



United States
Department of
Agriculture

Natural
Resources
Conservation
Service

New Mexico

Basin Outlook Report

March 1, 2016



Shuree SNOTEL site and manual course– Photo courtesy of Chris Romero, NRCS

Basin Outlook Reports and Federal - State - Private Cooperative Snow Surveys

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<http://www.nrcs.usda.gov/wps/portal/nrcs/main/nm/snow/>

How forecasts are made

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snow courses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. These forecasts are coordinated between hydrologists in the Natural Resources Conservation Service and the National Weather Service. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

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Summary

What a difference one month can make! Warmer-than-normal conditions spread throughout much of New Mexico during the month of February. Despite the mostly favorable water year precipitation and snowpack to date, the warmth and dryness raises concerns of snowmelt in the higher elevations. Statewide snowpack has dropped 40 percent over the past month primarily due to above average temperatures. This positions New Mexico just slightly above 2015's median of 72 percent at the beginning of March. Water year to date precipitation through February state wide is 111 percent of average compared to 90 percent at this time last year. On the other hand snow water equivalent values across much of the Northern Mountains have remained reasonably consistent despite the above average temperatures and snow melt. The western half of New Mexico has been hit the hardest with snowpack either completely gone or snow water equivalent values in the 20th percentile. Forecast models continue to still support a strong El Nino signature through the winter months with a sharp decline as we approach spring and summer. A series of upper level disturbances are expected to move across New Mexico early next week with a strong upper level system developing over the Southwest through Tuesday. This is a slow moving system which has the likelihood of delivering rain as well as snow to the higher elevations. I wouldn't say winter is over yet! I continue to remain optimistic about the months to come and New Mexico's water supply for 2016, however, I encourage water users to closely monitor conditions over the next several months.

Snowpack

Increasingly warm weather was widespread across New Mexico during the month of February with numerous daily record highs noted throughout the state. These temperatures, coupled with only receiving 52 percent of the average precipitation for the month, have consequently diminished the remaining snow pack. The good news is that wind speeds have remained fairly low and sublimation appears to be minimal, allowing for snow water equivalent values to remain marginally impacted throughout much of New Mexico. Nonetheless, our snowpack values are quickly dwindling and now range from 0 to 126 percent of median. Currently the statewide snowpack average is 80 percent of median. It is getting late into the season to rebuild significant snowpack, yet March is forecast to be productive even if runoff comes as rain. I remain optimistic regarding this winter, however, I encourage water users to closely monitor snowpack and forecasts values as April approaches.

NEW MEXICO STATEWIDE SNOWPACK	Percent of Median	Last Year Percent of Median
CANADIAN RIVER BASIN	93	101
PECOS RIVER BASIN	100	70
RIO GRANDE BASIN	89	79
MIMBRES RIVER BASIN	0	32
SAN FRANCISCO-UPPER GILA RIVER BASIN	29	24
ZUNI-BLUEWATER BASINS	34	38
SAN JUAN RIVER BASIN	94	70
CHUSKA MOUNTAINS	84	44
RIO HONDO BASIN	126	68
Statewide Snowpack Total	80	72
# of sites	36	36

Precipitation

New Mexico saw little in the way of rain or snow across the state during February. A decent system moved through the state on the 2nd and a much smaller more isolated one on the 24th, but neither contributed immensely to our snowpack. How does this year compare to last? Last February statewide we received 99 percent of the average precipitation as compared to 52 percent this February. Water year-to-date we have received 111 percent of the average compared to 90 percent last year. The excellent start early in the water year has cumulatively rescued us so from what would be another unexceptional season. February precipitation averages range from 23 percent in the Zuni-Bluewater Basin to 83 in the Canadian. Water year-to-date averages range from 77 percent in the Zuni-Bluewater Basin to 154 percent in the Rio Hondo Basin. I echo that these last values only remain average to above average based on the precipitation we received early in the water year. The long range weather forecast continues to favor a wet weather pattern over the next several months and I remain optimistic that this will be a better than average water year for New Mexico.

Reservoirs

Storage levels across the state range from 3 percent of capacity to 110 percent. The statewide average is 34 percent of capacity as compared to 25 percent last year. Storage levels are still below capacity at all reservoirs across the state except for Lake Avalon. Despite this, the Pecos basin remains at 12 percent of capacity. Navajo reservoir located in the San Juan Basin is currently at 83 percent of capacity. With the current snowpack and spring approaching I expect these numbers to improve but not dramatically. Water users should monitor the forecast values and plan accordingly.

NEW MEXICO STATEWIDE	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)	Current % Capacity	Last Year % Capacity	Average % Capacity	Current % Average	Last Year % Average
Abiquiu Reservoir	132.4	133.8	154.8	1192.8	11%	11%	13%	86%	86%
Bluewater Lake	2.1	2.4	6.6	38.5	5%	6%	17%	32%	36%
Brantley Lake nr Carlsbad	33.5	84.5	22.9	1008.2	3%	8%	2%	146%	369%
Caballo Reservoir	30.8	35.3	101.1	332.0	9%	11%	30%	30%	35%
Cochiti Lake	46.4	48.9	58.3	491.0	9%	10%	12%	80%	84%
Conchas Lake	139.1	84.5	202.0	254.2	55%	33%	79%	69%	42%
Costilla Reservoir	10.3	4.0	6.9	16.0	64%	25%	43%	149%	58%
Eagle Nest Lake nr Eagle Nest, NM	31.4	18.3	54.1	79.0	40%	23%	68%	58%	34%
El Vado Reservoir		17.2	100.8	190.3		9%	53%		17%
Elephant Butte Reservoir	400.8	328.7	1305.0	2195.0	18%	15%	59%	31%	25%
Heron Reservoir		61.3	297.8	400.0		15%	74%		21%
Lake Avalon	4.4	3.2	2.6	4.0	110%	79%	65%	169%	122%
Lake Sumner	46.1	48.3	33.1	102.0	45%	47%	32%	139%	146%
Navajo Reservoir	1404.7	1095.9	1292.0	1696.0	83%	65%	76%	109%	85%
Santa Rosa Reservoir	97.7	69.3	53.2	438.3	22%	16%	12%	184%	130%
Basin-wide Total	2379.7	1957.1	3292.6	7847.0	30%	25%	42%	72%	59%
# of reservoirs	13	13	13	13	13	13	13	13	13

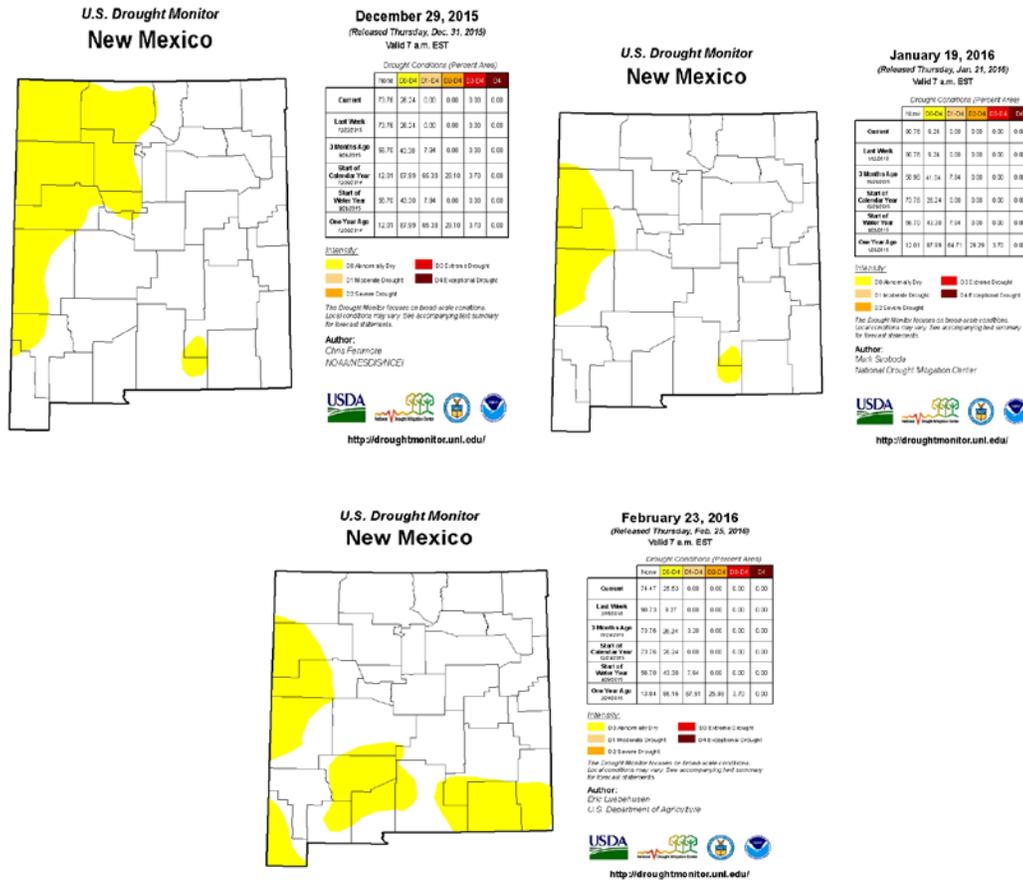
* El Vado Reservoir is currently 35.1 KAF

* Heron Reservoir is currently 71.1 KAF

Streamflow

Streamflow conditions across New Mexico have decreased statewide due to the lack of precipitation and well above normal temperatures. The western half of the state saw the largest decreases with the Mimbres River basin falling 138 percent over one month! Snow water equivalent values across the west currently range from 43 to 3 percent. This will dramatically change runoff values over the coming month if the snowpack is not refreshed soon. In the Rio Grande basin streamflow values range from 79 to 155 percent of average. Streamflow at the Jemez River near Jemez is now at 81 percent of the historic average for the March to July forecast. The headwaters of the Canadian River basin has streamflow conditions from 83 to 133 percent of the average at the Conchas Reservoir Inflow. Conditions in the Pecos River Basin have decreased an average of 36 percent for the March to July forecast. Streamflow in the Gila Basin was 108 to 130 percent of average. Although better than most basins, conditions on the Animas of the San Juan River basin have gone down almost 20 percent. Overall the forecasts for New Mexico are better than last year at this point in the water year. However, as previously mentioned, this could quickly change if March is not a productive month for New Mexico.

