

RECLAMATION

Managing Water in the West

Mid-Pacific Region

2010: Year of Accomplishments



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

Table of Contents

Contents

The Mid-Pacific Region	3
Foreword.....	3
Regional Director Donald Glaser	4
Major Accomplishments.....	6
Mid-Pacific Region Organization	8
Bureau of Reclamation	8
Mid-Pacific Region Headquarters Office.....	8
Area Offices	8
Specialized Offices	9
Mid-Pacific Region Highlights	10
Central Valley Project	11
Other California Projects.....	15
Nevada Projects	16
Oregon Projects.....	16
Recreation in the Mid-Pacific Region.....	16
Major Accomplishments	17
Introduction	17
Red Bluff Fish Passage Improvement	20
Battle Creek Fish Restoration Project.....	24
Delta-Mendota Canal/California Aqueduct Intertie Project	28
Folsom Dam Improvements.....	32
San Joaquin River Restoration Program	36
Drought and the Mid-Pacific Region	40
Late Rain, Snow Increase Water Allocations	40
Transferring Water	40
Improving Water Resource Management	41
Fallowing, Cover Crops, Federal Aid	41
Projects/Programs Advance in 2010	42
Sacramento-San Joaquin Delta	42
Meeting CVP Improvement Act Requirements	43
Lake Berryessa Cleanup	45
Suisun Marsh Restoration	45
Study Underway for 2012 Decision on Removal of Klamath River Basin Dams	46
Trinity River Restoration	46
Invasive Species.....	47
Water Reclamation and Reuse	48
The Future	50
Web Resources	51



The Mid-Pacific Region

Foreword

Much of the water supply in California and bordering areas is no longer reliable. Many of the systems are environmentally unsustainable. A long-term solution is essential for the economic and environmental well-being of critical natural resources. The Department of the Interior is committed to long-term water supply improvements and environmental restoration in the Bureau of Reclamation's Mid-Pacific Region, which includes California and parts of Oregon and Nevada.

The Mission

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.

The Region implemented strategies to improve organizational efficiency and effectiveness to deal with diverse and complicated issues in a world of changing climate and changing public values. The improvements were coupled with the priorities of protecting human health and safety; and developing and maintaining relationships essential to accomplishing tasks. Regional Director Don Glaser directed the Regional Management Team to focus on workload management and acquisition efforts while preparing to meet future needs, projects and issues.

Two of the Region's actions were creating the Program Coordination Office, to prioritize programs across the region, and the Bay-Delta Office, to focus on issues involving the Sacramento-San Joaquin Delta. The Delta is a central focus in addressing water supply and environmental restoration for the Central Valley Project and the State Water Project.

Organizational efficiency and effectiveness enabled the Region to more than double its Fiscal Year 2010 program of \$250 million to \$585 million, due to infusion of funds from the American Recovery and Reinvestment Act of 2009. Funding was designated for maintaining water supplies, repairing water and power infrastructure, mitigating effects of drought, addressing environmental impacts associated with project operations, and developing more water reuse and recycling projects. Reclamation was provided nearly \$1 billion in ARRA funds and of that, the Region received about a third, \$335 million. The Region, in Fiscal Year 2010, obligated nearly all those funds.

The Region addressed deferred construction and maintenance projects and awarded contracts for projects and activities associated with emerging water challenges. The projects had to meet parameters of ARRA and be "shovel ready." Those projects and ongoing program advances in FY 2010 and early FY 2011 are detailed in this report.





Donald R. Glaser, Regional Director

Regional Director Donald Glaser

As Regional Director for the Mid-Pacific Region, Don Glaser oversees the management of the Bureau of Reclamation's water projects in an area encompassing the northern two-thirds of California, most of western Nevada, and part of southern Oregon.

In addition to the Regional Office headquarters in Sacramento, California, the Region includes five Area Offices located in Klamath Falls, Oregon; Carson City, Nevada; and Redding, Folsom, and Fresno, California; and three specialized offices, the MP Construction Office located in Willows, California; the Central Valley Operations Office in Sacramento; and the Bay Delta Office in Sacramento.



Don Glaser speaking at the dedication of the Freeport Regional Water Authority's new intake facility located on the Sacramento River upstream from Freeport.

Appointed Regional Director in May 2008, Mr. Glaser is responsible for one of Reclamation's best-known projects, California's Central Valley Project, the largest irrigation project in the nation. The CVP provides urban water for millions of people; irrigation water to millions of acres of farmland; industrial water for key economic areas of California, such as the Silicon Valley; and environmental water for wildlife needs and fishery restoration. Its hydroelectric plants also help meet the area's power needs.

Mr. Glaser's experiences are varied and include 20 years with Reclamation in several positions throughout the West and in Washington, D.C., including Deputy Commissioner and Assistant Commissioner for Resources Management.



California Governor Arnold Schwarzenegger and Regional Director Don Glaser settle into a California Air National Guard helicopter for a tour that was part of an April 2010 announcement of funding allocations from the 2009 American Recovery and Reinvestment Act for Mid-Pacific Region projects.

Before coming to Reclamation in 2008, he spent seven years managing several non-profits engaged in water education, open space preservation, and fish and wildlife conservation and restoration. Prior to that, he was a water resource consultant, the Executive Director for the Presidential Commission on Western Water Policy, and the State Director for the Bureau of Land Management in Colorado.



Don Glaser signs one of the contracts connected with major projects advanced in 2010.

Regional Director's Statements During 2010 Addresses to the Public or Employees

...there is a reason for accomplishment.

"The most important factor is about who we are – public servants improving the efficiency of our organization to respond to the many challenging issues we face daily. Had we not done that, we could not have been successful this year."

... priorities change; public service is a constant.

*"Project priorities change day to day. We do not really drive our priorities -- public interest drives our priorities. And **how** we do business is as important as the business we do. That is the essence of public service."*

... proper management actions are essential.

"The emphasis within the Region of improving organizational efficiency and effectiveness positions us to deal with an incredibly diverse and complicated set of issues that we need to respond to in this world of changing climate and public values. This is about evolution not revolution. This is about us improving on who we are, not reinventing who we are."

Major Accomplishments

Red Bluff Fish Passage Improvement



\$220 million Project Underway at Red Bluff Diversion Dam

Intertie of Central Valley Canals



Linking Canals for Water Supply Reliability, Flexibility

San Joaquin River Restoration



Reconnecting a River to the Delta



Accomplishments



Battle Creek Restoration



Clearing the Way
Along 48 Miles for Fish

Folsom Dam Improvements



Increasing Safety
at Major Reservoir



Mid-Pacific Region Organization

Bureau of Reclamation

President Theodore Roosevelt signed the Reclamation Act in 1902, creating the agency that would become the Bureau of Reclamation. The agency's initial mission: Develop and provide water for the 17 arid western states. Reclamation has built 475 major structures, including Hoover Dam on the Colorado River and Shasta Dam on the Sacramento River.

Mid-Pacific Region

The Mid-Pacific Region is one of five Reclamation regions. The Region covers the northern two-thirds of California, most of western Nevada and part of southern Oregon. The Region places great importance on fulfilling its obligations for water delivery, water conservation, water recycling and reuse, power generation, and protecting natural and cultural resources. The Region develops partnerships with customers, states, and Native American Tribes; and brings together a variety of interests to address competing needs for limited water resources.

Mid-Pacific Region Headquarters Office

The Regional Director's Office in Sacramento is the lead office for the Mid-Pacific Region. The office includes the Regional Director and Deputy Regional Director, as well as the Assistant Regional Director for Business Services and the Assistant Regional Director of Technical Services.

Area Offices

Northern California Area Office

The Northern California Area Office, at Shasta Dam, north of Redding, California, administers Reclamation lands, water service, and water contracts from north of Sacramento to near the California-Oregon border. The Northern California Area Office and its field offices operate the Trinity and Sacramento River Divisions, including Shasta Dam, power plant, and reservoir. The office also manages the Trinity River Restoration Program.

Central California Area Office

The office is headquartered at Folsom Dam, 25 miles east of Sacramento, with field units at Lake Berryessa and New Melones

Lake and Dam. The office is responsible for managing water and land resources in 12 counties, including the facilities of the Solano Project and the Central Valley Project's American River and East Side Divisions.

South-Central California Area Office

The office, headquartered in Fresno, is responsible for managing Reclamation activities from the Sacramento-San Joaquin Delta south to the Tehachapi Mountains and the southern coastal counties of Santa Barbara and Ventura. The office has jurisdiction over 2.5 million acres of irrigated land, accounting for 25 percent of Reclamation's total irrigated acreage.

