COLORADO
WATER SUPPLY CONDITIONS UPDATE

FROM THE OFFICE OF THE STATE ENGINEER: COLORADO DIVISION OF WATER RESOURCES
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June 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 streamflow, reservoir storage, and precipitation for the summer period of May through October (June 1 through November 1). During the summer period, streamflow 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 May (June 1) range from a high value of +1.5 in the South Platte Basin to a low value of -2.5 in the San Juan/Dolores Basin, both for the second month in a row. Conditions in the north half of the state generally improved compared to April (May 1), but the SWSI actually declined in the Rio Grande and San Juan/Dolores basins.

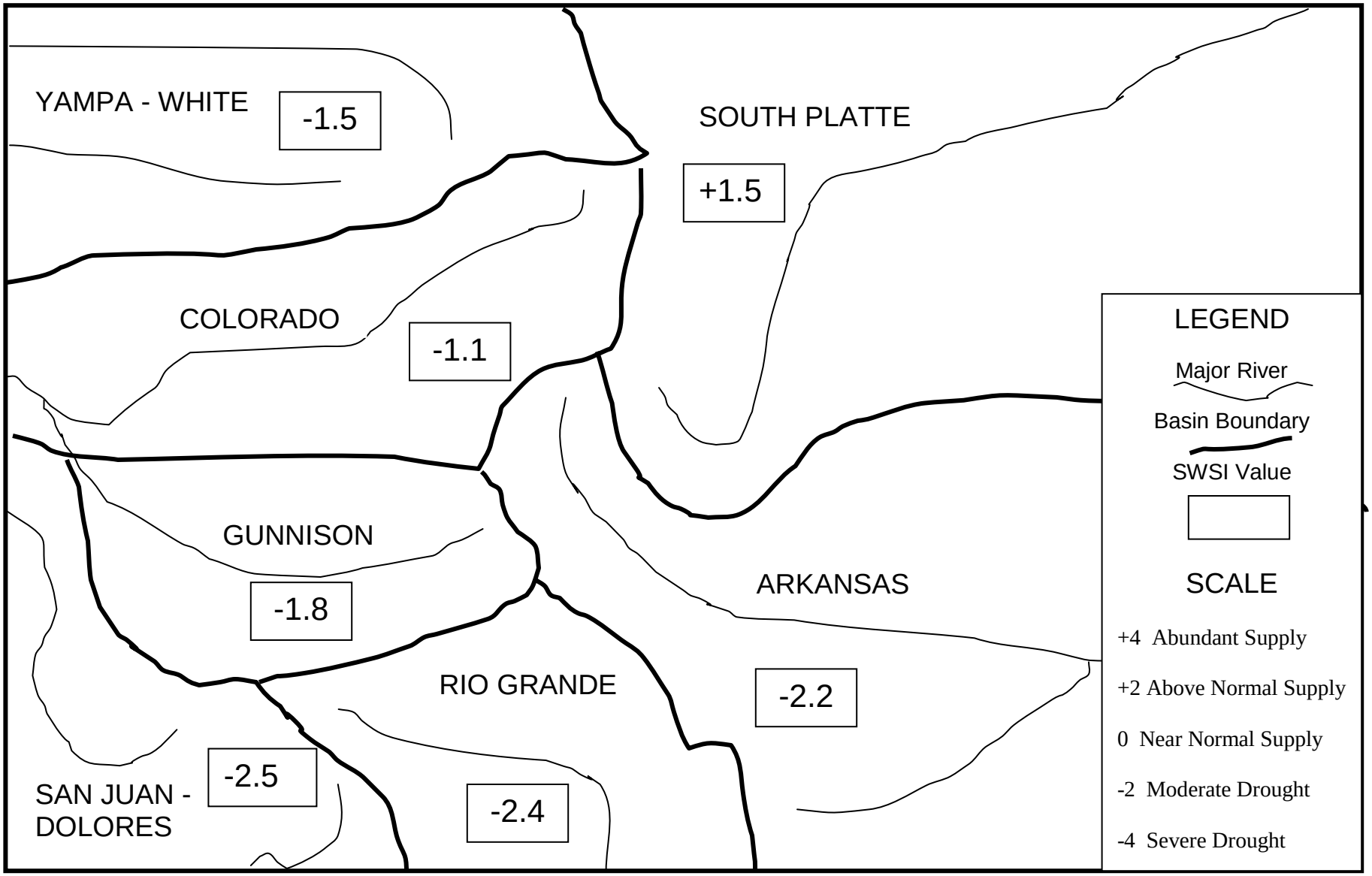
The following SWSI values were computed for each of the seven major basins for June 1, 2013. Additional information about SWSI calculations and the NRCS National Water and Climate Center SWSI by HUC are included on Page 10.

Basin	June 1 SWSI	Change from Previous Month	Change from Previous Year
South Platte	1.5	2.4	0.0
Arkansas	-2.2	0.1	-0.4
Rio Grande	-2.4	-0.3	-1.3
Gunnison	-1.8	0.3	0.3
Colorado	-1.1	0.0	0.8
Yampa/White	-1.5	-0.4	2.5
San Juan/Dolores	-2.5	-0.7	-1.0

