
COLORADO

WATER SUPPLY CONDITIONS UPDATE

FROM THE OFFICE OF THE STATE ENGINEER: COLORADO DIVISION OF WATER RESOURCES
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April 2012

The Surface Water Supply Index (SWSI) developed by this office and the U.S.D.A. Natural Resources Conservation Service is used as an indicator of mountain-based water supply conditions in the major river basins of the state. It is based on snowpack, reservoir storage, and precipitation for the winter period of November through April (December 1 through May 1). During the winter period, snowpack is the primary component in all basins except the South Platte basin where reservoir storage is given the most weight.

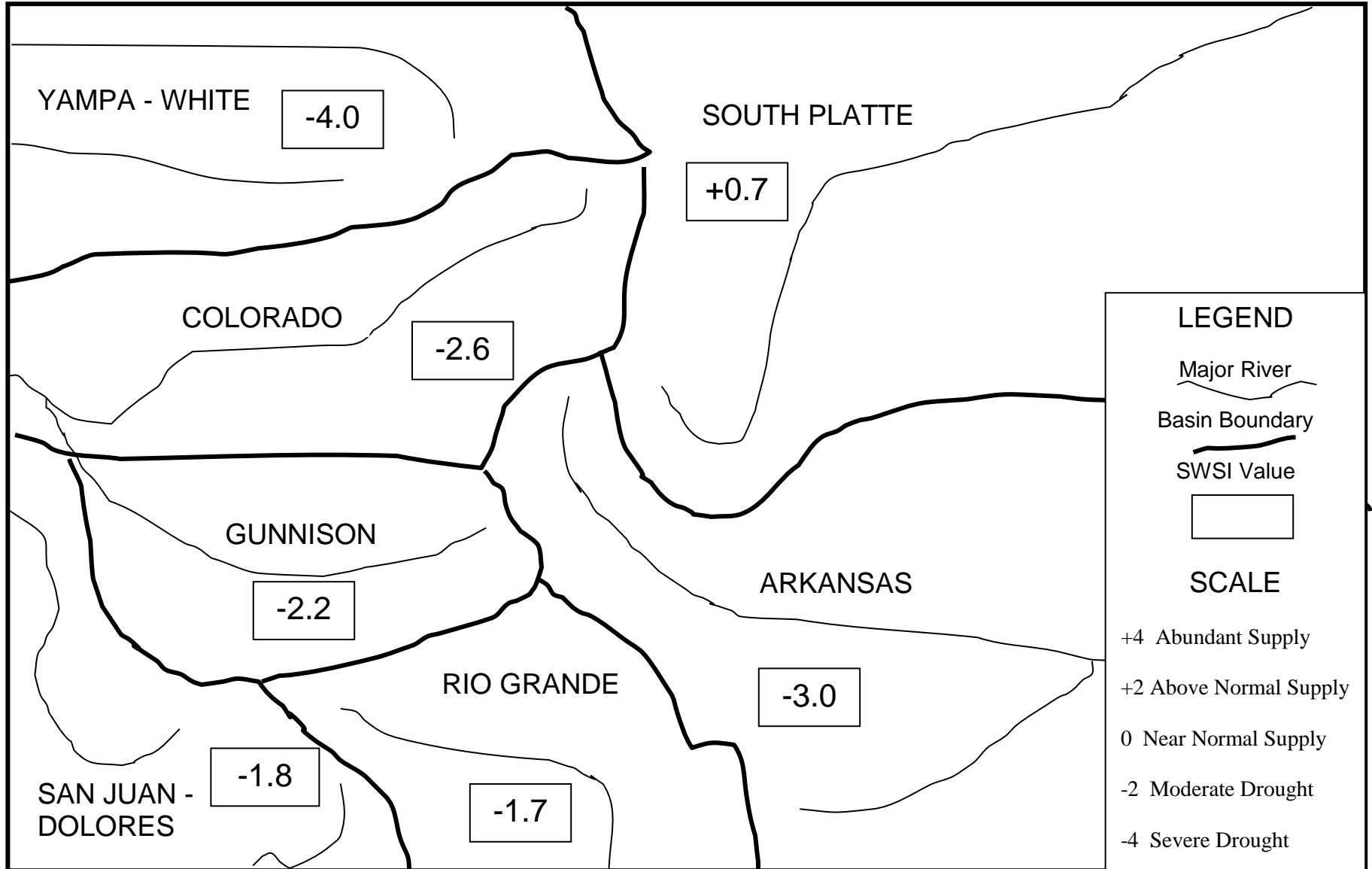
The statewide SWSI values for March (April 1) range from a high value of +0.7 in the South Platte Basin to a low value of -4.0 in the Yampa/White Basin. All seven of the basins (South Platte, Arkansas, Rio Grande, Gunnison, Colorado, Yampa/White, and San Juan/Dolores) experienced a loss from the previous month's value.

The following SWSI values were computed for each of the seven major basins for April 1, and reflect the conditions during the month of March.

<u>Basin</u>	<u>April 1 SWSI Value</u>	<u>Change From Previous Month</u>	<u>Change From Previous Year</u>
South Platte	+0.7	- 0.9	- 2.3
Arkansas	- 3.0	- 1.2	- 4.0
Rio Grande	- 1.7	- 1.6	- 1.6
Gunnison	- 2.2	- 0.8	- 4.7
Colorado	- 2.6	- 0.9	- 5.9
Yampa/White	- 4.0	- 1.1	- 7.1
San Juan/Dolores	- 1.8	- 1.6	- 1.3

Scale									
-4	-3	-2	-1	0	1	2	3	4	
Severe Drought		Moderate Drought		Near Normal Supply		Above Normal Supply		Abundant Supply	

SURFACE WATER SUPPLY INDEX FOR COLORADO



April 1, 2012

Basinwide Conditions Assessment

The SWSI value for the month was +0.7. The Natural Resources Conservation Service (NRCS) reports that April 1 snowpack is 59% of normal. Reservoir storage in Dillon, Horsetooth, Eleven Mile, Cheesman, Jackson, and Barr Lake, the major component in this basin in computing the SWSI value, was 115% of normal as of the end of March. Cumulative storage in the major plains reservoirs (Julesburg, North Sterling, and Prewitt) is at 99% of capacity. Cumulative storage in the major upper-basin reservoirs (Cheesman, Eleven Mile, Spinney, and Antero) is at 93% of capacity. Flow at the gaging station South Platte River near Kersey was 675 cfs, as compared to the long-term average of 691 cfs. Flow at the Colorado/Nebraska state line averaged 422 cfs, as compared to the long-term average of 520 cfs.

