

# RECLAMATION

*Managing Water in the West*

Mid-Pacific Region

## Central Valley Project Water Plan 2013



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

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<p><b>Water Allocation Workgroup Team</b></p> <p><i>Bureau of Reclamation   Department of Water Resources   Friant Water Authority   Metropolitan Water District   San Joaquin Exchange Contractors   San Luis and Delta-Mendota Water Authority   Westside Central Valley Project Contractors</i></p>
<p><b>Mission Statement</b></p> <p><i>The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.</i></p>
<p><b>Contact Us</b></p> <p><a href="http://www.usbr.gov/mp/">http://www.usbr.gov/mp/</a></p> <p><i>Office of Public Affairs   Mid-Pacific Region   916-978-5100   mppublicaffairs@usbr.gov</i></p>

# INTRODUCTION

The Bureau of Reclamation (Reclamation) developed the “Central Valley Project Water Plan 2013” to document various programs and projects being implemented, or are under consideration, that can improve water availability throughout the Central Valley of the Mid-Pacific Region.

As an agency of the U.S. Department of the Interior (Interior), Reclamation manages the Central Valley Project (CVP), a complex network of reservoirs and canals across northern and central California that serve the Central Valley and portions of the San Francisco Bay Area and Central Coast of California.

Much of the CVP supply comes from rain and melting snow in the Sierra Nevada mountain range. Releases from reservoirs flow through rivers and canals to the Central Valley and enter the Sacramento-San Joaquin Delta (Delta), where the water helps sustain fish, wildlife and water quality. At the Delta’s southern end, the C.W. “Bill” Jones Pumping Plant moves CVP water supplies to South-of-Delta (SOD) contractors and wildlife refuges.

Reclamation allocates CVP water supplies for agricultural, environmental, and municipal and industrial (M&I) uses. The complex allocation process is driven by numerous factors, including hydrology, water rights, biological opinions, regulatory constraints, capacity of CVP facilities, and various federal laws such as the Central Valley Project Improvement Act (CVPIA).

California continually faces many water supply challenges. There are continual risks to threatened and endangered fish species and to the reliability of water supplies for the CVP and the State Water Project (SWP). Interior, Reclamation, state and local agencies, and other interested parties are working together to identify and secure additional water supplies and create opportunities that will aid water management in the Region.

As this winter progresses and we embark on a new water year, it is important to plan water management strategies that maximize water allocations. A workgroup of Reclamation and California Department of Water Resources (DWR) agency representatives and water users worked together to explore opportunities that could equitably maximize the use of available water resources given the hydrologic conditions and operational requirements. The workgroup is taking a proactive approach to identify and implement strategies and tools to achieve desirable benefits.

The actions described in this document may provide additional agricultural water supplies at the most critical times for the agricultural business cycle, within the physical, regulatory and legal constraints guiding the federal and state agencies that manage the CVP and SWP. This Plan describes actions that may improve CVP allocations and facilitate improved water management.



# CHAPTER 1: ALLOCATION PROCESS

Reclamation provides water under contracts to water districts, wildlife refuges and other entities. These contracts commit Reclamation to provide a maximum quantity of water, subject to availability and shortage criteria. The purpose of the water allocation process is to determine the amount to deliver to each contractor each year. Reclamation must determine how water can be delivered under contract, based on meteorological and hydrological conditions, and other operational and institutional factors. Allocations are usually expressed as a percentage of the maximum contract volumes of water.

Early in the calendar year, California's agricultural water users plan their projected cropping patterns and water needs for the upcoming growing seasons. These projections are critical because farmers consider a multitude of financial issues. Planning their farming operations is dependent upon knowing how much CVP water Reclamation will be able to deliver. The ability to identify water supplies is also critical for municipalities, especially under water shortage conditions.

The water allocation process begins in the fall when the Central Valley Office (CVO) staff prepare preliminary forecasts of potential water deliveries based on a number of variables. These variables are included in a forecast computer model for CVP allocations and deliveries. Variables include the amount of CVP water supplies in the reservoirs on October 1 of each year, historical meteorological and hydrologic data, CVP and SWP facility capacities, regulatory constraints, and historic operational requirements.

Generally, settlement, exchange, and refuge level 2 contracts are allocated 100 percent of contract amounts, if the forecasted inflow to Shasta Reservoir is above 3.2 million acre-feet (MAF). If the forecasted inflow is below 3.2 MAF in early February, these contractors are allocated 75

percent of their contract amount and are notified no later than February 15 of the anticipated shortage.

The first allocation of the year for virtually all CVP water contracts is announced towards the end of February, prior to the beginning of the new water contract year on March 1, and following the release of the official National Weather Service meteorological and DWR runoff forecasts. The forecast model is updated to reflect reservoir levels as of February 1, and estimates of regulatory and environmental requirements based upon conditions. The official allocation uses a set of hydrological conditions that have a 90-percent chance of being wetter (and a 10-percent chance of being drier).

An additional projection of potential deliveries, based upon a set of hydrological conditions which has a 50-percent chance of being wetter (or drier) is also developed. The process is designed so that Reclamation does not over-commit available water supplies or lead water users to believe there is more water available than Reclamation can deliver.

Existing policy and contract terms define M&I shortage provisions during severe or continuing droughts in order to protect public health and safety. For example, when allocation of irrigation water is reduced below 25 percent of contractual entitlements, Reclamation reassesses both the availability of CVP water supplies and CVP water demand. During times of drought and limited water supplies, M&I water allocations to contractors may be reduced below 75 percent of adjusted historical use.

