COLORADO
WATER SUPPLY CONDITIONS UPDATE

FROM THE OFFICE OF THE STATE ENGINEER: COLORADO DIVISION OF WATER RESOURCES
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March 2011

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 February (March 1) range from a high value of +3.0 in the South Platte Basin to a low value of 0.0 in the San Juan/Dolores Basin. Three of the basins (South Platte, Gunnison, and Colorado) experienced a gain from the previous month's value, two of the basins (Yampa/White and San Juan/Dolores) experienced a loss from the previous month's value, and the remaining two basins (Arkansas and Rio Grande) experienced no change from the previous month's value.

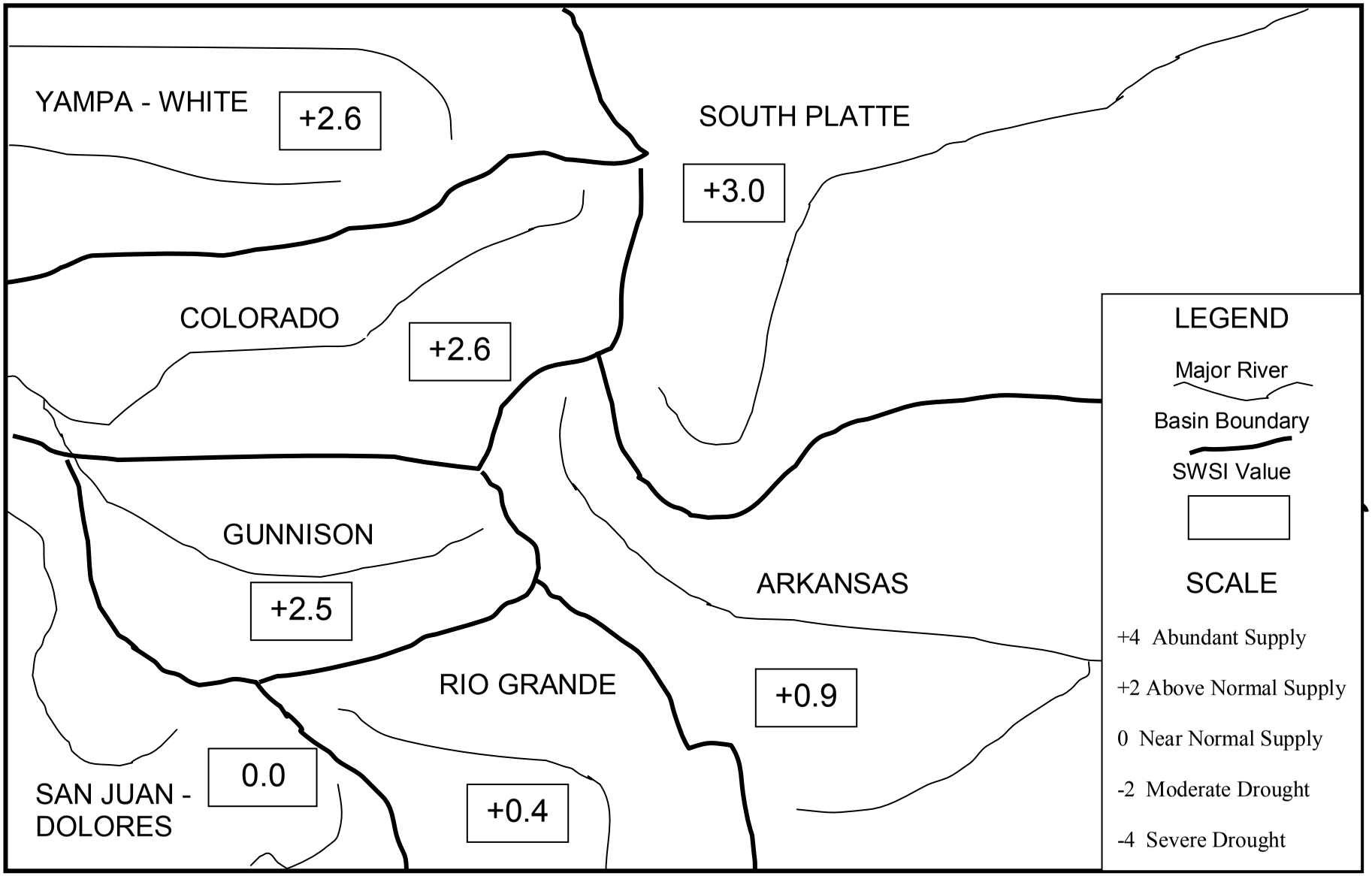
The following SWSI values were computed for each of the seven major basins for March 1, 2011, and reflect the conditions during the month of February.

Basin	March 1, 2011 SWSI Value	Change From Previous Month	Change From Previous Year
South Platte	+3.0	+0.1	+1.8
Arkansas	+0.9	0.0	+2.0
Rio Grande	+0.4	0.0	- 1.2
Gunnison	+2.5	+0.2	+3.3
Colorado	+2.6	+0.3	+4.4
Yampa/White	+2.6	- 0.2	+5.8
San Juan/Dolores	0.0	- 0.1	- 0.3