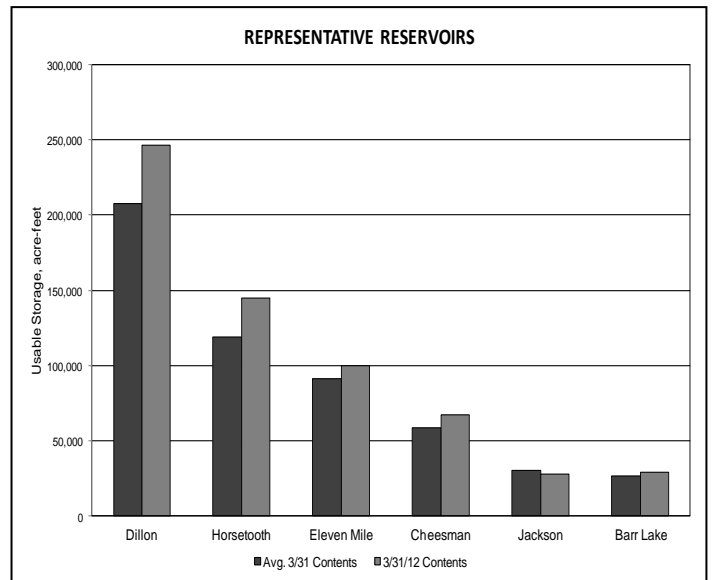
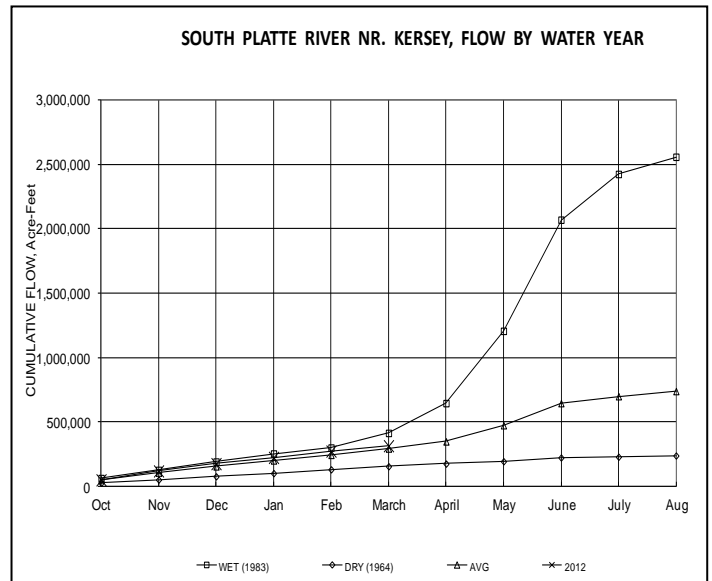
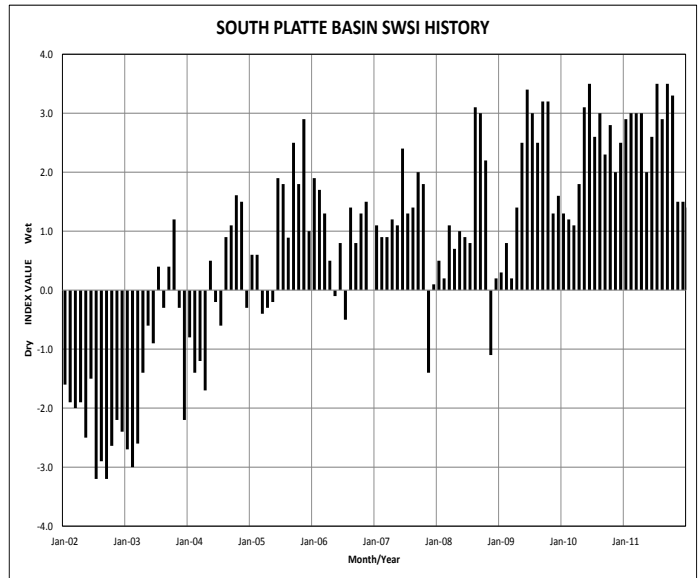
Outlook

March proved to be an extraordinarily dry month in the South Platte basin. Greeley recorded no measureable precipitation and ended March at 27% of average precipitation for the January through March period. Snow pack also went the wrong way in March, with snow water equivalent declining from 88% of average on February 29 to 57% of average on April 2. For comparison, the April 2, 2002 snow water equivalent for the South Platte basin was 52% of average.

Stream flows at the Kersey and Julesburg index gages also reflected the dry conditions. The Kersey gage went from 132% of average for February (the 6th straight month above average) to 98% of average for March. The Julesburg index gage went from 183% of average for February (4th straight month above average) to 81% of average for March. However, storage was a bright spot in the basin as it remained above average at 104% of the end of March average.

The South Platte mainstem moved from free river to a call from the Hewes Cook Ditch near Platteville on March 23 and remained under call from that location the rest of the month. The mainstem also went under call from Julesburg or Prewitt Reservoirs from March 27 through the end of the month. Calls senior to the mainstem calls continued or came on the Cache la Poudre, Big and Little Thompson Rivers as well as Saint Vrain, Boulder, Clear, and Turkey Creeks in March.

The April – June National Weather Service outlook for the South Platte basin is for below average precipitation and equal chances of below or above average temperatures. On the brighter side, the longer term forecasts show the South Platte basin conditions shifting to equal chances of above or below average precipitation, but warmer than average temperatures, until late summer when the chances for precipitation shift to above normal.