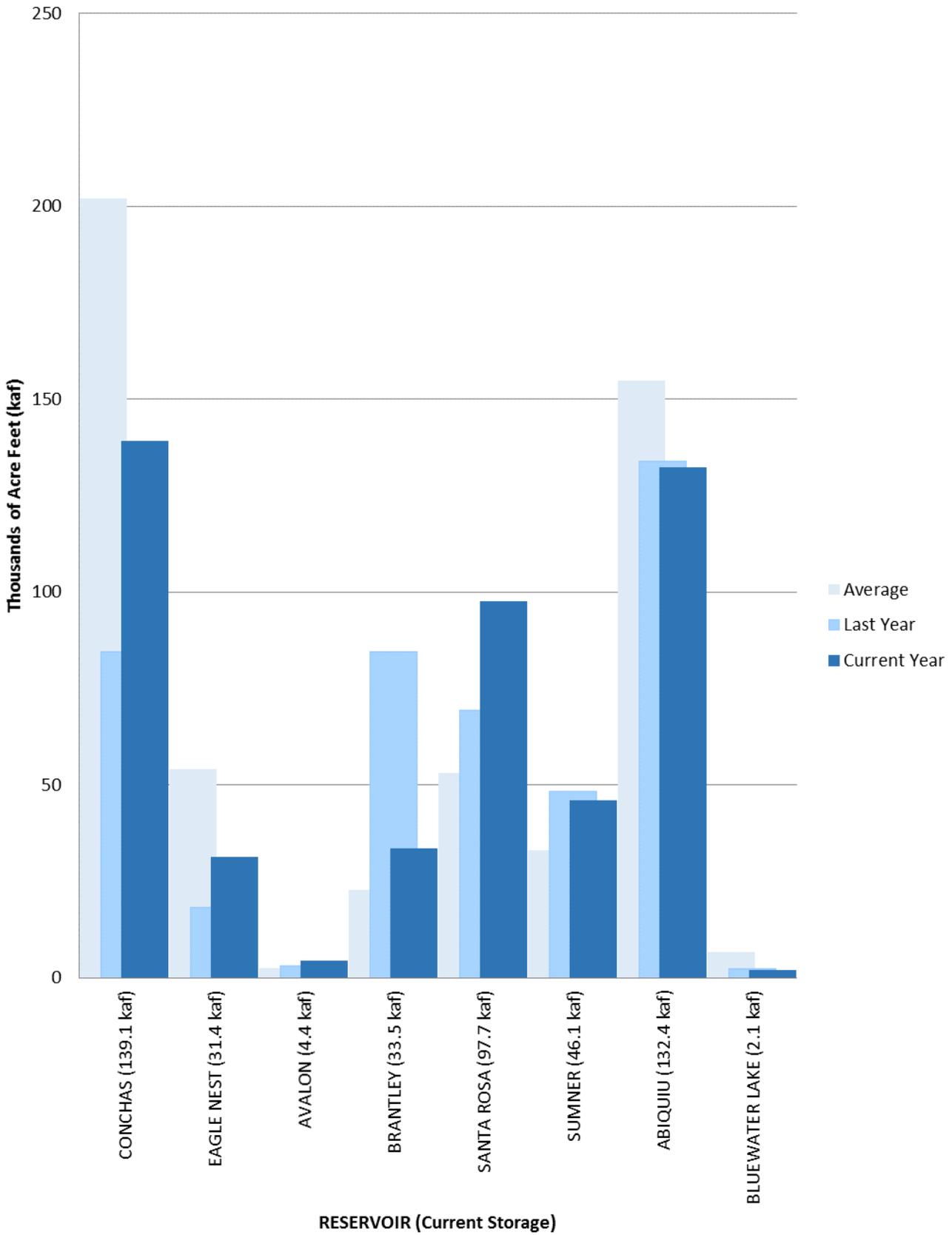
New Mexico Drought Monitor, real versus perceived conditions?



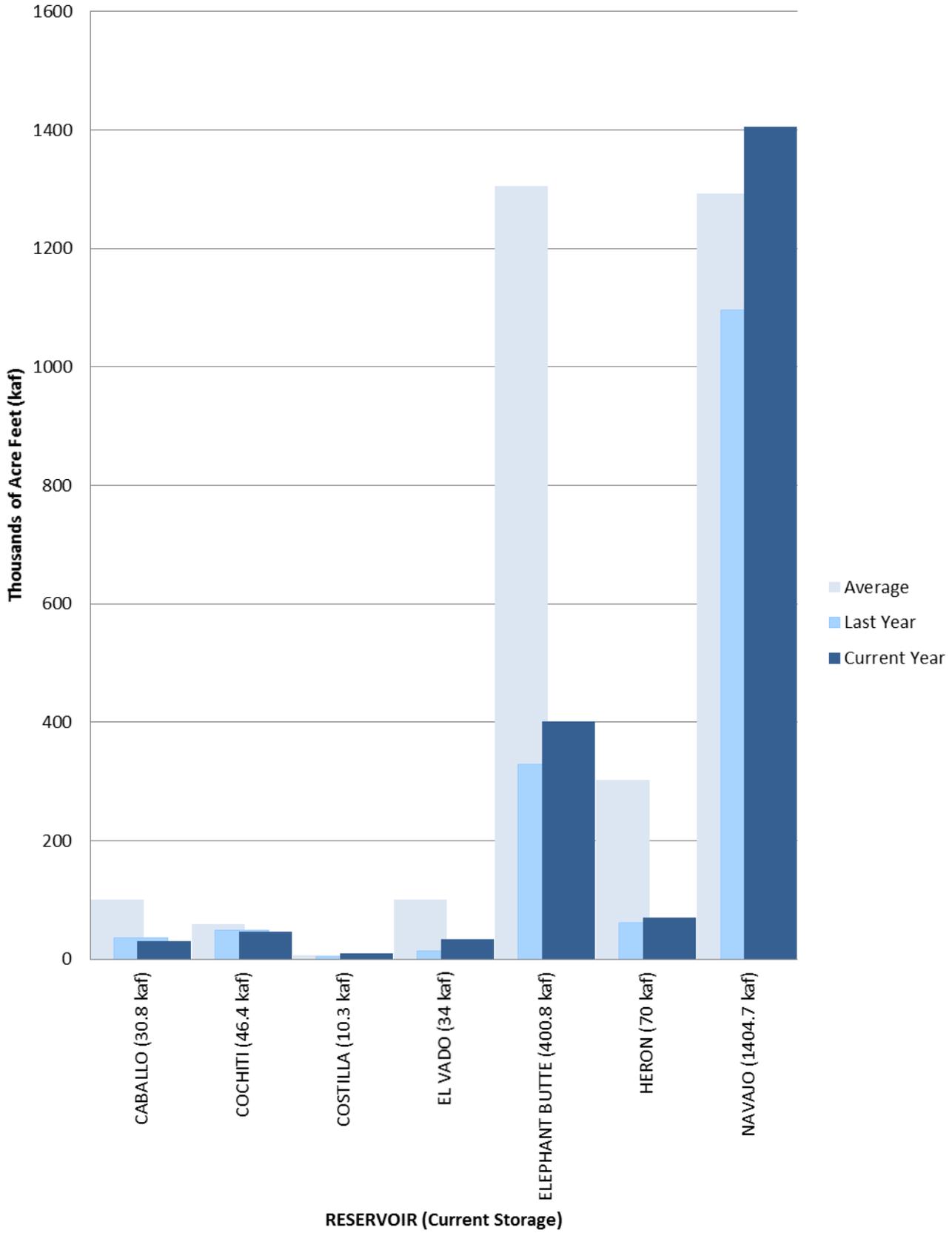
Every week, The U.S. Drought Monitor is produced in partnership between the National Drought Mitigation Center at the University of Nebraska-Lincoln, the United States Department of Agriculture, and the National Oceanic and Atmospheric Administration. This useful tool uses multiple inputs, including precipitation received, to give an indication of the extent and severity of drought conditions nationwide. For the calendar year (Jan 2016 – Feb 2016) statewide precipitation average was 136 percent of normal. For the 2016 Water Year to date (Oct 2015 – Feb 2016) the statewide average is currently 111 percent of normal. Over the past month D0 conditions have expanded over southeastern New Mexico where the favorable half of the Water Year has given way to protracted dryness. Furthermore, the initially favorable snowpacks have begun to rapidly diminish, with SWE near or below the 20th percentile across western New Mexico.

The model consensus still continues to support El Nino conditions through the remainder of the winter with a sharp decline into spring and summer. The one month outlook trends toward a 50 percent chance of above average precipitation in the northeastern corner of the state with a 40 percent chance for the remainder of New Mexico. During March there is an equal chance for above or below normal temperatures for much of the state. The southeastern corner has a 40 percent chance of below average temperatures during March. The three month outlook (March - May) has a 50 percent probability of above average precipitation across the state. The spring temperature outlook shows a 40 percent chance of below average temperatures for the eastern half of the state and a 33 percent chance for the remainder. The prospects for a good winter are still there, however, they are diminishing quickly. New Mexico has experienced measurable snow melt throughout February and it is getting late in the season for rebuilding significant snowpack. With that in mind spring has historically been a good month for El Nino in New Mexico, yet additional runoff may have to come from rain versus snow. Water users should closely monitor snowpack, precipitation, reservoir levels, and forecast values as we move towards spring.

