of 0.9 feet in water surface elevation if the water in storage as part of the project change to the Yuba Accord Project was not allowed to remain in San Luis Reservoir.
- Assuming that there was 100 TAF less water in San Luis Reservoir storage (starting from 526,095 AF and an approximate water surface elevation of 400.4 feet), the resultant storage would be 518,742 AF with a water surface elevation of 399.5 feet. Consequently, the resultant change would be a decrease in water surface elevation of 0.9 feet.
- Assuming that there was 100 TAF more water in San Luis Reservoir storage (726,095 AF and an approximate water surface elevation of 424.0 feet), the resulting storage would be 718,742 AF, and the corresponding water surface elevation would be approximately 423.1 feet. Consequently, the resultant change would be a decrease in water surface elevation of 0.9 feet.

Because the proposed project change would involve a relatively small amount of additional storage (up to 7,353 AF) relative to the total volume of water in the reservoir, this change would

be expected to provide equivalent, or perhaps slightly more suitable habitat conditions during the 2014 warmwater fish spawning season, relative to the basis of comparison.

As discussed above, the Yuba Accord EIR used a decrease in water surface elevation of 6 feet or more per month as the appropriate threshold for analyzing possible effects on the relevant fish (YCWA et al. 2007). Decreases in water surface elevation by more than 6 feet per month would not be expected to occur under the proposed project change, relative to the basis of comparison. The proposed change to the Yuba Accord Project also would not be anticipated to result in substantial reductions in warmwater fish spawning success or the self-sustainability of warmwater fish populations. In addition, because the proposed project change either would not noticeably alter or could slightly increase warmwater fish habitat availability (via slightly higher water surface elevations of about 0.9 feet msl), and would only occur during the 2014-2015 CVP contract year, it would not be expected to adversely impact future recruitment of individuals into the population.

In conclusion, in consideration of the evaluated changes in San Luis Reservoir storage and water surface elevation, and associated potential impacts to the spawning and rearing lifestages of warmwater fish species in San Luis Reservoir, the proposed temporary diversion of Yuba Accord water at San Luis Dam and Reservoir would not result in new significant environmental impacts or a substantial increase in the severity of previously identified significant impacts to warmwater fish species in the reservoir.

#### *Habitat Availability During the Rearing Season (April through November)*

Consistent with the Yuba Accord EIR (YCWA et al. 2007), the rearing period for warmwater reservoir fish is believed to generally extend from April through November. According to Blanton (2014), San Luis Reservoir has about 65 miles of shoreline containing productive coves, flooded willow trees, flats, rock banks, islands, and underwater shoals, all of which may provide aquatic habitat for rearing fish. As described above, during normal CVP/SWP operations, San Luis Reservoir is drawn down by 100 feet or more during the late-summer and early-fall (YCWA et al. 2007).

Under the proposed change to the Yuba Accord Project, 7,353 AF of water would temporarily remain in storage and implementation of the proposed change would result in San Luis Reservoir storage elevations that would be similar to, or negligibly higher than elevations under the basis of comparison (i.e., existing operational and regulatory conditions). If the stored water would remain in the reservoir throughout the 2014 rearing season, potential decreases in San Luis Reservoir warmwater fish juvenile rearing habitat availability associated with decreases in water surface elevation would not occur, relative to the basis of comparison. If 7,353 AF of water was removed from the reservoir, resultant changes in water surface elevation are projected to be about 0.9 feet msl, although this amount may vary slightly depending on the amount of storage and the level of water surface elevation at the time of removal.

Additionally, due to complexities in CVP and SWP water accounting procedures associated with San Luis Reservoir, the total amount of water reported in Federal and/or State water accounting records for the 2014/2015 CVP contract year may vary slightly from the 7,353 AF identified in this Addendum. Taking this into consideration, YCWA's proposed temporary urgency petition

has identified an amount up to 7,400 AF as the maximum quantity of water that may be stored in San Luis Reservoir as a result of the proposed change to the Yuba Accord Project. If CVP/SWP water accounting procedures ultimately determine that up to 7,400 AF of water was stored in San Luis Reservoir as a result of the proposed project change, the associated differences in reservoir storage (of up to an additional 47 AF) and resultant changes in water surface elevation would be relatively minor and would not be expected to change the analytical conclusions presented herein with respect to potential environmental impacts to warmwater fisheries resources in San Luis Reservoir.

Overall, given the relatively small volume of water to be stored in the reservoir with implementation of the proposed project change, and the fact that San Luis Reservoir is typically drawn down by 100 feet or more over the course of the summer/fall months, it is anticipated that habitat suitability for warmwater fish rearing in San Luis Reservoir during the April 2014 through November 2014 period would be similar under both the proposed project change and the basis of comparison.

In consideration of the evaluated changes in San Luis Reservoir storage and water surface elevation, and associated potential impacts to the rearing lifestage of warmwater fish species in San Luis Reservoir, the proposed temporary redirection of Yuba Accord water at San Luis Dam and Reservoir would not result in new significant environmental impacts or a substantial increase in the severity of previously identified significant impacts to warmwater fish species in the reservoir.

