

# COLORADO

## WATER SUPPLY CONDITIONS UPDATE

FROM THE OFFICE OF THE STATE ENGINEER: COLORADO DIVISION OF WATER RESOURCES  
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SEPTEMBER 2004

All areas of the state are suffering from the drought that has impacted Colorado for the last 5+ years. Virtually all stream flows continue at well below normal levels, with some approaching 2002 levels. During August the South Platte River was an exception, as the basin received sufficient precipitation during the month to boost stream flows to levels that benefited more than just the most senior diverters. The Arkansas River Basin also had precipitation events that allowed storage to occur in John Martin Reservoir. The rest of the state received below normal precipitation during August.

Lack of precipitation and the resulting affect on stream flows are reflected in the drop in SWSI values from last month for all but the South Platte Basin.

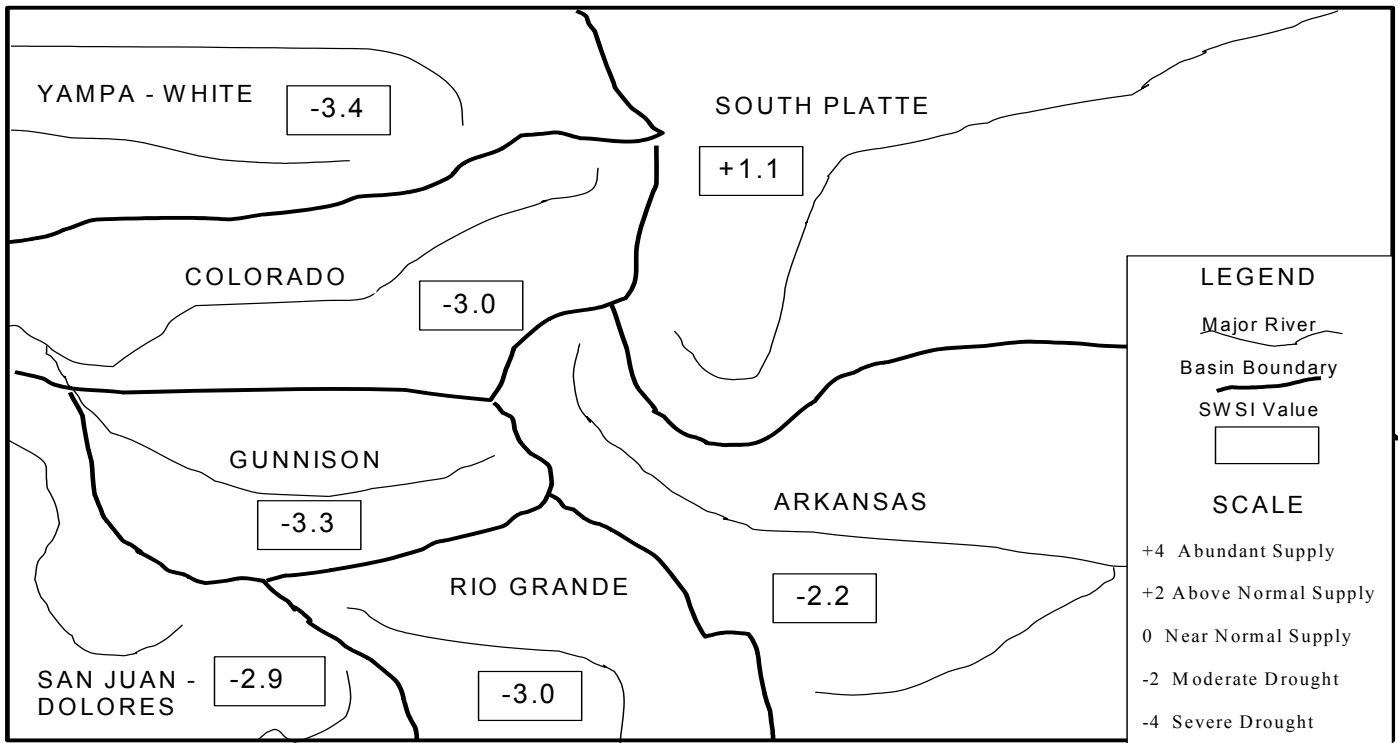
While individual reservoir storage levels vary significantly, statewide the reservoir storage as of the end of August is about 85% of normal. Those who have access to reservoir storage value that source of water.

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 stream flow, reservoir storage, and precipitation for the summer period (May through October). During the summer period, stream flow is the primary component in all basins except the South Platte basin where reservoir storage is given the most weight. The following SWSI values were computed for each of the seven major basins for September 1, 2004, and reflect the conditions during the month of August.

<u>Basin</u>	<u>September 1, 2004 SWSI Value</u>	<u>Change From Previous Month</u>	<u>Change From Previous Year</u>
South Platte	1.1	+0.2	+0.7
Arkansas	-2.2	-0.5	0.0
Rio Grande	-3.0	-0.9	+0.2
Gunnison	-3.3	-1.5	-0.2
Colorado	-3.0	-0.1	-1.6
Yampa/White	-3.4	-1.1	-1.1
San Juan/Dolores	-2.9	-1.1	-0.7

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



SEPTEMBER 1, 2004

Basinwide Conditions Assessment

The SWSI value of 1.1 indicates that for August the basin water supplies were near normal. Reservoir storage, the major component in this basin in computing the SWSI value, was 103% of normal as of the end of August. Cumulative storage in the major plains reservoirs: Julesberg, North Sterling, and Prewitt, is at 18% of capacity. Cumulative storage in the major upper-basin reservoirs: Cheesman, Eleven Mile, Spinney, and Antero is at 78% of capacity. Flow at the gaging station South Platte River near Kersey was 622 cfs, as compared to the long-term average of 505 cfs. Flow at the Colorado/Nebraska state line averaged 38 cfs.

