

# RECLAMATION

*Managing Water in the West*

Mid-Pacific Region

## Central Valley Project Water Plan 2014 (Draft)



U.S. Department of the Interior  
Bureau of Reclamation  
Mid-Pacific Region

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# TABLE OF CONTENTS

<b>INTRODUCTION</b> .....	<b>3</b>
<b>NEAR-TERM ACTIONS 2014</b> .....	<b>5</b>
Operational Flexibility Within the Existing Biological Opinion.....	5
Old and Middle River Index .....	5
Estimation Method Based on New Range of Years for the Adult Delta Smelt Incidental Take Statement.....	5
New and Refined Turbidity Models .....	5
Flexibility Agreement.....	6
Water Transfers .....	6
Streamline Water Transfer Approval Process .....	6
Use of Warren Act Contracts to Facilitate Water Supplies.....	7
Refuges and Fisheries .....	7
San Joaquin River Restoration Program Flows – Recapture and Recirculation Plan .....	7
Lower Klamath River Fall Flows for Fall-run Chinook Salmon .....	8
Refuge Water Supply .....	9
Golden Gate Salmon Association (GGSA) Projects .....	9
Coordination .....	10
Coordination and Forecasting.....	10
Improve Hatchery Operational Coordination with North of Delta Diverters .....	10
Folsom Intake Protection .....	11
Relief from Water Quality Objectives.....	11
Water Acquisitions .....	11
Acquire Non-CVP Water for CVP Purposes .....	11
Component 1 (C1) Water.....	12
<b>MEDIUM-TERM ACTIONS (BEYOND WATER YEAR 2014)</b> .....	<b>13</b>
Refuges and Fisheries .....	13
Refuge Water Supply.....	13
Supply Flexibility Options.....	13
Coordination .....	14
Rice Straw Decomposition.....	14
Operational Flexibility with the Existing Biological Opinions .....	14
Population Dynamics Modeling to Revise Adult Delta Smelt Incidental Take Statement .....	14
Salmonid Genetic Testing .....	14
Water Transfers .....	15
Long-term Water Transfer Process.....	15
San Joaquin River I:E Experiment.....	15

## List of Tables

Water Year 2014, Estimated Benefit for Near-Term Action Categories .....	12
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# INTRODUCTION

Low reservoir storages at the start of Water Year 2014, and the potential for continued dry hydrologic conditions into the coming water year, coupled with significant protective actions for threatened fish populations and the need to maintain adequate water quality standards under state law, could present serious water supply challenges for many parts of California. The January-May period in 2013 was the driest January-May period on record for the Central Valley; conditions remain dry with the October 2013 inflow to Shasta Lake near the lowest for any month on record; and the National Weather Service's Season Drought Project indicates persistent drought conditions for the Central Valley and Sierra Nevada for the next 90 days. For these reasons, it is imperative that Reclamation, our customers, and our stakeholders be prepared to face these challenges. The aim of the Draft 2014 Water Plan is to minimize the negative impacts to affected Central Valley Project (CVP) customers and stakeholders associated with a possible dry 2014 water year. The draft Plan is the product of Reclamation's ongoing assessment of the water supply situation and the cumulative input from the 2013/2014 water year meetings with customers and stakeholders.

The 2013/2014 water year meetings were conducted over a several week period in June 2013, and continued into early September 2013 to discuss current CVP water operations and ongoing water supply challenges. Customers and stakeholders provided items for Reclamation's consideration and we provided regular updates throughout the summer. The result was a list of suggested actions from agriculture, Municipal and Industrial (M&I), tribal, fisheries, other environmental, power and refuge interests. We were clear that this list was reflective of actions that Reclamation would consider for inclusion in the Plan; it was not a commitment to carry any particular action.

This Plan is Reclamation's attempt to identify actions based on those items suggested by our customers and stakeholders, deemed to provide the greatest potential to address adverse water supply impacts in 2014 while maintaining environmental commitments, based on:

- Resources available to carry out the action,
- The schedule necessary to achieve anticipated benefits, and
- The likelihood to achieve the expected benefits

We have developed a list of proposed actions, and associated timelines, that we anticipate can be implemented during the 2014 water year, absent changed conditions, unforeseen barriers or unanticipated circumstances, and we call these near-term. We will continue to assess and update the timeline for these projects as we define the scope and permit needs of each project. This leaves a broad array of actions that, due to limited resources, environmental and permitting prerequisites, or other implementing difficulties, preclude implementation in the 2014 water year. Many of these items are included in the Medium Term Actions section of this document (see page 13).

The draft plan focuses on actions that are achievable, that provide operational flexibility, and that are value added to CVP operations as a whole. The actual benefits realized through these actions will be highly dependent on actual hydrologic conditions throughout the State this coming water year. As conditions change, Reclamation will continuously be reevaluating our planned actions and will adjust accordingly.