### **3.1.2 COLDWATER FISH**

As described in the methodology above, substantial reductions in reservoir storage are considered to result in substantial reductions in coldwater pool volume and, therefore, in habitat availability for coldwater fish. However, implementation of the proposed change to the Yuba Accord Project would allow San Luis Reservoir to maintain slightly higher reservoir storage levels during at least part of the 2014-2015 CVP contract year, relative to the basis of comparison (i.e., existing operational and regulatory conditions). Consequently, coldwater pool volume associated with the proposed project change would remain similar to that which would occur under the basis of comparison, and would not result in substantive changes to coldwater fish habitat availability in San Luis Reservoir. Additionally, because the seasonal changes in reservoir storage that would occur with implementation of the proposed change to the Yuba Accord Project, and associated changes in water-surface elevation, would be similar to those occurring under the basis of comparison, they would not be expected to be of a sufficient magnitude to affect the productivity of primary prey species (e.g., threadfin shad<sup>5</sup>) for coldwater fish in San Luis Reservoir.

As described above, YCWA's proposed temporary urgency petition has identified an amount up to 7,400 AF as the maximum quantity of water that may be stored in San Luis Reservoir as a result of the proposed change to the Yuba Accord Project. If CVP/SWP water accounting procedures ultimately determine that up to 7,400 AF of water was stored in San Luis Reservoir

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<sup>5</sup> According to Blandin (2014), baitfish populations in San Luis Reservoir include threadfin shad, among other species.

as a result of the proposed project change, the associated differences in reservoir storage (of up to an additional 47 AF) and resultant changes in water surface elevation would be relatively minor and would not be expected to change the analytical conclusions presented herein with respect to potential environmental impacts to coldwater fisheries resources in San Luis Reservoir.

In consideration of the evaluated changes in San Luis Reservoir storage and water surface elevation, and associated potential impacts to the coldwater fish species in San Luis Reservoir, the proposed temporary redirection of Yuba Accord water at San Luis Dam and Reservoir would not result in new significant environmental impacts or a substantial increase in the severity of previously identified significant impacts to coldwater fish species in the reservoir.

## **SECTION 4 – CONCLUSION**

This Addendum documents that the proposed change to the Yuba Accord Project of adding San Luis Dam as a temporary point of redirection of Accord transfer water will not result in new significant environmental impacts not analyzed in the Yuba Accord EIR, substantial increases in the severity of significant impacts analyzed in the Yuba Accord EIR, or in any other conditions or circumstances that would require preparation of a subsequent or supplemental EIR under Public Resources Code Section 21166 and CEQA Guideline Section 15162. No such conditions or circumstances exist. Pursuant to CEQA Guideline Section 15614, this Addendum therefore constitutes the environmental analysis required by CEQA for the proposed change to the Yuba Accord Project.

## **SECTION 5 – LITERATURE CITED**

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**ATTACHMENT 1**

**SAN LUIS RESERVOIR AREA-CAPACITY TABLE**

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF RECLAMATION  
CENTRAL VALLEY PROJECT

STATE OF CALIFORNIA  
THE RESOURCES AGENCY  
DEPARTMENT OF WATER RESOURCES  
STATE WATER PROJECT

JOINT STATE-FEDERAL CAPACITY TABLE

SAN LUIS RESERVOIR

Page 1 of 4

Based on elevation - area data determined from an aerial survey flown on October 6, 1966 and supplied by letter of February 23, 1968 from District Engineer, San Joaquin District, Department of Water Resources, Fresno, California. Computed by USBR Region 2 ADP Program No. 041.

