

Arizona drought may be eased by heavy snow

Spring thaw likely to raise Lake Mead levels, battle drought

by **Shaun McKinnon** - Jan. 18, 2011 12:00 AM The Arizona Republic

Enough snow is piling up along the upper Colorado River that the spring thaw could reverse the precipitous decline of water levels at Lake Mead and help Arizona avoid drought-related water rationing until 2015 or later.

In October, the reservoir dropped to within 7 feet of triggering drought restrictions, and hydrologists said a dry year could wipe out those last few feet. Alarmed at the prospect, the seven Colorado River states agreed to consider new drought-prevention policies. Among the ideas set for discussion: take less water from the river when rationing is imminent.

The U.S. Bureau of Reclamation says it now expects runoff from the winter snowpack to raise water levels at Lake Mead later this year, easing drought conditions at the giant reservoir, which last fall sank to its lowest level since 1937.

The lake has already risen 5 feet since Dec. 1, after a series of storms drenched southern Utah and southern Nevada. Snowpack in Colorado's Rocky Mountains is 133 percent of average overall, with some locations reporting amounts 200 percent of average.

Snowpack is also above average in many parts of Arizona, despite predictions of a dry winter after La Niña conditions developed. Most in-state reservoirs still hold ample water from last winter.

But the reservoirs on the Colorado, in particular Lake Powell and Lake Mead, have never fully recovered from the driest years of the prolonged drought in the Southwest. Last fall, hydrologists warned that Lake Mead could sink to new lows later in 2011.

In its January water-supply forecast, the bureau says there is now a 76 percent chance that runoff from the snow will allow the agency to release

extra water from Lake Powell downstream into Lake Mead, a procedure designed to better balance the contents of the two reservoirs.

The extra water, an estimated 3.13 million acre-feet, would raise the lake's level 30 feet above the first drought trigger. The water won't erase the effects of a decade of dry conditions - Lake Mead has dropped more than 130 feet since 1999 - but it could be just enough to protect water users from rationing. More significantly, it would give Arizona and Nevada, the states that would be hardest hit by rationing, a chance to better prepare.

"It gives us time to continue to work amongst the seven states to find more robust ways to keep water in Lake Mead," said David Modeer, general manager of the Central Arizona Project, which manages a little over half of Arizona's Colorado River allocation. "Now, we're not going to be forced into making decisions too quickly," he said.

Modeer said the extra water released into Lake Mead could remove the threat of rationing until at least 2015, based on CAP projections.

Forfeiture discussed

The CAP had been discussing a plan to forfeit as much as 80,000 acre-feet of its allocation this year to help keep water levels at Lake Mead from falling below an elevation of 1,075 feet above sea level, the first drought trigger.

At that level, Arizona would lose 320,000 acre-feet of its 2.8 million acre-foot allocation for at least a year.

An acre-foot is 325,851 gallons, enough to serve two average households for one year.

The water left in Lake Mead was to be taken from a pool of excess water available for underground recharge and would not affect any cities or farmers. The intent of the plan was to give up a little water to avoid bigger losses.

The bureau's forecast should render the plan unnecessary. Hydrologists now predict above-average runoff - as high as 120 percent of the 30-year average - on the upper Colorado from April through July, when most of the snow melts and flows into the river.

The forecast is not a sure thing, hydrologists caution. The snow could stop falling, or it could melt at the wrong time.

The Colorado River is heavily dependent on melting snow from the high mountains of Colorado and Wyoming. The snow accumulates during the

winter and then melts into the river and its tributaries in the spring, when water demand starts to increase.

The timing is especially critical on the upper stretches of the river, where there are few large reservoirs and water users divert their shares directly from the river. But until the melted snow runs off into the river, it is vulnerable to sudden changes in the weather.

In 2007, an unusually warm and windy March cut deeply into the snowpack in the high Rockies, reducing runoff that year to about 68 percent of average.

The projected runoff would raise water levels at Lake Powell enough to trigger an "equalization" release into Lake Mead.

The equalization trigger was prescribed by a 2007 drought plan, which includes the provision to balance water levels between the two reservoirs. The plan doesn't require full recovery of either reservoir, just enough water to adjust lake levels without putting water users at risk.

Lake Mead is at 40 percent of capacity, while Lake Powell is nearly 60 percent full.

The bureau forecast projects an equalization release of 11.36 million acre-feet, more than what the three lower-river states - Arizona, Nevada and California - and Mexico would use in one year. By Sept. 30, under the forecast conditions, Lake Mead could reach an elevation of 1,105 feet above sea level.

The bureau will decide whether to release the extra water in April.

Before then, the seven river states plan to discuss ways of better managing water supplies on the river. The upper-river states - Utah, Wyoming, Colorado and New Mexico - are equally concerned about shortages, in part because many areas of those states lack long-term storage.

Modeer said the states could produce recommendations later this year. Among the ideas on the table is one similar to what the CAP has considered: leaving small amounts of water in storage as a hedge against deeper losses if the drought worsened.

That would represent an unprecedented shift in water-management policies on the river, where states have scrambled to divert all their available water to make sure no other user takes it. Arizona developed an underground-storage program as a way of diverting its full allocation.

"It's significant," Modeer said. "For Arizona, the policy has been to get every drop off the river and into the ground. With this drought, we're seeing

that saving water on the river, keeping it in the reservoirs, in reality saves water over the long term."

Further benefits

Meanwhile, in central Arizona, the snowpack has benefited from some of the same storm systems that swept through the Rocky Mountains. As of Jan. 1, the statewide snowpack was 122 percent of average, according to the Natural Resources Conservation Service, which monitors snow levels.

The Verde River Basin is in the best condition, with snowpack at 148 percent of average. The Mogollon Rim is at 120 percent of average, the San Francisco Peaks are at 124 percent and the upper Salt River is at 109 percent of average.

The Salt and Verde rivers are the source of more than one-third of the Valley's water supply.

The healthy snowpack was unexpected because La Niña conditions had developed this fall. La Niña, a lowering of water temperatures in the Pacific Ocean, typically steers storms away from Arizona, producing drier-than-average winters.

"It's very unusual for a La Niña year," said Charlie Ester, water-resources manager for Salt River Project, which delivers water from the Salt and Verde rivers. "We don't know if it's going to continue. Our best guess is that it won't."

SRP's reservoirs are 86 percent full, compared with 73 percent at this time a year ago. A late-January storm last year all but filled the reservoirs and, after more rain and snow fell, SRP was forced to release water down the Salt.

The Verde River has recorded 6.7 inches of precipitation since Oct. 1, Ester said, and the Salt has recorded 4.1 inches.

Conditions are not as good along the state's eastern edges. Snowpack on the Gila and San Francisco rivers was at 70 percent at the start of the month, when data were collected.

The Water Conservation Alliance of Southern Arizona (Water CASA) was established in 1997 to promote the efficient use of water in the region. It is an alliance of Southern Arizona water providers working to enhance the public's awareness and understanding of conservation issues, methods, and practices.