Conditions in August were generally wet. One major rainstorm in Denver the latter part of August provided significant supplies along the river.

The increased supply and reduced demand associated with the rain kept the call from becoming extremely senior, as occurred in 2002 and 2003. For reference, the senior call along the mainstem above Kersey in August of 2004 was often junior to 1872, allowing all major irrigation rights above Kersey except Burlington ditch an adequate direct flow supply. This is in contrast to 2002 when the call was generally 1865, preventing most ditches from having an adequate supply. Users who depended on their direct flow rights have had an adequate supply of water.

Despite the calls not being extremely senior, agricultural users who are dependent on reservoir supplies are in a very difficult situation as irrigation reservoirs have been severely depleted after many did not fill in the spring. Major irrigation suppliers who have had to limit their deliveries include North Sterling, Prewitt, Riverside, Farmers Reservoir and Irrigation Company and Empire. No additional releases are being made from Prewitt or Empire by the last week of August.

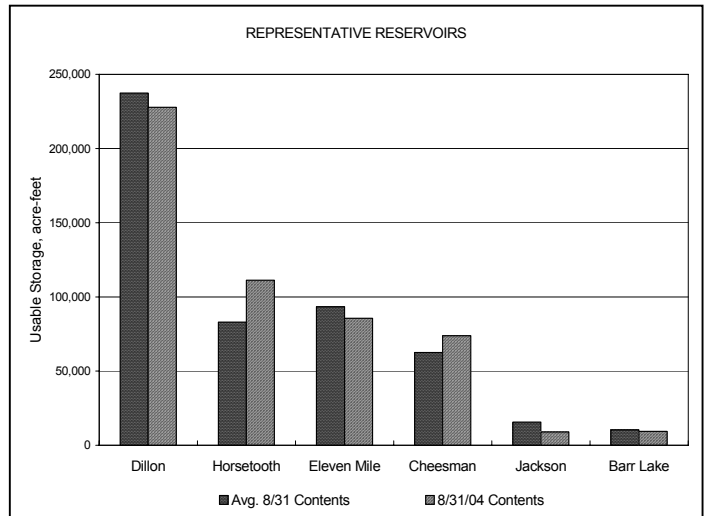
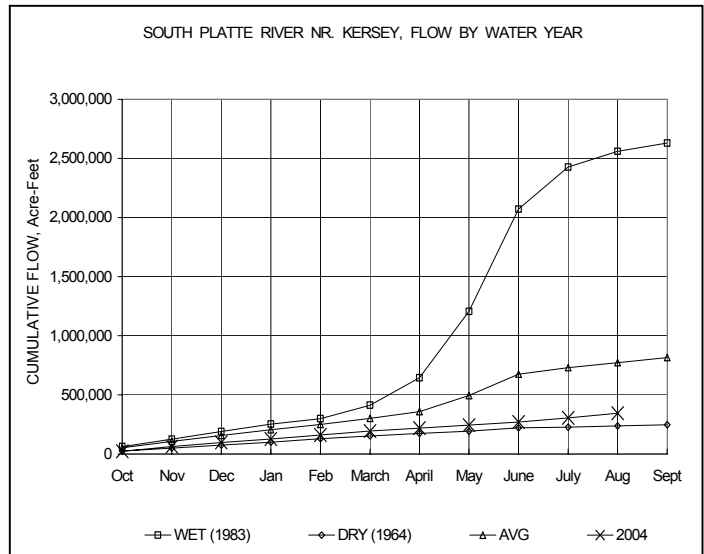
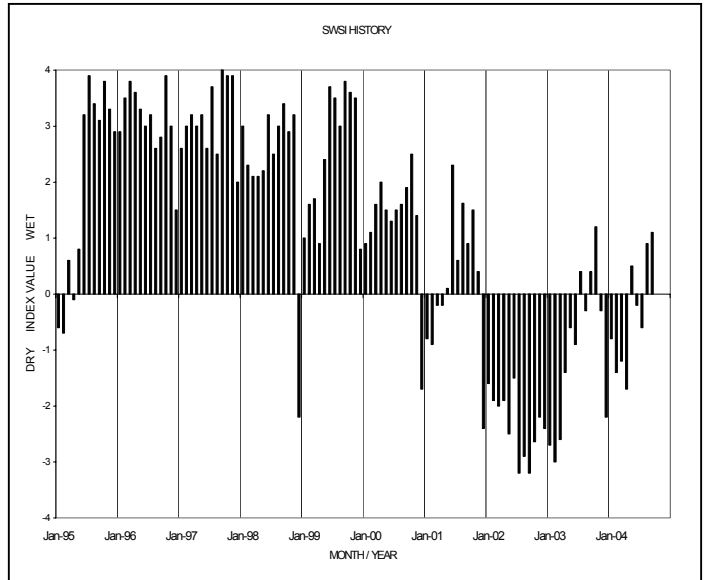
Administrative/Management Concerns

Rainstorms have caused rapidly changing surface flow conditions requiring extensive efforts by administrators to make sure that the gages on the sand channels of the South Platte are accurate and that they administer the rapidly changing flows to the correct water users. There already have been 170 changes in mainstem call this water year through August 20, compared to an average of 60 call changes through the whole irrigation season over the previous twenty years.

