

DWR NEWS | *People*

WINTER 2006-07



Flood Management in California

At Sacramento River Mile 56.8 just south of downtown Sacramento, a 1,700-foot-long section of the levee was repaired by fall of 2006.



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In February 2006, Governor Schwarzenegger declared a state of emergency for California's levee system.

Subsequently, DWR targeted 33 critical erosion sites in the Sacramento River flood control system for repair. State and federal agencies showed unprecedented cooperation to get

the necessary environmental permits and regulatory approvals – a process that normally takes a year or more.

Barges and cranes assembled at locations along the Sacramento River to repair many sections of levees, including a 1,700-foot-long section near downtown Sacramento, and four sites that threatened the safety of thousands of homes in the Greenhaven-Pocket neighborhood. Along Cache Creek in Yolo County, crews built setback levees, a powerful line of protection against the ravages of flood waters. Work took place throughout the summer, often round-the-clock, seven days a week. It was a tremendous effort by DWR staff and our contractors.

As a result, construction and repair activities were completed, on time, within budget and ahead of the next flood season.

DWR did the work at 22 sites and the U.S. Army Corps of Engineers was lead agency on 11 sites. This partnership mobilized necessary resources to complete the job. Together, we have embarked on a new effort to fix 71 additional erosion sites in 2007.

It's not surprising that our levees are in need of repair. Many were built more than a century ago using rather primitive designs and construction techniques. These levees now protect hundreds of thousands of people who live and work in the Central Valley and \$56 billion in property and infrastructure.

To reduce the threat of this kind of catastrophe, the Governor has taken decisive action and increased the State budget for flood management

Some of these new funds will pay for an unprecedented effort to evaluate for hidden defects 350 miles of urban levees stretching from Marysville to Lathrop.

Voter approval of Propositions 1E and 84 provides nearly \$5 billion for flood protection, the largest such investment in State history. Over the coming months, DWR will be developing a strategic initiative called Flood Safe California, to invest these new funds wisely so we can further protect people and property, and create a sustainable flood protection system.

Levees protect millions of Californians, homes and businesses, as well as schools, hospitals, and critical energy and transportation infrastructure. If we fail to upgrade the flood system, the consequences could be devastating. We can't tame Mother Nature, but DWR's outstanding efforts and leadership are giving us a strong line of defense against future storms and flooding disasters. ■

A handwritten signature in black ink, appearing to read "Lester Snow". The signature is written in a cursive, flowing style.

Lester Snow
Director
Department of Water Resources
January 2007

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FLOOD MANAGEMENT

In California

By Sue Sims

Two years ago, the Department of Water Resources issued a White Paper to the California Legislature, warning of a “ticking time-bomb” for flood management.

The report presented an overview of the current condition of flood systems in the Central Valley. It also outlined a plan to reduce flood risk through better planning, new investments, better infrastructure management and closer collaboration between water agencies and users.

Unlike some reports that sit on a shelf and collect dust, the DWR Flood White Paper led to a bold action plan.

Governor Schwarzenegger has taken several steps to improve our flood protection. Funding for DWR’s flood programs was increased nearly 90 percent in this year’s State budget, on top of a 70 percent increase the previous year.

Working with the Legislature, the Governor placed a \$4.09 billion bond on the November statewide ballot.

Assembly Bill 142 (Nunez), passed by the State Legislature and signed into law by the Governor, authorized \$500 million in State general funds for DWR flood protection programs.

Levee System State of Emergency

On February 22, 2006, the Governor and U.S. Senator Dianne Feinstein led a Congressional delegation on an aerial tour of Central Valley levees. With DWR Director Lester Snow and other flood officials, they viewed some of the most critical erosion sites in the Sacramento Valley and the Delta.

Two days later, the Governor declared a state of emergency for the State’s levee system. He directed DWR to repair 24 critical sites before the end of 2006 and made State funds available for this emergency work.

At the existing levels of funding and capacity to plan and carry out levee repairs, correction of these sites would have taken up to four years.

An unprecedented level of cooperation and coordination between State and federal agencies quickly secured all the necessary environmental permits and regulatory approvals to repair these sites.

Above: During the 1997 floods, more than 120,000 people were forced from their homes.

Working round the clock in many cases, DWR and the U.S. Army Corps of Engineers were able to complete repairs to 33 critical erosion sites ahead of the flood season. At a November 21 press conference, Gov. Schwarzenegger noted. "These repairs protect lives and homes. Our actions shaved years off the repair times."

DWR is now advancing funds and working with the federal government to repair 71 additional erosion sites that were recently identified. Those sites are expected to be repaired by summer 2007.

The Increasing Vulnerability of the Delta

No region of California faces a greater long-term threat of catastrophic levee failure than the Sacramento–San Joaquin Delta. This 700,000-acre region is a maze of channels and sloughs. The lands have come to be called islands but, again, they are not islands in the classic sense. They are in fact more like New Orleans – lands with elevations below sea level that are protected by fragile levees.

The levees built in the Sacramento–San Joaquin Delta provide very low flood protection. It was sufficient for the agricultural region of a century ago, but many changes have since taken place in the Delta. The peat soils of the Delta have subsided, gradually lowering the elevations of Delta islands. Some of these parcels are now more than 20 feet below sea level.

As California grew during the 20th Century, two great water projects were built to meet the demands of central valley farms and coastal cities. Both the federal Central Valley Project and the State Water Project are vitally dependent on fragile Delta levees to protect water supply and water quality. Other infrastructure now crosses the Delta, and is dependent on the continued stability of Delta levees, including State highways, railroad lines, water supply pipelines that serve much of the San Francisco Bay area population, energy transmission lines, and petroleum pipelines to name a few.

Today, there is a growing realization that the Delta also faces threats from seismic events. An earthquake could liquefy the foundations of Delta levees and cause catastrophic flooding that would devastate the economy of California and the nation. DWR recently evaluated the effects that a 6.5

>>> continued on next page

Right: With the help of California Conservation Corps and local reclamation district staff, sandbags are placed in an effort to prevent flooding.

Unlike some reports that sit on a shelf and collect dust, the DWR Flood White Paper led to a bold action plan.



Challenges Associated with Flood Management in California:

- Aging infrastructure with design deficiencies.
- Many levees were built more than a century ago using primitive designs and construction techniques.
- Levees have been weakened by deferred maintenance.
- Funding for maintenance and repair of levees dwindled over time.
- Escalating development in floodplains.
- Levee failures in the Delta can jeopardize reliable water supplies for farms and cities for two-thirds of the State.

magnitude earthquake in the Delta region would have. Such a temblor could cause 30 levee breaches, flooding 16 islands in the Delta. An estimated 300 billion gallons of saltwater would be drawn into these subsided islands from San Francisco Bay. Saltwater intrusion in the Delta would render it useless as a water supply source, shutting down the Central Valley Project and State Water Project for several months.

Economic losses would easily reach \$30–40 billion in the five years after the earthquake. Thirty thousand jobs would be lost. Agriculture in the San Joaquin Valley would be greatly impacted. And all these economic effects would ripple throughout the nation and the global economy.

Both the State and federal governments have taken proactive steps to address catastrophic failure of Delta levees. Congress authorized \$90 million in the CALFED authorization bill in 2004 for the U.S. Army Corps of Engineers to assess Delta risks and undertake reconstruction and enhancement of Delta levees. Earlier this year, the Corps released a draft Sacramento-San Joaquin Delta Report, identifying and prioritizing potential levee stability projects in the Delta. DWR Director Lester Snow recently urged Congress to support an active role for the Corps in the Delta by appropriating the full authorization so that the Corps can participate as a partner in our efforts to protect the Delta.

Together with the Corps, California is working to develop the Delta Risk Management Strategy. By 2008, this effort will help us to better understand all the risks to Delta levee stability, quantify what is at stake when catastrophic failure occurs, and provide long-term options for Delta protection.

At the same time that California develops long-term options for Delta protection, it must be prepared to respond to failures in the Delta and throughout the system when they occur. We have organized our institutions to be as responsive as possible. For example, the operations centers for the State

Water Project and the Central Valley Project are located at the same facility that houses our Flood Operations Center and the regional office of the National Weather Service. In this way, communication and coordination among the project operators, the forecasters, and the flood fighters can be rapid and seamless.

A good illustration of our coordinated response came in June 2004 when a Delta levee at Jones Tract failed. Working with the Governor's Office of Emergency Services, DWR activated our Standardized Emergency Management System, or SEMS.

Recognizing that the Delta must be protected, Governor Schwarzenegger issued an executive order creating a Delta Vision initiative. The effort will develop strategies for sustainable management of the Delta. Passage of Propositions 1E and 84 on the November 2006 ballot will also provide major new investments for water management and natural resources benefits, including Delta benefits.

California faces unprecedented threats from catastrophic flooding. As always, DWR's dedicated and experienced staff will be ready to do the work necessary to improve our flood security. ■

The Delta levee break on Upper Jones Tract during the summer of 2004 cost nearly \$100 million in emergency response expenses, damage to private property, lost crops, levee repair, and pumping water to dry the island

ROD MAYER

NEW FLOOD MANAGEMENT CHIEF FACES BIG CHALLENGES AND OPPORTUNITIES

By Pete Weisser



Rod Mayer, DWR's new flood management chief, sees 2006 as a dramatic year of progress in California's flood safety programs. Galvanized by last year's flooding of New Orleans, California's residents, officials and flood leaders have embarked on ambitious efforts to upgrade flood protection systems, especially in the fast-developing Central Valley.

"Our flood management staff is growing by leaps and bounds, bolstering long-standing programs and developing new programs," says Mayer, a veteran engineer with 30 years experience in DWR.

Director Lester Snow appointed Mayer Division of Flood Management Chief effective August 1, 2006, after Rod had served a year as Acting Chief.

"For more than a year, flood management issues have been elevated in importance after decades of neglect, largely due to the flooding in New Orleans and the improved understanding of the flood risk to public safety in California," said Mayer. "There are now many new opportunities and dynamics playing out with regard to flood management."

Major winter and spring storms and high river flows tested aging Central Valley levees, dramatizing the need for action, noted Mayer in recent presentations to the Reclamation Board and other flood-related agencies. Mayer was in the thick of the April flood activity, flying on one of many helicopter surveillance flights to personally view the rain-swollen San Joaquin River, checking for potential trouble spots.

Aging levee infrastructure, development in floodplains and court decisions increasing State liability contribute to the challenge. The 1,600 miles of federal Flood Control Project levees in the Central Valley flood control system protect 600,000 people, and \$56 billion in infrastructure, say flood managers.

The flood vulnerability of the City of Sacramento, with far less flood protection than New Orleans and Omaha, underscores the need for upgrades and modernization.

The subject of Governor's Schwarzenegger's emergency proclamation in February, highest priority for repair was assigned to 33 critical sites in the Sacramento Valley where

erosion is of concern—11 sites were repaired by the U.S. Army Corps of Engineers and 22 were repaired by DWR.

"We face big challenges but also have opportunities to make needed flood safety progress," said Mayer. "We are receiving unprecedented support from the Administration and legislature. DWR has a skilled, dedicated team of flood management professionals to tackle this assignment, as do our partner agencies in this effort."

As DFM Chief, Rod is engaged in a whirlwind of activities, consulting and working with DWR's flood partner agencies, including the U.S. Army Corps of Engineers, U.S. Bureau of Reclamation, the Reclamation Board, Sacramento Area Flood Control Agency (SAFCA), and scores of local reclamation districts.

He works closely with Les Harder, DWR Deputy Director for Public Safety, on developing flood policies and numerous bills that were considered by the Legislature this year. He sets division program and workload priorities, and administers a growing division budget and increasing staff resources, as California gears up vigorously for improved flood protection.

Mayer has more than a decade of experience working on flood programs. He was Chief of the Flood Projects Office, working on plans for top priority flood improvement and levee repair projects, before becoming Acting DFM chief. Previously, he served four years as chief engineer for the Reclamation Board, the State agency with policy authority on Central Valley flood issues.

During his three decades with DWR, Mayer has served also in the Divisions of Planning, Safety of Dams, and Operations and Maintenance. He began his DWR career in 1976 as an engineering student assistant with Central District.

Rod earned both Bachelor of Science and Master of Science degrees in Civil Engineering. He is a licensed Professional Civil Engineer and Geotechnical Engineer. ■



PROFILE OF A LEVEE REPAIR

Cache Creek

By Annie Parker

DWR took the lead on 22 of the 33 emergency repair projects on critical levee erosion sites.

One of the first levee repair site areas to start construction was on Cache Creek, a rural area north of Woodland near the community of Yolo. This construction was managed by **Jim Peddy**, Construction Supervisor III, under the jurisdiction of Sacramento Project headquarters.

This was unique because DWR constructed setback levees at the three critical sites. Engineers decided to construct a new levee instead of repairing the existing levee because the instream repair option was more difficult and costly.

"It's an earthwork type repair, very straightforward," said Peddy.

DWR required the contractor to provide offsite borrow material to meet DWR and U.S. Army Corps of Engineers' specifications.

"We are getting guidance from the Corps on how to do big levee repair, especially underwater repairs," said Peddy.

"DWR doesn't usually build levees; we're dam builders and canal builders. We got some experience on levee repair during the Jones Tract incident, but we have been going to the Corps for help."

The Cache Creek project was managed by DWR's **Jeanne Kuttel** of the Division Engineering and her section. **Arnie Sanchez** and **Don Walker** were the main design engineers and **Art Tapia** was the Construction Supervisor on the project. DOE contracted with EDAW, an environmental consulting firm to help provide CEQA compliance and environmental permitting. **Jon King** of EDAW was especially helpful in assessing the impact of the project on the nesting of Swainson's hawks, a State and federally protected bird that nests along Central Valley rivers and streams.

"We worked around the hawks and the chicks and, although we had to change our schedule a little, we were able to accommodate the environmental needs," said Peddy.

Above: Levee Mile 0.8, located in Yolo County was one of three Cache Creek critical erosion sites repaired in the summer of 2006.

Acquisition of Land

In addition to the accelerated construction schedule and environmental considerations, DWR faced another challenge at the Cache Creek levee repair sites. All of the land where the setback levees were to be built is privately owned.

"The actual design and construction of the levee was really the easiest part of the project," said Peddy. "**Linus Paulus**, Associate Land Agent with the Real Estate Branch, probably had the most difficult part of the project."

Levee repairs are usually located within existing land rights with only temporary access needed for the surrounding area to facilitate construction activities. The Cache Creek setback levees presented a whole range of land issues.

In addition to attending project meetings, Linus had to negotiate for temporary rights with landowners and their attorneys, obtain Yolo County approval for an encroachment permit to relocate a portion of County Road 97B, relocate a PG&E distribution line also carrying an AT&T communication line, coordinate the installation of two new irrigation wells, and acquire permanent rights over the land.

Linus relayed landowner concerns about design, schedule, and potential damages to the project team. In one instance, a landowner requested and received alteration of the design of ramps on either side of the setback levee and DWR adjusted its construction schedule to fit her summer vacation plans.

Linus noted the tremendous support from all DWR staff to meet the ambitious construction schedule, including the Division of Engineering's **Rob Barry** of Project Geology, **Jim Peddy**, **Art Tapia** and **Cornelio Quedado** of the Construction Office, **Jeanne Kuttel**'s design team, **Cliff Winston**, Real Estate Branch Chief, **Allan Davis**, Chief of the Acquisitions and Utility Relocations Section, **Scott Martin**, **Fred Vonderscheer**, **Carrol Leong** and their staffs in Geodetic Branch, and Executive's **Don Kurosaka** and **Karin Shine**.

Real Estate Branch Appraisal Section Chief, **Paul Farris**, and Right of Way Agent **Lerryn McCullough** also assisted by identifying comparable sales, and valuing the property to be acquired. In addition, they helped Linus to determine rental rates for temporary rights as well as valuing damages incurred by the landowners, including crop losses and the removal of orchard trees. **Anna Hegedus** and **Deborah Condon** of the Division of Flood Management provided guidance, environmental compliance assistance, and contracted with the Corps of Engineers for federal cost sharing credit for the project. ■



Above: Division of Engineering's Rob Fill and Jeanne Kuttel inspect erosion site 4.2, which is scheduled for repair in 2007.