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



March 1, 2011

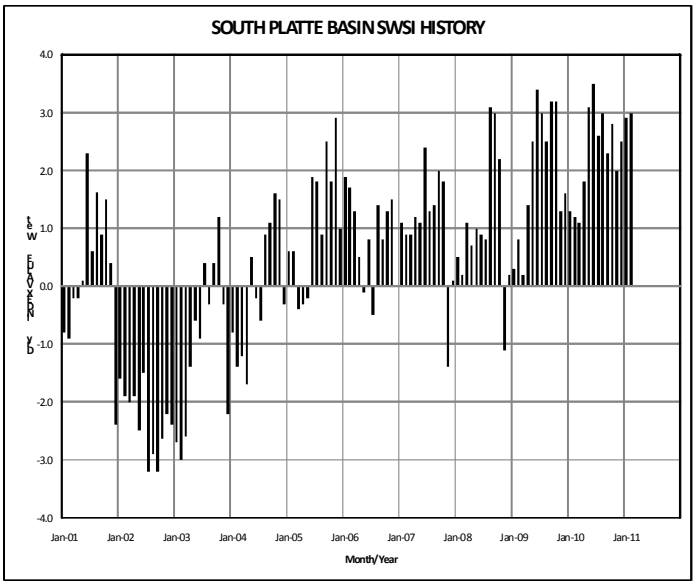
Basinwide Conditions Assessment

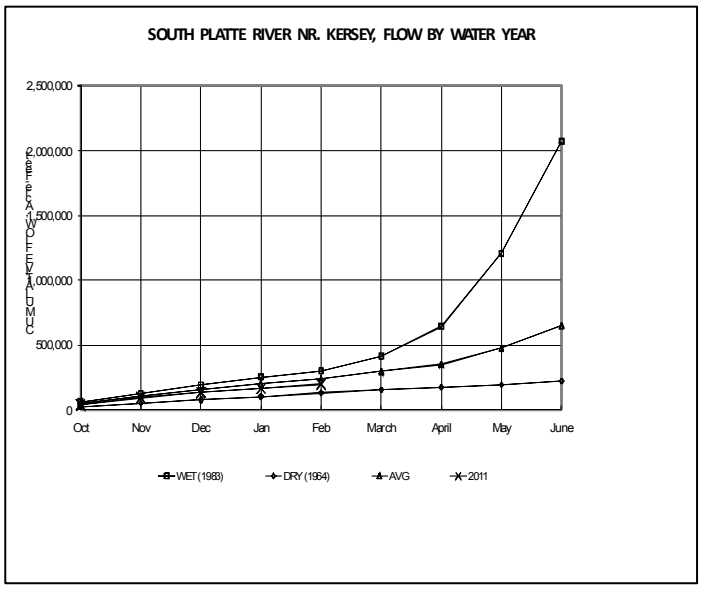
The SWSI value for the month was +3.0. The Natural Resources Conservation Service reports that March 1 snowpack is 123% of normal. Cumulative storage for the six reservoirs graphed on this page was 106% of normal as of the end of February. Cumulative storage in the major plains reservoirs (Julesberg, North Sterling, and Prewitt) is at 92% of capacity. Cumulative storage in the major upper-basin reservoirs (Cheesman, Eleven Mile, Spinney, and Antero) is at 94% of capacity. Flow at the gaging station South Platte River near Kersey was 603 cfs, as compared to the long-term average of 673 cfs. Flow at the Colorado/Nebraska state line averaged 500 cfs.

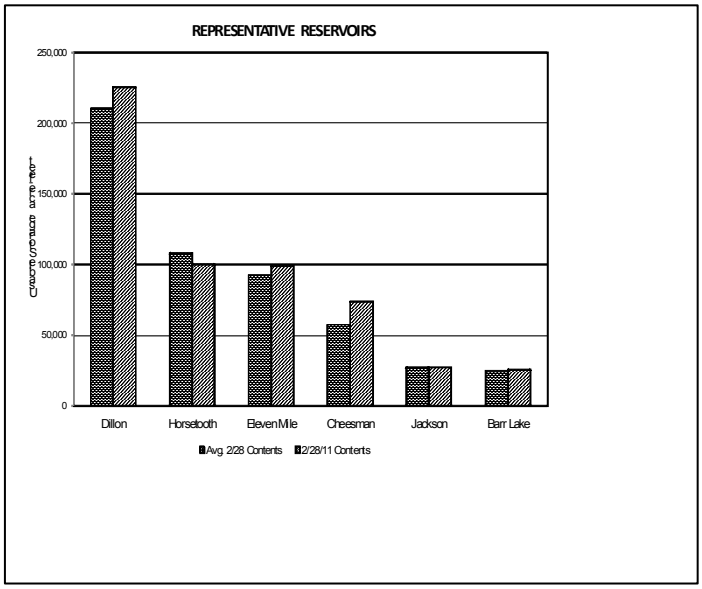
Outlook

February brought a continuation of the free river on the mainstem below metro Denver for the entire month. The month started very cold but temperatures moderated to near normal by the end of the month. February did continue the split pattern of snow in the mountains keeping the snowpack above average (121% on March 1) with little precipitation on the plains. Reservoir storage continues to 127be good at just under 100% of the end of February average for the basin as a whole despite below average mainstem stream flow (Kersey flow was 89% of average for February).

The March outlook indicates a high probability for continued warmer and dryer conditions for at least the eastern plains portion of the South Platte basin. However, if the snowpack continues the above average trend or even moves closer to average for March and April, the water supply for the Front Range should be good. The plains east of Greeley should also have adequate supplies, though that area could experience a below average year without the normal spring rains.







