

# Lake Oroville critical to California's complex water system



*A helicopter kicks up dust as it lands at a staging area near the Oroville Dam on Monday, Feb. 13, 2017, in Oroville, Calif. State officials have discussed using helicopters to drop loads of rock on the damaged emergency spillway ... [more >](#)*

By ELLEN KNICKMEYER and ELLIOT SPAGAT - Associated Press - Monday, February 13, 2017

SAN FRANCISCO (AP) - Lake Oroville and its dam in Northern California are critical components in California's complex water-delivery system. Damage to spillways that are used to drop water levels in the lake and relieve pressure on the dam prompted evacuation orders covering nearly 200,000 people. Here's a look at Lake Oroville and its place in California's water system

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## HOW IMPORTANT IS LAKE OROVILLE?

Lake Oroville is the starting point for California's State Water Project, which provides drinking water to 23 million of the state's 39 million people and irrigates 750,000 acres of farms. It is the largest reservoir in the system, which was built in the 1960s and early 1970s to carry rain and snowpack from the Sierra Nevada mountains to parts of the San Francisco Bay area, Central Valley and Southern California.

Lake Oroville, completed in 1967, is a cornerstone of the system of 34 reservoirs, lakes and storage facilities, built and operated by California's Department of Water Resources. It feeds into the Feather River - about 70 miles north of Sacramento - as well as the Sacramento River and the Sacramento-San Joaquin River Delta. From there it travels south on the 444-mile California Aqueduct.

Oroville's storage capacity of 3.5 million acre-feet of water is enough to supply urban California for up to six months, said Peter Gleick, president emeritus of the Pacific Institute, a water research organization based in Oakland, California.

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"The risk of losing Oroville is very, very low" he said. "The consequences would be catastrophic."

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## WHAT ARE SPILLWAYS?

When reservoirs get too full, their operators release extra water down long channels, or

spillways, designed to carry it downstream in a safe, controlled way.

Oroville Dam has a main concrete spillway that normally is used to release floodwaters into the Feather River downstream. A second spillway mainly made of earth serves as an emergency backup. It also was supposed to be able to handle high flows from the dam, but it had never been used before Saturday.

The force of water siphoned from the lake has damaged both spillways.

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#### WHAT CAUSED THE FLOOD THREAT?

After five years of drought, a wet winter has strained the system at Lake Oroville, which is receiving runoff from melting snow in the Sierra Nevada as well as from the latest in a series of heavy storms.

Dam operators noticed chunks of concrete in the main spillway on Feb. 7. When workers stopped releasing water to investigate, they found that concrete patches the size of football fields had washed out of the channel. With the reservoir nearing the top of the 770-foot-high dam, dam operators were forced to keep using the main spillway despite increasing damage to it from the rushing water.

The dam reached capacity Saturday, sending water surging over the second, emergency spillway. Operators on Sunday noticed water was gouging a hole in the earthen emergency spillway as well. Fearing that the emergency spillway could fail and send torrents of water rushing downstream uncontrolled, authorities ordered the evacuation Sunday evening.

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#### BESIDES OROVILLE, WHERE DOES CALIFORNIA GET ITS WATER?

The Central Valley Project, operated by the U.S. Bureau of Reclamation, irrigates more than 3 million acres of farms and provides enough drinking water for more than 1 million people. The system of 22 reservoirs was built from 1937 to the 1950s, extending about 400 miles from the Cascade Mountains near Redding to the Tehachapi Mountains near Bakersfield. It includes Shasta Lake, the only reservoir in California that's larger than Oroville.

The Colorado River supplies 19 million urban dwellers in Southern California through a

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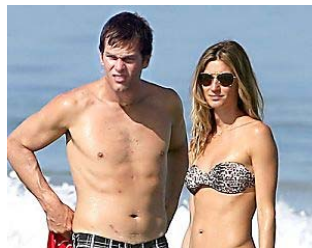
242-mile aqueduct from Lake Havasu, Arizona, to the state's coastal regions that was completed by Metropolitan Water District of Southern California in 1941. The Colorado also farms California's Imperial Valley - a major source of the nation's winter vegetables - through the 80-mile All-American Canal that hugs the state's border with Mexico.

Other significant pieces of the state system include the Los Angeles Aqueduct, which carries water from Mono Lake to the city of Los Angeles, and the Hetch Hetchy reservoir in Yosemite National Park, which supplies the San Francisco Bay area.

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