COLORADO
WATER SUPPLY CONDITIONS UPDATE

FROM THE OFFICE OF THE STATE ENGINEER: COLORADO DIVISION OF WATER RESOURCES
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February 2013

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 Office in each stream basin.

The statewide SWSI values for January (February 1) range from a high value of -0.7 in the Rio Grande Basin to a low value of -3.3 in the Colorado River Basin. Drought conditions continue to be widespread throughout the state. With the exception of reservoir storage in the Rio Grande Basin, all components of the SWSI (reservoir storage, cumulative precipitation, and snowpack) are below normal for February 1.

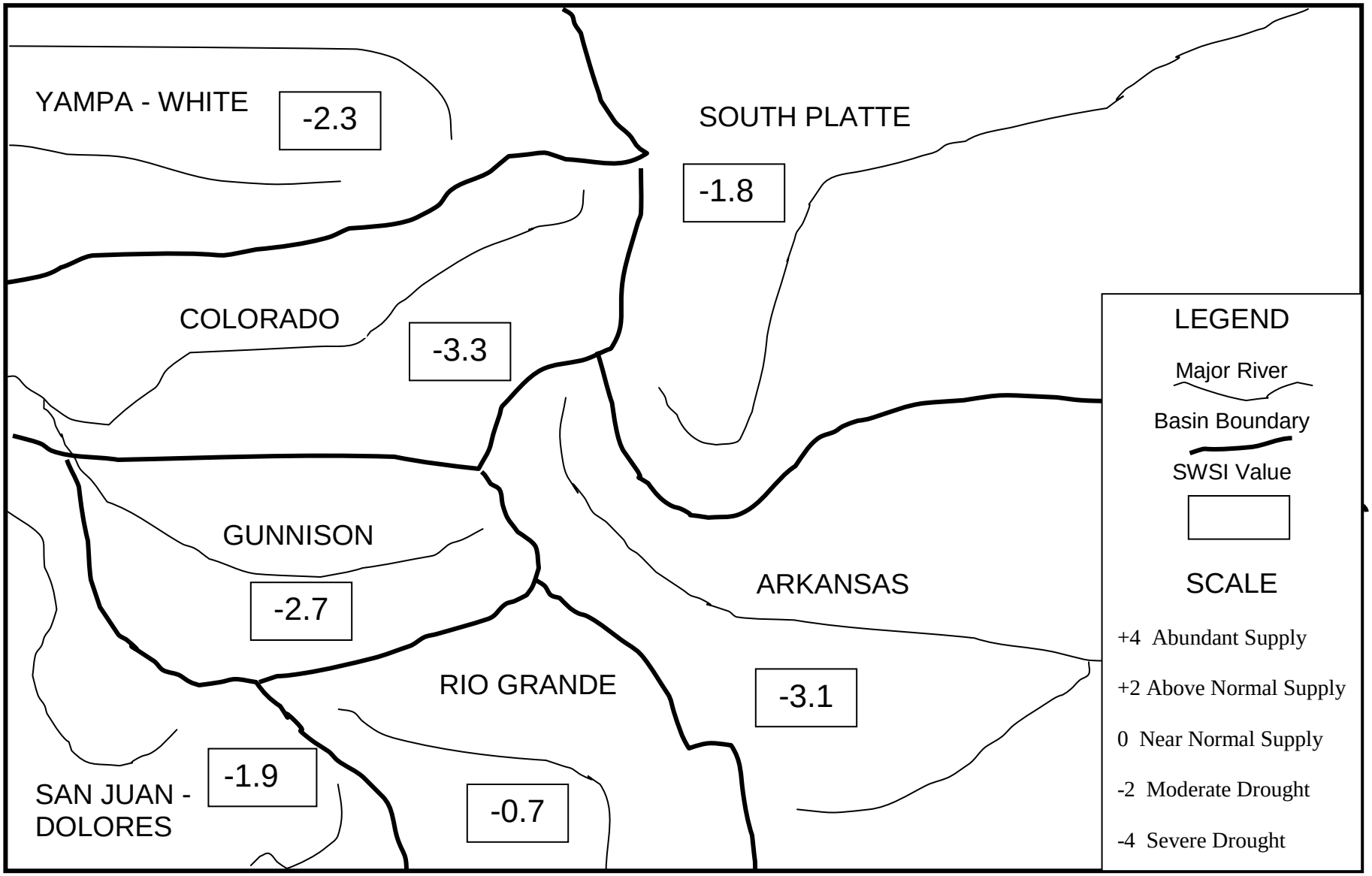
The following SWSI values were computed for each of the seven major basins for February 1, 2013, and reflect the conditions during the month of January. Additional information about SWSI calculations and the NRCS National Water and Climate Center SWSI by HUC are included on Page 10.

Basin	February 1 SWSI	Change from Previous Month	Change from Previous Year
South Platte	-1.8	0.1	-3.2
Arkansas	-3.1	-0.1	-1.4
Rio Grande	-0.7	0.5	-2.7
Gunnison	-2.7	0.0	-1.2
Colorado	-3.3	-0.7	-1.6
Yampa/White	-2.3	-1.2	0.9
San Juan/Dolores	-1.9	0.6	-1.4

