

COLORADO

WATER SUPPLY CONDITIONS UPDATE

FROM THE OFFICE OF THE STATE ENGINEER: COLORADO DIVISION OF WATER RESOURCES
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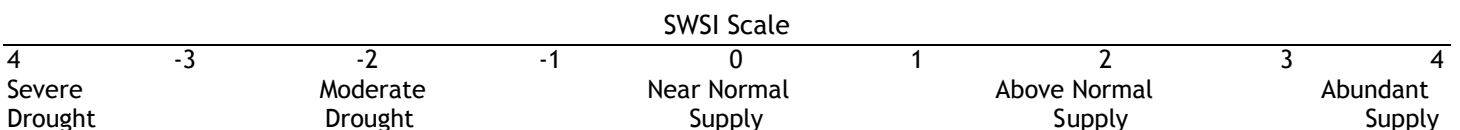
August 2014

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 of Water Resources Office in each stream basin.

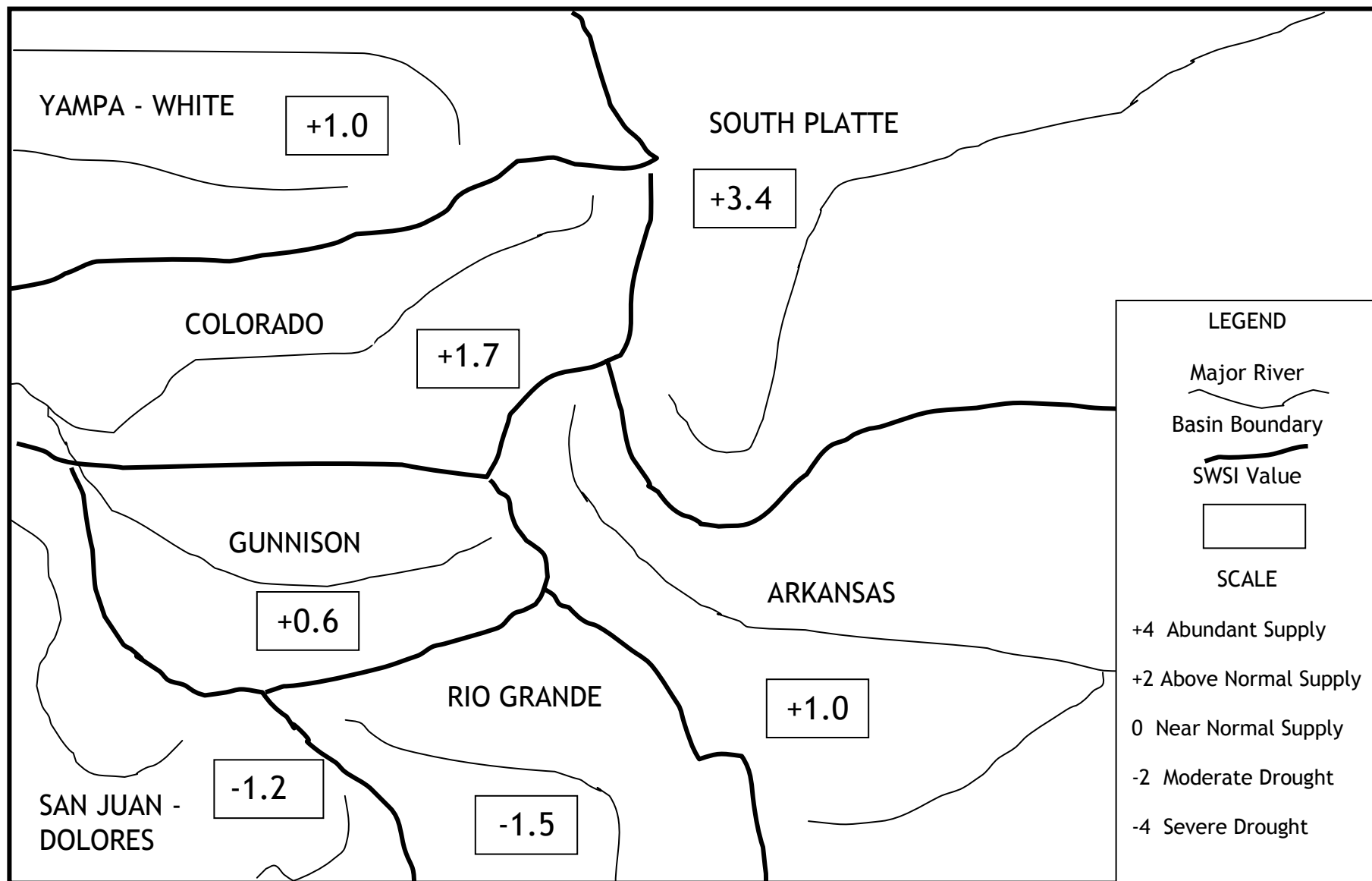
The statewide SWSI values for July (August 1) range from a high value of +3.4 in the South Platte Basin to a low value of -1.5 in the Rio Grande Basin. Precipitation levels were well above normal in July statewide and reservoir storage remained at normal to above normal levels statewide. Streamflows were below normal in the Rio Grande and San Juan / Dolores / Animas basins. In all areas of the state, drought conditions are dramatically improved compared to this time in 2013.

The following SWSI values were computed for each of the seven major basins for August 1, 2014. Additional information about SWSI calculations and the NRCS National Water and Climate Center SWSI by HUC are included on Page 10.