Basinwide Conditions Assessment

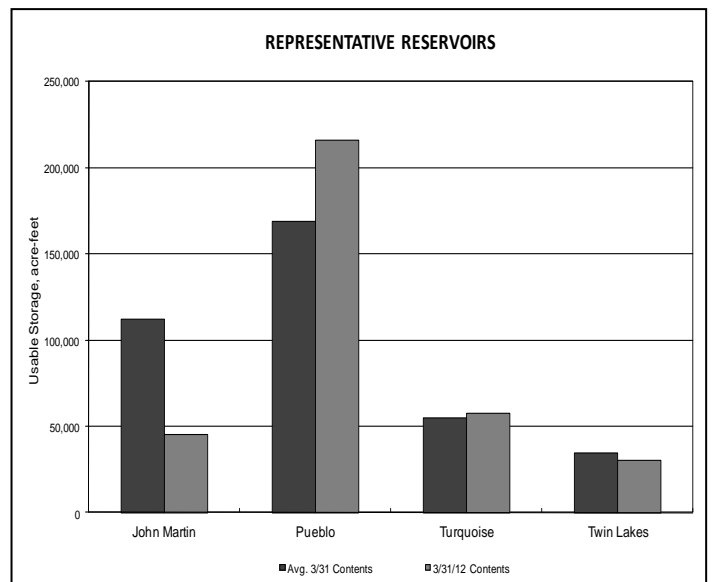
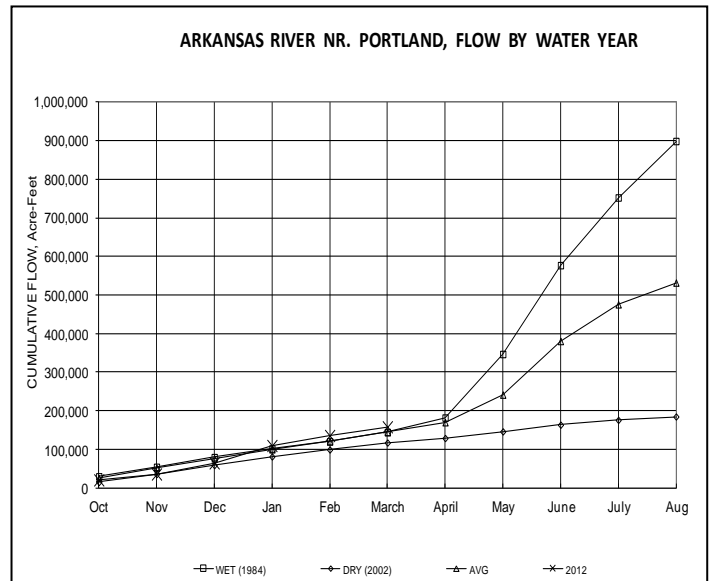
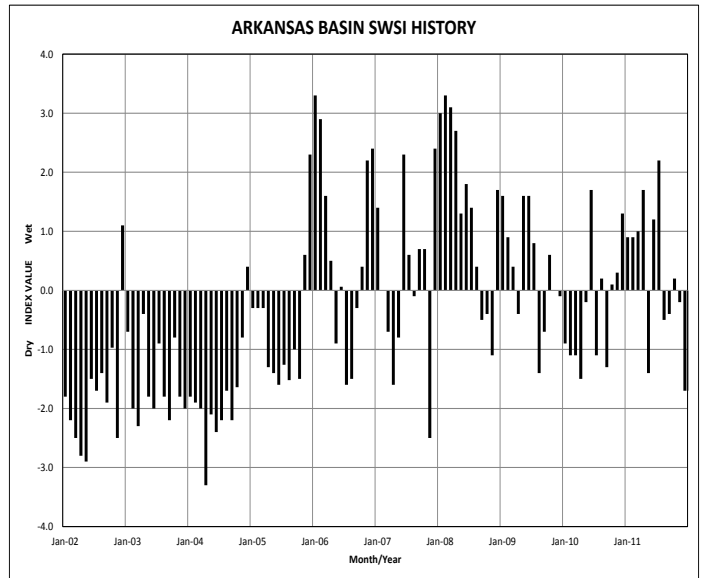
The SWSI value for the month was -3.0. The NRCS reports that April 1 snowpack is 60% of normal. Flow at the gaging station Arkansas River near Portland was 366 cfs, as compared to the long-term average of 385 cfs. Storage in Turquoise, Twin Lakes, Pueblo, and John Martin reservoirs totaled 94% of normal as of the end of March.

Outlook

Total distributed reservoir storage following the Pueblo Winter Water Program was 125,870 acre-feet, including 42,157 acre-feet in Pueblo Reservoir, 66,775 acre-feet in off-channel reservoirs, and 16,938 acre-feet in John Martin Reservoir (after distribution to accounts). Conservation Storage in John Martin Reservoir through March 31, 2012 totaled 19,065 acre-feet.

Administrative/Management Concerns

Although the Arkansas River Basin has consistently had one of the highest percentage of snowpack among the river basins, the statewide outlook remains poor and a great deal of concern exists about snowmelt runoff for diversions of native water within the basin and for opportunities to import water via the Fry-Ark Project, Twin Lakes and Homestake Tunnel systems as well as through the various other transmountain diversions.



Basinwide Conditions Assessment

The SWSI value for the month was -1.7. The NRCS reports that April 1 snowpack is 53% of normal. Flow at the gaging station Rio Grande near Del Norte averaged 421 cfs (157% of normal). The Conejos River near Mogote had a mean flow of 150 cfs (191% of normal). Flow at the state line was 144% of normal. Throughout the upper Rio Grande basin, streamflow during March was well above normal due to the abnormally high temperatures. Storage in Platoro, Rio Grande, and Santa Maria reservoirs totaled 98% of normal as of the end of March.