Many of the actions on the list fall into the category of operational flexibility as it relates to the existing biological opinions (BOs). The term "operational flexibility" can be defined as the ability to manage existing water supplies

## Introduction

efficiently and effectively, consistent with the project authorizations and objectives, while adapting to changes in regulatory, physical, and hydrologic conditions. Improved operational flexibility can result in, the most efficient system operation, increased water yield and increased ability to meet project needs under a range of potential conditions.

As operational flexibility relates to the incidental take levels and reasonable and prudent alternative actions in the current BOs for both the Delta smelt and salmonid species, Reclamation is working to coordinate and collaborate with the Federal resource agencies, as well as the California Departments of Fish and Wildlife (DFW) and Water Resources (DWR), to develop processes and data to identify and take advantage of any opportunities to improve operational flexibility within the BOs. Opportunities include improvements to the current processes that are used by the following interagency groups that play a role in managing real-time operations: the Smelt Working Group, the Delta Operations for

Salmonids and Sturgeon, and the Water Operations Management Team. The ultimate goal is to maximize operational flexibility, while not causing jeopardy or modification of critical habitat to Federally-listed species.

Due to other regulatory requirements outside of the BOs that can constrain Delta operations at times throughout year, the range of possible hydrological conditions and without knowing the timing and distribution of sensitive fish populations that will occur in the winter and spring, Reclamation cannot predict the actual water yield benefits of improving operational flexibility within the specific requirements of the BOs. In addition, other constraints, including State Water Resources Control Board (SWRCB) requirements for water quality, salinity, and/or Delta outflow, can be important factors that govern Delta and upstream operations. As conditions dictate, Reclamation will collaborate with other Federal and State agencies, including the SWRCB to gain concurrence on a path forward that makes the best use of limited water resources.

# NEAR-TERM ACTIONS 2014

## Operational Flexibility Within the Existing Biological Opinion

### Old and Middle River Index

Develop and implement a pilot project to test using an index rather than tidally filtered United States Geological Survey (USGS) gauge data at OMR to determine OMR negative flow.

The pilot project is planned to begin implementation in the November 2013/January 2014 timeframe and may run through periods into May. During this time Reclamation and DWR will operate to the OMR objective using an index based on San Joaquin River flow. Operations would return to use of the tidally-filtered OMR values if the difference between the tidally-filtered values and index values exceed a certain limit. This limit will be determined in cooperation with the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) as the plan is finalized as will allow continued compliance with the existing BOs.

### Parties Involved

Reclamation, USFWS, NMFS, DWR, State and Federal contractors and environmental stakeholders. Reclamation staff will meet to develop the proposal and work directly with USFWS staff through November 4. Once a final draft proposal is available (goal November 4), Reclamation will collaborate with NMFS, USFWS, and DWR in face-to-face meetings to finalize the proposal and begin implementation in the December 2013/January 2014 timeframe. Reclamation and DWR will consider a pilot test of the new method in November 2013, which would allow a water-neutral evaluation of the effectiveness of the method before the entrainment risk season begins.

### Timeline for Benefits to be Derived

There is some potential to realize a water benefit during the winter while the experiment is implemented from December to May.

### Benefits

From an operational standpoint, this action could result in better more predictable response to changing conditions in the Delta.

### Estimation Method Based on New Range of Years for the Adult Delta Smelt Incidental Take Statement

Develop a new cumulative salvage index calculation for determining cumulative expanded salvage, using years in addition to the existing 2006-2008 range.

### Parties Involved

State and Federal water contractors are to provide a proposal to Reclamation in October/early November 2013. Reclamation will review the proposal and provide to the USFWS for consideration. To allow for customer and stakeholder input and transparency, State and Federal water contractors will be asked to present the October proposal to environmental stakeholders. This will allow Reclamation and the USFWS to hear the environmental community's opinion on the proposal. If a proposal is developed that is acceptable to Reclamation and USFWS, the proposal would be used to calculate the incidental take limit (ITL) for Water Year 2014 in December 2013.

### Timeline for Benefits to be Derived

December 2013 - March 2014 operations.

### Benefits

If adult smelt entrainment numbers at the pumps stay below the ITL, exports would not be curtailed, and south of Delta exports would not be affected due to adult Delta smelt entrainment.

### New and Refined Turbidity Models

For predicting Delta smelt salvage, develop a model to predict turbidity conditions that lead to entrainment events, and determine the magnitude of the conditions that create a "turbidity" bridge for the Delta smelt's movement between the central Delta and the export pumps.

## Near-Term Actions 2014

### **Parties Involved**

USFWS is working closely with Metropolitan Water District (MWD) and DWR as well as Reclamation and other environmental stakeholders to develop new modeling tools to predict turbidity. Weekly meetings are being held with interested stakeholders. It is expected that more refined tools (as compared to last year) will be available for use in water year 2014.

