December 20, 2012

Southwest Climate Outlook

Vol. 11 Issue 12

December Climate Summary

Editor's Note: The December issue is abbreviated due to the holidays.

Drought: Drought conditions remain largely unchanged from one month ago. Moderate or a more severe drought category covers more than 97 percent of Arizona and New Mexico.

Temperature: Temperatures have been more than 2 degrees Fahrenheit above average in most of Arizona and New Mexico during the past month, with temperature anomalies exceeding 6 degrees F in many parts of eastern New Mexico.

Precipitation: Above-average rain and snow have fallen in many parts of Arizona in the last month as a result of several early winter storms. Despite the recent storms, below-average precipitation has defined conditions in most of New Mexico.

ENSO: ENSO-neutral conditions prevail and have more than an 80 percent probability of continuing through the March–May period.

Climate Forecasts: Outlooks call for increased chances of drier-than-average conditions and warmer-than-average temperatures during the January through March period.

The Bottom Line: Drought conditions across the Southwest remain widespread, with at least moderate drought covering about 97 percent of Arizona and New Mexico. Several recent early winter storms have delivered copious rain and snow to many parts of the Southwest, which should help short-term drought conditions. These storms boosted early winter snowpack conditions, which measure more than 200 percent of average in many parts of Arizona's higher elevations. The storms also dropped snow in the high country of the Upper Colorado River and Rio Grande basins, although water contained in the snowpacks of most measuring stations in these regions remains below average. With below-average water storage in many of the region's reservoirs, a heavy dosing of snow is needed to mollify concerns of water shortages, especially on the Rio Grande and Pecos River in New Mexico. Even if winter rain and snow is above average, however, drought conditions likely will persist. They may also worsen if precipitation forecasts, which call for below-average rain and snow, play out. Drier-than-average conditions in the Southwest are forecasted in part because ENSO-neutral conditions and cooler-than-average sea surface temperatures in the western North Pacific Ocean, both of which exist now, have historically favored dry conditions in the region. Forecasts in the Upper Colorado and Rio Grande basins also call for slightly increased chances for below-average rain and snow. Temperature forecasts continue to favor warmer than-average conditions. Warmer-than-average spring temperatures could hasten spring snowmelt, potentially increasing the risk of wildland fires because the landscape would have a longer period to dry out before summer rains arrive.

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Arizona Reservoir Levels
(through 11/30/12)

Data Source: National Water and Climate Center

Combined storage in Lakes Mead and Powell stood at 52.7 percent of capacity as of November 30, a slight decrease from last month (*Figure 1*) and 7.9 percent lower than it was one year ago. Declines in reservoir storage during the last year were primarily due to a La Niña event, which helped push storms north of the Upper Colorado River Basin. Storage continued to decrease in the San Carlos Reservoir and the Salt and Verde river basin reservoir systems, which is normal for this time of year. Higher elevation winter snowpacks, which substantially contribute to Arizona's water supply, are off to a good start. Several recent storms boosted snowpacks in the White Mountains and other ranges, and water contained in snowpacks measured at snow telemetry sites (SNOTEL) record above-average conditions, with some exceeding 200 percent of average. The first spring streamflow forecasts for Arizona will be issued on January 1 and every two weeks thereafter until April 1; forecasts become progressively more accurate as the winter advances.

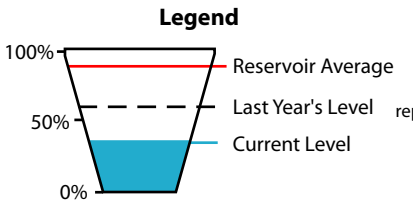
Notes:

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).

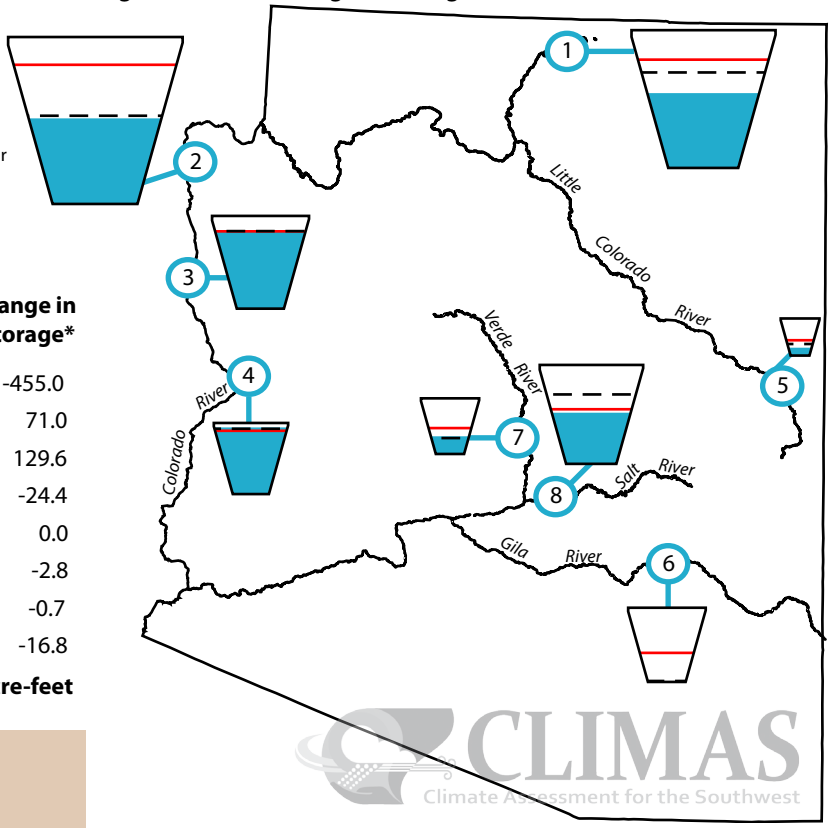
The table details more exactly the current capacity level (listed as a percent of maximum storage). Current and maximum storage levels are given in thousands of acre-feet for each reservoir. One acre-foot is the volume of water sufficient to cover an acre of land to a depth of 1 foot (approximately 325,851 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 table 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).