Basin	August 1 SWSI	Change from Previous Month	Change from Previous Year
South Platte	3.4	0.4	2.5
Arkansas	1.0	0.0	2.7
Rio Grande	-1.5	-0.7	1.7
Gunnison	0.6	0.4	3.4
Colorado	1.7	-0.1	4.1
Yampa/White	1.0	0.3	3.4
San Juan/Dolores	-1.2	-0.6	2.3



SURFACE WATER SUPPLY INDEX FOR COLORADO



August 1, 2014

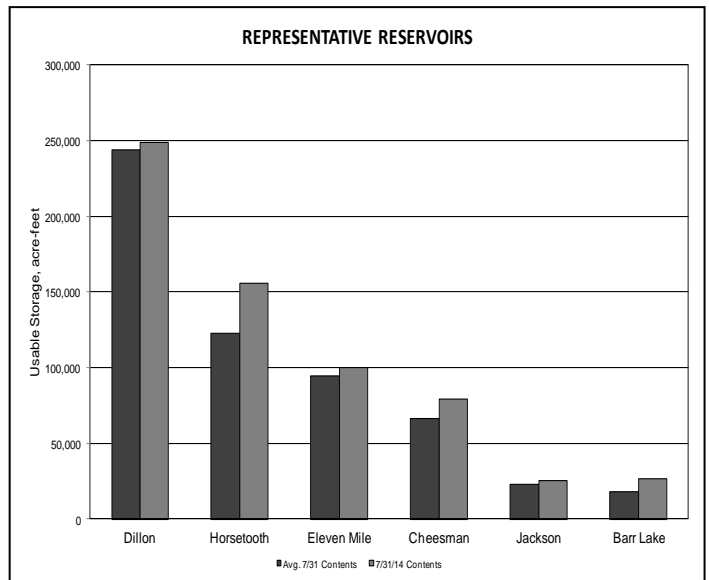
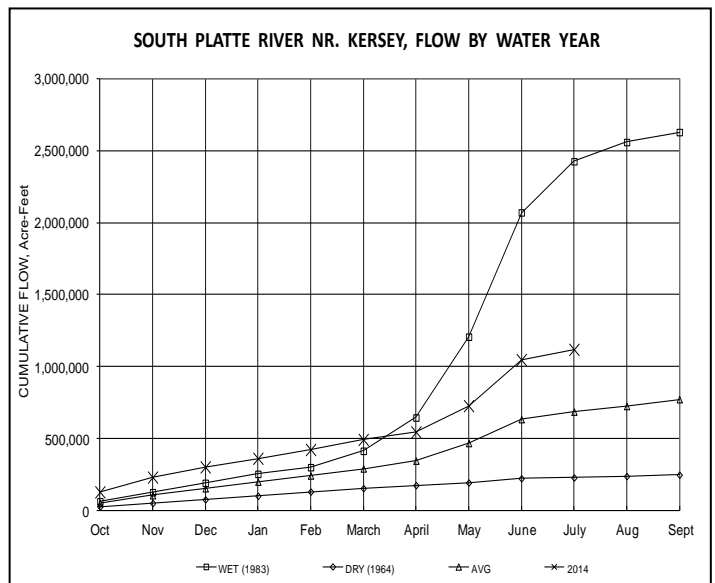
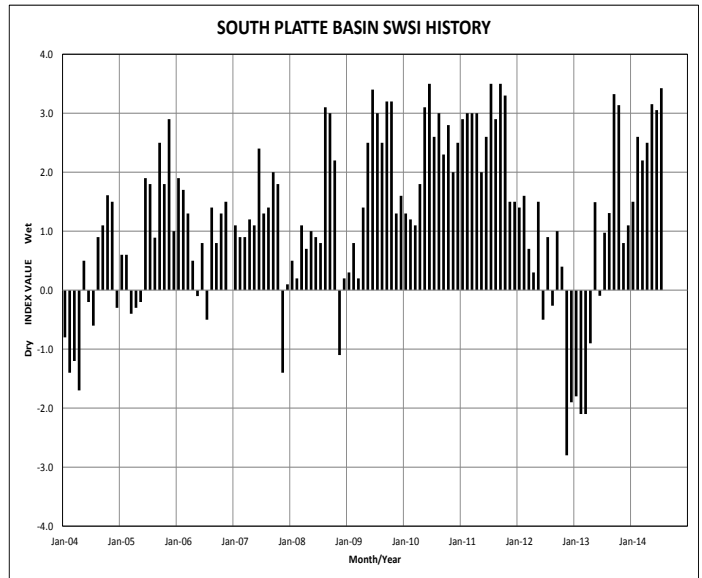
Basinwide Conditions Assessment

The SWSI value for the month was 3.4. July 2014 in northeastern Colorado was, for the most part, slightly cooler and significantly wetter than normal. Temperatures on the plains were slightly cooler than normal while temperatures in the foothills and mountains were normal to slightly warmer than normal. Precipitation was near to well above (300+ percent of normal in some areas) over most of the basin. The exceptions were some areas in the eastern plains where precipitation was in the 50 to 90% of normal range. There were some flash flood concerns with heavy thunderstorms marking the beginning of the monsoon season, but flash flood damage was generally limited to county roads in some areas of Lincoln County.

The July stream flows at the Kersey and Julesburg index gages were well above normal due to the generally wet conditions in the basin. The Kersey gage monthly mean stream flow was 1161 cfs as compared to the July historic mean of 683 cfs (170% of the historic mean). The July Julesburg mean monthly flow was 379 cfs or 121% of the historic mean flow of 314 cfs.

The South Platte River mainstem as well as most significant tributaries were under a call for pretty much the entire month (30 out of 31 days in many cases). This is not unusual. The unusual news is that these calls were virtually all more junior to MUCH more junior than is typically seen in July. These overall favorable call conditions were primarily the result of the excellent flow conditions discussed above, rather than inability to divert because most of the diversion structures damaged in the September 2013 flood have been repaired to at least a useable condition.