SWSI Scale

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

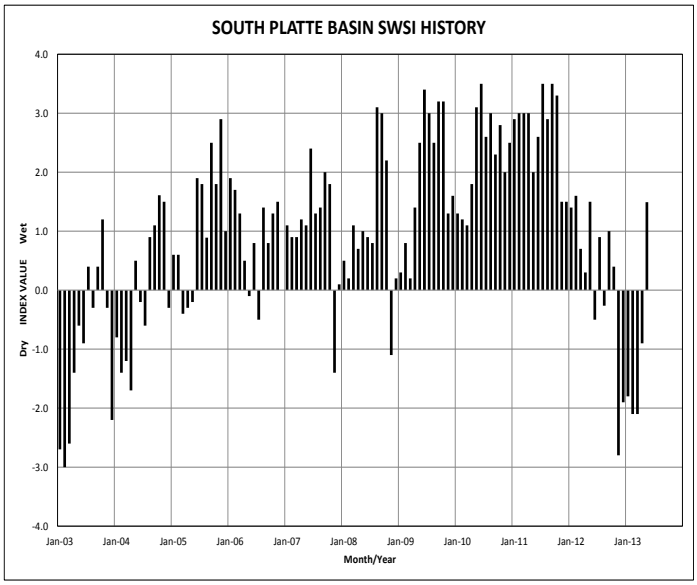
SURFACE WATER SUPPLY INDEX FOR COLORADO



June 1, 2013

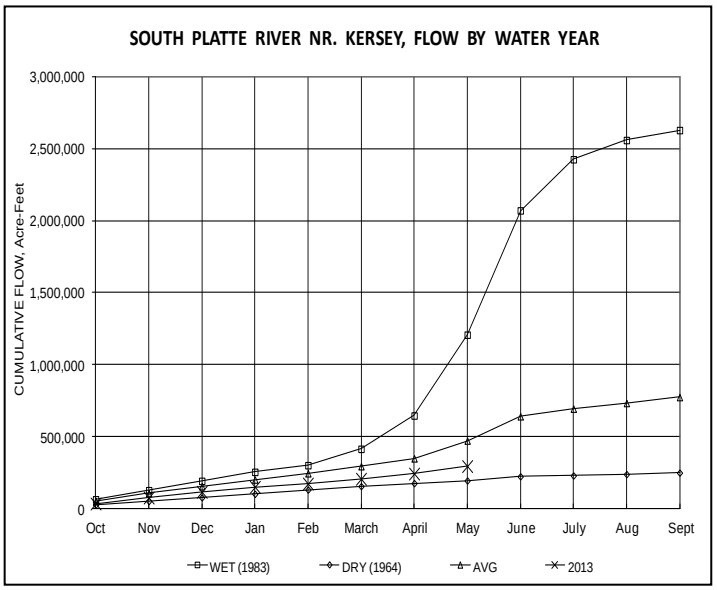
Basinwide Conditions Assessment

The SWSI value for the month was 1.5. May turned out to be a month of fits and starts in the South Platte basin from the cool and wet conditions in April to warmer and dryer by the end of May. For example, Denver tied the record low temperature on May 2nd of 19^0F, then tied the record high on May 14th of 88^0F, and then cooled off toward the end of the month. Also, though the upper part of the basin (above Kersey) saw good precipitation, the lower basin did not see nearly as much precipitation.



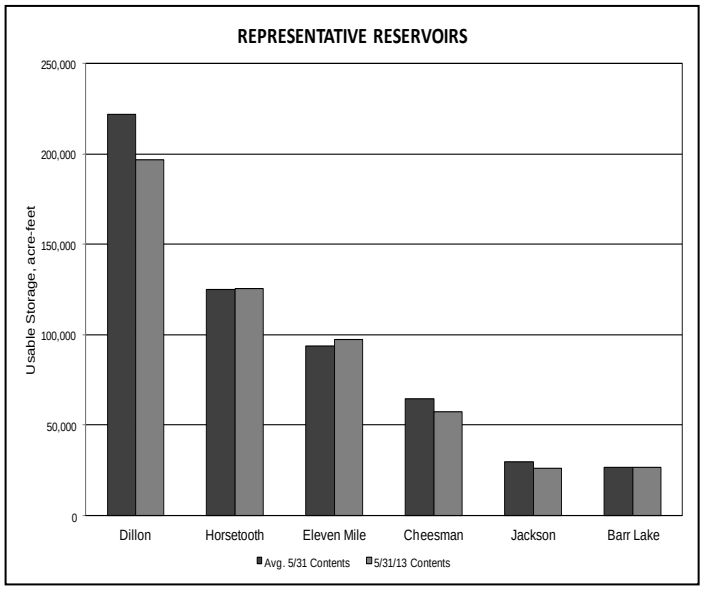
Snow pack in the South Platte actually continued to increase in early May to a maximum of 107% of average snow water equivalent on May 10. Though this late snow is very welcome, it appears to be melting fairly quickly and is not expected to extend the runoff "season" past the normal end of June timeframe.

May stream flows at both the Kersey and Julesburg index gages remained below the historic monthly mean. The Kersey gage monthly mean stream flow was 602 cfs or 35 % of the historic May mean flow of 1746 cfs. The May 2003 mean flow was 871 cfs. The May Julesburg gage monthly mean stream flow was 113 cfs or 11 % of the historic mean of 1003 cfs. The April 2003 monthly mean flow was 87 cfs.



The end of May reservoir storage in the basin was at 91% of the end of May average. This compares with an end of May 2003 reading of 71 % of average and an end of April 2002 reading of 72% of average. However, storage in the large reservoirs east of Kersey declined by just under 23,000 AF in May of 2013, which is the opposite of average conditions and of May 2003 when storage increased by approximately 4,000 AF. This decline in reservoir storage may indicate very tight water supplies in this area toward the end of the irrigation season. At least storage above Kersey did increase by 28,464 AF.

The mainstem river calls were more senior than is typical of May. There was no free river at all and the South Platte Compact call was on for the entire month except for May 24 and 25. The calls on the main tributaries were also somewhat more senior than is "normal" for May.