Weather conditions in the San Luis Valley were much warmer and drier than normal during March. For several days, the maximum daytime temperatures reached or exceeded the 70-degree mark and record high daily temperatures were set for six days in Alamosa during March. Snowfall on the Valley floor totaled less than 1.0 inch, one of the worst snowfall winter months since 1970. Alamosa received a paltry 0.10 inches of precipitation during the month.

A recent study of 10 SNOTEL sites in the upper Rio Grande basin showed the existing snowpack began to decline about March 12, about one month before the normal peak of April 10. Fortunately, a small snowstorm and colder temperatures over the first weekend of April slowed the melt-out and decreased the early runoff.

The below normal reservoir storage levels compound the water availability problem. Soil moisture conditions are fair in most locations around the basin.

Outlook

Current NRCS streamflow forecasts predict the April through September runoff to be 71% of average on the Rio Grande near Del Norte and 70% of average for the Conejos near Mogote. Other streams in the basin are forecast as low as 35% of normal for the San Antonio River, but most fall in the 50 to low-70 percent of normal range, including 61% for Saguache Creek.

National Weather Service forecasts call for warm and dry conditions in the San Luis Valley for the next 90 days.

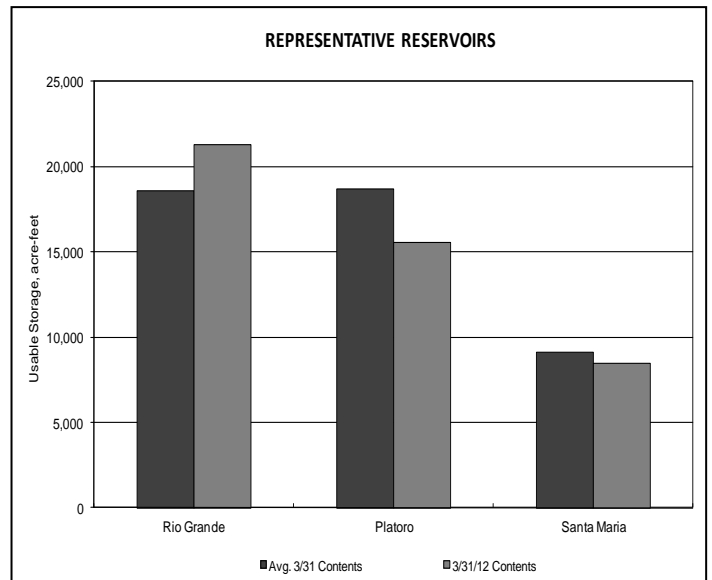
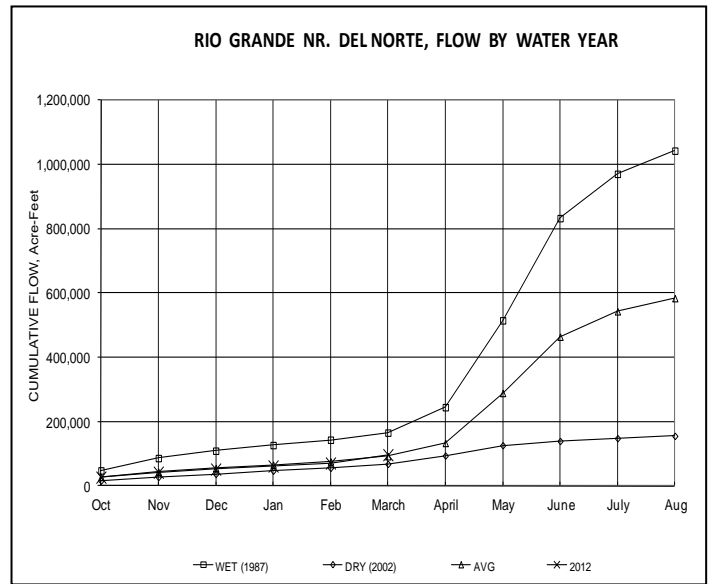
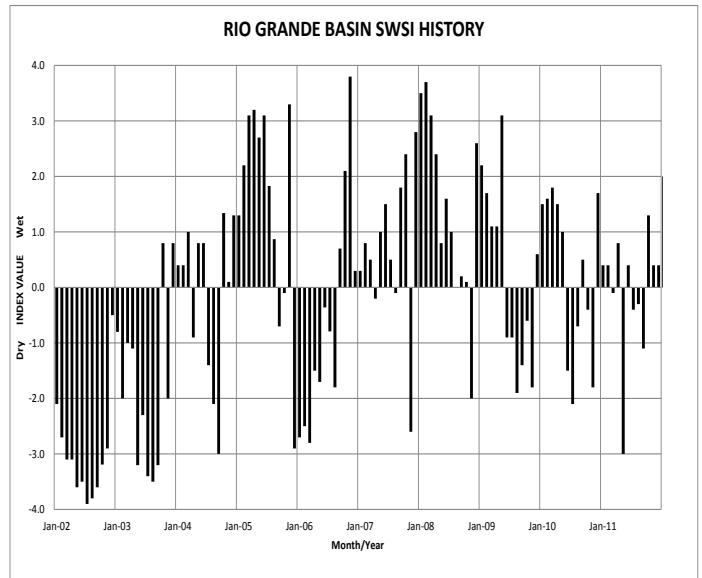
Administrative/Management Concerns

Most streams in the basin began some snowmelt runoff around March 24 prompting the Division Engineer to open the irrigation season earlier than expected for the LaJara, Culebra, Rio Grande, and Saguache Creek drainages.

Even with the poor forecasted runoff, fulfilling the delivery obligation to New Mexico will require slight curtailments of water available to diverters in the Rio Grande and Conejos systems. Based on the current forecast, there will be curtailments of available native water available to surface water right diverters of approximately 9% on the Rio Grande and 6% for the Conejos River system this irrigation season.

Administrative/Management Concerns

Water users should expect drought-like conditions this spring and summer. The Valley's aquifers will continue to decline as well pumping replaces water normally available from snowmelt and rainfall.



