

Southwest Climate Outlook

THE UNIVERSITY OF ARIZONA
Arizona's First University.

December Climate Summary

Drought – Short-term drought conditions reported for October in Arizona worsened in many regions, most notably in the Little Colorado River watershed where abnormally dry conditions in September were downgraded to a moderate drought classification; long-term drought status remains the same. In New Mexico, November drought conditions did not change from last month.

Temperature – During the past 30 days, temperatures in Arizona and western New Mexico have been 2 to 6 degrees F warmer than average. The recent storm system that passed through the Southwest on December 16–18 brought colder-than-average temperatures to most of Arizona and northern New Mexico.

Precipitation – Until recently, most of the Southwest had received little precipitation since the beginning of the water year on October 1. However, storms on Thanksgiving and between December 16 and 18 finally brought wetter conditions and delivered record snowfalls in some areas. In the past 30 days, most of Arizona and northern New Mexico have had 100 to 1,200 percent of average precipitation, due entirely to those two storms.

ENSO – The International Research Institute for Climate and Society (IRI) reports that the equatorial Pacific Ocean is presently on the borderline of ENSO-neutral and weak La Niña conditions. The IRI also states there is a 50–55 percent probability of ENSO-neutral conditions persisting over the coming season, and a 45–50 percent chance for weak La Niña conditions.

Snow – The water contained in the snow (snow water equivalent, or SWE) in most watersheds in the Upper Colorado River Basin on December 18 is generally between 70 and 90 percent of the 1971–2000 average. In the headwaters of the Rio Grande, SWE is about 70 percent of the average. Recent storms have elevated SWE in Arizona, with values ranging between 150 and 225 percent near Flagstaff and the central Mogollon Rim.

The Bottom Line – The first winter storms of the 2009 water year finally arrived, providing much needed precipitation that may help alleviate short-term drought conditions in some regions. These storms also brought cooler temperatures and record snowfalls. As winter continues, attention will be on the snowpack in the Upper Colorado River Basin (UCRB) which provides about 70 percent of the river's yearly flow; presently, the snow water equivalent in the UCRB is slightly less than the historical average.

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Arizona Reservoir Levels (through 11/30/08)

Source: National Water and Climate Center

Combined reservoir storage in Lakes Powell and Mead declined by 262,000 acre-feet during November (Figure 1). Nevertheless, water volumes in these two reservoirs are about two million acre-feet more than they were last year. During November, storage in the Salt River watershed slightly increased, while storage in the Verde River watershed declined approximately 20 percent, or about 25,000 acre-feet.

In Arizona water news, the seven Colorado River states, during their annual meeting this month in Las Vegas, focused on finding ways to create a sustainable balance between energy production and the use of water needed to generate that energy. The water-energy connection is simple: power plants need water—almost half the nation’s annual water use is consumed in the generation of electricity. Managing both water and energy use will be critical for Arizona’s sustainable water future. The seven Colorado River states are Arizona, California, Nevada, New Mexico, Utah, Wyoming, and Colorado.