Outlook

Precipitation along the Front Range also improved drought conditions to the point that by May 28 most of the northern Front Range was only in the "abnormally dry" (D0) category, though most of the rest of the basin remained in the "moderate" (D1) or "severe" (D2) categories with the "extreme" (D3) category only in a small band on the eastern and northern state borders.

Basinwide Conditions Assessment

The SWSI value for the month was -2.2. Run-off flows through the Arkansas River at Canon City began to increase in the last half of May and seemed to stop and start in cycles as temperatures alternated between cooler periods and warmer periods.

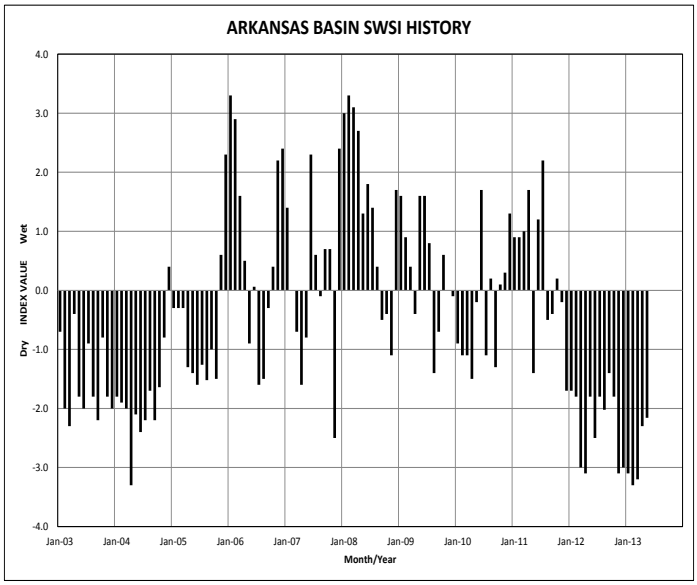
Outlook

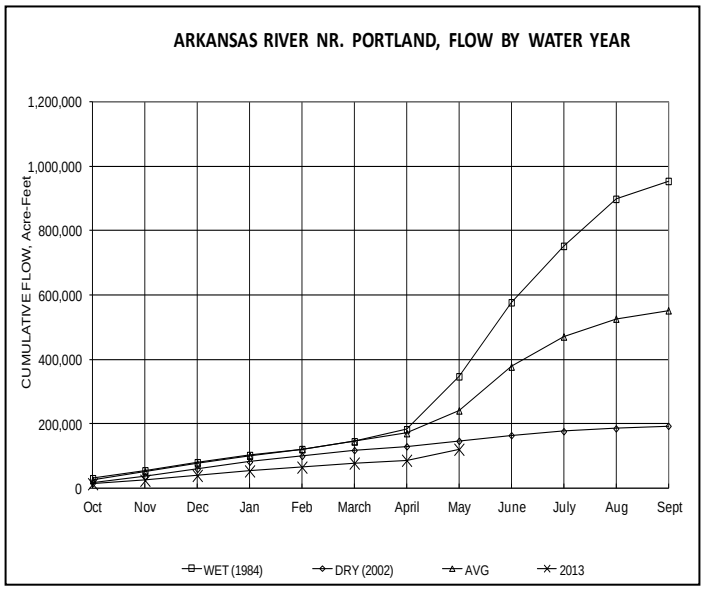
The river call for the first nine days of the month was set at Bessemer Ditch 3/31/1882 from Pueblo Reservoir upstream with slightly junior calls below where additional inflows increased the modest supply. Toward the end of the month the more junior Amity Canal 2/21/1887 call was in place on the mainstem. Many tributary streams were on a much more senior call.

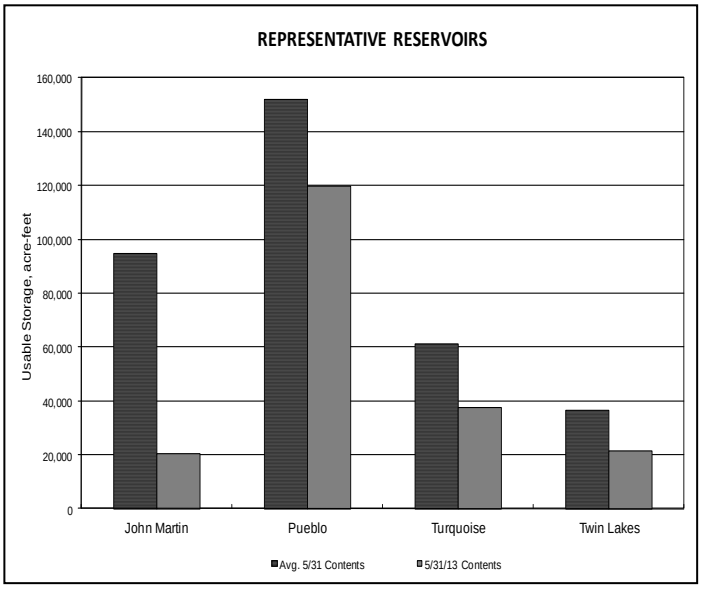
Administrative / Management Concerns

Stored water in John Martin Reservoir for irrigation use has been largely exhausted except for a few ditches. Kansas has not yet called for the release of approximately 9,550 acre-feet of supply they hold in John Martin Reservoir for irrigation and have not called for release of the well augmentation water held in the Offset Account in John Martin Reservoir (approximately 3,100 acre-feet). Release of this pool of over 12,600 acre-feet will significantly shrink the John Martin Reservoir pool which contained nearly 20,050 acre-feet at the end of May. The permanent fisheries pool contains approximately 3,800 acre-feet that will remain in the reservoir.

Supplies available to support replacement for well association replacement plans have remained fairly poor and pumping is still severely restricted.







