COLORADO
WATER SUPPLY CONDITIONS UPDATE

FROM THE OFFICE OF THE STATE ENGINEER: COLORADO DIVISION OF WATER RESOURCES
ROOM 818, 1313 SHERMAN ST., DENVER, CO 80203
303-866-3581; www.water.state.co.us

March 2015

The Surface Water Supply Index (SWSI) developed by this office and the U.S.D.A. Natural Resources Conservation Service (NRCS) 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 enclosed narratives are provided by the Division of Water Resources Office in each stream basin.

The statewide SWSI values for February (March 1) range from a high value of +1.9 in the South Platte River Basin to a low of -2.4 in the Yampa/White River Basin. Reservoir storage is very strong statewide. March 1 snowpack was well below normal in each basin with the exception of the Arkansas River Basin where snowpack was at the median. SWSI values in each basin are lower than observed last year at this time.

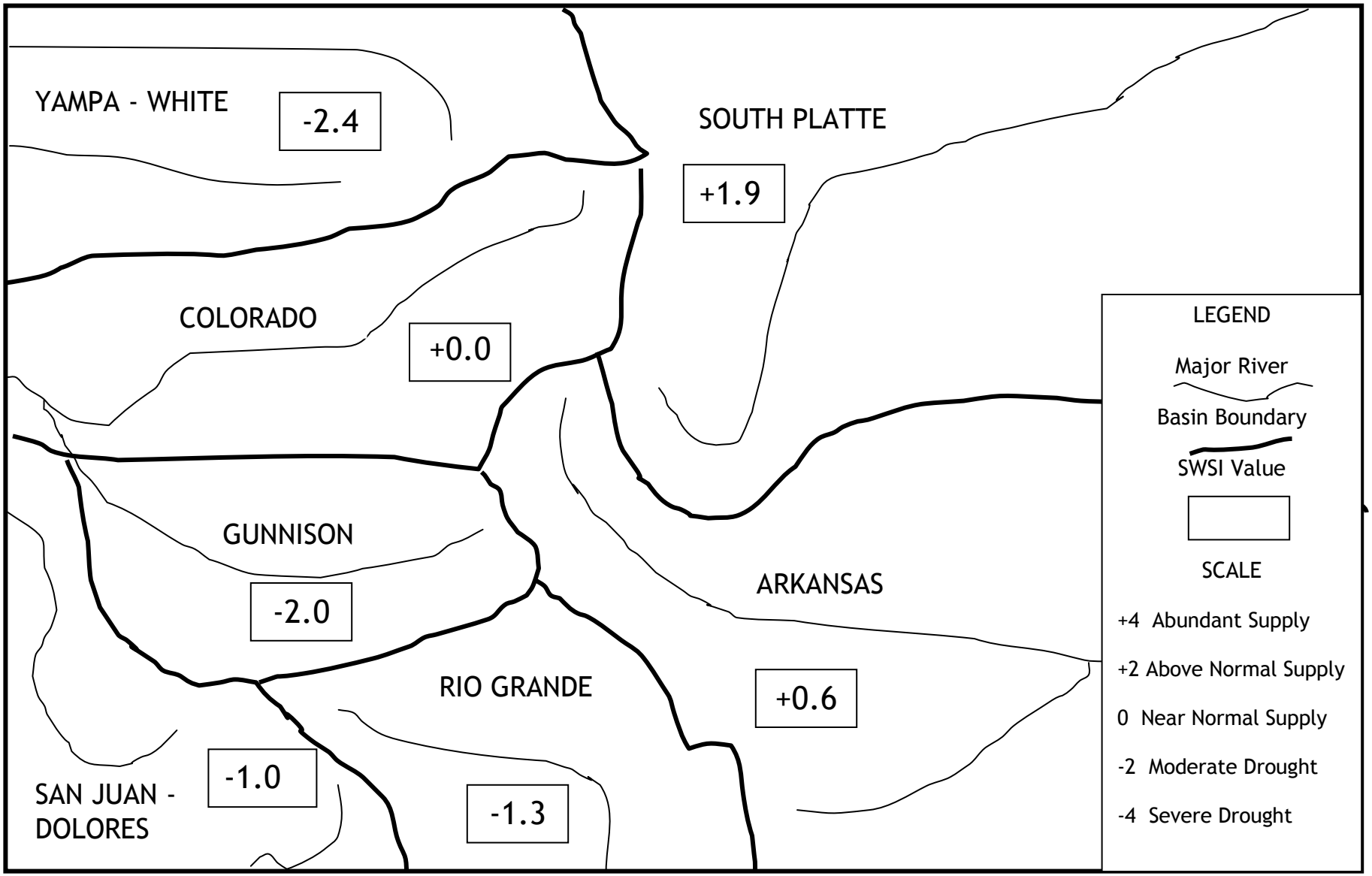
The following SWSI values were computed for each of the seven major basins for March 1, 2015. Additional information about SWSI calculations and the NRCS National Water and Climate Center SWSI by HUC are included on Page 10.

Basin	March 1 SWSI	Change from Previous Month	Change from Previous Year
South Platte	1.9	0.0	-0.7
Arkansas	0.6	-0.2	-0.2
Rio Grande	-1.3	0.4	-0.4
Gunnison	-2.0	-0.4	-2.9
Colorado	0.0	-0.1	-2.4
Yampa/White	-2.4	-0.4	-3.1
San Juan/Dolores	-1.0	0.3	-0.8