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



February 1, 2013

Basinwide Conditions Assessment

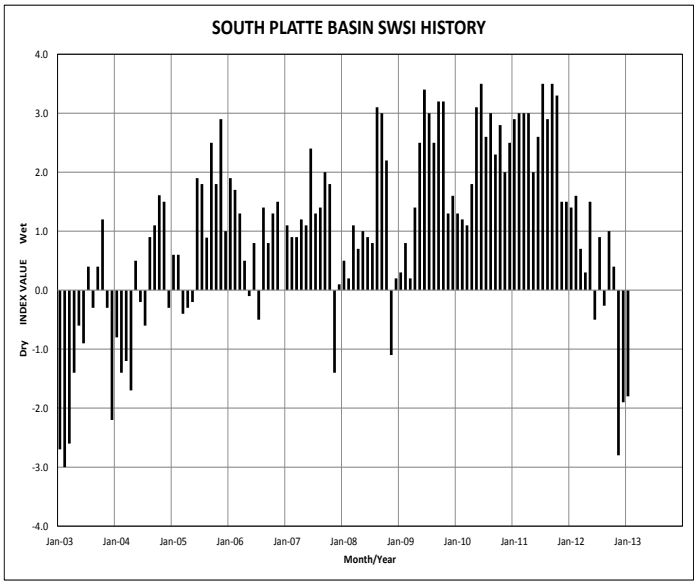
The SWSI value for the month was -1.8. February 1 snowpack remains low with a nonexceedance probability (PN) of 10[1]. Cumulative storage in the major plains reservoirs (Julesburg, North Sterling, and Prewitt) is at 59% of capacity. Cumulative storage in the major upper-basin reservoirs (Cheesman, Eleven Mile, Spinney, and Antero) is at 79% of capacity.

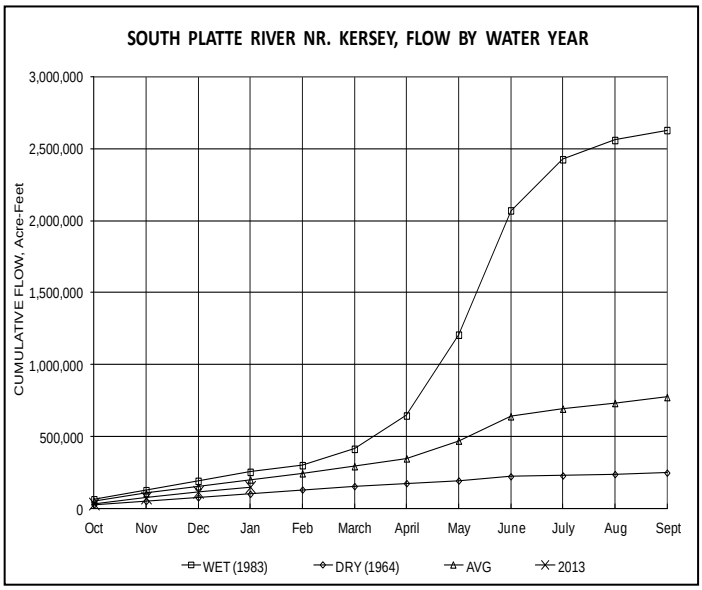
January in the South Platte basin felt mild and dry, though temperatures were actually not far from normal. There was a significant cold snap just before the middle of the month that brought some snow with it and the mountains received some snow toward the end of the month that at least built the snowpack to above 2002 levels. However, at only 60% of average snow water equivalent for the end of January, the South Platte has the lowest snowpack in the state. The lack of any significant moisture since last fall has moved the entire South Platte basin into at least the severe drought category with the lower end of the basin in either extreme or exceptional drought.

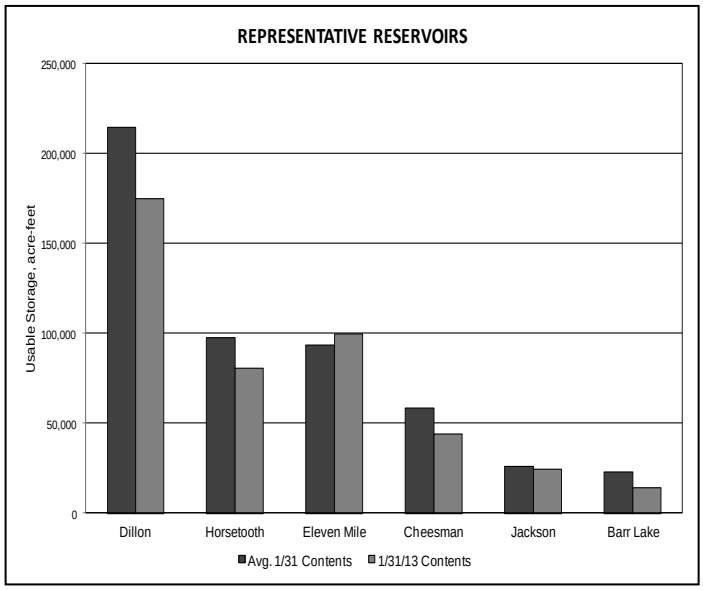
Stream flows at both the Kersey and Julesburg index gages remained below average for January. The Kersey gage monthly mean stream flow was 560 cfs or 86% of the historic mean of 652 cfs and above the January 2003 mean of 523 cfs. The January Julesburg gage monthly mean stream flow value was 112 cfs or 22% of the historic mean of 509 cfs. This is well above the January 2003 historic low mean of 21 cfs.

Outlook

The mainstem and tributary river calls continued with diversions to storage rights throughout the month. However, the calls on the mainstem and some of the tributaries were able to move slightly more junior toward the end of the month as some of the most senior storage rights filled. Even with this, it is still expected that without some significant runoff producing precipitation, a number of major reservoirs in the basin will not fill before direct flow rights begin diverting in March or April.