### **Timeline for Benefits to be Derived**

Water year 2014 during the months of December through June, but especially during the winter period.

### **Benefits**

If operations can be modified early in the season to avoid a turbidity bridge within the central and south Delta, the adult smelt could move up the Sacramento River rather than moving into the central and south Delta. This minimizes the risk of entrainment for all life stages of smelt at the pumps, therefore reducing the risk that there will be a need for pumping curtailment due to smelt presence.

The total potential improved water supply from all the operational flexibility with the existing BOs action are estimated at zero to 50,000 acre-feet.

## Operational Flexibility

### **Flexibility Agreement**

Reclamation and the San Joaquin River Exchange Contractors (Exchange Contractors) entered into a Flexibility Agreement to improve San Luis Reservoir and Delta operations while allowing greater flexibility in the Exchange Contractors' contract-specified monthly delivery quantities. The exchange contractors use alternative sources of water supply (groundwater and other conserved water) early in the year to delay use of CVP surface water supplies from the Delta and San Luis Reservoir. That water can then be used to meet demands of other CVP contractors.

### **Parties Involved**

San Joaquin River Exchange Contractors and Reclamation.

### **Timeline for Benefits to be Derived**

Annual benefits obtained during the early and peak irrigation season for both the San Joaquin River

Exchange Contractors and CVP south-of-Delta water contractors.

### **Benefits**

Potentially provides up to 10,000 acre-feet for delivery to CVP water service contractors on the west side of the San Joaquin Valley during early and peak irrigation. It is not an increase in supply, but a demand shift providing flexibility in deliveries.

## Water Transfers

### **Streamline Water Transfer Approval Process**

Further streamline Reclamation's process for final approval of water transfers process by providing an e-Brochure package and tracking tool.

The e-Brochure outlines the process and considerations that each Reclamation office typically uses for final processing of approved transfer proposals once it is determined that a transfer action can be accommodated operationally. The e-Brochure is sectionalized by office and each section includes a number of elements such as points of contact, timelines, and a progress monitoring system. The e-Brochure is being constructed with on-line capability so that information and status can be viewed 24 hours a day. Reclamation is available to meet with customers regarding any specific proposal, issue, or suggested improvement to the water transfer approval process.

Reclamation currently has a number of programmatic transfer programs for which we have National Environmental Policy Act (NEPA) coverage and provide an accelerated process for handling transfers analyzed. These accelerated water transfer programs cover within basin transfers and programs such as the 25-year transfer program with the San Joaquin Exchange Contractors. We have also approved banking arrangements with some districts on a multi-year basis which involve water transfers/exchanges with local water banks. Reclamation anticipates completing the environmental document for a 10-year North to South Transfer Program in time for the summer of 2015 and is currently contemplating a North to North programmatic document to cover transfers between North of Delta Water Service

Contractors and Sacramento River Settlement Contractors having non-project base supplies which are typically available for transfer and are not covered under existing accelerated programs. A 1-year North to South Water Transfer Program is being developed for the 2014 water year.

Reclamation will also continue to coordinate with the State and cooperate with our contractors to support improvements to transfer programs that require DWR involvement and/or approval by the State Water Resources Control Board (SWRCB).

#### **Parties Involved**

Reclamation, DWR, San Luis & Delta-Mendota Water Authority (SLDMWA), SWRCB, and various water transfer buyers and sellers, on a year-round basis.

Reclamation will engage State agencies, CVP contractors and State Water Project (SWP) contractors to identify bottlenecks to transfers, improve processing, and eliminate duplication of effort.

#### **Timeline for Benefits to be Derived**

The water year 2014 transfer window for north to south is July-September 2014, and will apply to the 1-year program. The transfer window for north to north and east to west is year-round since these transfers do not involve Delta pumping to accomplish.

#### **Benefits**

This action would not generate additional CVP water supply, but would provide for a voluntary redistribution of CVP supplies and non-CVP available supplies. As in 2013, south of Delta CVP water service contractors could receive over 150,000 acre-feet of additional water due to transfers from other sources. On a case-by-case basis some transfers and or conveyance of CVP and/or non-CVP supplies may improve operational flexibility.

#### **Use of Warren Act Contracts to Facilitate Water Supplies**

Investigate use of CVP storage and/or conveyance to facilitate approved water transfers by working directly with transferring partners to consider whether such a request could be met without harming other CVP purposes or operations. Please

see #10 for additional information on the topic of water transfer approvals.

#### **Parties Involved**

Depends on the transferring parties; generally a non-CVP source to a CVP contractor.

#### **Timeline for Benefits to be Derived**

Benefits would likely be provided during the Delta transfer pumping window July-September 2014 however, this depends on the availability of CVP facilities and the nature and timing of a proposed water transfer action.