There are modeling assumptions that are applied to agricultural and M&I allocations to protect and equally benefit all users. Allocations among agricultural and M&I users are linked as follows:

**Chapter 1: Allocation Process**

<b>Irrigation Allocation (% of Contract Entitlement)</b>	<b>M&amp;I Allocation (% of Contract Entitlement)</b>
100	100
95	100
90	100
85	100
80	100
75	100
	<b>M&amp;I Allocation (% of Historical Use)<sup>1</sup></b>
70	95
65	90
60	85
55	80
25-50	75
20	70
15	65
10	60
5	55
0	50

For the most current information on Reclamation’s water allocation, visit the Mid-Pacific Regional Office website at <http://www.usbr.gov/mp/PA/water/index.html>.

<sup>1</sup> M&I allocations are based on historical use when the agricultural allocation is 75% or below. Historical use is defined as the average quantity of CVP water put to beneficial use within the service area during the last three years of unconstrained CVP water deliveries. M&I allocations 75% or below are subject to public health and safety considerations.

## CHAPTER 2: OPERATIONAL ACTIONS THAT SUPPORT ALLOCATION

There are many factors that affect allocation, and Reclamation operates the CVP, considering all of the complex factors, to maximize allocations. Reclamation implements management actions that are intended to increase the quantity of water south of the Delta and improve San Luis Reservoir storage. This chapter discusses Reclamation's on-going and new actions/operations that were developed or implemented to support early allocations.

Operational actions that support water allocations include: Operations to increase South of Delta Water Supplies and San Luis Storage; Delta-Mendota Canal (DMC)/California Aqueduct Intertie Operations; Joint Point of Diversion; and Securing Yuba Accord Component 1 water.

### Increasing South of Delta Water Supply and San Luis Storage

Section 215 Water: Section 215 refers to a section in the Reclamation Reform Act of 1982 (Public Law 97-293) which defines temporary water supplies that are unusually large and not storable for project purposes and, among other measures, allows non-storable water to be applied to lands otherwise ineligible to receive federal water.

Reclamation makes Section 215 water available as soon as the federal share of San Luis Reservoir is nearly full and excess water is available via Jones Pumping Plant. If hydrology allows, upon request from CVP contractors or non-CVP contractors, Reclamation will enter into temporary water service contracts for delivery of 215 water.

### Rescheduling

Rescheduling of CVP water is contractually allowed under the terms of Central Valley Project contracts. Since the mid-1990's Reclamation has issued Rescheduling Guidelines to establish parameters and conditions applicable to rescheduling requests and to assist Contractors in

planning their water year needs.

Reclamation establishes a manageable water quantity that can be rescheduled from one year to the next and avoids impacts to annual allocations and supplies. Rescheduled water is a management tool that provides flexibility and sustainability of annual water supplies. Reclamation has approved approximately 225,000 acre-feet of water for rescheduling from Contract Year 2012 to Contract Year 2013. This water will supplement a district's 2013 allocation.

### Delta-Mendota Canal/California Aqueduct Intertie (Intertie) Operations

The Intertie connects the SWP and CVP conveyance facilities to alleviate capacity constraints in the DMC. The Intertie was completed in 2012 and provides water supply reliability and flexibility in the CVP and SWP conveyance facilities by increasing capacities and allowing for maintenance and repairs of the DMC and California Aqueduct. Approximately 38,000 acre-feet of water has moved through the Intertie thus far in the 2013 Water Year.

### Joint Point of Diversion

State Water Resources Control Board (SWRCB) Water Rights Decision 1641 (D-1641) authorized the Joint Point of Diversion (JPOD), which allows Reclamation and DWR to make their Delta pumping facilities available to the other agency for pumping and conveyance of water. Reclamation uses a JPOD Stage 1 action at DWR's Harvey O. Banks Pumping Plant (Banks) that would increase south of Delta supplies by increasing pumping at Banks when capacity and water are available. Stage 1 diversions or re-diversions at Banks have historically been used to recover export reductions taken to benefit fish.

## Chapter 2: Operational Actions that Support Allocation

According to D-1641, some uses of JPOD are subject to an operations plan that protects fish and wildlife and other legal users of water. JPOD pumping occurs only under certain conditions, including acceptable salinity levels as determined by X2 locations. X2 is a measurement of the distance from the Golden Gate Bridge to the locations in the Delta where average near-bottom salinity measures 2 parts per thousand.

In addition, exports to recover water due to fishery actions are subject to the following provisions:

- Total exports may not increase above that which would have been exported without the use of Banks.
- Recovery of export reductions must occur within 12 months of the time the exports are reduced.
- Reclamation must consult with the California Department of Fish and Wildlife (DFW), Fish and Wildlife Service, and National Marine Fisheries Service before using JPOD. Consultation with the CALFED Operations group satisfies this requirement. Coordination with the SWRCB is also required.

Dedicated capacity at Banks would improve allocations when capacity is available to increase pumping. This action would not be borrowing against the subsequent year's water supply. The amount of water made available through JPOD is dependent on hydrology and the amount additional pumping capacity at Banks. (Reclamation and

DWR work together to determine available capacity at Banks for JPOD.) In years past, JPOD resulted in an additional 30,000-60,000 acre-feet of water delivered to CVP contractors.