Basinwide Conditions Assessment

The SWSI value for the month was -2.2. The NRCS reports that April 1 snowpack is 60% of normal. Flow at the gaging station Uncompahgre River near Ridgeway was 71.8 cfs, as compared to the long-term average of 62.0 cfs. Storage in Taylor Park, Crawford, and Fruitland reservoirs totaled 107% of normal as of the end of March.

March weather in the Gunnison basin was a similar to the rest of the state, extremely dry and warm. In fact, average precipitation in the basin was 35 percent of normal with some areas, like Crested Butte, receiving a record low 15 percent of average precipitation during March. This caused a precipitous drop in Gunnison basin snowpack to 62 percent of the 30-year average on April 1st. March temperatures 3-5 degrees above normal produced April 1st snowmelt rates of up to 0.7 inches per day, melting over five inches of snow water equivalent (SWE) in drainages above Paonia and Taylor Park Reservoirs by April 5th. As such, it appears that the Gunnison basin reached peak SWE two weeks early at 72 percent of average on March 23rd. Snotel stations above Crested Butte and Taylor Park peaked at only 58 and 66 percent of average, respectively.

Outlook

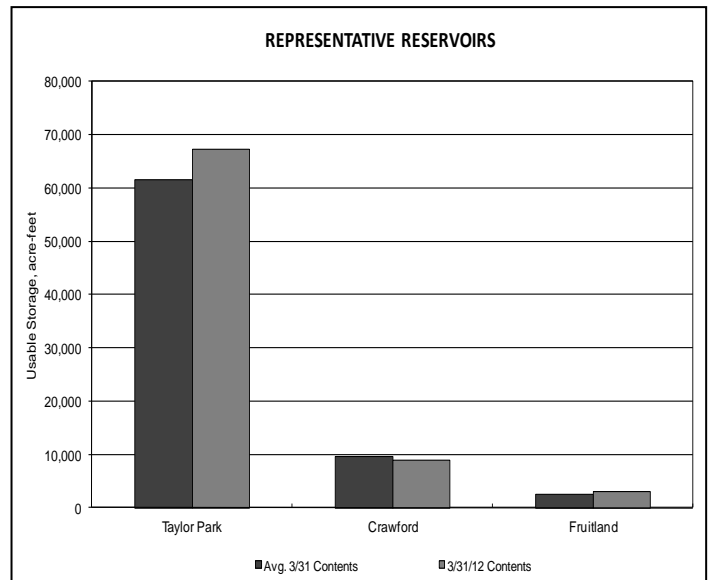
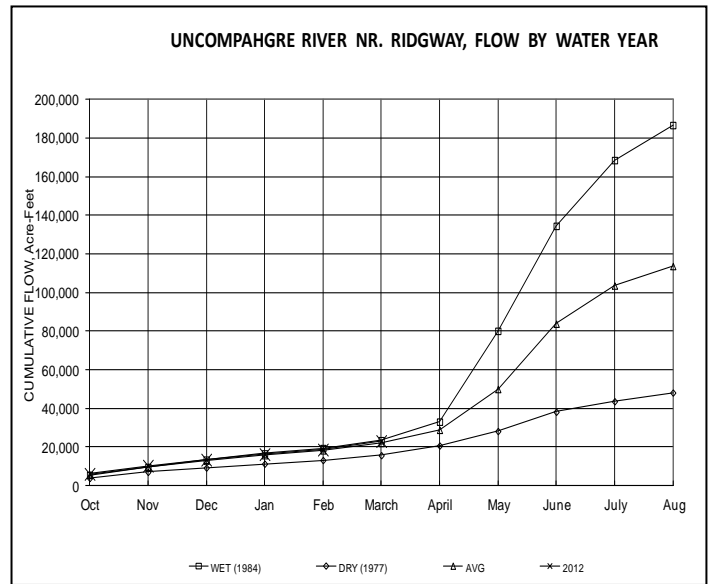
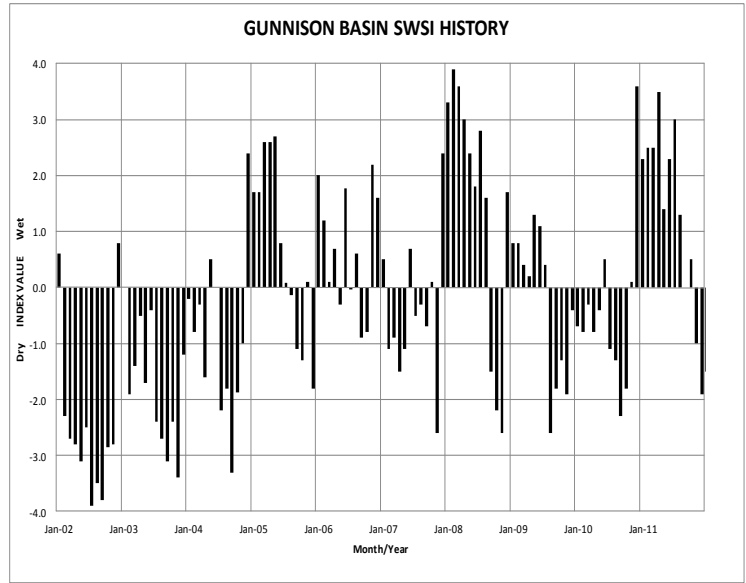
NRCS forecasts also predict that we reached peak SWE in the Gunnison basin on March 23rd. The median April 1st Gunnison basin streamflow forecast is 50 percent of average with a range from 47 percent of average in areas above Paonia Reservoir to 67 percent in the areas above Ridgeway Reservoir. In some streams, such as Muddy Creek above Paonia Reservoir and the San Miguel River, it appears that the spring streamflow peak has already occurred, two months ahead of normal. Both of those streams may have peaked around March 28th. Unprecedented April and May snowfall will be required to bring the basin close to average. Unfortunately, the National Weather Service (NWS) climate forecasts predict less than average precipitation and greater than average temperatures for the next 90 days.