#### **Benefits**

Dependent on number, quantity, timing, and location of the various transfers. Supply quantities for valid transfers could come at the expense of non-CVP water user supplies. Transfer amount will be dependent on the number, quantity, timing, and location of the various actions, and could range from 0 to 20,000 acre-feet. If coordinated and timed correctly, transfer flows could provide some flexibility and support for in-stream flows, cold-water pool, and/or reservoir storage.

## **Refuges and Fisheries**

### **San Joaquin River Restoration Program Flows – Recapture and Recirculation Plan**

Reclamation will continue to maximize opportunities to recapture and recirculate flows released for the San Joaquin River Restoration Program (Restoration Program), which includes completion of the Recapture and Recirculation Plan (R&R Plan) by the end of March 2014.

The March 2014 R&R Plan will describe the conditions under which Interim and Restoration flows (Restoration flows) would be recaptured, at the Mendota Pool, lower San Joaquin River diversions, and CVP and SWP Delta facilities. In addition, the March 2014 R&R Plan will describe the conditions under which recaptured Restoration Flows (Recirculation Water) are recirculated to the Friant Division long-term contractors (Friant Contractors) by direct delivery, exchanges, transfers, or sales to other south of Delta contractors and the refuges.

## Near-Term Actions 2014

### ***Parties Involved***

Reclamation is to complete the March 2014 R&R Plan, undertake recapture actions, and assist in recirculation actions. The parties to the Settlement (Friant Contractors and NRDC) and Westside contractors are to participate in the preparation of the March 2014 R&R Plan.

Recapture and recirculation of Restoration flows is ongoing based on 2011 R&R Plan. Recirculation Water is generally allocated weekly to the Friant Contractors, on a pro-rata share, in San Luis Reservoir. Reclamation and the Friant Contractors work collaboratively to maximize the return of Recirculation Water to the Friant Contract Service area. Recirculation Water that is impractical to return is managed for exchange, transfer, or sale at the discretion of each Friant Contractor.

### ***Timeline for Benefits to be Derived***

Reclamation has been recapturing and recirculating since 2010. Reclamation prepared a draft R&R Plan in 2011, in coordination with the Friant Contractors, NRDC, and the Westside contractors. Reclamation has been operating to the draft R&R Plan and will continue to recapture and recirculate Restoration Flows consistent with the draft R&R Plan until the March 2014 R&R Plan is completed.

The March 2014 R&R Plan will address recapture of the Restoration Flows in the Delta, which is not fully addressed in the 2011 R&R Plan.

The benefits are ongoing. There are opportunities to increase benefits by increasing recapture and those opportunities are being actively pursued.

### ***Benefits***

The R&R Plan is a requirement of the Settlement and Public Law 111-11 and will describe the key conditions for recapture and recirculation. Reclamation will continue to maximize recapture and recirculation of Restoration Flows for Friant Contractors, consistent with the Settlement and Public Law 111-11. This includes working with the Friant Contractors, facility owners, and other potentially affected parties to recapture Restoration Flows at locations between the Merced River confluence and the Delta. If successful, this could increase the volume of recaptured Restoration Flows.

### **Lower Klamath River Fall Flows for Fall-run Chinook Salmon**

Develop a plan for the long-term protection of the fishery resources.

Reclamation released flows for augmentation in the fall of 2012 and 2013, the impacts of which have yet to be addressed. In 2012, a total volume of 39,000 acre-feet was released and approximately 17,500 acre-feet was released in 2013. A long-term strategy implementable by the fall of 2014 is being developed, including a draft proposal for a long-term plan which will be developed by the end of calendar year 2013.

### ***Parties Involved***

Reclamation will coordinate with the Hoopa Valley Tribe, Yurok Tribe, USFWS, DFW, environmental stakeholders, and CVP water and power users in developing the augmentation regime and identifying impacts. Reclamation will engage further with all parties as the draft plan is refined.

### ***Timeline for Benefits to be Derived***

The benefits are derived in August of September during years when flow augmentation is determined necessary in accordance with criteria developed under Reclamation and USFWS guidance in 2012.

### ***Benefits***

Flow augmentation provided from Trinity Reservoir would be expected to increase flows and decrease water temperatures in the lower Klamath River while the fall-run Chinook salmon are migrating in the Klamath River. In turn, these fish should experience less physiological stress and vulnerability to disease. Increased volume and water turn over rates will allow for lower fish densities and help disrupt the potential spread of disease. There will also be a minor increase in coho salmon rearing habitat in the Trinity River during the augmentation period.

The advantage of having an LTP in place will allow for broader stakeholder input and vetting of operational responses. It will also hopefully reduce conflicts and lead to better overall resource management.

### **Refuge Water Supply**

Implement activities such as shifted demand scheduling, reallocation of Level 2 supplies to other refuges, and supply flexibility options that are strategically prioritized, to improve coordinated management of refuge water supplies and lessen impacts to other water users.