Lahontan Basin Area Office

The office, headquartered in Carson City, Nevada, is responsible for the western Great Basin, with a focus on about 80,000 square miles in northern Nevada and eastern California. The area extends from the Truckee, Carson, and Walker River drainages on the eastern slope of the Sierra Nevada Mountains and covers much of northern and central Nevada. The office operates the Newlands, Washoe, Humboldt and Truckee River Storage Projects.

Klamath Basin Area Office

The office, headquartered in Klamath Falls, Oregon, operates the Klamath Project on the Oregon-California border in Oregon's Klamath County and California's Siskiyou and Modoc counties. The Klamath Project provides irrigation for 210,000 acres of cropland and nearly 35,000 acres of wetlands. Two main sources supply water for the project: The Upper Klamath Lake and Klamath River; and Clear Lake Reservoir, Gerber Reservoir, and Lost River, which are in a closed basin.

Specialized Offices

Central Valley Operations Office

The Central Valley Operations Office manages the daily water-delivery operations of the California's Central Valley Project from a joint operations center in Sacramento.

Mid-Pacific Construction Office

The office in Willows, California, manages the Region's construction program and performs preconstruction work, onsite construction management, and construction contract administration.

Bay-Delta

The Bay-Delta Office, created in 2010, focuses on the many issues associated with the San Francisco Bay/Sacramento-San Joaquin Delta. The Bay-Delta Office centralizes program management and staff expertise to help ensure that Reclamation effectively responds to the emerging needs of the Bay-Delta.



Regional Office Technical Divisions

- *Design and Construction*
- *Environmental Affairs*
- *Planning*
- *Program Coordination*
- *Resources Management*
- *Safety, Health, and Security*

Regional Office Business Divisions

- *Financial Management*
- *Acquisition Services*
- *Information Technology*
- *Human Resources*
- *Administrative Services*



Mid-Pacific Region Highlights



Central Valley Project

Overview

Reclamation's Mid-Pacific Region manages the Central Valley Project, one of the world's largest and best-known systems for storing and moving water. The CVP extends 400 miles from the Cascade Range in the north to the Tehachapi Mountains near Bakersfield in the south. The CVP's complex, multi-purpose network of dams, reservoirs, canals, hydroelectric powerplants and other facilities across northern and central California serve agriculture and other needs in the semi-arid Central Valley.

The project is a major asset to California's economy, providing water for most of the top agricultural counties in the nation's leading farm state. The California Department of Food and Agriculture reported in its 2010 California Agricultural Highlights publication that farm production in the state totaled more than \$36 billion. Approximately a third of that production, or about \$12 billion, came from the Central Valley.

The project provides flood protection for the Central Valley and supplies domestic and industrial water in the Central Valley, as well as major urban centers in the San Francisco Bay Area. Widespread availability of water, together with hydroelectric power produced at CVP dams, has created hundreds of thousands of jobs.

The project also provides water to restore and protect fish and wildlife, and to enhance water quality. It is also a major source of water for much of California's wetlands.

Construction of major CVP facilities began in 1938 with breaking of ground for Shasta Dam on the Sacramento River near Redding in northern California. Over the next five decades, the CVP was expanded into a system of 20 dams and reservoirs that together can hold nearly 12 million acre-feet. The CVP includes 500 miles of canals and aqueducts and 11 hydroelectric power plants. In Sacramento, the Central Valley Operations Office jointly controls, with the California Department of Water Resources, the CVP and its companion, the State Water Project.

CVP Water Sources and Destinations

The CVP's water comes from rain and runoff from the Sierra Nevada Mountains snowpack flowing into reservoirs. Releases from dams pass through rivers and canals to the Central Valley, serving contractors in the northern half, referred to as the Sacramento Valley, and the southern half, referred to as the San Joaquin Valley.



Shasta Dam in northern California is a major facility in the Central Valley Project.

Providing CVP water for agricultural, municipal and industrial, and environmental purposes is a complex process, driven by numerous factors, including hydrology, input from other agencies and organizations, regulations, court decisions, biological opinions, environmental considerations, and operational limitations.

The CVP has long-term agreements to supply water to more than 250 contractors in 29 of California's 58 counties. Deliveries by the CVP include providing an annual average of 5 million acre-feet of water for farms; 600,000 acre-feet of water for municipal and industrial uses (enough water to supply about 2.5 million people for a year); and water for wildlife refuges and maintaining water quality in the Delta.

CVP Facilities and Water Deliveries

Central Valley Project facilities include reservoirs on several rivers, including the Trinity, Sacramento, American, Stanislaus and San Joaquin rivers.

Water from the Trinity River is stored in Clair Engle Lake, Lewiston Lake, and Whiskeytown Reservoir, and diverted through a system of

tunnels and powerplants into the Sacramento River for the Central Valley. Water also is stored in Shasta and Folsom reservoirs. Water from these reservoirs, and others operated by the State Water Project and local water rights holders, flows into the Sacramento River. Some of CVP contractors divert water directly from, or immediately below, the dams' outlets. Other CVP contractors, Sacramento River water rights contractors, and water rights holders divert water directly from the Sacramento and American Rivers.

The Sacramento River carries water to the Sacramento-San Joaquin Delta, where it helps form the West Coast's largest estuary. The C.W. "Bill" Jones Pumping Plant at the southern end of the Delta lifts water into the Delta Mendota Canal. The canal delivers water to CVP contractors and exchange contractors on the San Joaquin River and water rights contractors on the Mendota Pool. The CVP water is also conveyed to the San Luis Reservoir for deliveries to CVP contractors through the San Luis Canal. Water from the San Luis Reservoir is also conveyed through the Pacheco Tunnel to CVP contractors in Santa Clara and San Benito counties.

The CVP delivers water from Friant Dam on the San Joaquin River to CVP contractors serviced by the Madera and Friant-Kern canals. Water is stored in New Melones Reservoir for water rights holders in the Stanislaus River watershed and CVP contractors in the northern San Joaquin Valley.

The CVP and the separate State Water Project both convey water in the Sacramento River and the Delta. The CVP reservoir operations are coordinated to obtain maximum yields and deliver water into the main river channels and canals of the project in the most efficient manner.

Irrigation and municipal water is delivered from the main canals in accordance with long-term contracts negotiated with irrigation districts and other local organizations.

CVP Organization

The complex operations of the CVP are organized into divisions and units:

American River Division

The American River Division consists of the Folsom, Sly Park, and Auburn-Folsom South

Units. The Division is about midway between the northern and southern extremes of the Central Valley in Sacramento, San Joaquin, Placer, and El Dorado counties. Division lands stretch from Sugar Pine Dam in the north to Stockton in the south. Most land served by the American River Division lies in the southern portion of the Division, between Sacramento and Stockton.

Delta Division

The Sacramento-San Joaquin Delta Division provides for the conveyance of water through the central portion of the Central Valley and the Delta. The main features of the Division are the Delta Cross Channel, Contra Costa Canal, C.W. "Bill" Jones Pumping Plant, and the Tracy Fish Collection Facility.

East Side Division, New Melones Unit

The New Melones Dam and Powerplant are on the Stanislaus River, about 60 miles upstream from its confluence with the San Joaquin River and 40 miles east of Stockton. The river forms the boundary between Calaveras and Tuolumne counties. The Division's drainage area consists of about 980 square miles on the western slope of the Sierra Nevada Mountains in east-central California. The Stanislaus River Basin has three



Grapes are among crops irrigated with CVP water.

major tributaries, the North, South, and Middle Forks of the Stanislaus River.

Friant Division

The Friant Division transports northern California water through the southern part of the Central Valley. Main features of the division are Friant Dam, Friant-Kern Canal and Madera Canal.

Sacramento River Division, Sacramento Canals Unit

The Sacramento Canals Unit was designed to provide irrigation water in the Sacramento Valley, principally in Tehama, Glenn, and Colusa counties. The unit consists of Red Bluff Diversion Dam, Funks Dam, Corning Pumping Plant, Tehama-Colusa Canal, and Corning Canal.

San Felipe Division

The San Felipe Division, in the central coastal area of California, extends into Santa Clara County, the northern portion of San Benito County, the southern portion of Santa Cruz County, and the northern edge of Monterey County. The division provides supplemental water to farmland, as well as for municipal and industrial use. Water from San Luis Reservoir is transported to the Santa Clara-San Benito service area through Pacheco

Tunnel and other project features, which include 48 miles of closed conduits, two pumping plants, and one small reservoir.

Shasta-Trinity River Divisions

The Shasta and Trinity River Divisions catch the headwaters of a network of CVP waterways and channel the water southward. Both divisions are part of the CVP and are close to each other, with the Shasta Division on the Sacramento River about 10 miles north of Redding and the Trinity River Division on the Trinity River about 25 miles northwest of Redding. Surplus water from the Trinity River Basin is stored and diverted through a system of dams, reservoirs, tunnels, and powerplants into the Sacramento River for use in water-deficient areas of the Central Valley.