Reservoir storage continued to be exceptionally good through July. End of July overall storage was 91.5 % of total capacity (119 % of the long term end of July average). This amount of storage is wonderful from a water storage perspective. However, from a dam safety perspective the continued storage of amounts of water significantly above “normal” amounts requires extra vigilance to assure the continued integrity of the dams themselves.



Basinwide Conditions Assessment

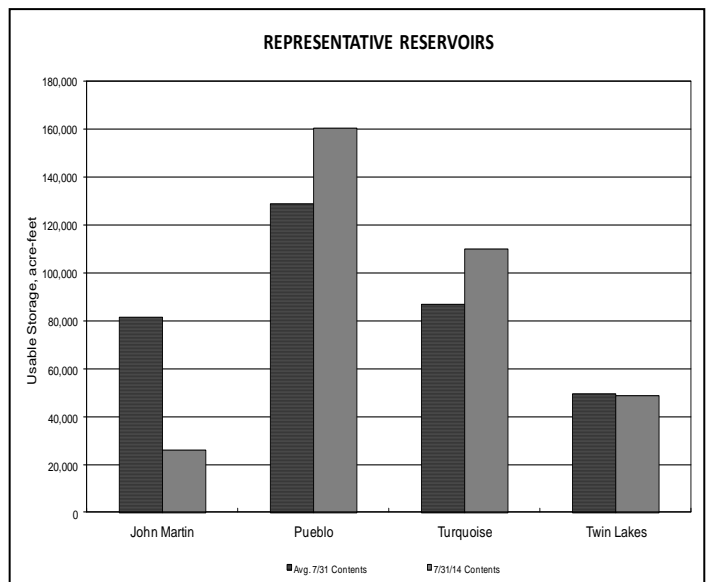
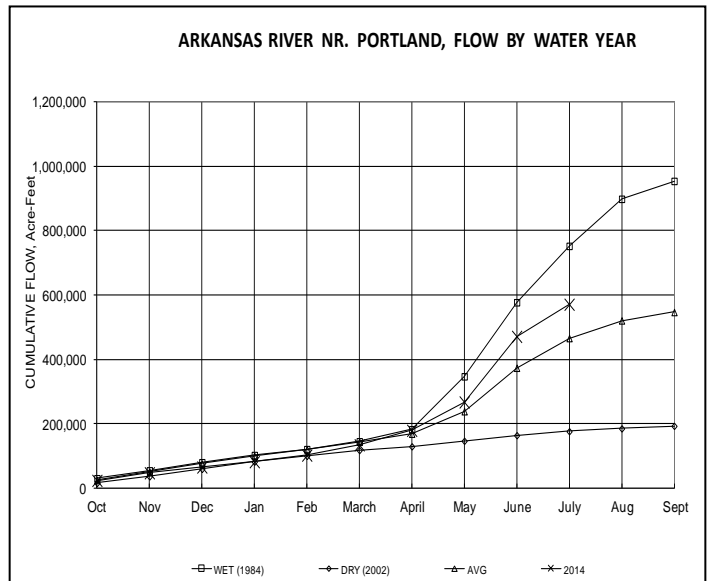
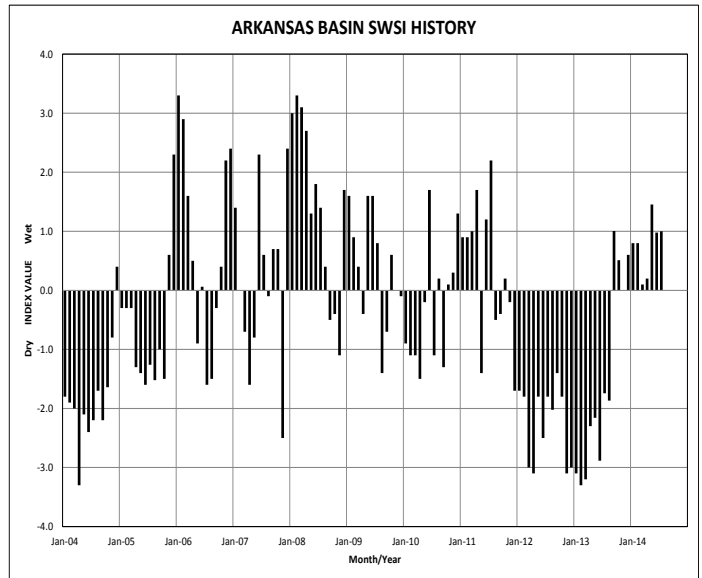
The SWSI value for the month was 1.0. Runoff remained strong in July. Flows through the Arkansas River at Canon City gage averaged over 1450 cfs. These flows were near the historical average, a significant improvement from 2012 and 2013. Significant monsoon rain events occurred in July, including significant events on some of the tributaries such as the Purgatoire, Apishapa, Huerfano and St. Charles Rivers. Rainfall runoff events also increased on Fountain Creek with continued concern about flooding issues from the burn scar areas on the Waldo Canyon burn site.

The Arkansas River call was at the Fort Lyon Canal (3/1/1887) right to begin the month and trended to a much more junior call (Great Plains Storage 8/1/1896) to end the month.

Administrative / Management Concerns

Kansas completed their first delivery of water in July from John Martin Reservoir after several years of running no water. Large rain events caused Kansas to stop their delivery, but resume the delivery again later in July after those events and the delivery continued into August.