### Yuba Accord Component 1 Water

As part of the Yuba Accord, the Yuba County Water Agency (YCWA) entered into multi-tiered water purchase agreements for the purchase of transfer water. The purchase agreement with DWR provides up to 60,000 acre-feet of Component 1 (C1) water. C1 water is typically surface water stored in YCWA's New Bullards Bar Reservoir and available quantities of C1 water are dependent on operational limitations of the YCWA's Yuba Project.

Beginning June 1, 2012, and through 2015, Reclamation and DWR agreed to share equally the C1 Water as defined in the water purchase agreement between DWR and the YCWA. DWR provides the San Luis and Delta-Mendota Water Authority (SLDMWA) conveyance at Banks Pumping Plant for the delivery of Yuba Accord water to CVP contractors south of the Delta. C1 water could potentially increase deliveries by 30,000 acre-feet.

**For more information regarding Section 215 water, rescheduling, the Intertie, JPOD, or Yuba Accord Water, contact Liz Kiteck, CVO, 916-979-2684.**



# CHAPTER 3: OTHER ACTIONS THAT SUPPORT ALLOCATION OR SAN LUIS RESERVOIR LOW-POINT MANAGEMENT

In addition to those operational actions discussed in Chapter 2, Reclamation is working on or considering other actions to increase south of Delta allocations or help to manage Low-Point in San Luis Reservoir. (Low Point occurs in San Luis Reservoir typically in the late summer or early fall when water demands are at their highest. Operational difficulties occur when the water level is at or below 406 feet elevation.) These actions include a long-term flexibility agreement with the San Joaquin River Exchange Contractors (Exchange Contractors), SWP source shifting with Metropolitan Water District, and a Refuge Level 2 water diversification project.

## Exchange Contractors Flexibility Agreement

This action includes the Exchange Contractors using alternative sources of water supply early in the year to delay use of CVP Delta water supplies. This provides more Delta water supplies for delivery to farmers on the west side of the San Joaquin Valley during the irrigation season. Delta water supplies are returned to the Exchange Contractors in the fall and winter. Reclamation approves an operational modification of scheduled deliveries of substitute water made available to the Exchange Contractors under the terms and conditions provided in the Cooperative Agreement

between the United States of America and the Central California Irrigation District for the Conveyance of Wildlife Water Supplies, with the additional condition that any unused water in January through March may be rescheduled for delivery in April through December.

The Flexibility Agreement is intended to maximize the operation of San Luis Reservoir for mutual benefit for both Reclamation and the Exchange Contractors. The Flexibility Agreement allows Reclamation to temporarily store additional quantities of CVP water that were dedicated to meet the Exchange Contractors’ demands and benefits the Exchange Contractors by allowing additional water deliveries during months when demands are higher than normal.

Since 2008, Reclamation and the Exchange Contractors have agreed, on an annual basis, to operational parameters that provide flexibility and benefits for both parties. In 2013, the Exchange Contractors and Reclamation are working to finalize a 5-year Flexibility Agreement.

### Next Steps

- Reclamation to prepare and approve the 5-year Flexibility Agreement (completed in January 2013)
- National Environmental Policy Act (NEPA) compliance on the Flexibility Agreement

Action	Responsible Parties	2013 Due Date
- Issue Agreement and flexibility schedule to Exchange Contractors	Reclamation	January (Complete)
- Finalize Environmental Assessment for the Flexibility Agreement	Reclamation	June

**For more information on the Flexibility Agreement, contact Sheri Looper, Resources Management Division, 916-978-5556**

## Chapter 3: Other Actions that Support Allocation

### State Water Project Source Shifting

The Metropolitan Water District (MWD) could use alternative water supplies while all or a portion of their SWP supplies remain in San Luis Reservoir storage to augment early CVP allocations, allowing full use of CVP storage in the reservoir. MWD could take delivery of their supplies after Low Point is reached and prior to the end of the calendar year. The amount of water that could be called upon would be dependent on MWD's SWP allocation and CVP allocations. The trigger point for MWD participation would occur when its SWP allocation reaches approximately 30 percent.

This action could help to bolster an earlier, higher allocation by allowing Reclamation to support a lower federal storage in San Luis Reservoir. This action will not increase the available water to allocate since it will be returned to MWD after Low Point, but it will allow the delivery of water earlier in the irrigation season.

**March 2013 Update:** The CVP and SWP are working to maintain current water supply

allocations during this dry winter. A concern exists about potential limitations on CVP and SWP deliveries from San Luis Reservoir due to: a) reservoir drawdown rate constraints and, b) minimum San Luis Reservoir storage in mid-summer. The source shifting action was not pursued for potential benefits in the early allocation season; however, this tool may be useful to help address these more recent concerns about San Luis Reservoir constraints. The following steps and schedules will be modified as necessary if source shifting is needed later in the year.

#### Next Steps (if implemented)

- Once the SWP allocation reaches 30 percent or better, MWD could enter into a source shifting agreement with the SLDMWA
- Reclamation would help facilitate source shifting agreement
- If CVP allocation increases, the amount of source shifting would be reevaluated
- NEPA compliance
- Secure temporary Consolidated Place of Use

Action	Responsible Parties	2013 Due Date
- Complete a term sheet	MWD, DWR, Reclamation, SLDMWA	TBD
- Determine costs and repayment responsibilities	MWD, DWR	TBD
- MWD submits revised water schedules for DWR review and approval	MWD, DWR	TBD
- Facilitate completion of environmental compliance	Reclamation	TBD
- Secure temporary Consolidated Place of Use	Reclamation	TBD
- Complete source shifting agreement with MWD and SLDMWA and sign applicable contracts	MWD, SLDMWA	TBD
- Water Deliveries	MWD	From time implemented - December

**For more information on State Water Project Source Shifting, contact Paul Fujitani, CVO, 916-979-2197**

## Level 2 Refuge Water Diversification

In 2013, four groundwater wells, constructed under the American Recovery and Re-investment Act, in the Grasslands Resource Conservation District and the Grassland Water District (GWD), will be available to produce additional water. Half of the water pumped will be used to meet refuge Level 2 water demands in lieu of using CVP water with a like amount of water going back into the CVP yield for allocation to the west side of the San Joaquin Valley. Reclamation can purchase and use the other half to meet refuge Incremental Level 4 water needs in the San Joaquin Valley.