West San Joaquin Division, San Luis Unit

The San Luis Unit is a part of the Central Valley Project and California's State Water Project. Reclamation and the state constructed this unit and operate it jointly. The principal purpose of the federal portion of the facilities is to furnish water as a supplemental irrigation supply to about 600,000 acres in the western portion of Fresno, Kings, and Merced Counties. The joint-use facilities are O'Neill Dam and Forebay, B.F. Sisk San Luis Dam, San Luis Reservoir, William R. Gianelli Pumping-Generating Plant, Dos Amigos Pumping Plant, Los Banos and Little Panoche Reservoirs, and San Luis Canal from O'Neill Forebay to Kettleman City. The Federal-only portion of the San Luis Unit includes the O'Neill Pumping Plant and Intake Canal, Coalinga Canal, Pleasant Valley Pumping Plant, and the San Luis Drain.

CVP Flood Control Value

A critical role for the CVP is providing flood protection for northern California and its Central Valley, which is essential as a food source to the nation and home to millions of people. Generally, reservoirs offer flexibility by temporarily storing large flows of water that would have been damaging if not captured, and allowing more gradual water release rates that downstream areas can more easily absorb. This process also partially lowers the reservoirs so the cycle can be repeated for coming storms.



CVP: Closer Look at Delta Pumping Plant

The C.W. “Bill” Jones Pumping Plant at the southern end of the Sacramento-San Joaquin Delta lifts water into the Delta-Mendota Canal. The plant can pump 4,300 cubic feet per second, which is about 2 million gallons per minute or 8,500 acre-feet per day. The canal delivers water to CVP water service contractors and exchange contractors along the west side of the San Joaquin Valley. The CVP water is also conveyed with pumping units to the San Luis Reservoir for deliveries to CVP contractors through the San Luis Canal.



The Tracy Fish Collection Facility was constructed to protect fish natural to the area from the nearby southern Delta pumping plant.

CVP: Closer Look at Tracy Fish Collection Facility

The Tracy Fish Collection Facility is a system of louvers, bypasses and holding tanks operated to protect and salvage fish natural to the area from the nearby C.W. “Bill” Jones Pumping Plant.

In 2010, the facility collected Delta fish species as the primary mitigation feature for the pumping plant and returned them to the Delta. Threadfin shad, striped bass, and American shad made up the bulk of the collection. There are about 50 species of fish collected at the facility, including listed species such as the Delta smelt, winter-run and spring-run Chinook salmon, steelhead, and green sturgeon. Improvements to the facility in 2010 included installation of a new trash rack cleaner and construction of a new biology building.

CVP Agricultural Benefits in 2010

Irrigated acreage, crops and production:

- Acreage serviced, 3 million
- Principal crops, 24 million tons
 - Field crops, 10 million tons
 - Vegetable/melons, 9 million tons
 - Fruit/nut crops, 5 million tons

Largest producing counties include:

- Fresno: Grapes, almonds, poultry, dairy, tomatoes
- Tulare: Oranges, cattle, grapes, alfalfa, dairy
- Kern: Grapes, citrus, almonds, carrots, dairy
- Merced: Chickens, almonds, cattle, potatoes, dairy
- Stanislaus: Almonds, chickens, cattle, dairy
- San Joaquin: Grapes, walnuts, cherries, almonds, dairy
- Kings: Dairy, cotton, cattle, alfalfa, tomatoes

CVP Hydroelectric Power Production and Benefits

CVP hydroelectric generators produced about 3.6 million megawatt-hours of energy in Fiscal Year 2010, a portion of which was used for pumping water throughout the CVP. The rest was marketed to energy customers. Project use consumed about 1.2 million megawatt-hours while the remaining 2.4 million megawatt-hours were made available



The hydroelectric power plant at Shasta Dam is one of many in the Central Valley Project.

to the Western Area Power Administration for distribution in the western United States. The 2.4 million megawatt-hours would serve the typical annual electricity requirements of about 200,000 households.

Other California Projects

Orland

The Orland Project, in the Sacramento Valley about 100 miles north of Sacramento, is comprised of two main dams, East Park and Stony Gorge, in a small system that captures runoff from the eastern Coast Range. The project has an average annual runoff of 410,000 acre-feet that irrigates about 20,000 acres of farmland.

Solano

The Solano Project provides irrigation water to 96,000 acres of farmland and the San Francisco Bay Area cities of Vallejo, Vacaville, Fairfield, Benicia and Suisun. The project's water comes from rain-fed rivers on the eastern Coast Range in Napa and Lake counties that flow into Lake Berryessa, with a storage capacity of more than 1.5 million acre-feet.



Monticello Dam in the Solano Project is noted for its "glory hole," a type of spillway with an intake shaped like an inverted bell.

Cachuma

Along California's south coast, the Cachuma Project captures seasonal floodwaters that otherwise would flow into the sea. The project contains the highly variable Santa Ynez River,



Lauro Dam is one of the facilities in the Cachuma Project.

storing floodwaters for 38,000 acres of farmlands and historically water-deficient communities, including well-known Santa Barbara.

Santa Maria

The Santa Maria Project irrigates 35,000 acres of cropland 150 miles northwest of Los Angeles. A basin of more than 1,100 square miles drains into the Cuyama River, the main source of water for the project's Twitchell Dam and Reservoir.

Ventura River

The Casitas Reservoir and other features of the Ventura River Project, on the Pacific Coast about 60 miles northwest of Los Angeles, provide irrigation to about 15,000 acres of farmland and supplies water to about 40,000 municipal and industrial users in the Casitas Municipal Water District.



Casitas Dam is part of the Ventura River Project.

Nevada Projects

Newlands

The Newlands Project, begun in 1903, was one of the first Bureau of Reclamation projects. Drainage basins of more than 3,000 square miles in the eastern Sierra Nevada fill several reservoirs that supply snowmelt runoff for a total of 191,000 acre-feet of delivery for more than 55,000 acres of cropland in the Lahontan Valley.



Lake Tahoe Dam is part of the Newlands Project.

Washoe

The Washoe Project encompasses an area in Nevada that includes the cities of Reno and Sparks. The project also extends over a small portion of California that includes the cities of Truckee, Tahoe City and South Lake Tahoe. The project uses the melting snow from the Truckee and lower Carson river basins on the Sierra Nevada's eastern slope to benefit fish and wildlife. It also provides flood protection and recreation on reservoirs.

Truckee

The Truckee Storage Project was constructed to better regulate the Truckee River. It also provides irrigation water to about 4,000 acres in the Truckee Meadows area surrounding Reno and Sparks, as well as municipal and industrial supplies for the Reno and Sparks areas. The project's major feature, Boca Dam and Reservoir, is about 25 miles southwest of Reno on the Little Truckee River.

Humboldt

The Humboldt Project is located in northwestern Nevada on the Humboldt River. Rye Patch Dam and Reservoir is on the Humboldt River about 22 miles upstream from Lovelock in Pershing County. The dam stores river flows for diversion to irrigated lands.

Oregon Projects

Klamath

The Klamath Project was developed to supply irrigation water to the Klamath Basin, in southern Oregon and northern California. Two main sources supply water for the project: the Upper Klamath Lake and the Klamath River; and Clear Lake Reservoir, Gerber Reservoir, and Lost River, which are located in a closed basin. The total drainage area, including the Lost River and the Klamath River watershed above Keno, Oregon, is about 5,700 square miles. The Klamath Project, located on the Pacific Flyway, supports the Klamath Basin National Wildlife Refuges Complex.

Recreation in the Mid-Pacific Region

More than 60 reservoirs and wildlife refuges in the Region offer recreation opportunities such as boating, camping, picnicking, horseback riding, hiking, fishing, biking, rock climbing, sightseeing and viewing wildlife. Their locations range from areas near cities to rugged, remote sites. Some are managed by the Region; others by federal, state, and local government partners, including the California Department of Parks and Recreation.

Major sites include Lake Berryessa, near the Napa Valley; Folsom Lake State Recreation Area, in the City of Folsom near Sacramento; Lake Shasta, in northern California near Redding; New Melones Lake, east of Stockton and Modesto in the Sierra Nevada foothills.

More information at: www.recreation.gov.

Major Accomplishments

Introduction

Director Comments on Regional Priorities, Strategies; Opportunities Presented by ARRA Funding

The report of 2010 achievements by the Mid-Pacific Region begins in 2008-09 with the Region recommitting to improvement of organizational efficiency and effectiveness, relationships essential to accomplishing tasks, and workload management and acquisition processes.

Then in 2009, the American Recovery and Reinvestment Act was enacted. When ARRA funding was made available to Reclamation, it was used to address important but unfunded projects. The projects had to meet specific ARRA requirements and be positioned to move forward into the construction phase.