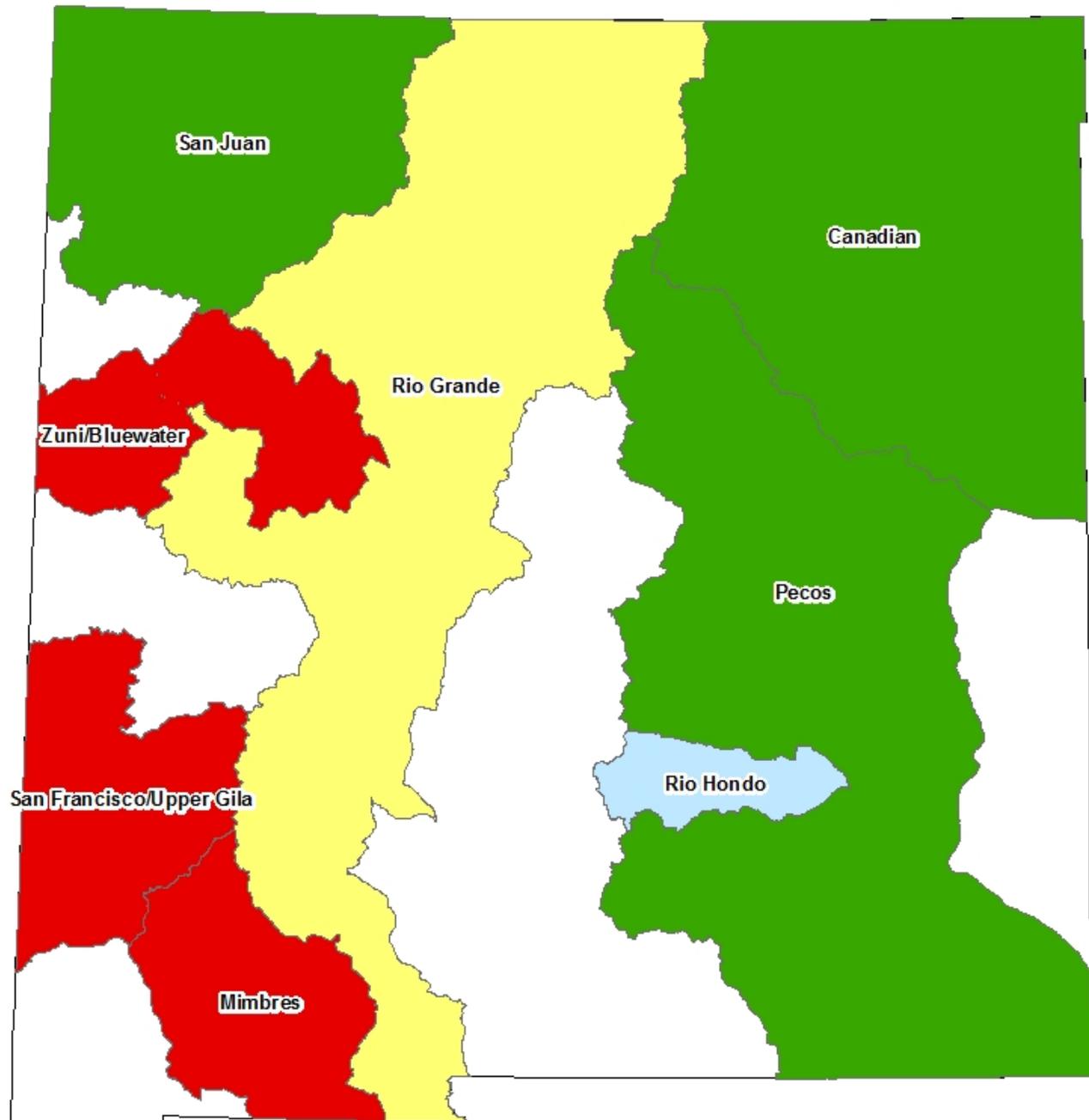
Statewide Reservoir Storage



Statewide Reservoir Storage



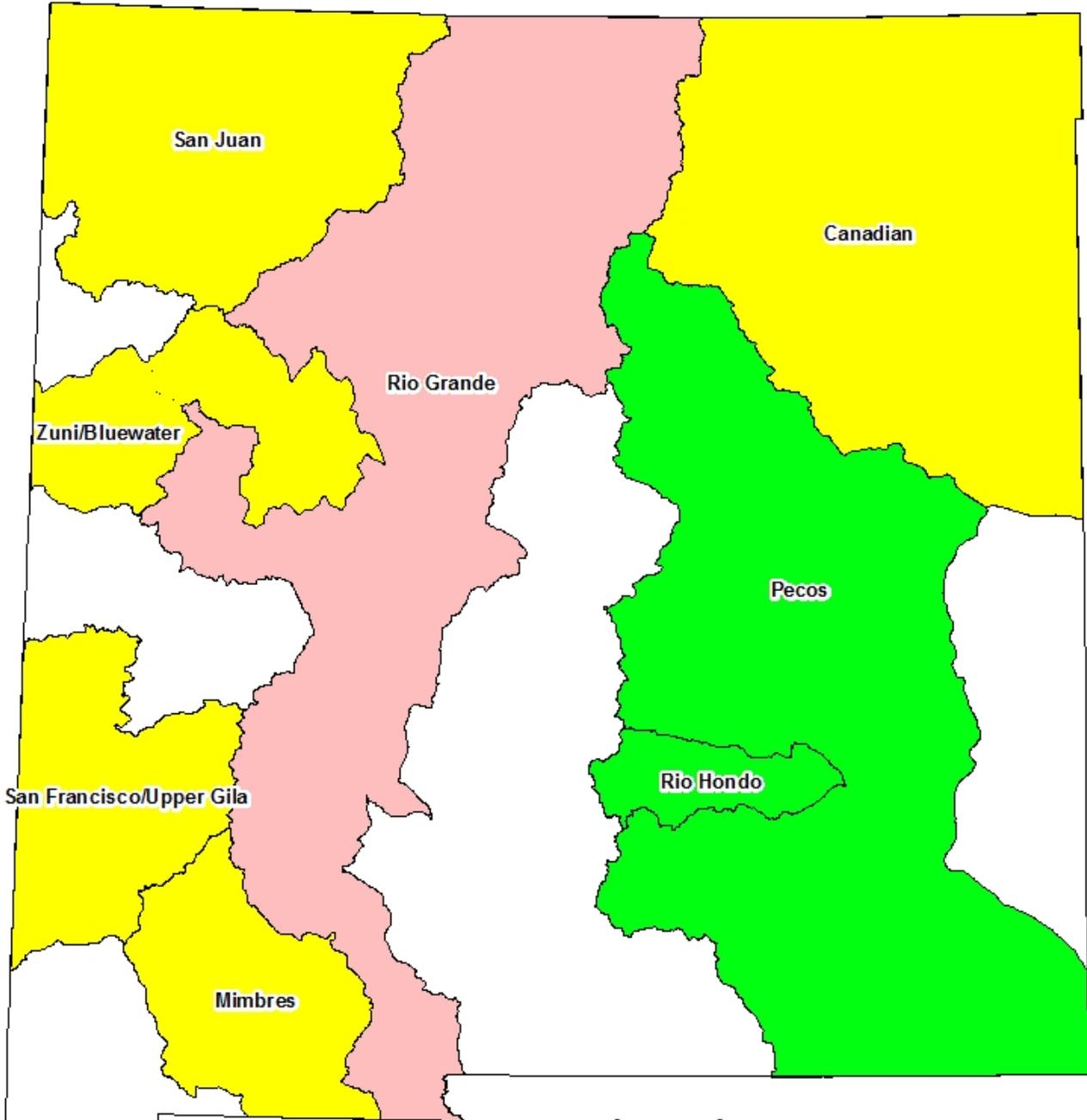
New Mexico Percent of Median Snowpack as of March 1, 2016



Legend

No Data	91 - 110
< 50	111 - 130
50 - 70	131 - 150
71 - 90	> 150

New Mexico Surface Water Supply Index as of March 1, 2016



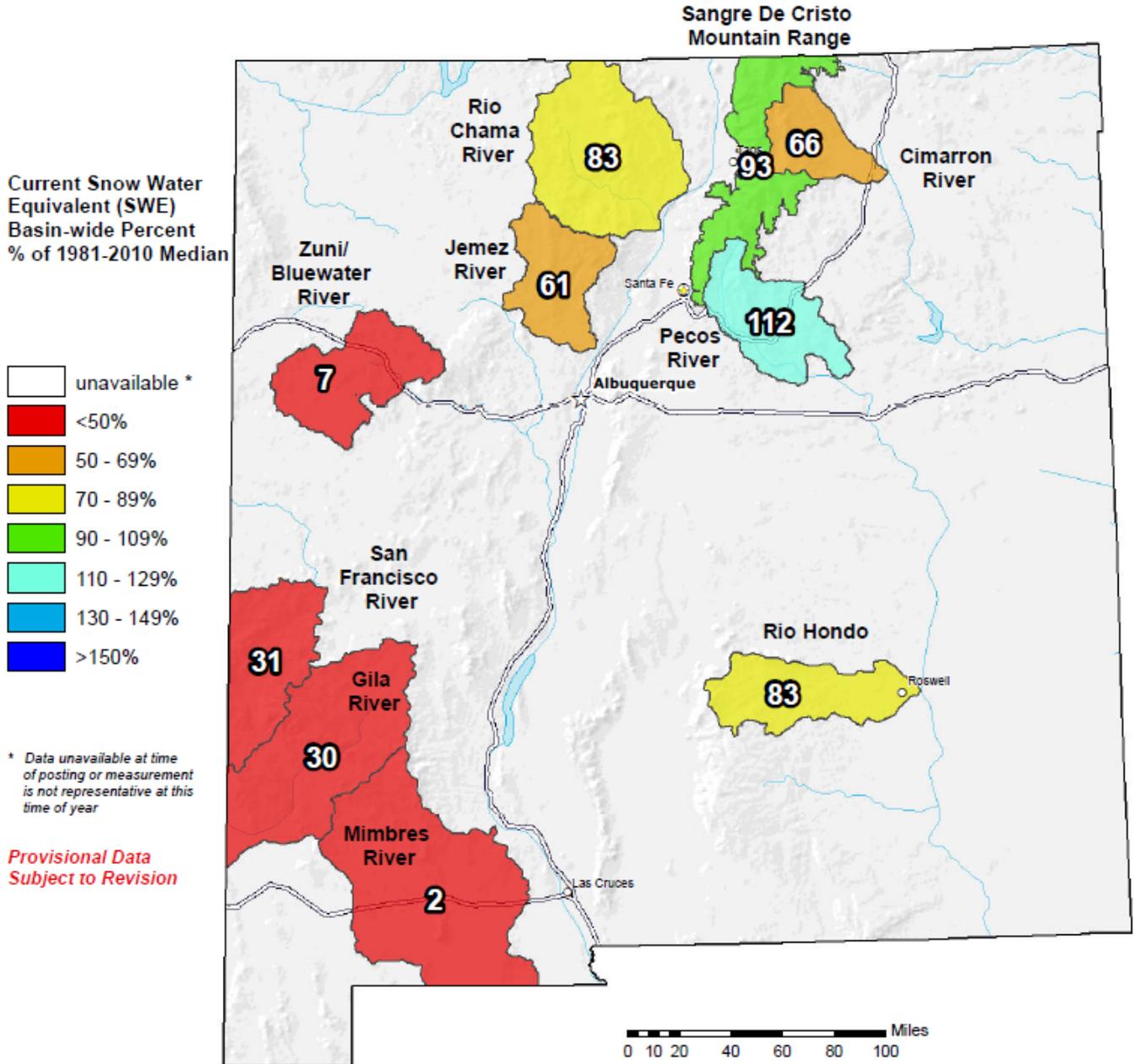
Legend

Surface Water Supply Index	
Yellow	-1.5 - 1.5
Green	1.6 - 3.0
Blue	3.1 - 4.0
White	No Data
Red	-4.0 - -3.1
Pink	-3.0 - -1.6



New Mexico SNOTEL Current Snow Water Equivalent (SWE) % of Normal

Mar 07, 2016



The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

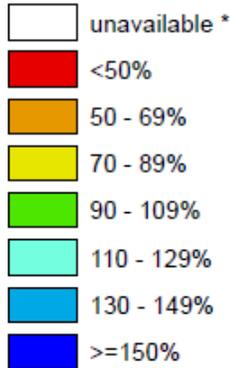
Prepared by:
USDA/NRCS National Water and Climate Center
Portland, Oregon
<http://www.wcc.nrcs.usda.gov>

New Mexico

SNOTEL Water Year (Oct 1) to Date Precipitation % of Normal

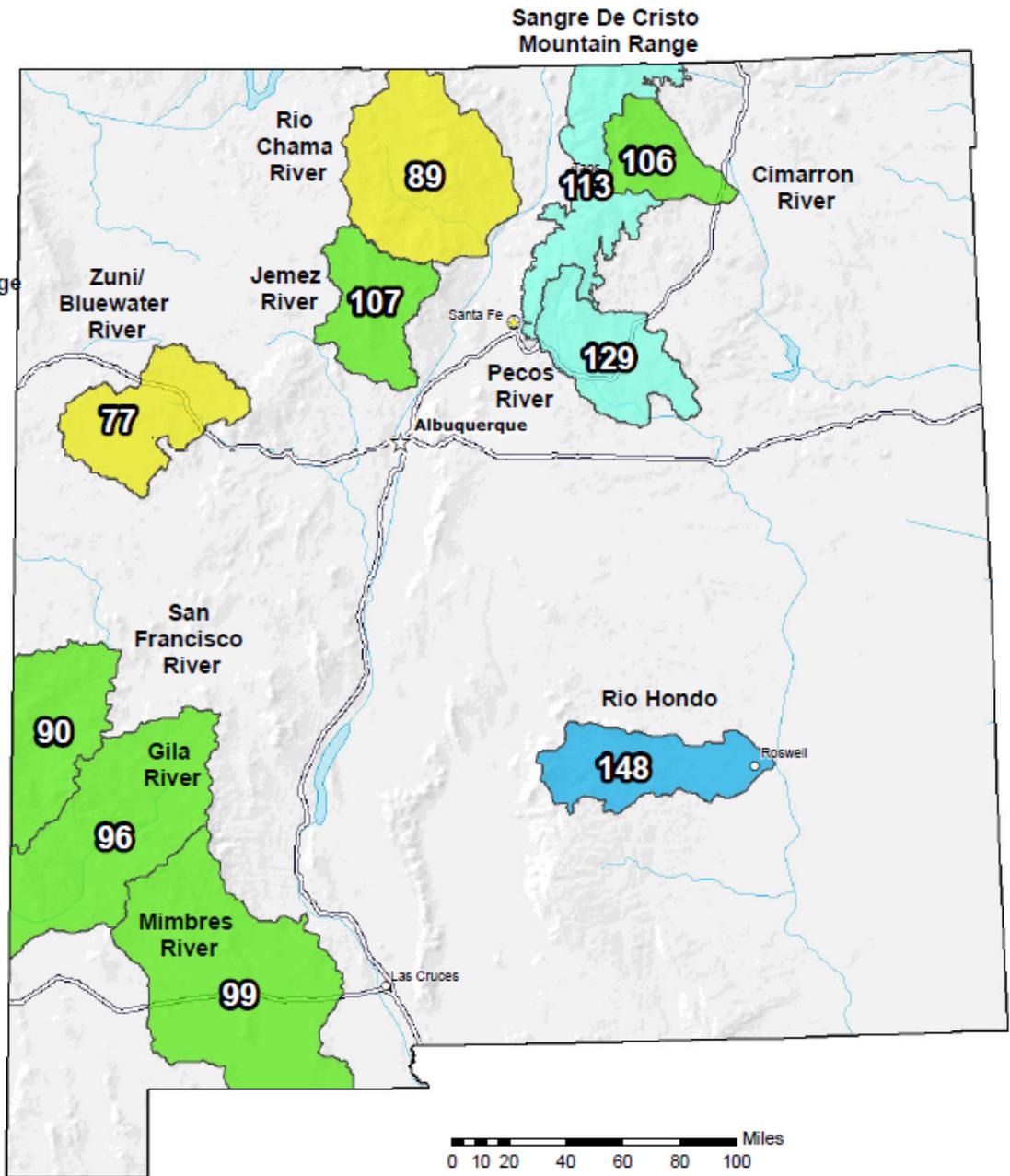
Mar 07, 2016

Water Year (Oct 1)
to Date Precipitation
Basin-wide Percent
% of 1981-2010 Average