#### ***Demand Scheduling***

Reclamation is addressing demand scheduling through its work on the Action for Golden Gate Salmon Association Projects (see page 10). (On a regional basis, work with various water users and diverters to forecast water demands in an effort to better project and schedule reservoir releases, operational flexibility, and pumping and canal capacities.)

#### ***Reallocation of Level 2***

Article 7 of the refuge water supply contracts, “Transfers, Reallocations or Exchanges of Water”, forms the basis for this action. It states that, “Subject to the prior written approval of the Contracting Officer, the Project Water made available under this Contract may be transferred, reallocated or exchanged in that Year to other Refuge(s) or Project contractors if such transfer, reallocation or exchange is requested by the Contractor and is authorized by applicable Federal and California State laws, and then-current applicable guidelines or regulations.” Reclamation is working with the refuges to help manage refuge Level 2 supplies and allow reallocation of Level 2 refuge water between and among refuges. Such reallocations have occurred for the past 8 years. Additionally, Level 2 diversification opportunities, which can provide mutual benefits to refuges and agricultural water service contractors, are being pursued.

#### ***Supply Flexibility Options***

Reclamation has engaged a broad group of CVP water contractors, refuge interests and NGO’s, in a Stakeholder Technical Team (STT) and a Policy Team to address development of strategies and actions that are needed to increase water supply reliability for all CVP SOD water users, including wildlife refuges. A project which the STT identified as being appropriate for action within the 2014 water year is:

- Groundwater Acquisition Program for ARRA-funded Wells

See the Medium-Term Actions section of this Plan for additional projects.

#### ***Parties Involved***

##### ***Reallocation of Level 2***

Reclamation, USFWS, DFG, and Grassland WD.

##### ***Supply Flexibility Options***

Groundwater Acquisition Program for ARRA-funded Wells: Grasslands Water District, San Luis Delta-Mendota Water Authority, Reclamation

#### ***Timeline for Benefits to be Derived*** ***Reallocation of Level 2***

Benefits to the refuges could be realized throughout the year.

##### ***Supply Flexibility Options***

Groundwater Acquisition Program for ARRA-funded Wells: These wells are in place and are expected to be operational in WY2014 and will provide up to 5000 acre-feet of Level 2 water freeing up an equivalent amount in San Luis Reservoir for agricultural contractors. Another 5,000 acre-feet would go to meet Incremental 4 requirements.

#### ***Benefits***

##### ***Reallocation of Level 2***

The amount of water that can be reallocated varies widely from year-to-year, as do costs of conveyance which is dependent upon location of donor and receiving refuges.

##### ***Supply Flexibility Options***

ARRA groundwater wells are projected to yield 5,000 acre-feet of Level 2 water and 5,000 acre-feet of Incremental Level 4. Level 2 water produced frees up an equivalent amount of surface water in San Luis Reservoir for agricultural contractors.

### **Golden Gate Salmon Association (GGSA) Projects**

Implement the following projects in water year 2014:

## Near-Term Actions 2014

- A.1 – Delta Cross Channel Electrical Barrier: Exploration and, if reasonable, installation of an experimental temporary low voltage graduated electrical barrier near Dead Horse Island to deter Mokelumne River fall-run Chinook salmon from straying into the Sacramento river through the Delta Cross Channel;
- B.1 – Sacramento River Gravel Augmentation: creation of spawning and rearing habitat on the Upper Sacramento River for juvenile Chinook salmon and steelhead;
- B.9 – Sacramento River Flows – coordination of fish and river releases and diversions to improve the migration on juvenile Chinook salmon;
- B.10 – Painter’s Riffle – repairs of an engineered side channel near Redding to provide spawning habitat for Chinook salmon and steelhead.
- B.9 – Primary benefits would include higher survival for Sacramento Basin fish as a result of improved water temperatures, expanded habitat, and reduced predation. The project may identify potential water supply benefits as well.
- B.10 – Primary benefits are increased spawning and rearing habitat in the Upper Sacramento River.

### **Parties Involved**

Parties are involved as part of the project team in the development of the plans and review of documents. Participants include the: DFW, DWR, East Bay Municipal Utility District, NMFS, Reclamation District 108, SWRCB, Reclamation, and USFWS.

### **Timeline for Benefits to be Derived**

Benefits would begin with implementation of the projects in 2014 and we would expect to see increased returns of Chinook salmon and steelhead in 2 to 3 years following successful completion of their lifecycle.

### **Benefits**

- A.1 – Primary benefits include Mokelumne River natural and hatchery production and the maintenance of Sacramento Basin salmon genetics. Secondary benefits include potential water quality improvements in the South Delta and a reduced need for operation of the Delta Cross Channel Gates.
- B.1 – Primary benefits include increased spawning and rearing habitat to address factors limiting the natural production of adult anadromous fish in the Upper Sacramento River.