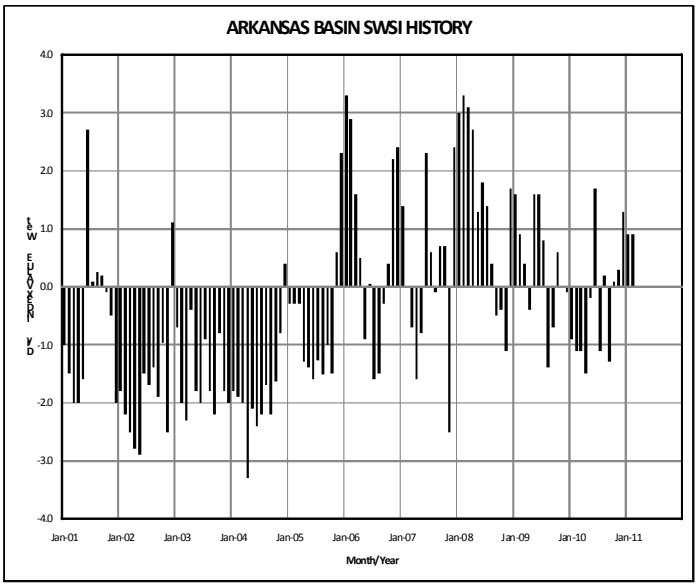
Basinwide Conditions Assessment

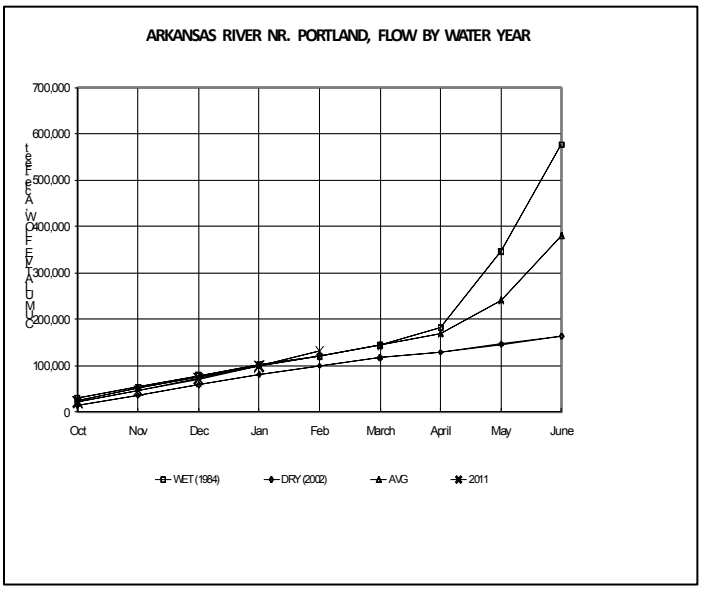
The SWSI value for the month was +0.9. The Natural Resources Conservation Service reports that March 1 snowpack is 103% of normal. Flow at the gaging station Arkansas River near Portland was 590 cfs, as compared to the long-term average of 367 cfs. Storage in Turquoise, Twin Lakes, Pueblo, and John Martin reservoirs totaled 96% of normal as of the end of February.

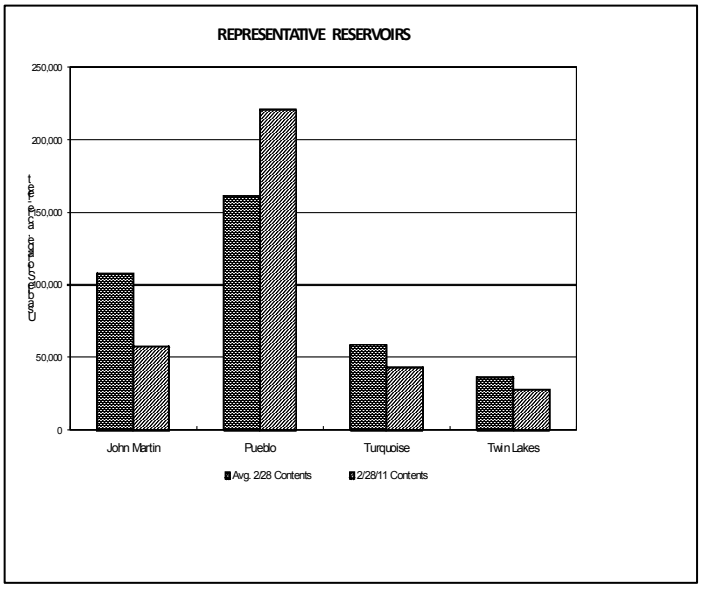
Administrative/Management Concerns

Reservoir storage in the Pueblo Winter Water Program totaled 109,604 acre-feet as of the end of February. This storage amount is lower than last year's storage to date and represents 88% of the past five-year average. Conservation storage in John Martin Reservoir has accumulated 17,102 acre-feet versus 24,196 acre-feet as of the end of February last year (71%).

The Bureau of Reclamation requested permission to allow the Winter Water storage program to temporarily push storage into the Joint Use Pool in Pueblo Reservoir. The Corps of Engineers approved this temporary operation with the condition that the amount of encroachment not exceed 25,000 acre-feet and 12,500 acre-feet must be out by April 15th with the remaining 12,500 acre-feet to be out by May 1st. This provision allowed some water stored in "If & When" accounts to avoid spill.







Basinwide Conditions Assessment

The SWSI value for the month was +0.4. The Natural Resources Conservation Service reports that March 1 snowpack is 91% of normal. Storage in Platoro, Rio Grande, and Santa Maria reservoirs totaled 105% of normal as of the end of February.

Flow at the gaging station Rio Grande near Del Norte averaged 168 cfs (93% of normal). The Conejos River near Mogote had a mean flow of 43 cfs (83% of normal). Flow to the state line was 91% of normal.

Temperatures were nearly 2 degrees below normal in the San Luis Valley during February. Alamosa received 0.39 inches of precipitation during the month, 0.18 inches above normal.