* Data unavailable at time of posting or measurement is not representative at this time of year

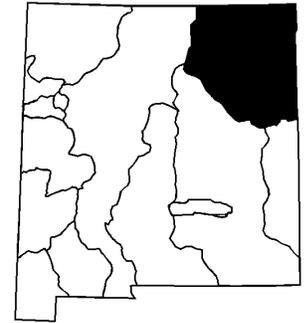
*Provisional Data
Subject to Revision*



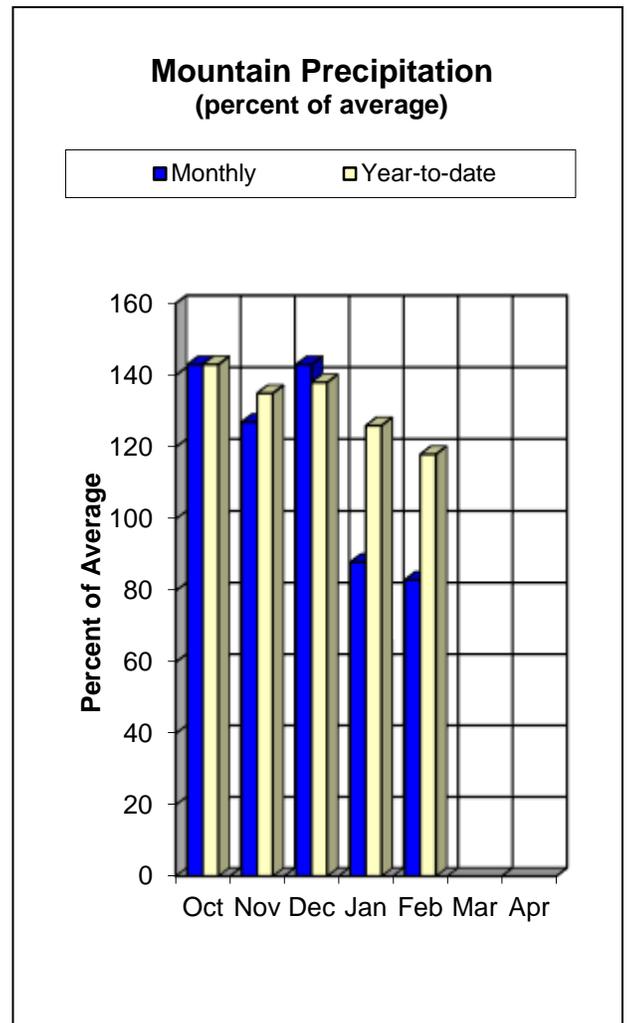
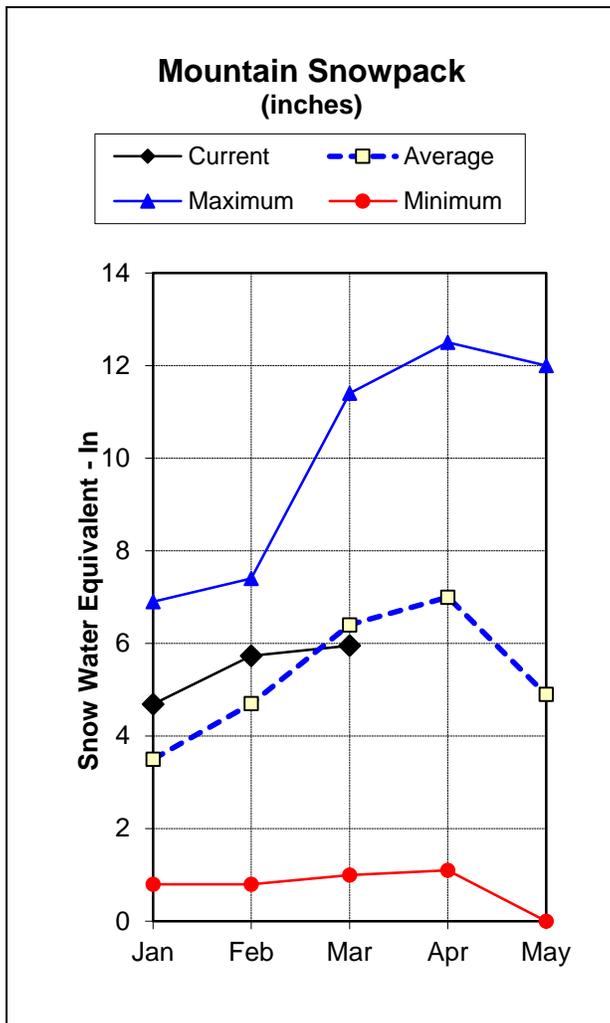
The water year to date precipitation percent of normal represents the accumulated precipitation found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

Prepared by:
USDA/NRCS National Water and Climate Center
Portland, Oregon
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Canadian River Basin Water Supply Outlook Report as of March 1, 2016



The Canadian River Basin forecasts for the March to June time period have decreased on average by 20 percent. They now range from 83 percent of average for the Vermejo River near Dawson to 133 percent of average at the Conchas Reservoir inflow. This is a decrease of 24 percent at the inflow. Year-to-date precipitation in the Canadian River Basin is 118 percent of average which is another 8 percent decrease from January. Snowpack in the basin has decreased 122 percent of median to 93 percent. This is a slight decrease from 101 percent last year at this time. Reservoirs are currently holding 170,500 acre-feet of storage which is an increase of 67,700 acre feet from last year at this time. Reservoir storage in the Canadian River Basin remains at 51 percent of capacity as compared to 31 percent last year at the end of February.



Canadian River Basin Streamflow Forecasts - March 1, 2016

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

CANADIAN RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Vermejo R nr Dawson	MAR-JUN	2.6	4.6	6.5	83%	8.8	13.1	7.8
Eagle Nest Reservoir Inflow	MAR-JUN	4.5	7.2	9.5	85%	12.3	17.2	11.2
Cimarron R nr Cimarron ²	MAR-JUN	1	7.4	13.5	85%	19.6	29	15.8
Ponil Ck nr Cimarron	MAR-JUN	2.7	4.5	6	83%	7.9	11.2	7.2
Rayado Ck nr Cimarron	MAR-JUN	2.4	4.3	5.9	84%	7.9	11.7	7
Conchas Reservoir Inflow ³	MAR-JUN	10	25	40	133%	61	103	30

1) 90% and 10% exceedance probabilities are actually 95% and 5%

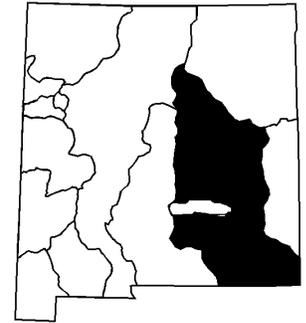
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

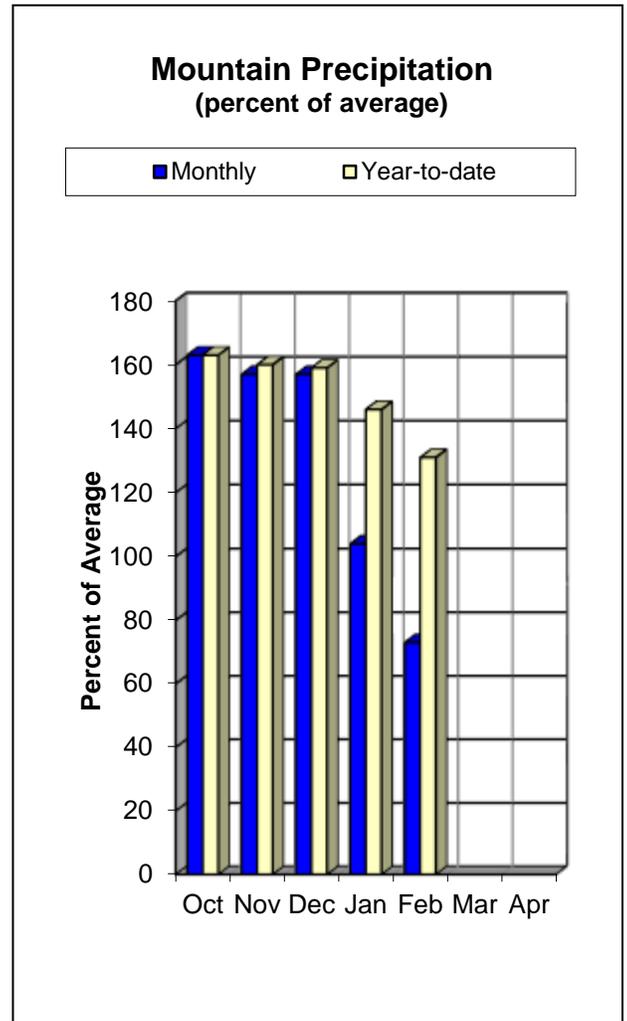
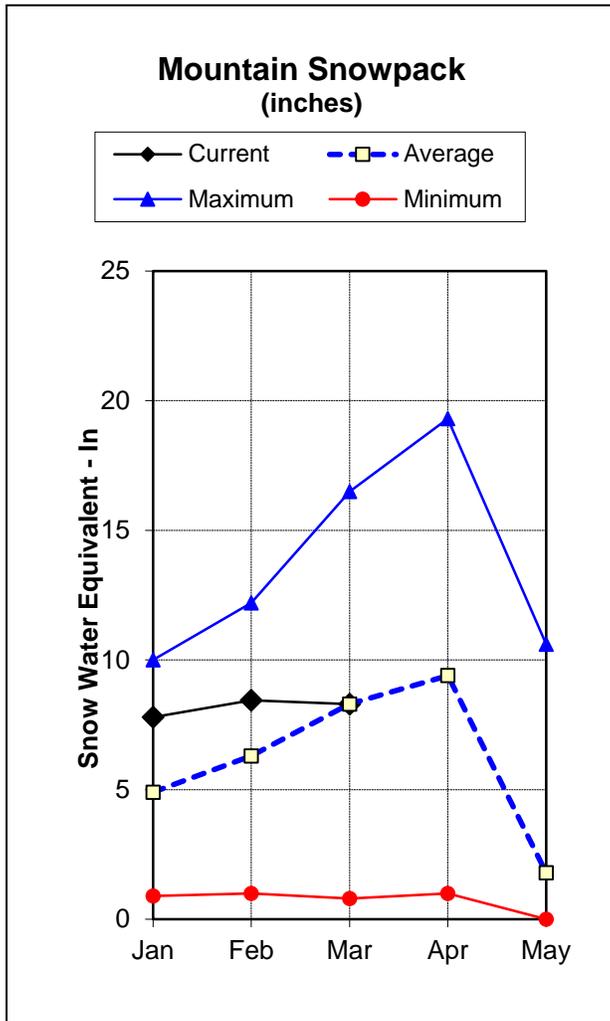
Reservoir Storage End of February, 2016	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Conchas Lake	139.1	84.5	202.0	254.2
Eagle Nest Lake nr Eagle Nest, NM	31.4	18.3	54.1	79.0
Basin-wide Total	170.5	102.8	256.1	333.2
# of reservoirs	2	2	2	2

Watershed Snowpack Analysis March 1, 2016	# of Sites	% Median	Last Year % Median
CANADIAN RIVER BASIN	8	93%	101%

Pecos River Basin Water Supply Outlook Report as of March 1, 2016



Streamflow forecasts in the Pecos River Basin for the March to July timeframe have decreased considerably. They are now at 102 percent of average for the Pecos River above Santa Rosa Lake and 111 percent of average for the Pecos River near Pecos. Comparatively, this is a 39 and 36 percent decrease from last month's forecast. February received 73 percent of the average precipitation, which currently puts the Pecos River Basin at 131 percent of average for the water year. This is a decrease of 5 percent. Snowpack levels in the Pecos River Basin have continued to decrease through February and are now at 100 percent of median. Last year at this time the basin had 70 percent of median. As of February 1st reservoir storage in the basin is at 181,700 acre-feet, which remains just 12 percent of capacity. This is a decrease from the 205,300 acre-feet we had last year at this time.