SWSI Scale

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

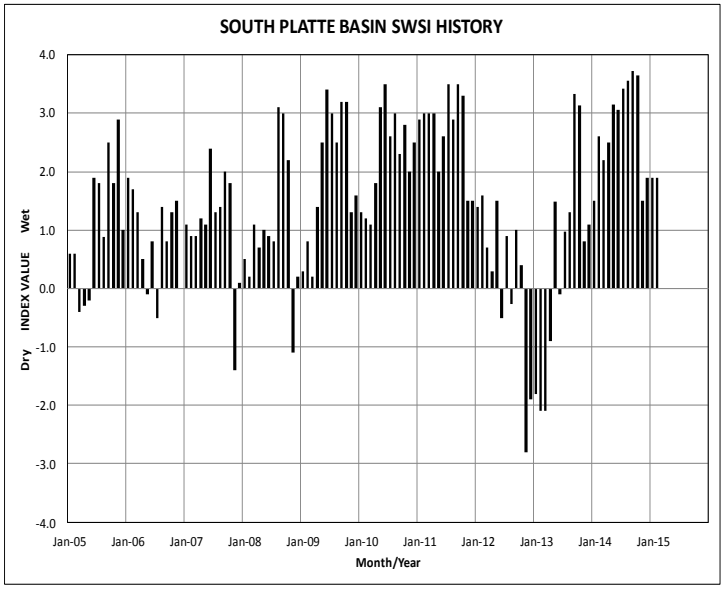
SURFACE WATER SUPPLY INDEX FOR COLORADO



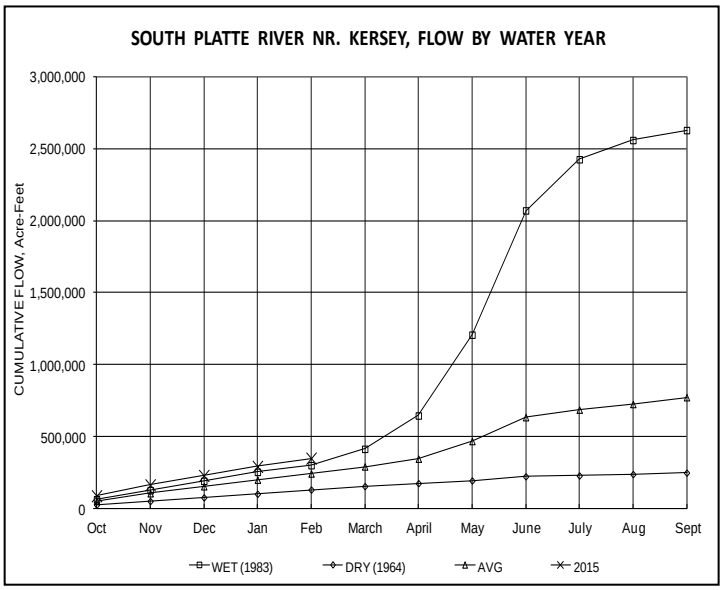
March 1, 2015

Basinwide Conditions Assessment

The SWSI value for the month was 1.9. February 2015 had a split personality in northeast Colorado. The first two weeks of the month were warm and dry over almost all of the area, but the last two weeks of the month were generally cool to cold and wet. The average temperature for February ended up being only slightly above normal for virtually all of northeast Colorado. Precipitation was not nearly as uniform as temperature with the Front Range and higher elevation generally receiving well above average precipitation. For example, February 2015 set new record maximum snowfall amounts in both Denver and Boulder. However, this was not the case with the more northeastern portions of Colorado, many of which actually received below normal precipitation in February.

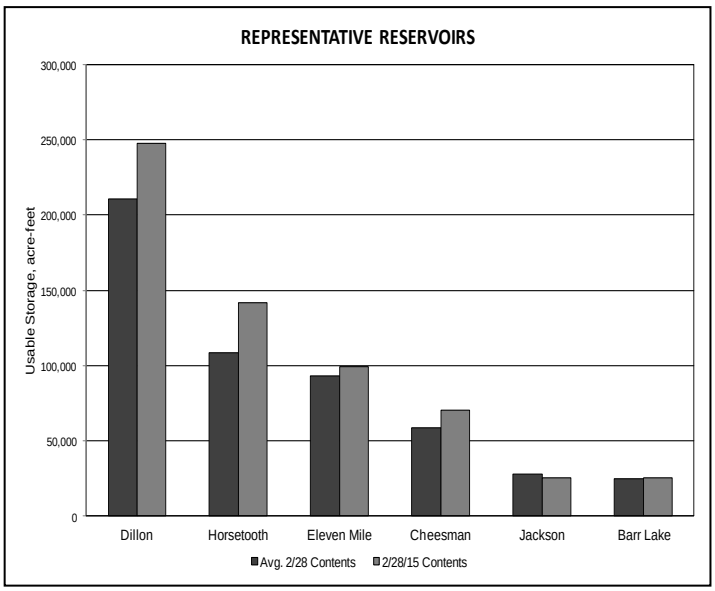


The South Platte basin snow water equivalent according to the SNOWTEL network was 110% of average on March 3, 2015. This represents an improvement from the 96% of average snow water equivalent reported by the SNOWTEL network on February 2, 2015. If the snow water equivalent readings remain near average for the remainder of the snow accumulation season, the South Platte basin should have at least adequate supplies for the 2015 irrigation season.



As has been the case for most of the last year, river flows at both the Kersey and Julesburg index gages continued to be above the historic mean flows. The mean monthly flow at Kersey was about 990 cfs or147 % of the historic mean of 674 cfs. The mean monthly flow at Julesburg was about 1020 cfs or 175% of the historic mean of 582 cfs. February marks the fourth month in a row of the unique situation where the flow at Julesburg exceeded the mean monthly flow at Kersey.

For the third month in a row, free river conditions again existed almost everywhere in the South Platte Basin during all of February. This continues the trend that began in September 2014 of generally free river conditions over most of the South Platte basin. There were calls on Boulder Creek for the entire month, but the remainder of the South Platte River basin was free of calls for the month of February.