Outlook

When compared to long-term averages, snowpack conditions remained below average throughout the upper Rio Grande basin with the exception of the highest elevations. There is much concern in the basin that the normal amount of mid and low-elevation snowpack does not exist.

National Weather Service forecasts predict drier and warmer conditions for the basin through May, 2011. However, with the two snowiest months of March and April yet to come, there's still hope the snowpack can approach average levels.

Recent NRCS stream flow forecasts are calling for below average conditions in the entire upper Rio Grande basin this year. The expected April through September runoff is about 85 percent of normal for the Rio Grande near Del Norte and the Conejos near Mogote. The very poor snowpack on the Sangre de Cristo range where runoff forecasts predict only 40 to 50% of normal runoff is alarming.

Carryover storage in the basin reservoirs cannot counteract the effects of low runoff for most water users and activities dependent on higher flows.

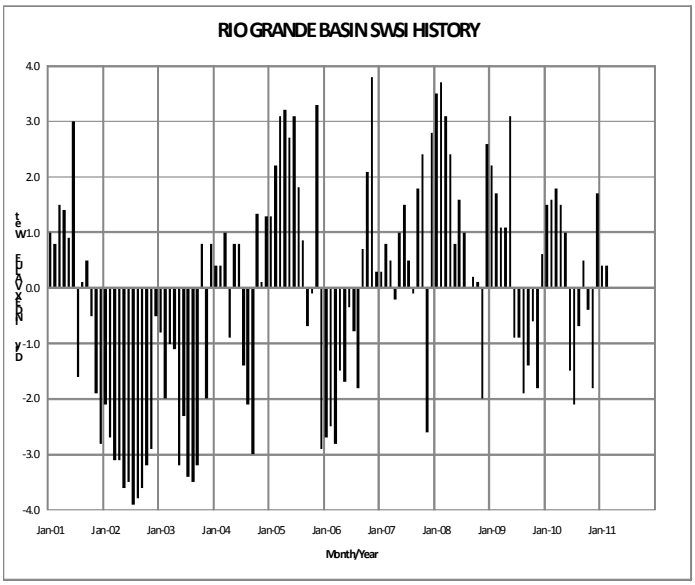
Administrative/Management Concerns

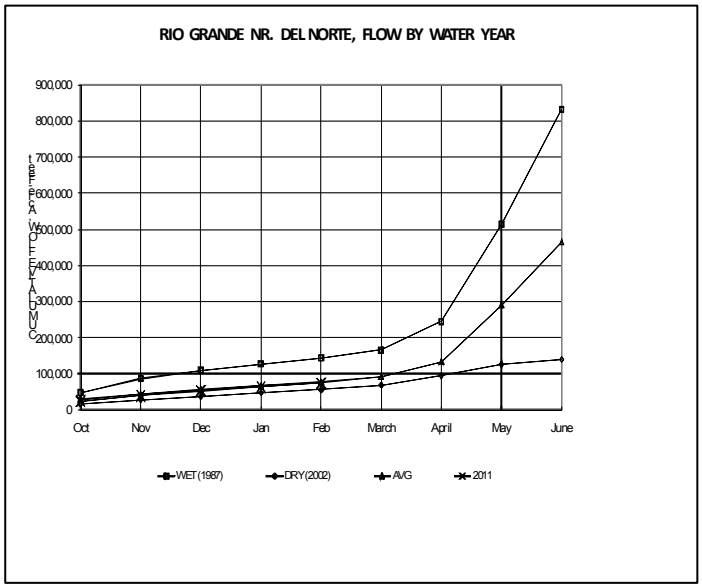
The annual meeting of the Rio Grande Compact Commission will be held Wednesday, March 30, 2011 in Albuquerque, New Mexico at the Embassy Ballroom of the MCM Elagante Hotel. The public is invited to attend. The meeting is scheduled to start at 9:00 a.m.

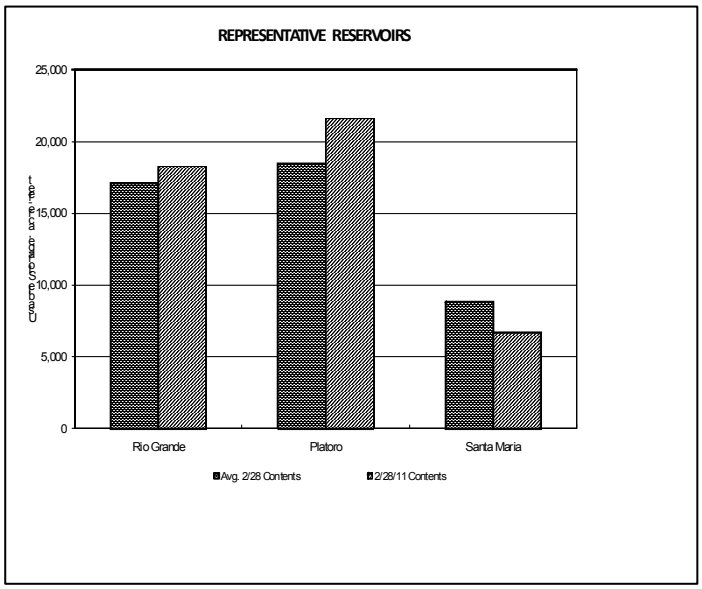
The Division Engineer expects early calls for irrigation water this year.

Public Use Impacts

In general, this has been a very dry and warm winter in the San Luis Valley.