Pecos River Basin Streamflow Forecasts - March 1, 2016

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast

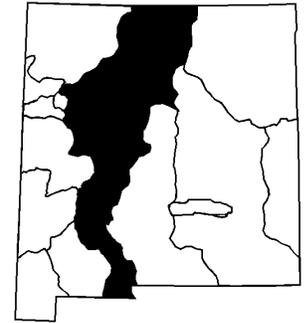
PECOS RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Pecos R nr Pecos	MAR-JUL	38	52	63	111%	75	94	57
Pecos R nr Anton Chico	MAR-JUL	28	48	65	103%	84	117	63
Gallinas Ck nr Montezuma	MAR-JUL	4.3	7.9	11	112%	14.6	21	9.8
Pecos R ab Santa Rosa Lk	MAR-JUL	24	42	57	102%	74	104	56

- 1) 90% and 10% exceedance probabilities are actually 95% and 5%
- 2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
- 3) Median value used in place of average

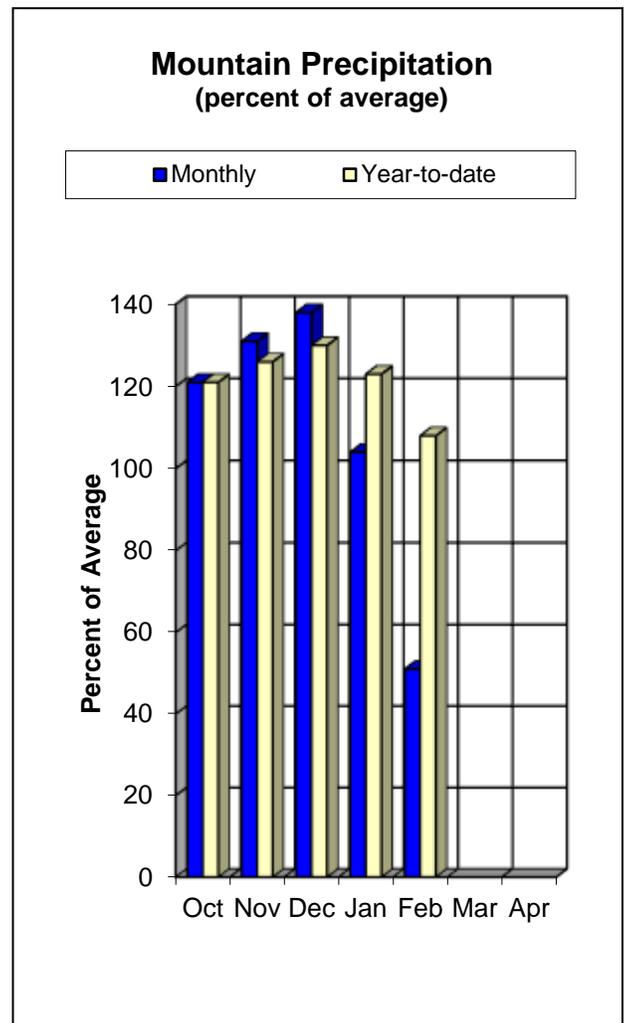
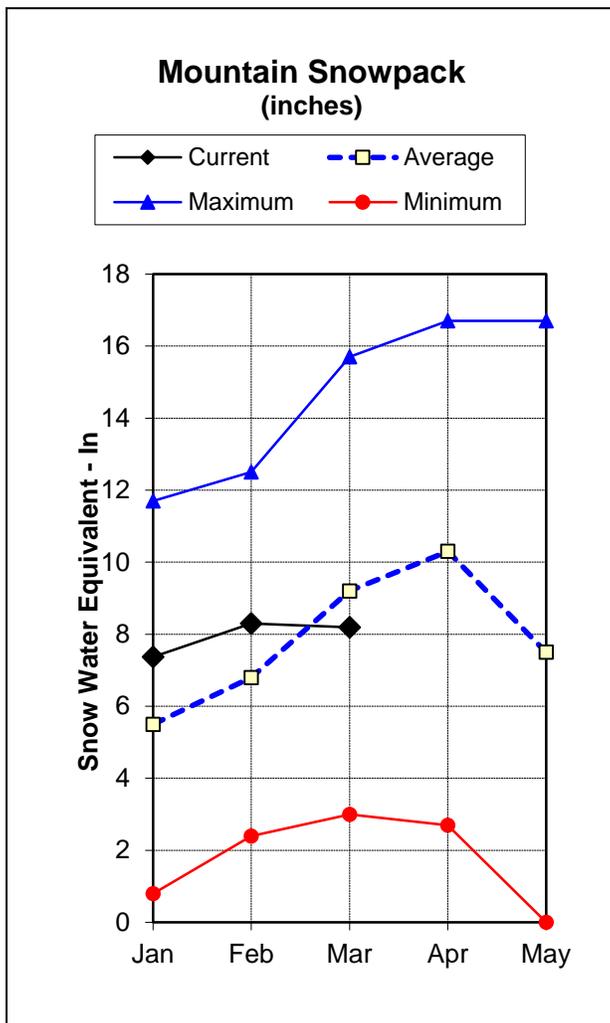
Reservoir Storage End of February, 2016	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Lake Avalon	4.4	3.2	2.6	4.0
Brantley Lake nr Carlsbad	33.5	84.5	22.9	1008.2
Santa Rosa Reservoir	97.7	69.3	53.2	438.3
Lake Sumner	46.1	48.3	33.1	102.0
Basin-wide Total	181.7	205.3	111.8	1552.5
# of reservoirs	4	4	4	4

Watershed Snowpack Analysis March 1, 2016	# of Sites	% Median	Last Year % Median
PECOS RIVER BASIN	4	100%	70%

Rio Grande Basin Water Supply Outlook Report as of March 1, 2016



Streamflow forecasts for the Rio Grande Basin saw decreases anywhere from 7 to 40 percent at all points. Costilla Creek near Costilla currently shows 88 percent of average for the March to July forecast as compared to 108 percent last month. Additionally, the March to July forecasts for the Jemez River below Jemez Canyon Dam has decreased 36 percent and is now 79 percent of average. The Rio Grande at San Marcial has dropped another 22 percent and is now forecast to be 102 percent of average. Year-to-date precipitation is down another 15 percent to 108 percent of average. This is now just 15 percent above last year's total. This is mostly due to only receiving 51 percent of the average precipitation as compared to 110 percent last year at this time. In addition to the lack of precipitation throughout February, temperatures were well above normal. As a result, snowpack in the basin has decreased 33 percent to 89 percent of average. This is only 10 percent above last year's percent of average. Snowpack in southern Colorado affecting the Rio Grande is at 98 percent of average, which is a decrease of 9 percent from last month. Southern Colorado's marginal snowpack will continue to impact runoff forecasts for the Rio Grande Basin. Current reservoir storage in the basin is 726,800 acre-feet, up from last year's 630,100 acre-feet at this time. As of March 1st, this is only 19 percent of capacity, which is an increase of 6 percent from last year at this time.



Rio Grande Basin Streamflow Forecasts - March 1, 2016

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

RIO GRANDE BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Rio Grande nr Del Norte ²	APR-SEP	335	440	520	101%	605	740	515
Platoro Reservoir Inflow	APR-JUL	39	48	54	96%	61	72	56
	APR-SEP	41	52	59	95%	67	80	62
Conejos R nr Mogote ²	APR-SEP	122	155	180	93%	205	250	194
Costilla Reservoir Inflow	MAR-JUL	6.1	8.5	10.3	93%	12.3	15.6	11.1
Costilla Ck nr Costilla ²	MAR-JUL	11.4	17.6	23	88%	28	37	26
Red R bl Fish Hatchery nr Questa	MAR-JUL	18.4	26	31	91%	37	47	34
Rio Hondo nr Valdez	MAR-JUL	9.5	13.7	17	92%	21	27	18.4
Rio Pueblo de Taos nr Taos	MAR-JUL	8.1	12.5	16	94%	19.9	27	17
Rio Lucero nr Arroyo Seco	MAR-JUL	5.3	7.9	10	92%	12.3	16.1	10.9
Rio Pueblo de Taos bl Los Cordovas	MAR-JUL	13.4	24	33	92%	43	61	36
Embudo Ck at Dixon	MAR-JUL	26	42	55	115%	70	95	48
El Vado Reservoir Inflow ²	MAR-JUL	116	163	200	89%	240	305	225
	APR-JUL	105	150	185	90%	225	290	205
Santa Cruz R at Cundiyo	MAR-JUL	12.6	16.7	19.8	108%	23	29	18.3
Nambe Falls Reservoir Inflow	MAR-JUL	4.1	5.5	6.5	100%	7.7	9.5	6.5
Tesuque Ck ab diversions	MAR-JUL	0.75	1.17	1.5	112%	1.88	2.5	1.34
Rio Grande at Otowi Bridge ²	MAR-JUL	350	500	620	86%	750	965	720
Santa Fe R nr Santa Fe ²	MAR-JUL	3.1	4.1	4.8	112%	5.5	6.7	4.3
Jemez R nr Jemez	MAR-JUL	20	28	34	81%	41	52	42
Jemez R bl Jemez Canyon Dam	MAR-JUL	14.4	21	27	79%	33	44	34
Rio Grande at San Marcial ²	MAR-JUL	85	280	410	80%	540	735	510

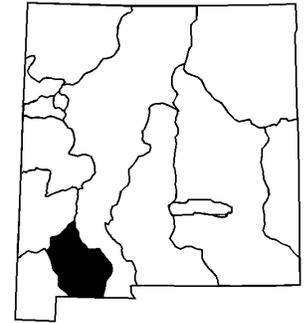
- 1) 90% and 10% exceedance probabilities are actually 95% and 5%
- 2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
- 3) Median value used in place of average

Reservoir Storage End of February, 2016	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Abiquiu Reservoir	132.4	133.8	154.8	1192.8
Bluewater Lake	2.1	2.4	6.6	38.5
Caballo Reservoir	30.8	35.3	101.1	332.0
Cochiti Lake	46.4	48.9	58.3	491.0
Costilla Reservoir	10.3	4.0	6.9	16.0
El Vado Reservoir		17.2	100.8	190.3
Elephant Butte Reservoir	400.8	328.7	1305.0	2195.0
Heron Reservoir		61.3	297.8	400.0
Basin-wide Total	622.8	553.1	1632.7	4265.3
# of reservoirs	6	6	6	6