The estimated quantity of pumped ground water is up to approximately 4,000 acre-feet. The ground water will be discharged into the GWD’s water conveyance system and into the China Island Unit of the North Grasslands Wildlife

Management Area. Well operation, water quality monitoring, and associated mitigation measures will be implemented to insure that all Central Valley Regional Water Quality Control Board water quality standards are met. To limit any groundwater or water quality related impacts, use of these wells could be increased in dry years and decreased in wet years when CVP agricultural water allocations are higher.

This action would increase the available CVP water supply. This water is “new” water available to allocate.

### Next Steps

- Reclamation to complete Operations & Maintenance agreement with DFW
- Complete water purchase agreement with GWD
- Create water quality monitoring plan(s)

Action	Responsible Parties	2013 Due Date
- Develop Operations & Maintenance (O&M) and water purchase agreements	Reclamation	July
- Develop water quality monitoring plans	Reclamation	July

**For more information on Refuge Level 2 Water Diversification, contact Tim Rust, Resources Management, 916-978-5516**



Gray Lodge Wildlife Area

## Interim and Restoration Flows Exchanges/Transfers

Interim and Restoration flows released from Friant Dam as part of the San Joaquin River Restoration Program and recaptured and made available for recirculation to the Friant Division Contractors in San Luis Reservoir could be used to augment the water supplies of the west side CVP contractors during the peak irrigation season and wildlife refuges. Reclamation will facilitate with Friant Contractors, west side CVP contractors, and the Refuge Water Supply Program (RWSP) interested in entering into mutually acceptable arrangements to exchange and/or transfer recirculation water available in San Luis Reservoir.

Recirculation Water available in San Luis Reservoir could be used to bolster supplies for west-side contractors or refuges through exchanges and/or transfers, but these exchanges and/or transfers are not considered part of the allocation. If Recirculation Water was left in

San Luis Reservoir and used later in the water year, this could be a helpful tool in managing Low Point. The San Joaquin River Restoration Program estimates that anywhere from 75,000 to 155,000 acre-feet of Recirculation Water will be available this water year. Agreements are being negotiated for the transfer of approximately half of the volume of Recirculation Water available.

### Next Steps

- Finalization of Water Year 2013 Recirculation environmental compliance
- Reclamation facilitating meetings among willing Friant Contractors, west side CVP Contractors, and the RWSP
- Agreement among Friant Contractors, west side CVP contractors, and Reclamation on the terms and conditions for using recirculation water to augment west side CVP contractors' and refuges' water supplies

Action	Responsible Parties	2013 Due Date
- Agreement among parties on terms and conditions	Friant Contractors, SLDMWA, Reclamation	March-August
- Determine and make available quantities of water for use by west side CVP contractors	Reclamation	March-August
- Ongoing water accounting	DWR, Reclamation	March-February 2014
- NEPA compliance	Reclamation	March

**For more information on Interim and Restoration Flows, contact Mario Manzo, San Joaquin River Restoration Program, 916-978-5462**

## CHAPTER 4: ACTIONS TO FACILITATE WATER MANAGEMENT

Actions to facilitate water management in the 2013 water year include: North-of-Delta (NOD) operational flexibility, water transfers, water banking, integrated regional water management plans, and Warren Act Contracts. These actions are described below.

### North-of-Delta (NOD) Operational Flexibility

The NOD water contractors have sought to reduce the large variability in their project water allocations through the precipitation season. Reclamation is seeking to develop operational flexibility options to improve the early season water supply for the NOD water contractors to reduce the differences between the initial water supply allocations and the final allocations.

Options may include supplemental water supply actions such as offering Section 215 water or Article 3f water pursuant to Reclamation long-term water service contracts, which is water that can be made available in addition to contract amounts. Opportunities may develop to add operational flexibility in scheduling and delivery of water to NOD water contractors.

Reclamation will continue to evaluate, monitor, and respond to hydrologic conditions in the Sacramento Valley. Reclamation will use this information to develop processes to improve NOD allocations earlier in the water year.

### Water Transfers

Reclamation utilizes several administrative and programmatic procedures to facilitate, expedite, and streamline the approval process of water transfers in the Central Valley. Some of the key long-term environmental documents are outlined below. In addition to these long-term actions,

Reclamation is holding regular meetings with Friant Division contractors to discuss recirculation program opportunities, and conducting site-specific meetings with CVP contractors to discuss their contractual terms and conditions with respect to transfers and exchanges.

### Guidelines

Reclamation uses established Interim Guidelines for Implementation of the Water Transfer Provisions of the Central Valley Project Improvement Act, Title XXXIV of Public Law 102-575 (Water Transfer Guidelines) to address water transfers equitably, provide for more effective and efficient use of CVP water supplies, and to provide greater flexibility to water users participating in CVP water transfers.