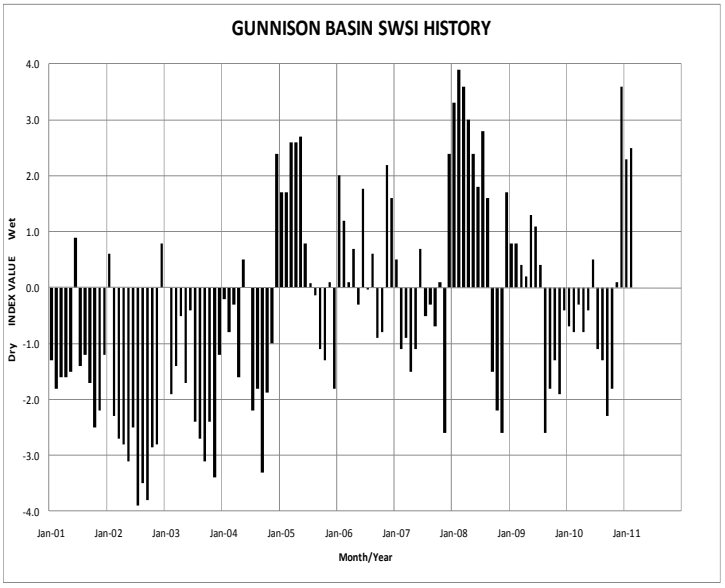


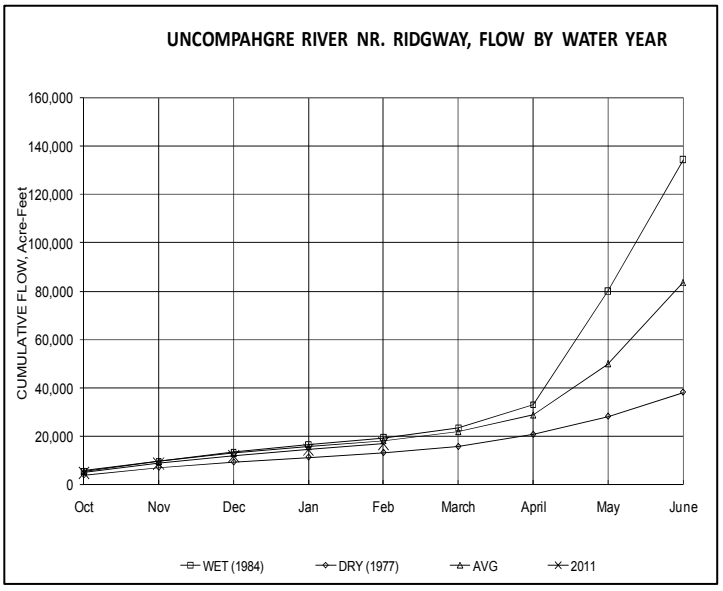


Basinwide Conditions Assessment

The SWSI value for the month was +2.5. The Natural Resources Conservation Service reports that March 1 snowpack is 122% of normal. Flow at the gaging station Uncompahgre River near Ridgeway was 43.2 cfs, as compared to the long-term average of 45.4 cfs. Storage in Taylor Park, Crawford, and Fruitland reservoirs totaled 111% of normal as of the end of February.

Precipitation in the Gunnison basin during February varied depending on location with the lower/western parts of the basin receiving below to well below normal and the upper/eastern portions of the basin receiving above normal. Seasonal precipitation still remains at 110 to 129 percent of average for most of the basin; however, southern areas of the San Miguel basin are beginning to slip below normal. Snowpack conditions in the Gunnison basin are great with snow water equivalent (SWE) values on March 1st at 122 percent of the average for the date and 94 percent of the average seasonal total. Conditions in the San Miguel basin are average with a SWE of 97 percent for the date and 76 percent of seasonal on March 1st. Generally, basins in the north such as North Fork of the Gunnison above Paonia and the East River above the City of Gunnison have the best snowpack with conditions already above average seasonal totals while conditions in the south remain spot on the average with values above Ridgway Reservoir at exactly 100 percent of the normal for March 1st.



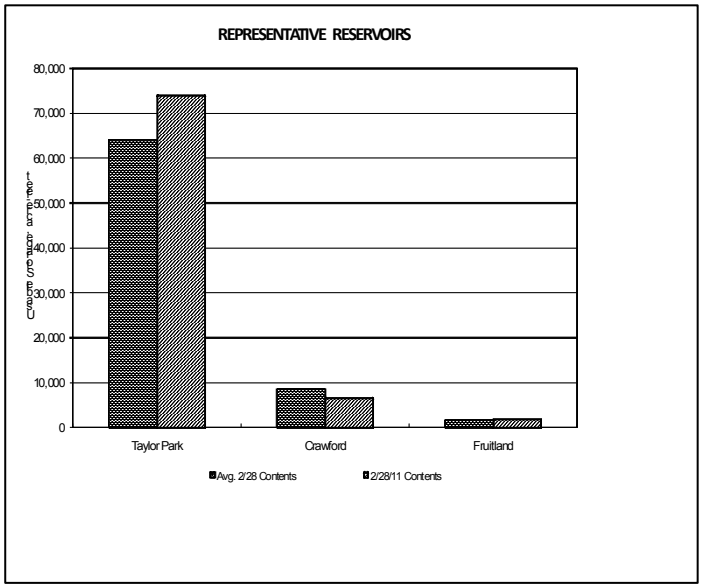


Outlook

The NRCS released new snowpack predictions on March 16, 2011. Their end of season Gunnison basin snowpack predictions are narrowing and now range from 103 to 144 percent of average based on a historical range of what the remaining season could bring. In fact, if storms from now until May bring average snow to the Gunnison basin they predict that we will end the season with 116 percent of average SWE. The National Climate Center continues to predict that the Gunnison basin has slightly greater than equal chances of below average precipitation and above average temperatures during the next 30 to 90 days.