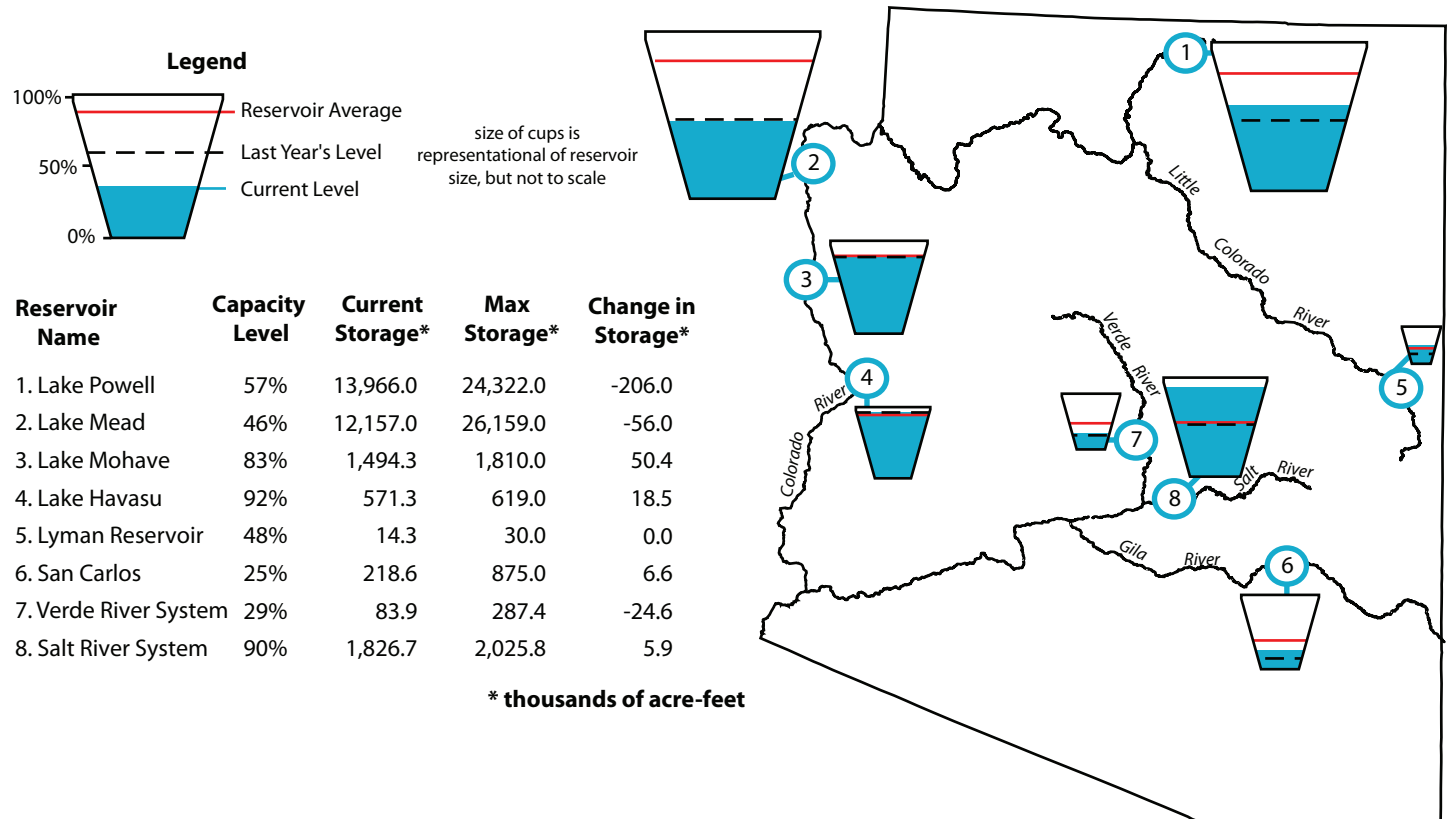
Notes:

The map gives a representation of current storage levels for reservoirs in Arizona. Reservoir locations are numbered within the blue circles on the map, corresponding to the reservoirs listed in the table. The cup next to each reservoir shows the current storage level (blue fill) as a percent of total capacity. Note that while the size of each cup varies with the size of the reservoir, these are representational and not to scale. Each cup also represents last year’s storage level (dotted line) and the 1971–2000 reservoir average (red line).

The table details more exactly the current capacity level (listed as a percent of maximum storage). Current and maximum storage levels are given in thousands of acre-feet for each reservoir. One acre-foot is the volume of water sufficient to cover an acre of land to a depth of 1 foot (approximately 325,851 gallons). On average, 1 acre-foot of water is enough to meet the demands of 4 people for a year. The last column of the tables list an increase or decrease in storage since last month. A line indicates no change.

These data are based on reservoir reports updated monthly by the National Water and Climate Center of the U.S. Department of Agriculture’s Natural Resources Conservation Service (NRCS). For additional information, contact Dino DeSimone, Dino.DeSimone@az.usda.gov.

Figure 1. Arizona reservoir levels for November 2008 as a percent of capacity. The map depicts the average level and last year’s storage for each reservoir. The table also lists current and maximum storage levels, and change in storage since last month.



On the Web:

Portions of the information provided in this figure can be accessed at the NRCS website:
http://www.wcc.nrcs.usda.gov/wsf/reservoir/resv_rpt.html



New Mexico Reservoir Levels (through 11/30/08)

Source: National Water and Climate Center

The total reservoir storage in New Mexico declined by approximately 12,000 acre-feet during November (Figure 2). Water storage in the state's second largest reservoir, Elephant Butte, increased by more than 15,000 acre-feet but is only 27 percent full. This map now includes water storage in the Bluewater and Eagle Nest reservoirs. Additionally, the change in storage reported for the Brantley Reservoir was calculated as the difference between November and September; the Natural Resources Conservation Service, from which this data is obtained, has not updated the October water storage.

Water storage in the two Rio Grande Project reservoirs, Elephant Butte and Caballo, is projected to be 30.5 percent of the total combined capacity at the end of December. This is an increase of more than 245,000 acre-feet compared to last year's end-of-December capacity. Preliminary projections by the U.S. Bureau of Reclamation show there should be enough water for a full supply next year.