Many Mid-Pacific Region projects and programs received ARRA funding, which allowed construction to begin on previously unfunded but needed projects, and was used to accelerate ongoing projects and programs. The Region was able to add the new tasks to its existing work because of the success of improved efficiency, performing the increased workload with the same staffing levels and organization design.

The following section of this report provides updates on numerous programs in the Region, beginning with these five projects.

Red Bluff Fish Passage Improvement

The Red Bluff Fish Passage Improvement Project at the Red Bluff Diversion Dam has been identified as a high priority. About \$115 million in ARRA funding was made available to move forward with the project, making it the largest single outlay of ARRA funds in the Department of the Interior. These facilities will help provide safe passage for fish while protecting the area's farming economy and jobs. (Please see page 20.)

“The emphasis within the regional office of improving organizational efficiency and effectiveness positioned us to respond to this priority project. Had we not made those changes, we would not have been as successful this year” – Regional Director Don Glaser



Secretary of the Interior Ken Salazar speaking at the groundbreaking ceremony for the Red Bluff Fish Passage Improvement Project



Contractors building an access road.



Obsolete fish ladders such as this on Battle Creek are being replaced.

Battle Creek Restoration

In 2010, ARRA funds were used to accelerate construction of the Battle Creek Salmon and Steelhead Restoration Project, which involves removal of five dams to open 48 miles of premium spawning habitat. The project includes installation of fish ladders and construction of bypasses. A major northern California power company will forego some of its hydroelectric production from the area. (Please see page 24.)

“Battle Creek restoration is a great collaborative project, with both public and private members, that opens up premiere cold-water habitat for the recovery of salmon and steelhead” – Regional Director Don Glaser



Contractors begin work on the Intertie Project along the Delta-Mendota Canal.

Intertie of Canals in Central Valley

ARRA funding allowed construction to begin on the Delta-Mendota Canal/California Aqueduct Intertie project, which involves constructing a link between two integrated canals in California’s Central Valley to improve water supply reliability south of the Sacramento-San Joaquin River Delta. The project will provide both the federal Central Valley Project and California’s State Water Project with more operational reliability and flexibility. (Please see page 28.)

“The Intertie illustrates what we need to do in the future to make effective use of a limited water supply” – Regional Director Don Glaser



Construction improvements underway at Folsom Dam.

Folsom Dam Improvements

During 2010, Reclamation and federal, state and local agency partners continued a unique partnership to further protect more than a million residents in communities surrounding Folsom Dam and Reservoir. Numerous construction projects were either begun or completed during the year to improve flood protection and reduce dam safety risks at the Folsom facility on the American River, about 25 miles northeast of Sacramento. These and pending projects represent more than \$1 billion in improvements. (Please see page 32.)

“The dam is immediately upstream from a major metropolitan area that, to a great extent, is built on a flood plain and is protected by levees. We are further ensuring it will safely pass very large storm events without putting the community, or the facility, at risk”—Regional Director Don Glaser

San Joaquin River Restoration

The San Joaquin River Restoration Program required water releases in October 2009 into a riverbed that had been allowed to go dry half a century earlier. By March 2010, the river was reconnected to the Sacramento-San Joaquin Delta for the first time in more than 60 years, except for flood releases. The program is a comprehensive, long-term effort to restore flows to the river from Friant Dam to the confluence of the Merced River, re-creating a self-sustaining Chinook salmon fishery while reducing or avoiding adverse water supply impacts from restoration flows. (Please see page 36.)

*“The program is an indication of changing public values. There was a deliberate decision in the 1950s to dry the river up, as a matter of public policy, and to eliminate the southern-most run for Pacific Coast salmon. Decades later, we find there has been a change in public values and interest. Water remains important for agricultural, municipal, industrial and electricity production purposes, but the public is now saying that should not come at the expense of natural resources” –
Regional Director Don Glaser*



Releases from Friant Dam are being used in restoration of the San Joaquin River.

Red Bluff Fish Passage Improvement

Secretary of the Interior Ken Salazar and Bureau of Reclamation Commissioner Michael Connor hosted a groundbreaking event at the Red Bluff Diversion Dam in March 2010 as part of the largest single outlay of 2009 American Recovery and Reinvestment Act funding in the nation by the Department of the Interior.

The event celebrated the beginning of construction of the Red Bluff Fish Passage Improvement Project at the Red Bluff Diversion Dam, a \$220 million project that includes about \$115 million in funds from ARRA.

Secretary Salazar said that “through the use of economic stimulus funds, we are protecting the region’s farming economy and jobs while helping to provide safe passage for fish.”

Commissioner Connor said that “this project represents almost 40 years of efforts by many entities to find a balanced solution that improves fish passage and sustains the reliability of agricultural water deliveries.”

The Fish Passage Improvement Project was needed as an improvement over the existing Red Bluff Diversion Dam on the Sacramento River, which has gates that, when lowered, form Lake Red Bluff and provide for diversion of irrigation water from the river into the Tehama-Colusa and Corning Canals. But the gate position also created



Secretary of the Interior Ken Salazar speaking at the groundbreaking ceremony for the project on March 23, 2010.



Red Bluff Diversion Dam is shown in upper right corner.



a barrier to migrating fish. Although the dam was initially operated to provide continuous diversion, the gates-in diversion period has been reduced over the years to less than four months in order to improve fish passage of several salmon species and now green sturgeon, recently listed under the Endangered Species Act.

The construction of a screened pumping plant will allow the Diversion Dam gates to be permanently placed in the open position for free migration of fish while ensuring continued water deliveries to 150,000 acres of high-value cropland. The new features of the project will include a fish screen, intake channel, and a pumping plant with a capacity of 2,500 cubic feet per second, an access bridge, and a discharge conduit to divert water from the Sacramento River into the Tehama-Colusa and Corning Canals.

The project, being constructed in phases, is scheduled to be completed in 2012.

More information can be found at <http://www.usbr.gov/mp/rbfish/>.



An artist's rendering depicts the appearance of the finished fish passage improvement project.



The siphon outlet structure under construction.

Project Benefits

Construction of a pumping plant will:

- Allow the Red Bluff Diversion Dam gates to be locked in the raised position to provide unimpeded upstream and downstream passage for threatened and endangered fish species to spawning grounds.*
- Provide irrigation water to about 150,000 acres of high-value cropland.*
- Increase the pumping capacity into canals to 2,500 cubic feet per second.*



Workers deliver a reinforcement cage for a bridge pier.

Subcontractor welding caps for canal braces.



Diesel hammers drive sheet piles.



Heavy equipment excavates the canal on the east side of Red Bank Creek.



Workers assemble portable concrete mixing plant for onsite production.



Installing coffer dam sheet piling for fish screen.



Heavy equipment excavates the canal on the east side of Red Bank Creek.

Battle Creek Fish Restoration Project

Bureau of Reclamation Commissioner Michael Connor and top officials from other agencies participated in a September 2010 groundbreaking ceremony for the Battle Creek Salmon and Steelhead Restoration Project.

The project is among the largest cold-water anadromous fish restoration efforts in North America. Anadromous fish spawn in fresh water but spend most of their lives in the ocean, then return to their native streams to reproduce. Habitat restoration and enhancement will enable safe passage, growth and recovery for threatened and endangered Chinook salmon and Central Valley steelhead trout – all listed as threatened or endangered

The Restoration Project involves removing five hydropower diversion dams and constructing fish screens and ladders on three hydropower diversion dams in Shasta and Tehama counties near Manton, California. The work will result in the restoration and enhancement of fish and wildlife habitat along 48 miles of Battle Creek and its tributaries and the increase of water flow releases into Battle Creek. It will eliminate the mixing of waters between drainage basins.

The September 2010 groundbreaking reflected a decade of commitment and dedication to the project. The effort culminated in a ceremony attended by representatives of Reclamation, Pacific Gas and Electric, U.S. Fish and Wildlife Service, National Marine Fisheries Service, and California Department of Fish and Game. The five primary partners symbolically turned a wheel at Coleman Dam along the banks of the South Fork of Battle Creek.



Commissioner Michael Connor speaks at the Battle Creek groundbreaking ceremony.



Coleman Diversion Dam is one of the affected structures.



Project History

A Memorandum of Understanding between PG&E, Reclamation, and other federal and state agencies was signed in 1999, committing each to the restoration project. Numerous other partners have played an important role in advancing the project.

Project funding has been provided by federal and state agencies, and includes nearly \$7 million from the American Recovery and Reinvestment Act of 2009. Additional financial support was provided by the Packard Foundation (via The Nature Conservancy), the California Wildlife Conservation Board, the California Department of Fish and Game, the California Department of Transportation, the Battle Creek Watershed Conservancy, the Greater Battle Creek Watershed Working Group, the Metropolitan Water District of Southern California, the California Department of Water Resources, and the Iron Mountain Mine Trustee Council.