### Accelerated Water Transfer Program

Reclamation utilizes an accelerated water transfer program (AWTP) for transfers and exchanges for three groups of CVP contractors: (1) Sacramento Valley, (2) Friant Division and Cross Valley, and (3) South of Delta, including those contractors in the Delta Division, West San Joaquin Division, San Felipe Division, San Luis Unit, and Cross Valley. The program currently covers the transfer and exchange of up to approximately 500,000 acre-feet of water annually.

The AWTP facilitates efficient and timely water management practices between CVP contractors through programmatic environmental documentation. Reclamation finalized environmental assessments covering a 5- year period for the above watersheds to allow Reclamation to acknowledge the proposed transfers and exchanges without any additional environmental analysis. The AWTP reduces costs and redundant environmental reviews associated with CVP water transfers and/or exchanges, thereby streamlining Reclamation's process and avoiding lost opportunities for transfers or exchanges.

## Chapter 4: Actions to Facilitate Water Management

### Long-term North to South Transfers

Reclamation and the San Luis & Delta- Mendota Water Authority are preparing an Environmental Impact Statement/Environmental Impact Report (EIS/EIR) to analyze the effects of water transfers from water agencies in northern California to water agencies south of the Delta and in the San Francisco Bay Area.

The EIS/EIR will address transfers of CVP and non-CVP water supplies that require use of CVP or SWP facilities to convey the transferred water. Water transfers would occur through various methods, including, but not limited to, groundwater substitution (replacing surface water with groundwater) and cropland idling, and would include individual and multiyear transfers through the year 2022.

The EIS/EIR will identify potential selling parties in northern California, methods by which water could be made available for transfer, and maximum amounts of water available through each method. Water transfers under this program that involve conveyance through the Delta would be implemented within the operational parameters of the biological opinions on the continued long-term operations of the CVP/SWP and any other regulatory restrictions in place at the time of implementation of the water transfers. Reclamation anticipates that the EIS/EIR will be completed in the spring of 2014.

### 25-Year Exchange Contractors Water Transfer Program

Reclamation and the Exchange Contractors are completing California Environmental Quality Act and NEPA requirements on the proposed 25-Year Water Transfer Program (WTP). The EIS/EIR evaluates the annual development of up to 150,000 acre-feet per year of substitute water from water conservation measures, including tailwater recovery, and temporary land fallowing.

The purpose of the 25-year WTP is to provide multi-year environmental compliance for transfer and/or exchange of up to 150,000 acre-feet of substitute water from the Exchange Contractors to the San Joaquin Valley wildlife refuges, to

other CVP contractors (Friant Division and San Luis Unit), and/or selected SWP contractors - specifically Kern County Water Agency (SWP), Santa Clara Valley Water District (CVP/SWP), East Bay Municipal Utility District (CVP), Contra Costa Water District (CVP), and Pajaro Valley Water Management Agency (CVP).

This new 25-year program is an extension of an existing 10-year program. This new program expands the existing program by 20,000 acre-feet and is expected to benefit the RWSP with between 9,000-50,000 acre feet per year of Incremental Level 4 water acquisitions. Reclamation anticipates the EIS/EIR will be completed in February of 2013 and the Record of Decision will be signed in March of 2013.

### Water Banking

Water banks serve as a valuable mechanism to facilitate water transfers through direct recovery by a transferee or through voluntary exchange. Reclamation continues to approve the banking of CVP water. In recent years, Reclamation approved the banking of over 170,000 acre-feet.

For Water Year 2013, the Meyers Farms Family Trust and Madera Irrigation District are working with Reclamation to bank CVP and non-CVP water in banks that are either being expanded or developed. Once approved, the contractors can bank water over a 25-year period.

### Integrated Regional Water Management Plans (IRWMP)

Several CVP contractors on the east side of the San Joaquin Valley are participants in Poso Creek Region within the Kern County IRWMP and have sought Reclamation approval for the long-term approvals of groundwater banking, water exchanges, and water transfers among members of the Poso Creek Regional Water Management Group. The members include three CVP contractors (Delano-Earlimart Irrigation District, Shafter-Wasco Irrigation District, and Kern-Tulare Water District), four non-CVP contractors (Semitropic Water Storage District, Cawelo Water

District, North Kern Water Storage District, and North West Kern Resource Conservation District), and one representative for the 16 disadvantaged communities located within the Poso Creek Region.

### **Warren Act Contracts**

Reclamation is authorized to enter into contracts with municipalities, public water districts and agencies, other federal agencies, and private

entities pursuant to the Warren Act of 1911 for the use of excess capacity in the CVP facilities for the impoundment, storage, and conveyance of non-CVP water for agricultural, domestic, municipal, industrial, fish and wildlife, and other beneficial purposes.

On an on-going basis and as requested, Reclamation executes Warren Act Contracts and facilitates the completion of any necessary environmental compliance documents.



American River



Central Valley crops and harvest.



# CHAPTER 5: LONG-TERM AND FUTURE PLANNING EFFORTS

Reclamation and water users are concurrently taking actions and conducting long-term planning efforts to improve water supplies and management SOD. Some of these long-term efforts are discussed in this chapter.

## Increasing Surface Water Storage

The CALFED Bay-Delta Authorization Act of 2004 (Public Law 108-361) directed Reclamation to study four of the five surface storage investigations recommended in the CALFED Record of Decision. These storage investigations include the expansion of Shasta and Los Vaqueros dams and reservoirs, the possible development of an upper San Joaquin River Basin storage, and the NOD offstream storage. These planning studies are ongoing.