Basinwide Conditions Assessment

The SWSI value for the month was -2.4. Flow at the gaging station Rio Grande near Del Norte averaged 1955 cfs (78% of normal). The Conejos River near Mogote had a mean flow of 645 cfs (58% of normal). Precipitation in Alamosa was a paltry 0.18 inches during May, 0.40 inches below normal. For the 5th consecutive month, the monthly precipitation in the San Luis Valley was below average.

Stream flow in the basin was generally below average. By the end of the month, many streams had taken on a late summer appearance, low and clear. Flooding should not be a concern this summer unless a major rainstorm occurs.

Outlook

The June 1st NRCS stream flow forecasts are predicting well-below average runoff for streams throughout the Rio Grande Basin. The Rio San Antonio and Sangre de Cristo Creek check in at the lowest expected runoff, 14% of normal. The eastern and southern portions of the valley will receive the worst runoff, ranging from 14 to 45% of average. The two major rivers in the basin, the Rio Grande (45%) and the Conejos River (45%) are in much worse shape than last year, but still a bit better than the drought runoff of 2002. Predicted annual runoff for the Rio Grande will be the fourth lowest in recorded history, since 1890.

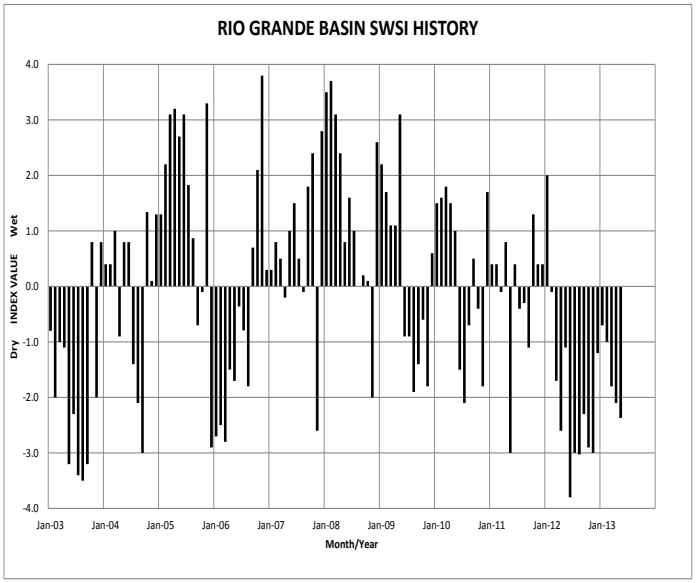
Administrative/Management Concerns

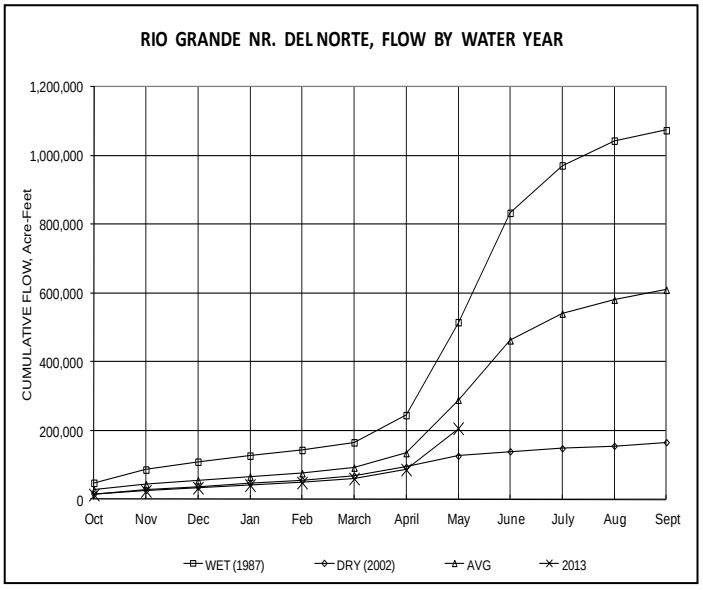
Due to the expected low runoff, Colorado should have no problem meeting the delivery requirements to New Mexico and Texas pursuant to the Rio Grande Compact. No curtailment of water rights on the Conejos River and its tributaries should be necessary to increase water delivery to the state line. The Rio Grande and its tributaries should expect 1 to 4% curtailment to meet delivery requirements.

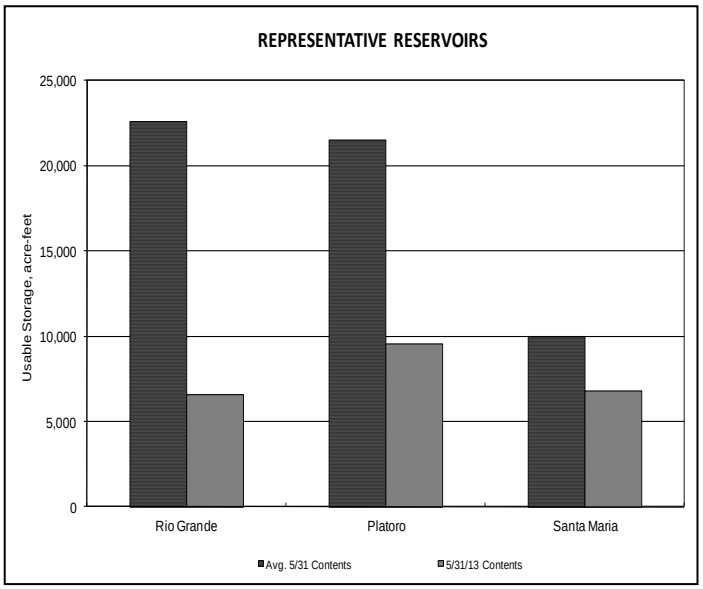
Storage releases for irrigation needs from the major reservoirs in the upper Rio Grande drainage are underway. Water levels behind these dams will be very low throughout the remainder of the year.