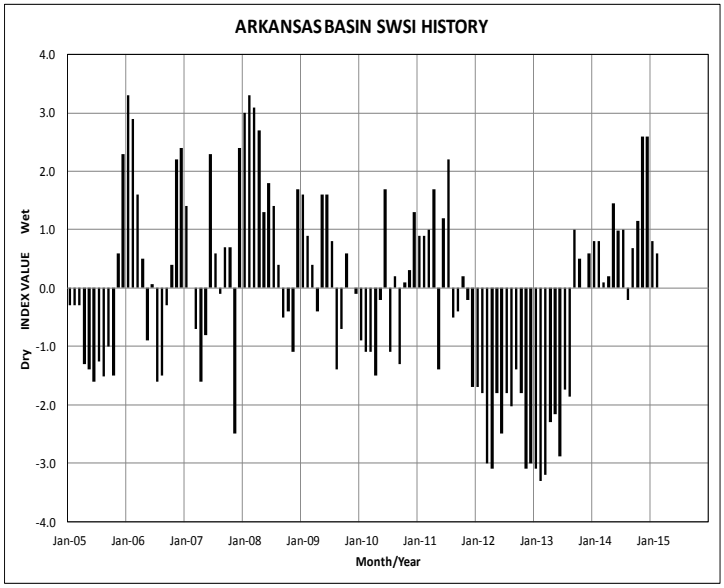
Reservoir storage in the South Platte basin also continued the trend of the last several months of above average. Using 32 major reservoirs, storage at the end of February was at about 87% of capacity. For comparison, the average end of February storage is about 74% of capacity.

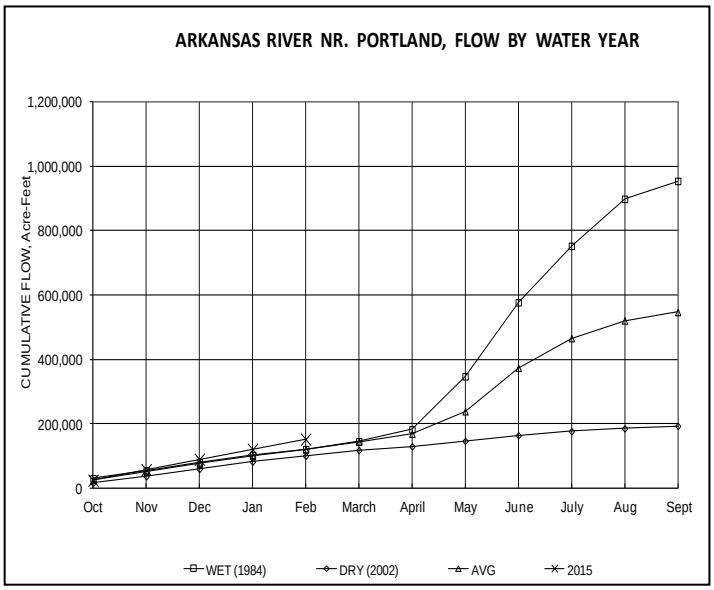
Basinwide Conditions Assessment

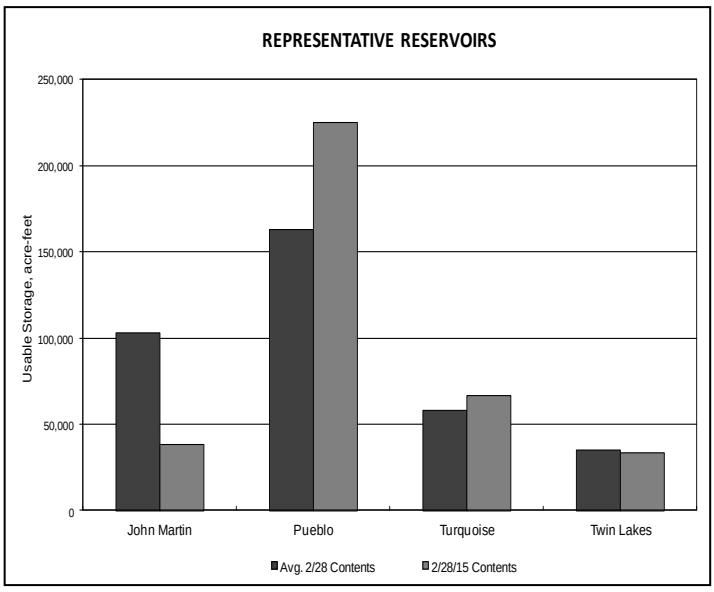
The SWSI value for the month was +0.6. Reservoir storage in the Pueblo Winter Water Program totaled 118,085 acre-feet as of the end of February. This storage amount is higher than last year's storage to date (128% of last year) and represents 116% of the past five-year average. Conservation storage in John Martin Reservoir has accumulated 13,616 acre-feet representing a significant increase from last year.

Administrative / Management Concerns

The Southeastern Colorado Water Conservancy District has requested a Planned Minor Deviation from Approved Water Control Plans for Pueblo Dam, to temporarily extend the evacuation date of water that encroaches into the Joint Use Pool from April 15th to April 30th. The impact is due to a combination of better than average Winter Water Storage in Pueblo Reservoir and the need of the U.S. Bureau of Reclamation to move Project water stored in the upper reservoirs of the Fryingpan-Arkansas System (Turquoise and Twin Lakes) down to Pueblo Reservoir in preparation for 2015 imports of water from the western slope. The temporary extension preserves water that might have otherwise spilled from "If & When" storage accounts in the reservoir. Ditch companies are required to use carry-over Winter Water by the end of this temporary extension period which should allow the reservoir to return to a level that removes the encroachment into the Joint Use Pool without spill.







Basinwide Conditions Assessment

The SWSI value for the month was -1.3. Flow at the gaging station Rio Grande near Del Norte averaged 213 cfs (119% of normal). The Conejos River near Mogote had a mean flow of 42 cfs (76% of normal).

There was very limited snowfall in the San Juans and Sangre de Cristos during January and most of February, 2015 before the stupendous snowstorms of February 22 through 23 and again February 27 through March 2. The storms put down a thick layer of snow in the mountains and the Valley floor. The benefit to the upper Rio Grande basin was huge, taking the area from 63% to about 85% of average snowpack basin-wide.