Watershed Snowpack Analysis March 1, 2016	# of Sites	% Median	Last Year % Median
RIO GRANDE BASIN	17	89%	79%

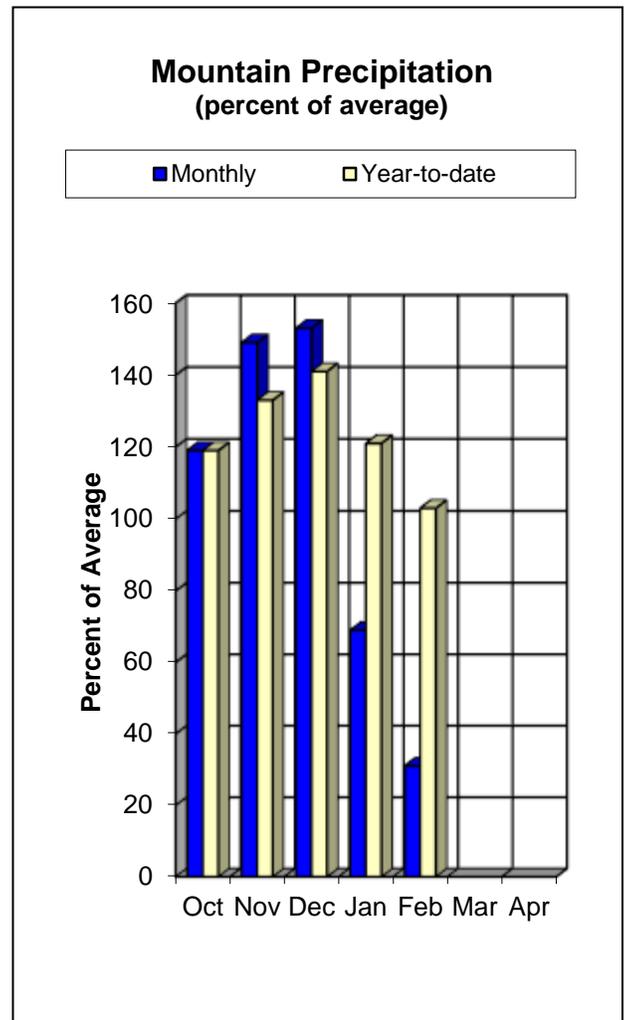
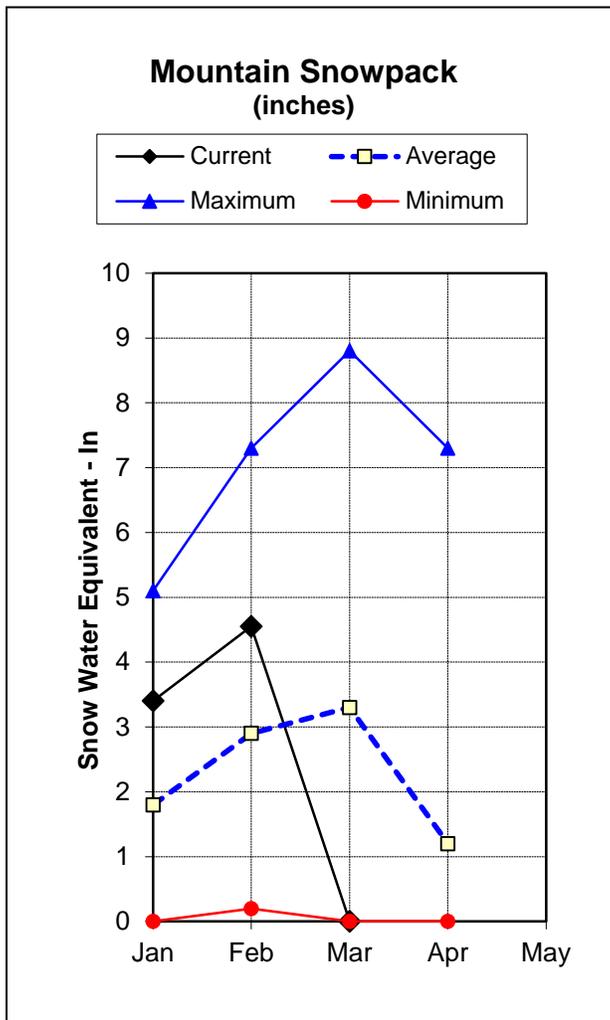
* El Vado Reservoir 35.1 KAF
* Heron Reservoir 71.1 KAF

Mimbres River Basin Water Supply Outlook Report as of March 1, 2016



The March through May forecast for the Mimbres River at Mimbres has decreased by 138 percent from the February to May forecast. The forecast has gone from a high 220 percent of average to 82! The Mimbres Basin had a rough February. Water year-to-date precipitation dropped 18 percent to 103 percent of average. The month of February only received 31 percent of the average rainfall. As a result of both lack of precipitation and well above normal temperatures, melt off has already occurred. Currently the Mimbres has bare ground as compared to 32 percent of the average snowpack at this time last year.

Users of NRCS Snow Survey data should be aware, due to reduced budget allocations; the manual snow courses at McKnight Cabin and Emory Pass #2 have been discontinued. Data is still being recorded at the automated SNOTEL sites in the Basin.



Mimbres River Basin Streamflow Forecasts - March 1, 2016

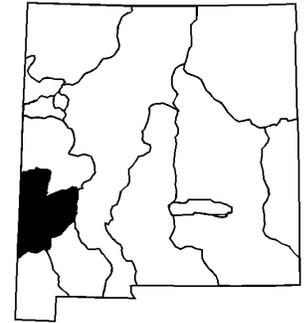
Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

MIMBRES RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Mimbres R at Mimbres	MAR-MAY	0.28	0.74	1.23	82%	1.9	3.3	1.5

- 1) 90% and 10% exceedance probabilities are actually 95% and 5%
- 2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
- 3) Median value used in place of average

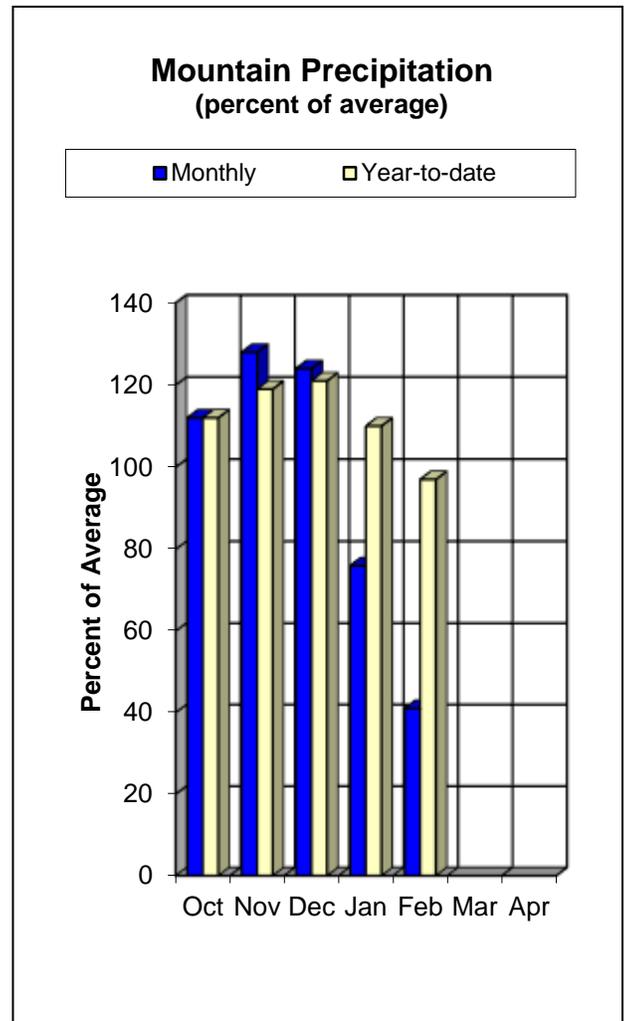
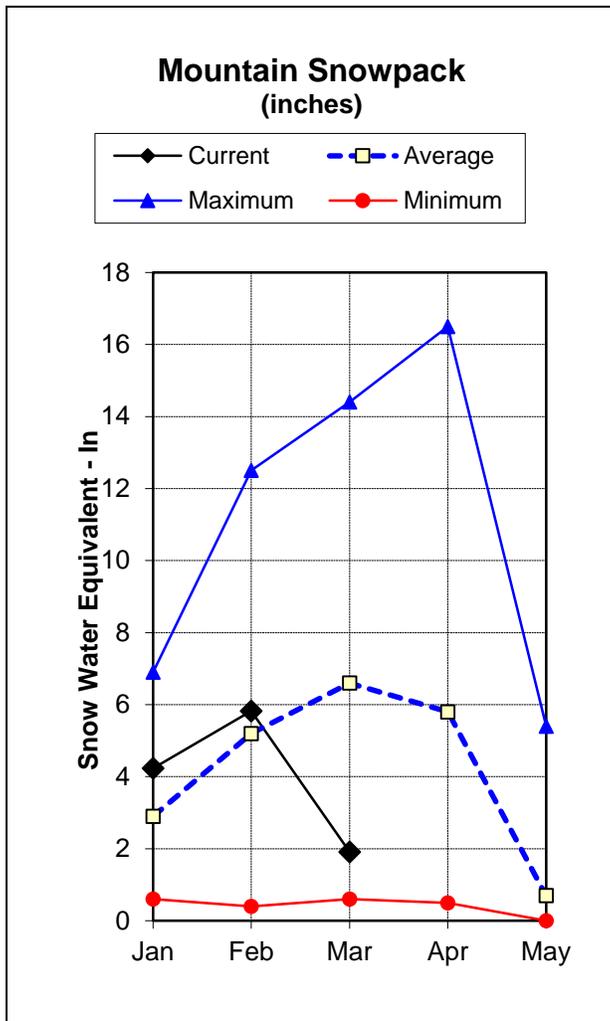
Watershed Snowpack Analysis March 1, 2016	# of Sites	% Median	Last Year % Median
MIMBRES RIVER BASIN	2	0%	32%

San Francisco / Upper Gila River Basin Water Supply Outlook Report as of March 1, 2016



Streamflow forecasts for the San Francisco/Upper Gila River Basin have decreased substantially across all forecast points. For the March through May forecast the Gila River at Gila is now 71 percent of the average. This is a decrease of 59 percent from last month. For the same time period the San Francisco River at Clifton is now forecasting 58 percent of the average; a decrease of 50 percent. Water year-to-date precipitation through February is down another 13 percent to 97 percent of average. February received 41 percent of the average precipitation for the month. Snowpack has decreased dramatically by 83 percent to 29 percent of median. This is just a slight increase of 5 percent from last year's March 1st snowpack values.

Due to budget and contracting issues, the aerial markers at Hummingbird Saddle and Whitewater Baldy are not currently being measured. Plans are in effect to automate these sites with depth sensors which will transmit out data daily as soon as possible.