ELEV.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9	DIFF.
	ACRE FEET										
270	1	1	1	1	1	1	1	2	2	2	1
271	2	2	3	3	3	3	4	4	4	4	3
272	5	5	5	6	6	6	7	7	7	7	5
273	8	9	9	10	10	10	11	11	12	12	5
274	13	13	14	14	15	16	16	17	17	18	5
275	18	19	21	22	23	24	25	26	26	29	12
276	30	33	36	39	42	45	48	51	54	57	29
277	59	66	73	80	86	93	100	106	113	120	68
278	127	140	154	168	182	196	210	224	238	252	139
279	266	293	320	347	374	401	428	455	482	509	270
280	536	573	610	646	683	720	757	793	830	867	368
281	904	943	983	1,023	1,063	1,102	1,142	1,182	1,221	1,261	397
282	1,301	1,343	1,386	1,428	1,471	1,514	1,556	1,599	1,641	1,684	425
283	1,726	1,772	1,817	1,863	1,908	1,954	1,999	2,045	2,090	2,135	455
284	2,181	2,229	2,278	2,326	2,374	2,422	2,471	2,519	2,567	2,616	488
285	2,664	2,715	2,767	2,819	2,870	2,922	2,973	3,025	3,076	3,128	515
286	3,179	3,235	3,290	3,345	3,401	3,456	3,511	3,567	3,622	3,677	553
287	3,732	3,791	3,850	3,910	3,969	4,028	4,087	4,146	4,205	4,264	591
288	4,323	4,386	4,449	4,511	4,574	4,637	4,700	4,763	4,826	4,889	628
289	4,951	5,018	5,085	5,152	5,218	5,285	5,352	5,418	5,485	5,552	667
290	5,618	5,690	5,762	5,833	5,905	5,977	6,049	6,120	6,192	6,264	717
291	6,335	6,413	6,491	6,569	6,647	6,725	6,803	6,881	6,959	7,037	780
292	7,115	7,199	7,284	7,368	7,452	7,537	7,621	7,706	7,790	7,875	844
293	7,959	8,050	8,141	8,232	8,324	8,415	8,506	8,597	8,688	8,779	912
294	8,871	8,969	9,067	9,165	9,263	9,361	9,459	9,557	9,655	9,753	981
295	9,852	9,954	10,061	10,165	10,270	10,374	10,479	10,583	10,688	10,792	1,045
296	10,897	11,007	11,117	11,227	11,338	11,448	11,558	11,668	11,778	11,889	1,102
297	11,999	12,115	12,231	12,347	12,463	12,579	12,695	12,811	12,927	13,043	1,160
298	13,159	13,281	13,403	13,525	13,647	13,769	13,891	14,013	14,135	14,257	1,220
299	14,379	14,507	14,635	14,763	14,891	15,018	15,146	15,274	15,402	15,530	1,279
300	15,658	15,794	15,929	16,064	16,200	16,335	16,471	16,606	16,741	16,877	1,354
301	17,012	17,157	17,301	17,445	17,590	17,734	17,879	18,023	18,167	18,312	1,444
302	18,454	18,610	18,764	18,918	19,071	19,225	19,379	19,533	19,686	19,840	1,538
303	19,994	20,157	20,320	20,484	20,647	20,811	20,974	21,137	21,301	21,464	1,633
304	21,627	21,801	21,974	22,147	22,320	22,494	22,667	22,840	23,014	23,187	1,733
305	23,360	23,542	23,724	23,907	24,089	24,271	24,453	24,635	24,817	24,999	1,821
306	25,181	25,371	25,561	25,750	25,940	26,130	26,320	26,509	26,699	26,889	1,898
307	27,079	27,276	27,473	27,671	27,868	28,066	28,263	28,461	28,658	28,856	1,974
308	29,053	29,258	29,464	29,669	29,874	30,079	30,285	30,490	30,695	30,900	2,053
309	31,106	31,319	31,532	31,745	31,959	32,172	32,385	32,598	32,811	33,025	2,132
310	33,238	33,459	33,680	33,901	34,122	34,343	34,564	34,785	35,006	35,227	2,210
311	35,448	35,677	35,906	36,135	36,363	36,592	36,821	37,050	37,278	37,507	2,288
312	37,736	37,972	38,209	38,446	38,682	38,919	39,155	39,392	39,628	39,865	2,366
313	40,102	40,346	40,590	40,835	41,079	41,324	41,568	41,813	42,057	42,302	2,444
314	42,546	42,799	43,051	43,303	43,556	43,808	44,061	44,313	44,566	44,818	2,524
315	45,070	45,332	45,593	45,855	46,116	46,378	46,639	46,900	47,162	47,423	2,615
316	47,685	47,956	48,228	48,499	48,771	49,042	49,314	49,586	49,857	50,129	2,715
317	50,400	50,682	50,964	51,246	51,528	51,809	52,091	52,373	52,655	52,937	2,819
318	53,219	53,511	53,803	54,095	54,388	54,680	54,972	55,264	55,557	55,849	2,922
319	56,141	56,444	56,747	57,050	57,353	57,656	57,959	58,261	58,564	58,867	3,029
320	59,170	59,483	59,795	60,108	60,420	60,733	61,046	61,358	61,671	61,983	3,126
321	62,296	62,617	62,938	63,259	63,581	63,902	64,223	64,544	64,866	65,187	3,212
322	65,508	65,838	66,168	66,498	66,828	67,158	67,488	67,818	68,148	68,478	3,300
323	68,808	69,147	69,486	69,825	70,164	70,502	70,841	71,180	71,519	71,858	3,388
324	72,196	72,544	72,892	73,240	73,587	73,935	74,283	74,630	74,978	75,326	3,478
325	75,674	76,029	76,385	76,741	77,097	77,453	77,808	78,164	78,520	78,876	3,557
326	79,231	79,594	79,957	80,320	80,683	81,046	81,409	81,772	82,135	82,498	3,630
327	82,861	83,231	83,601	83,971	84,341	84,712	85,082	85,452	85,822	86,192	3,701
328	86,562	86,940	87,317	87,695	88,072	88,449	88,827	89,204	89,581	89,959	3,774
329	90,336	90,721	91,105	91,490	91,874	92,259	92,644	93,028	93,413	93,798	3,848
330	94,182	94,574	94,966	95,359	95,751	96,143	96,535	96,927	97,319	97,711	3,921
331	98,103	98,503	98,903	99,303	99,703	100,103	100,503	100,903	101,303	101,703	4,000
332	102,103	102,511	102,919	103,327	103,734	104,142	104,550	104,958	105,365	105,773	4,078
333	106,181	106,597	107,012	107,428	107,843	108,259	108,675	109,091	109,506	109,922	4,157
334	110,338	110,762	111,185	111,609	112,032	112,456	112,879	113,303	113,727	114,150	4,236
335	114,574	115,005	115,437	115,868	116,300	116,731	117,163	117,594	118,026	118,457	4,315
336	118,889	119,328	119,768	120,207	120,647	121,086	121,525	121,965	122,404	122,844	4,394
337	123,283	123,730	124,178	124,625	125,073	125,520	125,967	126,415	126,862	127,309	4,474
338	127,757	128,212	128,667	129,123	129,578	130,033	130,488	130,944	131,399	131,854	4,553
339	132,310	132,773	133,236	133,699	134,163	134,626	135,089	135,553	136,016	136,479	4,633
340	136,943	137,413	137,884	138,355	138,826	139,297	139,767	140,238	140,709	141,180	4,707