Outlook

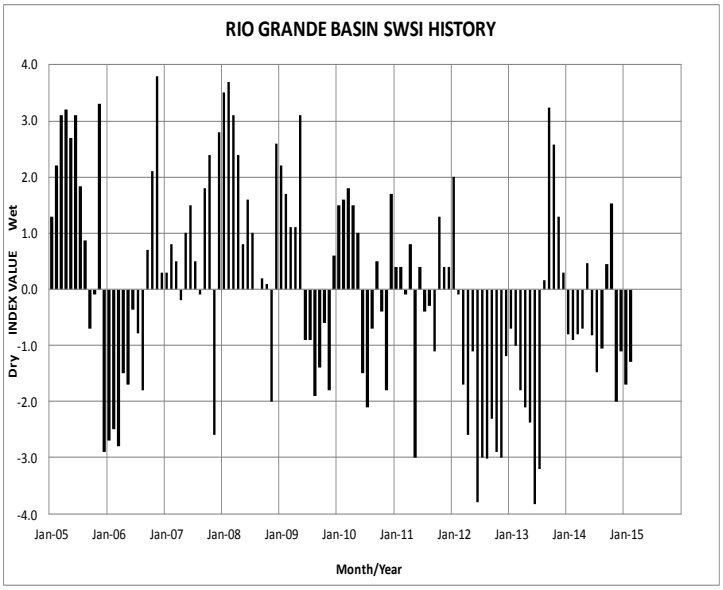
Based on measurements taken just after the snowstorms, the most recent Natural Resources Conservation Service stream flow forecasts are predicting runoff in area streams to be in the range of 58% (Rio San Antonio) and 66% (Alamosa River and LaJara Creek) to 103% (Saguache Creek, Ute Creek, and Sangre de Cristo Creek) of average during the 2015 irrigation season. The drainages on the eastern side of the San Luis Valley within the Sangre de Cristo Mountains made the biggest gain on projected forecasts due to the recent storms.

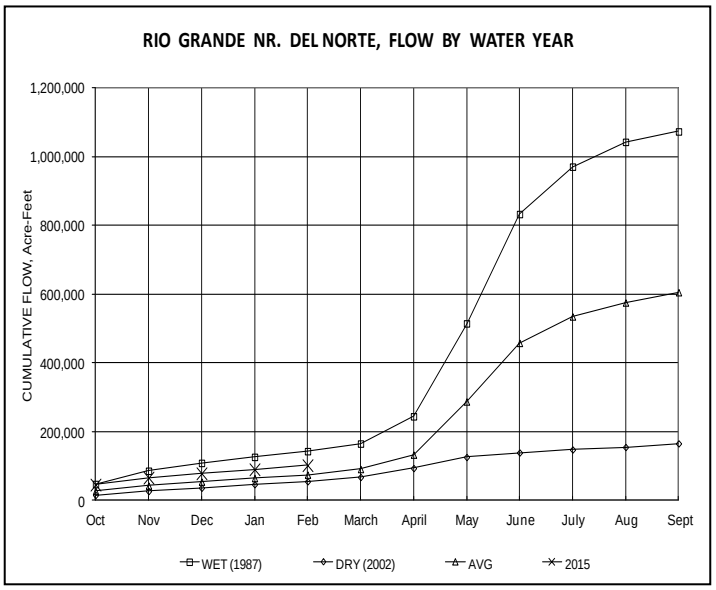
Current National Weather Service forecasts for March through May, 2015 are still calling for above average precipitation and temperatures in this area of the state.

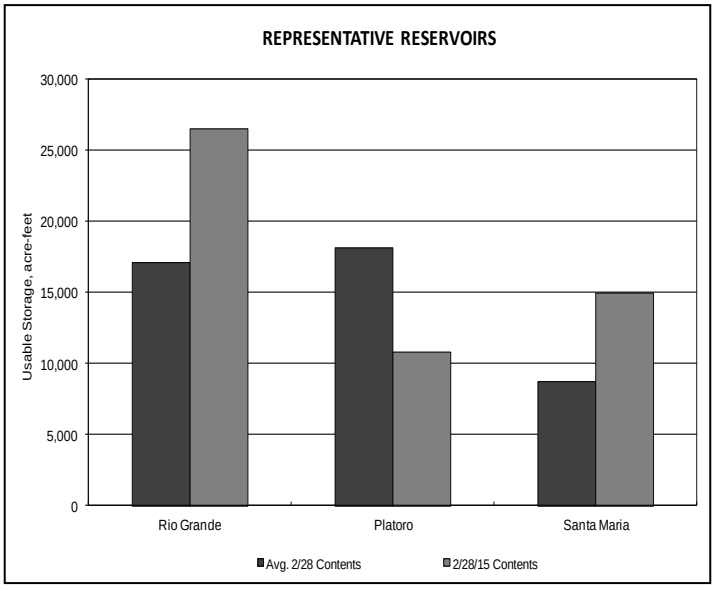
Administrative/Management Concerns

The 76th annual meeting of the Rio Grande Compact Commission will be held in Austin, Texas at the Stephen F. Austin Building on Tuesday, March 24, 2015. The public is invited to attend. The meeting is scheduled to start at 9:00 a.m.

The lack of snow cover at the lower elevations before late February was beneficial to livestock and their owners but made area farmers nervous about cropland damage and winter sports enthusiasts edgy about lack of snow depth. But the recent snow cover should ease some of these concerns.