[1] At least 90 percent of recorded values are higher than a PN of 10

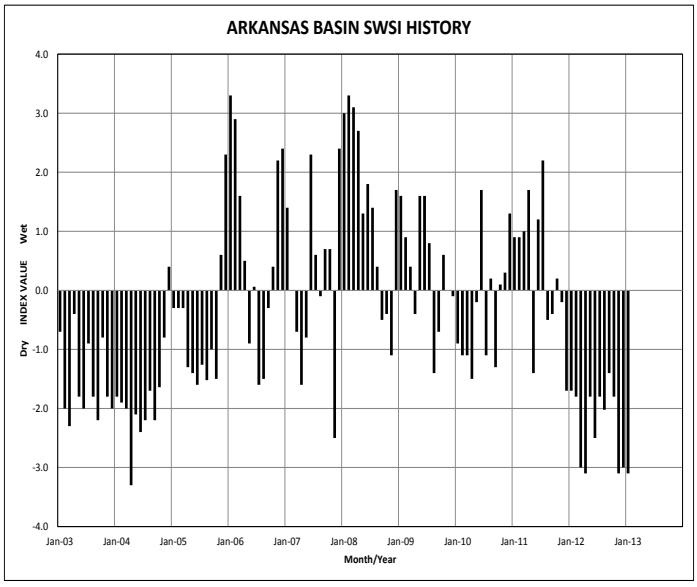
Basinwide Conditions Assessment

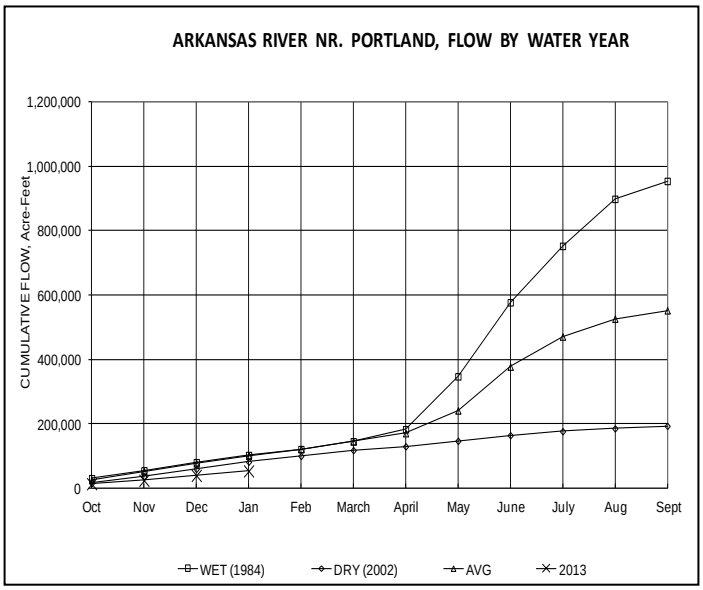
The SWSI value for the month was -3.1. Snowpack accounts for the majority of the SWSI in the Arkansas Basin and was very low with a PN of 6. Water year cumulative precipitation, the other major component of the Arkansas Basin's winter SWSI, was also very low (PN of 7).

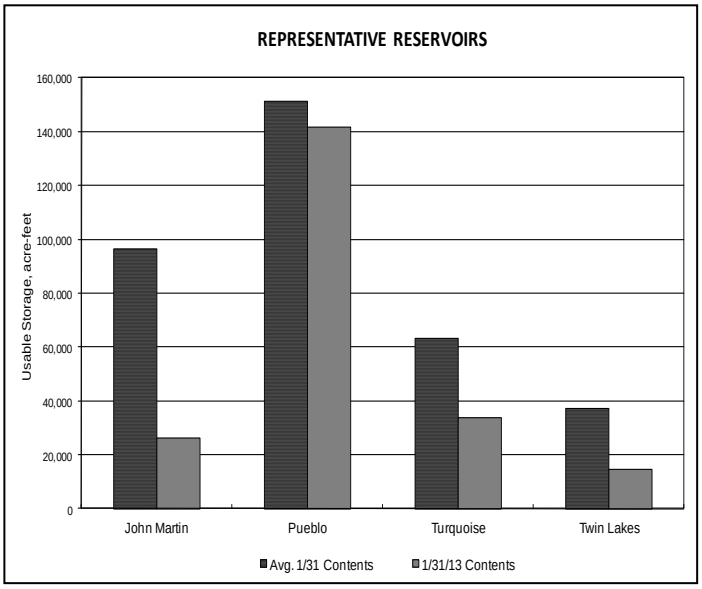
Reservoir storage in the Pueblo Winter Water Program totaled 45,383 acre-feet as of the end of January. This storage amount is only a little above half of last year's storage to date of 85,899 acre-feet and represents 49% of the past five-year average.

Conservation storage in John Martin Reservoir has accumulated 3,406 acre-feet versus 11,602 acre-feet as of the end of January last year.

Low snowpack numbers and poor storage yields are of great concern for the upcoming irrigation season.







Basinwide Conditions Assessment

The SWSI value for the month was -0.7. Flow at the gaging station Rio Grande near Del Norte averaged 126 cfs (72% of normal). The Conejos River near Mogote had a mean flow of 39 cfs (82% of normal).

Very limited snowfall in the San Juans and Sangre de Cristos during early January kept the snowpack well below the long-term averages. A strange mixture of rain and snow hit the Valley floor and mid-elevations on January 26. It's pretty hard to find occurrences of rain during January in the San Luis Valley. The good news is that rain system produced snow in the high country that increased basin-wide snowpack substantially at the end of the month. Current snowpack is still well below normal, but at least closing in on last winter's levels. January precipitation in Alamosa was only 0.07 inches, 0.19 inches below normal.

It was a bitter cold January for the San Luis Valley where a layer of snow on the ground produced temperatures as low as -34 degrees. Several new daily record cold temperatures were registered.