ELEV.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9	DIFF.
ACRE FEET											
341	141,650	142,128	142,606	143,084	143,561	144,039	144,517	144,995	145,472	145,950	4,878
342	146,428	146,913	147,398	147,882	148,367	148,852	149,336	149,821	150,306	150,791	4,847
343	151,275	151,767	152,259	152,751	153,242	153,734	154,226	154,718	155,209	155,701	4,918
344	156,193	156,692	157,190	157,689	158,188	158,686	159,185	159,684	160,183	160,681	4,987
345	161,180	161,685	162,191	162,696	163,201	163,706	164,212	164,717	165,222	165,727	5,053
346	166,233	166,744	167,255	167,767	168,278	168,789	169,300	169,812	170,323	170,834	5,113
347	171,346	171,863	172,380	172,898	173,415	173,932	174,450	174,967	175,484	176,002	5,173
348	176,519	177,042	177,566	178,089	178,613	179,136	179,659	180,183	180,706	181,229	5,234
349	181,753	182,282	182,812	183,341	183,870	184,400	184,929	185,459	185,988	186,517	5,294
350	187,047	187,582	188,118	188,653	189,189	189,724	190,260	190,795	191,331	191,866	5,355
351	192,402	192,943	193,485	194,027	194,568	195,110	195,651	196,193	196,734	197,276	5,416
352	197,818	198,365	198,913	199,461	200,008	200,556	201,104	201,652	202,199	202,747	5,477
353	203,295	203,848	204,402	204,956	205,510	206,064	206,617	207,171	207,725	208,279	5,538
354	208,833	209,393	209,953	210,512	211,072	211,632	212,192	212,752	213,312	213,872	5,599
355	214,432	214,998	215,564	216,130	216,696	217,261	217,827	218,393	218,959	219,525	5,659
356	220,091	220,663	221,235	221,807	222,379	222,951	223,523	224,095	224,667	225,239	5,720
357	225,811	226,388	226,966	227,544	228,122	228,700	229,278	229,856	230,434	231,012	5,779
358	231,590	232,173	232,757	233,341	233,925	234,509	235,093	235,677	236,261	236,846	5,838
359	237,428	238,018	238,608	239,198	239,788	240,378	240,967	241,557	242,147	242,737	5,899
360	243,327	243,922	244,518	245,114	245,709	246,305	246,901	247,496	248,092	248,688	5,956
361	249,283	249,885	250,486	251,087	251,689	252,290	252,892	253,493	254,094	254,696	6,014
362	255,297	255,904	256,511	257,118	257,725	258,332	258,939	259,546	260,153	260,760	6,071
363	261,368	261,980	262,593	263,206	263,819	264,431	265,044	265,657	266,270	266,882	6,127
364	267,495	268,113	268,732	269,350	269,969	270,587	271,205	271,824	272,442	273,061	6,184
365	273,679	274,303	274,927	275,551	276,175	276,799	277,423	278,047	278,671	279,295	6,240
366	279,919	280,549	281,178	281,808	282,437	283,067	283,696	284,326	284,955	285,585	6,295
367	286,214	286,849	287,484	288,119	288,754	289,389	290,024	290,659	291,294	291,929	6,350
368	292,564	293,205	293,845	294,486	295,126	295,767	296,407	297,048	297,688	298,329	6,405
369	298,969	299,615	300,261	300,907	301,553	302,199	302,845	303,491	304,137	304,783	6,460
370	305,429	306,080	306,732	307,384	308,035	308,687	309,338	309,990	310,642	311,293	6,516
371	311,945	312,602	313,260	313,917	314,575	315,232	315,889	316,547	317,204	317,862	6,574
372	318,519	319,182	319,845	320,509	321,172	321,835	322,498	323,162	323,825	324,488	6,632
373	325,151	325,820	326,489	327,158	327,827	328,496	329,165	329,834	330,503	331,172	6,690
374	331,841	332,516	333,191	333,866	334,541	335,216	335,890	336,565	337,240	337,915	6,749
375	338,590	339,270	339,950	340,630	341,310	341,991	342,671	343,351	344,031	344,711	6,801
376	345,391	346,077	346,762	347,447	348,132	348,817	349,502	350,187	350,872	351,557	6,851
377	352,242	352,932	353,622	354,312	355,002	355,692	356,382	357,072	357,762	358,452	6,900
378	359,142	359,837	360,532	361,227	361,922	362,617	363,312	364,007	364,701	365,396	6,949
379	366,091	366,791	367,491	368,191	368,890	369,590	370,290	370,990	371,690	372,389	6,998
380	373,089	373,794	374,498	375,203	375,908	376,612	377,317	378,022	378,726	379,431	7,047