Below: Aerial view of the new setback levee at Mile 2.4 shows the first site completed for Cache Creek.



FLOOD BATTLES LAST SPRING

City of Firebaugh and San Joaquin County Honor DWR Staffers

By Pete Weisser

Above: San Joaquin District employees who participated in the April 2006 High Water Event on the San Joaquin River included Left to Right – (Front Row) Steve Ewert, Scott Deal, Robert Lampa, Gholam Sahakouri, Brian Paulson. (Second Row) Cheryl Moore, Karen Dulik, Anna Mancillas, Laura Castro, Joe Tapia, Dave Encinas. (Third Row) Tony Lam, Ernie Taylor, Neil Rambo, Bob Bitner, Al Steele. (Fourth Row) Jose Faria, Paul Romero, Byron Willems, Iris Yamagata, Karen Buchnoff, Chris Montoya, Ed Perez, and Amanda Peisch. (Outside the railing from top to bottom) Dave Lara, Kevin Faulkenberry, and Brian Smith. (Not in Photo: Alexander Begaliev, Curtis Brumit, Mark Chadwick, Holly Ferrin, Chris Guevara, Charyce Hatler, Ben Igawa, San Joaquin District Chief Paula Landis, Michael McGinnis, Cynthia Moffett, Charles Peery, David Scruggs, Gary Shanks, Dana White, Angelica Giesbrecht, and Stuart Itoga.

DWR flood team staffers drew commendations and thanks from San Joaquin County and the City of Firebaugh (in Fresno County) this summer for their tireless, effective flood fighting efforts during the peak of the January and April 2006 floods.

Incident Command Team 1 directed by **Bill Burkhard** and based in Stockton, provided timely flood manpower at several flood-threatened spots in San Joaquin County, especially at Twitchell Island Incident.

Command Team 2, directed by **Brian E. Smith**, quickly built a vital 500-foot-long flood wall near Firebaugh to



“Without DWR field staff’s efforts, there was a good likelihood that the levee would have failed at Twitchell Island and along Chowchilla Bypass.”

– JAY PUNIA

thwart flooding there, also providing desperately needed help to stabilize Chowchilla Bypass.

Jay Punia, then-Chief, Flood Operations (Jay is now the Reclamation Board General Manager), reported these efforts “prevented major flooding” in several San Joaquin Valley locations.

“Without DWR field staff’s efforts,” reported Punia, “there was a good likelihood that the levee would have failed at Twitchell Island and along Chowchilla Bypass.”

Command teams under Brian and Bill “were able to keep the federal flood control project intact and working

Above: The Flood Operations Center in Sacramento received a plaque for extraordinary service from the San Joaquin County Office of Emergency Services.

as designed,” said Punia. “It was nice that the San Joaquin County Board of Supervisors and the City Council of Firebaugh recognized DWR’s efforts.”

The Firebaugh City Council on July 3 presented awards to DWR team representatives. Smith emphasized that the awards included all members of Incident Command Team 1. In a thank you letter to Council members, Smith said working closely with members of the community was memorable. “To be so graciously received by everyone during such a threatening period made this incident very special,” he told the Council. “I continue to receive comments and compliments from far and wide on the team’s performance this spring,” Smith told his team. “You should all be very proud of the work you did.”

On August 2, **Ron Baldwin**, Director, San Joaquin County Office of Emergency Services visited the Flood Operations Center in Sacramento, presenting a plaque to honor FOC staff “for extraordinary service,” with certificates given to all members of Burkhard’s Stockton Incident Command Post staff. ■

JAY PUNIA NAMED GENERAL MANAGER FOR STATE RECLAMATION BOARD

By Pete Weisser

Veteran DWR flood manager **Jay Punia** in September 2006 became General Manager of the State Reclamation Board, the agency with State flood policy authority for California's Central Valley.

Chief of Flood Operations since 1998, Punia led DWR's emergency response to major flood events in 2005 and 2006, conducted a multi-agency containment of the Jones Tract flooding in 2004, and enhanced recent year coordination with DWR's flood fighting partners, especially the U.S. Army Corps of Engineers.

In the post-Katrina era when improving flood safety is a top policy goal in California, Punia, 51, sees his new assignment as a challenge and an opportunity.

"I am pleased with my selection as General Manager of the State Reclamation Board," said Punia, a professional engineer with Bachelor and Master of Science degrees in Civil Engineering and 25 years of water resource and flood management experience with DWR.

"This is a very demanding and challenging assignment," said Punia, "But on the other hand, this is the right time to be involved in flood management, to make a difference."

"The Reclamation Board is extremely fortunate to have Jay join our team," commented Board President Ben Carter, a Colusa area farm owner and former computer firm executive. "He is well qualified with his 25 years of experience at DWR and particularly his last eight years at the Flood Operations Center. Jay has the unanimous support of board members and we look forward to working with him."

As Chief of Flood Operations, Punia became a familiar figure to California TV news viewers last winter and spring, giving the latest information on rain-swollen rivers and flood fights along levees in Northern and Central California.

Punia proudly cites DWR's "successful response" to a series of very powerful rainstorms both in December 2005 and April 2006.

"With our collaborative approach," recalled Punia, "the Department responded quickly and efficiently to several levee-endangering incidents, thus maintaining the State-federal flood control project without any levee breach."



At Flood Operations, Punia lists his top achievement as having "significantly improved our working relationships" with key flood-policy partners, including the Governor's Office of Emergency Services, U.S. Army Corps of Engineers, California Department of Forestry and Fire Protection, California Conservation Corps, and local levee maintaining agencies throughout the State, "by using the team approach."

Flood Operations improvements include revision of the Emergency Flood Operations Manual for the Flood Operations Center, "which helped improve the speed and efficiency of the Department's emergency response capabilities." He also supervised improvements in DWR's flood fight methods training program.

"Last year, we trained more than 700 personnel in flood-fight techniques," said Punia.

Punia has years of experience in Reclamation Board program efforts. As Chief of the Flood Project Analysis Section from 1994–1998, he led a team of engineers, environmental specialists and technicians in implementing Reclamation Board programs and coordinated flood control projects with the Corps on behalf of the Board.

Previous DWR assignments for Punia included stints studying water storage needs while in a planning unit from 1988–1994, and in State Water Project operations from 1981–1984. From 1984–1988, Punia worked in the Clean Water Grants program of the State Water Resources Control Board.

Eager for the flood management challenges in his new Board position, Punia gives this perspective:

"With the increased focus on flood protection by the Schwarzenegger Administration, we have a once in a lifetime chance for improving flood protection for residents of the Sacramento and San Joaquin valleys." ■



UNDER NEW GUIDANCE

DWR's Division of Engineering Looks to Continue to Keep the State Water Project up and Running

By Annie Parker

The construction of much of the State Water Project (SWP) was completed nearly 40 years ago and today many of the facilities are showing their age. Subject to constant wear and tear from everyday use, key portions of the Project are undergoing major replacement, repair, or maintenance.

In addition to this major project work, DWR must accommodate the needs of the State Water Contractors, who depend on the SWP to meet the water demands of our State's growing population and robust economy.

It falls to DWR's Division of Engineering (DOE), led by newly-appointed Chief **Richard Sanchez**, to oversee the engineering, construction, right-of-way, and administration of these major replacements, repairs and improvements to the SWP. The Division currently has approximately \$1 billion

worth of future SWP work on its books aimed at increasing the capacity, reliability and efficiency of SWP facilities.

"Division of Engineering is an exciting place to work, and a great organization," said Rich in a recent interview. "We have a lot of work, but I am excited about the challenge. Good work drives me," said Rich.

Rich possesses extensive experience for his duties as Chief of Engineering. He started with DWR in 1976 as an engineering student, and has spent the majority of his career working on the State's water infrastructure projects.

He spent 10 years with the Division of Engineering as a Civil Design Engineer and Chief of Construction, 12 years with the Division of Safety of Dams as a Senior Field Engineer and Southern Regional Engineer, five years with the Division of

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With 30 years of engineering work for DWR, Richard Sanchez became Chief of the Division of Engineering in 2006.

MAJOR DOE PROJECTS UPDATE

The following is an update on the Division of Engineering's current projects:

NORTH BAY AQUEDUCT ENLARGEMENT—This project will help supply water to Napa and Solano counties at an estimated cost of \$96 million.

EAST BRANCH ENLARGEMENT—The East Branch of the Aqueduct, located in Los Angeles and San Bernardino counties, supplies water to many growing communities in the Inland Empire. DOE will oversee an estimated \$500 million enlargement to the system.

PERRIS DAM REPAIR—In 2005, DOE identified a possible seismic risk at Perris Dam, an investment of potentially up to \$500 million in repairs and upgrades could be needed. The State Water Contractors are also considering enlarging Lake Perris as a potential option.

DELTA FACILITIES—DOE projects in the Delta include the final design of Permanent Barriers, Channel Dredging, and Spot Dredging/Agricultural Extensions. These projects are estimated to cost approximately \$90 million.

OROVILLE FACILITIES AND FERC RELICENSING—Under the new Relicensing agreement submitted to FERC for approval, DOE will assist in upgrading, improving, and expanding Oroville facilities at a cost of \$180 million.

EDMONSTON PUMPING PLANT—Edmonston Pumping Plant is the largest pumping plant on the SWP. To meet the requirements of the State Water Contractors that depend on the SWP, DWR currently runs 13 out of the 14 units at the Plant. DOE will replace four of the oldest units at the plant to increase operational reliability, capacity and efficiency at a cost of about \$40 million.

Operations and Maintenance as Assistant to the Chief of Operations & Maintenance and Chief of the State Water Project Operations Support Office, and three years with the Office of the State Architect's Structural Branch as Structural Design Engineer.

Rich has a Bachelor of Science degree in Civil Engineering and is a licensed Professional Civil Engineer.

One of his top goals as Chief is to provide the leadership to maintain DOE's stature as the well-respected, nationally recognized organization it is, particularly in the areas of design engineering, geology, construction, administration, land and right of way, geodetic expertise and architecture.

"The DOE staff is the biggest asset we have here. We have very experienced staff in addition to highly talented new staff ready to resolve the challenges before us," said Rich. "We have a proud legacy to maintain here."

Rich said that his key goal is to ensure that DOE is constantly training and developing its employees, and to actively recruit for talented new employees who can take DWR into its next 50 years.

"Although the private sector can be very competitive for employees, most companies can't offer the variety of work projects and experiences that our Division does. That is one of the benefits that attracted me to DOE," said Rich.

According to Rich, DOE's biggest work projects involve the expansion, major repair, and rehabilitation of the aging facilities. These projects are paid for by DWR's State Water Contractors. This provides a reliable funding source rather than having to depend on the State's General Fund.

"The SWP is about 40 years old, and we are always making improvements—new facilities and efficiency improvements to continue providing a reliable water supply to people, farms, environment and businesses," said Rich.

Two projects being constructed to help run the SWP more efficiently are the Tehachapi East and the South Bay Enlargement/Brushy Creek/Dyer Reservoir facilities.

"With these improvements, the Department will be able to do more efficient pumping during off-peak hours, thus reducing the Department's on-peak energy demands and its associated costs," said Rich.

DOE's projects are in different phases of work, with some in construction, and others in the planning or design phases. Some of the South Bay Enlargement civil contract project work, for example, is waiting on final environmental permitting before construction can proceed.

"Days of just going in with bulldozers are over. We need to ensure we comply with all environmental requirements and address community concerns," said Rich. ■



SOUTH BAY AQUEDUCT

Enlargement Project Aims Toward Completion in Spring 2009

By Anna Torres and Pete Weisser

After a busy year of engineering refinements and environmental permit progress, DWR's Division of Engineering expects completion of the South Bay Aqueduct Enlargement Project in the spring of 2009.

This project will enlarge and modernize one of the first and oldest links in California's State Water Project. It will better meet water needs of the South Bay region for years to come and save money for the State of California and SWP contractors as a result of increased efficiency and operational flexibility.

The South Bay Aqueduct was the SWP's first water delivery facility, with the initial phase completed in 1965. This 44.4-mile long Aqueduct takes Delta water to users in

communities in Santa Clara and Alameda counties, according to water contracts with Alameda County and Santa Clara Valley Water Districts and the Alameda County Flood Control and Water Conservation District, also known as Zone 7. These three water districts collectively are known as the South Bay Water Contractors.

The South Bay Aqueduct consists of 1.8 miles of tunnel, 10.8 miles of canal, and 31.8 miles of pipeline. It starts at Bethany Reservoir near Tracy and ends in San Jose.

Total cost of the South Bay Aqueduct Project (SBA) is now estimated at about \$149 million, according to **Terry Becker**, Program Manager, in the Pipelines and Structures unit of DOE. Component costs are: \$103 million for enlargement, \$28 million for improvement, and \$18 million for off-peak

Above: DWR Engineering Geologist Mark Pagenkopp (center) performs geologic mapping while Construction Foreman (left) for Anderson Pacific Engineering oversees excavation adjacent to South Bay Pumping Plant.

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SOUTH BAY AQUEDUCT *Timeline*

2002

Work on environmental permits and the Environmental Impact Report began (EIR).

2003

Final design began.

2004

January 2: Right of Way acquisition work began.

November 22: Furnishing pumps and motors for South Bay Pumping Plant began.

December: EIR certified and formal consultation with U.S. Fish and Wildlife Service began.

2005

April 25: Furnishing of power transformers for South Bay Pumping Plant began.

May 23: Furnishing of valves and actuators began for South Bay Pumping Plant.

September 19: Furnishing of switchyard equipment began for South Bay Pumping Plant.

October 21: Furnishing of switchgear for South Bay Pumping Plant began.

2006

June 28: The Biological Opinion was signed.

August 4: Construction began on the initial South Bay Pumping Plant contract.

September: Construction of Dyer Reservoir drainage diversion began.

November: Acquisition of critical environmental permits.

December: Construction of Discharge Line and Brushy Creek Pipeline Number 3 of the South Bay Aqueduct began.

2007

June: Construction of Surge Tank Number 3 is scheduled to begin.

Canal modifications of the Aqueduct are scheduled to begin.

July: Construction of transmission line from Banks Pumping Plant to South Bay Pumping Plant is scheduled to begin. Also, the Completion Contract for the South Bay Pumping Plant is scheduled to begin.



Above: Left to Right – DWR Inspectors Rey Ballesteros (Construction Supervisor I) and Mark Castillo (Engineer) discussing placement of 180,000 cubic yards of material excavated near South Bay Pumping Plant with Mike Daugherty (Construction Superintendent for Anderson Pacific Engineering).

pumping. In 2001, DWR began conferring closely with the South Bay Water Contractors to find ways to keep pace with the region's increasing demand for water, seeking to improve flows in the aging facility while holding down energy costs by more off-peak pumping.

The enlargement project will increase design capacity from 300 cubic feet per second to 430 cfs and provide a spare pump. That increase in pumping capacity, plus construction of Dyer Reservoir (with a capacity of 425 acre-feet) will cut costly on-peak pumping into the Aqueduct.

The project is helping rehabilitate some structures that had gone without major upgrades for four decades, said Becker. It also assures that adequate Aqueduct freeboard exists for new flow levels. The initial phase of rehabilitating the existing system was completed by the end of 2004.

DWR has conferred closely with the State Water Contractors who will pay for the enlargement project and improvement work.

As noted in the Environmental Impact Report: "Zone 7 will pay for the entire cost of the enlargement. The improvement work will be funded by all three South Bay Water Contractors based on their proportional share of the related capital costs by Repayment Reach. The costs and benefits related to off-peak pumping will be shared by all State Water Contractors."

The South Bay Aqueduct Enlargement Study began by analyzing current and future flow capacities, using flow tests conducted by DWR's Division of Operations and Maintenance. Zone 7 engineers studied their supply and conveyance system in conjunction with the SBA at different flow capacities to determine how much added capacity would be needed for the SBA. DWR decided what modifications should be made to provide that additional flow capacity.