Outlook

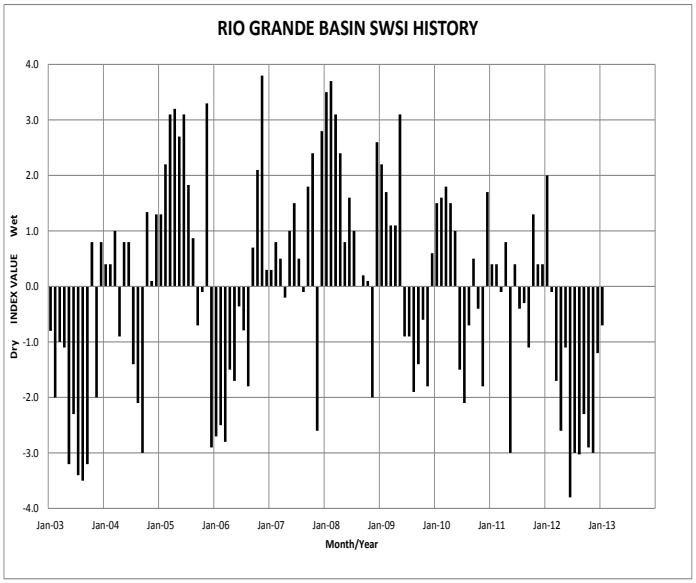
Basinwide snowpack accumulation stood at about 78% of normal on February 1, an increase of 13% from January 1.

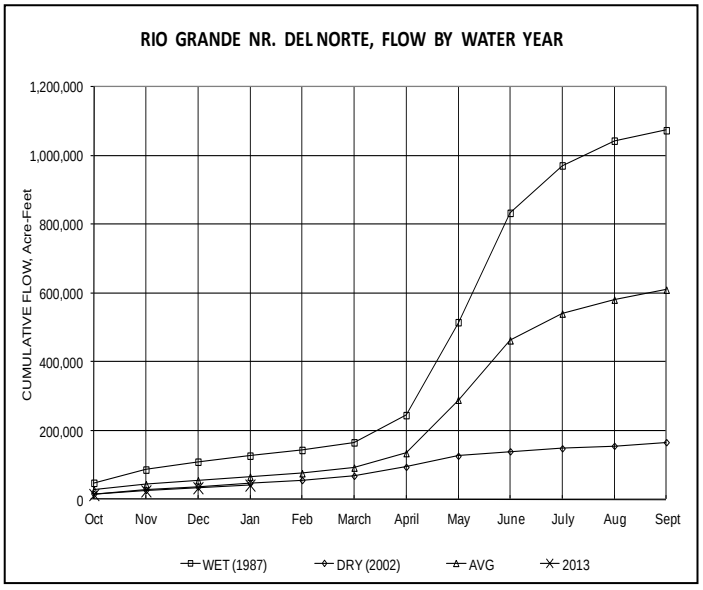
The Natural Resources Conservation Service stream flow forecasts are predicting runoff in area streams to be in the range of 30% (Sangre de Cristo Creek) to 80% (Platoro Reservoir inflow) of average during the 2013 irrigation season. In general, runoff predictions are very poor (30 to 50%) for the Sangre de Cristo Mountains on the eastern side of the San Luis Valley, while the rest of the basin is around 75% of average.

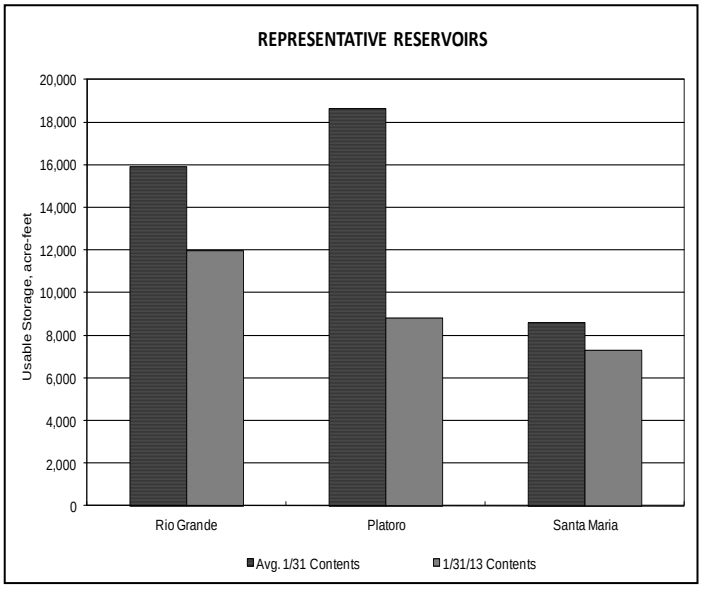
Current National Weather Service forecasts for February through April, 2013 are calling for above normal temperatures and below normal precipitation in this area of the state.

Administrative/Management Concerns

Much effort was spent during January finalizing streamflow and diversion records. The annual meetings of local districts and ditch boards are held this time of year to reflect back on the 2012 season and plan for the upcoming irrigation season.







Basinwide Conditions Assessment

The SWSI value for the month was -2.7. Basin-wide seasonal precipitation remains well below average, however, thanks to a couple of wet late January storms, average snowpack conditions in the basin improved from 62 to 75 percent of average on February 1st. Although an improvement, this brings us only to a level equal to the same time in 2012. The Cochetopa Creek, Tomichi Creek and Taylor River drainages continue to contain the worst conditions in the basin, with only 50 to 57 percent of average snow water equivalent (SWE), while other areas, such as the North Fork above Paonia Reservoir, Uncompahgre River above Ridgway Reservoir, and the San Miguel River are in better condition at 78, 72, and 79 percent of average, respectively.

Outlook

NRCS peak snowpack forecasts have improved with the late January storms and now predict that with average accumulation during the remaining season, peak Gunnison basin snowpack should reach 84 percent of average. Colorado Basin River Forecast Center (CBRFC) streamflow predictions within the Gunnison basin range from 50 percent on Tomichi Creek to 71 percent on Surface Creek. These are generally lower than the current snowpack percentages because of dry soil moisture conditions. The positive news is that we now sit above where we were in 2002.