Project purposes include water supply reliability for M&I, agricultural, and environmental uses. Other purposes include water quality improvement, flood damage reduction, recreation, emergency water supply, and the integration of hydroelectric power with renewable energy.

Contra Costa Water District (CCWD) completed construction of a 60 thousand acre-feet expansion of Los Vaqueros Dam and Reservoir in May 2012. This expansion was done as a local project which provides dry-year water supply reliability and emergency water storage only. As discussed above, a larger expansion investigation is currently underway.

## Bay Delta Conservation Plan (BDCP)

The BDCP is currently investigating water conveyance alternatives to move CVP and SWP water through, around, and/or under the Delta

while restoring the Delta ecosystem. The BDCP is expected to result in a 50-year, ecosystem-based plan designed to restore fish and wildlife species in the Delta in a way that also provides for the protection of reliable water supplies while minimizing impacts to Delta communities and farms. The BDCP is being developed in compliance with Section 10 of the Federal Endangered Species Act (ESA), the California ESA, and the California Natural Community Conservation Planning Act.

Options currently being considered include (1) new dual conveyance facilities using existing south Delta intakes, new intake facilities in the north Delta, and a new isolated conveyance facility around, through, and/or under the Delta; (2) restoration of tidal marsh, seasonal floodplain, and riparian habitats; and (3) measures addressing other stressors such as pollutants, introduced species, predation, and hatcheries management. The BDCP will serve as the basis for incidental take permits for a new water conveyance facility, new conveyance operations, and habitat restoration activities in the Delta under Section 10 of the ESA. Information developed as part of the BDCP process will also help inform the ESA Section 7 consultation on the coordinated long-term operation of the CVP and SWP. A draft BDCP is expected to be released later in 2013.

## San Luis Low Point Improvement Project

Reclamation is investigating alternative ways to convey water from San Luis Reservoir to Santa Clara Valley Water District (SCVWD) to prevent water service interruptions during Low Point conditions. The authority to conduct a feasibility study was granted in the CALFED Bay-Delta Authorization Act of 2004 (Public Law 108-361). The non-federal sponsor is SCVWD.

### Basin Studies

Congress recognized climate change and related impacts on water supplies with the passage of the SECURE Water Act of 2009 (Public Law 111-11), which authorizes federal water and science agencies to work together with state and local water managers to plan for climate change and other water supply challenges.

With WaterSMART, all agencies of the Interior work with states, tribes, local governments, and non-governmental organizations to pursue a sustainable water supply for the Nation. Reclamation plays a key role in the WaterSMART program as the Interior's water management agency. Focused on improving water conservation and helping water and resource managers make wise decisions about water use, Reclamation's portion of the WaterSMART program is achieved through administration of grants, scientific studies, technical assistance, and scientific expertise for the Basin studies. As one of several programs under WaterSMART, Basin Studies are a 50/50 cost shared program developed in cooperation with one or more non-federal partner agencies. Basin Studies assess potential impacts of climate change to water supplies and demands in Reclamation's major river basins. Where impacts are identified, a Basin Study will identify structural and non-structural adaptation strategies designed to mitigate climate change impacts.

#### **Sacramento-San Joaquin Basins Study**

In 2011, a Plan of Study (a planning document for completing a Basin Study) was completed for this three-basin, 59,000 square mile area in cooperation with five major non-federal cost-share partners including DWR, California Partnership for the San Joaquin Valley, Stockton East Water District, the El Dorado County Water Agency, and the Madera County Flood Control and Water Conservation Agency. Funding for the full Basin Study was approved in 2012, and the Sacramento-San Joaquin Basin Study began in September 2012. The completion of this study is expected in September 2014.

#### **Klamath Basin Study**

A Plan of Study was completed for the proposed Klamath Basin Study in 2011, focusing on the 27,000 square mile watershed. With exports

occurring from the Trinity River Basin to the CVP, the Klamath Basin Study will address climate change impacts in this to both the Klamath Project and the CVP. Non-Federal partners participating with Reclamation include DWR's Northern California Office and the State of Oregon's Water Resources Department. Funding for the Klamath Basin Study was approved in 2012, and the expected completion date is September 2014.

#### **Truckee Basin Study**

A Plan of Study was completed in 2011 for the Truckee Basin Study. Funding for the Basin Study was also approved in 2011. Non-Federal Partners include the Placer County Water Agency, the Tahoe Regional Planning Agency, the Truckee Meadows Water Authority, and the Truckee River Flood Management Authority. The Truckee Basin Study encompasses over 3,000 square miles, including the Lake Tahoe Basin, and will evaluate potential climate impacts to water supplies and demands in a risk-based framework. Expected completion for this Basin Study is September 2014.

### Water Reuse and Water Use Efficiency

#### **Water Reuse**

Water reuse is an essential action in stretching the limited water supplies in the Western United States. The Bureau of Reclamation's Title XVI Water Reclamation and Reuse Program (Title XVI) is an important part of WaterSMART. For purposes of the Title XVI program, a water reuse project is a project that reclaims and reuses municipal, industrial, domestic, or agricultural wastewater and naturally impaired groundwater and/or surface waters. Reclaimed water can be used for a variety of purposes, such as environmental restoration, fish and wildlife, groundwater recharge, municipal, domestic, industrial, agricultural, power generation, or recreation.