Administrative/Management Concerns

As of April 8th we have passed the typical snowpack peak in the Gunnison basin and have less snow than at the same time in 2002. Reservoir storage in the basin remains at average in most areas, therefore, water users with storage will be less affected by the poor snowpack conditions. However, calls have already been received in some areas and because streamflow forecasts predict significantly less than average flows we are expecting an early and long administration season in the Gunnison and San Miguel basins. Many water users are hoping for April storms and an early start to the monsoon season to boost flows early this summer. Forecasted inflow to Blue Mesa Reservoir was reduced to 330,000 acre-feet on April 1st, which is only 49 percent of normal and would result in Blue Mesa ending up at more than 15 feet below full in 2012. This low inflow forecast has resulted in reduced releases from Crystal Dam, producing flows below the Gunnison Tunnel of 350 cfs as of mid April.

Public Use Impacts

Based on the April 1st inflow forecast, the USBR will produce a one day peak flow of 900 cfs in the Black Canyon. Reduced releases from Crystal dam and resulting low flows in the Gunnison Gorge should produce great fishing conditions for anglers this summer.



Basinwide Conditions Assessment

The SWSI value for the month was -2.6. The NRCS reports that April 1 snowpack is 48% of normal. Flow at the gaging station Colorado River near Dotsero was 1,111 cfs, as compared to the long-term average of 1,073 cfs. Storage in Green Mountain, Ruedi, and Williams Fork reservoirs totaled 138% of normal as of the end of March.

Outlook

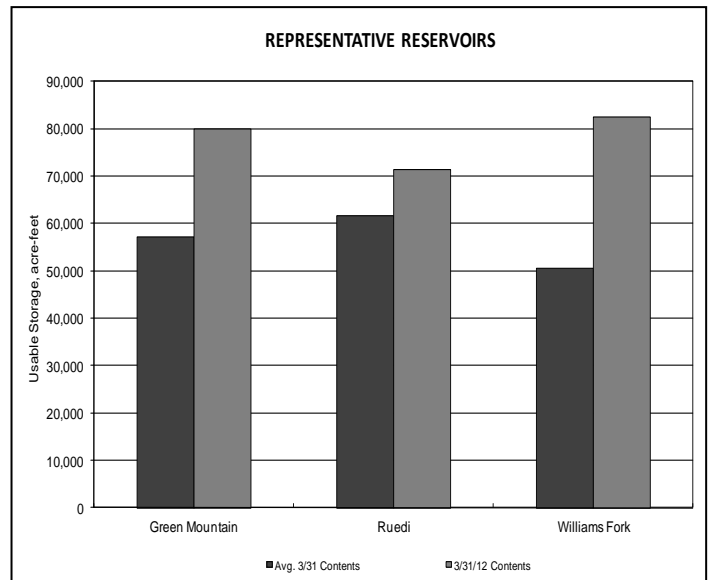
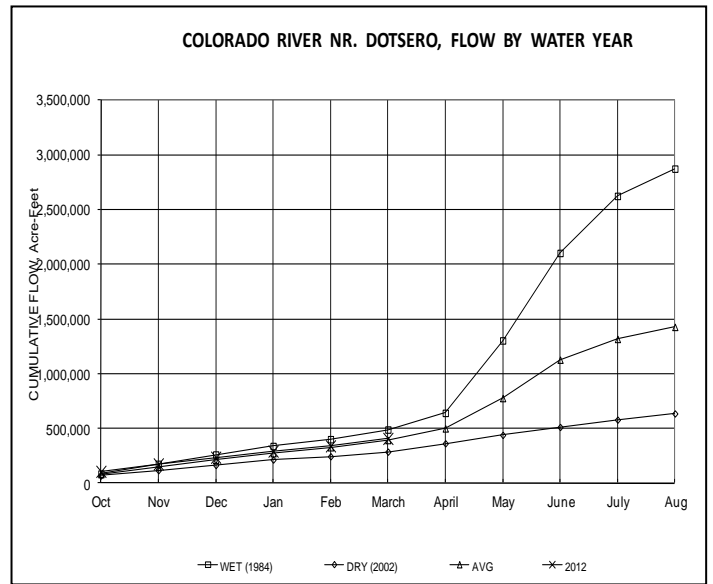
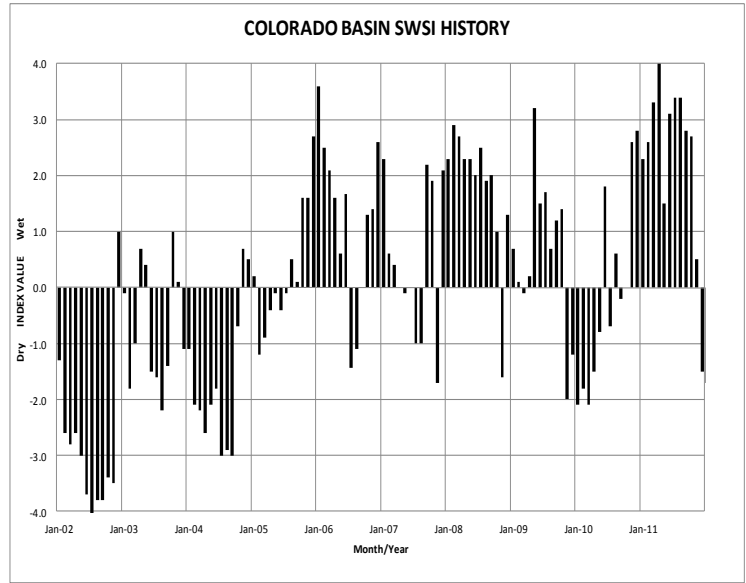
Upper Colorado River Basin Snow Water Equivalent fell to a record low on March 18th and continues to fall with current Upper Colorado Headwaters and Roaring Fork River Basin percentages at just 49 percent of average as of April 1st. Near record warm temperatures are likely to drive snowpack percentages significantly lower throughout April. The resulting early runoff will maintain Roaring Fork, Eagle and Colorado River flows near average levels throughout April, despite the significant decrease in reservoir releases. Blue River flows have and will continue to run slightly above average. Early spring snowfall is forecast to be significantly below average in the Upper Colorado Basin.