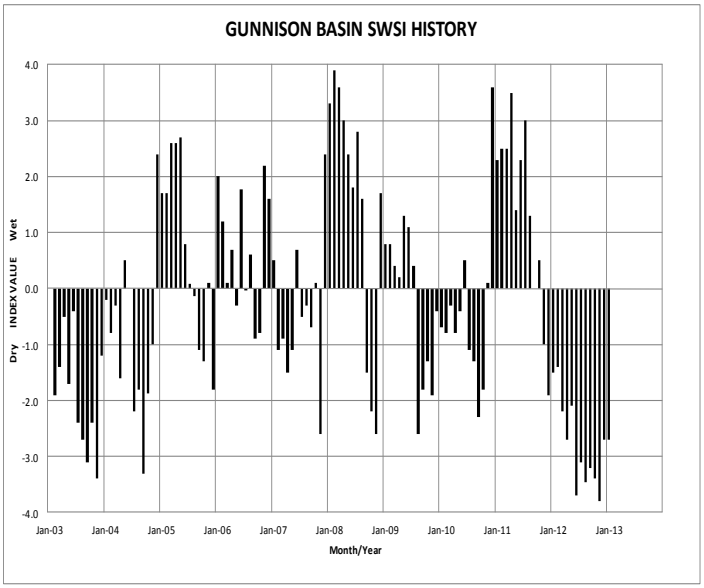
Administrative/Management Concerns

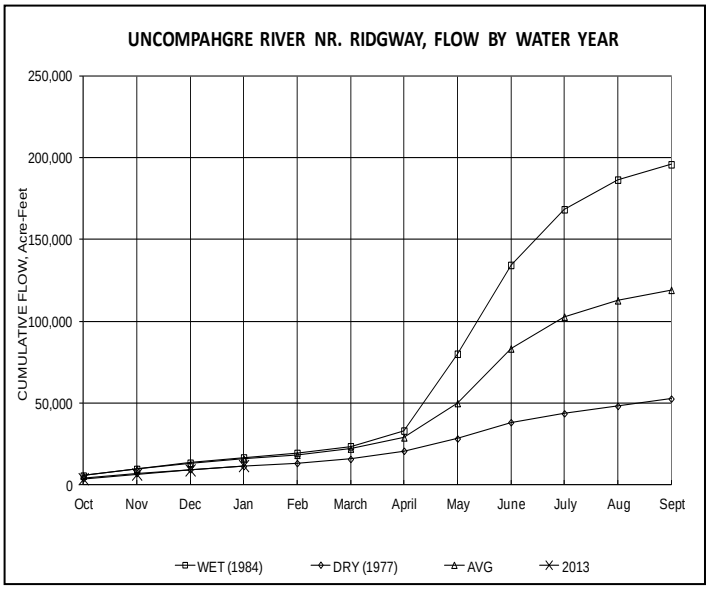
The current April-July inflow forecast for Blue Mesa Reservoir is 385,000 acre-feet, which falls within the dry year category for determining Black Canyon peak flows and endangered fish flow targets at Whitewater. In addition, if conditions continue through April, drought rules will apply for determining fish flows as specified by the EIS and peak flows in the Black Canyon per the federal reserved water right since this would be the second dry year in a row. The target peak flow in the Black Canyon would be 768 cfs (75% of normal), and the target base flow at Whitewater would be 900 cfs instead of 1050 cfs. The drought rule peak and base flow targets will reduce the amount of water released from the Aspinall Unit during 2013. Blue Mesa releases continue to generally match outflows, preventing the reservoir from gaining much storage volume as it currently sits at 326,000 acre-feet (39% of active capacity).

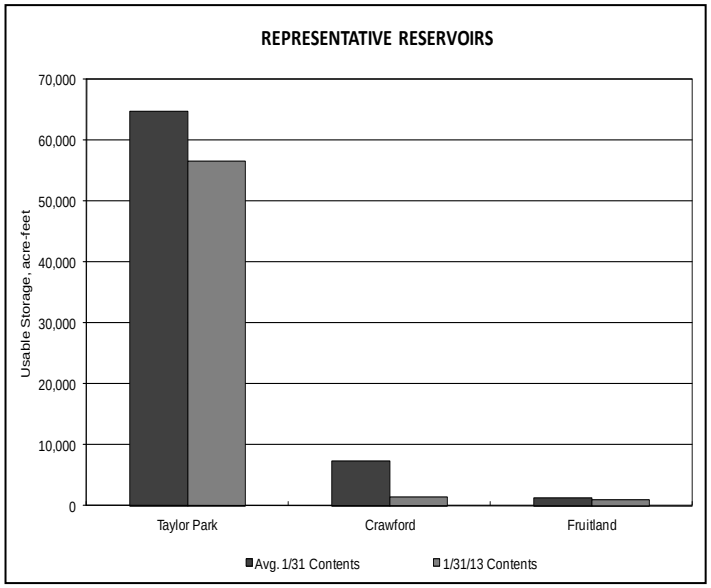
Grand Mesa water users are watching snowpack closely because carryover storage in their system is at only 17 percent and they will need improved conditions to fill their reservoirs and satisfy senior direct flow right decrees.

Pubic Use Impacts

Due to unseasonably cold temperatures (5 degrees below average) caused by inversions in the valleys, many streamflow gages in the Gunnison basin are still listed as ice affected, therefore, streamflow readings at many locations this month were not reported. Skiing at resorts in the basin improved significantly in late January due to two significant storms.







Basinwide Conditions Assessment

The SWSI value for the month was -3.3. The snowpack PN declined this month to a value of 13. Many gages on the Eagle and Roaring Fork Rivers continue to experience ice-affected instantaneous and daily flow values.