Construction of the Project

Two construction contracts were awarded in late 2009, and on-site construction began at the Wildcat, Eagle Canyon and North Battle Creek Feeder sites on the North Fork of Battle Creek in April 2010. Wildcat Dam has been removed, and construction crews are installing fish ladders and screens at the Eagle Canyon and North Battle Creek Feeder Diversion Dam sites. A third construction contract was awarded in June 2010, and includes building a bypass and connector at the Inskip Powerhouse/Coleman Diversion Dam site on the South Fork of Battle Creek. The project is expected to be completed in 2014.

More information can be found at <http://www.usbr.gov/mp/battlecreek/>.



Contractors demolish Wildcat Dam on Battle Creek.

Battle Creek Salmon and Steelhead

“The project demonstrates that through cooperation, federal and state agencies, private industry and nonprofit organizations can restore fish species, while allowing continued production of renewable energy” – Secretary of the Interior Ken Salazar



Excavating fish screen and ladder.



Cofferdam and bypass pipes upstream from a dam.

Workers stack sections of pipeline from Wildcat Diversion Dam.



The concrete footings for the pipeline.



Cofferdam and bypass pipes being installed at Eagle Canyon Diversion Dam.

Contractors construct North Battle Creek feeder diversion dam, fish screen and ladder.



Ceremonial start of the project: Shown from left, Monica Medina, Principal Deputy Undersecretary for Oceans and Atmosphere, National Oceanic and Atmospheric Administration; Michael Connor, Commissioner, Bureau of Reclamation; Robert Clarke, Acting Assistant Regional Director, U.S. Fish and Wildlife Service; Randy Livingston, Vice President of Power Generation, Pacific Gas and Electric Co.; and Neil Manji, Regional Manager, Northern Region, California Department of Fish and Game.

Delta-Mendota Canal/California Aqueduct Intertie Project

Secretary of the Interior Ken Salazar led a groundbreaking ceremony in October 2010 for an integral link between the two Central Valley canals to improve water supply reliability south of the Sacramento-San Joaquin Delta.

Although the Delta-Mendota Canal/California Aqueduct Intertie project, at a cost of \$28 million, may be considered relatively small compared to many other water infrastructure improvements, U.S. Senator Dianne Feinstein, Bureau of Reclamation Commissioner Mike Connor, and several other leaders attended the ceremony, emphasizing the project's importance because it adds operational flexibility and more efficient use of a limited water supply in an area hard hit by dry conditions and loss of jobs. (See page 30 for all participants.)

Reclamation provided nearly \$16 million in 2009 American Recovery and Reinvestment Act funds, which combined with other funding sources, made it possible to begin construction of the planned Intertie. Reclamation, the San Luis and Delta-Mendota Water Authority, and the California Department of Water Resources are partnering to construct the project.



Secretary of the Interior, Ken Salazar, speaks at the Intertie groundbreaking ceremony, October 14, 2010.

The Intertie will potentially increase average annual deliveries to the Central Valley Project by as much as 35,000 acre-feet by addressing conveyance conditions in the Delta Mendota Canal that restrict use of the C. W. "Bill" Jones Pumping Plant near Tracy to less than its design capacity. The link, via two 108-inch diameter pipelines that are 500-feet long, will allow more conveyance to storage south of the Delta, provide redundancy in the distribution system in case of



The Delta-Mendota Canal and the California Aqueduct.



emergency, and make maintenance and repair work less disruptive to water deliveries.

The Delta-Mendota Canal receives water pumped by the Jones plant and is the primary federal delivery facility sending water to Central Valley Project contractors south of the Delta. The State Water Project's California Aqueduct operates in much the way.

A construction contract for the Intertie, in an unincorporated area of the San Joaquin Valley in Alameda County, west of the city of Tracy, was awarded to Shimmick Construction Co. of Oakland, Calif., in July 2010. The project will provide about 160 construction jobs and is expected to be completed in 2012.

More information can be found at <http://www.usbr.gov/mp/intertie/>.



Reclamation Commissioner Michael Connor delivers an address at the Intertie groundbreaking ceremony.

Project Benefits

- *Improve reliability of water deliveries to south of Delta contractors*
- *Provide the capability to store more water; earlier in San Luis Reservoir*
- *Allow flexibility during maintenance or emergencies*

“Any project like the Intertie that allows us to make more efficient use of limited water resources, particularly south of the Delta in the San Joaquin Valley, is always going to be viewed as critically important and a high priority.” — Regional Director Don Glaser



Diver begins cutting canal's concrete liner in the first stages of the project.



Dianne Feinstein is interviewed by the media at the Intertie groundbreaking ceremony.



Ceremonial start of the project: Shown from left, Mike Stearns, San Luis Delta Mendota Water Authority Chairman; David Hayes, Deputy Secretary of the Interior; Mike Connor, Bureau of Reclamation Commissioner; Congressman Dennis Cardoza, District 18; Congressman Jerry McNerney, District 11; Ken Salazar, Secretary of the Interior; California Senator Dianne Feinstein; Congressman Jim Costa, District 20; California Assembly Member Anna Caballero, District 28; and Lester Snow, Secretary of the California Natural Resources Agency.

— MAJOR ACCOMPLISHMENTS - DELTA-MENDOTA CANAL/CALIFORNIA AQUEDUCT INTERTIE PROJECT



This January 2011 photograph shows excavation work for a pump plant intake for the project.



Regional Director Don Glaser speaks at the Intertie groundbreaking ceremony.



Secretary of the Interior Ken Salazar and California Senator Dianne Feinstein at the Intertie groundbreaking ceremony.

Folsom Dam Improvements

The Bureau of Reclamation and federal, state and local agency partners continued a unique partnership to further protect more than a million residents in communities downstream from Folsom Reservoir. Numerous construction projects were either begun or completed in 2010 to improve flood protection and reduce dam safety risks at the Folsom facility on the lower American River, about 25 miles northeast of Sacramento.



Water released into the new auxiliary spillway, shown at the top, will flow into the American River in the foreground.

The projects, and pending projects, represent more than \$1 billion in improvements.

Reclamation's partners in the projects are the Army Corps of Engineers, the Sacramento Area Flood Control Agency and the state of California.

Michael Finnegan, manager of the Mid-Pacific Region's Central California Area Office, which includes Folsom Dam and Reservoir, said, "The cornerstone for these efforts is the Joint Federal Project, which includes a new auxiliary spillway consisting of a control structure, a 1,000-yard lined spillway chute, a 370-yard approach channel and a stilling basin."

Mr. Finnegan said the Region completed the second of its two phases for the Project in 2010. Together, the phases involved excavation of nearly 2 million cubic yards of material from the spillway chute, construction of an in-reservoir haul route and relocation of a water service pipeline serving the City of Folsom and Folsom State Prison.



A view looking up into the auxiliary spillway.



An artist's rendering that depicts the appearance of the auxiliary spillway when it is completed at Folsom Dam.

The Region completed its portion of the Project on schedule and at about \$60 million less than the original government estimate. Construction at the spillway site is now being transferred to the Corps for the third phase of the project.

During 2010, the Region also completed improvements to Dikes 4 and 6, and awarded a \$35 million contract to excavate foundation material along a 1,000-foot section at Mormon Island Auxiliary Dam and replace it with special fill material. The contract, and follow-up work to overlay the downstream face of the dam, address a long-standing seismic risk concern. The Region expedited award of a \$17 million contract to replace five service gates and three emergency spillway gates, as well as perform bracing and other work to mitigate a seismic risk to the main concrete structure. The work was funded under the American Recovery and Reinvestment Act of 2009.

The Region also began an extensive overhaul of the three generators at the hydroelectric powerplant at the Folsom facility. The \$44 million overhaul is expected to be completed over the next three years. Generation from the plant is roughly an amount that would meet 15 percent of the demand for the greater Sacramento metropolitan region.

More information can be found at <http://www.usbr.gov/mp/jfp/>.



Contractors disassemble part of the equipment related to the hydroelectric power plant at Folsom Dam.



Contractors build an access road to the new auxiliary spillway, with a new pipeline shown at left.



View of upper auxiliary spillway, expanded overlook area, and Natoma pipeline bridge in the foreground.



Contractors remove a turbine bearing as part of the hydroelectric plant overhaul.



A view of the lower stilling basin access road and cofferdam wall.



View of a temporary cofferdam nearing completion.

San Joaquin River Restoration Program

The San Joaquin River Restoration Program is a comprehensive, long-term effort to restore flows to the San Joaquin River from Friant Dam to the confluence of the Merced River, in order to create a self-sustaining Chinook salmon fishery in the river, while reducing or avoiding adverse water supply impacts from restoration flows.