An ancillary concern that arose from Kansas' release from John Martin Reservoir, was the fact that the content of John Martin Reservoir was rapidly being drawn down and had reached a content as low as just under 12,000 acre-feet on July 13, 2014. Since much of the remaining water in the reservoir belonged to Kansas and was presumed to be destined for release, Colorado Parks and Wildlife began a concerted effort to evaluate the impacts to the fishery and recreation opportunities in John Martin Reservoir, should the drawdown continue. A fair amount of reservoir storage occurred after that time due to the monsoon rain events, so that concern by CPW may be alleviated if content holds until the start of winter storage on November 1st.



Basinwide Conditions Assessment

The SWSI value for the month was -1.5. Flow at the gaging station Rio Grande near Del Norte averaged 703 cfs (55% of normal) for the month of July. The Conejos River near Mogote had a mean flow of 268 cfs (60% of normal). July precipitation in Alamosa was 1.52 inches, a welcome 0.55 inches above normal. The mean temperature was 66.0 degrees, 1.4 degrees above normal.

Outlook

In general, stream flow levels in the basin's streams fell off drastically during mid-June and stayed well below average during July with the exception of short-term increases from rainstorms. However, July's streamflows were higher than what was forecasted earlier in the year for the Rio Grande Compact index gauges due to the monsoonal rainstorms.

The rain was scattered unevenly across the San Luis Valley. La Garita, Pinos, and Rito Alto Creeks all benefitted greatly from July rainstorms while the Rio de los Pinos, South Fork of the Rio Grande, and the Alamosa River all saw little significant rainfall within their drainage areas. Ute Creek experienced flooding on July 29, yet nearby Sangre De Cristo Creek showed only a slight blip of increase on the same date.

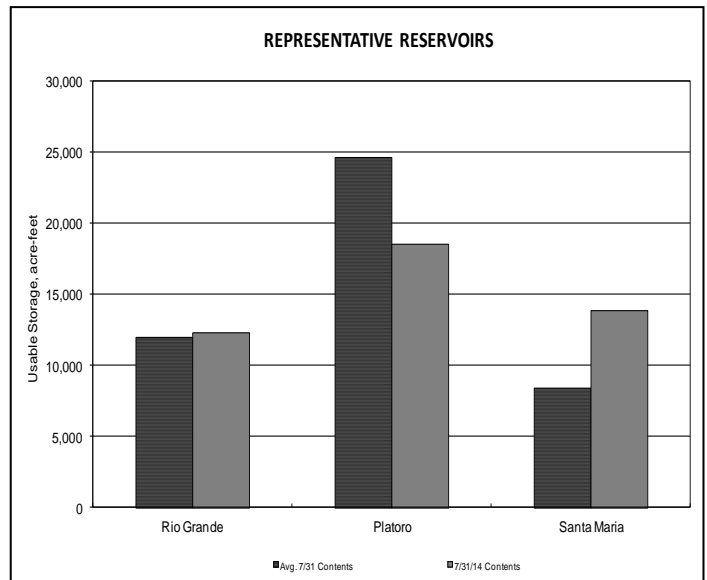
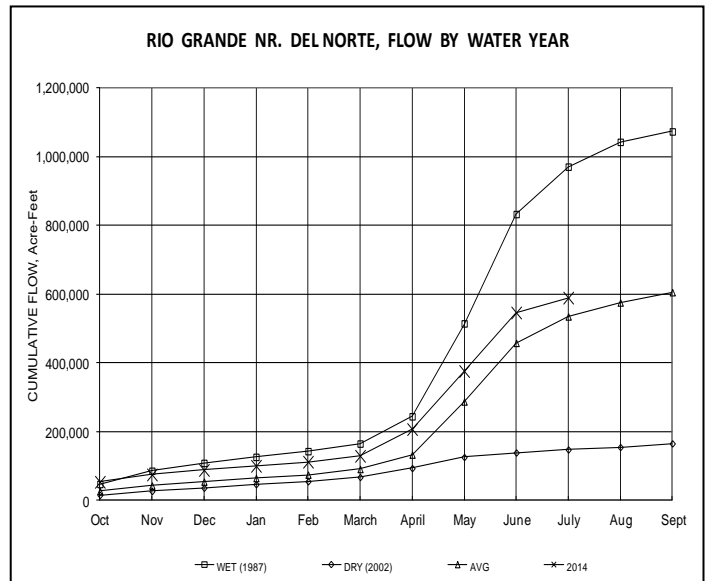
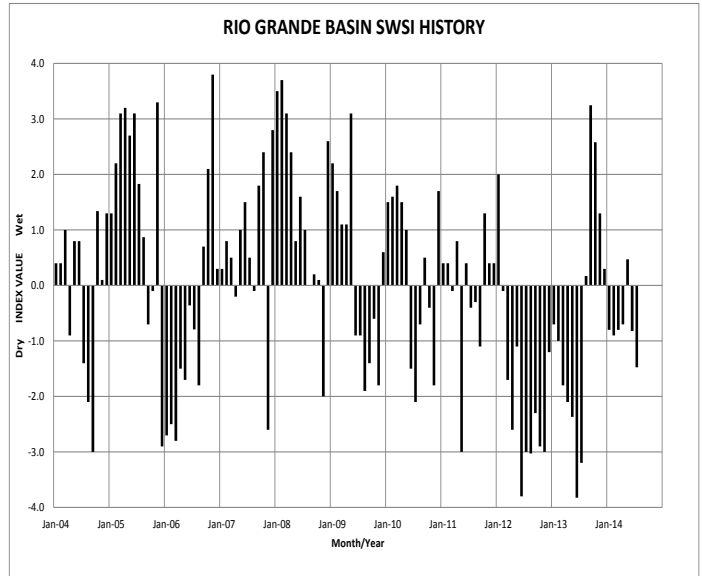
Junior water right owners in Division 3 should expect senior calls to keep them out of priority for most of the rest of the irrigation season with the exception of short duration increases in flow due to the rain.