Upon completion in 2009, said Becker, the enlarged South Bay Aqueduct will improve the water delivery capacity and reliability of the facility, provide cheaper water deliveries to the South Bay Water Contractors for region residents and reduce energy costs. ■



PHASE II *of the East Branch Extension*

By Tierney O'Donnell

To quench the water demands of one of California's fastest growing regions, DWR is working to complete the East Branch Extension into San Bernardino and Riverside counties. The first phase was completed in November 2002, and DWR began making water deliveries through Phase I of the East Branch Extension. Part of the State Water Project, Phase I added three pump stations (Greenspot, Crafton Hills, and Cherry Valley), a reservoir, two valve control facilities and 13 miles of new pipeline to existing facilities constructed by the San Bernardino Valley Municipal Water District to serve the Yucaipa Valley and San Gorgonio Pass areas.

According to **Jeff Patterson**, the original Project Manager for Phase I, the EBX Phase I was, "a cooperative effort between the Department of Water Resources, San Bernardino Valley Municipal Water District (SBVMWD), and San Gorgonio Pass Water Agency (SGPWA) to deliver water to areas within their service areas." Jeff retired from DWR in 2006.

The extension is being designed in two phases. Now, four years after the first water deliveries, more water is necessary.

DWR is only able to make 50 percent of its water deliveries to the San Gorgonio Pass Water Agency, according to Phase II Project Manager **Sergio Escobar**. After Phase II is complete, it will be able to deliver 100 percent of SGPWA's allocation, and meet the needs of the Yucaipa Valley, where a new water treatment plant is being built to serve the rapidly growing area.

With the increasing number of houses, businesses and parks in the San Bernardino area, the demand for water has grown. Since 1987, the Beaumont Groundwater Basin has been in overdraft, and currently uses about 25 percent more than its safe yield. Part of Phase II is to help remedy this overdraft. Phase II will consist of approximately six miles of pipeline, a new pump station, a reservoir, an expansion of the Crafton Hills Pump Station, and additional pump units for the Cherry Valley Pump Station.

"Phase II of the Extension project will help with the replenishment of the groundwater basins depleted by prior withdrawals in the Beaumont Storage Basin," said Escobar.

Construction on Phase II will not take place until June 2008, following completion of environmental documents that will consider, among other things, how the new pipelines will affect nearby endangered species and Santa Ana River crossings. Species include plants such as the Santa Ana River Woolly Star and the Slender Horned Spine Flower, as well as animals such as the Coastal California gnatcatcher and the San Bernardino kangaroo rat. Feasibility studies are also underway. According to Escobar, these will be finished in mid 2007 and will determine "the combination of facilities, facility appurtenances, and alignments that best meet Phase II needs." ■



TEHACHAPI EAST AFTERBAY

Project is Moving Forward

By Brian Metzker

According to the California Energy Commission, California is the world's fifth largest consumer of energy. This has implications for the State Water Project, which is the largest single user of electricity in the State and the fourth largest electricity producer.

Harvesting energy from water is no simple task because just as energy consumption has increased, so too has water consumption. Water and power scheduling can often conflict, resulting in financial compromises. Because they are so closely connected, it is critical to carefully manage the balance of water deliveries and energy required for these deliveries.

"On-peak" periods are time durations in which energy consumption is the highest; typically, this occurs during the day. Occasionally, as during the 2000–2001 energy crisis, energy demand outstrips supply. Due to its power needs, the SWP often plays a critical role in managing statewide power.

During the late spring, summer and early fall, energy and water consumption skyrocket. Pumping plants like those in the "Valley String" – Edmonston, Buena Vista, Teerink, Chrisman, and Dos Amigos – operate by pumping water into areas of demand. In particular, the "Valley String" pumping plants make their deliveries by lifting water approximately 3,000 feet over the Tehachapi Mountains into Southern California. (The single lift from Edmonston at the base of the Tehachapis is 1,926 feet.) Water contractors then distribute these deliveries throughout their service areas.

The challenge in operating these pumping plants, however, is their insatiable need for electricity. The "Valley String" pumping plants alone require over 1,100 MW to operate.

Above: Left to Right – Chief of Lancaster Project Headquarters Bill Ashton, Field Engineer Jim Brantley, and Inspector Alan Bishop of the Division of Engineering review construction plans for the bypass turnout structure in background.

Right Top: An aerial view of the Tehachapi Reservoir full.

Right Bottom: Left to Right – DWR Inspectors Raul Meza and Matt Parker review excavation drawings for the isolation weir.

During on-peak periods, this electricity not only draws on supplies needed elsewhere, but is also very expensive. The combined problem of the need for water and the State's high electricity cost of operation during on-peak periods prompted the design and construction of the Tehachapi East Afterbay Project.

The Tehachapi East Afterbay Project is a 910 acre-foot reservoir east of the bifurcation of the East and West Branch of the California Aqueduct. This project is under construction and is currently under interim operation. From the existing Tehachapi Afterbay (Pool 42), the Tehachapi East Afterbay has an inlet channel approximately 1630 feet long, capable of a maximum flow capacity of 3150 cfs (cubic feet per second). This channel feeds into the reservoir, with a gross storage capacity of about 1165 acre feet (910 AF of active storage capacity).

To prevent stagnation and biological growth, a flow barrier was installed in the reservoir to circulate incoming water. Water then exits either through the 1,722-foot-long outlet channel or through the 1,500-foot-long bypass which circumvents the Alamo power plant during power outages.

According to **Bruce Jackson**, Plant Maintenance Superintendent of the Southern Field Division, "We will be able to deliver more water down the East Branch Aqueduct and savings in energy will be hundreds of millions, if not higher." The Tehachapi East Afterbay Project enables SWP operators to reduce pumping during on-peak periods and still maintain water deliveries to Southern California water contractors.

The new operational flexibility afforded by the Tehachapi East Afterbay Project also prevents drastic water level fluctuations in Pool 42 and elsewhere on the East Branch. Former Project Manager and Construction Office Chief **Mike Inamine** explains: "Pool 42 was not designed to tolerate rapid or large changes in water surface elevation and has a history of problems when these conditions occur. The isolation weir serves to isolate the fluctuating water surface of the reservoir from the canal (Pool 42)." Along with flexibility, this weir also affords operational reliability. Mike is now the Chief of Flood Management's Levee Repairs and Floodplain Management Office.

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Concerns over the environmental impacts of the project have been addressed. An Environmental Impact Report was filed in September of 2004, detailing the environmental standards to which contractors are to be held accountable. For instance, species protected under the Migratory Bird Treaty Act (such as the burrowing owl) are provided a no-disturbance zone and vegetation is transplanted if removed or replanted on a three-to-one basis if damaged or destroyed.

During construction, nesting barn owls were transplanted to a specialized facility at the University of Santa Cruz. The birds were hatched, fledged and carefully delivered to new adoptive parents in a wild environment in Southern California.

Native American tribal monitors and Department archeologists inspected initial excavations to ensure that no cultural resources were impacted by construction.

Aesthetic considerations of the project were also taken into account. The 3.5 million cubic yard spoil pile was carefully graded and contoured to blend in with the natural surrounding.

“The Tehachapi East Afterbay provides the SWP with a greater level of operational flexibility, which results in cost savings and increased water supply reliability. In full operation by February 2007, the Tehachapi East Afterbay will also benefit statewide power management,” says Inamine. “This project is an important tool to manage SWP deliveries and the complicated, real-time exigencies of power scheduling.” ■

Left to Right: The Tehachapi East Afterbay Construction Field Office consists of Construction Supervisor Rey Ballesteros, DWR Inspector Dainny Nguyen, Private Lab Technician Erich Kunze, DWR Inspector Matt Parker, Construction Supervisor Nady Said, DWR Inspector Tim Wehling, DWR Inspector Alan Bishop, Chief of Lancaster Project Headquarters Bill Ashton, DWR Inspector Trinh Luu, Field Engineer Jim Brantley, DWR Inspector Raul Meza, DWR Inspector Joe Burke, Construction Supervisor Matt Miller, and Construction Supervisor Rich Brewer.



A BACKGROUND PERSPECTIVE ON TEHACHAPI EAST AFTERBAY

By Annie Parker

Bruce Jackson, the Plant Maintenance Superintendent at Southern Field Division imagined expanding the Afterbay at the Tehachapi Powerplant as early as 1995.

"I envisioned it as a more passive facility, as simply as an expansion to the existing Tehachapi Afterbay," said Jackson. "Prior to becoming the Operations Superintendent for SFD, I did the billing and all the water accounting, and scheduling. This experience gave me the foundation for understanding the system and allowed me to be able to make valid suggestions."

Jackson worked on his idea for a while in the mid-1990s. Then he discussed it with a couple of engineers to make sure it was an idea that would work.

"I didn't want to propose something that would be totally impractical from the beginning. I also discussed it with **Marty Wahl**, a Fish and Game warden I knew, to get a handle on any environmental issues in advance. The engineers who worked with me were **Frank Meccia**, and most of all **James Patrick**," said Jackson.

So the project was still in the conceptual phase, where it might have stayed, when **Viju Patel** sent out a memo in 1997. The memo invited field division staff to share their ideas and suggestions about how to improve the efficiency of the SWP at their facilities. After the 1997 memo came out, Jackson started talking more seriously with his staff about the potential of his design.

After the 2001 energy crisis, Jackson submitted a more detailed plan, which fell on a more sympathetic ear. He also presented his plan to **Ray Urbach**, his MWD counterpart, for his review and opinion. After MWD decided to back the project, it really took off.

The most compelling factor that led Jackson to this idea was the need to deliver more water down the East Branch at a reasonable price.

"Back then the price per megawatt was \$5-\$10, and DWR would cut back during the day due to the higher on-peak prices. There was talk of spending almost a billion dollars to enlarge the East Branch, but the timeframe to do so was behind the demand curve. Traditionally, to run the Southern Field Division East Branch, you had to run the San Joaquin Field Division plants at a tremendous cost. With a storage pool you could shut down San Joaquin and continue moving water out of the SFD storage pool. Another attractive feature of this idea was that by building storage upstream of Alamo Powerplant you could also generate at Alamo and Mojave plants while only pumping at Pearblossom, and this reduced the cost even further," said Jackson.

Unknown to Jackson, the original designers of the SWP also recognized the need for afterbay storage in the early 1970's. However, there was no financial support for the project in the early 1970's and nothing emerged from these cursory studies.

Jackson was the champion of this project in its formative stages and provided much needed momentum. In fact, he was so closely associated with this project that DOE and O&M staff jokingly refer to the project as "Jackson's Hole."

Although Jackson was not intimately involved in the final details of the actual construction of the Afterbay Expansion, he knows there are a lot of field division staff out there with great ideas to help run the SWP.

"This project was kind of a no-brainer for me. The field divisions see things day-to-day and some of the best observations of how to run the SWP come from those on the site," said Jackson. ■



A Profile of the Napa County Flood Control and Water Conservation District

By Amy Norris

The Napa County Flood Control and Water Conservation District (NCFCWCD) received its first State Water Project delivery in 1968. Today, the NCFCWCD serves a 510,000-acre area with a population of about 128,000 people. Famous for its premier vintners and its production of wine grapes, tourism in the Napa area has grown steadily over the years with only moderate population gains.

The region is also known for its tendency to flood. The most recent December 31, 2005 event caused \$245 million of damage in downtown Napa and surrounding areas.

District Engineer **Bob Peterson** has been at the helm of NCFCWD for five years. He is also the Director of Public Works for the County of Napa, which staffs the NCFCWD. Before that he was the Assistant District Engineer and Assistant Director of Public Works for six years and the General Manager of the City of Napa's Water Division for eight years. He has guided the County as its water demands have grown and need for flood protection has become increasingly urgent.

According to Peterson, more land has been converted to agricultural use and grape vines are being planted closer together straining the groundwater supplies that feed the irrigation systems. Additionally, tourism has gradually replaced light industry. Hotels and restaurants rely on surface water which is generally supplied by the State Water Project. Finding new water supplies to bolster SWP deliveries during dry years is one of Peterson's challenges.

Along with finding ways to meet a steady demand for water, Peterson has also been instrumental in seeking solutions to flooding that has caused millions of dollars in damage to the Napa area. Napa secured an authorization for a U.S. Army Corps of Engineers flood control project in 1965 but still had nothing in place by 1995. The Corps' traditional designs were repeatedly rejected because the community wanted a more environmental approach.

The flood control project will provide 100-year flood protection to homes and businesses from the periodic flooding that has plagued the city.

View of completed floodplain terracing at the south end of the Napa River Flood Protection Project.



Far Left: Bob Peterson standing on one of the bridges in downtown Napa that was replaced as part of the Napa River Flood Protection Project.



Left: Inside the City of American Canyon's new membrane filtration water treatment facility. American Canyon is one of the five municipalities that purchase SWP water from the NCFWCWD.

Bottom: Sedimentation basin and administration building at the City of Napa's Jamieson Canyon water treatment facility. Napa is the largest subcontractor to NCFWCWD and uses SWP water to supplement its own local surface water supplies.

As Peterson recalled, "This time the community decided to take charge of the situation and demanded a seat at the table as the Corps redesigned its project to be more environmentally friendly. Through an extensive coalition process, a flood project based on 'Living River Principles' was developed and championed by the community."

The NCFWCWD and Corps of Engineers are now building a \$350 million flood control project that runs through downtown Napa. Upon completion in 2011, the project will provide 100-year flood protection to homes and businesses

from the periodic flooding that has plagued the city. The design benefits the community not only by providing flood protection, but enhancing the natural environment. Napa residents and tourists will soon enjoy six miles of walking trails through restored riparian habitat.

Currently, the project is about 40 percent complete. Says Peterson, "It is most satisfying to have played a major role in that transformation by bringing to fruition a project that for so long many thought would never happen." ■



CATCH A SPECIAL THRILL (C.A.S.T.) FOR KIDS

In September and October of 2006, the Department of Water Resources (DWR) along with the Departments of Parks and Recreation (DPR), Boating and Waterways (DBW), Fish and Game (DFG), the Catch a Special Thrill for Kids (C.A.S.T. for Kids) foundation, local agencies, fishermen organizations, and vendors sponsored three C.A.S.T. for Kids events for disabled and disadvantaged children at several State Water Project lakes. The events took place at Lake Oroville on September 9th, Lake Perris on September 30, and Castaic Lake on October 7.

The original and sixth annual C.A.S.T. event sponsored by the Bureau of Reclamation was held at Millerton Lake on September 9th. DWR San Joaquin District employees **David Lara, Noemi Baca, Anna Mancillas, Karen Dulik, Dana White, Chris Guevara, Ernie Taylor, and Tony Lam** assisted with the planning and staging of the Millerton event.

During the four hour event, the children along with the fishermen and fishing buddies fished for about two hours. Hot breakfasts, snacks, and barbecue lunches were served to all participants. Certificates of participation were also given to the children and fishermen in special awards ceremonies.

The C.A.S.T. for Kids Foundation has been in existence since 1991 and now co-hosts these special fishing events in 21 states. In 2004, DWR, DPR, DBW, DFG signed an agreement that created a partnership between the C.A.S.T. for Kids Foundation and the State of California. Through this partnership, the State and the C.A.S.T. for Kids Foundation are providing disabled and disadvantaged children with opportunities to fish and enjoy public land and water found at State Water Project recreation facilities.

"The extraordinary cooperation and support of many has led to a surprising growth of the C.A.S.T. program. This community based partnership has allowed us to use our State Water Project facilities in new and creative ways to help meet the special needs of many children," said **Karl Winkler** of Central District.

Special thanks to the following DWR staff who participated in all three events. They included Central District's **Karl Winkler** and **Budd Thrapp**, Public Affairs Office's **Dorothy Benjamin** and **Dale Kolke**, Southern District's **Sharon Brown** and **David Inouye**, and Executive's **Rebecca Boyer**, who no longer works at DWR.