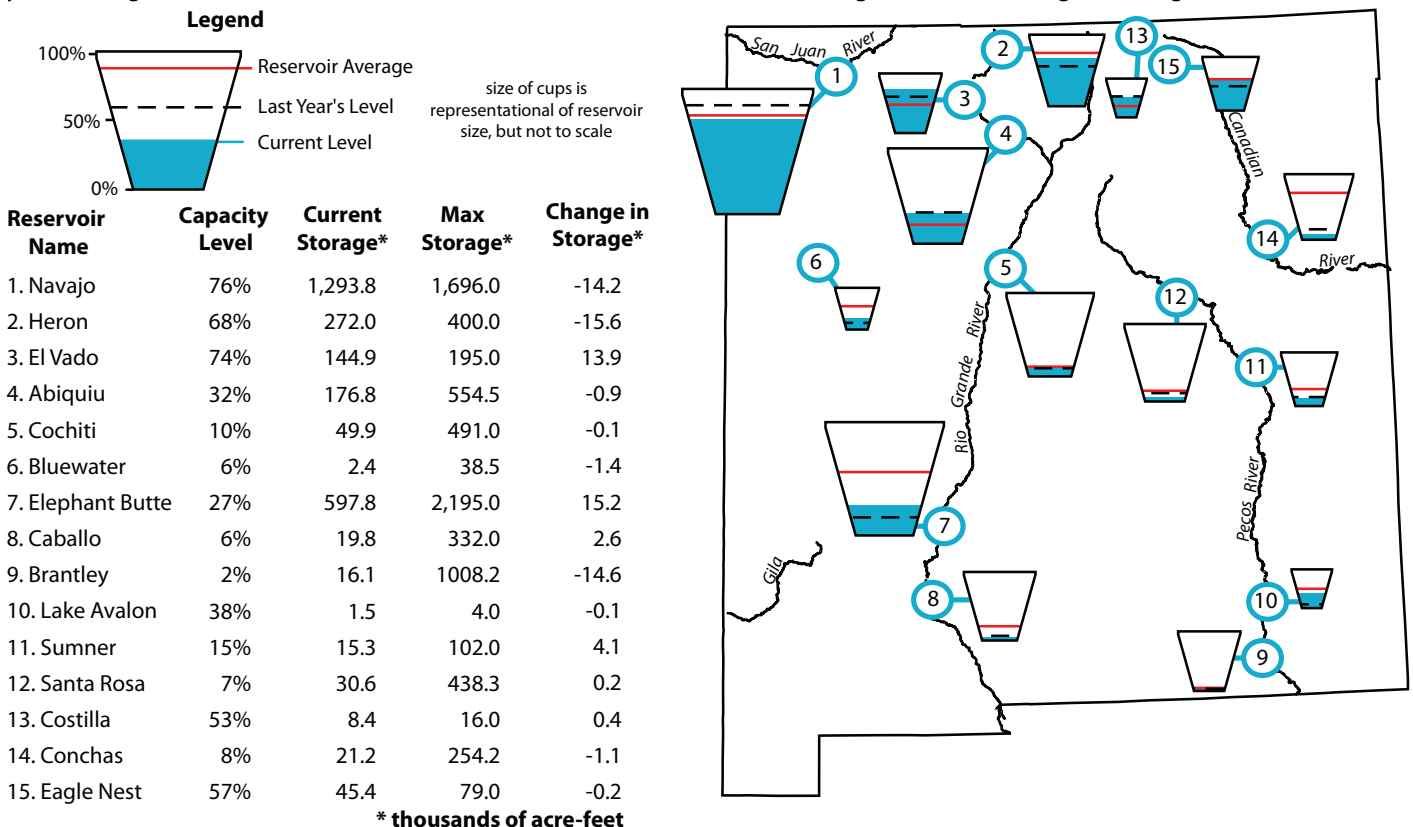
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The map gives a representation of current storage levels for reservoirs in New Mexico. Reservoir locations are numbered within the blue circles on the map, corresponding to the reservoirs listed in the table. The cup next to each reservoir shows the current storage level (blue fill) as a percent of total capacity. Note that while the size of each cup varies with the size of the reservoir, these are representational and not to scale. Each cup also represents last year's storage level (dotted line) and the 1971–2000 reservoir average (red line).

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These data are based on reservoir reports updated monthly by the National Water and Climate Center of the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS). For additional information, contact Richard Armijo, Richard.Armijo@nm.usda.gov.

Figure 2. New Mexico reservoir levels for November 2008 as a percent of capacity. The map depicts the average level and last year's storage for each reservoir. The table also lists current and maximum storage levels, and change in storage since last month.



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