Public Use Impacts

This year, many irrigators chose to switch to crops requiring less water, including beans, small grains, wheat, or barley. In addition, there has been dry up of acreage associated with well augmentation requirements.

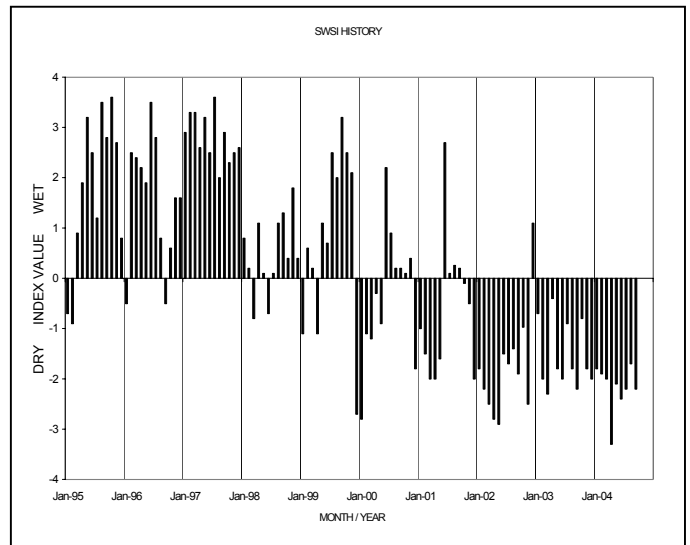
Most municipalities remain in much better shape this year than 2002 due to the wetter than usual summer conditions, conservation efforts and leasing of additional supplies. Their storage supplies continue to exceed those that were available last summer.



Basinwide Conditions Assessment

The SWSI value of -2.2 indicates that for August the basin water supplies were near normal. Flow at the gaging station Arkansas River near Portland was 491 cfs, as compared to the long-term average of 981 cfs. Storage in Turquoise, Twin Lakes, Pueblo, and John Martin reservoirs totaled 63% of normal as of the end of August.

Precipitation in the month of August triggered two summer conservation storage events in John Martin Reservoir resulting in over 15,000 acre-feet of timely storage for the reservoir, which had fallen to below 6,000 acre-feet of total storage out of a capacity of 345,000 acre-feet. A summer storage event in John Martin Reservoir occurs when the gage inflows are expected to exceed the demand by ditches in Colorado below the reservoir by at least 500 cubic feet per second for a 24-hour period. The precipitation also helped with irrigation supplies for irrigation ditches in many areas of the valley.

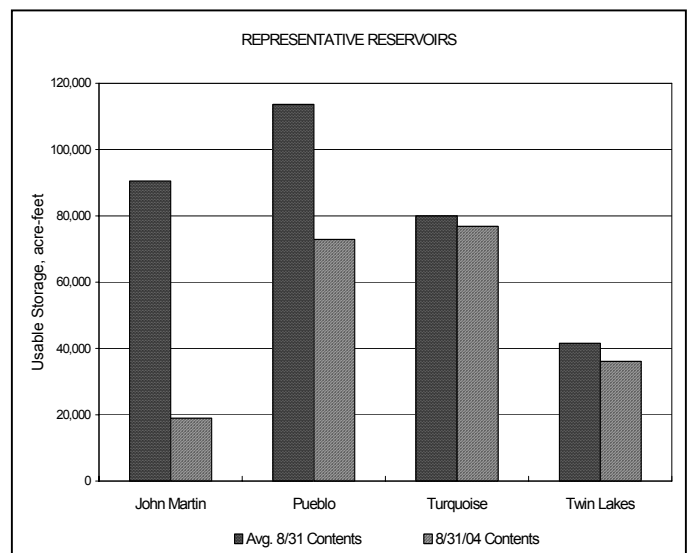
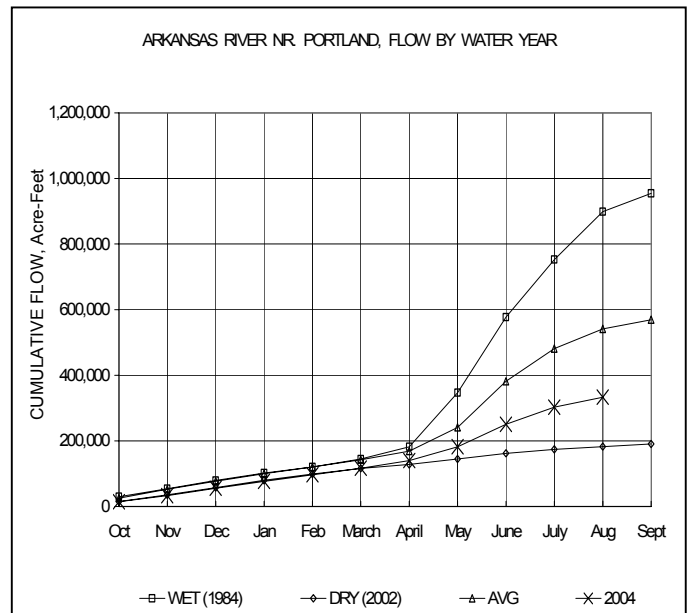


Administrative/Management Concerns

Not all of the rainfall events were considered positive occasions as many farmers had hail damage to crops, and some crops, such as melons, were at a critical growth stage where potential damage could occur from conditions that are too wet.