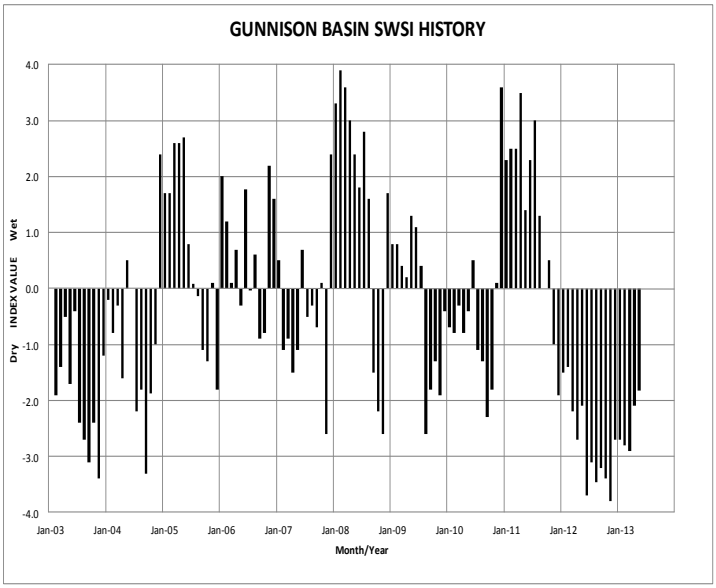
Public Use Impacts

Normal farming and ranching operations were in full swing during May. However, wind and the lack of precipitation made the need for irrigation even higher. Groundwater levels in the basin continue to decline as massive pumping from the aquifers is needed to irrigate crop and pasture land.







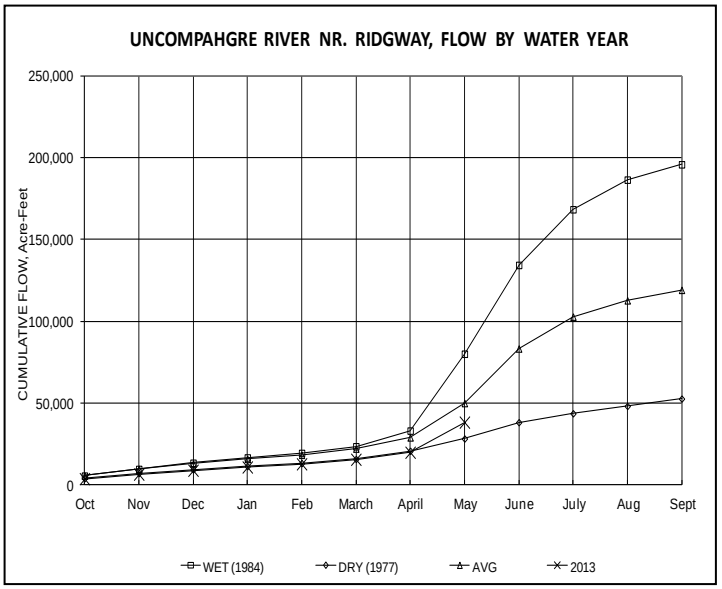


Basinwide Conditions Assessment

The SWSI value for the month was -1.8. May was a tale of two Divisions in Water Division 4. Northeastern areas of the Gunnison basin such as the East and Taylor Rivers received 100 to 129% of average precipitation while southern areas such as the Uncompahgre River and San Miguel basins received less than 50% of average precipitation. This resulted in widely varied streamflow and snowpack conditions. For instance, the Uncompahgre above Ridgway contained only 45% of median SWE on May 1st and snow all gone (SAG) as of May 31st, while areas above Blue Mesa Reservoir contained 77% on May 1st and still retained 71% on May 31st. Further south in the San Miguel area, basin conditions are even worse with only 32% of the median on May 1st and SAG by May 31st. Cooler than average temperatures (minus 1-3 degrees) helped prolong runoff, especially in the north, but in the south the effects of significant dust accumulation reduced that effect.

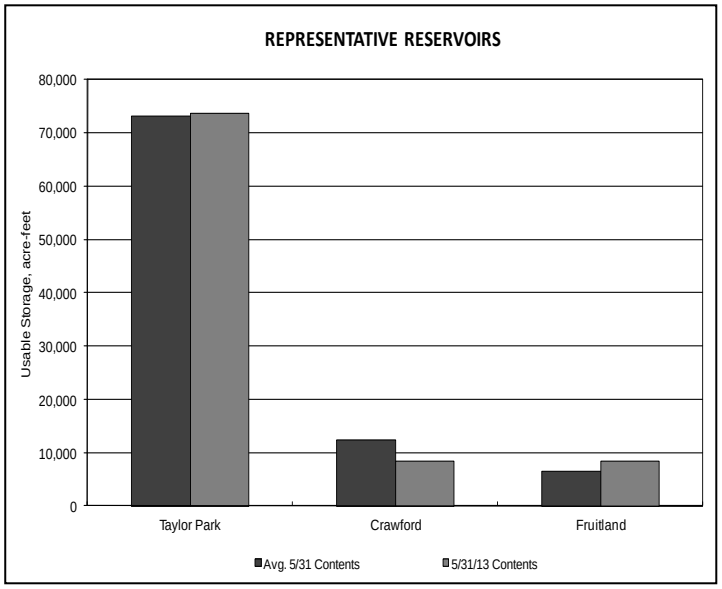
Outlook

June 1st Colorado Basin River Forecast Center (CBRFC) streamflow forecasts for Gunnison basin streams vary widely with inflow to Taylor Park Reservoir forecast at 70% of average and Surface Creek, Tomichi Creek and the Uncompahgre at 32, 26, and 50% of average, respectively. Most of the Gunnison basin falls within the equal chances of below or above average precipitation for the 30 and 90 day outlook periods, hopefully we see significant monsoon precipitation later in the summer.