Outlook

Flows will continue to be below average through February. The Shoshone Hydro Power Plant call will likely continue through February. Williams Fork and Green Mountain Reservoirs should remain unchanged through February. Recent storms in late January improved snowpack conditions somewhat with the Upper Colorado River and Roaring Fork Basin snowpack reporting 69 and72 percent of average snow water equivalent respectively as of February 1st. The western Colorado forecast through the month of February calls for a below average chance of precipitation.

Administrative/Management Concerns

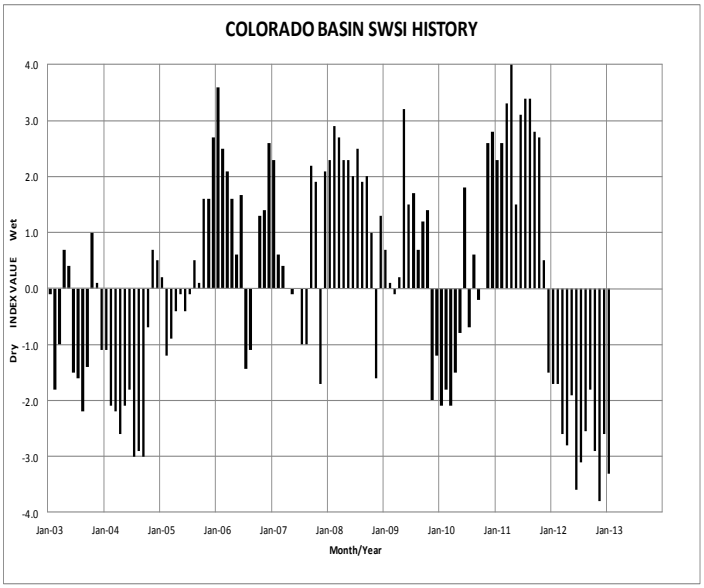
Shoshone Power plant will continue to operate at approximately one-half capacity through February, potentially shutting down for maintenance operations. Green Mountain Reservoir will maintain a release rate of 170 cfs - reduced slightly on December 31, 2012. Williams Fork and Ruedi Reservoirs will maintain releases of about 40 cfs.

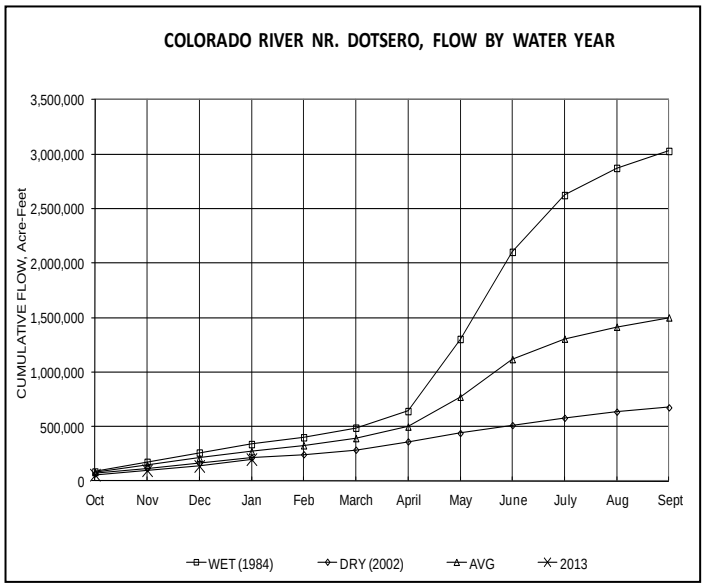
Public Use Impacts

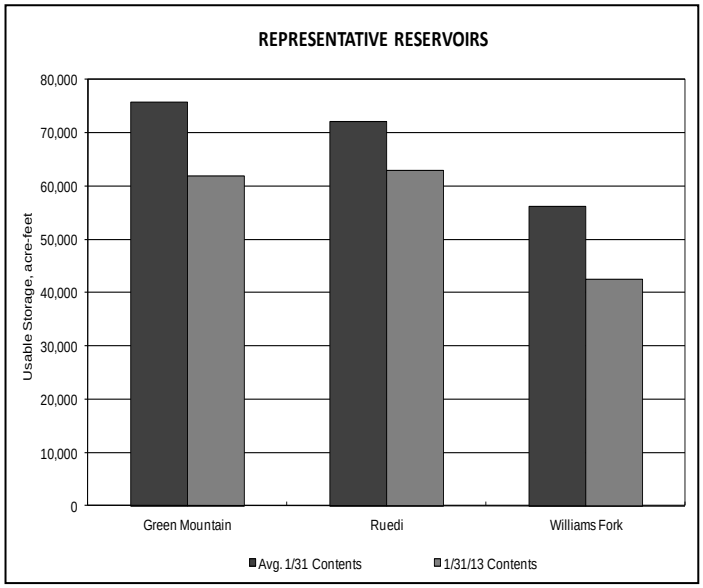
Pitkin County (Aspen) is seeking to prevent the City of Aurora from changing its 2600 acre-ft. water right in the Fryingpan River basin, from irrigation to municipal/industrial in the South Platte River basin. There is concern the change would allow expansion of the diversion period from 183 days (irrigation season) to 365 days for municipal use. The dispute centers on whether Aurora has to determine its historic consumptive use, and if credit should be awarded for water it has been using for un-decreed purposes.

Financial agreements have been entered between the Bureau of Reclamation and a number of entities for the remaining available contract water in Ruedi Reservoir. The majority (85 percent) has been claimed by Colorado River Water Conservation District and Ute Water Conservancy District (combined), with the remainder divided among 15 other municipal, county, and private entities including Garfield County and the City of Aspen.