Top: The DWR C.A.S.T. team at Millerton included Left to Right – (Standing) David Lara, Tana Leigh Gabriel, Dana White and grandson Cameron, Regina Geremia, Ann Marie Alexander. (Sitting) Chris Guevara and daughter Madison, Noemi Baca and son Mark, Anna Mancillas, Louie Mancillas, Thomas Fuentes, Jennifer Davis-Ferris. (Sitting on ground) Will Murray, Ernie Taylor. (Not in photo: San Joaquin District Chief Paula J. Landis, Karen Dulik, Tony Lam)

Bottom: During Oroville's C.A.S.T. event, Resources Agency Department representatives spoke to the participants. Left to Right – Department of Boating and Waterways Director Raynor Tsuneyoshi, Fish and Game Director Ryan Brodrick, DWR Deputy Director Raphael Torres, and Northern Buttes State Park Superintendent Bob Foster.

Lake Oroville

On September 9 at Lake Oroville, 40 children participated in the C.A.S.T. event. C.A.S.T. participants came from Oroville, Chico, Paradise, Yuba City, Cottonwood, Forrest Ranch through the Special Education Programs in the schools in these areas. They came from the Far Northern Regional Center for Disabled Children.

"By far the best part of the day for me was seeing all the children arrive and get out on the water to go fishing because from that point it's all downhill," said **John Ford** of Oroville Field Division.

Special thanks to DWR's employees who helped with event. They included Oroville Field Division's **Rosemary Martin, Todd O'Briant, Curtis Trujillo, Kathy Grinnell, Jason Newton,** and **Michael Hopkins,** Northern District's **Margie Graham,** Training Office's **Alan Ladwig** and **Chuck Borelli,** and Southern Field Division's **Kathy Simmons.**

"The Lake Oroville event and all of the SWP C.A.S.T. events show the commitment to provide a well rounded recreation program on SWP Reservoirs," said John. "The C.A.S.T. events broaden the opportunities for those with disabilities to recreate all our reservoirs."

Castaic Lake

Several of the 33 children enjoyed being on a boat for the first time as part of the C.A.S.T. event at Castaic Lake on October 7. Children came from Abilities First of the City of Pasadena and the Special Olympics of the Santa Clarita Valley.

"Unlike the other C.A.S.T. events, the process of our boating was different," said David Inouye. "The children and their fishing buddies got onboard the boats after they had been launched. It was challenging but everything worked fine. They seemed to really enjoy their two hours of fishing."

Special thanks to DWR's employees who helped with the event. They included Southern Field Division's **Kathy Simmons** and **Debbie Kastner,** Southern District's **Mark Stuart, Sergio Fierro, Robert Fastenau,** and **Jennifer Wong,** San Joaquin District's **David Lara.** Also, thanks is extended to **Lori Bennett** and her staff at Los Angeles County Parks.

"With 70 volunteers and 32 fishermen at this event, I believe the event is a reflection of the generosity and unselfishness of the people and businesses near the Lake and in the Santa Clarita Valley," said David.

Lake Perris

At Lake Perris in Riverside County, 50 children participated at the C.A.S.T. event on September 30. The children came from Bill's Kids in Moreno Valley.

"It was great to see the smiles on the children (and their parents') faces after they returned from the lake. This is what C.A.S.T. for Kids is all about, everyone having a great time," said David.

This 2nd annual C.A.S.T. event at Lake Perris was coordinated by **Raphael Samuel** of the Department of Parks and Recreation.



Top: For several C.A.S.T. participants at Castaic Lake, this was their first time on a boat.

Bottom: At Lake Perris, C.A.S.T. Executive Director Jim Owens, who attended all of the C.A.S.T. events, DWR staff Budd Thrapp, and Parks and Recreation employee Raphael Samuel enjoyed assisting kids during this day of fishing.

"This year's C.A.S.T. event was one that has laid an excellent foundation for future years. We teamed with Bills Special kids, local low income kids, and many volunteers and sponsors to host an excellent event," said Raphael. "All of the participants, their families, and the volunteers had a great time and we can't wait until next year."

The 2007 Lake Perris event is scheduled for Saturday, September 29. Interested sponsors should contact Norb Ruhmke at (951) 443-2414. ■

AQUATIC ADVENTURE CAMPS FOR YOUTH

At three of California's State Water Project reservoirs, more than 200 youngsters learned water safety skills during the five Aquatic Adventure Camps in the summer of 2006. The SWP reservoirs included Lake Perris in Riverside County, Lake Del Valle in the East Bay, and Lake Oroville in Butte County.

"During the fifth annual Aquatic Adventure Camps in California, these youngsters learned water safety skills and more about the environment, improved their swimming skills, and enjoyed California's State Water Project lakes," said **Dorothy Benjamin**, Chief of the Public Affairs Office's Water Education and Administration Branch and DWR's Community Outreach Manager.

The Department of Water Resources, which operates the State Water Project, is a co-sponsor of the aquatic camps, in partnership with the local parks and recreation districts along with other Departments, such as Parks and Recreation, California Roundtable on Recreation, Parks and Tourism, and Boating and Waterways. Local businesses and public agencies also sponsored these camps.

In 2002, the Aquatic Adventure Camps were created by the State Water Project Recreation Coordinating Committee (SWPRCC) in an effort to reduce the number of drownings along the State Water Project. The program teaches safety to youngsters aged 10 to 15 who live in cities near the DWR owned and operated State Water Project.

Lake Perris' Aquatic Camp occurred on July 7–21 and July 28–August 11.

Participants attended the camp at Lake Oroville on July 25–August 4. On June 19–30 and July 24–August 4, Lake Del Valle had the final aquatic camps. ■



Above: During the Aquatic Adventure Camp at Lake Perris, children enjoyed their day learning to kayak and swim.

Vista del Lago Reopens after Long Shutdown

After a 19-month closure because of rain-caused landslides, DWR's popular Vista del Lago Visitors Center at Pyramid Lake reopened November 1.

Two slides in early March of 2005 parted power lines and fractured water service pipelines.

DWR Civil Maintenance Assistant Superintendent **Ron K. Wolfe** said weather damage is a recurring issue.

"Typically, we get a strong rainstorm every few years that causes some problems. Because the mountains are pretty much straight up and down here, just a small amount of rain can do a lot of damage. But, it seems like every seven years, we get a tremendous storm. The rains that hit early last year caused severe problems. We had close to 30 inches of water in 60 hours and although we've done a lot of work, we're still trying to get some areas cleaned up."

Earth slides resulting from all the rain ruptured a 14-inch high pressure pipeline that delivers oil from Bakersfield to Southern California refineries, spilling 126,000 gallons of crude into Lake Pyramid. DWR personnel and hazmat teams were able to contain the oil and the impact on south state water supplies was minimal.

Slides also pushed against the foundation footings of Vista del Lago, necessitating lengthy studies to make sure the building was structurally safe.

In the meantime, water cascading off the quarter-acre building roof eroded the steep hillside below the Center.

"Initially, we placed visquine (plastic sheeting) to help protect the slope," said Wolfe, "but it's so steep that it wasn't a safe working area for my crews."

Wolfe's men used a bulldozer to terrace the hillside. They moved dirt into the area to help stabilize the slope and lessen the safety hazard for workers who'll be restoring grass and shrubbery, installing drain lines, and making long-term erosion repairs.

Meanwhile, during the shutdown, wall cracks were repaired inside the Visitors Center and the interior repainted. Improvements were also made to the water treatment facility, and the parking lot was repaved.

The 18,500 square foot Mediterranean-style structure 60 miles north of downtown Los Angeles is the largest of DWR's three visitors centers. The other centers are located at



Top: DWR Bulldozer operator Steve Smith works on the steep slope below Vista del Lago.

Bottom: DWR Civil Maintenance Assistant Superintendent Ron K. Wolfe (middle) discusses hillside terracing with Utility Craftsmen Mike Hindman (left) and Todd Grover.

San Luis Reservoir and Lake Oroville. It contains interactive exhibits that tell the story of the State Water Project, detail California's water sources, and explain the vital role water plays in the Golden State's quality of life.

Normally open from 9 a.m. until 5 p.m. every day except Thanksgiving, Christmas and New Year's Day, VDL hosts about 150,000 visitors per year. ■

A Visit To Feather Falls

By Amy Norris

There's a silver lining to the many dark clouds that inundated Northern California last winter and spring. The extra rainfall filled Lake Oroville to capacity and improved recreational opportunities in the surrounding area.

Butte County is home to not only Oroville Dam, highest dam in America, but also Feather Falls, the sixth tallest waterfall in the nation. Cascading down 640 feet, waters were still raging when a friend and I took the hike last July 4.

Only minutes away from DWR's Oroville facilities, the trail feels remote but comfortable for inexperienced hikers. There is a paved parking area, bathrooms at the trailhead, and a water spigot in a small clearing to the left of the path. There is no other safe drinking water along the way.

The trail to the falls loops, one side about a mile longer than the other. Luckily my friend researched the hike so we knew to take the longer path on the way up. The shorter path, 3.3 miles, is much steeper, ending in about 2 miles of uphill walking to make it to the top. The 4.5 mile path we chose was easy, and took about an hour and a half to walk including a few stops for pictures.

Along the way, we saw lizards, a deer, firs, cedars, oaks and maples, scads of poison oak, and a smattering of friendly hikers. Bald Rock Dome, an imposing granite formation and another nearby hiking destination is also visible from points along the trail.

Small rivulets of the Sylvan Frey Creek occasionally crossed the path forcing us to make our way over wet rocks in several places. Wider portions of the stream are spanned with wooden bridges and make nice resting points.

The falls show themselves about a half mile from the top, which is the steepest part of the hike, but it's worth heading to the observation deck. There we saw rainbows formed in the falls' mist and clear green pools below.

The generous rainfalls from last winter enabled boaters to navigate close to the base of the falls by traveling up the Middle Fork Feather River to the confluence with Fall River. The waterfall, created by the Fall River cascading over 140 million year old rock formations, ultimately flows into the Middle Fork and then Oroville Dam. Because it was July 4, boats were plentiful, adding to the beautiful view.

We chose the 3.3 mile path on the way back which starts out downhill. It's steep enough that we found it easier to run than fight gravity at least until the path began to head uphill. When it was over, we were thankful for the water fountain at the trailhead and the perfect day.

For more information about recreational opportunities in the Oroville area, visit the Oroville Area Chamber of Commerce Web site at <http://www.lakeoroville.net/> or our Department's Oroville Web site at <http://www.lakeoroville.water.ca.gov/>.

Directions: From Oroville take Highway 162 (Olive Highway) east, turn right on Forbestown Road for 6.3 miles, left on Lumpkin Road for 11.4 miles and watch for the sign marking the left hand turn for Feather Falls. Drive another 1.5 miles to the free parking area. ■



Above: Amy Norris of the Public Affairs Office stands in front of Bald Rock Dome during her hike on Feather Falls National Recreation Trail.

Left: Located below Feather Falls, the Middle Fork Feather Wild and Scenic River is one of the nation's first federally protected rivers.



Feather Falls, which is the sixth largest waterfall in the United States and is located in Butte County, cascades 640 feet to the canyon below.

DWR Study Looks at Hetch Hetchy Restoration

DWR recently completed the Hetch Hetchy Restoration Study. The report, prepared in conjunction with the Department of Parks and Recreation, found that restoration could cost \$3–10 billion. It also identifies crucial information that would be necessary if it were decided that the project should move forward.

“The restoration of this unique natural resource has been the subject of much public interest,” said **DWR Director Lester Snow**. “This report will contribute to a well-informed discussion on the complex issues associated with restoration, water supply and power reliability.”

The effort is the result of the first-ever public forum to discuss water supply and water quality, operational flexibility, flood impacts, cultural considerations, and environmental, energy and recreation aspects of the Hetch Hetchy Valley and water system.

“Hetch Hetchy is one of the four glacially-carved valleys in California, a beautiful and unique place that would likely attract significant recreational use and enjoyment from the public,” said **State Parks’ Director Ruth Coleman**.



“But to pursue a direction toward resource restoration and recreation, further study far beyond this report is needed.”

Although there have been many studies on the feasibility of Hetch Hetchy restoration, the new report found major information gaps in such areas as dam removal, potential benefits of restoring the valley, replacing water and power, benefits of the existing system, and public involvement.

No formal recommendation is made about next steps, as Hetch Hetchy Valley is part of Yosemite National Park and thus not under state control. Further investigations into Hetch Hetchy restoration must be shaped by the participation of the federal government and entities such as the San Francisco Public Utilities Commission, tribes, and the public.

Copies of the report are posted at hetchhetchy.water.ca.gov. Hard copies can be ordered by hetchhetchy@water.ca.gov ■

Lots of Runoff Helps Groundwater

By Carl Hauge

How does all the surface water from heavy winter and spring rains in 2006 affect California's groundwater? It helps in a big way to recharge the aquifers.

When groundwater is pumped out of the ground from an aquifer, one of two things can happen. If there is a source of water connected to the aquifer, water from that source flows into the aquifer to replace the extracted groundwater. Whatever the source is, it can eventually be traced back to a stream on the surface of the ground that carries runoff, or to sandy areas that are rained on.

If the aquifer is not connected to a source of water or if surface water is not available for recharge, the extracted groundwater leaves behind empty space and the groundwater level in the aquifer is lowered. This provides empty space into which surface water, when it is available, can be recharged. It may recharge naturally or it may be recharged intentionally by humans.

The large amount of runoff in 2006 has helped recharge aquifers in three ways.

First, when the streams flowing from the mountains are filled with running water, some of that water is recharging the aquifers. The amount of water that is recharged depends on the rate of infiltration through the stream's bottom, the area of infiltration, and the velocity of the surface water in the stream. When the stream is flowing rapidly, there is less time for the water to infiltrate.

Second, the large amount of available runoff, that some people call "surplus," has provided artificial or intentional recharge operations with a source of water to fill their spread-

ing basins, which are also called recharge ponds. Kern Water Bank Authority used a lot of this "surplus" water to fill its recharge ponds this year, recharging the aquifers underlying the ponds. In the last two years, the Authority has recharged 700,000 acre feet of water.

Finally, when there is a lot of surface water available, agricultural users need not use groundwater from their wells for pre-irrigation and irrigation of their crops. Because wells are not extracting groundwater, groundwater levels in the aquifer will not be lowered by pumping, and at the same time natural recharge will take place. This will make more groundwater available for use later in the season or in future years.

The bottom line is that a year like 2006, when precipitation and runoff have been high, is a year that is beneficial not only for our supply of surface water, but also for California's supply of groundwater stored in aquifers. ■



This motor turns a long steel shaft to drive the turbine pump deep in the well. The pump pushes groundwater up the pump column to the surface, causing the water level in the well to fall below the water level in the aquifer, which allows groundwater to flow into the well.



Coho Salmon Planted at Lake Oroville

Eric See, a Staff Environmental Scientist with DWR's Oroville Field Division holds an adult coho salmon. In November of 2006, 1,299 adult coho salmon, which averaged about three pounds each and are 22 months old, were stocked in Lake Oroville. A total of 249,827 yearling coho salmon, which averaged about nine inches long and are 10 months old, were also stocked. DWR funds and administers the coldwater stocking program at Lake Oroville; these fish were raised at the Feather River Hatchery which is also funded by DWR and operated by the Department of Fish and Game.



System To Thwart Lake Davis Pike

DWR in July began construction on a new “fish screen” system to capture any northern pike trying to exit Lake Davis through its outlet pipes, according to **Leslie Pierce**, Senior Environmental Scientist with the Division of Planning and Local Assistance’s Fish Passage Improvement Program.

The new strainer system will do a more complete job of pike destruction than the 10-year old system now in place at Lake Davis, one of DWR’s three upper Feather River lakes above Lake Oroville.

Located in scenic Plumas County, Lake Davis has been infested with non-native northern pike for several years. Under the leadership of the Department of Fish and Game (DFG), efforts are intensifying to eliminate the species because of their potential to damage downstream fish. Concerns are that the pike could devastate Feather River and Delta native fish species, including salmon, as well as threatened and endangered species.

Scheduled for completion in February of 2007, the new strainer system will replace fish graters installed in 1996, reported Pierce.