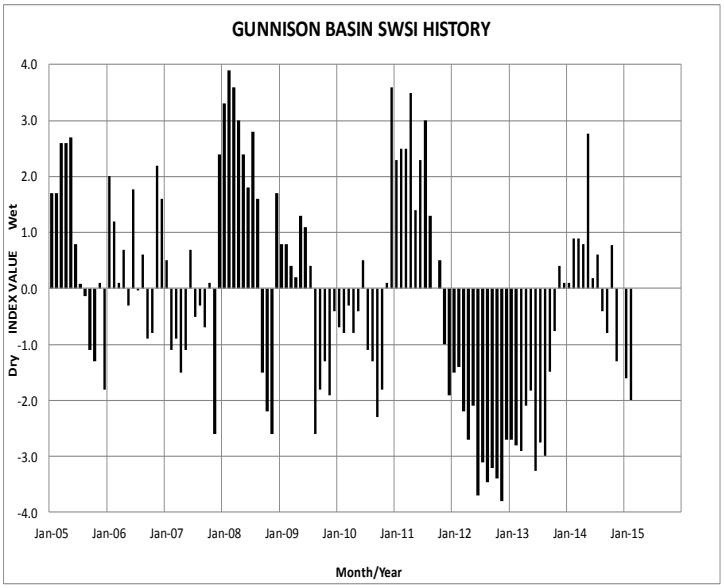






Basinwide Conditions Assessment

The SWSI value for the month was -2.0. Until February 22nd the Gunnison basin received almost no precipitation during February. Thankfully, during the following two week period the basin received an average of 3.7 inches of snow water equivalent (SWE). This period raised the percent of the median for the date from 68% to 88% on March 4th. Since that time, however, we have received little additional snowfall and it has fallen to 80% of the median on March 12th. Unfortunately, although the Grand Mesa benefited from this wet period it remains in the worst shape with the percent of the median SWE increasing from 48% to 68% during the same period, and then falling to 63% on March 12th. These values are supported by measurements made by the City of Grand Junction recently, as they reported approximately 60% of the median values at their snow course sites. Currently, the Gunnison basin remains slightly above the SWE values from 2012 and the Grand Mesa is mirroring 2002. Bright spots in the basin are areas above Taylor Park, the Upper Tomichi, the Lake Fork Gunnison and Uncompahgre, which are between 97 and 102% of their median SWE values. Temperatures in the basin were well above average in February with many locations seeing values 5 degrees warmer than average.

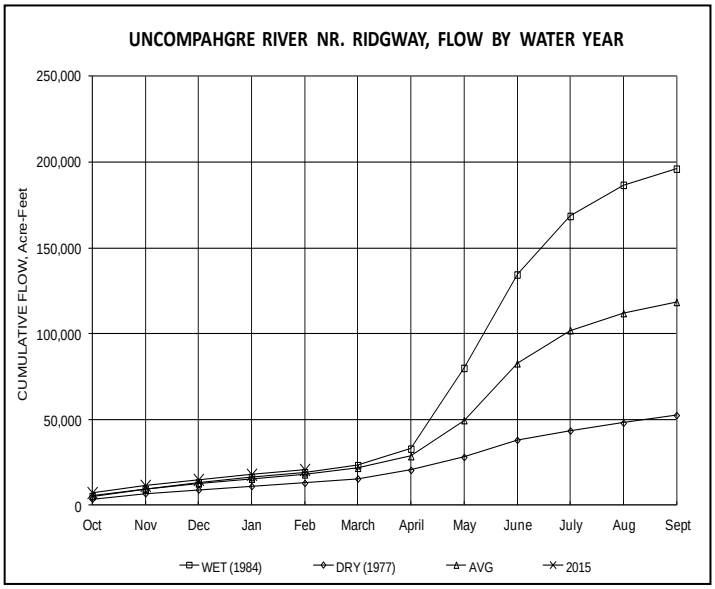


Outlook

The NWS Climate Center outlook for March, April and May places the Gunnison basin within an area expected to have greater than average precipitation during the next 90 days.

Snowpack non-exceedance projections published by the NRCS on March 12th predict that the basin will reach a peak SWE of 84% of the median provided that it receives an amount of precipitation that has 50% chance of occurring during the remaining accumulation season.

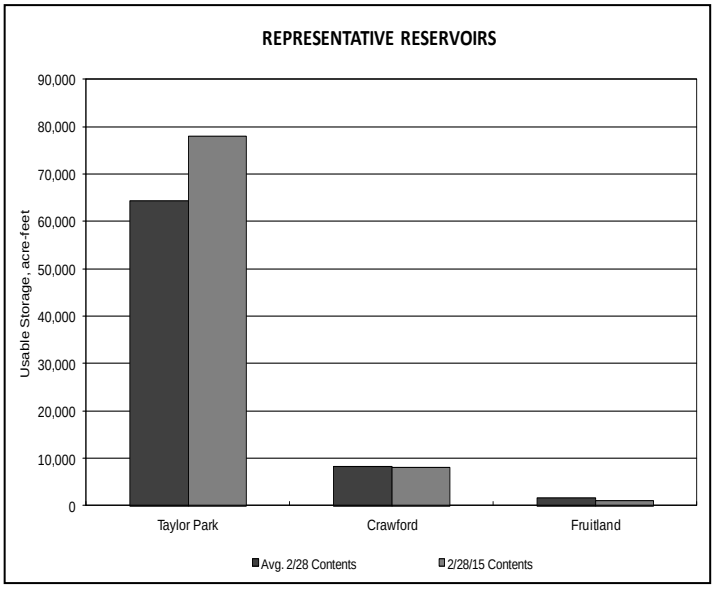
Colorado Basin River Forecast Center streamflow forecasts have improved and range from 77% of average on Surface Creek in Cedaredge to 121% of average on Tomichi Creek in Gunnison.



Administrative/Management Concerns

Taylor Park continues to accrue second fill water and contains over 23,000 acre-feet on March 12th. As a result, even if the remaining season is dry, use of Taylor Park Reservoir's first fill should not occur until late in the irrigation season, making it less likely that the Gunnison Tunnel water right will call.

The April to July inflow forecast for Blue Mesa Reservoir came in at 600,000 acre-feet on March 1st. This places the basin in an average-dry condition on the graphs that determine peak flows for the Black Canyon National Park reserved water right and Aspinall Re-operations ROD flows. The resulting one-day peak flow in the Black Canyon would be 4,492 cfs and the ROD flow target at Whitewater would be 8,070 cfs for 10-days. Keep in mind that these flow targets are not officially set until the May 1st forecast so they could change significantly in the next two months. Models indicate that these operations will result in Blue Mesa Reservoir reaching a peak content of 737,000 acre-feet, which corresponds to 89% of capacity and 10 feet below the top of its spillway gates.



Pubic Use Impacts

Ski conditions in the Gunnison for most of February were not good, but improved dramatically with the two weeks of storms received at the end of the month and beginning of March. The Ouray Ice Park was forced to close some of its routes during February due to early melt.