A study funded by the Bureau of Reclamation and the seven Colorado River Basin states analyzing Colorado River Basin Water Supply and Demand has been completed. The study claims the gap between water use and supply will be 3.2 to 8 million acre-feet annually by the year 2060.







Basinwide Conditions Assessment

The SWSI value for the month was -2.3. January precipitation was well 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 72% of average for the 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 January was 77%, the highest in the state.

Snowpack for the Yampa and White River basins was at 77% of average and the North Platte basin was at 71% of average as of February 1. The snow water equivalent (SWE) as of January 31 was 70% of average for the North Platte River basin and 76% of average for the Yampa River basin and White River basin.

The NRCS Colorado Basin Outlook Report for February 1 includes median streamflow forecasts for the basin between 50 percent of average (North Platte River near Northgate) and 72 percent of average (Elk River near Milner) for the April through July period.

Due to cold temperatures, all Division 6 stream gages except the Williams Fork gage are either closed for the winter season or currently ice-affected.

Outlook

As of January 31st Fish Creek Reservoir was storing approximately 1,574 AF, 38% of capacity. Yamcolo Reservoir was storing 4,146 AF, 43% of capacity. Elkhead Creek Reservoir was storing 16,983, 69% of capacity. Stagecoach Reservoir was storing 28,900 AF, 79% of capacity.

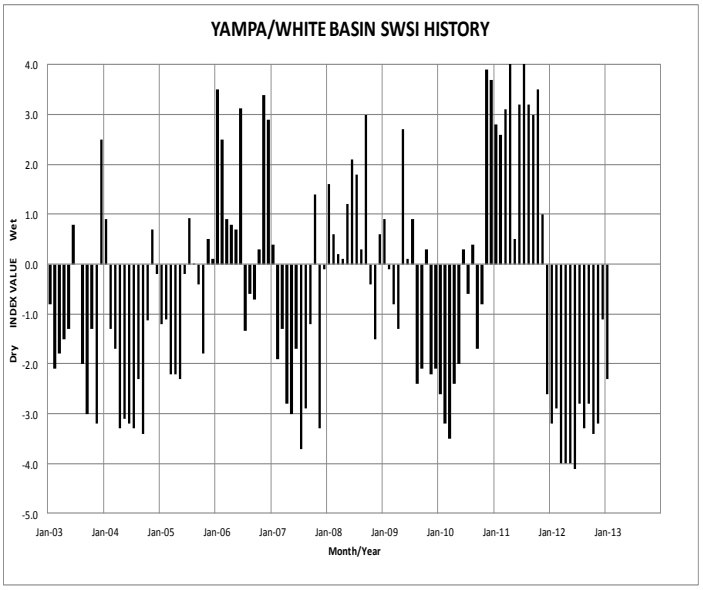
Water stored in Fish Creek Reservoir is used primarily for municipal purposes, Yamcolo Reservoir for irrigation purposes, and Elkhead Creek Reservoir for municipal, industrial, recreational, and fish recovery releases. Stagecoach Reservoir is primarily used for recreation though a significant amount of stored water is allocated for municipal, industrial, irrigation and augmentation uses.

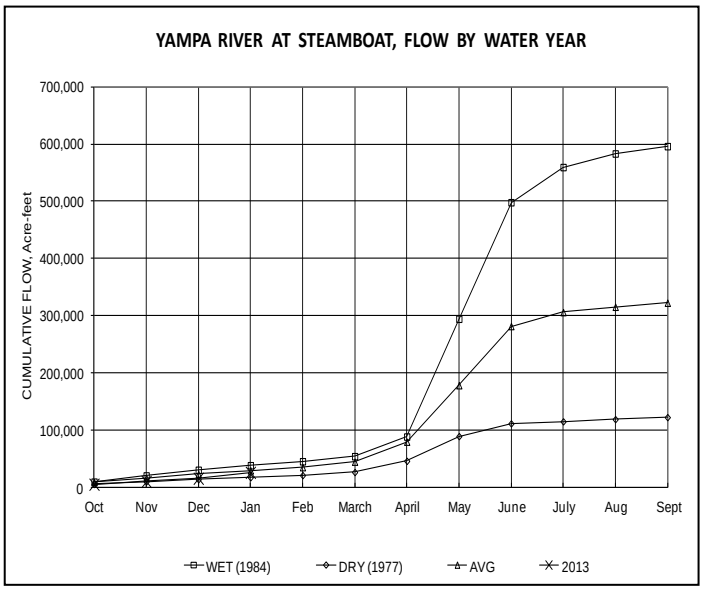
Public Use Impacts

Late January snowfall helped Steamboat Ski Resort continue to have some of the best conditions in the state with a 51 inch base and 196 inches of snowfall since late October.

Stagecoach Reservoir is covered by approximately 8–12 inches of ice with 6-12 inches of snow on top. Fishing is reported as very good in most of the prime fishing locations and in particular the tailwaters. As always, anglers should use extreme caution when venturing onto the ice as conditions vary.

Steamboat Lake is reporting ski trails open with regular grooming. There is about 18-24 inches of snow on the ground.