Administrative/Management Concerns

Curtailment on the Rio Grande was increased to 25% on July 4. The curtailment on the Conejos River was increased to 32% on July 4 and then to 42% on July 24 to keep up with the Rio Grande Compact delivery schedule.

Public Use Impacts

The rainfall and warm weather have assisted in the growing of the Valley's crops. However, that same rainfall has hampered efforts to put up the second cutting of hay and alfalfa. Hail damage was significant in small areas scattered across the Valley from Antonito to Saguache. Some of these farmers experienced total crop loss.



Basinwide Conditions Assessment

The SWSI value for the month was 0.6. In July, the Upper Gunnison Basin, including Tomichi Creek, East River and the upper reaches of the North Fork Gunnison River, received approximately 90% of average precipitation, while the Lower Gunnison Basin received over 110% of the average. Temperatures throughout the Basin remained near average, which kept evapotranspiration within the normal range. As a result of these two factors, streamflows on all major tributaries, including the Uncompahgre River, North Fork Gunnison River, Tomichi Creek, and the East River remained near to slightly above average.

Outlook

August, September, and October are forecast to have a much greater than equal chance of above average precipitation throughout the southwest, including the Gunnison basin.

Administrative/Management Concerns

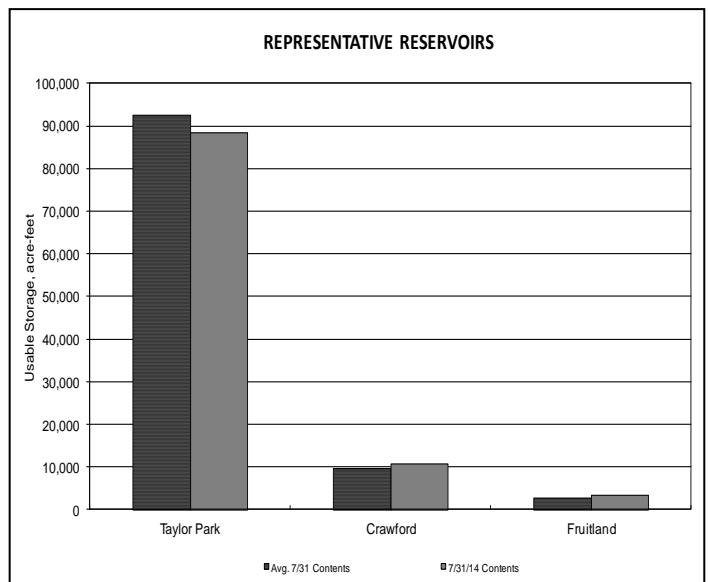
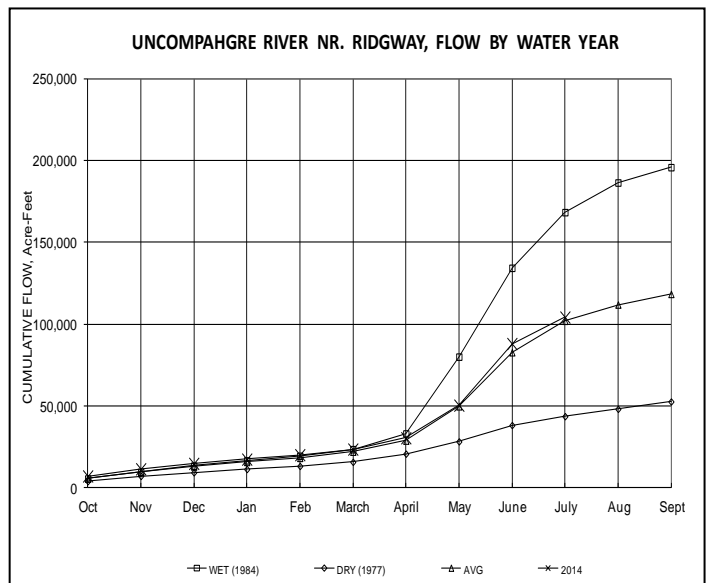
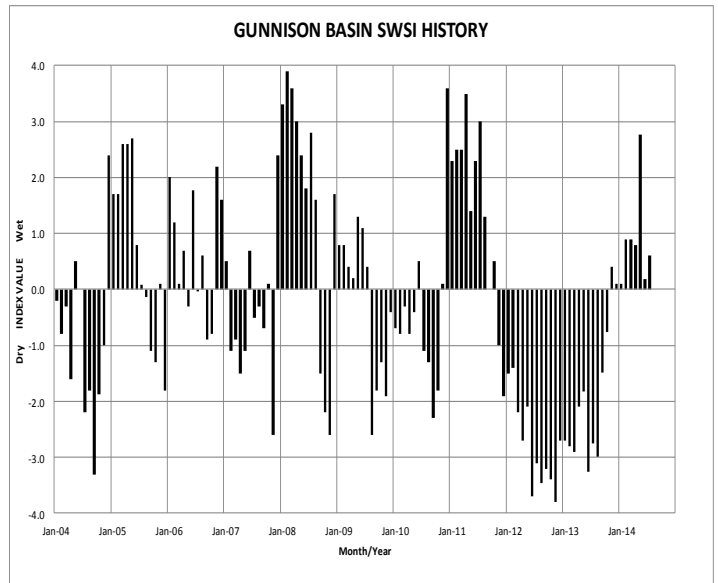
The call situation in the Gunnison Basin is much improved over last year with calls at the end of July only on the North Fork Gunnison River and its tributaries, which went on call later than usual. Excepting a few calls on small tributaries, there are no calls on the Uncompahgre River, San Miguel River, East River or Tomichi Creek yet and it appears that these large tributary streams may get through the 2014 irrigation season without a call.