Administrative/Management Concerns

Inflows to the Aspinall Unit exceeded diversions by the Gunnison Tunnel during the entire month of May, therefore, preserving the 4,500 acre-feet of water purchased by the Upper Gunnison River Water Conservancy District (UGRWCD) for use by the Uncompahgre Valley Water Users (UVWUA). This also prevented the need to administer the limited call specified by the agreement, allowing Silver Jack Reservoir to completely fill. Streamflows that held up all month (many streams peaked around May 28th) due to the additional April-May snowfall and cooler temperatures allowed Taylor Park Reservoir to completely fill their first fill account and put 10,000 acre-feet in second fill by June 1st, which places the UVWUA in a much better position than it appeared they would be in two months ago. It appears that a UVWUA call on the Uncompahgre is likely this year, but will probably not occur until late June or early July, which is much later than 2012 and will allow irrigators in the upper Uncompahgre to get water on their hay crop. Whether a Gunnison Tunnel call is placed this year will depend on how much second fill accrues in Taylor Park and how long that storage can fill the Tunnel diversions, which will depend highly on whether monsoon rains in July and August reduce the shortage in natural flow at their diversion.



The April-July inflow forecast for Blue Mesa Reservoir was increased again to 370,000 acre-feet on June 1st. Although conditions have improved, concern remains about storage for next season because on June 1, 2013 Blue Mesa Reservoir contains 400,296 acre-feet of storage while in 2012 it contained 526,346 acre-feet. Some reservoirs with large drainage basins or good water rights that can fill even in dry years, such as Ridgway, Paonia, Fruitgrowers and Silver Jack, will fill this year while others such as Crawford will not.

Pubic Use Impacts

Taylor Reservoir releases will be held at 200 cfs for a longer period in June prior to going up to 250 cfs in an attempt to allow more water to accrue to the second fill account. The Black Canyon peak flow specified based on the May 1st forecast and influenced by the drought rule in the decree is 685 cfs, which will likely be met while making releases for other uses.

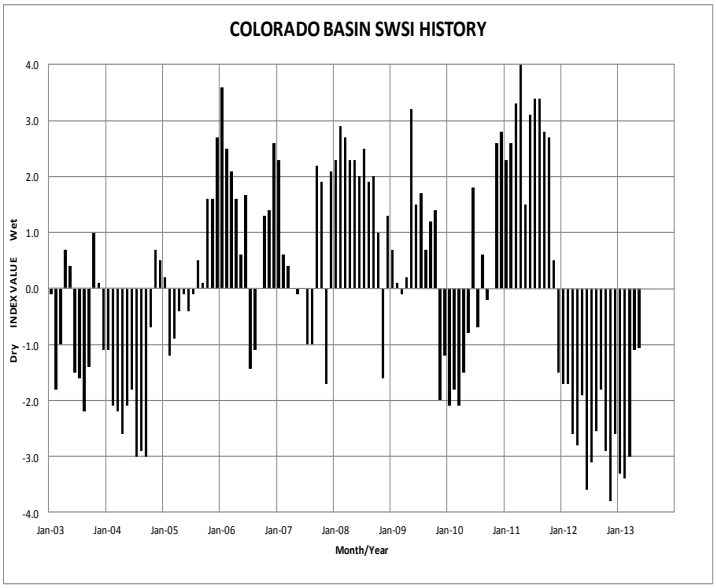
Basinwide Conditions Assessment

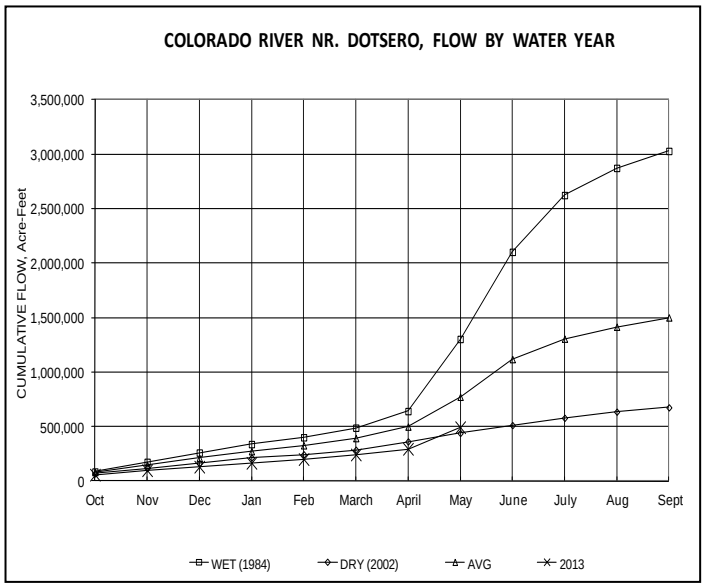
The SWSI value for the month was -1.1. The text for this section is not available yet.

