

California Department of Water Resources NEWS

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New Intake Structure Helps Earthquake-Proof Southland Water Supplies

As Californians observe Earthquake Preparedness Month in April, the Department of Water Resources announced that a project to help earthquake-proof the drinking water of more than 12 million southern Californians is essentially complete.

Completion of the new intake structure at Silverwood Lake helps ensure that State Water Project deliveries to southern California will continue to flow with as few interruptions as possible--even if an earthquake strikes.

"This \$23 million project used the latest in seismic design and was timed to minimize interruption of water deliveries to users downstream, as well as any potential impacts to recreation and wildlife," said DWR Director David N. Kennedy. "It was completed within budget, on time and under tight environmental controls."

DWR plans to nurture full recovery of the lake's largemouth bass fishery within four years. The lake will celebrate its re-opening to recreation uses in July.

Deliveries are being made through the San Bernardino Tunnel Intake to agencies serving residents in San Bernardino, Riverside, Orange, Los Angeles, and San Diego counties.

Why a New Intake Structure was Needed

The construction of a new intake structure at the lake began in September 1995 after DWR determined that the existing intake tower at Silverwood Lake, a State Water Project facility, could be damaged if a

magnitude 5.5 or greater earthquake occurred along the San Andreas Fault. Such a failure would interrupt southern California water deliveries with dire economic and public health consequences for its residents and industries.

Recognizing this serious public safety threat, the Federal Energy Regulatory Commission amended their order for the Department to strengthen or replace the intake tower. FERC issues a license for DWR to operate Devil Canyon Powerplant, the lake, the tunnel and intake tower.

A New Seismically Stable Structure

In designing a more seismically stable intake, DWR engineers studied other similar structures, borrowing features from different designs and merging them into their own concept. The new intake structure stands 125 feet high (compared to the existing tower's height of 191 feet) and can draw water from one or a combination of four different levels. Besides the unique design, the intake's construction takes advantage of today's stronger grade steel and concrete.

Two phases of construction were required during two drawdowns. The first began in September 1995, drawing the lake surface, normally at 3,353 feet elevation, to 3,310 by mid-November. The second drawdown, which began in October 1996, took the lake down another 50 feet.

The plans called for excavating the site and constructing the intake structure and a 150-foot-deep access tunnel shaft. From the shaft, an 18-foot diameter, 500-foot-long tunnel would be excavated simultaneously in two directions--one toward the new intake and the other eventually connecting with the existing San Bernardino Tunnel.

Now after working two shifts a day, six days a week, the intake and tunnel are essentially complete. Refilling of the lake began in March 1997 so the Department could meet its scheduled deliveries to downstream water users.

Environmental Mitigation in Place

Construction activities were expected to impact the southern bald eagle that winters at Silverwood Lake and the lake's fishery. The Department proposed projects to mitigate the impacts to less than significant levels.

To protect the southern bald eagle, lighting and blasting around the construction site were closely controlled. The eagle is listed by the state as endangered and by the federal government as threatened. Also as part of mitigation efforts, the Predator Bird Research Group, from the University of California at Santa Cruz, initiated a three-year study on eagle behavior in the San Bernardino Mountain region.

DWR's goal for its fishery mitigation plan is 100 percent recovery of the largemouth bass population within four years of the project's end. Fishery projects in place include grass and willow plantings along

the lake's shoreline to provide shade and cover for fish, plus more habitat in the form of rock reefs and 640 fish spheres. The fishery plan also calls for monitoring of fish populations and plantings, if necessary.

Recreation Returns

Boating resumed at the lake on April 12, as the Sawpit boat ramp opened for use and the Cleghorn ramp will soon follow. All day-use and camping facilities are also available.

On July 26, a grand reopening celebration will be held, with a bass tournament scheduled the next day.

For more information on boating conditions and other recreational opportunities, call the Silverwood Lake hotline at 800-824-6818 or Silverwood Lake State Recreation Area at 619-389-2303.

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The Department of Water Resources operates and maintains the State Water Project, provides dam safety and flood control and inspection services, assists local water districts in water management and water conservation planning, and plans for future statewide water needs. The State Water Project provides water to two-thirds of California's population.

For more on-line information, see [Find DWR Info](#) or return to the [DWR California Water Page](#)