Actual April to July inflow into Blue Mesa Reservoir was approximately 848,000 acre-feet, which corresponds to 125% of average. Blue Mesa Reservoir elevations increased during the beginning of July with the higher inflows and reduced releases, but began to fall on July 20th and ended July at 662,416 acre-feet. The July USBR 24 month study indicates that Blue Mesa Reservoir will reach a minimum of 7480 ft in elevation, which corresponds to 10 ft below the icing target of 7490 ft, resulting in a difference in storage of approximately 72,000 acre-feet.

The continued above average streamflows, without significantly above average precipitation, is further evidence that high antecedent soil moisture conditions going into the winter last year had a huge impact on 2014 runoff yields. Reports from water users all over the Basin are generally what a great year this has been so far.

Pubic Use Impacts

Although the heavy monsoon rain in July through September of 2013 was welcome, another positive in 2014 has been the more average precipitation, which has allowed farmers to put up high hay yields with less moisture problems. Flows on most major streams in the Basin retreated to near or slightly above average conditions during July improving the fishing conditions for all streams. Reduced releases from Crystal Reservoir produced lower flows in the Gunnison River through the Gunnison Gorge between 850 and 900 cfs, which allowed outfitters and floaters to resume trips during July.



Basinwide Conditions Assessment

The SWSI value for the month was 1.7.

Outlook

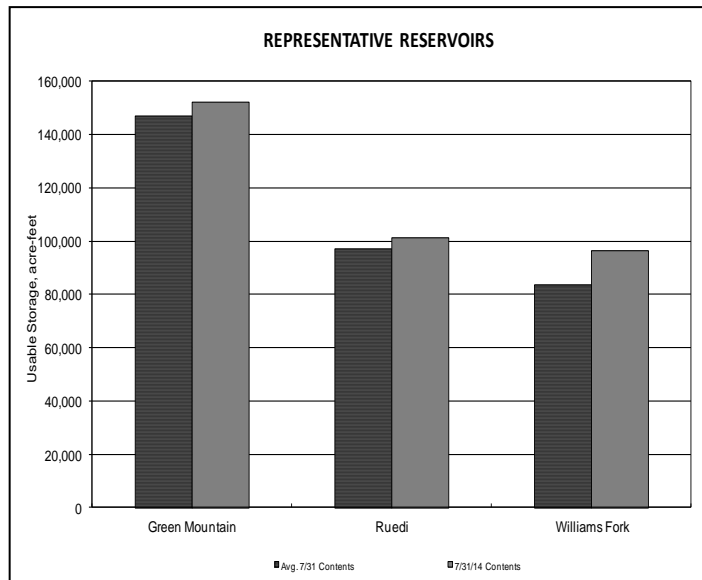
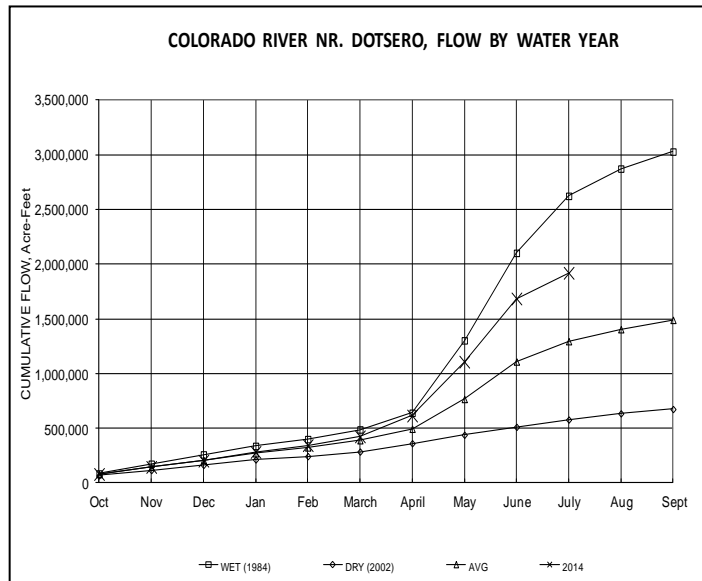
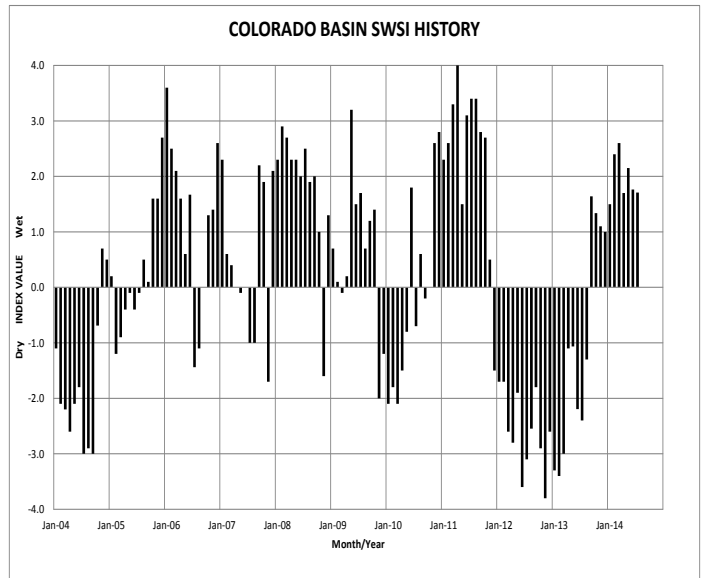
Colorado River flows will remain above average, but continue to decline throughout August. Below average precipitation and temperatures are forecast for western Colorado through August. Williams Fork Reservoir releases could increase to help off-set significantly reduced Green Mountain Reservoir releases throughout August.