Primary Goals

There are two primary goals: Restoration and water management.

The restoration goal is to restore and maintain fish populations in the main stem of the San Joaquin River below Friant Dam to the confluence of the Merced River, including naturally reproducing and self-sustaining populations of salmon and other fish.

The water management goal is to reduce or avoid adverse water supply impacts to all of the Friant Division long-term contractors that may result from interim and restoration flows.

Federal participation in the Program is mandated under the San Joaquin River Restoration Settlement Act, part of the Omnibus Public Land Management Act of 2009.

Interim Flow Releases Begin

Interim flow releases started in October 2009 and the San Joaquin River was reconnected to the Sacramento-San Joaquin Delta in March 2010, a stretch of roughly 330 miles -- a phenomenon that has not occurred in more than 60 years, with the exception of flood flow releases.



Before: A view of part of the San Joaquin River that was later restored. Restoration is shown on the following page.



View of the restored San Joaquin River.



Other Highlights of Fiscal Year 2010

- The Program returned about 42,000 acre-feet of water back to the Friant Division water contractors through a recapture and recirculation process.
- The Program delivered more than 80,000 acre-feet of uncontrolled flows to Friant Division water contractors.
- The first year of the experimental interim flows finished with the release of about 260,000 acre-feet. Information was collected on what some of the major constraints are in the river channels and on what will be needed for reintroduction of salmon.
- An extensive network of monitoring wells continued to be developed to monitor the reaction of the groundwater table related to interim flow releases.
- A permit application was submitted by the U.S. Fish and Wildlife Service for the reintroduction of salmon to the National Marine Fisheries Service.

Entering Fiscal Year 2011

The second year of interim flows began October 1, 2010.

As part of the continuing Program and its 2011 goals, the Mid-Pacific Region expects to complete the Friant-Kern and Madera Canals Expansion Feasibility Study and the Friant-Kern Canal Reverse Flow Pumpback Feasibility Study.

In addition, a Draft and Final Program Environmental Impact Statement/Report will be released to the public, evaluating the direct, indirect, and cumulative effects of river restoration.



After: A view of part of the San Joaquin River after restoration from its condition shown on the previous page.



First San Joaquin River interim flows are released from Friant Dam in October 2009.



Volunteers clean up a portion of the San Joaquin River watershed.



A salmon spawning ground created at Ledger Island.

The San Joaquin River was reconnected to the Sacramento-San Joaquin Delta in March 2010, a stretch of roughly 330 miles -- a development that has not occurred in more than 60 years, with the exception of flood flow releases.

In addition, under the Program in Fiscal Year 2011:

- Close monitoring of the shallow groundwater table will continue and the Region will continue to work closely with landowners to address potential seepage concerns.
- Draft environmental documents will be released for public comment on two high priority projects that will significantly improve the ability to move water through the river system and sustain fish habitat.
- The Region is working with the San Luis Canal Company to provide a grant for the installation of four remotely-controlled gates at Sack Dam. This will improve the precision of operations and flow capabilities and capacity of the dam.



Before: The fish-ladder structure at Sack Dam on the San Joaquin River in 2009 before the return of flows.

Challenges

Monitoring and adjusting flows related to seepage will continue to be a primary focus for the Program as the Region continues to work with the communities and landowners to address concerns. More than 90 groundwater wells have been installed and, by next spring, the Program will have more than 100 wells monitoring the groundwater table along the river, related to interim flow releases. Preliminary data from the first full year of interim flows is being analyzed. The Program's extensive monitoring and better understanding of how to manage flows will help determine what channel improvements and mitigation measures will be needed.

Looking Ahead

For the next few years, Program activities will focus on continuing interim flow operations and data collection. Smaller channel improvements and other mitigation projects will be implemented to allow for higher flows, and the Sack Dam improvements and Arroyo Canal fish screen project will be constructed. Looking ahead five years, major channel improvements will occur and salmon will be reintroduced back into the river.

More information can be found at <http://www.usbr.gov/mp/sjrrp>.



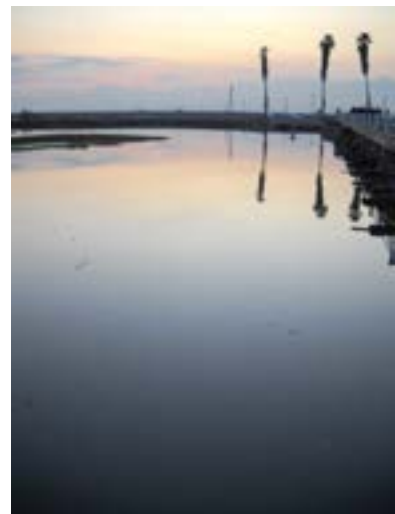
The Hills Ferry Barrier is installed seasonally to prevent anadromous fish in the San Joaquin River from following false migratory paths.



Wells have been installed to monitor the groundwater table near the river



After: Sack Dam and the same fish-ladder structure, as shown on the previous page, but with water flowing through it in 2010.



The Mendota Pool and Dam is a focus of an ongoing study regarding improvements and fish passage on the river.

Drought and the Mid-Pacific Region

Late Rain, Snow Increase Water Allocations



Snow came late in the season.



A snow survey measures the depth of the snowpack in the Sierra Nevada.

Water management in the semi-arid, Mid-Pacific Region is a challenge due to increasing needs, coupled with addressing fishery and environmental decline. For the past three years, a drought has added to the challenge and left communities, farmers and others in need of economic relief.

The Region experiences variable rain and snowfall from season to season and year to year. The Region sometimes has dry springs, but March and April can also be very wet months. Early in 2010, storms brought enough rain and improved snowpack to California that it had a near-average water year, allowing increased water allocations.

Reclamation worked with its partners in managing water supplies, moving water where it was needed most, providing more certainty for growers for the year ahead, installing wells to supply additional water in some areas, expanding water recycling programs, idling land, and working toward long-term, overall solutions in partnership with the state.

Transferring Water

In 2010, continuing drought and low reservoir storage levels created the need for some areas of California to supplement water supplies with transfers. The Region facilitated movement of water between willing sellers and buyers who needed to supplement supplies. The Region worked cooperatively with the state of California and water contractors to expedite transfers, which included taking advantage of available water and facility capacity.

The Region facilitated water transfers among contractors north of the Sacramento-San Joaquin Delta (38,138 acre-feet) and among south-of-Delta contractors (433,639 acre-feet). Water transfers and exchanges were also approved with non-CVP contractors, primarily in southern California (265,485 acre-feet), as individual transactions.

The Region and water contractors had developed a program to transfer water between willing sellers north of the Delta to willing buyers in dry agricultural areas south of the Delta. But the program did not go into effect due to improved hydrology and the need to commit Delta pumping capacity to move increased flows into San Luis Reservoir, an off-stream storage reservoir serving south-of-Delta water service contractors in the western San Joaquin Valley.

Improving Water Resource Management

The Region's responsibilities include water resource management. More efficient water use is a key component of water resource management strategy.

Reclamation's WaterSMART (Sustain and Manage America's Resources for Tomorrow) program is intended to address challenges posed by drought, as well as by climate change, energy demands, an expanding population, and increased environmental needs. Projects range from simply using pipes instead of open ditches to convey water, to technical undertakings such as desalting research. In 2010, the Region's WaterSMART actions included awarding 31 water conservation and efficiency grants. The Region also met the milestones of other programs such as the Reclamation Wastewater and Groundwater Supply Study and Facilities Act of 1992/Title XVI, the Water Conservation Field Services Program, and the CALFED Bay-Delta Program's Water Use Efficiency Project.

The Region, through the Best Management Practices Program, provides technical assistance to contractors and refuge managers to complete water management plans and monitors them for compliance. In 2010, the Region approved seven new water management plans and reviewed 72 updated management plans.

The Region's Drought Relief Program included the award of 14 grants, from American Recovery and Reinvestment Act funding, to northern California and western Nevada tribes. The projects included drilling wells, laying pipelines, and installing pumps to provide a reliable water supply during droughts.

Fallowing, Cover Crops, Federal Aid

Congressional reports estimated that the drought forced the fallowing of more than 400,000 acres in the Central Valley. California's representatives in the U.S. Senate, Senator Dianne Feinstein and Senator Barbara Boxer, announced securing \$150 million in funds to assist farmers with disaster relief, including cover crops and erosion control on idled land. The U.S. Department of Agriculture had declared 24 of California's 58 counties as disaster counties due to drought conditions.