381	380,136	380,845	381,554	382,264	382,973	383,683	384,392	385,102	385,811	386,520	7,094
382	387,230	387,944	388,658	389,372	390,087	390,801	391,515	392,229	392,944	393,658	7,142
383	394,372	395,091	395,810	396,529	397,248	397,967	398,686	399,405	400,124	400,843	7,190
384	401,562	402,286	403,010	403,733	404,457	405,181	405,905	406,628	407,352	408,076	7,238
385	408,800	409,528	410,256	410,985	411,713	412,442	413,170	413,899	414,627	415,355	7,284
386	416,084	416,817	417,550	418,283	419,016	419,749	420,482	421,215	421,948	422,681	7,330
387	423,414	424,151	424,889	425,626	426,364	427,101	427,839	428,576	429,314	430,051	7,375
388	430,789	431,531	432,273	433,015	433,757	434,499	435,241	435,983	436,725	437,467	7,420
389	438,209	438,956	439,702	440,449	441,196	441,942	442,689	443,435	444,182	444,928	7,466
390	445,675	446,426	447,177	447,929	448,680	449,431	450,182	450,934	451,685	452,436	7,512
391	453,187	453,943	454,699	455,456	456,212	456,968	457,724	458,480	459,236	459,992	7,561
392	460,748	461,509	462,270	463,031	463,791	464,552	465,313	466,074	466,835	467,596	7,609
393	468,357	469,122	469,888	470,654	471,419	472,185	472,951	473,716	474,482	475,248	7,656
394	476,013	476,784	477,554	478,325	479,095	479,866	480,636	481,407	482,178	482,948	7,705
395	483,718	484,493	485,268	486,043	486,818	487,593	488,368	489,143	489,918	490,693	7,750
396	491,468	492,248	493,027	493,807	494,586	495,365	496,145	496,924	497,703	498,483	7,794
397	499,262	500,046	500,829	501,613	502,397	503,180	503,964	504,748	505,531	506,315	7,837
398	507,099	507,887	508,675	509,463	510,251	511,039	511,827	512,615	513,403	514,191	7,880
399	514,979	515,771	516,563	517,355	518,148	518,940	519,732	520,525	521,317	522,109	7,922
400	522,901	523,698	524,495	525,292	526,089	526,885	527,682	528,479	529,276	530,072	7,968
401	530,869	531,671	532,472	533,274	534,075	534,877	535,678	536,479	537,281	538,082	8,015
402	538,884	539,690	540,496	541,302	542,109	542,915	543,721	544,527	545,333	546,139	8,062
403	546,946	547,756	548,567	549,378	550,189	551,000	551,811	552,621	553,432	554,243	8,108
404	555,054	555,869	556,685	557,500	558,316	559,131	559,947	560,763	561,578	562,394	8,155
405	563,209	564,029	564,849	565,669	566,489	567,309	568,129	568,949	569,769	570,589	8,200
406	571,409	572,234	573,058	573,882	574,707	575,531	576,355	577,180	578,004	578,828	8,244
407	579,633	580,461	581,289	582,118	582,947	583,776	584,604	585,433	586,262	587,091	8,286
408	587,939	588,772	589,605	590,438	591,271	592,104	592,937	593,769	594,602	595,435	8,329
409	596,268	597,106	597,943	598,780	599,617	600,454	601,292	602,129	602,966	603,803	8,373
410	604,641	605,482	606,324	607,165	608,007	608,848	609,690	610,531	611,373	612,214	8,415
411	613,056	613,902	614,748	615,594	616,439	617,285	618,131	618,977	619,823	620,669	8,459
412	621,515	622,365	623,215	624,065	624,915	625,766	626,616	627,466	628,316	629,166	8,502
413	630,017	630,871	631,726	632,580	633,435	634,289	635,144	635,998	636,853	637,707	8,545
414	638,562	639,420	640,279	641,138	641,997	642,856	643,714	644,573	645,432	646,291	8,588
415	647,150	648,013	648,876	649,739	650,602	651,465	652,328	653,191	654,055	654,918	8,631
416	655,781	656,648	657,515	658,383	659,250	660,118	660,985	661,852	662,720	663,587	8,674
417	664,455	665,326	666,198	667,069	667,941	668,813	669,684	670,556	671,428	672,299	8,716
418	673,171	674,047	674,923	675,799	676,675	677,551	678,426	679,302	680,178	681,054	8,759
419	681,930	682,810	683,691	684,571	685,451	686,331	687,211	688,091	688,972	689,852	8,802
420	690,732	691,616	692,501	693,385	694,269	695,154	696,038	696,922	697,807	698,691	8,845