## Coordination

### **Coordination and Forecasting**

On a regional basis, intensify coordination of operations with the various river diverters, water districts, hatchery operators and the other system operators listed below to best forecast operations and water demands in an effort to improve operational flexibility and delivery efficiency.

### **Parties Involved**

Sacramento River Settlement Contractors, San Joaquin River Exchange Contractors, City of Sacramento, DWR, other non-CVP reservoir operators, and various sets of CVP contractors – Tehama Colusa Canal Authority (TCCA), SLDMWA, American River Contractors, Friant Water Users, Refuge Managers, and environmental stakeholders.

### **Timeline for Benefits to be Derived**

Initially in water year 2014, then a continuous and ongoing effort.

### **Benefits**

This action would result in little to no increase to net supply but will increase operational efficiency.

### **Improve Hatchery Operational Coordination with North of Delta Diverters**

Develop and implement a plan for better coordination of hatchery fish releases to coincide with adequate natural flows or other operational releases, which would reduce the need for specific release of stored water as a separate effort for the hatcheries.

### **Timeline for Benefits to be Derived**

Benefits would occur concurrent with the action and would result in improved number of

adult salmon in 2 to 3 years as a result of more successful migration.

### **Benefits**

Benefits include improved numbers of adult salmon and a more efficient water operation.

### **Folsom Intake Protection**

Should dry conditions persist over the winter, meet with American River stakeholders to discuss options for meeting minimal river flows for fisheries and downstream diversion while ensuring the Folsom M&I intake remains operational, and if needed install a temporary pump system.

### **Parties Involved**

Planning/Scope development – Final plan including scope, authorities and identification of any cost share arrangement by December 1, 2013. Reclamation, San Juan Water District, Cities of Roseville and Folsom Fall/Winter 2014.

### **Timeline for Benefits to be Derived**

Likely time frame for alternative pumping to provide benefits would be Sep – Nov 2014

### **Relief from Water Quality Objectives**

Promptly identify opportunities to collaborate to propose, review and approve temporary amendments to water quality objectives or to move compliance points in order to avoid disproportionate impacts through continued Reclamation forecasting and prompt inter and intra agency coordination and communication. Reclamation will effectively coordinate with DWR, the State Water Project (SWP) and CVP contractors, the State and Federal fishery agencies, and the SWRCB, at a minimum. The goal is to reduce disproportionately high water supply impact or shift a significant fishery concern or water supply impact to another part of the system.

Reclamation will continue to assess hydrological and operational conditions and coordinate with the appropriate agencies and stakeholders. Coordination will occur at regular CALFED Ops meetings with additional meetings and briefings as needed.

### **Parties Involved**

Reclamation, DWR, DFW, USFWS, NMFS, the SWRCB, the SWP and CVP contractors,

environmental organizations, and any other effected parties.

### **Timeline for Benefits to be Derived**

October through May, if an opportunity presents itself and the SWRCB approves some change.

### **Benefits**

Benefit to supplies will depend on the water quality objective modified and actual conditions. Modification to water quality standards usually result in tradeoffs among beneficial uses, but there may be up to tens of thousands of additional acre-feet generated. This may be in reservoir storage or additional supply for consumptive use. May range from zero to tens of thousands of acre-feet.

## **Water Acquisitions**

### **Acquire Non-CVP Water for CVP Purposes**

Reclamation will actively pursue water acquisitions, exchanges and transfers to augment CVP water supplies for agricultural, refuge, in-stream and other purposes. Emphasis will be given to proposals designed to meet multiple purposes and objectives.

One example of a dual purpose acquisition is Reclamation's proposed acquisition of up to 10,000 acre-feet of water from Merced Irrigation District (Merced ID) between November 2013 and February 2014 to augment fall pulse flows and winter base flows to benefit Chinook salmon spawning and rearing habitat in the Merced River. This water is also being acquired to provide refuge Level 2 diversification water and incremental Level 4 refuge supply in the proportion of 90 percent and 10 percent, respectively, of the water conveyed through Patterson Irrigation District's distribution system to the Delta-Mendota Canal (DMC).

### **Parties Involved**

For the currently proposed water acquisition, Reclamation intends to enter into an amendment to an existing agreement with Merced ID by mid-November. Reclamation also intends to enter into a conveyance agreement with Patterson Irrigation District. The scheduling of water will be coordinated with the USFWS to optimize fish benefits within the constraints of the proposed

**Near-Term Actions 2014**

acquisition. Since 90 percent of the water conveyed will be for refuge Level 2 diversification purposes, a like amount of water will be freed up for South-of-Delta (SOD) CVP contractors.

**Timeline for Benefits to be Derived**

For the currently proposed water acquisition, water will be acquired between November 1, 2013, and March 1, 2014. Fish benefits will accrue in the months of November and December by enhancing fall-run Chinook salmon spawning habitat in the Merced River. Water acquired in January and February will provide fry rearing benefits for fall-run Chinook salmon in the Merced River. Agricultural, M&I and refuge benefits will accrue from November 2013 through March 2014 as water is diverted to the DMC via Patterson Irrigation District to the DMC.