Public Use Impacts

The Colorado Department of Parks delivered over 1,000 acre-feet of transmountain water to the permanent fisheries pool in John Martin Reservoir in August in addition to the 15,000 acre-feet of conservation storage that occurred to improve the recreational opportunities at the reservoir.



Basinwide Conditions Assessment

The SWSI value of -3.0 indicates that for August the basin water supplies were well below normal.

Flow at the gaging station Rio Grande near Del Norte averaged 279 cfs (35% of normal). The Conejos River near Mogote had a mean flow of 129 cfs (63% of normal), but nearly one-third of that was releases from Platoro Reservoir.

Precipitation in Alamosa was 0.60 inches, 0.59 inches below normal. To date, Alamosa has received only 4.15 inches of rain in 2004. Rainfall has not brought any relief to the drought conditions in the San Luis Valley.

Storage in Platoro, Rio Grande, and Santa Maria reservoirs totaled 53% of normal as of the end of August.

Outlook

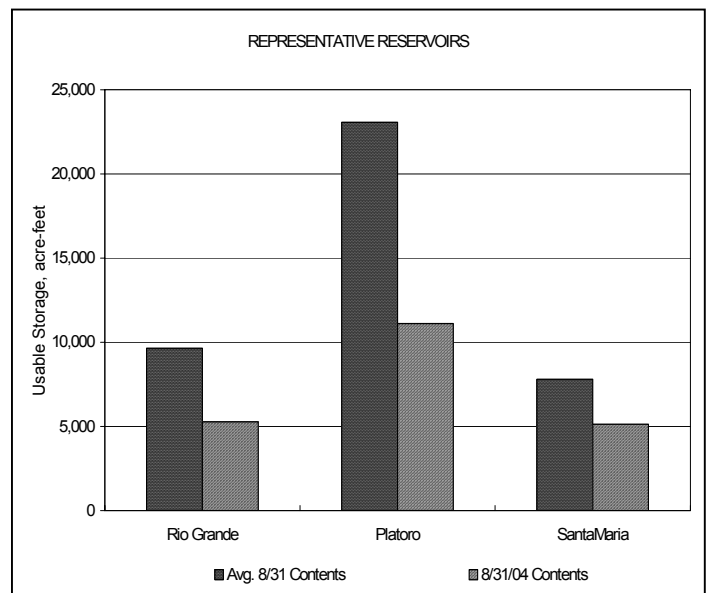
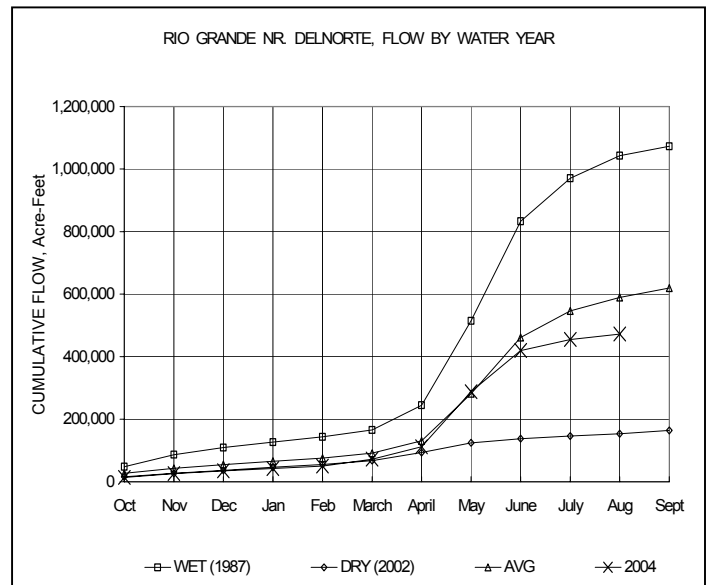
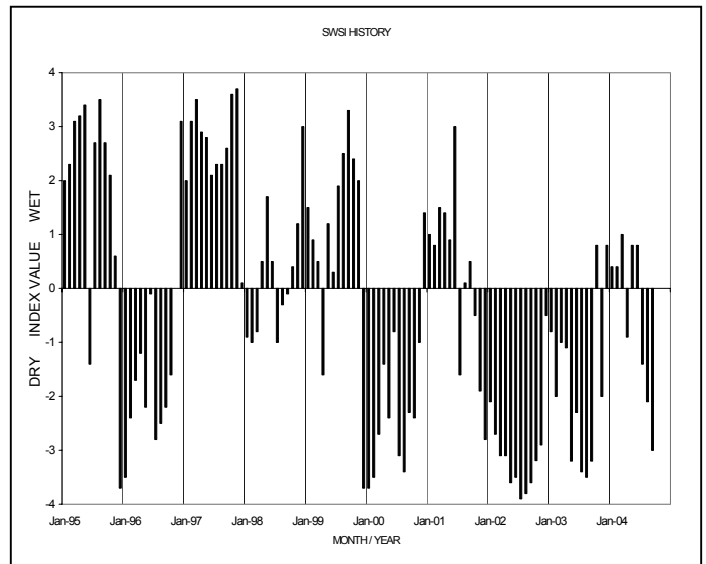
As the summer has progressed, stream flow in the upper Rio Grande basin has dropped well below the forecasted volumes. Some area streams have receded to near-2002 levels. DWR personnel are forecasting that flows in the basin's streams will remain below average throughout the fall. Overall, reservoir storage in the basin is poor.