FLEV.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9	DIFF.
ACRE FEET											
421	699,575	700,464	701,352	702,241	703,129	704,018	704,906	705,795	706,683	707,572	8,885
422	708,460	709,353	710,245	711,138	712,030	712,923	713,815	714,708	715,601	716,493	8,925
423	717,366	718,262	719,179	720,076	720,972	721,869	722,766	723,662	724,559	725,456	8,964
424	726,352	727,253	728,154	729,055	729,955	730,856	731,757	732,658	733,559	734,459	9,008
425	735,360	736,264	737,169	738,073	738,978	739,883	740,787	741,692	742,596	743,501	9,045
426	744,405	745,314	746,222	747,130	748,038	748,946	749,854	750,762	751,670	752,578	9,082
427	753,487	754,398	755,310	756,221	757,133	758,045	758,956	759,868	760,780	761,691	9,116
428	762,603	763,518	764,433	765,349	766,264	767,179	768,094	769,009	769,924	770,840	9,152
429	771,755	772,673	773,592	774,511	775,430	776,348	777,267	778,186	779,104	780,023	9,187
430	780,942	781,864	782,786	783,709	784,631	785,553	786,475	787,398	788,320	789,242	9,223
431	790,165	791,090	792,016	792,942	793,868	794,794	795,720	796,646	797,572	798,498	9,259
432	799,424	800,353	801,283	802,212	803,142	804,071	805,001	805,930	806,860	807,789	9,295
433	808,719	809,652	810,585	811,518	812,452	813,385	814,318	815,251	816,184	817,117	9,332
434	818,051	818,987	819,924	820,861	821,798	822,734	823,671	824,608	825,545	826,481	9,367
435	827,418	828,359	829,299	830,239	831,180	832,120	833,061	834,001	834,941	835,882	9,404
436	836,822	837,766	838,711	839,655	840,599	841,543	842,487	843,431	844,375	845,319	9,442
437	846,264	847,211	848,158	849,107	850,055	851,003	851,951	852,898	853,846	854,794	9,478
438	856,742	857,693	858,645	859,596	860,548	861,499	862,451	863,403	864,354	865,306	9,515
439	866,257	867,212	868,168	869,123	870,078	871,033	871,988	872,943	873,898	874,853	9,552
440	874,809	875,768	876,727	877,686	878,645	879,604	880,562	881,521	882,480	883,439	9,589
441	884,398	885,360	886,323	887,285	888,247	889,210	890,172	891,135	892,097	893,060	9,626
442	894,022	894,988	895,954	896,920	897,886	898,852	899,818	900,784	901,750	902,716	9,664
443	903,682	904,651	905,621	906,591	907,560	908,530	909,499	910,469	911,438	912,408	9,695
444	913,377	914,350	915,324	916,297	917,270	918,243	919,216	920,189	921,162	922,135	9,731
445	923,108	924,085	925,062	926,038	927,015	927,991	928,968	929,944	930,921	931,898	9,766
446	932,874	933,854	934,834	935,814	936,794	937,774	938,754	939,734	940,714	941,694	9,800
447	942,674	943,658	944,641	945,624	946,608	947,591	948,575	949,558	950,541	951,525	9,834
448	952,508	953,495	954,482	955,469	956,455	957,442	958,429	959,416	960,403	961,389	9,868
449	962,376	963,366	964,357	965,347	966,337	967,327	968,317	969,308	970,298	971,288	9,902
450	972,278	973,272	974,265	975,259	976,252	977,246	978,239	979,233	980,226	981,220	9,935
451	982,213	983,210	984,207	985,203	986,200	987,197	988,193	989,190	990,187	991,183	9,967
452	992,180	993,180	994,180	995,180	996,180	997,180	998,180	999,179	1,000,179	1,001,179	9,999
453	1,002,179	1,003,182	1,004,185	1,005,188	1,006,191	1,007,194	1,008,197	1,009,200	1,010,203	1,011,206	10,031
454	1,012,210	1,013,216	1,014,222	1,015,229	1,016,235	1,017,241	1,018,247	1,019,253	1,020,260	1,021,266	10,063
455	1,022,273	1,023,282	1,024,292	1,025,301	1,026,311	1,027,320	1,028,330	1,029,339	1,030,349	1,031,358	10,095
456	1,032,368	1,033,381	1,034,393	1,035,406	1,036,419	1,037,431	1,038,444	1,039,457	1,040,469	1,041,482	10,127
457	1,042,495	1,043,511	1,044,527	1,045,543	1,046,559	1,047,575	1,048,591	1,049,607	1,050,623	1,051,639	10,160
458	1,052,655	1,053,675	1,054,694	1,055,713	1,056,732	1,057,751	1,058,771	1,059,790	1,060,809	1,061,828	10,193
459	1,062,848	1,063,870	1,064,892	1,065,915	1,066,937	1,067,960	1,068,982	1,070,004	1,071,027	1,072,049	10,226
460	1,073,072	1,074,098	1,075,124	1,076,149	1,077,175	1,078,201	1,079,227	1,080,252	1,081,278	1,082,304	10,257
461	1,083,329	1,084,358	1,085,387	1,086,416	1,087,445	1,088,474	1,089,503	1,090,532	1,091,561	1,092,589	10,290
462	1,093,619	1,094,651	1,095,683	1,096,715	1,097,747	1,098,779	1,099,811	1,100,844	1,101,876	1,102,908	10,322