The Klamath Project, in far northern California and southern Oregon, experienced its fifth worst drought since 1961. Conditions affected or idled a quarter of the 200,000 total irrigable acres in the project. Early in the 2010 water year, the Region's Klamath Basin Area Office developed strategies to ensure all stakeholders were informed and involved in decisions. Reclamation also provided \$10 million for water conservation and drought relief efforts. More than \$8 million of the funds went to land idling, groundwater pumping, and opportunities to improve water management strategies.



Farmland fallowed in Merrill, Oregon.



Idled land near Klamath Falls, Oregon.

Projects/Programs Advance in 2010

Sacramento-San Joaquin Delta

The Sacramento-San Joaquin Delta is a region where two of California's largest rivers meet the saltwater from San Francisco Bay, creating the West Coast's largest estuary. The area is a blend of towns, highways, marinas and farmland. More than 50 island tracts are surrounded by levees and about 700 miles of sloughs and winding channels. The Delta is also the hub of the Central Valley Project and California's water supply system.

Water from the Delta serves the federal and state water projects, which in turn, serve urban and agricultural areas in the San Francisco Bay area, the Silicon Valley, the San Joaquin Valley, the central coast and southern California. The Delta is also the habitat for hundreds of species of wildlife and fish, including some that are threatened and endangered.

The Delta has experienced significant ecological collapse as a result of 150 years of human activity, including California's increasing demand for water and changing environmental conditions. Long-term solutions are needed to ensure reliable, quality water supplies and a sustainable ecosystem. Since the 1970s, urban, agricultural and environmental interests have fought over how to balance water diversions with environmental restoration in the Delta. Reclamation and its partners have implemented short-term solutions and are developing long-term plans for Delta sustainability in order to avert further ecological decline while maintaining reliable water supplies.

Restoration: Looking Ahead 50 Years

The latest actions to address Delta issues include preparation of a Bay Delta Conservation Plan by the State of California, Reclamation, other government agencies, water suppliers, environmental groups and other interested parties.

The BDCP has co-equal goals of providing conservation of sensitive species and their habitat and assuring a reliable water supply.

Drafting the Bay Delta Conservation Plan

Developing the plan is a collaborative effort that includes the Departments of the Interior and Commerce, the California departments of water resources and fish and game, the U.S. Fish and Wildlife Service, and the National Marine Fisheries Service.

In November 2010, the BDCP Steering Committee released a working draft of plan components completed to date. The draft plan is intended to provide the Steering Committee and the public an opportunity to review and formulate opinions about how best to proceed with further development and revisions of the plan. Discussions are continuing in order to resolve issues.

The BDCP is working to:

- Identify conservation strategies to improve the overall ecological health of the Delta.
- Identify ecologically friendly ways to provide a reliable water supply to cities and farms.
- Address toxic pollutants, invasive species and impairments to water quality.



The Sacramento-San Joaquin Delta is the West Coast's largest estuary.

- Establish a framework and funding to implement the plan over time.

Meeting CVP Improvement Act Requirements

The Central Valley Project Improvement Act of 1992 amends previous authorizations of the Central Valley Project to include fish and wildlife protection, restoration, and mitigation as project purposes that have equal priority with irrigation, domestic uses, and power generation. Reclamation implements activities to meet the Act's purposes in collaboration with the state of California, local governments, tribes, non-governmental organizations and stakeholders.

From 1993-2010, the Mid-Pacific Region's CVPIA Program has completed several large projects, including the Glenn-Colusa Irrigation District fish screen, Anderson-Cottonwood Irrigation District fish screen and a temperature control device at Lake Shasta.

Other accomplishments from 1993 to 2010:

- Butte Creek has been restored and the program has completed 98 actions from the Final Restoration Plan in 26 watersheds throughout the Central Valley,

focusing on barrier removal, floodplain restoration and gravel supplementation.

- The Region has assisted the state of California in the screening of 29 diversions ranging from 11 cubic feet per second to 960 cfs for a cumulative total of more than 4,800 cfs.
- On Clear Creek, 80 percent of the two-mile restoration project has been restored since the removal of McCormick-Saeltzer Dam.
- The Region has created or improved spawning habitat by placing 186,000 tons of gravel in the Sacramento River, 18,000 tons in the Stanislaus River, and 39,600 tons in the American River.
- The Region began interim flow releases on the San Joaquin River from Friant Dam at the beginning of Fiscal Year 2010 and released for public review a draft Fisheries Management Plan. (For more information on the San Joaquin River Restoration Project please see pages 36-39.)

The current scope of the CVPIA in the Region includes 15 programs that fall into three resource areas: fisheries, refuges, and other resources.

The Central Valley fisheries goal is to double the natural production of anadromous fish on a sustainable basis. During 2010, the Region achieved or advanced several fish-screening projects. For more information on two major projects please see pages 20-24 for the Red Bluff Fish Passage Improvement Project and page 44 for the Contra Costa Fish Screen Project.

The Trinity River fisheries goal is to restore and sustain the natural production of anadromous fish populations downstream of Lewiston Dam to pre-dam levels. The Trinity River Restoration Program has completed 23 of the 47 target mechanical channel rehabilitation projects; and implemented full Secretarial Record of Decision flows since 2005. For more information on the Trinity River Restoration Program please see page 46.

The Refuges Water Supply Program goal is to provide water to 19 CVPIA federal, state and private wildlife refuges. The program has delivered an annual average of more than 450,000 acre-feet to wildlife refuges since 2002. More



information on the 2010 accomplishments of the Region's CVPIA fish and wildlife programs is available online at: <http://www.usbr.gov/mp/PA/docs/2010Accomplishments/addendum1.pdf>.

The CVPIA's other resources goal is to protect and restore terrestrial habitat and the species that depend on it. The Land Retirement Program has acquired about 9,300 acres and retired about 9,000 acres from agricultural production. The Habitat Restoration Program has funded more than 100 projects supporting the recovery of threatened and endangered species, including the acquisition and protection of more than 100,000 acres and restoration of more than 7,300 acres. A report on the 2010 accomplishments of the CVPIA Habitat Restoration Program is online at: <http://www.usbr.gov/mp/PA/docs/2010Accomplishments/addendum2.pdf>.

A report on the 2010 accomplishments of the separate but similar Central Valley Project Conservation Program is available online at: <http://www.usbr.gov/mp/PA/docs/2010Accomplishments/addendum3.pdf>.

Contra Costa Canal Fish Screen

In May 2010, Reclamation awarded a contract of nearly \$13 million in 2009 American Recovery and Reinvestment Act funds for the third and final phase of the Contra Costa Canal Fish Screen at Rock Slough.

The project meets the coequal goals of reducing impacts to fisheries while improving water supply reliability and operational flexibility.

A number of resident and migratory fish species, including the threatened Delta smelt and the



Contractors building the Contra Costa Canal Fish Screen.

endangered winter-run Chinook salmon, can be drawn into the Contra Costa Canal. The structure will screen fish from entering the canal that provides water for San Francisco's East Bay region. Rock Slough is the last of the Contra Costa Water District's unscreened water intakes in the Sacramento-San Joaquin Delta.

The screen will also enable the District to increase usage of the Rock Slough intake, which will reduce greenhouse gases and energy consumption for pumping water.

The state-of-the-art project includes controls and transition structures necessary to reduce tidal influences and maintain flow rates, which will help the screen perform properly and allow fish to more easily pass the intake.

The Contra Costa Canal extends 48 miles from the Delta to Martinez Reservoir. The canal, constructed by Reclamation in 1948, is a major water supply and delivery system for the water district, which supplies 550,000 irrigation, municipal and industrial customers. Water is lifted about 130 feet by a series of four pumping plants also built by Reclamation.

The district was formed in 1936 to provide water for irrigation and industry. It is now one of the largest urban water districts in California.



The Suisun Marsh is the focus of restoration plans.

Lake Berryessa Cleanup

Lake Berryessa, in the greater San Francisco Bay area, provides water and flood control to nearby cities in addition to recreational opportunities. During 2010, the Region nearly completed cleanup of about 1,500 trailers and environmental remediation at five former concession areas. The Region awarded concession contracts that will lead to construction of new facilities for public use, including picnic and camping areas, boat launches, marinas, cabins and restaurants. The



Contractor's tractor demolishes old buildings at Lake Berryessa.

Region began working on the project in 2000, with 50-year concession contracts scheduled to end in 2008 and 2009 without statutory authority for extension or renewal. The Region began planning



through the National Environmental Protection Act to determine the future use of the lake and areas.

From 2000-2006, the Region conducted outreach with interested parties, including the public, concession contractors, and trailer owners. Requirements of the Record of Decision in 2006, included removing trailers and other structures. Cleanup, after concession contracts ended in 2008-2009, involved removing abandoned or unsafe trailers, vehicles, boats, trailer pads, ramps, decks, walkways, and hazardous materials. Workers began remediation of abandoned sewage ponds and sites contaminated by leaking underground storage tanks.