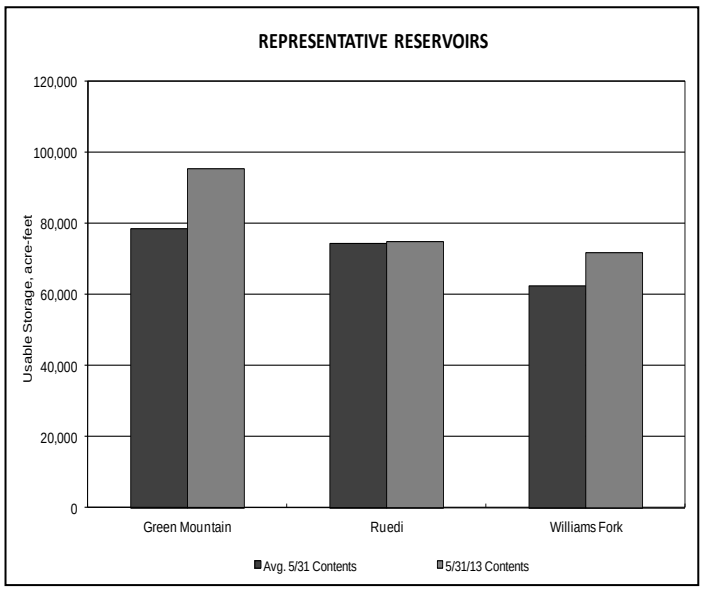
Outlook

Administrative/Management Concerns

Public Use Impacts





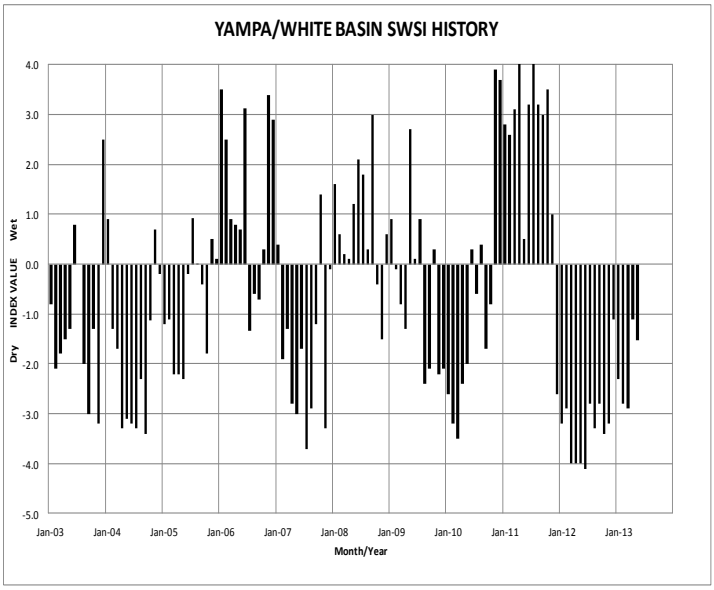


Basinwide Conditions Assessment

The SWSI value for the month was -1.5. May 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 May jumped to 88%.

Snowpack for the Yampa, North Platte and White River basins had fallen to 75% of average as of June 1, 2013. The snow water equivalent (SWE) as of May 31st, 2013 was 81% of average for the Laramie and North Platte River basins and 69% of average for the Yampa River basin and White River basin.

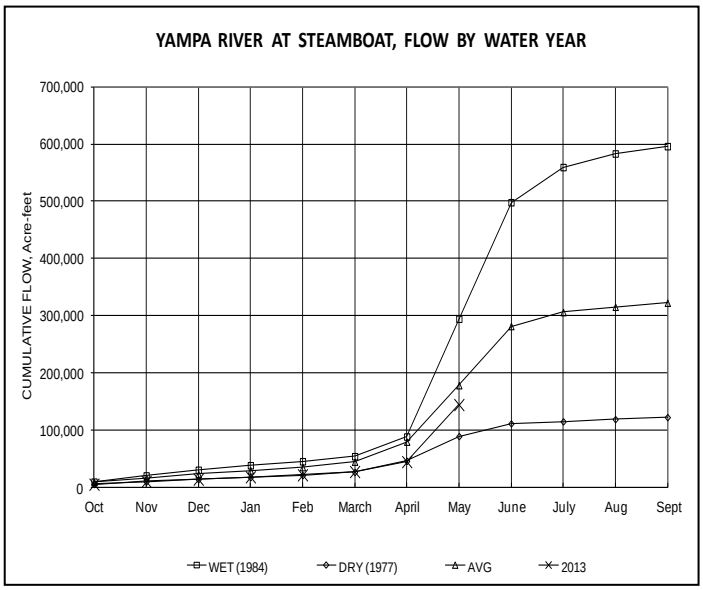
NRCS predicts well below average spring and summer streamflows in the Yampa, White, and North Platte River basins. The latest runoff forecasts from the NRCS for the June through July period are 76% of average for the North Platte River near Northgate, 60% of average for the Yampa River near Maybell, 40% of average for the Little Snake River near Lily, and 49% of average for the White River near Meeker.



Outlook

As of May 31st, Fish Creek Reservoir was steadily filling and storing approximately 3,050 AF, 73% of capacity. Yamcolo Reservoir was storing 6,211 AF at the end of May, 65% of capacity. On May 31st, Elkhead Creek Reservoir was full and storing 24,778 AF. On May 31st, 2013, Stagecoach Reservoir was full and storing 36,400 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.