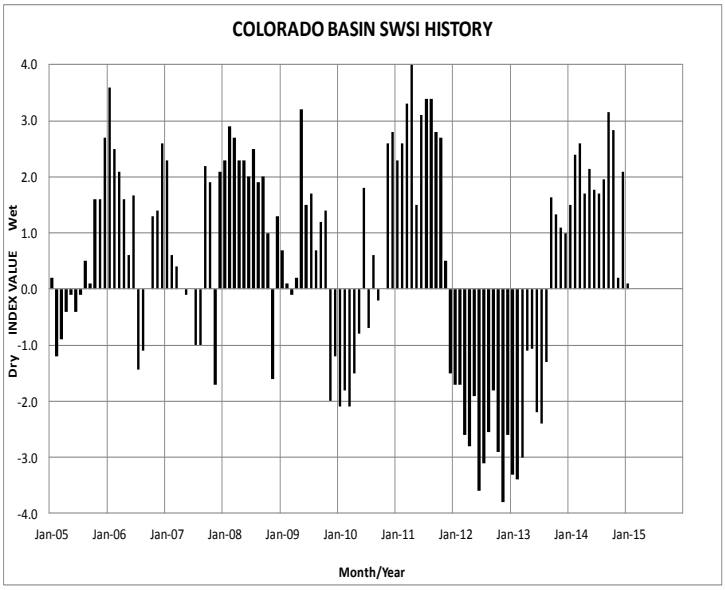
Basinwide Conditions Assessment
The SWSI value for the month was 0.0.

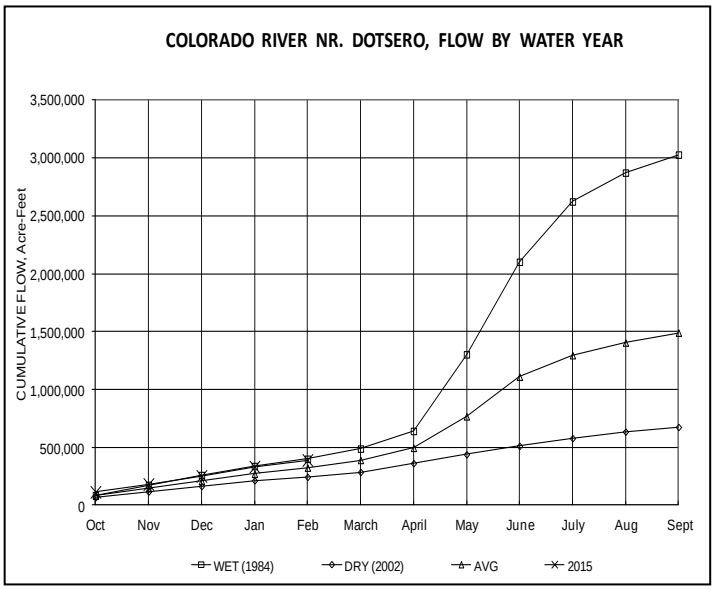
Outlook
Colorado River flows have fallen to near average, in part by decreases to Green Mountain Reservoir releases. Roaring Fork and Eagle River flows are likely to remain consistently above average throughout February. As of March 1st, Upper Colorado River Headwaters and Roaring Fork Basin snowpack has fallen from the previous month to 98 and 83 percent of median snow water equivalent, respectively. Basin wide (all sites above Lake Powell) percentage was lower as well at 82 percent. Slightly above average temperatures and precipitation are forecast for March.

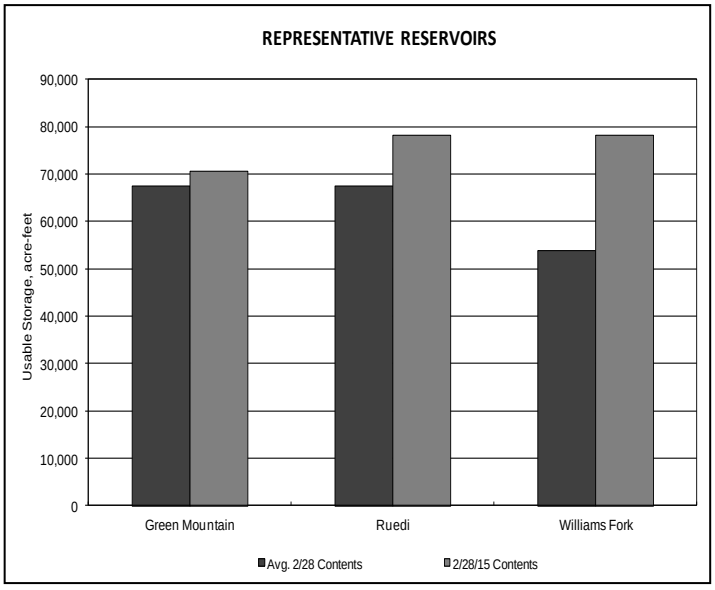
Administrative/Management Concerns
The senior Shoshone power right call on the Colorado mainstem at Dotsero remains in effect. Green Mountain Reservoir releases will decrease in accordance with corresponding lower Dillon Reservoir releases, and reduced C-BT Project depletion from increased Willow Creek Reservoir releases. Ruedi Reservoir will increase by 25 cfs to increase storage space for spring run-off. Wolford Mountain releases will remain unchanged. Williams Fork Reservoir has decreased releases in accordance with operation of the exchange with Dillon Reservoir.

Public Use Impacts
A water court case ruling providing the City of Aurora municipal use of 2,400 acre-ft of water diverted from the Upper Fryingpan Basin through the Busk-Ivanhoe tunnel, has been appealed to the Colorado Supreme Court. At issue is a 22 year period (1987-2009) of undecreed municipal use by Aurora not included in the average annual historic use calculation. Also at issue is the absence of a specific decree providing a right for water storage.

Ski areas enjoyed a substantial amount of long-awaited snow in late February/early March to boost base accumulations by 40 inches at Snowmass, 35 inches at Aspen Highlands, 27 inches at Aspen Mountain, and 18 inches at Buttermilk.