Administrative/Management Concerns

Based on the latest USBR Water Supply Forecast, Blue Mesa is expected to fill in 2011with unregulated inflow predicted to be 800,000 af. This inflow amount requires a one-day peak flow in the Black Canyon of 6,370 cfs. Due to the heavy snowpack in the North Fork of the Gunnison, this peak will be timed with runoff from the North Fork in an attempt to reach the endangered fish flow recommendation of 11,700 cfs at Whitewater while preventing flooding in the Delta area. As of the beginning of March we have experienced no measurable dust-on-snow events and most residents in the Gunnison basin are hoping that this continues through the spring.



Basinwide Conditions Assessment

The SWSI value for the month was +2.6. The Natural Resources Conservation Service reports that March 1 snowpack is 127% of normal. Flow at the gaging station Colorado River near Dotsero was 838 cfs, as compared to the long-term average of 962 cfs. Storage in Green Mountain, Ruedi, and Williams Fork reservoirs totaled 119% of normal as of the end of February.

Outlook

Colorado flows have and will continue to increase throughout March with increasing temperatures. Gages on the Roaring Fork River began transmitting in mid-February with ending ice affected conditions. Ruedi Reservoir releases will keep Fryingpan River flows above 130 cfs through March. Blue River flows should remain slightly above average through March. Upper Colorado Basin wide snowpack fell slightly from 130 percent of average for snow water equivalent on February 1st to 127 percent on March 1st.

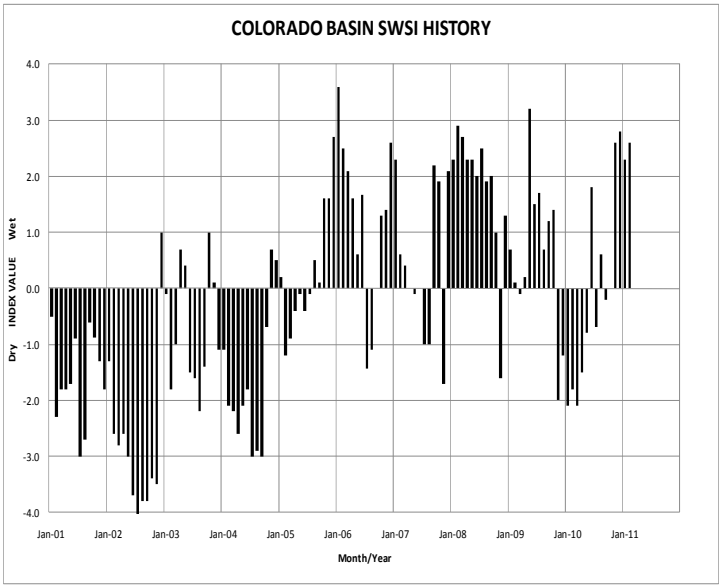
Administrative/Management Concerns

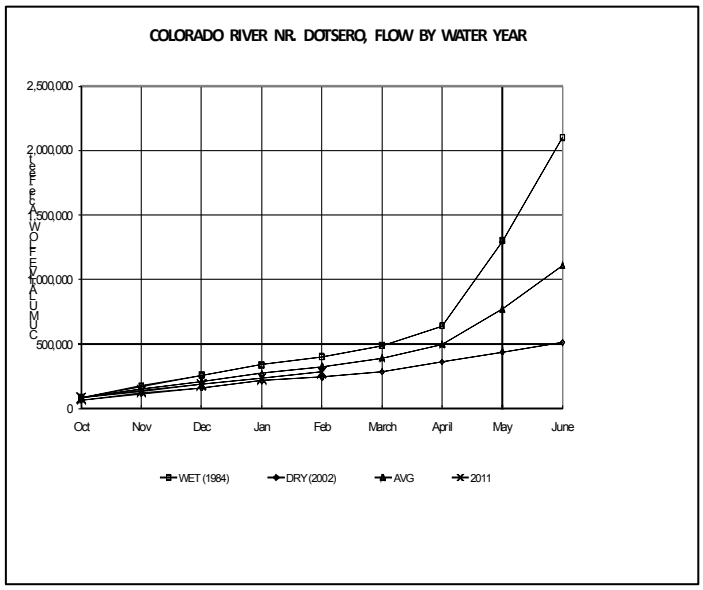
Dillon Reservoir and subsequent Green Mountain Reservoir releases were increased by an additional 25 cfs in early March to open space for the projected above average inflow from the relatively large snowpack above the reservoir. Ruedi Reservoir releases were also increased by 30 cfs in early March.