Administrative/Management Concerns

The dramatic drop in stream flow since June has led administrators to rethink the Rio Grande Compact delivery strategy. Irrigators on the Rio Grande and the Conejos River and their tributaries are no longer being curtailed from diverting the available stream flow.

Public Use Impacts

Weather conditions have been generally cooperative as farmers and ranchers begin to harvest their crops and cut native grass.



Basinwide Conditions Assessment

The SWSI value of -3.3 indicates that for August the basin water supplies were well below normal. Flow at the gaging station Uncompahgre River near Ridgway was 105 cfs, as compared to the long-term average of 167 cfs. Storage in Taylor Park, Crawford, and Fruitland reservoirs totaled 86% of normal as of the end of August.

August is normally a wetter month for the Gunnison basin. The monsoonal flows from the southwest usually bring significant moisture to the region in the form of afternoon thundershowers. However, it just didn't happen in 2004. The National Weather Service reported that the precipitation in Grand Junction during June, July, and August was only 0.38 inches, a mere 20% of normal. This set a new record for the second driest summer since the 0.32 inches measured in 1900. The previous record for second driest summer was in 2003.

As a result of the lack of precipitation, the flows in the rivers have drastically declined throughout the summer. Water Commissioners in the upper Gunnison River basin are reporting low flows that are equivalent to those seen in 2002. It is clear that the multi-year drought is having a cumulative effect on the groundwater systems and subsequent stream flows.

Outlook

A lot of reservoir storage water was used in August. The users are thankful it's there to use, but like to have some left to carry over into the next year. There may not much left at the end of the irrigation season, making it harder to fill next year.

Administrative/Management Concerns

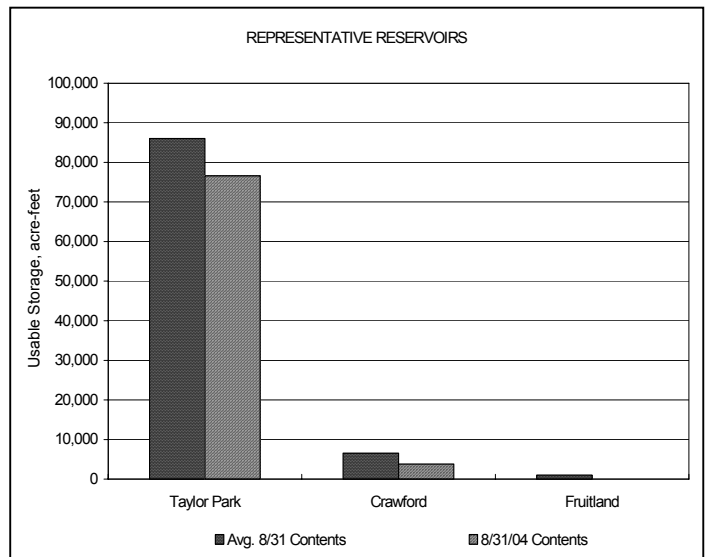
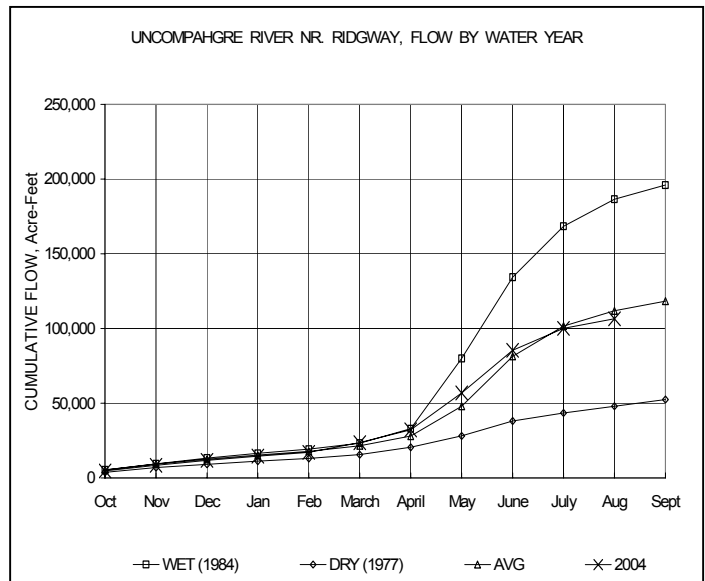
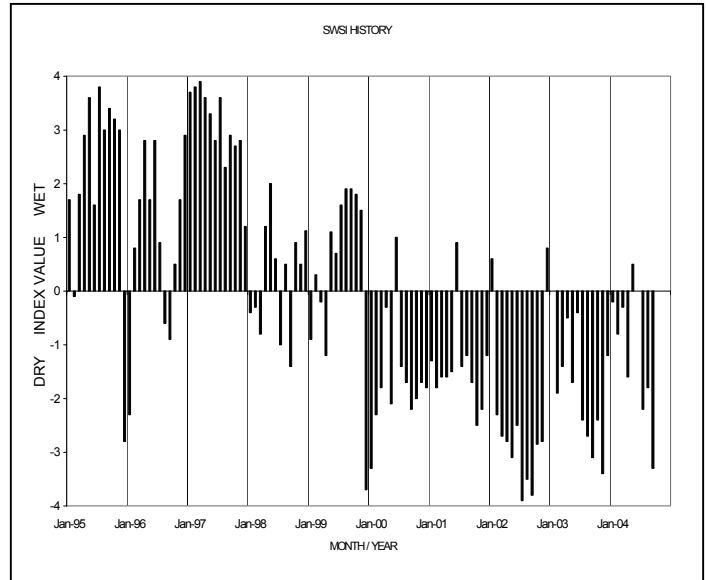
The CWCB again placed a call on the Slate River with their 23 cfs water right. This called out numerous augmentation plans in the Crested Butte area. To satisfy augmentation needs, the Upper Gunnison River Water Conservancy District applied for and received an emergency Substitute Supply Plan to release water from Meridian Lake.