San Francisco-Upper Gila River Basin Streamflow Forecasts - March 1, 2016

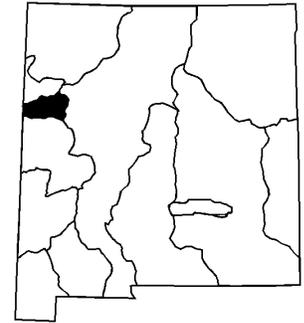
Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

SAN FRANCISCO-UPPER GILA RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Gila R at Gila ³	MAR-MAY	12.3	18.6	24	71%	30	41	34
Gila R bl Blue Ck nr Virden ³	MAR-MAY	9.9	21	30	70%	42	62	43
San Francisco R at Glenwood ³	MAR-MAY	2.5	5.5	8.5	56%	12.5	20	15.2
San Francisco R at Clifton ³	MAR-MAY	5	13.7	22	58%	32	51	38

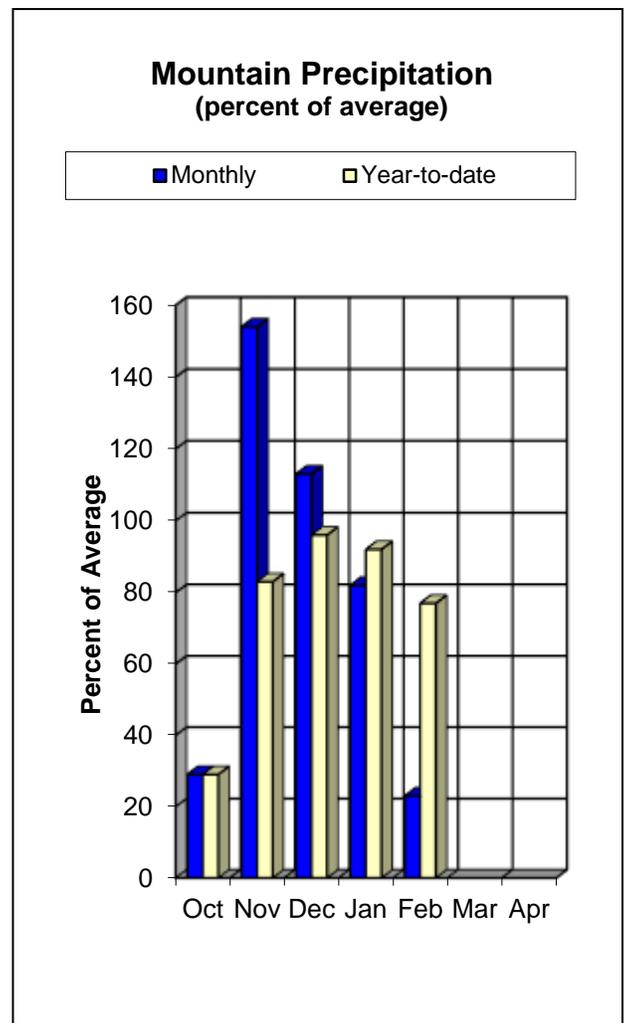
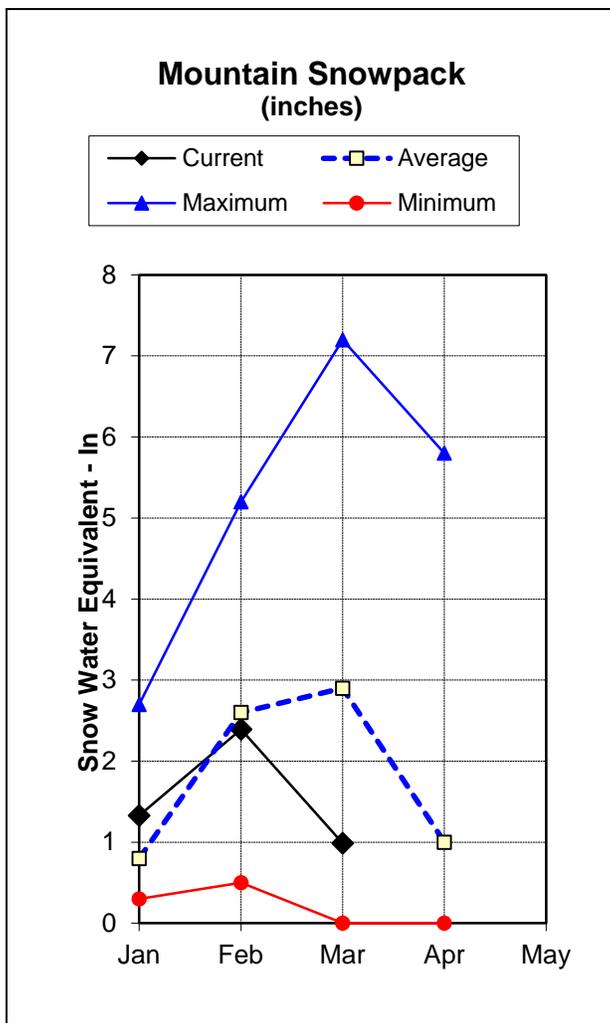
- 1) 90% and 10% exceedance probabilities are actually 95% and 5%
- 2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
- 3) Median value used in place of average

Watershed Snowpack Analysis March 1, 2016	# of Sites	% Median	Last Year % Median
SAN FRANCISCO-UPPER GILA RIVER BASIN	7	29%	24%

Zuni / Bluewater Basins Water Supply Outlook Report as of March 1, 2016



Both the Zuni/Bluewater Basins have decreased dramatically throughout February. The Bluewater Lake inflow was previously forecast at 118 percent of average and is now at 19 percent. Additionally, the Zuni River at Black Rock was at 108 percent of average and is now forecast to be 35 percent. Precipitation for the Zuni-Bluewater Basins is down an additional 15 percent to 77 percent of average for the water year to date. This is a decrease of 20 percent through February of 2015. February only received 23 percent of the average precipitation for the month. What started as a promising winter for the Zuni/Bluewater Basins has quickly changed over the last month. Snowpack values have decreased significantly from 92 percent of median to 34 as of March 1st. This is now 4 percent below last year's snowpack total. Bluewater Lake continues to remain low at 2,100 acre feet as compared to last year's 2400 at the end of February. This remains only 5 percent of capacity which is a 1 percent decrease from last year.



Zuni-Bluewater Basins Streamflow Forecasts - March 1, 2016

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

ZUNI-BLUEWATER BASINS	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Bluewater Lake Inflow ³	MAR-MAY	0	0.1	0.6	19%	4.6	10.5	3.2
Rio Nutria nr Ramah ³	MAR-MAY	0	0.11	0.36	32%	0.82	2	1.12
Ramah Reservoir Inflow ³	MAR-MAY	0	0.02	0.2	32%	0.56	1.43	0.62
Zuni R ab Black Rock Reservoir ³	MAR-MAY	0	0	0.08	35%	0.47	2.2	0.23

1) 90% and 10% exceedance probabilities are actually 95% and 5%

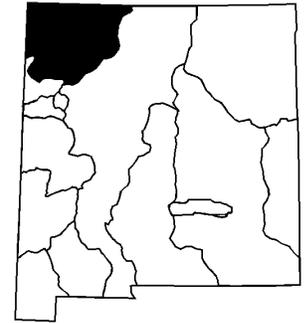
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

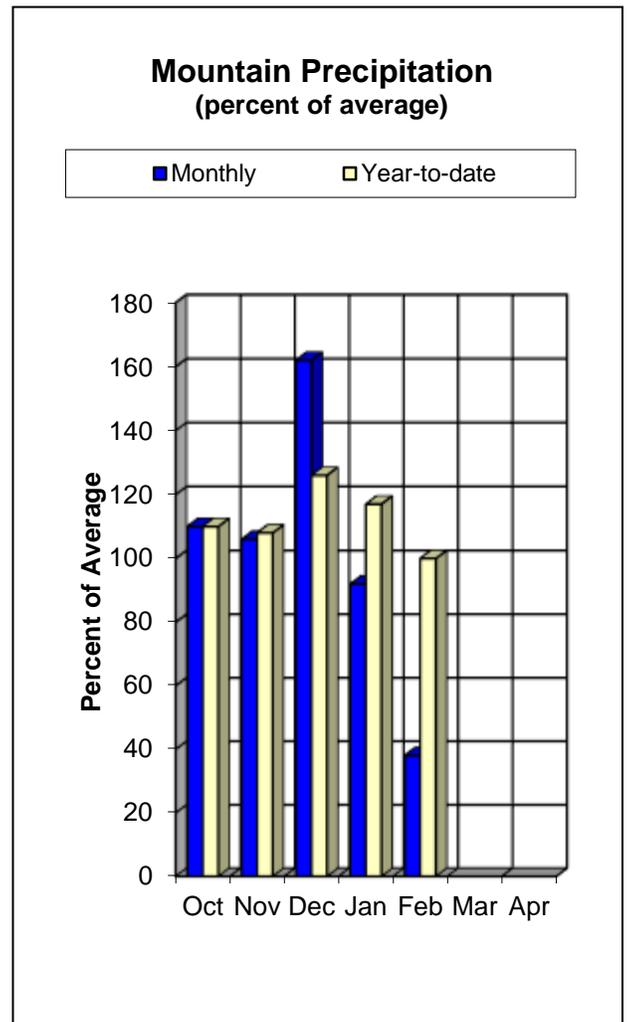
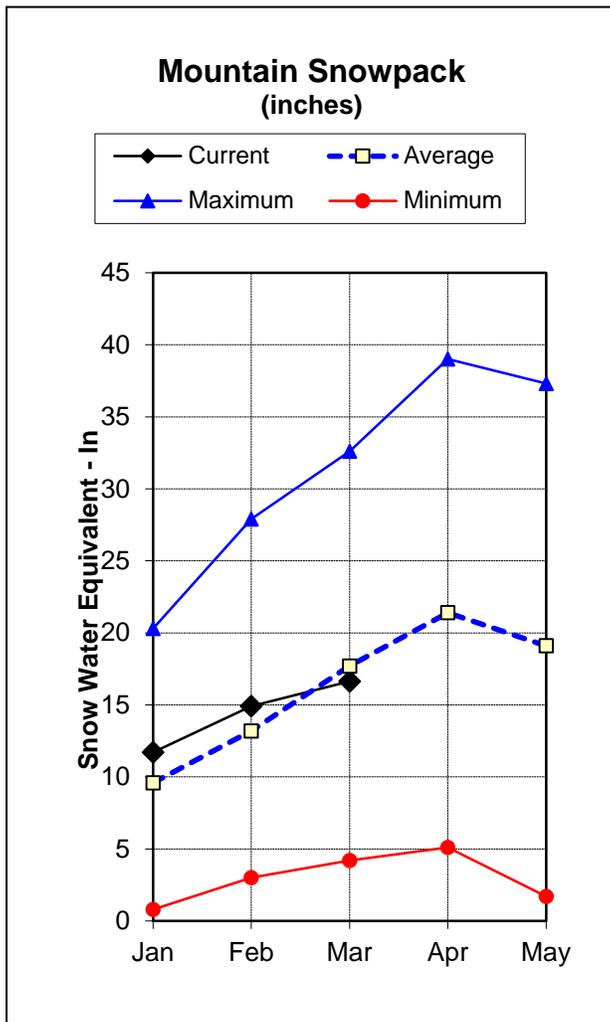
Reservoir Storage End of February, 2016	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Bluewater Lake	2.1	2.4	6.6	38.5
Basin-wide Total	2.1	2.4	6.6	38.5
# of reservoirs	1	1	1	1

Watershed Snowpack Analysis March 1, 2016	# of Sites	% Median	Last Year % Median
ZUNI-BLUEWATER BASINS	6	34%	38%

San Juan River Basin Water Supply Outlook Report as of March 1, 2016



The April to July forecasts have decreased slightly from the previous month. The Navajo Reservoir Inflow has dropped 13 percent to 93 percent of average. The Animas River at Durango has also gone down another 18 percent to 92 percent of the average. Year-to-date precipitation is down slightly to 100 percent of average, which remains a 29 percent increase from last year at this time. February also saw a substantial decrease in precipitation, receiving only 38 percent of the average rainfall. As a result, snowpack in the basin is down another 39 percent to 94 percent of median. This is a 24 percent increase from last year as this time. The good news is that Navajo reservoir storage contains 1,404,700 acre-feet, or 109 percent of the average. This equates to 83 percent of capacity, which is an increase from last year's 1,095,900 acre-feet at the end of February.