Administrative/Management Concerns

A main stem call on the Colorado River at Cameo is unlikely during the month of August; however, a call at Dotsero is possible as a result of significantly decreased Dillon Reservoir releases for outlet works construction. Accordingly, Green Mountain Reservoir inflow and subsequent releases have been reduced. Grand Valley Irrigation diversions (Government Highline/Orchard Mesa Irrigation, Grand Valley Irrigation canals) continue at or near full capacity. Ruedi Reservoir releases will increase by 50 cfs to accommodate the Endangered Fish Recovery Program. Wolford Mountain releases, cut substantially in late July, will increase to accommodate the Endangered Fish Recovery Program.

Public Use Impacts

Concern over protection of agricultural interests within the Colorado River Basin Plan is the latest topic of discussion. While agriculture accounts for the majority of both water use and senior water rights in the state, a significant portion of water use is non-consumptive, which needs to be incorporated into the basin plan. Concern also exists over how to address the purchase of agricultural land and associated water rights for residential or energy development within the basin plan.



Basinwide Conditions Assessment

The SWSI value for the month was 1.0. July precipitation was well above 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 134% 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 July was at 110%.

Due to persistent precipitation, flow in the major rivers of the Yampa, White, and North Platte River basins was above average for the month of July and trending to remain that way through early August.

Outlook

As of July 31st, Fish Creek Reservoir was at 87% of capacity. Yamcolo Reservoir was storing 7,781 AF at the end of July 2014. The capacity of Yamcolo Reservoir is 9,580 AF. On July 31st, Elkhead Creek Reservoir was storing 22,665 AF which is 96% full... On July 31st, 2014, Stagecoach Reservoir was 99% full and storing 36,100 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.

Administrative / Management Concerns

Typical administration has occurred this summer throughout all of Division 6. Most calls were off at the end of July with only a few calls on that usually run all irrigation season.

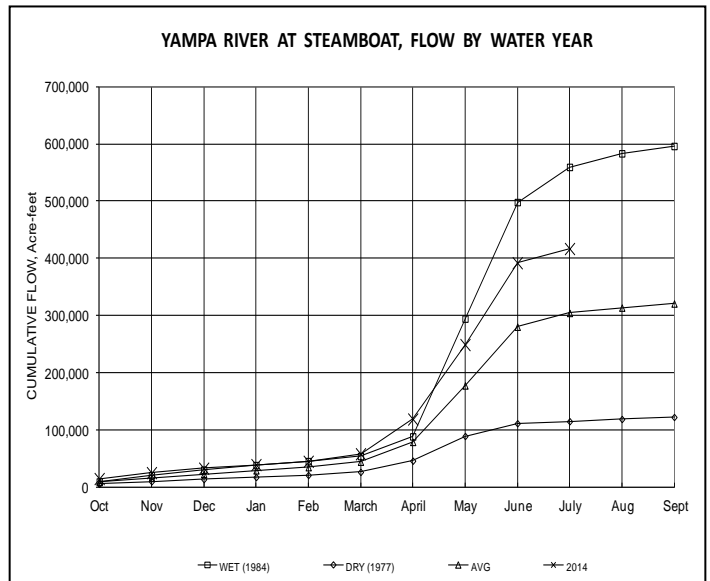
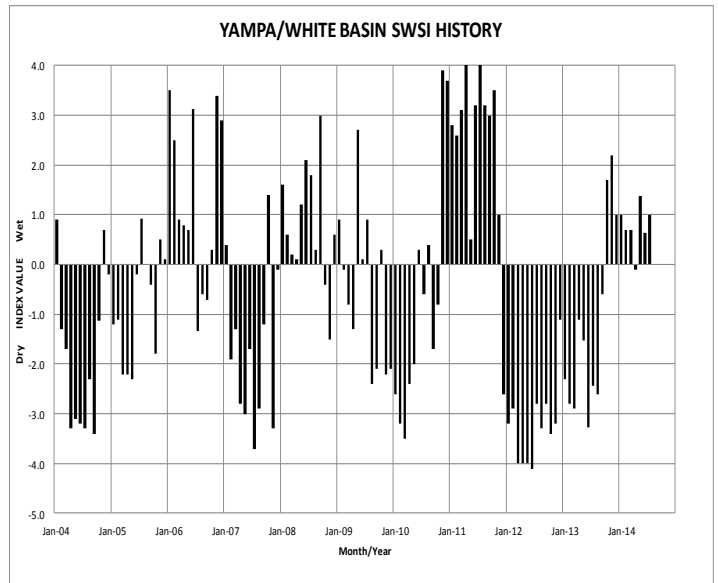
Public Use Impacts

To maintain flow on the Yampa River through Steamboat Springs, the Colorado Water Trust is once again leasing water from the Upper Yampa Water Conservancy's Stagecoach Reservoir. Releases began during July and are ongoing.

There is significant algae on Stagecoach reservoir at this time. Fishing has slowed from shore but remains good for boaters. The tailwaters are open but expect heavy equipment and some trail closures as restoration work is finishing up.

At Steamboat Lake fishing is picking up for both bank fisherman and boaters. The lake water level is nearly full and boating is excellent.

Currently there are no fire restrictions in any of the counties of Division 6.