Above Left: Left to Right – Operations and Maintenance Environmental Scientist Chris Erickson and Safety of Dams Senior Engineer Bill Pennington lift out a strainer basket for inspection.

Above Right Top: Overhead view of strainer system and walkway scaffolding with hoist system above.

Above Right Bottom: During construction, the contractor works on discharge line of twenty-four inch strainers at the outlet of Grizzly Valley Dam.

The fish graters are sharp, steel grids affixed to the end of outlet pipes at Grizzly Valley Dam at Lake Davis. The 1996-era graters kill most fish leaving the reservoir via the pipes but could allow smaller fish and eggs to escape.

The new system utilizes a series of eight strainer vessels. Each vessel holds a basket constructed of stainless steel wedge-wire with approximately 0.8 mm openings between each wire wrap. All water leaving the lake through the outlet structure will flow through the strainers. This will prevent all fish, regardless of size (including eggs), from escaping Lake Davis through the outlet pipes, entering Big Grizzly Creek and making their way downstream.

While the strainer system prevents pike from escaping through the outlet, DWR carefully manages the lake elevation to minimize the risk of pike escaping over the spillway, as well.

Once the new system is in place, DWR staff will work with DFG to operate and maintain the strainers, which may require daily cleaning.

Construction costs are estimated at \$1.7 million with total project costs over almost four years of operation pegged at \$4.3 million. Funding for the project comes from Proposition 50, through the CALFED Ecosystem Restoration Program, and from DWR State Water Project funds, reported Pierce. ■

DSOD employee travels halfway around the globe to improve Armenia's water supply

By Annie Parker

Aspet Ordoubigian, a Senior Engineer with the Division of Safety of Dams (DSOD), spent three weeks in July and August of 2006 in Armenia as a Visiting International Professional to oversee the rehabilitation of a drinking water main in the city of Kapan, and evaluate the vocational training program.

"It was a great, great experience. The construction processes were similar to those in the States, and the Armenian engineers were very competent, industrious, and eager to learn," said Aspet.

Aspet, who holds B.S. and M.S. degrees in Civil Engineering from California State University, Sacramento, has worked for DSOD for approximately 16 years, and he spent three years before that with the Division of Planning (now known as the Division of Planning and Local Assistance).

The Project

Aspet first heard about the assignment in Armenia from the Armenian Engineers and Scientists of America, a non-profit organization of which he is a member. CHF (Community, Habitat, and Finance) International, an organization that works with the U.S. Agency for International Development (USAID), was looking for an engineer with experience in the construction of water projects, and preferably an engineer who spoke Armenian. CHF provided transportation, per diem, administrative and logistical support while in Armenia, and Aspet donated his time.

"It sounded interesting. My ethnicity is Armenian and I speak the language. My expertise in dam safety was closely related to the water project, and I received full support from my supervisor **Mike Zumot**, all the way up to the Division Chief, **David Gutierrez**," said Aspet.

Left: Aspet stands in the Republic Square in Yerevan.

Right: The general contractor's engineer (left) stands with Ordoubigian at the alignment of the proposed drinking water pipe in Kapan.

Bottom: A view of the community of Kapan.



At Work in Kapan

Aspet's assignment was to oversee the rehabilitation of a drinking water main in Kapan, a city located approximately 300 kilometers south of the Capitol city, Yerevan, and to share his practical experience with the engineers and other personnel. Aspet also reviewed the course curriculum and commented on the vocational training in the water system and pipe fitting program.

"The existing water system in the 'Harutyunyan Street' community, where the drinking water project was to be located, was constructed in the 1970's and had since deteriorated and was in need of rehabilitation," said Aspet.

The new, fully-pressurized, 1.3-kilometer underground High Density Polyethylene (HDPE) pipe will extend from the main water supply line into the neighborhood taps. It will supply water to 14 multi-story buildings, one school, two kindergartens, a bakery, a police station, and a sewing factory, among others.

"DSOD's reputation, nationally and internationally, makes it easier to be selected for this type of work. I am fortunate to have been involved in many complex construction projects at DSOD, which has given me the confidence to tackle any water project. I hope to participate in similar humanitarian assignments in the future," said Aspet. ■



Two DWR Employees Ride 325 Miles For a Good Cause

By Amy Norris

Last May, two Budget Office staffers took the ride of their lives to raise money for the Capital City AIDS Fund. **Tina Nycum** and **Robert Gonzalez** participated in the NorCAL AIDS Challenge—a four-day, 325-mile bike ride that requires each rider to raise \$1500. Robert is no longer at DWR.

Despite a flat tire and a mishap with a dog, the team managed to finish the longest stretch of 107 miles in first place.

Gonzalez is an avid cyclist and first heard about the event at his gym during a spin class. With his interest peaked, Gonzalez returned to the office and talked about the ride with Nycum whose cousin completed the tour last year. Both decided to sign on and raise the money for a good cause. While a 100-mile ride might be within the norm for Gonzalez, Nycum had never ridden further than 20 miles.

Gonzalez is passionate about his bike riding, so supporting the AIDS Fund while doing something he loves was a real bonus. Said Gonzalez, "The feeling just puts me at peace with my place on earth."

That's not to say he left his competitive edge at home. Gonzalez approached the ride like a race, leading a team of five cyclists that included three men and two women. Despite a flat tire and a mishap with a dog, the team managed to finish the longest stretch of 107 miles in first place. Gonzalez' excellent conditioning paid off over the four-day race that circled from Sacramento, to Gridley, Chico, Colusa and back. Though he became more tired as the days wore on, he experienced no muscle soreness.

Less accustomed to long distance riding, Nycum admitted to pain and fatigue, but was also exhilarated by her accomplishment. She said, "On day two, we had to climb Table Mountain in Oroville. Climbing this mountain was my biggest challenge, but once we headed down, I couldn't believe how fast I was going. It actually got a little scary traveling 42 mph."

At the end of each day, cyclists camped out in tents pitched at fair grounds, an Elks Lodge and a high school—not exactly luxury accommodations after the long rides. But the cause kept Gonzalez and Nycum focused. Gonzalez said, "As the HIV/AIDS epidemic acknowledges its 25 year anniversary, we felt it was important to carry out this act of charity. We are hoping for continued relief for this community and also we have to recognize that this disease affects about 39.5 million people worldwide. That is a sad story that needs to be heard."

The pair hopes to find another cause they can raise funds for through bike riding, and both continue to train for the next event. ■





The Spirit of Giving

By Annie Parker

Jim Martin, a Recreation and Wildlife Resources Advisor with the Division of Environmental Services, once again assumed his holiday season role as coordinator of a multi-State agency effort to supply food to the hungry in the Sacramento area through the California State Employees Food Drive.

For the last 20 years, as winter nears, Jim has created, overseen, and expanded a coordinated effort between the Farmer's Rice Cooperative of West Sacramento, and a variety of State agencies to purchase several tons of rice for Foodlink, a non-profit group in Sacramento, which distributes food to organizations that feed the needy.

"Years ago, this program basically got started with State employees, environmental scientists, and engineers brainstorming in the hall. We realized we could buy a lot of rice to feed a lot of people very cheaply and efficiently. It's a grass roots effort by an increasing number of State employees and it has worked outrageously well," said Jim.

Jim's involvement in this yearly effort began when he worked at the State Water Resources Control Board, Division of Water Rights. He had purchased rice from a rice farmer's co-op for the SWRCB's holiday food drive, and several of

A lot of credit goes to all the charitable State employees who have given to their community consistently through the years.

his co-workers requested that he purchase more rice on their behalf. An order of rice on behalf of SWRCB's employees was provided to the Sacramento Area Foodbank, now known as Foodlink. "CALEPA staff and especially SWRCB employees with their long-term food coordinators, Jim Canaday and Jim Sutton, have always been creative and innovative in contributing to the Rice Purchase Program with increasing generosity" said Jim.

Now, 20 years later, 11 agencies currently participate, with 41 tons of rice purchased in 2005, and 240 tons of rice purchased since the inception of the Program.

"A lot of credit goes to all the charitable State employees who have given to their community consistently through the years," said Jim.

Left to right: Vic Sablan, FRC Shipping Clerk, Joe Samuels, FRC Shipping Superintendent, Foodlink Truck Driver, Jim Martin, DWR, Rice Purchase Program Coordinator, Jeff Cesca, DFA, Food Drive Coordinator



Above: Jeff Cesca, DFA Food Drive Coordinator and Jim Martin, DWR, Rice Purchase Program Coordinator

Rice is an important and popular food item, says Jim, because it is easy to distribute, store, and transport, and a small amount can feed many people. It can also be used to make a warm, hearty meal, which is important during the winter months. Once the purchased rice is delivered to Foodlink in the standard transport size of 50 or 100-pound bags, Foodlink repackages much of the rice into two-pound bags for families and individuals. The remaining larger bags are sent to various care facilities, such as Loaves and Fishes, W.E.A.V.E., and area orphanages among others.

FoodLink can also use the rice as a commodity for trade with other food organizations. For example, if Foodlink needs more baby food, it can trade the rice with another non-profit organization for baby food.

"The Farmer's Rice Cooperative with its dedicated and professional staff members from managers to warehousemen deserves a lot of credit. They have always been flexible and efficient about delivery time, and have always been willing to accommodate us even during wind-blown rainstorms," said Jim.

Jim handles much of the coordination over the phone, but he hand-delivers the checks to the Rice co-op. He sometimes visits the warehouse staff at FoodLink to review the off-loading of the rice. Distribution of the rice is usually done around December 18, allowing enough time to reach needy families during the holidays.

"The Foodlink warehouse staff is always happy to see us. They say they are always very appreciative of what we do, and they are happy to be helping needy families," said Jim.

The Present Program

"I certainly hope we are able to keep expanding this program with the need. The more State workers contribute, the better we do," said Jim.

Many people from DWR have been involved and the effort has become widespread. Many of the Sacramento-area offices have contributed, and money has even come from as far as State offices in Southern California.

"What is gratifying to me is the large response we get from State employees, particularly DWR staff. Some retired DWR employees are still donating money to buy food for the less fortunate people in our community," said Jim.

The California Department of Food and Agriculture through the efforts of Jeff Cesca and other staff have done a wonderful job through the years as the statewide coordinator for State employee food drives, and agencies that wish to participate contact them. Last year, DFA fielded an inquiry from the Board of Equalization and other State agencies, asking if they could participate in the purchasing of rice, and DFA referred them to Jim.

"The Board has shown an interest in contributing to this project again this year, and with about 2,300 local staff members, they will be most helpful with their contribution," said Jim.

"To me, personally, it's very satisfying to participate in a program that has involved State employees working in a cooperative teamwork approach to provide productive results. It involves many people working together across agency lines to provide food cheaply and efficiently to the less fortunate people in our community," said Jim.

If you or your division is interested in the rice purchase program for the State Employee's Food Drive this year, please contact your division's food drive coordinator and request that they email an inquiry to Jim Martin at jimm@water.ca.gov ■



Rich Pendleton: A Reflection on 50 Years with DWR

By Annie Parker

From Director Banks to Director Snow, **Rich Pendleton** of the Central District Surface Water Unit has worked for them all. Not only does 2006 mark the 50th anniversary of the creation of the Department, for Rich it marks a half a century of work as a DWR Surveyor. And according to him, a lot has changed since then.

"In the beginning, the Department was basically an engineering department with about 350 employees," said Rich, who joined DWR's Surface Water Unit's Water Measurements Section at the Colusa Office in 1957.



At Clifton Court Forebay's intake channel in the South Delta, Rich is testing some state of the art acoustic doppler current profiler equipment that is used to measure water flows.

When Rich started working for the State, it was considerably less difficult to get a job. There were no exams to take, the probation period was 30 days, and DWR employees were literally knocking on the doors in their neighborhoods to find able young people to recruit for the Department.

"I was harvesting barley for one of my neighbors in Maxwell, and I was inside lying on the floor of my house trying to cool off when my friend Earle Danley, who worked for DWR, stopped by and asked me if I wanted a job. He said that I would be working a 40-hour work week, five days a week. I had never heard of a work schedule like that, and it sounded pretty good to me," said Rich.

After being drafted into the Army for two years, Rich returned to DWR in 1961. He reported to the Central District office, where he has been working ever since. In 1997, Rich retired with 40 years and one month of State service. After taking a few days off, he returned and continues with Central District as a Retired Annuitant.

Rich's work has taken him all over the State. He surveyed the Clifton Court Forebay and nearly 1000 miles of the Delta by boat. He has gone up and down sections of the California Aqueduct looking for cracks and sediment build-up.

Surveys for SWP Dams

He did some of the original surveying of the stream flows for Frenchman, Antelope, and Davis lakes, and surveyed sections on the Eel River back when dams on the North Coast rivers were being considered. He also documented the water quality of almost every watershed in California.

"I remember crawling around in that canyon—in the heat with the rattlesnakes—thinking that we were never going to get that dam built," said Rich, who was one of the original surveyors of the Feather River flows in preparation for Oroville Dam's construction.

During several major flood events in recent years, Rich has helped with the maintenance and upkeep of the gaging stations that the Flood Operations Center depends on to provide it with the most accurate flow measurements.

Reflections on the Past

According to Rich, the Department has shifted its focus from more of a building mode to a management mode, and is decidedly more environment-focused.

"We used to work alongside the bulldozers when we were surveying, and we had to get it all done before the builders showed up," said Rich. "Now we study environmental impacts when we build. Before we used to just go for it."

Retirement

Rich now helps his son on his rice farm in Rich's hometown of Maxwell.

"When I grew up in Maxwell, the town had a population of about 600, and I think that's probably still the current population," said Rich.

"I feel good, and I don't think there is any good reason to stay in the house all the time. TV doesn't interest me much, and you can only do so much hunting and fishing and traveling," said Rich. ■

Management's New Assignments

Gerri La Rue Higgs Appointed Chief of the Enterprise Business and Strategic Planning Office



Gerri La Rue Higgs, a long-time expert in the many facets of DWR business processes and change management strategies, was appointed the first Chief of the Enterprise Business and Strategic Planning Office (EBSPPO) in March of 2006. She had been serving as acting Chief of EBSPPO since its inception in 2003.

Gerri oversees her staff of seven to provide oversight for

large DWR projects such as implementation of the Strategic Business Plan, the Contracts Process Improvement project, and the SAP migration project. EBSPPO also works closely with the Department of Finance and the State Water Contractors. Her unit also facilitates Department-wide meetings, such as the Governance Board meetings with Division heads, and the off-site planning meetings conducted with key DWR managers.

"We specialize in giving people the tools they need to work together," said Gerri.

Gerri started with DWR in 1984 as a Research Analyst, Economics in SWAPO, where she performed studies involving cost assessments and financing of the SWP for Bulletin 132.

She later joined the Commission on State Mandates, but returned to DWR in 1990, as Assistant Chief of the Fiscal Services, Bond Financing and Administration Office, where she worked on establishing procedures for bond law programs.

She was appointed Chief of Management Services in 1992, Management Analysis Office, Chief of the Bond Financing and Administration Office in 1993. In 1997, she was assigned as the lead for the SAP Phase I Change Leadership and Training Team within the SAP Phase I Implementation Team.

Gerri served as Chief of the Enterprise Leadership/Business Improvement Office in DMS, Chief of the Technology Services, Change Leadership Branch and Program Management Office.

Gerri has a Bachelor of Science degree in Business Administration from California State University, Sacramento. ■

Carl Torgersen Leads Operations and Maintenance



Twenty-five year DWR veteran **Carl Torgersen** was named Chief of the Division of Operations and Maintenance in June. "My new job is to look at the global perspective...look at the activities here at headquarters and the activities in the field and make sure that we are aligned with the Department's strategic goals and that we are supporting

the operation of the SWP," said Torgersen.

For Torgersen, who had been serving as Chief of the State Water Project Operations Control Office since 2000, his new job puts him at the helm of the division where he also served as Chief of the San Luis Field Division (SLFD) in the late 1990s. Before that, he was Chief of the SLFD Engineering Branch.