San Juan River Basin Streamflow Forecasts - March 1, 2016

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

SAN JUAN RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Rio Blanco at Blanco Diversion ²	APR-JUL	31	42	50	93%	59	74	54
Navajo R at Oso Diversion ²	APR-JUL	37	50	60	92%	71	88	65
Navajo Reservoir Inflow ²	APR-JUL	445	580	685	93%	795	970	735
Animas R at Durango	APR-JUL	265	330	380	92%	430	515	415
La Plata R at Hesperus	APR-JUL	15	19	22	96%	25	30	23

1) 90% and 10% exceedance probabilities are actually 95% and 5%

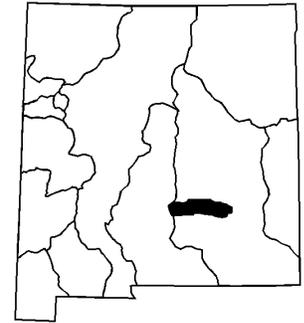
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of February, 2016	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Navajo Reservoir	1404.7	1095.9	1292.0	1696.0
Basin-wide Total	1404.7	1095.9	1292.0	1696.0
# of reservoirs	1	1	1	1

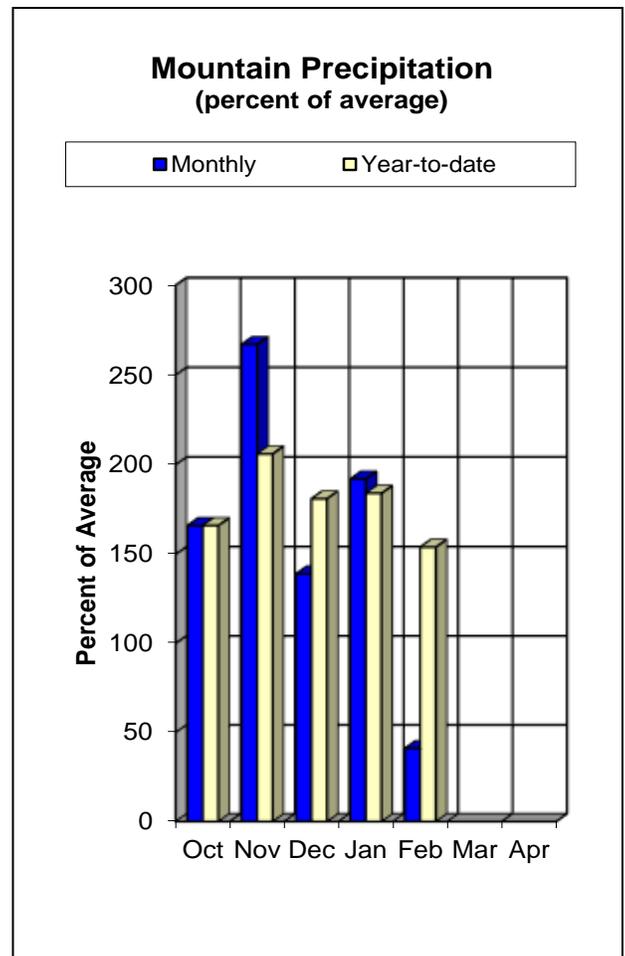
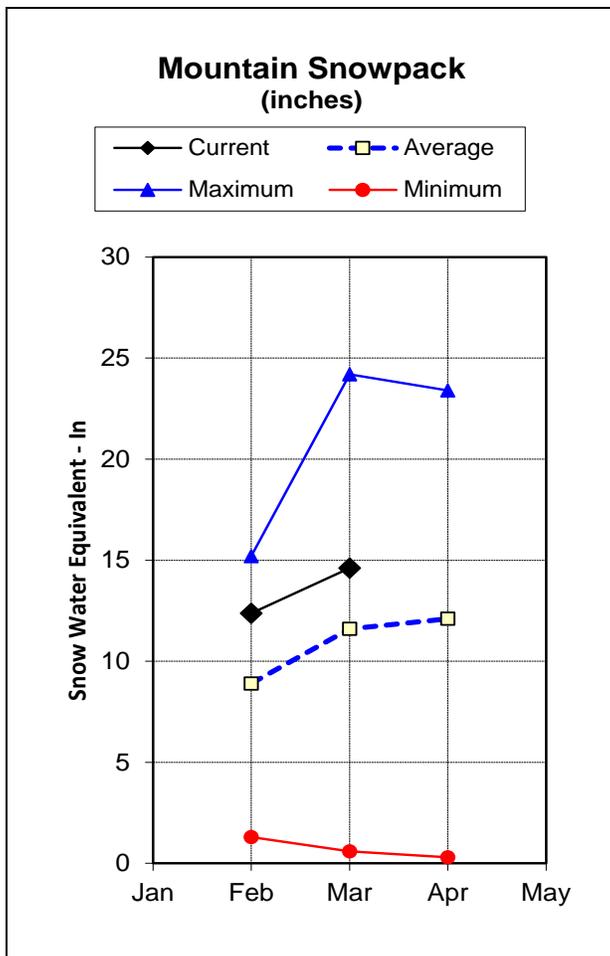
Watershed Snowpack Analysis March 1, 2016	# of Sites	% Median	Last Year % Median
SAN JUAN RIVER BASIN	13	94%	70%

Rio Hondo Basin Water Supply Outlook Report as of March 1, 2016



The streamflow forecast for the March to June time period for the Rio Hondo Basin has decreased another 40 percent from 164 to 124 percent of average for the Rio Ruidoso at Hollywood. This still remains above last year's March forecast, which was 31 percent of the average. Year-to-date precipitation has decreased 30 percent to 154 percent of average and remains high largely due to having such a strong start early in the early winter months. In contrast, the average rainfall for February was only 41 percent of the average. Snowpack has decreased 13 percent to 126 percent of the median. This does, however, remain an increase of 58 percent from last year at this time. This measurement, however, should be used with caution as the Sierra Blanca SNOTEL site was impacted by the Little Bear Fire three and half years ago.

It should be noted that the switch to using median snowpack values three years ago has had a significant influence on the "average" calculations for the Rio Hondo Basin. Using the old system of computing averages based on the 1971-2000 period, 6.7 inches of SWE was considered normal for January 1. Using the new median calculations based on the 1981-2010 period, 3.2 inches of SWE is now normal. For this reason, comparisons of "percent of average" from year to year will be limited in this basin to minimize confusion.



Data Current as of: 3/4/2016 11:20:11 AM

Rio Hondo Basin Streamflow Forecasts - March 1, 2016

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

RIO HONDO BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Rio Ruidoso at Hollywood	MAR-JUN	4.2	6.5	8.3	124%	10.3	13.6	6.7

- 1) 90% and 10% exceedance probabilities are actually 95% and 5%
- 2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
- 3) Median value used in place of average

Watershed Snowpack Analysis March 1, 2016	# of Sites	% Median	Last Year % Median
RIO HONDO BASIN	1	126%	68%

NEW MEXICO STATEWIDE	Network	Elevation (ft)	Depth (in)	SWE (in)	Median (in)	% Median	Last Year SWE (in)	Last Year % Median
Alamitos	SC	9320	14	4.2	6.4	66%		
Aztec #2	SC	9880	13	3.8	3.5	109%		
Bateman	SNOTEL	9300	29	9.1	10.9	83%	10.3	94%
Boon	SC	8140	7	2.1	4.5	47%	1.4	31%
Bowl Canyon	SC	8980	26	8.4	8.7	97%	4.5	52%
Chamita	SNOTEL	8400	23	7.9	9.5	83%	8.6	91%
Dan Valley	SC	7640	7	2.5	3.5	71%	1.6	46%
Elk Cabin	SNOTEL	8210	0	0.0	4.8	0%	1.1	23%
Emory Pass #2	SC	7800			0.2			
Frisco Divide	SNOTEL	8000	0	0.0	2.4	0%	0.1	4%
Gallegos Peak	SNOTEL	9800	35	10.5	9.8	107%	8.5	87%
Hematite Park	SC	9500	20	4.4	5.0	88%	5.0	100%
Hidden Valley	SC	8480	20	5.6			3.2	
Hopewell	SNOTEL	10000	45	13.0	16.2	80%	13.9	86%
Hummingbird - Aerial And Snow Course	SC	10550			11.9			
Lookout Mountain	SNOTEL	8500	0	0.0	0.6	0%	0.0	0%
Mcgaffey	SC	8120	0	0.0	1.4	0%	0.0	0%
Mcknight Cabin	SNOTEL	9240	0	0.0	3.1	0%	2.4	77%
Mcknight Cabin Aerial Marker	SC	9300			3.0			
Mcknight Cabin Snow Course	SC	9300						
Missionary Spring	SC	7940	1	0.4	4.1	10%	1.1	27%
Navajo Whiskey Ck	SNOTEL	9050	9	4.2			3.4	
North Costilla	SNOTEL	10600	16	5.0	5.9	85%	7.1	120%
Ojo Redondo	SC	8200	2	0.6	3.6	17%	0.0	0%
Palo	SNOTEL	9350	9	3.9			6.6	
Palo	SC	9300	24	4.8	6.8	71%	4.6	68%
PanchueLa	SC	8400	6	2.0			1.8	
Post Office Flats	SC	8400	0	0.0	3.1	0%	0.6	19%
Quemazon	SNOTEL	9500	12	5.1	8.4	61%	6.1	73%
Red River Pass #2	SNOTEL	9850	17	5.4	6.8	79%	7.5	110%
Rice Park	SNOTEL	8460	7	2.8	7.6	37%	5.3	70%
Rice Park	SC	8460			4.8		1.4	29%
Rio En Medio	SC	10300	26	7.4	8.4	88%	4.9	58%
Rio Santa Barbara	SNOTEL	10664	44	14.6			10.9	
San Antonio Sink	SNOTEL	9100	31	9.2			8.6	
San Antonio Sink	SC	9200	33	7.0	7.1	99%	5.2	73%
Santa Fe	SNOTEL	11445	51	16.7	13.4	125%	10.9	81%
Senorita Divide #2	SNOTEL	8600	23	7.2	8.7	83%	6.9	79%
Shuree	SNOTEL	10100	17	5.6			7.1	
Shuree	SC	10097	20	4.2	2.7	156%	5.2	193%
Sierra Blanca	SNOTEL	10280	32	11.5	9.1	126%	6.2	68%
Signal Peak	SNOTEL	8360	0	0.0	4.3	0%	0.0	0%
Silver Creek Divide	SNOTEL	9000	12	5.7	8.3	69%	4.4	53%
State Line	SC	8000	0	0.0	1.4	0%	0.1	7%
Taos Canyon	SC	9100	18	3.7	5.6	66%	4.0	71%
Taos Powderhorn	SNOTEL	11057	47	15.2			13.6	
Taos Powderhorn	SC	11250	63	20.6	20.3	101%	13.0	64%
Tolby	SNOTEL	10180	24	6.4	7.2	89%	9.1	126%
Tolby	SC	10180			8.5			
Tres Ritos	SNOTEL	8600	0	0.0			0.9	
Tres Ritos	SC	8600	13	4.7	5.8	81%		
Vacas Locas	SNOTEL	9306	29	10.6	11.7	91%	9.8	84%
Wesner Springs	SNOTEL	11120	42	14.7	12.1	121%	10.1	83%
Whiskey Creek	SC	9050	27	8.2	9.3	88%	4.8	52%
Whitewater - Aerial And Snow Course	SC	10750			18.6			
Basin Index						80%		72%
# of sites						36		36

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New Mexico
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