Administrative/Management Concerns

Ruedi Reservoir releases will be cut by more than 50 percent beginning in early April as a result of far below average snowpack in the Upper Fryingpan Basin. Green Mountain reservoir releases were cut in late March to accommodate maintenance operations. Releases will be further reduced to 75 cfs - the minimum required to meet downstream senior water rights and contract demand, with Start of Fill beginning April 1st. Upper Blue River flows will likely remain above average with significantly warmer temperatures and resulting early runoff.

Public Use Impacts

Some Front Range Water Providers are taking initial steps toward potential conservation measures and/or restrictions associated with the below average snowpack levels. Denver Water and Colorado Springs Utilities are asking for voluntary conservation. Others, including Northern Colorado Water Conservancy District and Pueblo Board of Water Works will rely on above average reservoir storage to supply water to their customers with no anticipated curtailments or restrictions.



Basinwide Conditions Assessment

The SWSI value for the month was -4.0. The NRCS reports that April 1 snowpack is 57% of average for the North Platte River basin and 50% of average for the Yampa and White River basins. Flow at the gaging station Yampa River at Steamboat was 293 cfs, as compared to the long-term average of 155 cfs.

March precipitation was well below the monthly average in the Yampa, White, and North Platte River basins. Precipitation for the month, as measured at SNOTEL sites operated by NRCS, was reported at just 28% of average for the Yampa, White, and North Platte River basins. Total precipitation for the water year to date in the combined basins dropped to 73% of average. March snowfall was only 19 percent of average with most of that falling during the first week of the month.

The snow water equivalent (SWE) for water year 2012 to date dropped significantly during March and as of the end of the month was 59% of average for the North Platte River basin and 53% of average for the Yampa and White River basins.

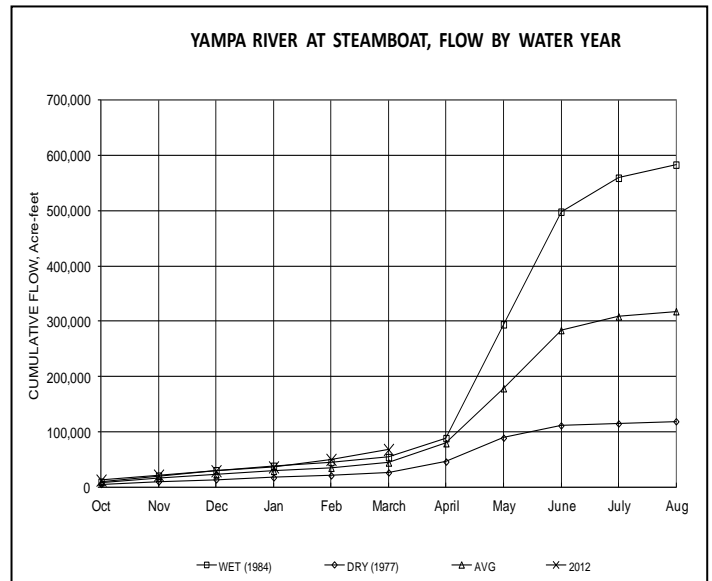
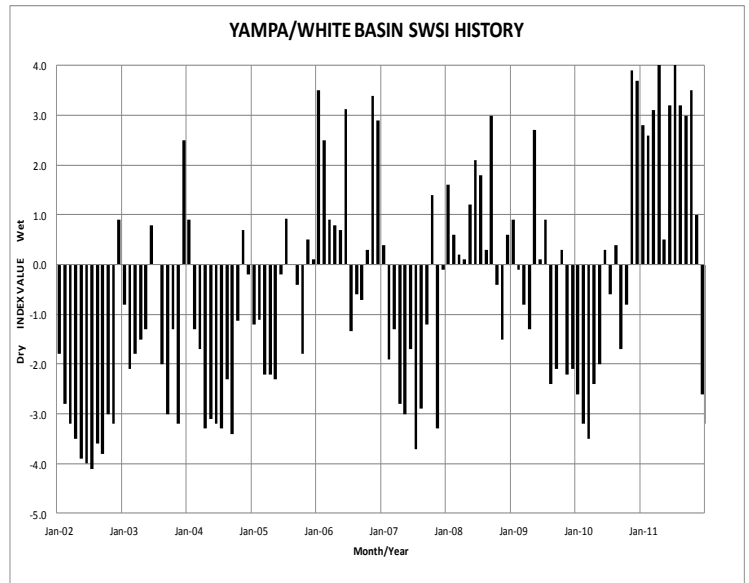
As of April 1, 2012, NRCS predicts well below average spring and summer streamflows in the Yampa, White, and North Platte River basins. The latest runoff forecasts from the NRCS for the April through July period are 20% of average for the North Platte River near Northgate (lowest in the state), 51% of average for the Yampa River near Maybell, 51% of average for the Little Snake River near Lily, and 55% of average for the White River near Meeker.

Outlook

Reservoir storage continues to be above average. As of March 31st Fish Creek Reservoir was storing 3,028 AF which is 72.7% of capacity. Yamcolo Reservoir's useable storage on March 31st was approximately 6,600 AF. That volume represents 76% of Yamcolo Reservoir's useable capacity. As of March 31st, Elkhead Creek Reservoir was storing 26,241 AF and was at 94% of capacity. At the end of March, Stagecoach Reservoir was storing approximately 33,700 AF. The enlarged capacity of Stagecoach Reservoir is 36,460 AF. Water stored in Fish Creek Reservoir is used primarily for municipal purposes, Yamcolo Reservoir for irrigation purposes, and Elkhead Creek Reservoir for municipal, industrial, recreational, and fish recovery releases. Stagecoach Reservoir is primarily used for recreation though a significant amount of stored water is allocated for municipal, industrial, irrigation and augmentation uses.