Torgersen holds a Bachelor of Science degree in Mechanical Engineering from California State University, Sacramento, and is a licensed Professional Mechanical Engineer. He started with DWR in the Division of Design and Construction in 1981, working in both the pumping plants and power plants sections.

Beginning his State service career in 1978 as a Warehouse Worker with the Department of Education, he transferred to a similar position with the Department of General Services in 1979. In 1981, after a three-month break from civil service, Carl became a Mechanical Engineer with DWR.

The new O&M Chief faces numerous challenges, including holding together the infrastructure of an aging State Water Project. "DWR has made significant progress over the last 10 years regarding equipment reliability," says Torgersen, "but we still have equipment and aqueduct sections out there that are 30 or 40 years old and maintaining the system's delivery reliability will definitely be a demanding responsibility. We have good, dedicated people in the field divisions and headquarters, however, and I'm sure we'll be able to get the job done." ■

Executive's New Assignments

Nancy Saracino Chief Deputy Director



Nancy Saracino was appointed Chief Deputy Director of the Department of Water Resources in June 2006. As Chief Deputy, she assists the Director in overseeing the supervision and management of the Department and in developing and implementing policy for the protection, conservation, and management of the state's water supply.

Previously, she served for two years as the Department's Chief Counsel. Other positions include two years as a Supervising Deputy Attorney General and one year as a Deputy Attorney General for the California Department of Justice. She was a partner and associate in the law firm Mennemeier, Glassman & Stroud in Sacramento from 1998 to 2001.

Saracino is known for her management and negotiation skills, and was named by the Los Angeles Daily Journal as one of California's 100 most influential attorneys in 2004. She was recognized in 2000 by her alma mater, the University of California at Davis, for her commitment to pro bono legal service in the Sacramento community.

Saracino welcomes the challenges her new appointment will bring. "I am very honored to be working for DWR and excited about my new role here as Chief Deputy Director," she said. "The number of important, large-scale initiatives we have underway is remarkable, and I look forward to doing what I can to ensure that we are successful in carrying them out."

Saracino earned her law degree from King Hall School of Law at the University of California at Davis. She also has a Bachelor of Arts degree in Economics from U.C. Davis. ■

Timothy Haines Deputy Director for CERS



In June, Tim Haines of Sacramento assumed the top executive position at DWR's California Energy Resources Scheduling (CERS) Division.

Since the 2000–2001 energy crisis, Haines has been a consultant to DWR except for a period in 2003 and 2005 when he served as Special Assistant to the Chairman of the California Independent System Opera-

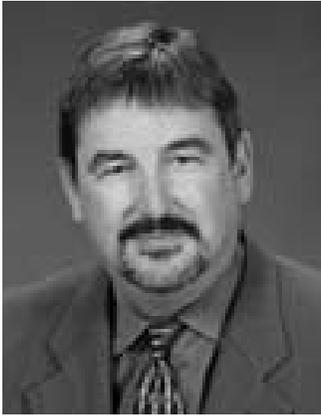
tor (ISO) Board of Governors. From 1986 to 2000, Tim held positions with the Sacramento Municipal Utility District (SMUD), where he was responsible for system planning and power contracting.

His interest in power systems was fostered during his time in the U.S. Navy operating nuclear powerplants used to propel the USS Enterprise and launch its aircraft. After service in the Navy, Haines earned a Bachelor of Science degree in Electrical Engineering with Power Concentration from California State University, Sacramento. That was followed by a Master of Science degree in Engineering Management.

Originally from the Midwest, Haines spent his youth in the South Bend, Indiana area and remains a strong supporter of Notre Dame football. A cycling enthusiast, Haines met his goal of riding his first bicycle century (100 miles) this year and is always looking for new training ride areas and riding partners.

Regarding his appointment as Deputy Director, Haines said: "I appreciate the support I've received from Director Snow and Chief Deputy Director Saracino and from CERS managers and staff. While the energy crisis that precipitated the creation of CERS is behind us, the long-term power contracts signed by the Department continue to provide one-fourth of the power needs to the State's investor-owned utilities. CERS' challenge is to ensure that the utility customers continue to receive the full benefit of these contracts." ■

Les Harder Deputy Director



Les Harder, Ph.D., a DWR Flood Expert, was appointed as Deputy Director, Public Safety and Business Operations in April of 2006.

Harder's expertise in flood management and levee design is widely-recognized. After Hurricane Katrina, Harder joined other world-renowned engineers, scientists and other experts from universities and private

firms to form the "Independent Levee Investigation Team," assembled by the University of California at Berkeley and funded in part by the National Science Foundation, a government agency. The team traveled to New Orleans to conduct field investigations to uncover what happened, why, and what changes are necessary to prevent recurrence of a disaster of this scale in the future.

Harder served as Chief of the Division of Engineering and Chief of the Division of Flood Management until becoming acting Deputy Director for Public Safety and Business Operations. He received his Bachelor's and Master's degrees in Civil Engineering from the University of California at Davis. He also obtained his Doctorate in Geotechnical Engineering from the University of California, Berkeley while working part-time for DWR in the mid-1980s. Harder began his DWR career in 1976 as a Graduate Student Assistant.

Harder has served on numerous post-earthquake reconnaissance investigations looking into the performance of earth structures such as dams and levees following major earthquake shaking, including a major quake in Japan.

He has worked on several levee and aqueduct emergency repairs and was heavily involved with the 1997 and 1998 floods. He has also served on several joint State-federal committees on levee seepage design criteria.

In addition to working for DWR, he has served on several joint State-federal boards and task forces on levee issues, as a consultant to agencies including the U.S. Army Corps of Engineers and the U.S. Department of Interior's Bureau of Reclamation. ■

Raphael Torres Deputy Director



Raphael "Ralph" Torres was appointed Deputy Director, Department of Water Resources by Governor Schwarzenegger on June 14, 2006. He was acting Deputy Director since September 2005. His primary responsibility is management of the State Water Project.

Torres' DWR career began as an engineering student assistant in 1977.

After graduating from California State University, Sacramento (CSUS) with a Bachelor of Science degree in Civil Engineering in 1979, he began as an engineer in the Division of Design and Construction (later reorganized as the Division of Engineering). He continued post graduate courses in geotechnical engineering, seismic analyses and rock mechanics while working on such projects as the seismic re-evaluation of Oroville Dam as well as other State Water Project dams. Torres is a licensed professional engineer in civil and geotechnical engineering.

During most of the 1980's, he supervised the operations of the Department's Engineering Laboratories in Bryte, California. His assignment included supervising design and construction laboratory work for projects, such as North Bay Aqueduct, Coastal Aqueduct, Thermalito Diversion Dam Powerplant, Devil Canyon Powerplant Enlargement, East Branch California Aqueduct Enlargement, Los Banos Grandes Dam Investigations, and the Red Bank Dams Investigations. After a year on a training assignment in the Department's Budget Office, Torres returned to D&C as a senior engineer, geotechnical specialist, working on several emergency aqueduct and levee repairs.

In the 1990's as Chief of the Canals and Levees Section then later as Chief of the Civil Engineering Branch, Torres managed hundreds of design, construction, and investigation projects for the State Water Project, and other Departments.

In 2000, Torres moved to the Division of Operations and Maintenance as the Assistant to the Division Chief, assisting in the management of the State Water Project. In 2003, Torres became the Executive Manager for Oroville Relicensing. Torres is a member of various Organizations and Committees, such as the National Hydropower Association Leadership Committee and the CSUS Industry Advisory Committee. ■

DWR Employee Suggestion Awards

By Annie Parker

Former Southern Field Division (SFD) employees **Micheal Brault** and **Gerald Fisher** received an Employee Suggestion Award in May for creating a new device to rotate powerplant rotors at Pearblossom in a safe and efficient manner. This device improved worker safety and avoids possible damage to facilities. Both Micheal and Gerald received certificates and a \$1,028 award for their suggestion.

The new rotor turning device was implemented in 1997 at SFD's Pearblossom Pumping Plant, and there are plans for implementation at Oroville Field Division.

"The old method was to use a crane, sometimes two cranes, to balance the rotors while they were being rotated. It was pretty dangerous," said Micheal, who now works at Oroville Field Division. Gerald retired from DWR.

"Pearblossom only had one crane at the time, and to rotate the rotor, you had to try and keep it balanced, and you only had control over one end of the rotor. If the balance was lost and the rotor slipped off, there was no knowing where the rotor would go," said Micheal.

Micheal and his Supervisor Gerald designed and fabricated the device consisting of a large rectangular steel base that serves as a platform with a large hinged plate.

The day after the device was implemented, Pearblossom staff rigged the crane with slings and used the main hoist to rotate the rotor and load it onto a truck for transport to a repair facility.

Along with significantly reducing the risk of serious injury to DWR employees and damage to DWR equipment, Micheal and Gerald's suggestion results in a net annual savings to the Department of \$12,302. ■



Pat Cannedy, a Staff Services Analyst (SSA) in Facilities Management, Departmental Services Office, received an Employee Suggestion Award for her suggestion to reuse and recycle DWR signage. Pat also received a \$301 award.

"I felt that that the Department was spending a lot of money annually for signage and there should be a more cost effective way to do the signage. Therefore, I decided to look into recycling the signage in order to save the Department money," said Pat.



Furthermore, Pat realized additional savings by recycling the holders and hangers used to mount the nameplates, instead of discarding them when new signage was ordered.

For about 13 years, the Department has ordered signage for hallways, private offices, and cubicles from System 2/90 Sign Systems, Inc. In the past, when DWR employees changed location or left DWR service, their nametags were not recycled. New signage also had to be ordered when new divisions were formed and/or when a division's name was changed. In all these cases, the old signage was discarded.

Pat calculated that the Department could save approximately 50 percent by recycling nameplates. Upon contacting 2/90 Sign System, Inc. to inquire if they would give a reduction for returning the nameplates cleaned and without letters for reuse, the company agreed to a rate reduction.

Pat's suggestion for recycling signage saved the Department \$3,011 in its first year and will continue to save the Department money annually.

Employees who leave the Department should turn in their signage to Facilities Management for recycling.

Information about the State's Employee Suggestion Program can be found at <http://aquanet.water.ca.gov/mao/awards/suggestion.cfm> You may also contact DWR's Merit Award Program at (916) 651-6077. ■

25 Years of Service



Kenneth Carroll
Operations and Maintenance
Senior Hydroelectric Power
Utility Engineer
October 2006



Allan Davis
Engineering
Senior Land Agent
December 2006



Farhad Farnam
Planning and Local
Assistance
Operations Research
Specialist III
November 2006



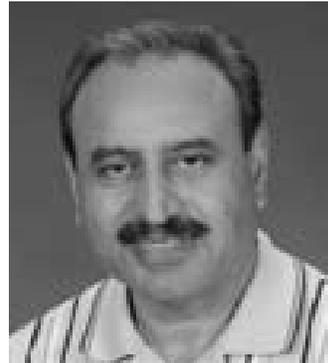
Kelly Fish
Fiscal Services
Accounting Officer
December 2006



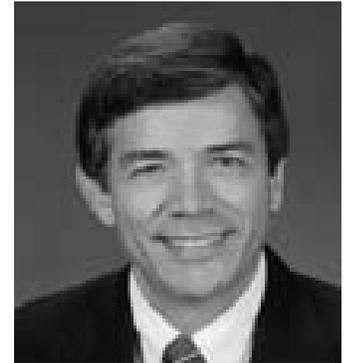
Blaine Laumbach
Southern Field Division
Chief Hydroelectric Plant
Operator
September 2006



Sylvia Ortega Hunter
Fiscal Services
Chief, Safe Drinking
Water Office
October 2006



Bhupinder Sandhu
State Water Project
Analysis Office
Senior Hydroelectric
Power Utility Engineer
September 2006



Craig Trombly
State Water Project
Analysis Office
Water Contracts Branch Chief
November 2006

Gwynne Kimura-Fong
Engineering
Photogrammetrist II
September 2006

40 Years of Service



Nirmal Cheema
Associate Hydroelectric
Power Utility Engineer
Delta Field Division
October 2006

Retirements

Dwight Russell

In June, Northern District Chief **Dwight Russell** closed out a 25-year DWR career that included assignments ranging from high level administrative duties to enterprising hydrological studies. It was also a quarter-century that incorporated a few side trips to foreign countries for some innovative development projects.



Born in Napa and raised in Martinez, Russell credits his time in the Cub Scouts, Boy Scouts, and Sea Scouts during the 1950s with helping mold his sense of responsibility and interest in humanitarian issues.

Obviously imbued with a strong work ethic, Dwight began distributing newspapers for the Oakland Tribune and Contra Costa Gazette at age eight. Other boyhood enterprises included cutting neighborhood lawns, delivering flowers and working in a gas station.

But it was a summer spent on a land surveying crew for the Contra Costa County Flood Control and Water Conservation District after Dwight's 1961 high school graduation that set the stage for what would come later at DWR.

Following a year at Diablo Valley College, Dwight volunteered for duty in the Peace Corps, serving in such locales as Puerto Rico, the Virgin Islands, and West Africa. "That was an interesting time," says Russell. "In Gabon, we did some work at the Lambourne River hospital founded by Dr. Albert Schweitzer."

From the mid '60s into the '70s, Russell worked in several engineering and hydrology positions with private firms and the U.S. Army Corps of Engineers before enrolling at U.C. Davis, where he earned an engineering degree in 1979.

Starting as an assistant engineer at DWR in 1981, Dwight helped the Department move into the computer age, participated in Bay Delta studies, and worked in the Suisun Marsh program.

"I was fortunate to work on programs that were major milestones in the Department's effort to understand water management in California," says Russell. "We were able to take what we learned and produce information that people could understand. That, in turn, provided validation that we knew what was going on...giving us credibility...so that the public trusted us to make water management decisions."

Throughout his DWR career, Russell maintained his desire to help those less fortunate. In 1982, he took a leave of absence at the request of the United Nations High Commissioner for Refugees. He ended up on a remote Philippines island designing a drain-

age and water supply system at a displacement camp for 5,000 Vietnamese boat people.

"That was quite flattering," he says. "To have a Department engineer solicited from UN Headquarters in Geneva to do work overseas is a credit to the professionalism of the DWR staff."

In 1983, Russell took another leave to serve as project manager for the Tabuk Agricultural Development Company, designing and constructing what eventually became Saudi Arabia's third-largest wheat farm.

Russell spent his last seven years at DWR as Chief of the Northern District, headquartered in Red Bluff. He says it was an assignment that came with some unforeseen demands.

"I can easily say that the District Chief's job was a bigger undertaking than I anticipated when I took the position," said Russell.

The pace of life is not likely to slow much in retirement, based on Dwight's tentative agenda. For the last decade and a half he has spent one month each year in Hawaii, where he was recently elected to a condominium association board of directors. So, continued visits to Hawaii are on the calendar. "Home refurbishing, golf and sailboating are also high on my list," says Russell, "and I'm really looking forward to spending more time with my wife, Elaine. We plan extensive traveling...the East Coast, Ireland, and the South Pacific, among other places."

"I've always been extremely proud of the way DWR interacts with diverse groups of people to internalize their concerns and help bring about positive changes. I think the Department has always been a remarkable State agency in that regard. If not the outright best, it's certainly near the top." ■

Jan Fetler

Jan Fetler's State career spanned over 35 years and five departments including Education, Food and Agriculture, Real Estate, Energy Commission and 21 years at DWR. Her assignments ranged from Stenographer, to Contracts Analyst, to Administrative Officer, to Information Systems Analyst. Her service at DWR included the former Energy Division, Legislative Office, Contract Services, the former ISSO, the former Office of Water Education and finally the Division of Technology Services. "My dad used to say, 'a rolling stone gathers no moss' so I guess I'm fairly moss-free!"



Retirements

The benefit of moving around is the resulting wealth of knowledge about many aspects of DWR and, of course, all the wonderful people you meet along the way. While conducting contract training with **Laurie Epstein-Terris** and later IT purchasing training with **Kim Heartley**, Jan toured all of the major DWR facilities and even got a rare opportunity to be inside the Edmonston pumping plant in the evening when the pumps start. "I don't think you understand how impressive DWR really is till you see/hear/feel it first hand. I am fortunate to have had such great opportunities."