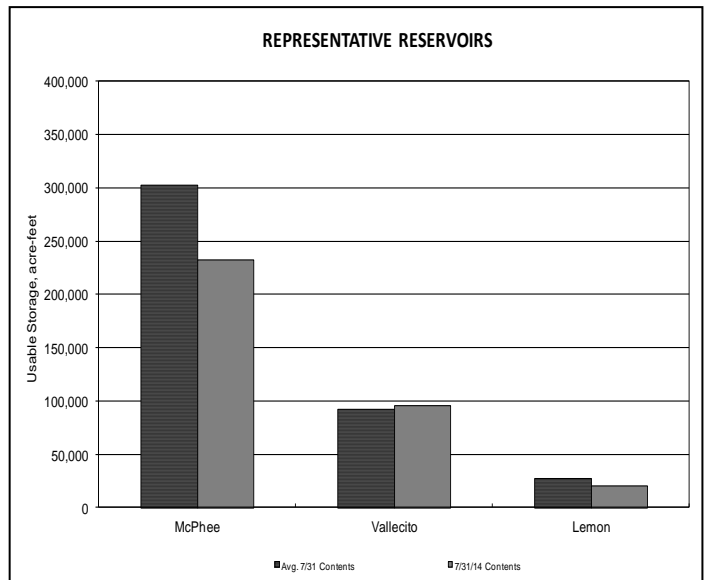
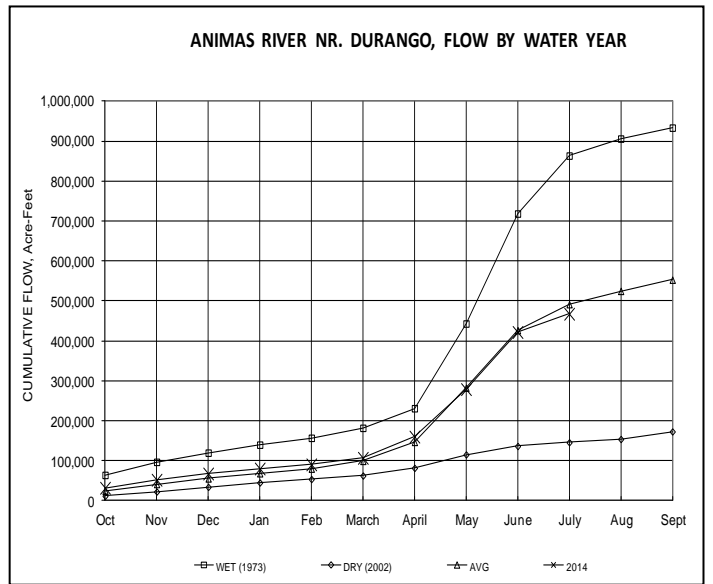
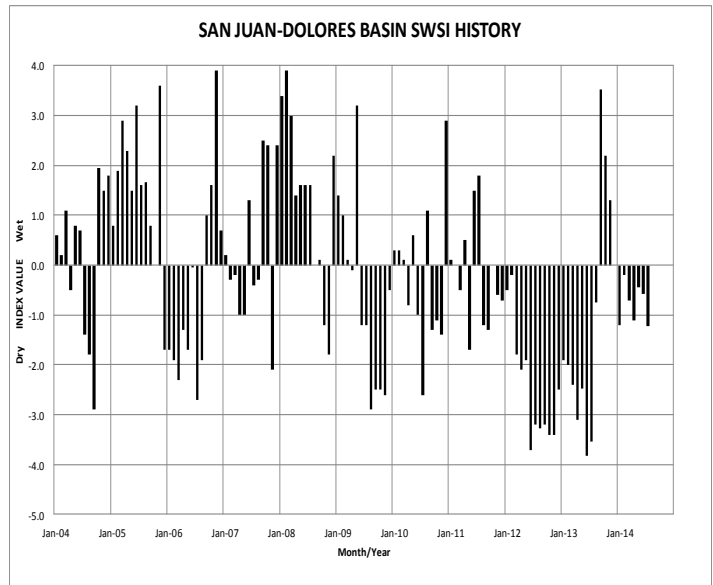


Basinwide Conditions Assessment

The SWSI value for the month was -1.2. Flow at the Animas River at Durango averaged 743 cfs (65% of average). The flow at the Dolores River at Dolores averaged 182 cfs (47% of average). The La Plata River at Hesperus averaged 9.0 cfs (25% of average). Precipitation in Durango was 1.55 inches for the month, 79% of the 30-year average of 1.96 inches. Precipitation to date in Durango, for the water year, is 9.76 inches, 64% of the 30-year average of 15.12 inches. The average high and low temperatures for the month of July in Durango were 89° and 54°. In comparison, the 30-year average high and low for the month is 86° and 54°. At the end of the month Vallecito Reservoir contained 95,433 acre-feet compared to its average content of 88,943 acre-feet (107% of average). McPhee Reservoir was up to 232,251 acre-feet compared to its average content of 310,756 (75% of average), while Lemon Reservoir was up to 20,580 acre-feet as compared to its average content of 26,803 acre-feet (77% of average).

Outlook

Precipitation (1.55 inches) was below average for July in Durango. There were 72 years out of 120 years of record where there was more precipitation than this year. The flows on the Animas River were below average this month. There were 64 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 fared about the same. There were 82 out of 104 years of record where the total flow past the Dolores stream gauge was more than this year and 93 out of 97 years of record where the total flow past the La Plata River at Hesperus gauge was more than this year. Volume in Lemon Reservoir is below average but contains 20,580 acre-feet as compared to 5,470 acre-feet for the same time last year.



ADDITIONAL INFORMATION ABOUT COLORADO SWSI CALCULATIONS - Aug-14

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 July 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.