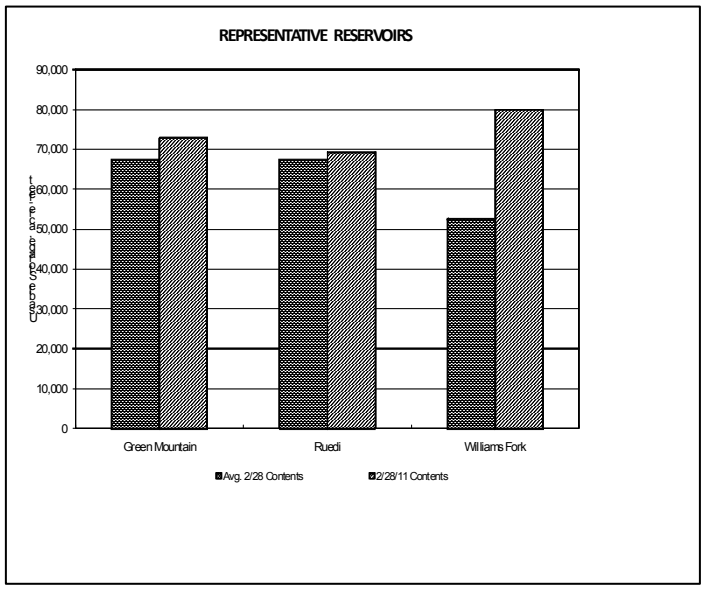
Public Use Impacts

A 2010 report from the American Rivers group designated the Colorado River as the sixth most endangered river in the country, making it a candidate for federal classification as Wild and Scenic. Although the long-term goal would be to restore in-stream flows to their original state, varying snowpack dependent flows and fulfillment of historical water rights would make this a challenging, if not impossible task. Additionally, firming projects for the Front Range, including the Moffat and Windy Gap Firming Projects will reduce Fraser and Williams Fork tributary flows to the Upper Colorado via increased Front Range storage by more than 18,000 acre-ft.

The Bureau of Reclamation is projecting 3.13 million acre-feet of additional water released into Lake Mead above the annual amount of 8.23 million acre-feet.







Basinwide Conditions Assessment

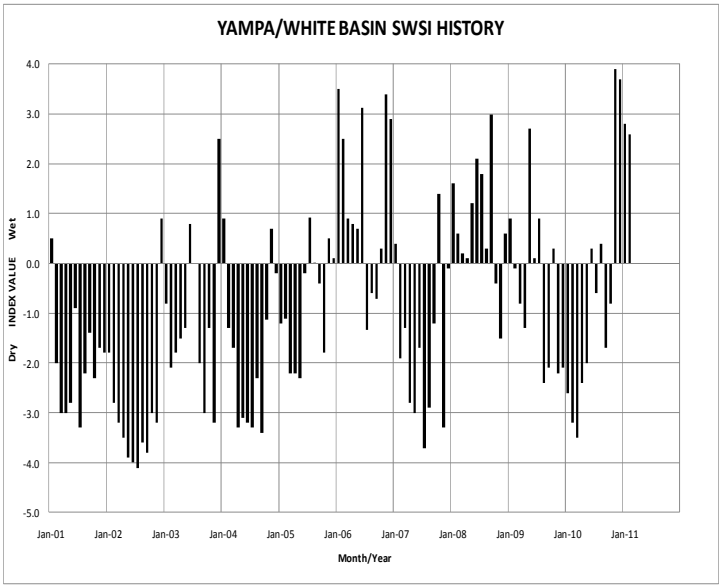
The SWSI value for the month was +2.6. Flow at the gaging station Yampa River at Steamboat was 129 cfs, as compared to the long-term average of 100 cfs.

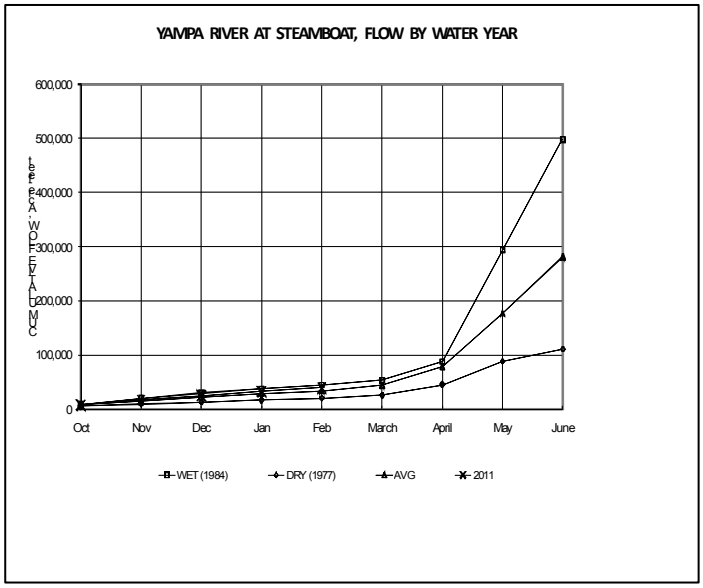
February precipitation was slightly above the monthly average in the Yampa, White, and North Platte River basins. Precipitation for the month, as measured at the SNOTEL sites operated by NRCS, was reported at approximately 106% of average for the Yampa, White, and North Platte River basins. Total precipitation for the water year as a percent of average to date in the combined basins at the end of February is 128%.

The snow water equivalent (SWE) for the water year to date on February 28, 2011 was 133% of average for the North Platte River basin and 125% of average for the Yampa and White River basins.

As of February 1, 2011, NRCS predicts above average to well above 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 145% of average for the North Platte River near Northgate, 129% of average for the Yampa River near Maybell, 119% of average for the Little Snake River near Lily, and 114% of average for the White River near Meeker.

Due to cold temperatures, most of the Division 6 stream gages are either closed for the winter season or currently ice-affected.





Outlook

As of February 28th Fish Creek Reservoir was storing 2,625 AF. The capacity of Fish Creek Reservoir is 4,167 AF. Yamcolo Reservoir at the end of February was at approximately 76% of capacity. On February 28th Elkhead Creek Reservoir was storing 20,675 AF. Elkhead storage volume was unchanged from the end January and represents 83% of capacity. At the end of February, Stagecoach Reservoir was storing approximately 22,300 AF which is 61% of the enlarged capacity of 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. However, water is rarely released for those purposes.

Public Use Impacts

Steamboat Ski Resort had received 336 inches of snow at mid-mountain as of February 28, 2011. The snowfall to date continues to provide outstanding opportunity for all winter recreational activities throughout the region.