463	1,103,941	1,104,976	1,106,011	1,107,047	1,108,082	1,109,118	1,110,153	1,111,188	1,112,224	1,113,259	10,356
464	1,114,295	1,115,333	1,116,372	1,117,411	1,118,449	1,119,488	1,120,526	1,121,565	1,122,604	1,123,642	10,388
465	1,124,681	1,125,723	1,126,765	1,127,806	1,128,848	1,129,890	1,130,932	1,131,974	1,133,015	1,134,057	10,418
466	1,135,099	1,136,144	1,137,189	1,138,234	1,139,279	1,140,324	1,141,369	1,142,413	1,143,458	1,144,503	10,450
467	1,145,549	1,146,597	1,147,645	1,148,693	1,149,741	1,150,789	1,151,837	1,152,885	1,153,933	1,154,981	10,481
468	1,156,030	1,157,081	1,158,132	1,159,183	1,160,234	1,161,286	1,162,337	1,163,388	1,164,439	1,165,490	10,512
469	1,166,542	1,167,596	1,168,650	1,169,705	1,170,759	1,171,813	1,172,868	1,173,922	1,174,976	1,176,031	10,543
470	1,177,085	1,178,143	1,179,200	1,180,257	1,181,315	1,182,372	1,183,430	1,184,487	1,185,544	1,186,602	10,575
471	1,187,660	1,188,720	1,189,781	1,190,841	1,191,902	1,192,962	1,194,023	1,195,083	1,196,144	1,197,204	10,606
472	1,198,266	1,199,329	1,200,393	1,201,457	1,202,520	1,203,584	1,204,648	1,205,712	1,206,775	1,207,839	10,637
473	1,208,903	1,209,969	1,211,036	1,212,103	1,213,170	1,214,237	1,215,303	1,216,370	1,217,437	1,218,504	10,668
474	1,219,571	1,220,641	1,221,711	1,222,780	1,223,850	1,224,920	1,225,990	1,227,060	1,228,130	1,229,200	10,699
475	1,230,270	1,231,343	1,232,416	1,233,489	1,234,562	1,235,635	1,236,708	1,237,781	1,238,854	1,239,927	10,730
476	1,241,000	1,242,076	1,243,152	1,244,228	1,245,305	1,246,381	1,247,457	1,248,533	1,249,609	1,250,685	10,762
477	1,251,762	1,252,841	1,253,920	1,255,000	1,256,079	1,257,158	1,258,238	1,259,317	1,260,396	1,261,476	10,793
478	1,262,555	1,263,637	1,264,720	1,265,802	1,266,885	1,267,967	1,269,049	1,270,132	1,271,214	1,272,297	10,824
479	1,273,379	1,274,465	1,275,550	1,276,636	1,277,721	1,278,807	1,279,892	1,280,978	1,282,063	1,283,149	10,856
480	1,284,235	1,285,324	1,286,412	1,287,501	1,288,589	1,289,678	1,290,767	1,291,855	1,292,944	1,294,032	10,886
481	1,295,121	1,296,212	1,297,304	1,298,395	1,299,487	1,300,578	1,301,670	1,302,761	1,303,853	1,304,944	10,916
482	1,306,037	1,307,131	1,308,226	1,309,320	1,310,415	1,311,509	1,312,604	1,313,698	1,314,793	1,315,887	10,945
483	1,316,982	1,318,079	1,319,176	1,320,274	1,321,371	1,322,469	1,323,566	1,324,663	1,325,761	1,326,858	10,974
484	1,327,956	1,329,056	1,330,157	1,331,257	1,332,357	1,333,458	1,334,558	1,335,658	1,336,759	1,337,859	11,004
485	1,338,960	1,340,063	1,341,167	1,342,270	1,343,374	1,344,477	1,345,580	1,346,684	1,347,787	1,348,891	11,034
486	1,349,994	1,351,100	1,352,207	1,353,313	1,354,420	1,355,526	1,356,632	1,357,739	1,358,845	1,359,952	11,065
487	1,361,059	1,362,168	1,363,278	1,364,387	1,365,497	1,366,606	1,367,716	1,368,825	1,369,935	1,371,044	11,095
488	1,372,156	1,373,267	1,374,380	1,375,492	1,376,605	1,377,717	1,378,830	1,379,943	1,381,055	1,382,168	11,127
489	1,383,281	1,384,397	1,385,512	1,386,628	1,387,744	1,388,859	1,389,975	1,391,091	1,392,206	1,393,322	11,157
490	1,394,438	1,395,557	1,396,675	1,397,794	1,398,913	1,400,031	1,401,150	1,402,269	1,403,388	1,404,506	11,187
491	1,405,625	1,406,747	1,407,869	1,408,990	1,410,112	1,411,234	1,412,356	1,413,477	1,414,599	1,415,721	11,218
492	1,416,843	1,417,967	1,419,092	1,420,217	1,421,341	1,422,466	1,423,591	1,424,716	1,425,840	1,426,965	11,247
493	1,428,090	1,429,218	1,430,345	1,431,473	1,432,601	1,433,728	1,434,856	1,435,984	1,437,111	1,438,239	11,277
494	1,439,367	1,440,497	1,441,624	1,442,752	1,443,880	1,445,008	1,446,136	1,447,264	1,448,392	1,449,520	11,307
495	1,450,674	1,451,807	1,452,941	1,454,074	1,455,208	1,456,342	1,457,475	1,458,609	1,459,742	1,460,876	11,337
496	1,462,011	1,463,147	1,464,284	1,465,421	1,466,557	1,467,694	1,468,831	1,469,967	1,471,104	1,472,241	11,367
497	1,473,378	1,474,517	1,475,657	1,476,797	1,477,937	1,479,076	1,480,216	1,481,356	1,482,495	1,483,635	11,397
498	1,484,775	1,485,918	1,487,061	1,488,204	1,489,348	1,490,489	1,491,632	1,492,774	1,493,917	1,495,060	11,428
499	1,496,203	1,497,349	1,498,495	1,499							