In 2010, the Region moved toward completion of the cleanup and environmental remediation. The work included Reclamation staff members, helped by 22 temporary employees, and eight separate contract awards funded through the American Recovery and Reinvestment Act of 2009. As part of the Secretary of the Interior's youth initiative, Reclamation has contracted with The Corps Network to complete cleanup during Fiscal Year 2011. Crews from the California Conservation Corps began work in October 2010.

Suisun Marsh Restoration

Reclamation, along with federal and state agency partners, has developed a draft environmental assessment of the impacts of a management, preservation, and restoration plan for Suisun Marsh. The marsh is the largest contiguous brackish wetland remaining in the western United States.

The marsh is located between the freshwater of the Sacramento-San Joaquin Delta and the saline waters of San Francisco Bay. It supports much of the state's commercial salmon fishery by providing tidal rearing areas for juvenile fish. Levees in the marsh assist in protection of drinking water for millions of people by helping to prevent salt water intrusion into the Delta.

The Draft Environmental Impact Statement and Environmental Impact Report developed by Reclamation and its partners assess a comprehensive 30-year plan to address use of resources within about 60,000 acres of the marsh.

The focus of the plan is a mutually agreed upon multi-stakeholder approach to the restoration of tidal wetlands and the enhancement of managed wetlands. Once in place, the plan will help in the recovery of endangered species and increase tidal marsh habitat to benefit all.

Study Underway for 2012 Decision on Removal of Klamath River Basin Dams

In February 2010, Secretary of the Interior Ken Salazar announced two agreements that call for a decision in 2012 assessing removal of four dams on the Klamath River.

Provisions of the two agreements, the Klamath Basin Restoration Agreement and the Klamath Hydroelectric Settlement Agreement, provide for several federal and state government agencies to scientifically assess whether removing the Klamath Hydroelectric Project dams would help restore fisheries and would be in the public interest. The assessment process includes ongoing consultation with state, local, and tribal governments, as well as other stakeholders.



Copco 1 Dam, which is 115 feet in height, is another of the dams that may be removed from the Klamath River.

The Secretarial Determination will be supported by two separate but interrelated tracks of study, including a set of scientific studies and data collection activities (scientific studies track); and preparation of environmental compliance documents which will evaluate potential environmental impacts of such an action pursuant to the National Environmental Policy Act and the California Environmental Quality Act.

These reports and analyses will be used, along with existing data and reports, to create a Secretarial Determination Overview Report. The report will be a stand-alone technical document for the Secretary of the Interior to use in preparation of a Record of Decision.

In August 2010, the Department of the Interior announced preliminary results of reservoir bottom sediment sampling, one of the scientific studies. The results of the tests indicate human health is not at risk due to contact with the sediment and confirm the findings of previous reports regarding the low-level presence of chemicals in the sediment behind the dams. The department ordered additional analysis of the sediments behind the dams in order to fully assess any potential effects of releasing sediments downstream if the four dams are removed.

The federal and state team, responsible for the process of additional studies and an environmental review, held public scoping meetings in Siskiyou, Humboldt, and Klamath counties in July 2010, with follow-up outreach meetings in September and December 2010. The draft Secretarial Determination Overview Report is due in early September 2011, with more outreach meetings scheduled later in September and October 2011. Subjects to be covered include engineering, biology, water quality, economic issues, cultural/tribal concerns, and fish and wildlife studies.

Trinity River Restoration

The Trinity River Basin Fish and Wildlife Management Act ordered Reclamation to restore the fish and wildlife populations in the Trinity River Basin that were affected by construction of the Trinity and Lewiston dams.

The program's mission is to:

- Improve the capability of the Trinity River Hatchery to mitigate salmon and steelhead fishery losses above Lewiston Dam.
- Restore natural, in-stream spawning salmon and steelhead production in the main stream and tributaries below Lewiston Dam.

- Compensate for impacts to deer and other wildlife from flooding of habitat and reduced stream flow.
- Develop and implement land management activities to stabilize watersheds and reduce sediment in Trinity River tributaries.

In 2010, the Region awarded nearly \$5 million in American Recovery and Reinvestment Act funds for channel rehabilitation projects at three sites: Lowden, Trinity House Gulch and Reading Creek.



Contractors work on restoration of Trinity River.

Invasive Species

Reclamation is monitoring invasive species in California waterways. Quagga and Zebra mussels are of concern because they can form colonies that block water intakes and affect native species, municipal water supply, irrigation, powerplant operations, and recreation.

Among other actions, Reclamation has released an Equipment Inspection and Cleaning Manual to help prevent the spread of invasive species in the Region and beyond through contaminated equipment use. The manual presents equipment inspection techniques, equipment cleaning methods, and information on some of the common invasive species such as Quagga and Zebra mussels, and hydrilla, a plant common in the Delta. These and other invasive species can be inadvertently introduced into new sites on contaminated equipment.

A copy of the manual is at www.usbr.gov/pps.



Mussels are among the invasive species that are a cause of concern.



Hydrilla is a rapidly-spreading aquatic plant that has invaded the Sacramento-San Joaquin Delta.

Water Reclamation and Reuse

In 2010, the Region executed 14 financial assistance agreements totaling more than \$73 million in federal cost-sharing funds for construction of 10 projects to reclaim and reuse wastewater, as well as naturally impaired ground and surface waters.

The agreements were authorized under the Reclamation Wastewater and Groundwater Study and Facilities Act of 1992, also known as Title XVI. Projects are constructed and owned by non-federal sponsors, uniting local communities with the U.S. government to provide change, growth and a future for clean water and environmental stewardship in a broad range of areas.

Primary goals are improved water-use efficiency, creation of additional water supply, making the supply more resistant to drought and reducing reliance on inter-basin water transfers. The reclaimed water may be used for a variety of purposes, including environmental restoration; fish and wildlife groundwater recharge; and certain municipal, domestic, industrial, agricultural, power generation purposes.

Reclamation's role includes providing advice on preparation of necessary reports and reviewing the reports to determine whether the project meets the criteria of Title XVI.

Of the more than \$73 million total awarded in 2010, matched to varying extents by recipients, more than \$26 million of the funding came from the American Reinvestment and Recovery Act of 2009. The 2010 projects include locations in the California cities of San Jose, Palo Alto and Redwood City; and in the California counties of Santa Clara and Sonoma.



Workers use an excavator to install a recycled-water distribution pipe below a road at night to reduce effects on traffic.



Workers pour concrete over a recycled-water distribution pipe under a street as part of a Palo Alto city project.



Loads of pipe to convey recycled water are hauled to sites by flat-bed trucks equipped with cranes.



Reclamation programs include projects that provide funding to acquire and restore wildlife habitats such as this land. This photograph shows Coyote Ridge property in Santa Clara County that was acquired in 2010. The habitat programs include the Central Valley Project Conservation Program and the Central Valley Project Improvement Act Habitat Restoration Program. See pages 43 and 44 for more information on the programs.

The Future



The sun rises over the Klamath River near Keno in the Klamath Basin in Oregon.

Stakes Are High As Mid-Pacific Region Looks Ahead

“This is a critical time for water management in the Mid-Pacific Region. This is the decade where water policy is going to be reset for the next 50 years. At stake are reliable agricultural, municipal, and industrial water supplies for the people of California, southern Oregon and northern Nevada; dependable electricity; and sustainable economies and environments.

“In other words, the stakes are nothing less than society as we understand it.”

--Regional Director Don Glaser

Web Resources

- Department of the Interior | <http://www.doi.gov>
- Bureau of Reclamation | <http://www.usbr.gov>
- MP Region | <http://www.usbr.gov/mp>

Document produced by Mid-Pacific Region Public Affairs Office

Pete Lucero, Public Affairs Officer

2800 Cottage Way

Sacramento, CA 95825

plucero@usbr.gov

916-978-5100



On the Front Cover: Large background photograph shows a Central Valley almond orchard (photograph courtesy of the Almond Board of California); small pictures show Bureau of Reclamation Mid-Pacific Region infrastructure, from left, the Delta-Mendota Canal, the Sacramento River, Folsom Dam, and hydroelectric power transmission lines in northern California.

Inside Front Cover: Winners of the 2010 photo contest among Region employees, Best of Show, 'Table Mountain View of New Melones,' Tracy Neal, park ranger, New Melones; Landscape, 'Bridge Across New Melones,' Dennis Finley, building repairman, New Melones Lake; Flora/Fauna, 'Goslings,' Tami Corn, public affairs assistant, Shasta Dam; People, 'Mentorship,' Patrick Shima, communications specialist, Central Valley Operations Office; Facilities, 'Marble Bluff Pelican Watch,' Jo Moore, GIS specialist, Carson City.

On the Back Cover: Photograph shows Trinity River Restoration Program work.



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