**Benefits**

Approximately 10,000 acre-feet of water is planned for acquisition, with additional quantities possibly available depending on the hydrology,

degree of benefits, and pumping capability. All of this water will provide in-stream flow benefits to fish. Of the water that can be conveyed to the DMC via Patterson Irrigation District, 90 percent will provide benefits to SOD CVP contractors and 10 percent will be delivered to SOD refuges as incremental Level 4 water supply.

**Component 1 (C1) Water**

Acquire C1 Water from Yuba County Water Agency (YCWA) for Project use.

**Parties Involved**

DWR and YCWA.

**Timeline for Benefits to be Derived**

July through September 2014.

**Benefits**

Under current agreement, the 60,000 acre-feet is split between the SWP and CVP as project flow/supplies. After system losses, the CVP may receive approximately 21,000 acre-feet.

<b>Water Year 2014 Estimated Benefit for Near-Term Action Categories</b>	
<b>Action Category</b>	<b>Estimated Benefit</b>
Operational Flexibility within the Existing Biological Opinions	Up to 50,000 acre-feet Old and Middle River Index; Estimation Method Based on New Range of Year for the Adult Delta Smelt Incidental Take Statement; and New and Refined Turbidity Models
Operational Flexibility	Up to 10,000 acre-feet Flexibility Agreement
Water Transfers	Up to 170,000 acre-feet Streamline Water Transfer Approval Process; and Use of Warren Act Contracts to Facilitate Water Supplies
Refuges and Fisheries	Up to 5,000 acre-feet ARRA Funded Wells
Water Acquisitions	Up to 31,000 acre-feet Acquire Non-CVP Water for CVP Purposes, and Component (C1) Water
<b>Total Estimated Benefits</b>	<b>Up to 266,000 acre-feet</b>

# MEDIUM-TERM ACTIONS (BEYOND WATER YEAR 2014)

## Refuges and Fisheries

### Refuge Water Supply

#### **Supply Flexibility Options**

Reclamation has engaged a broad group of CVP water contractors, refuge interests and NGO's, in a Stakeholder Technical Team (STT) and a Policy Team to address development of strategies and actions that are needed to increase water supply reliability for all CVP SOD water users, including wildlife refuges. Project which the STT identified as being appropriate for action within the next 3 years are:

- North Grasslands Water Conservation and Water Quality Control Project
- Los Banos Creek Water Resource Implementation Plan

#### **Parties Involved**

North Grasslands: Grassland Water District, San Luis Water District (funding) & Reclamation

Los Banos Creek Water Resource Implementation Plan: Exchange Contractors, Grassland Water District, San Luis Water District, City of Los Banos, and potentially others.

#### **Timeline for Benefits to be Derived**

North Grasslands: If funded, this project could start in 2014 and would take 2 years to complete. Water benefits are estimated at 15,000 acre-feet depending on allocation, but would not be realized until at least 2015.

Los Banos Creek Water Resource Implementation Plan: Features of this proposed project could be constructed in FY2014 and according to project proponents, operational in 2014. Water benefits would only be realized if hydrology allows water from Los Banos Detention Dam to be utilized.

#### **Benefits and Costs**

North Grasslands: The North Grasslands Conservation and Water Quality Control Project is estimated to provide 15,000 acre-feet of water to meet refuge needs at a cost of \$45 per acre-foot. Construction costs are estimated at \$6.2 million, but may be funded in whole or part by San Luis Water District in return for a portion of water conserved. Construction is projected to take 2 years, so no water benefits would accrue in 2014.

Los Banos Creek Water Resource Implementation Plan: Los Banos Creek project could develop up to 15,600 acre-feet of additional water, increasing refuge supplies on average by 2,788 acre-feet per year and SOD agricultural contract supplies by 3,612 acre-feet per year.

#### **Golden Gate Salmon Association (GGSA) Projects**

Implement the following projects over the next couple of years:

- B.9(b) - Sacramento River Temperature Facilities: investigations of structural improvements to Shasta Dam to increase cold water availability.
- B.11 - Sacramento River Stranding: smoothing of releases from Keswick during the month of October to reduce incidences of redds in locations that will later desiccate through coordination of rice decomposition diversions.

#### **Parties Involved**

Parties are involved as part of the project team in the development of the plans and review of documents. Participants include the: DFW, DWR, East Bay Municipal, NMFS, Reclamation District 108, SWRCB, Reclamation, and USFWS.

## Medium-Term Actions (Beyond Water Year 2014)

### **Timeline for Benefits to be Derived**

Benefits would begin with implementation of the projects and we would expect to see increased returns of Chinook salmon and steelhead in 2 to 3 years following successful completion of their lifecycle.