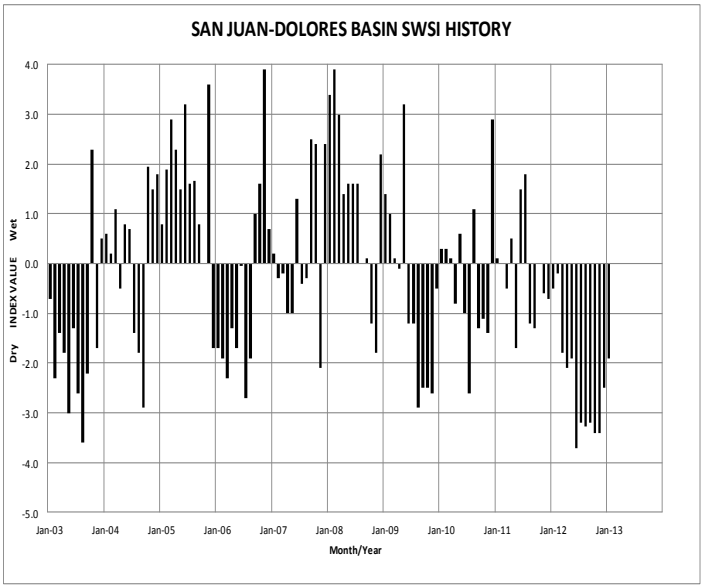


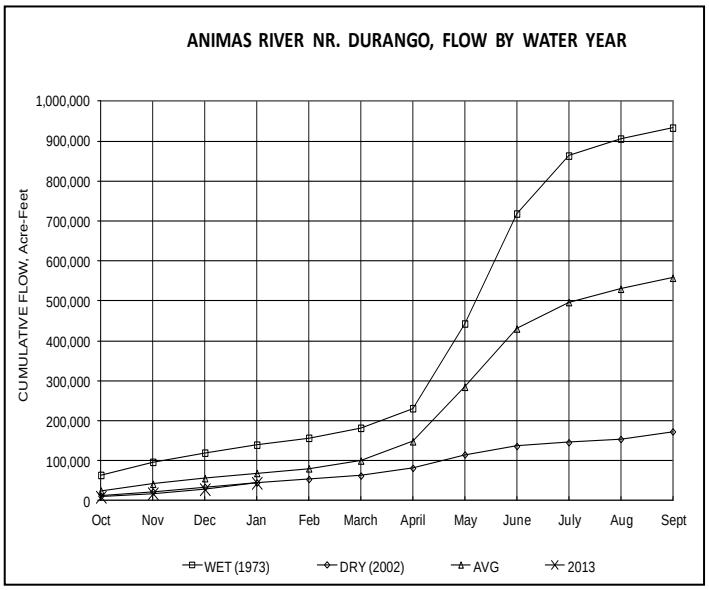
Basinwide Conditions Assessment

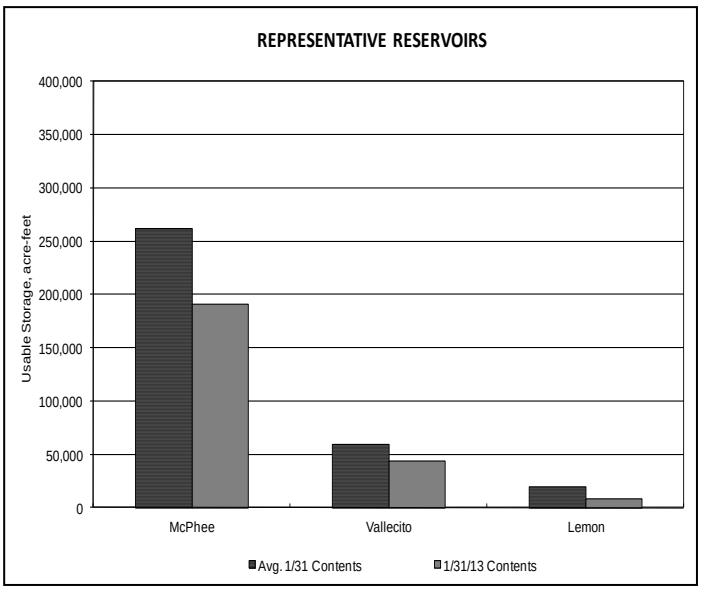
The SWSI value for the month was -1.9. Flow at the Animas River at Durango was estimated to average 154 cfs (76% of average). The flow at the Dolores River at Dolores was estimated to average 31 cfs (60% of average). The La Plata River at Hesperus was estimated to average 3.7 cfs (53% of average).

Precipitation in Durango was 1.74 inches for the month, 92% of the 30-year average of 1.90 inches. Precipitation to date in Durango, for the water year, is 3.62 inches, 53% of the 30-year average of 6.80 inches. The average high and low temperatures for the month of January in Durango were 32° and 0°. In comparison, the 30-year average high and low for the month is 41° and 13°. At the end of the month Vallecito Reservoir contained 43,360 acre-feet compared to its average content of 54,411 acre-feet (80% of average). McPhee Reservoir was up to 190,644 acre-feet compared to its average content of 266,711 (71% of average), while Lemon Reservoir was up to 8,120 acre-feet as compared to its average content of 20,130 acre-feet (40% of average).

Precipitation (1.74-inches) was below average for January in Durango. There are 48 years out of 118 years of record where there was more precipitation than this year. The flows on the Animas River were below average this January. There were 94 out of 103 years of record where the total flow past the Durango stream gauge was more than this year. The other basins within the division did not fare much better. The NRCS is reporting snow-water-equivalent of 88% of average at the end of the month which was slightly higher than the 68% of average reported at the end of December. A late storm event the last week in January brought rain to the lower elevations and snow to elevations above 7,000 ft.







ADDITIONAL INFORMATION ABOUT COLORADO SWSI CALCULATIONS - Feb-13

The SWSI for each basin is based on probability of nonexceedance (PN) curves for each of three components: reservoir storage, snowpack, and water year cumulative precipitation. 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	Water Year Cumulative Precipitation
South Platte	0.55	0.27	0.18
Arkansas	0.15	0.51	0.34
Rio Grande	0.05	0.63	0.32
Gunnison	0.10	0.54	0.36
Colorado	0.15	0.51	0.34
Yampa/White	None	0.60	0.40
San Juan/Dolores/Animas	0.10	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 February 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.