Figure 1. Arizona reservoir levels for November 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.



size of cups is representational of reservoir size, but not to scale



Reservoir Name	Capacity Level	Current Storage*	Max Storage*	Change in Storage*
1. Lake Powell	54%	13,251.0	24,322.0	-455.0
2. Lake Mead	51%	13,334.0	26,159.0	71.0
3. Lake Mohave	83%	1,507.0	1,810.0	129.6
4. Lake Havasu	94%	581.2	619.0	-24.4
5. Lyman Reservoir	14%	4.3	30.0	0.0
6. San Carlos	0%	2.4	875.0	-2.8
7. Verde River System	32%	90.6	287.4	-0.7
8. Salt River System	52%	1,047.0	2,025.8	-16.8

*** thousands of acre-feet**

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 11/30/12)

Data Source: National Water and Climate Center

Combined water storage in the 15 New Mexican reservoirs reported here is at 18 percent of capacity and only 44 percent of average (*Figure 2*). Total reservoir storage did not substantially change from one month ago, which is common for this time of year. Combined storage on the four reservoirs on the Pecos River stands at about 1 percent of capacity and about 14 percent of average. Elephant Butte Reservoir, on the Rio Grande, is also extremely low, measuring only 6 percent of capacity. For these reservoirs, snow in the northern New Mexican mountains and the southern Colorado Rockies this winter will be vital for boosting snowpacks. So far, however, winter precipitation is not off to a wet start. Between October 1 and December 18, precipitation in northern New Mexico and southern Colorado generally was less than 70 percent of average. Despite these relatively dry conditions, the winter is just beginning and there is ample time for storms to build up snowpacks and, in turn, reservoir storage.

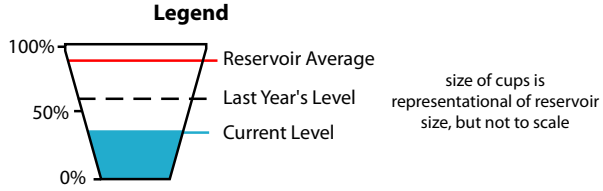
Notes:

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).

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 table list an increase or decrease in storage since last month. A line indicates no change.

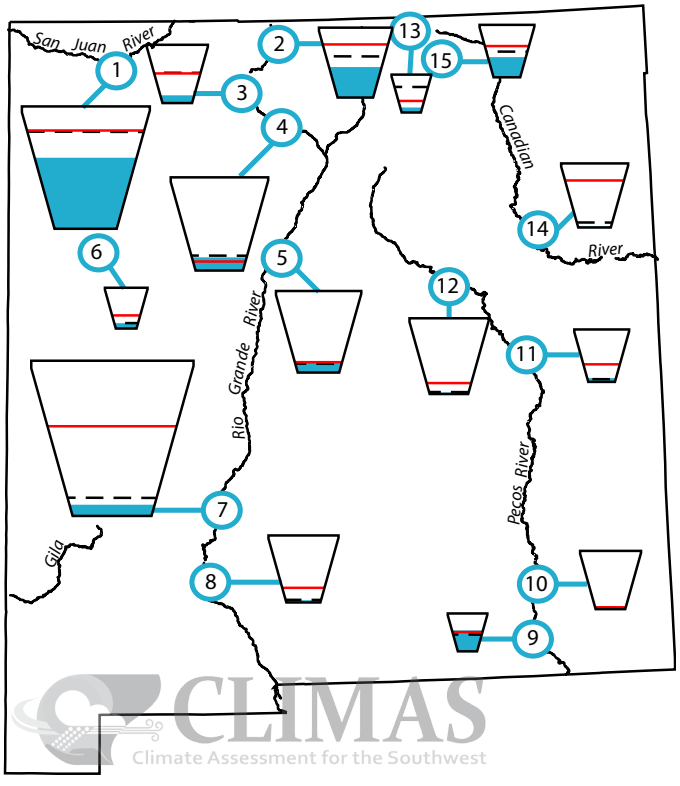
These data are based on reservoir reports updated monthly by the National Water and Climate Center of the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS).

Figure 2. New Mexico reservoir levels for November 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.



Reservoir Name	Capacity Level	Current Storage*	Max Storage*	Change in Storage*
1. Navajo	57%	970.0	1,696.0	-15.4
2. Heron	42%	169.9	400.0	-7.3
3. El Vado	12%	23.1	190.3	-10.7
4. Abiquiu	13%	158.9	1,192.8	-2.0
5. Cochiti	11%	52.5	491.0	0.0
6. Bluewater	9%	3.4	38.5	-0.1
7. Elephant Butte	6%	123.0	2,195.0	8.8
8. Caballo	2%	6.5	332.0	0.7
9. Lake Avalon	53%	2.1	4.0	0.3
10. Brantley	0%	3 .7	1,008.2	0.5
11. Sumner	6%	6.0	102.0	2.6
12. Santa Rosa	1%	4.8	438.3	0.0
13. Costilla	13%	2.0	16.0	0.3
14. Conchas	1%	3.0	254.2	-1.4
15. Eagle Nest	37%	28.9	79.0	-0.4

*** thousands of acre-feet**



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