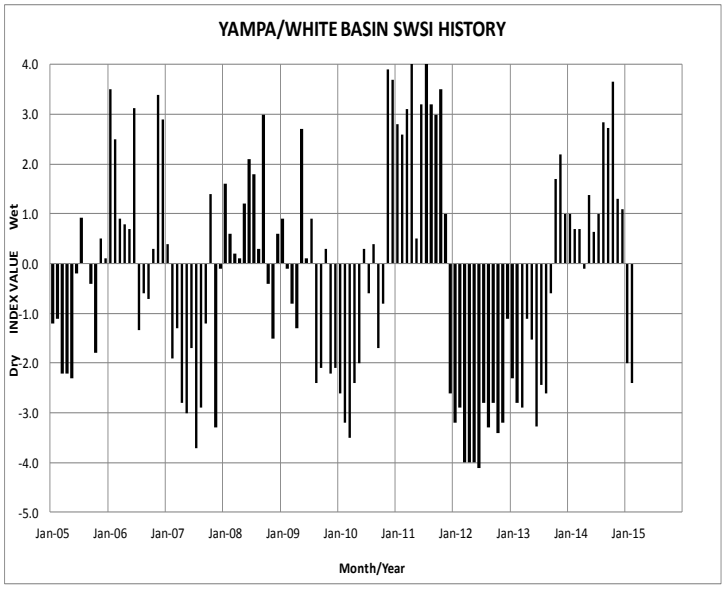
Basinwide Conditions Assessment

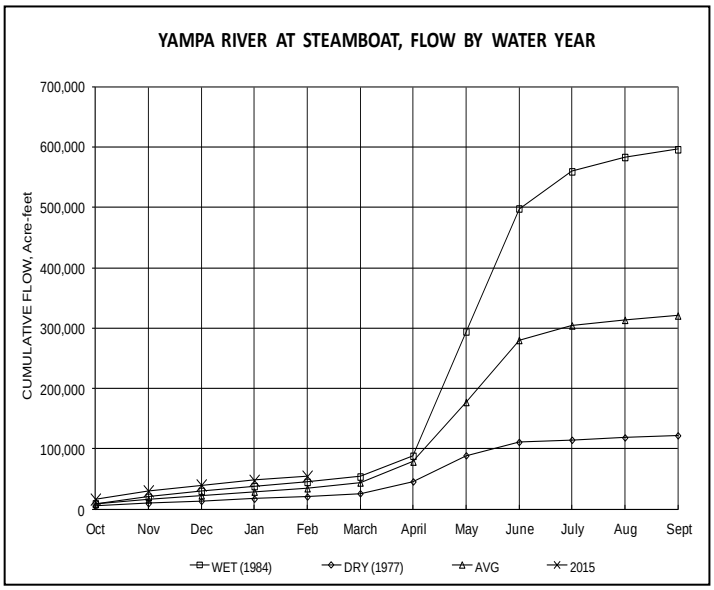
The SWSI value for the month was -2.4. February precipitation was below average in the Yampa, White, and North Platte River basins. Precipitation for the month, as measured at the SNOTEL sites operated by NRCS, was reported at 88% of average for the combined Yampa, White, and North Platte River basins. Total precipitation for the water year as a percent of average to date in the combined basins at the end of February was 81%.

Snowpack for the Yampa, White River, Laramie, and North Platte River basins was at 80% of average as of March 1st, 2015. The snow water equivalent (SWE) as of March 15th was 86% of average for the North Platte and Laramie River basins and 79% of average for the Yampa River basin and White River basin.

NRCS predicts 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 70% of average for the North Platte River near Northgate, 76% of average for the Yampa River near Maybell, 56% of average for the Little Snake River near Lily, and 77% of average for the White River near Meeker

Most Division 6 stream gages except the Yampa River, Williams Fork, and White River gages are closed for the winter season. Seasonal gages will be opened late March to mid-April as conditions permit. Rivers are currently mostly ice free.





Outlook

As of February 28th Fish Creek Reservoir was storing approximately 3,503 AF, 84.1% of capacity. The capacity of Fish Creek Reservoir is 4,167 AF. Yamcolo Reservoir was storing 6,800 AF at the end of February 2015. The capacity of Yamcolo Reservoir is 8,700 AF. On February 28th Elkhead Creek Reservoir was storing 20,045 AF. The capacity of Elkhead Creek Reservoir is 24,778 AF. On February 28th, 2015, Stagecoach Reservoir was storing 33,600 AF which is 101% of capacity.

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

As of March 10, 2015 Steamboat Ski Resort had received 217 inches of snow and had a 59 inch base. With recent warmer temperatures at the lower elevations, conditions improve as the day progresses.

All local Nordic centers continue to have good snow coverage and are maintaining cross country trails.

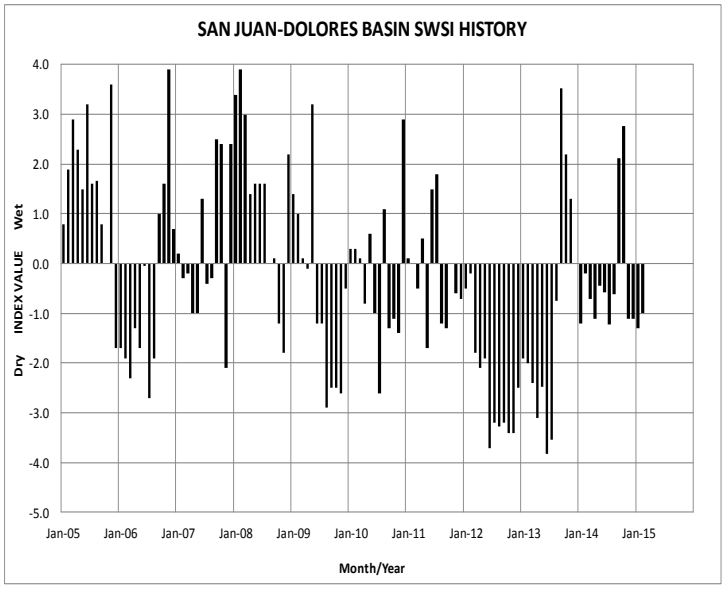
Snow and ice on the Yampa River has mostly cleared including the stream banks beginning below Stagecoach reservoir.