#### **Water Use Efficiency**

The Water Use Efficiency (WUE) Program offers grant opportunities for water conservation and water use efficiency projects. The goal of the Program is to accelerate the implementation of cost-effective actions that provide water

management benefits through conservation. Water use efficiency implementation by water purveyors, both federal and non-federal, is intrinsically linked to other benefits such as water quality, water supply reliability, and in stream flows.

Once completed, water conservation and water use efficiency projects provide improved water management for several decades. In FY 2011 and 2012, Reclamation awarded Mid-Pacific Region water purveyors \$28 million in grants for projects that are expected to conserve or better manage 546,000 acre-feet of water on an annual basis.

In FY 2013, there is approximately \$2 million in CALFED funding available to the Mid-Pacific Region. There is also \$21 million available on a Reclamation-wide basis for water use efficiency and water conservation grants through the WaterSMART program.

### Demand Management and San Luis Drawdown Capacities

In certain convergent conditions of hydrology, hot weather, and regulatory stipulations, it is possible for water demands SOD to exceed recommended San Luis Reservoir drawdown rates and Delta export pumping. When demands exceed exports and reservoir drawdown rates, it may be necessary to restrict project water deliveries temporarily which can impose negative impacts on water users SOD during critical irrigation periods.

In 2002, Denver Technical Services conducted to establish a “safe” drawdown rate that would not risk embankment slope stability of San Luis Reservoir. This study was inconclusive, and the 2005 Standard Operating Procedure for San Luis Reservoir states that the average drawdown rate should be limited to less than approximately two foot per day.

Current regulatory conditions, recent operations, and embankment conditions may warrant an investigation of drawdown data and impacts to the reservoir over the last 30 years. A cursory review of drawdown data in combination with a monitoring plan could help determine if operations can exceed two feet per day during certain conditions.

Reclamation is in the process of consulting with the Technical Service Center regarding the drawdown rate. In addition, Reclamation and stakeholders formed a work group to determine appropriate actions to minimize water supply impacts due to limitations on San Luis Reservoir operations.

### Stakeholder Actions with Possible Federal Interests

#### East to West Conveyance

Depending on funding availability, Reclamation could assist local districts in preparing appraisal studies, which may ultimately result in the construction of additional conveyance infrastructure. If studies indicate a federal interest and Congress provides authorization, federal funding could be appropriated for construction and/or use of new conveyance facilities that extend to the DMC. Such facilities could be used to convey water from the San Joaquin River to the DMC before it reaches the Delta. The following districts have indicated an interest in expanding their conveyance facilities:

- Banta-Carbona operates a 200 cubic feet per second (cfs) pumping plant with a 60 cfs conveyance facility that extends into the CVP service area. This conveyance facility can be used for wheeling water to other users for transfers or other transactions as needed. Banta-Carbona is in the design process for increasing the capacity from 60 cfs to 200 cfs. Constructing the increased capacity would be dependent on local, state, or federal support and interest in using the facilities on a long term basis.

The use of Banta-Carbona facilities for east to west transfers has raised questions regarding water right issues and other regulatory compliances. Reclamation and DWR are evaluating the use of Banta-Carbona’s conveyance facilities for transfers from the San Joaquin River and its tributaries as it relates to CVP and SWP operations. The Banta-Carbona intake is located 3 miles north of Vernalis on the San Joaquin River, and Vernalis defines the regulatory boundary of the Delta. Some D-1641 regulations are linked to flows

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and water quality at Vernalis, and water transferred from the San Joaquin River through Banta-Carbona may affect SWP and CVP operations based on meeting D-1641 requirements.

- Patterson Irrigation District currently has the ability to convey 40 cfs from the San Joaquin River to the Delta Mendota Canal. This conveyance facility is available to other water users for wheeling transfer or restoration waters. In the spring of 2013, Patterson Irrigation District will complete a feasibility study that will contemplate main canal modernization and reliability improvements, as well as costs for increasing the east-to-west conveyance system by up to 200 cfs. If implemented to full scale, this increase in capacity could convey up to 95 thousand acre-feet of water from east-side water purveyors for agricultural use on the west side.
- West Stanislaus Irrigation District has a fully designed facility to convey 250 cfs to the DMC. Construction is planned for late 2013 or early 2014 and is expected to cost approximately \$8 million.

### Use of Los Vaqueros Reservoir

The recently completed expansion of Los Vaqueros Reservoir provides the opportunity for CCWD to provide water storage services to improve water delivery efficiencies for the CVP. However, before such a project could be implemented, CCWD, DWR, and Reclamation need to agree on Delta operational parameters for Los Vaqueros that ensures no impacts to the CVP or SWP.

Using existing facilities only, CCWD could provide storage that is currently available to allow additional supplies for Bay Area CVP contractors, refuge supplies, or other supplies as allowed under Los Vaqueros Reservoir operating rules. This would be accomplished via a through-Delta exchange of CVP water, which has two components:

1. CCWD foregoes diversion of its CVP Contract water at its Delta intakes, instead meeting all of its customer demands by

releasing stored CVP water from Los Vaqueros Reservoir.

2. The foregone water is then exported at Jones or Banks (under JPOD) for use by the CVP.

This exchange would provide a water supply benefit to the CVP when undertaken under the following conditions:

- When export capacity is available,
- When the Delta is in balanced conditions, and
- When CVP and SWP operations are governed by outflow or water quality objectives, or exports are limited by water supply availability.