- B.9(b) – Primary benefits would include improved water temperatures, increased flexibility in reservoir management, and potentially improved water supply.
- B.11 – Project fishery benefits accrue to fall-run Chinook salmon in years where conditions allow for changes to Keswick Dam operations (approximately 2 out of every 3 years on average). There may be some small benefits with increased storage in Shasta Reservoir.

## Coordination

### **Rice Straw Decomposition**

Work with north of Delta water district and land managers to better coordinate river diversions for their rice decomposition water needs and alternatives methods to rice decomposition as a way to conserve water supplies. Reclamation is considering an appraisal level review of this concept in order to investigate its viability (magnitude, cost, authorities, environmental impacts, etc.), identify next steps and who would be in charge of the effort. The timeline needed to implement this action precludes an action in the immediate future. One proposal that arose during water year 2013 was the possibility of formulating a pilot program to evaluate the long-term viability of a rotation program to mix decomposition with mechanical means.

### **Parties Involved**

North of Delta water district and land managers, GCID, possibly other Sacramento River Settlement Contractors, and the University of California Davis School of Agriculture and Environmental Sciences, and environmental stakeholders.

### **Timeline for Benefits to be Derived**

Supply benefits and potential operational flexibility would be immediate once the scope of a pilot program is formulated.

### **Benefits**

From an operational flexibility standpoint this would likely result in water backed up into storage at Shasta. The quantity is uncertain, possibly 10,000 acre-feet during a pilot project.

## Operational Flexibility with the Existing Biological Opinions

### **Population Dynamics Modeling to Revise Adult Delta Smelt Incidental Take Statement**

Develop a life cycle model that would allow the incidental take limit (as defined in the incidental take statement from the 2008 BO) to be determined by the use of population dynamics instead of entrainment at the pumps.

### **Parties Involved**

USFWS is the lead agency developing the model. Reclamation and DFW will be collaborators. Additionally Federal and State water contractors and environmental stakeholders will be asked to participate. Efforts have been initiated and are expected to continue through 2015.

### **Timeline for Benefits to be Derived**

A final peer reviewed model is planned for implementation in 2015 and will be used in the December and March timeframe.

### **Benefits**

Improved ability to assess risk to the species, shifting the focus from salvage at pumps to entrainment effects as a fraction of the actual population.

### **Salmonid Genetic Testing**

Opportunities may exist to improve genetic testing of salmonids salvaged at the Tracy Fish Facility. Genetic evaluation is part of the Term and Condition 2a of the 2009 NMFS BO. Including genetic information in the loss equation could increase the accuracy in estimating annual and season loss estimates of different evolutionarily significant units of Chinook salmon.

### **Parties Involved (and when)**

Reclamation, NMFS, Federal and State water contractors, and environmental stakeholders. Once Reclamation has an awarded contract, efforts

can begin to collaborate with agency staff and interested stakeholders.

**Timeline for Benefits to be Derived**

Expect some improvement of genetic efforts at facilities in 2015.

**Benefits**

Could allow for less more reliable water deliveries to south of Delta contractors and have reliable protection of targeted fish species.

**Water Transfers**

**Long-term Water Transfer Process**

Reclamation will continue preparing the long term Environmental Impact Statement (EIS) that is scheduled for a draft to be released in the fall of 2014. Reclamation and the SLDMWA are preparing a joint EIS/Environmental Impact Report (EIR) to analyze the effects of water transfers from water agencies in northern California to water agencies south of the Sacramento-San Joaquin Delta (Delta) and in the San Francisco Bay Area (Bay Area).

**Parties Involved**

Reclamation is the NEPA lead. SLDMWA is the California Environmental Quality Act (CEQA) lead. USFWS will need to complete Section 7 consultation in 2014. DWR is a Responsible Agency under CEQA.

**Timeline for Benefits to be Derived**

Transfers would occur over a ten-year period: 2015-2025.

**Benefits**

Benefits will go to the participating buyer and seller agencies within the Long-Term Water Transfer program. The “up to” amount of transfer water that could be made available in any year is approximately 473,000 acre-feet. However, it is unlikely that this amount of water could be transferred in any year due to Delta regulatory and other constraints.

**San Joaquin River I:E Experiment**

Determine appropriate experiments to evaluate fish movements as a result of I:E ratio requirements from the NMFS BO, using steelhead survival study results information.

**Parties Involved**

South Delta Salmonid Research Collaborative (SDSRC) working group including USFWS, NMFS, Reclamation, DWR, DFW as well as Federal and State water contractors and environmental stakeholders. The SDSRC workgroup continues to meet at least every two weeks to develop new treatments that can be initiated in the future.

**Timeline for Benefits to be Derived**

Implement new treatments possibly as early as March 2014 to develop new information regarding steelhead survival and migration habits through the south Delta past Chipp’s Island.

**Benefits**

Increased scientific information will improve management flexibility in the south Delta in future years.