"As for the people—way too many to mention—special thanks to **Viju Patel** for pushing me out of a comfortable secretarial nest and to **Tom Speer** who rewarded hard work and even put up with a Halloween costume in which I wore a suit, tie and bald wig to be Tom for the day."

In recent years, Jan has stayed close to Headquarters in her role as self-proclaimed 'Web Princess'—leading DWR's web policy effort, attempting to standardize the look of DWR's public web offerings, and helping to bring AquaNet to DWR.

"It's been a great run, and DWR has been wonderful to work for."

Jan, husband Mark and three Basset hounds are planning a move to Eugene, Oregon for their retired lives. "Guess all those years in water have made me feel as though I fit in to a town where the team is the Ducks! Now, where's my umbrella?" ■

Viju Patel

Viju Patel, who retired from DWR October 1 as Power Systems Executive Manager, will be able to tell his grandchildren that he had a high-voltage career.

There was January 17, 2001, the day California's festering energy crisis hit homes and businesses with rolling blackouts and Governor Gray Davis ordered DWR to start buying electricity for the statewide grid by morning.

"It was probably DWR's greatest challenge since construction of the State Water Project," said Viju.

Typically, DWR rose to the occasion under a team headed by former Deputy Director **Ray Hart** and those who followed at what became the Department's California Energy Resources Scheduling Division (CERS), from which Viju retired as a key manager.



Preceding the energy crisis – and outlasting it – has been the federally mandated studies and negotiations to relicense the Oroville Facilities, the heart of the State Water Project.

Viju kicked off a collaborative relicensing effort in 1999, setting in motion years of meetings with stakeholders.

Even though relicensing law requires exhaustive and expensive analysis of all impacts – including environmental, recreational and cultural – of hydroelectric projects, Viju saw opportunity in the challenge.

"We will have the opportunity to document the benefits of the Oroville Facilities and the State Water Project in general," Viju said during an interview in 1999.

Viju was transferred to CERS shortly after the energy crisis hit, but the relicensing effort remained on track.

Prior to joining DWR as a Senior Electric Utilities Engineer in 1982, Viju spent five years with the California Energy Commission where as Planning Supervisor he helped to formulate the state's overall energy policies. This experience paid off when the California Public Utilities Commission issued its first report on deregulation in 1994. Viju engaged DWR in the deregulation process to protect the value of the Department's existing electrical contracts.

Viju, who has a master's degree in electrical engineering, was named DWR's Executive Manager, Power Systems in 1996 to direct the Department's generation, sale and purchase of electricity.

Reflecting upon the complex challenges he faced during his DWR career, Viju expressed gratitude that "my superiors gave me the leeway and freedom to operate a matrix management within a structured organization. It allowed me to coordinate input and resources across divisional lines."

Viju will be remembered by many as much for his human touch as for his professional accomplishments.

"Viju is one of those terrific bosses who care about what's best for his employees, even if it means encouraging them to move on," said retired DWR Webmaster Jan Fetler, who was hired by Viju just after he was promoted to DWR Energy Division Chief in 1985. "Viju did that for me by nudging me to consider something more than a clerical job. It was that first step that opened other doors for me."

In retirement, Viju and his wife plan to keep their home in Sacramento, but travel extensively. And Viju, 63, has two grandchildren on the way that before long will be proud to hear about grandfather's career at DWR. ■

New Hires

Perla Aea-Mariano
Bay-Delta Office
Office Technician (Typing)

Ilency Aquino
Engineering
Engineer

Leah Aragon
Environmental Services
Environmental Scientist

Youssef Awad
Flood Management
Engineer

Frank Bartlett
Delta Field Division
Utility Craftsworker

Amanda Bedal
California Energy Resources
Scheduling
Associate Governmental
Program Analyst

Amy Beeman
Safety of Dams
Office Technician (Typing)

Donelle Black
Northern District
Water Resources Technician II

Larry Borges Jr.
Delta Field Division
Heavy Equipment Mechanic

Russell Brunkhorst
Engineering
Transportation Surveyor
(Caltrans)

Anne Buckley
Executive
Executive Assistant

Theresa Burritt
Engineering
Transportation Surveyor
(Caltrans)

Zambia Cain
Management Services
Office Technician

Everett Carter
San Luis Field Division
Utility Craftsworker

Joe Chavez
Delta Field Division
Utility Craftsworker

Trish Clark-Powell
San Joaquin Field Division
Office Assistant (Typing)

Rebecca Confer
Management Services
Office Assistant

Darin Criswell
San Joaquin Field Division
HEP* Operator

Natalia Deardorff
Planning & Local Assistance
Environmental Scientist

Hilario Deguzman
Engineering
Engineer

Yen-Hsi Deng
Engineering
Senior Engineer

Nancy Finch
Executive
Staff Counsel

Paul Foreman
Operations & Maintenance
Associate Corrosion Engineer

Laura Franco
Management Services
Associate Personnel Analyst

Joseph Fry
San Joaquin Field Division
HEP* Operator

Adrian Galvez
Management Services
Materials & Stores Specialist

Charles Garrett
Engineering
Office Technician (Typing)

Margaret Gentzel
State Water Project Analysis
Office
Research Writer

Thomas Gohring
Executive
Supervising Engineer

Michael Goularte
San Luis Field Division
Utility Craftsworker

Sergio Guillen
Executive
Supervising Engineer

Gordon Haley
Oroville Field Division
Heavy Equipment Mechanic

David Hallstrom
Operations & Maintenance
Engineer

Eddie Handel
Southern Field Division
HEP* Operator

Justin Hankins
San Joaquin Field Division
Utility Craftsworker

Kurt Heppler
Executive
Staff Counsel

Helene Hiromoto
Management Services
Associate Personnel Analyst

Eric Ho
State Water Project
Analysis Office
Electrical Engineer

Donald Hoirup Jr.
Engineering
Engineering Geologist

Robert Hood
Oroville Field Division
HEP* Operator

Zen Jao
Operations & Maintenance
Engineer

Maged Kamel
Engineering
Electrical Engineer

Toby Kinney
Oroville Field Division
Heavy Equipment Mechanic

James Kitch
San Joaquin District
Environmental Scientist

Jeoff Klugow
San Joaquin Field Division
Utility Craftsworker

Gregory Kramer
Southern Field Division
HEP* Operator

Theodore Kress
Engineering
Associate Cost Estimator

Gina Ladd
Management Services
Office Assistant (Typing)

Sheila Lanham
Northern District
Office Technician (Typing)

Della Leong
Flood Management
Engineer

Jeanne Lee
Management Services
Associate Personnel Analyst

Latrice Leslie
Management Services
Staff Services Analyst

Pete Lopez
Management Services
Business Service Assistant

Amarddin Maazouddin
Engineering
Mechanical Engineer

Ryan MacTarnaghan
Operations & Maintenance
Mechanical Engineer

Jagruti Maroney
State Water Project
Analysis Office
Engineer

Michael Martinez
Management Services
Personnel Specialist

Mark McCourt
Executive
Graphic Designer I

Eric Mcgrath
Flood Management
Engineer

Jeremiah McNeil
Flood Management
Engineer

Lois McShaun
Management Services
Associate Personnel Analyst

Bruce Meiers
Delta Field Division
HEP* Operator

Constantin Mercea
Flood Management
Engineer

*Hydroelectric Plant

INFORMATION PROVIDED BY DWR'S PERSONNEL OFFICE

New Hires

Lewis Moeller

Planning & Local Assistance
Senior Engineer

Luz Montenegro

Executive
Associate Management
Auditor

Michelle Morrow

Executive
Staff Counsel

Pamela Myczek

Executive
Staff Services Manager I

Frances Myers

Flood Management
Engineer

Narkesia Nelson

Bay-Delta Office
Office Technician (Typing)

James Newcomb

Planning & Local Assistance
Environmental Scientist

Therese Ortega

Flood Management
Associate Governmental
Program Analyst

Elizabeth Parino

Executive
Administrative Officer II

Cameron Poya

Engineering
Mechanical Engineer

John Price

San Luis Field Division
Heavy Equipment Mechanic

Andrew Quinto

Southern Field Division
HEP* Electrician I

James Rathke

Operations & Maintenance
Water Resources Engineering
Associate

Matthew Reeve

Flood Management
Staff Environmental Scientist

Gregory Reeves

San Joaquin Field Division
HEP* Electrician I

Ronald Reimer

San Joaquin Field Division
Utility Craftsworker

Michelle Ricker

Engineering
Engineer

Michael Ridley

San Joaquin Field Division
HEP* Electrician I

Daniel Riordan

Environmental Services
Environmental Scientist

Benjamin Rivera

Technology Services
Electrical Engineer

Linda Roots

Fiscal Services
Management Services
Technician

Bonnie Roy

Management Services
Office Assistant (Typing)

Timothy Salcido

San Luis Field Division
HEP* Operator

David Sanders

Executive
Staff Counsel

Ashley Schenck

Engineering
Office Technician (Typing)

Norman Shopay

Planning & Local Assistance
Senior Engineering Geologist

Jeff Sisco

Technology Services
Accounting Administrator I

Nathan Smith

Engineering
Engineer

Jannette Stetson-Buck

Southern Field Division
Office Assistant (Typing)

Michael Valdez

Management Services
Materials & Stores Specialist

Ronald Van Ness

San Joaquin Field Division
Utility Craftsworker

Thy Vuong

Executive
Staff Services Analyst

Jo Ann Ward

Planning & Local Assistance
Staff Services Analyst

Jack Warner

Operations & Maintenance
Water & Power Dispatcher

Janice Watson

Management Services
Office Assistant

Mary White

Flood Management
Engineer

Scott Williams

Operations & Maintenance
Water Resources Engineering
Associate

Olivia Williamson

Fiscal Services
Associate Budget Analyst

Steven Wolff

San Luis Field Division
Heavy Equipment Mechanic

Bryan Wonderly

San Joaquin Field Division
Utility Craftsworker

Fannie Wong

Engineering
Engineer

Jimmie Wright

Delta Field Division
HEP* Operator

Long Zhou

State Water Project Analysis
Office
Electrical Engineer

Retirements

John Addington

Oroville Field Division
Electrical-Mechanical
Testing Tech. II

Candace Arney

Southern Field Division
Office Technician (Typing)

Joseph Borba

San Luis Field Division
Utility Craftsworker

Helen Cruise

San Joaquin Field Division
HEP* Electrician I

Warren Dibben

Engineering
Water Resources Tech. II

Daniel Flory

State Water Project
Analysis Office
Chief

Desmond Hayes

San Joaquin District
Engineer

Raymond Heard

Southern Field Division
Senior HEP* Operator

Jan Holdaway

Southern Field Division
HEP* Operator

Ronald Landingham

Bay-Delta Office
Research Program
Specialist I (Econ.)

Ronald Langford

Southern Field Division
Electrical-Mechanical
Testing Tech. II

*Hydroelectric Plant

INFORMATION PROVIDED BY DWR'S PERSONNEL OFFICE

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Promotions

Charles Azeltine
Operations & Maintenance
Associate Control Engineer

Michael Barentson
Fiscal Services
Senior Accounting Officer

Gerald Boles
Executive
Environmental Program
Manager I (Supv.)

Michael Brown
Technology Services
Staff Information Systems
Analyst

Oscar Cano
San Luis Field Division
Electrical-Mechanical Testing
Tech. II

Larry Carmo
San Luis Field Division
HEP* Electrical Supv.

Kari Carroll
Public Affairs Office
Office Technician (Typing)

Stacy Cepello
Oroville Field Division
Environmental Program
Manager I (Supv.)

Scott Clarke
San Luis Field Division
Utility Craftworker

Donald Davis
State Water Project
Analysis Office
Staff Information
Systems Analyst

Karen Dulik
San Joaquin District
Senior Environmental
Scientist

Raymonda Dulin
Technology Services
Office Technician

Steven Ewert
San Joaquin District
Associate Land & Water
Use Scientist

Dan Fua
Reclamation Board
Supervising Engineer

Loreto Garcia
Delta Field Division
HEP* Operator

Gregory Hansen
Operations & Maintenance
Water & Power Dispatcher

Michael Hendrick
Environmental Services.
Senior Environmental
Scientist

Michelle King-Byrd
Technology Services
Staff Information
Systems Analyst

William Klovach
San Luis Field Division
Electrical Engineering
Tech. III

Eve Kwong
Operations & Maintenance
Senior Programmer Analyst

Tony Lam
San Joaquin District
Water Resources Tech. I

Francisco Llamas
Southern Field Division
Mechanical Engineer

Robert Martinez
Engineering
Electrical Engineering
Tech. III

Paul Massera
Executive
Supervising Engineer

Joseph Matyac
Planning & Local Assistance
Land & Water Use Program
Manager I

Jacqueline McGill
Flood Management
Business Service Officer I

Manjul Mehrotra
Technology Services
Staff Information Systems
Analyst

Aaron Miller
Operations & Maintenance
Senior Engineer

Narimon Mirza
Engineering
Office Assistant (Typing)

Pauline Moreno
Management Services
Digital Composition
Specialist II

Julianne Munoz
Technology Services
Assistant Information
Systems Analyst

Cody Nelson
Delta Field Division
Utility Craftworker

Brian Niski
Planning & Local Assistance
Staff Information Systems
Analyst

Mattias Nolberg
Planning & Local Assistance
Supervising Engineer

Theresa Nunez
Management Services
Staff Services Analyst

Brian Paulson
San Joaquin District
Water Resources Technician II

Larry Payne
Oroville Field Division
Senior HEP* Operator

Cynthia Perea
San Luis Field Division
Utility Craftworker Supv.

Katherine Plantaric
Flood Management
Associate Governmental
Program Analyst

Leticia Quintero
Southern Field Division
Office Technician (Typing)

Muhammad Rashid
Engineering
Supervising Engineer

Luis Rayon
Management Services
Materials & Stores Specialist

Bruce Ross
Northern District
Senior Engineering Geologist

Adam Schneider
Flood Management
Engineer

Richard Soehren
Environmental Program
Manager II
Executive

Francisca Sugandi
Fiscal Services
Senior Accounting Officer

Yung Thai
Fiscal Services
Accounting Officer

Wendy Underhill
Technology Services
Staff Information Systems
Analyst

Olaf Van Ardenne
Technology Services
Staff Information Systems
Analyst

Betsy Vierra
Management Services
Executive Secretary

John Yarbrough
Senior Engineer
Executive

Joseph Yun
Planning & Local Assistance
Staff Information Systems
Analyst

Attilio Zasso
Operations & Maintenance
Supervising HEP** Utility
Engineer

Rodney Zimmerman
Oroville Field Division
Electrical-Mechanical Testing
Tech. II

*Hydroelectric Plant
**Hydroelectric Power

INFORMATION PROVIDED BY DWR'S PERSONNEL OFFICE

Retirements

David Leask

San Joaquin Field Division
Electrical-Mechanical
Testing Tech. II

John Mescher

Engineering
Transportation Surveyor
(Caltrans)

James Odom

Delta Field Division
Utility Craftworker Supv.

Humberto Padilla

Southern Field Division
Mobile Equipment
Superintendent I

Gale Quist

Oroville Field Division
HEP* Electrician II

Dale Robinson

Oroville Field Division
Senior HEP* Operator

Terry Schultze

State Water Project
Analysis Office
Administrative Officer II

Edna Sparks

San Luis Field Division
Control Systems Technician II

Janice Spencer

Operations & Maintenance
Associate Governmental
Program Analyst

William Stewart

Southern Field Division
Senior Engineer

Larry Tate

Oroville Field Division
HEP* Operator

Barbara Villanueva

Central District
Management Services
Technician

Stephan Wiley

Northern District
Engineer

*Hydroelectric Plant

INFORMATION PROVIDED BY DWR'S PERSONNEL OFFICE

Obituaries

Cathleen Pulcifer

Cathy Pulcifer, a former Staff Services Analyst with the Division of Flood Management, passed away on August 22, 2006.