Following the through-Delta exchange, CCWD would refill Los Vaqueros Reservoir by the amount released for the exchange only when the Delta is in surplus conditions, resulting in no change to CVP or SWP upstream storage or export operations during the refill period. This operation allows for increased storage of surplus flows for delivery when export capacity is available. Reclamation and CCWD are currently discussing the possibility of a 2013 pilot program.

Construction of additional facilities could also enhance opportunities for delivery of stored water. For example, with the construction of a pipeline from Los Vaqueros Transfer Facility to Bethany Reservoir, deliveries of surplus water stored in Los Vaqueros Reservoir would not be limited by availability of capacity at the export pumps or CCWD service area demand. The Los Vaqueros Transfer Facility regulates the flow of water pumped to Los Vaqueros Reservoir from CCWD's Delta intakes and water released from the reservoir to CCWD's service area. A Los Vaqueros Transfer Facility Bethany Reservoir connection to South Bay water agencies was already analyzed in the Los Vaqueros Reservoir Expansion Project EIS/EIR, completed in 2010. Reclamation and CCWD are also currently investigating the feasibility of further expansion of Los Vaqueros Reservoir.

### Los Banos Detention Dam Project

Members of the Exchange Contractors and San Luis Water District propose to make use of flood

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releases from Los Banos Creek Detention Dam and improve ground water recharge in their area by:

- Pumping from Los Banos Creek into the DMC and Central California Irrigation District Outside Canal when flood releases are made above beneficial recharge capability.
- Pumping into the reservoir from the San Luis Canal (by use of water transfer between DMC and San Luis Canals) via San Luis Water District and using storage in the reservoir outside of flood control season.
- Recharging local groundwater by releasing water from the reservoir in the fall, drawing it down to the level required by the Army Corps of Engineers flood control criteria.

The project consists of three phases. Phase I consists of three parts. Part one is the addition

of a pump station to pump water from Los Banos Creek into the DMC. Parts two and three involve modifying Los Banos Creek Detention Dam operations to pump water into the reservoir. The reoperation plan is within current operating levels for the reservoir. The reoperation plan is designed to minimize non-beneficial spills and to increase beneficial recharge. Reclamation's Technical Service Center has approved the reoperation plan pending the construction of an additional monitoring well. Phases II & III involve increasing the use of space above the top of conservation pool.

The Exchange Contractors are preparing an Environmental Assessment and are requesting a license from Reclamation to install a pump station on the Reclamation right of way to complete part 1 of Phase I.



San Luis Reservoir



Harvest in the Central Valley

## CHAPTER 6: HYDROLOGIC INFORMATION

In the Central Valley, the average annual precipitation ranges from five inches in the southern end to more than 30 inches in the northern end, with the majority of the precipitation falling in December through April. Rainfall and snowpack in the Sierra Nevada and Cascade Ranges form the basis of the water supply for the CVP. The status of the hydrology in the Central Valley is critical to determining operations and water allocations for the CVP. The following information/links provide a variety of information on the status and projections for the hydrology affecting the CVP.

### **Reclamation's Central Valley Operations Office**

This website provides a multitude of summaries including CVP water supplies, reservoir data, operational data, and flow schedules.  
<http://www.usbr.gov/mp/cvo/>

### **California Bulletin 120**

This document provides a complete summary of the water supply conditions for California.  
<http://cdec.water.ca.gov/snow/bulletin120/>

### **Hydrologic Conditions Executive Update**

This table provides a summary of the hydrologic conditions for the various regions of California, including precipitation, snowpack, and runoff forecasts.

<http://cdec.water.ca.gov/cgi-progs/reports/EXECSUM>

### **The Water Supply Forecast Update**

The tables present current runoff forecasts for the Central Valley.

<http://cdec.water.ca.gov/cgi-progs/iodir/B120UP>

### **Current Reservoir Conditions**

This map provides information on the current reservoir conditions throughout the CVP and SWP and compares current conditions to reservoir capacities and historic averages.

<http://cdec.water.ca.gov/cgi-progs/products/rescond.pdf>

### **Daily Water Supply Report**

These tables present current release, storage, inflow, and precipitation data for CVP reservoirs  
<http://www.usbr.gov/mp/cvo/vungvari/dayrpt.pdf>





# ACRONYMS AND ABRIDGMENTS

AWTP	Accelerated Water Transfer Program
Banks BDCP	Harvey O. Banks Pumping Plant Bay-Delta Conservation Plan
C1 CCWD CFS CVO CVP CVPIA	Component 1 Water Contra Costa Water District Cubic Feet per Second Central Valley Operations Central Valley Project Central Valley Project Improvement Act
D-1641 Delta DFW DMC DWR	Water Rights Decision 1641 Sacramento-San Joaquin Delta California Department of Fish and Wildlife Delta Mendota Canal California Department of Water Resources
EIR EIS ESA Exchange Contractors	Environmental Impact Report Environmental Impact Statement Endangered Species Act San Joaquin River Exchange Contractors
GWD	Grasslands Water District
Interior	U.S. Department of the Interior
JPOD	Joint Point of Diversion
M&I MAF MWD	Municipal and Industrial Million Acre-Feet Metropolitan Water District
NOD NEPA	North of Delta National Environmental Policy Act
Reclamation RWSP	Bureau of Reclamation Refuge Water Supply Program
SCVWD SLDMWA SOD SWRCB SWP	Santa Clara Valley Water District San Luis and Delta-Mendota Water Authority South of Delta State Water Resources Control Board State Water Project
WUE WTP	Water Use Efficiency Water Transfer Program
YCWA	Yuba County Water Agency