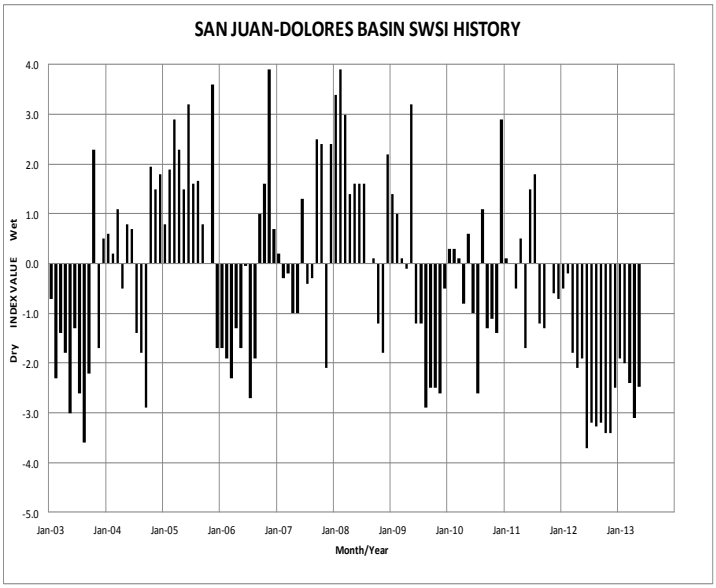
Public Use Impacts

Northwest Colorado remains dry and experiencing drought conditions. Steamboat Springs currently has watering restrictions in place and there is a fire ban in Moffat County.

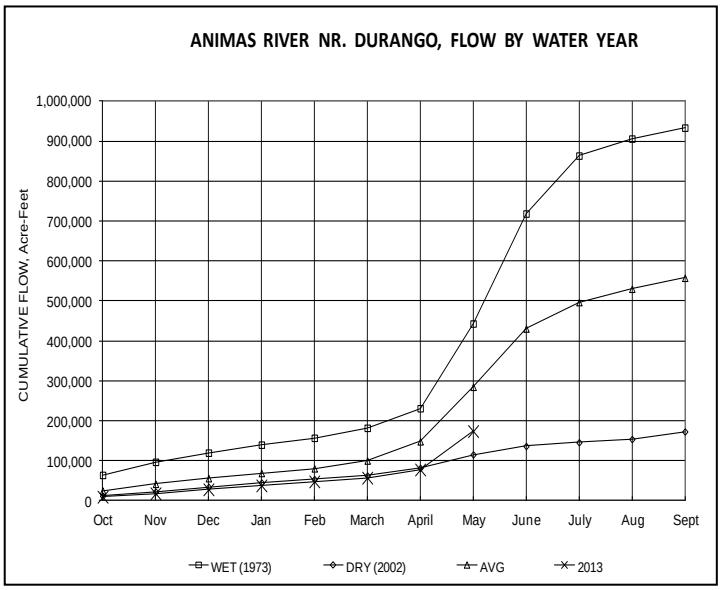
All area State Parks are open for boating and swimming where allowed.

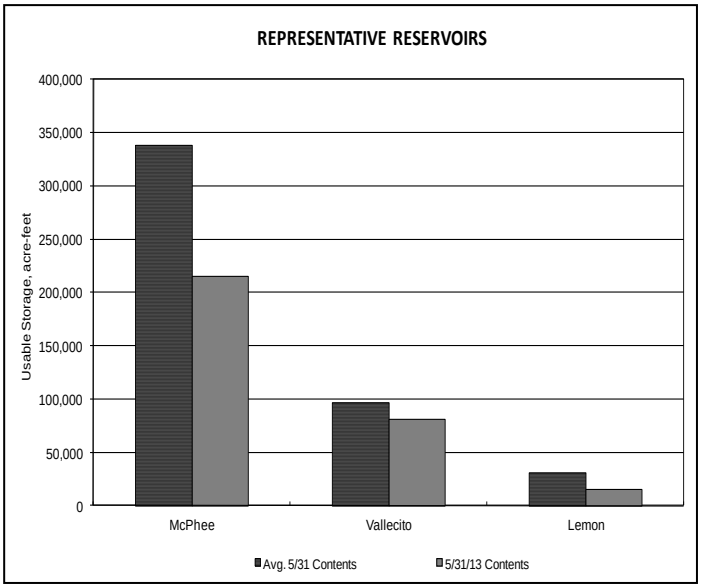
Basinwide Conditions Assessment

The SWSI value for the month was -2.5. Flow at the Animas River at Durango averaged 1,565 cfs (68% of average). The flow at the Dolores River at Dolores averaged 772 cfs (45% of average). The La Plata River at Hesperus averaged 58.8 cfs (35% of average). Precipitation in Durango was 0.51 inches for the month, 48% of the 30-year average of 1.05 inches. Precipitation to date in Durango, for the water year, is 6.49 inches, 52% of the 30-year average of 12.49 inches. The average high and low temperatures for the month of May in Durango were 72° and 36°. In comparison, the 30-year average high and low for the month is 72° and 38°. At the end of the month, Vallecito Reservoir contained 80,530 acre-feet compared to its average content of 89,640 acre-feet (90% of average). McPhee Reservoir was up to 215,377 acre-feet compared to its average content of 344,794 (62% of average), while Lemon Reservoir was up to 14,720 acre-feet as compared to its average content of 30,561 acre-feet (48% of average).



Precipitation (0.51-inches) was well below average for May in Durango. There are 84 years out of 119 years of record where there was more precipitation than this year. The flows on the Animas River were below average this May. There were 81 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 peak runoff from snowmelt this water year occurred between the first to middle part of the month for all the rivers in the basin. The NRCS is reporting snow-water-equivalent of 4% of average at the end of the month which was much lower than the 47% of average reported at the end of April.





ADDITIONAL INFORMATION ABOUT COLORADO SWSI CALCULATIONS - Jun-13

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

Summer SWSI Component Weights

Basin	Reservoir Storage	Streamflow	Precipitation (this month only)
South Platte	0.65	0.25	0.1
Arkansas	0.35	0.55	0.1
Rio Grande	0.05	0.9	0.05
Gunnison	0.3	0.6	0.1
Colorado	0.25	0.7	0.05
Yampa/White	0	0.9	0.1
San Juan/Dolores/Animas	0.1	0.85	0.05

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 June 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.