A call was placed by the Highline Canal on the San Miguel River near Nucla, initiating administration of the entire drainage. The Uncompahgre Valley Water Users Association did not place a call from the M&D Canal or the Gunnison Tunnel in August, electing instead to use their storage in Ridgway and Blue Mesa Reservoirs.

Public Use Impacts

For the farmers and ranchers that put up hay in the Gunnison Basin, this has been a great summer. Most had enough water to fully irrigate their crops, and the dry weather in August gave them dry conditions to bail the hay without getting it rained on. Some say it is the best crop they have ever had.

On a bright note, on September 4 and 5, an early fall storm dumped up to an inch over the entire basin, more rainfall than the area had received throughout the whole summer.



Basinwide Conditions Assessment

The SWSI value of -3.0 indicates that for August the basin water supplies were well below normal. Flow at the gaging station Colorado River near Dotsero was 1,303 cfs, as compared to the long-term average of 1,819 cfs. Storage in Green Mountain, Ruedi, and Williams Fork reservoirs totaled 86% of normal as of the end of August.

Natural stream flows are still well below average throughout much of the basin as we head into September. The Labor Day weekend's rain (and snow at higher elevations) brought some tributaries up significantly, but only temporarily. Low flows on the Eagle and Crystal Rivers have forced the Colorado Water Conservation Board to place a call for their instream flow rights.

Grand Junction had just recorded its second driest summer on record.

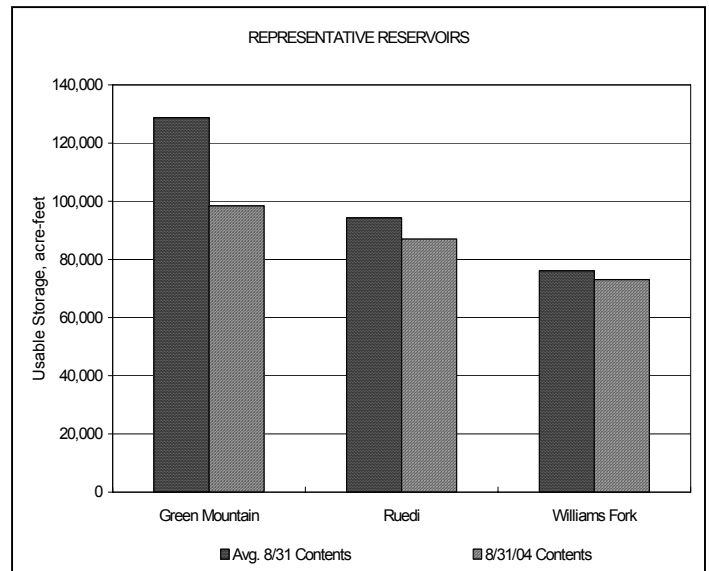
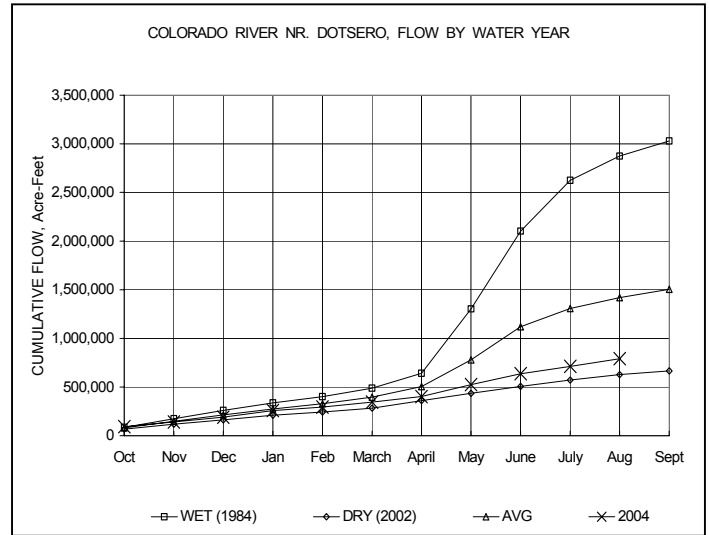
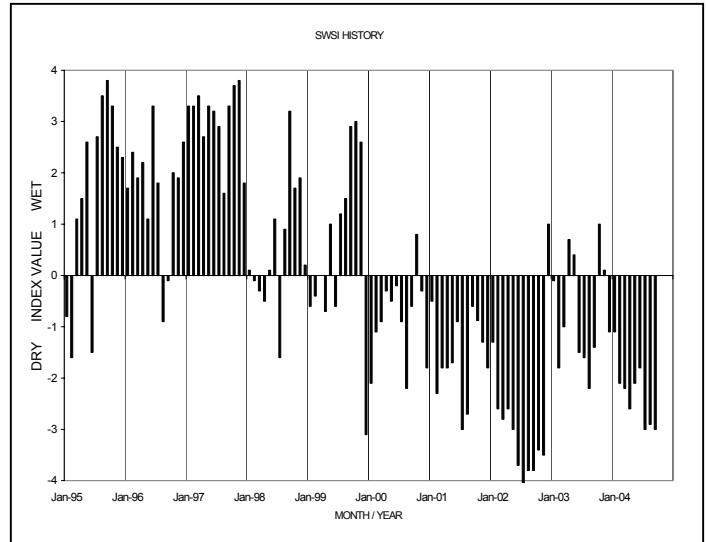
Administrative/Management Concerns

The Shoshone hydropower plant finished repairs so that the Colorado River mainstem call came on in mid-July. This increased flows in the Upper Colorado River from about 300 to over 1000 cfs, a much better flow regime for recreational boaters and fishermen.