Basinwide Conditions Assessment

The SWSI value for the month was 0.0. The Natural Resources Conservation Service reports that March 1 snowpack is 99% of normal. Flow at the Animas River at Durango was estimated to average 183 cfs (89% of average). The flow at the Dolores River at Dolores was estimated to average 50 cfs (90% of average). The La Plata River at Hesperus was estimated to average 8.0 cfs (109% of average).

Precipitation in Durango was 0.57 inches for the month, 35% of the 30-year average of 1.61 inches. Precipitation to date in Durango, for the water year, is 6.73 inches, 81% of the 30-year average of 8.36 inches. The average high and low temperatures for the month of February in Durango were 43° and 12°. In comparison, the 30-year average high and low for the month is 46° and 19°.

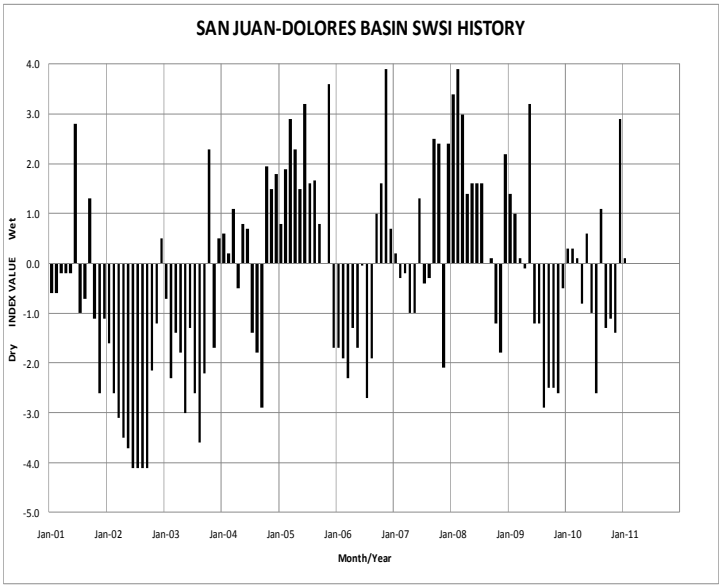
At the end of the month Vallecito Reservoir contained 72,350 acre-feet compared to its average content of 54,419 acre-feet (133% of average). McPhee Reservoir was up to 273,370 acre-feet compared to its average content of 259,160 (105% of average), while Lemon Reservoir was up to 14,530 acre-feet as compared to its average content of 19,665 acre-feet (74% of average).

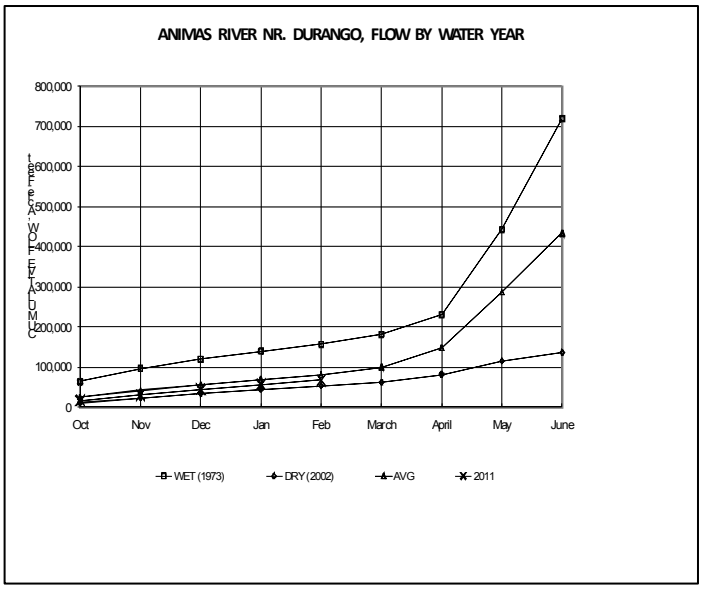
Outlook

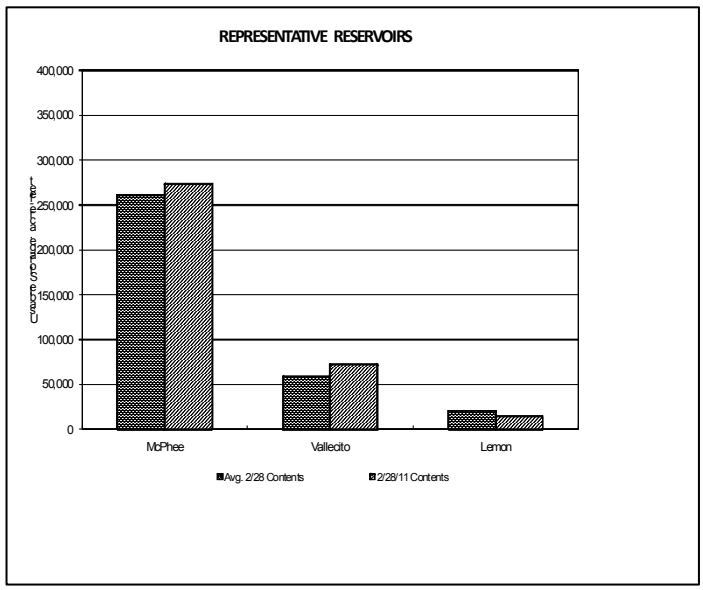
Precipitation (0.57 inches) was one of the lower monthly totals for February in Durango. There are 91 years out of 117 years of record where there was more precipitation than this year. On February 28th the NRCS SNOTEL sites estimated 101% snow-water equivalent within the basin which is slightly lower than last month 107% of average.

Administrative/Management Concerns

The base flow in most, if not all the rivers within the basin remained near average.







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