Cathy had a lengthy career with the State, starting with the Department of Consumer Affairs, and moving through the State Controller's Office and the Department of Housing and Community Development before transferring to DWR as an Office Assistant. She was subsequently promoted to Staff Services Analyst before retiring from service in February 2006. Her coworkers in Flood Management knew Cathy as one of those employees who always smiled and saw the bright side of things. She treated everyone with courtesy and thoughtfulness and was always willing to help others. She was a talented artist whose family was foremost in her life.

Cathy is survived by her husband, Phil, her sons David and Christopher, and her extended family in California and Iowa. ■

**Oscar "Vernon" Holbeck**

Oscar "Vern" Holbeck, retired DWR Maintenance Mechanic, died on April 26 at Rideout Memorial Hospital.

During Vern's 19 years with DWR, he worked on several State Water Project facilities. In 1965, he worked for Operations and Maintenance's Southern Field Division at Pearblossom Pumping Plant. For seven months in 1966, he built rest stop facilities for the Department of Transportation. He took a year leave of absence in 1976. Then, he worked for San Joaquin Field Division at Lost Hills Maintenance Subcenter.

From 1982 until his retirement in 1988, he returned to DWR to work for Flood Management's Sutter Maintenance Yard.

He is survived by his wife Betty, seven daughters, a son, three step-daughters, 23 grandchildren, and four great-grandchildren. ■

**Gloria Gibbons**

Gloria Gibbons, retired Office Assistant with DWR's Personnel Office, passed away suddenly on September 29 at the age of 59.

She joined DWR in Spring of 2001 and retired in August of 2006. Gloria attended C.K. McClatchy High School and worked for McClellan Air Force Base for 27 years.

She is survived by her two sisters and a brother. ■

Angelo Falcone

Angelo Falcone, a former Hydroelectric Plant Operator at San Joaquin Field Division, died in August, 2006.

Angelo started with DWR in 1969. He worked as a Hydroelectric Plant Operator until his retirement in 1992. He returned to work as a retired annuitant at the DWR Coastal Plants for four years before he permanently left State service in 1998. ■

Obituaries

Randall L. Brown

By CALFED Staff

Randall L. Brown, Ph. D., one of the Sacramento–San Joaquin Bay–Delta’s leading scientific experts, died unexpectedly on August 26 near his home in Fair Oaks. He was 69. He died after suffering a mild heart attack while chopping firewood, his wife, Marilyn, said.



Dr. Brown was a 34-year Biologist for DWR, establishing its Office of Environmental Services in 1992 and serving as its chief until his retirement in 2000. Since then Brown was a science advisor for the CALFED Bay-Delta program, a collaboration of 25 State and federal agencies to improve water quality, water supply, and the environment in the Delta.

“As an originator and advisor to the CALFED Science program, Randy made significant contributions to the Program since its inception,” said Ronald Ott, Ph.D., CALFED’s Deputy Director for Science. “His enthusiasm, insight, and dedication to improving the understanding and commutation of science of the Bay-Delta system to other scientists and decision makers will truly be missed.”

Dr. Brown was hired to join CALFED by the program’s first lead scientist, Sam Luoma. He developed the quarterly online journal *San Francisco Estuary and Watershed Science*, helped plan and implement CALFED’s bi-annual science conferences, formed workshops, provided technical reviews, and wrote white papers.

As one of CALFED’s most senior and long-term advisors, Dr. Brown’s work included providing technical support for the innovative Environmental Water Account program, which provides protection to at-risk fish species of the Bay-delta estuary through environmentally beneficial changes in water project operations.

Dr. Brown was often quoted describing his love of the outdoors and “a chance to combine vocation with avocation” as what led him to—and fueled his passion for—his work.

He began his career at DWR in 1966 as a junior aquatic biologist with the San Joaquin District. He was one of the first environmental specialists to join the Department. Initially, he studied ways to remove nitrogen for subsurface agricultural drainage and later became a senior water quality biologist.

Eventually he became the chief of Central District’s fish facilities section, then the Bay–Delta Ecological Studies Section, and then the Division of Local Assistance’s Environmental Studies Branch, before retiring as Chief of the Environmental Services Office.

As Chief of Environmental Services, Dr. Brown played a major role in collecting and analyzing data for investigations on the Bay-Delta estuary, helping the Department comply with an array of environmental laws and regulations that affect State Water Project operations and development programs. In addition, the studies and data were used extensively by the Department, other agencies’ consultants, to prepare environmental impact reports, biological assessments, planning reports, and other documents.

During a career of distinction, Dr. Brown served as editor of *Early Life History of Fishes in the San Francisco Estuary and Watershed*, published by the American Fisheries Society in 2004. He also served as co-Editor in Chief of the online journal *San Francisco Estuary and Watershed Science*, the quarterly journal published by CALFED’s Bay–Delta program.

Additionally, he received the UC Davis College of Agriculture’s 1998 Award of Distinction for his work as chief biologist with DWR, as well as coordination of the Interagency Ecological Program for the Sacramento–San Joaquin estuary. He was further honored for his 33-year career in public service for carrying out research and implementing fishery habitat restoration, aquatic monitoring and water quality projects and his achievements in getting people to work together towards solutions to Bay–Delta problems. ■

Ray Lankford

Ray Lankford, a former Hydroelectric Plant Operator with the San Joaquin Field Division, passed away in August of 2006.

Ray started his career in hydroelectricity working for the Tennessee Valley Authority. In 1969, he went to work for the U.S. Bureau of Reclamation and later the U.S. Department of Energy. He was promoted to the position of Chief Engineer while working in Montana and South Dakota.

After retiring from federal service, Ray came to DWR in 1980. He started at the San Joaquin Field Division as a Hydroelectric Plant Operator. He was subsequently promoted to Senior Hydroelectric Engineer. After retiring in 1991, he returned in 1994 to spend two years as a retired annuitant, before he left State service permanently in 1996.

After retiring, Ray enjoyed his grandsons and country music.

He is survived by his wife, Nadine, and the many members of his extended family. ■

Obituaries

Don Turner

Don Turner, retired HEP Mechanic II of San Joaquin Field Division, died on December 17.

Before joining DWR in 1970, Don was with the Navy and 18 years with the City of Pasadena where he worked as a Power Plant Mechanic. At DWR, he worked at Edmonston, Buena Vista, Las Perillas, and Badger Hill. He also maintained many check drainage pumps and turn-out facilities along the California Aqueduct. Don retired in 1995.

Don was well liked and respected by his friends and co-workers. He will be remembered for his keen sense of humor and love for football.

Lydia Cano

Lydia Cano, Staff Services Analyst with Management Services' Procurement and Contracting Office, passed away on July 29 at the age of 55.

During her seven years with DWR's Management Services, Lydia worked in Reprographics as a Printing Trade Specialist I, Digital Print Operator II, and Printing Trades Supervisor I. Lydia received a Unit Citation for putting out high volumes of reproduction jobs for several State agencies along with several DWR units, such as Executive, Engineering, and the State Water Project Analysis Office. She became Staff Services Analyst in February of 2006.

"She always committed her tireless energy to so many functions including charitable ones. She helped me through so many hard times," said **Ruthie Velasquez**, who worked with Lydia in Reprographics. "My life changed for the better when I met her. We worked together, laughed, cried, and had our differences, just like sisters."

A native of West Sacramento, Lydia also worked for North Sacramento School District. Lydia was known for her commitment to her community.

She touched the lives of those who knew her.

"She was a giving person and will surely be missed by all," said **Joe Freitas**, retired Reprographics' employee.

Lydia is survived by her daughters Margo and Sophia. ■



Ed Allenbaugh

Ed Allenbaugh, a long-time DWR employee whose many responsibilities took him all over the state, passed away in August 2006.

"Ed was a family man, and was very proud of his kids," said **Donald Davis**, Ed's former boss at the Coalinga Center. "He always ran a tight ship, probably as a result of his stint with the U.S. Navy."

Ed started with DWR as a part-time Levee Patrol Maintenance and Construction worker at the Sacramento Weir Maintenance Yard in 1959. After going to full-time status in 1960, Ed made trips to Oroville to work on projects at Lake Oroville, the Feather River, Frenchman and Antelope lakes.

In 1966, he was promoted to Civil Maintenance Supervisor at San Luis Field Division (SLFD). After six months, Ed supervised the construction and opening of the Coalinga Operations and Maintenance Center.

"He had an original set of hand-drawn blueprints for the entire Coalinga center electrical and plumbing," said his son Russell, also a DWR employee out of the Joint Operations Center.

In 1979, Ed accepted a job as Water Master working for the Red Bluff office. In 1985, he worked at the Coalinga Operations and Maintenance Center, overseeing a crew of civil maintenance workers at the SFD Cedar Springs Yard. In 1990 he transferred back to Coalinga until his retirement in 1995.

After retirement, he moved back to Northern California to Magalia. He is survived by his wife of 46 years, Mary, son Russell, and daughters Debbie and Penny. ■

Mavis Brockman

Mavis Brockman died on October 21 at the age of 81 in Woodbridge, Virginia.

Born in Mitchell, South Dakota, Mavis moved to Sacramento in 1943. She graduated from Grant Union High School in 1944.

After serving in the Navy WAVES from 1945–49, she joined the Department of Finance as a Secretary. Then, she worked for DWR Operations and Maintenance and later for DWR's Deputy Director until her retirement in 1986.

She is survived by nieces and nephews. ■



Obituaries

John Cape

John Cape, an Attorney and Engineer who worked for DWR for nearly 50 years, passed away November 25 in Graniteville, California at age 78.

John was born in 1928 in rural Nebraska where he attended elementary school in a one-room schoolhouse. He later served in the military, including the Korean War, eventually being commissioned as an officer in the U.S. Army Corps of Engineers.

After his discharge from military service, John attended Colorado State University. In 1957, he received a Bachelor of Science degree in Civil Engineering and began working for DWR as a Junior Civil Engineer in Oroville. John was involved extensively with projects related to Oroville Dam and the other important features of the California State Water Project, working in various phases of engineering, construction supervision, and contract administration.

While working at DWR, John attended McGeorge School of Law, receiving his Juris Doctorate degree in 1967. After admittance to the State Bar, John worked as a DWR Attorney on complex construction contract claims and litigation and performed other significant governmental law work. In 1982, he became Assistant Chief Counsel over the business and governmental law section of the Legal Office.

John retired in 1987, but continued working as a retired annuitant for DWR on special assignments until his death. One such special assignment was working in San Luis Obispo on legal issues related to construction of the Coastal Branch.

In addition to working for the Department, his other retirement activities included pro bono services for the Grass Valley Legal Services Office, creation of non-profit corporations for several community service organizations, and service as an arbitrator for the Nevada County Superior Court. One of his chief activities was serving as a volunteer and officer for the Graniteville Community Services Association, an entity created to rehabilitate and conserve a one-room school constructed in Nevada County in 1878.



John and his wife also traveled extensively during his retirement, most recently visiting Machu Picchu in Peru earlier this year. His expansive range of interests also included long-distance horseback riding, genealogy, computer technology, constructing a unique rural home near Grass Valley, and designing and fabricating specialized tools and mechanical equipment.

John is survived by his wife of 55 years, Margery, one daughter, two sons, and seven grandchildren. John will always be remembered for his innovative and pragmatic solutions to legal problems as well as for his constant helpfulness, cordiality, and integrity. ■

Richard McKenna

Richard McKenna, a retired DWR Photogrammetrist, passed away on September 24 in Rancho Cordova. He was 82 years old.

Richard, who was born in Minneapolis, Minnesota, was the oldest in his family. As graduate of Central High School in Minneapolis, he served in the U.S. Army Artillery and was stationed in the Phillippines during WWII.

In 1959, he joined the Department of Water Resources. After his DWR retirement in 1985, he traveled and built his cabin on his property in the mountains.

Richard is survived by his wife of 48 years, Georgina. ■

Lloyd Browning

Lloyd Browning, retired Supervising Equipment and Materials Engineer with Engineering's Sacramento Project Headquarters, passed away on October 23 at the age of 80.

Lloyd worked for 33 years with Design and Construction (now known as the Division of Engineering).

From giant motors, pumps, and impellers to discharge valves and switchgear, Supervising Inspector Lloyd traveled around the world to make inspections.

He is survived by his wife Hazel, four children, seven grandchildren, and five great grandchildren. ■



Obituaries

Lloyd Fowler

DWR Retiree **Lloyd Fowler** died September 2 at the age of 81.

He was a Civil Engineer specializing in hydrology and spent much of his career championing conservation and wastewater reuse. He was Chief Engineer at Santa Clara Valley Water district for 17 years. He was also General Manager of the Goleta and Summerland Water Districts. He oversaw the construction of Santa Clara Valley's first water treatment plant.

Lloyd is survived by his wife of 58 years, Marion, four sons, and four grandchildren. ■

George Reiner

George E. Reiner, a retired DWR Biologist who was active with his wife, June, in Sacramento Zoo volunteer work for more than 25 years, died at his Sacramento home on September 5. He was 81.

During his 32-year State career, Reiner worked as a fisheries biologist, first for the Department of Fish and Game and later for the Department of Water Resources. He began his State career in 1951 and retired in 1983.

Reiner played "a critical role" in refining concepts for the Feather River fishery as Oroville Dam was created, recalled retired DWR Deputy Director **Larry Mullnix**. "This included modification of the Oroville hatchery after problems with high mortality with salmon and steelhead fingerlings and the development of criteria that enabled the modification of flows to enhance the fishery downstream of the hatchery."

The result was "an anadromous fishery of greater returns on the Feather River after the Oroville Dam was constructed than before," said Mullnix.

DWR Duties Included Flying

Reiner handled a variety of assignments for DWR, including Delta fish studies, planning fishery facilities at DWR reservoirs, doing research in the Recreation Planning Section in DWR's planning division.

After obtaining his commercial pilot's license, Reiner often flew DWR managers and technical experts to the North Coast for aerial reconnaissance of rivers there, and along



the SWP for Operations and Maintenance surveillance, said Mullnix, who was Reiner's next-door neighbor for more than 50 years.

"One instance was on May 30, 1973 in early morning over the west branch of the California Aqueduct," recounted Mullnix. "George pointed out that water was flowing over the aqueduct. His passengers chided him for kidding until they looked at the overflow themselves. He landed at the small strip near Quail Lake so we could report the problem. Fortunately, Field Division personnel had already discovered it."

Dedicated Zoo Volunteer

Reiner was well-known in the Sacramento community for decades of leadership and volunteer work at the Sacramento Zoo. He served on the Zoo Board of Directors during the 1980s, an era of modernization for the Zoo. A strong advocate of animal-friendly exhibit facilities, he helped the Zoo raise funds for and build larger, more natural animal living areas.

He and his wife, June—both slender, cheerful and energetic—were dedicated Zoo docents, putting in many hours of volunteer work at the zoo on educational projects, special events and educating youngsters and zoo visitors on animal biology, zoo activities and environmental issues.

Survivors include his wife, June; daughter, Cathy; son, Richard (Rich); and four grandchildren. Both Reiner's children emulated his science career and environmental legacy. Rich Reiner is a Senior Ecologist with The Nature Conservancy in Chico. Cathy is a DWR environmental scientist.

George and June were familiar figures at the Zoo, wearing their yellow docent jackets and helping zoo visitors. They were also familiar to people in their South Land Park Hills neighborhood, taking daily walks and working together on gardening projects at their home.

Born in 1925, Reiner was a graduate of the University of California at Berkeley and a Coast Guard veteran of World War II.

Reiner was a man of many talents. He was a pilot of airplanes and gliders, a skilled sailing enthusiast, and an experienced ham radio operator who conversed with other radio enthusiasts over much of the globe. He built and flew small electronically-controlled powered models of historic aircraft.

Private family services were held. Remembrances may be sent to the Sacramento Zoological Society, 3930 West Land Park Drive, Sacramento, CA 95822. ■

DWR MISSION

Statement

To manage the water resources
of California in cooperation
with other agencies,
to benefit the State's people,
and to protect, restore,
and enhance the natural
and human environments.

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