Denver Water made special releases out of Dillon Reservoir over the Labor Day weekend, providing a few days of good rafting on the Blue River while paying back Green Mountain Reservoir for Dillon's out-of-priority storage earlier in the year.

Public Use Impacts

Labor Day weekend precipitation was significant in the Colorado River basin, particularly in the western part of the basin. This moisture was especially beneficial in lowering the fire danger in much of the lower BLM public lands where fire bans were subsequently lifted. It appears that the basin escaped the summer without any major fire disasters, which was quite fortunate considering the very dry fuel conditions throughout most of the basin.



Basinwide Conditions Assessment

The SWSI value of -3.4 indicates that for August the basin water supplies were well below normal. Flow at the gaging station Yampa River at Steamboat was 65 cfs, as compared to the long-term average of 155 cfs.

The basin remains very dry with many tributaries still under administration.

River flows in August remained well below seasonal averages at most of the major gages in the Division. While some mountain areas, especially along the eastern mountains, received substantial rainfall amounts during the month, other more westerly locations were well below average. At times, flows reached levels similar to those experienced in 2002. However, cooler temperatures near the end of the month and more widespread precipitation events caused flow conditions to improve slightly by the end of August.

Irrigation reservoirs at the headwaters of the Yampa River are essentially drained, while those in the North Platte drainage have more water in storage than at the same time in 2002.

Outlook

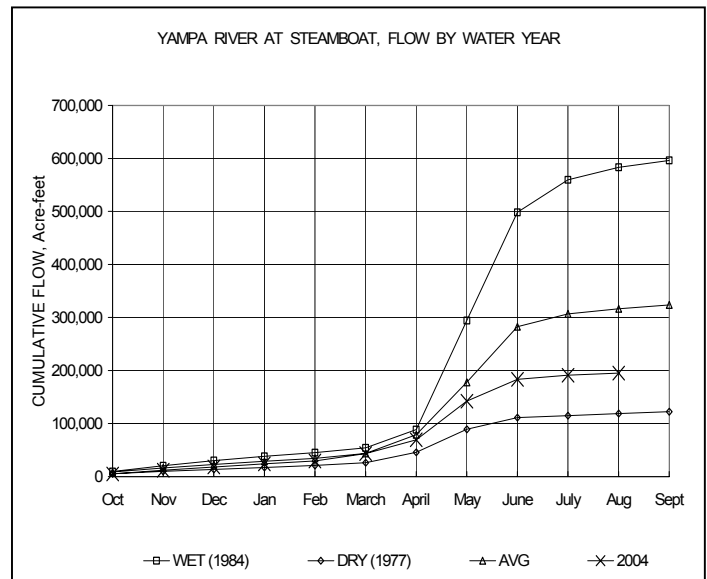
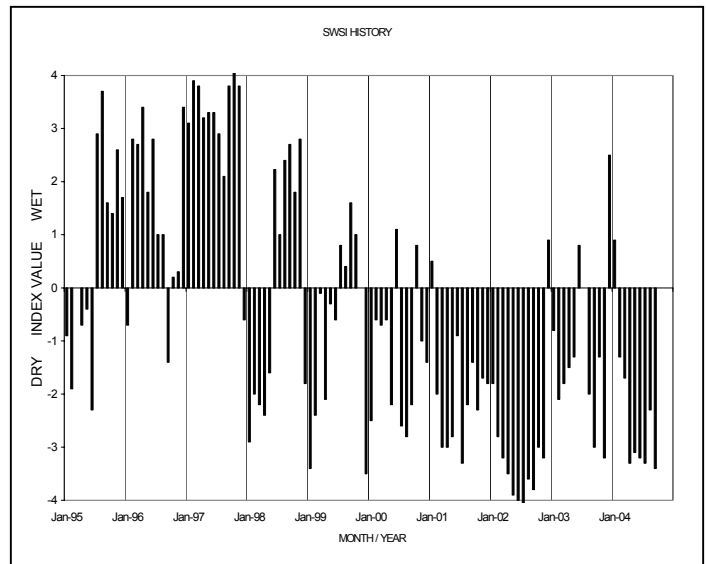
River flows are expected to remain below average for the rest of the summer.

Administrative/Management Concerns

The low levels in the Yampa River through Steamboat caused a voluntary ban on water related activities to be imposed by the City this month. Low flows in the critical habitat area on the Yampa River caused the U.S. Fish and Wildlife Service to initiate releases from Steamboat Lake to enhance flow in the river for the endangered species.

Public Use Impacts

A voluntary restriction of use of the Yampa River through Steamboat Springs was ordered by the city on August 6<sup>th</sup>. This ban remained in effect at the end of the month. Low flows in the White River above Meeker have impacted recreational activities below several large irrigation diversions.