Public Use Impacts

Steamboat Ski Resort closed for the season as scheduled on April 15. However the lower mountain had been closed for most of the previous 3 weeks as deteriorating snow conditions did not allow for continuous trail access to the base. For the season the resort received 228 inches of snow, well below average and far less than last year's 433 inches. Stagecoach Reservoir was ice free as of April 1st. Boating at Stagecoach is scheduled to open on May 1st, conditions permitting. All park trails are open and mostly dry. At Steamboat Lake, the lake is ice open along the shorelines and inlets. Accessing the remaining ice is not recommended at this time. Fishing at the inlets is reported as good. Most of the snowpack at Steamboat Lake Park is gone and the lake is close to ice free.



Basinwide Conditions Assessment

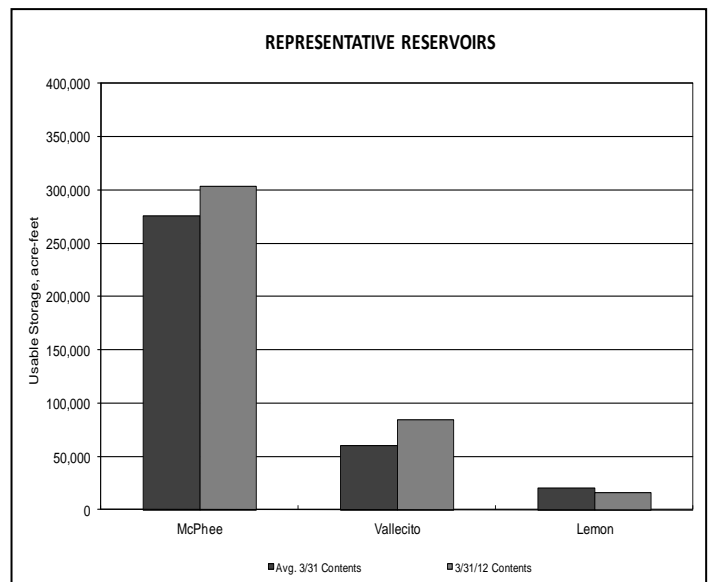
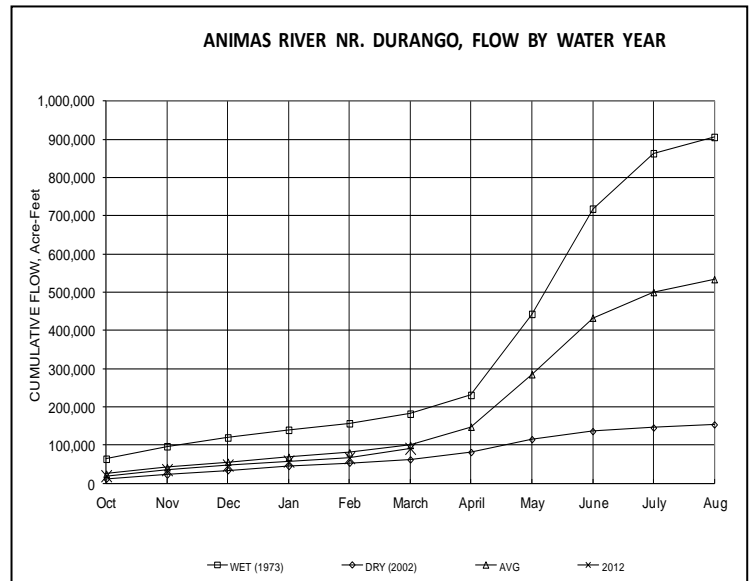
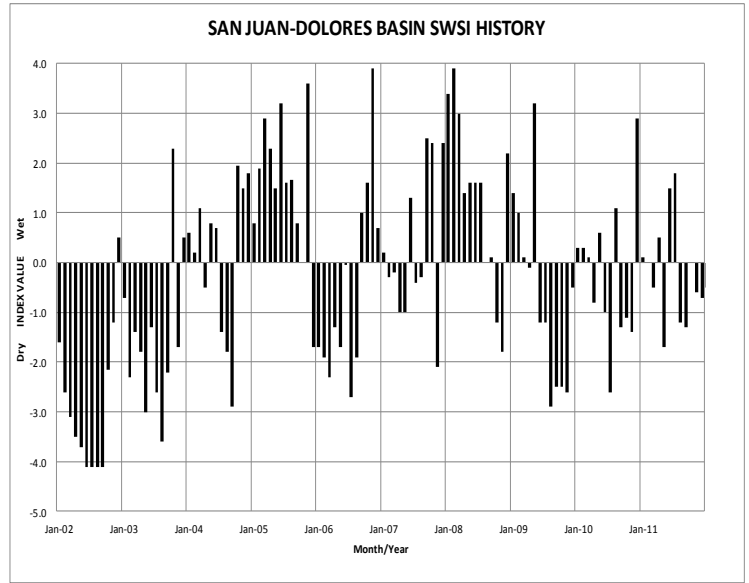
The SWSI value for the month was -1.8. The NRCS reports that April 1 snowpack is 53% of normal. Flow at the Animas River at Durango was estimated to average 425 cfs (140% of average). The flow at the Dolores River at Dolores was estimated to average 240 cfs (179% of average). The La Plata River at Hesperus averaged 41 cfs (256% of average).

Precipitation in Durango was 0.38 inches for the month, 24% of the 30-year average of 1.60 inches. Precipitation to date in Durango, for the water year, is 9.50 inches, 95% of the 30-year average of 9.99 inches. The average high and low temperatures for the month of March in Durango were 58° and 22°. In comparison, the 30-year average high and low for the month is 54° and 25°.

At the end of the month Vallecito Reservoir contained 84,250 acre-feet compared to its average content of 55,768 acre-feet (151% of average). McPhee Reservoir was up to 303,095 acre-feet compared to its average content of 271,841 (111% of average), while Lemon Reservoir was up to 16,220 acre-feet as compared to its average content of 20,106 acre-feet (81% of average).

Outlook

Precipitation (0.38-inches) was below average for the month of March in Durango. There are 102 years out of 118 years of record where there was more precipitation than this year. On March 31 the NRCS SNOTEL sites reported an average snow-water equivalent within the basin at 56%. Last month the snow-water-equivalent was 86%. The warm temperatures at the end of the month has started the run-off season early this year.



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