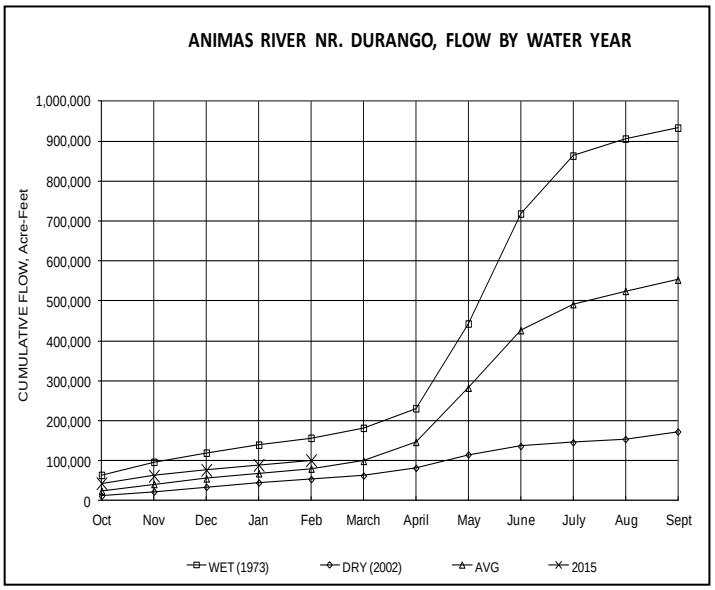
Basinwide Conditions Assessment

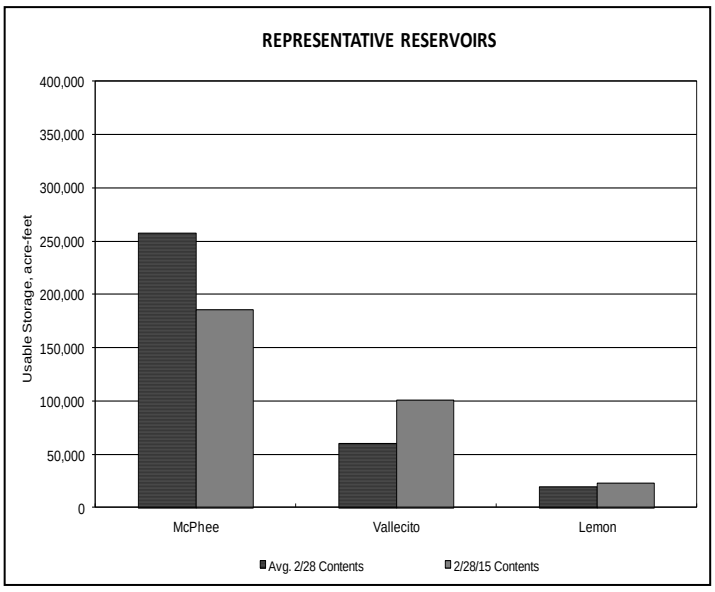
The SWSI value for the month was -1.0. Flow at the Animas River at Durango averaged 215 cfs (104% of average). The flow at the Dolores River at Dolores was estimated to average 68 cfs (123% of average). The La Plata River at Hesperus averaged 13.3 cfs (183% of average). Precipitation in Durango was 2.00 inches for the month, 124% of the 30-year average of 1.61 inches. Precipitation to date in Durango, for the water year, is 6.88 inches, 83% of the 30-year average of 8.30 inches. The average high and low temperatures for the month of February in Durango were 53° and 25°. In comparison, the 30-year average high and low for the month is 45° and 19°. At the end of the month Vallecito Reservoir contained 100,602 acre-feet compared to its average content of 55,737 acre-feet (180% of average). McPhee Reservoir was up to 186,078 acre-feet compared to its average content of 263,268 (71% of average), while Lemon Reservoir was up to 22,610 acre-feet as compared to its average content of 19,823 acre-feet (114% of average)

Outlook

Precipitation (2.00 inches) was above average for February in Durango. There were 34 years out of 120 years of record where there was more precipitation than this year. The flows in the rivers within the basin were slightly above too well above average. There were only 36 out of 105 years of record where the total flow past the Animas River at Durango stream gauge was more than this year. There were 26 out of 104 years of record where the total flow past the Dolores stream gauge was more than this year and 3 out of 98 years of record where the total flow past the La Plata River at Hesperus gauge was more than this year. On February 28, the NRCS SNOTEL sites reported an average snow-water equivalent within the basin at 68%. End of last month the snow-water-equivalent was 66%.







ADDITIONAL INFORMATION ABOUT COLORADO SWSI CALCULATIONS - Mar-15

The SWSI for each basin is based on probability of nonexceedance (PN) curves for each of three components: reservoir storage, snowpack, and precipitation (total accumulated for the season). The weighting, or importance, for each component in the SWSI calculation varies by basin as shown below.

Winter SWSI Component Weights

Basin	Reservoir Storage	Snowpack	Precipitation (cumulative)
South Platte	0.55	0.27	0.18
Arkansas	0.15	0.51	0.34
Rio Grande	0.05	0.63	0.32
Gunnison	0.1	0.54	0.36
Colorado	0.15	0.51	0.34
Yampa/White	None	0.6	0.4
San Juan/Dolores/Animas	0.1	0.54	0.36

The PN curves were developed in the 1980s and are generally based on a period of record of 1950-1979. As reservoir storage (and streamflow for the summer SWSI) is affected by human action, the reservoir storage PN curves may not reflect current practices for reservoir operation. DWR and NRCS are currently considering options for modifying the SWSI to address this and other concerns about its computation.

SWSI BY HUC FROM NRCS NATIONAL WATER & CLIMATE CENTER

Included below is the SWSI generated by the NRCS National Water and Climate Center, based on data as of March 1. The SWSI below is a predictive indicator of surface water availability for the spring and summer water use seasons. It is calculated by combining reservoir storage with forecasts of spring and summer streamflow, based on current snowpack and other hydrologic variables. The scale of -4 to +4 is the same as shown on Page 1.