Basinwide Conditions Assessment

The SWSI value of -2.9 indicates that for August the basin water supplies were well below normal. Flow at the gaging station Animas River near Durango was 285 cfs, as compared to the long-term average of 564 cfs. Storage in McPhee, Vallecito, and Lemon reservoirs totaled 84% of normal as of the end of August.

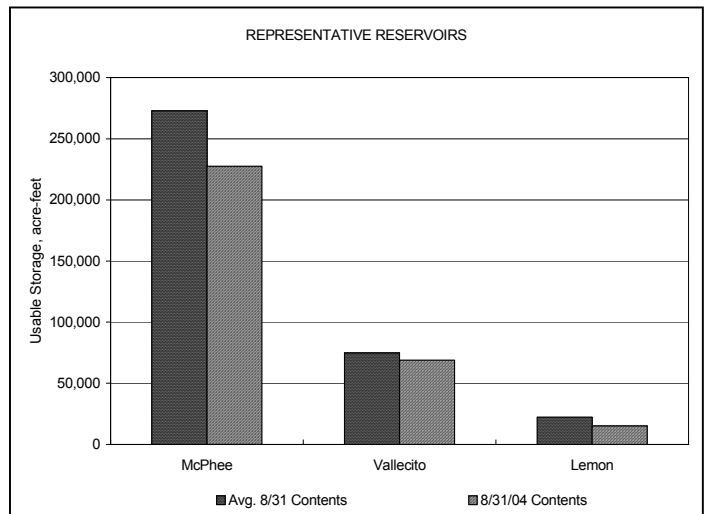
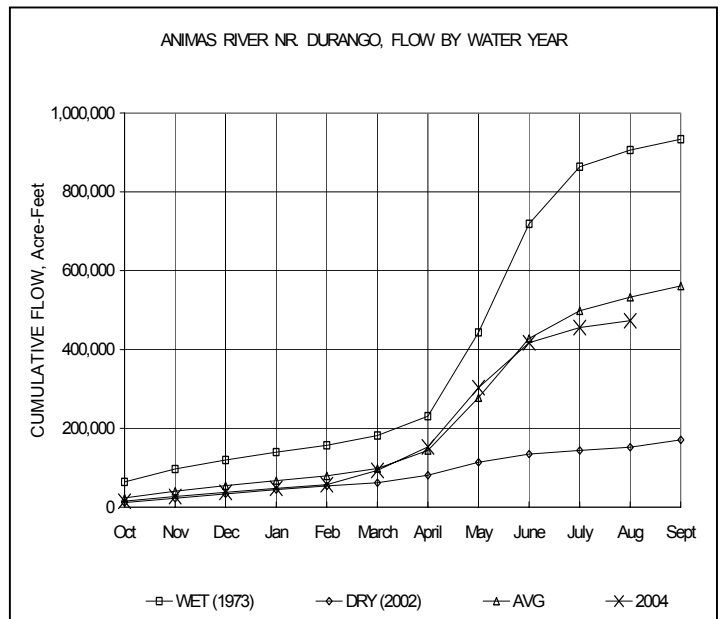
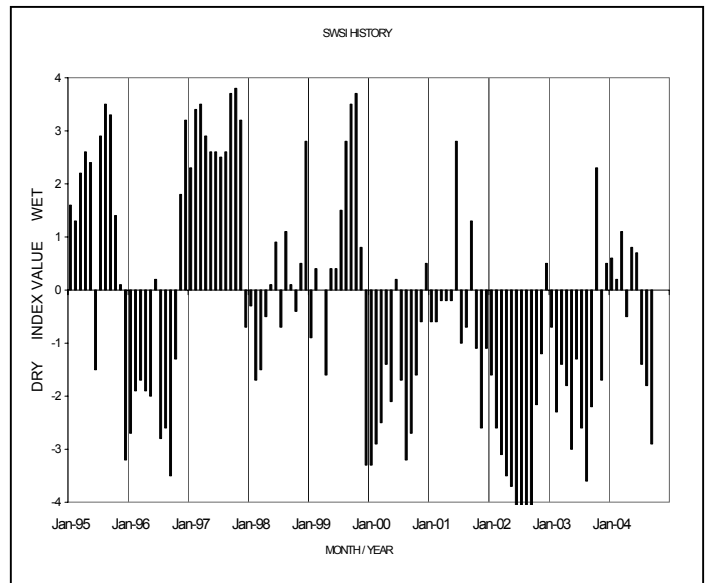
The water supply situation for Southwestern Colorado did not improve much during the month of August. Precipitation did not occur in significant amounts, although it was distributed throughout the month. The 0.96 inches of moisture recorded in Durango was 38% of average, leaving the yearly total from October 1, 2003 at 106% of normal.

River flows were well below normal - 50% or less in most streams. The Dolores River ran slightly above normal because of releases from Groundhog Reservoir to allow for repairs this fall. At the end of the month, the Animas River flow was only 198 cfs and La Plata at Hesperus was 4.8 cfs. The La Plata Compact became undeliverable on August 18 and the stream bed dried up for the major reach after that. No freeze occurred in Durango; however, the high temperatures were lower than normal by 2° (81.8°F) and the low temperatures were slightly higher than normal.

Outlook

Reservoirs were being used but supplies were holding up and it appears that there will be a significant carryover amount available to the large reservoirs in the next year.

The current outlook is for continued drought conditions until the dry cycle is broken.



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