ELEV.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9	DIFF.
ACRE FEET											
501	1,519,150	1,520,302	1,521,454	1,522,605	1,523,757	1,524,909	1,526,061	1,527,213	1,528,365	1,529,517	11,519
502	1,530,669	1,531,824	1,532,979	1,534,134	1,535,289	1,536,444	1,537,599	1,538,754	1,539,909	1,541,064	11,551
503	1,542,220	1,543,378	1,544,536	1,545,694	1,546,852	1,548,011	1,549,169	1,550,327	1,551,485	1,552,643	11,582
504	1,553,802	1,554,963	1,556,124	1,557,285	1,558,446	1,559,608	1,560,769	1,561,930	1,563,091	1,564,252	11,612
505	1,565,414	1,566,578	1,567,742	1,568,907	1,570,071	1,571,235	1,572,399	1,573,563	1,574,728	1,575,892	11,642
506	1,577,056	1,578,223	1,579,390	1,580,557	1,581,724	1,582,891	1,584,058	1,585,225	1,586,392	1,587,559	11,671
507	1,588,727	1,589,897	1,591,067	1,592,237	1,593,406	1,594,576	1,595,746	1,596,916	1,598,086	1,599,256	11,699
508	1,600,426	1,601,599	1,602,771	1,603,944	1,605,117	1,606,289	1,607,462	1,608,635	1,609,808	1,610,980	11,727
509	1,612,153	1,613,329	1,614,504	1,615,680	1,616,855	1,618,031	1,619,206	1,620,382	1,621,557	1,622,733	11,756
510	1,623,909	1,625,088	1,626,266	1,627,445	1,628,623	1,629,801	1,630,980	1,632,158	1,633,337	1,634,515	11,785
511	1,635,694	1,636,875	1,638,056	1,639,237	1,640,418	1,641,600	1,642,781	1,643,962	1,645,143	1,646,324	11,812
512	1,647,506	1,648,690	1,649,874	1,651,058	1,652,242	1,653,426	1,654,610	1,655,794	1,656,978	1,658,162	11,841
513	1,659,347	1,660,534	1,661,721	1,662,908	1,664,095	1,665,282	1,666,468	1,667,655	1,668,842	1,670,029	11,869
514	1,671,216	1,672,406	1,673,596	1,674,785	1,675,975	1,677,165	1,678,354	1,679,544	1,680,734	1,681,923	11,897
515	1,683,113	1,684,306	1,685,498	1,686,691	1,687,883	1,689,076	1,690,268	1,691,461	1,692,653	1,693,846	11,926
516	1,695,039	1,696,234	1,697,429	1,698,625	1,699,820	1,701,015	1,702,210	1,703,406	1,704,601	1,705,796	11,953
517	1,706,992	1,708,190	1,709,388	1,710,586	1,711,784	1,712,982	1,714,180	1,715,378	1,716,576	1,717,774	11,980
518	1,718,978	1,720,173	1,721,374	1,722,575	1,723,776	1,724,976	1,726,177	1,727,378	1,728,579	1,729,780	12,009
519	1,730,981	1,732,184	1,733,388	1,734,592	1,735,795	1,736,999	1,738,202	1,739,406	1,740,610	1,741,813	12,036
520	1,743,017	1,745,088	1,746,636	1,747,862	1,749,049	1,750,255	1,751,462	1,752,668	1,753,874	1,755,080	12,064
521	1,755,081	1,756,290	1,757,499	1,758,708	1,759,918	1,761,127	1,762,336	1,763,545	1,764,754	1,765,964	12,093
522	1,767,174	1,768,386	1,769,598	1,770,810	1,772,022	1,773,234	1,774,446	1,775,658	1,776,870	1,778,083	12,121
523	1,779,295	1,780,510	1,781,725	1,782,940	1,784,155	1,785,370	1,786,585	1,787,800	1,789,015	1,790,230	12,150
524	1,791,445	1,792,663	1,793,881	1,795,099	1,796,316	1,797,534	1,798,752	1,799,970	1,801,188	1,802,405	12,179
525	1,803,624	1,804,845	1,806,066	1,807,286	1,808,507	1,809,728	1,810,949	1,812,170	1,813,390	1,814,611	12,208
526	1,815,832	1,817,056	1,818,280	1,819,503	1,820,727	1,821,951	1,823,175	1,824,399	1,825,622	1,826,846	12,239
527	1,828,071	1,829,297	1,830,524	1,831,751	1,832,978	1,834,205	1,835,431	1,836,658	1,837,885	1,839,112	12,268
528	1,840,339	1,841,569	1,842,799	1,844,029	1,845,259	1,846,489	1,847,719	1,848,949	1,850,179	1,851,408	12,299
529	1,852,638	1,853,871	1,855,104	1,856,337	1,857,570	1,858,803	1,860,036	1,861,269	1,862,502	1,863,734	12,330
530	1,864,968	1,866,203	1,867,439	1,868,675	1,869,911	1,871,147	1,872,382	1,873,618	1,874,854	1,876,090	12,358
531	1,877,326	1,878,565	1,879,804	1,881,043	1,882,281	1,883,520	1,884,759	1,885,997	1,887,236	1,888,475	12,388
532	1,889,714	1,890,956	1,892,197	1,893,439	1,894,681	1,895,922	1,897,164	1,898,405	1,899,647	1,900,889	12,417
533	1,902,131	1,903,375	1,904,620	1,905,864	1,907,109	1,908,353	1,909,598	1,910,842	1,912,087	1,913,331	12,445
534	1,914,576	1,915,823	1,917,071	1,918,318	1,919,566	1,920,813	1,922,060	1,923,308	1,924,555	1,925,803	12,474
535	1,927,050	1,928,300	1,929,550	1,930,801	1,932,051	1,933,301	1,934,551	1,935,801	1,937,052	1,938,302	12,502
536	1,939,552	1,940,805	1,942,058	1,943,311	1,944,564	1,945,817	1,947,070	1,948,322	1,949,575	1,950,828	12,530
537	1,952,082	1,953,338	1,954,593	1,955,849	1,957,105	1,958,360	1,959,616	1,960,872	1,962,128	1,963,383	12,557
538	1,964,639	1,965,898	1,967,156	1,968,414	1,969,673	1,970,931	1,972,190	1,973,448	1,974,706	1,975,965	12,585
539	1,977,224	1,978,485	1,979,746	1,981,008	1,982,269	1,983,530	1,984,791	1,986,052	1,987,314	1,988,575	12,612
540	1,989,836	1,991,100	1,992,364	1,993,628	1,994,892	1,996,156	1,997,420	1,998,684	1,999,948	2,001,211	12,640
541	2,002,476	2,003,742	2,005,009	2,006,275	2,007,542	2,008,808	2,010,075	2,011,341	2,012,608	2,013,874	12,665
542	2,015,141	2,016,411	2,017,680	2,018,949	2,020,218	2,021,487	2,022,757	2,024,026	2,025,295	2,026,564	12,693
543	2,027,834	2,029,105	2,030,377	2,031,649	2,032,921	2,034,193	2,035,464	2,036,736	2,038,008	2,039,280	12,718
544	2,040,552	2,041,827	2,043,101	2,044,376	2,045,650	2,046,925	2,048,199	2,049,474	2,050,748	2,052,023	12,745
545	2,053,297	2,054,575	2,055,852	2,057,129	2,058,406	2,059,683	2,060,961	2,062,238	2,063,515	2,064,792	12,773
546	2,066,070										

Elevation 126.0 - Top of Inactive Storage  
 Elevation 144.0 - Crest of Spillway  
 Elevation 145.8 - Maximum Water Surface  
 Supersedes table dated February 1966. Placed in use as of 0001 hours on October 1, 1966.

543.86 spill