COLORADO
WATER SUPPLY CONDITIONS UPDATE

FROM THE OFFICE OF THE STATE ENGINEER: COLORADO DIVISION OF WATER RESOURCES
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SEPTEMBER 1999

This summer's above normal water supply conditions continue with all basins showing a positive SWSI value. All basins have had positive values since July 1. August rains continued to be high, which supported above normal stream flows. The rains reduced demands for both stream diversions and reservoir storage, which again contributed to more water in the river channels and higher reservoir levels. The amount of rain has hampered the ability to harvest crops, which will cause some losses to farmers.

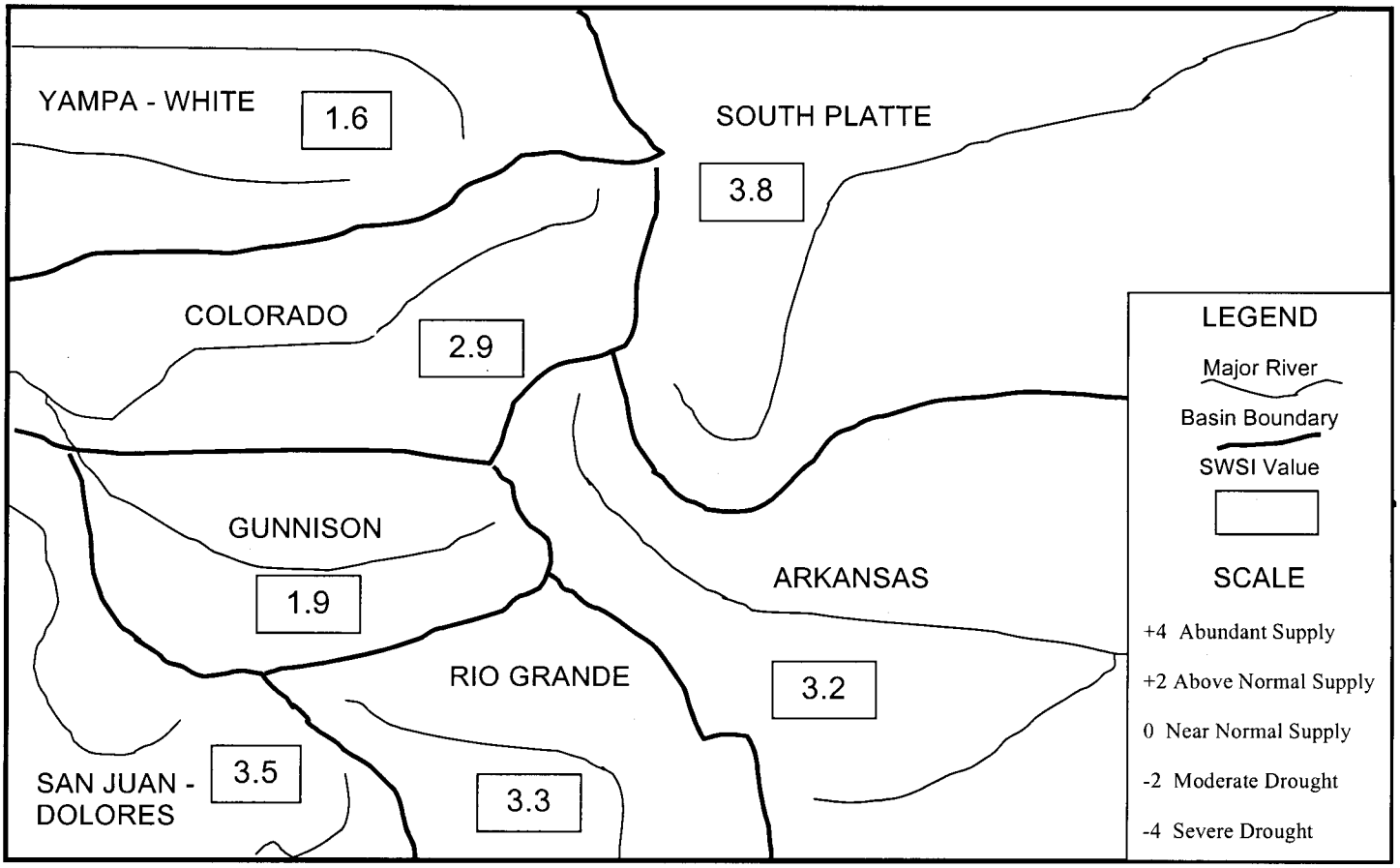
The Surface Water Supply Index (SWSI) developed by this office and the U.S.D.A. Natural Resources Conservation Service is used as an indicator of mountain-based water supply conditions in the major river basins of the state. It is based on stream flow, reservoir storage, and precipitation for the summer 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, 1999, and reflect the conditions during the month of August.

Basin	September 1, 1999 SWSI Value	Change From Previous Month	Change From Previous Year
South Platte	3.8	+0.8	+0.4
Arkansas	3.2	+1.2	+1.9
Rio Grande	3.3	+0.8	+3.4
Gunnison	1.9	0.0	+3.3
Colorado	2.9	+1.4	-0.3
Yampa/White	1.6	+1.2	-1.1
San Juan/Dolores	3.5	+0.7	+3.4

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, 1999

Basinwide Conditions Assessment

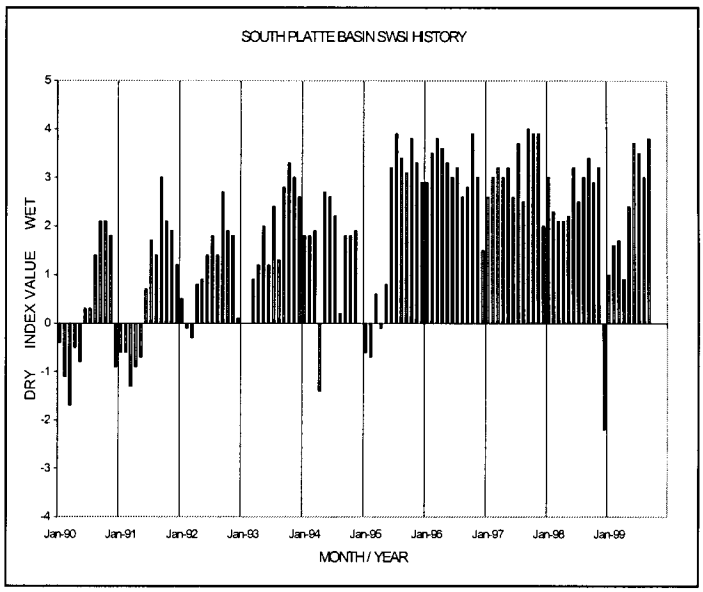
The SWSI value of 3.8 indicates that for August the basin water supplies were well above normal. Reservoir storage, the major component in this basin in computing the SWSI value, was 119% of normal as of the end of August. Cumulative storage in the major plains reservoirs: Julesberg, North Sterling, and Prewitt, is at 53% of capacity. Cumulative storage in the upper-basin reservoirs: Cheesman, Eleven Mile, Spinney, and Antero, is at 101% of capacity. Flow at the gaging station South Platte River near Kersey was 2,353 cfs, as compared to the long-term average of 833 cfs.

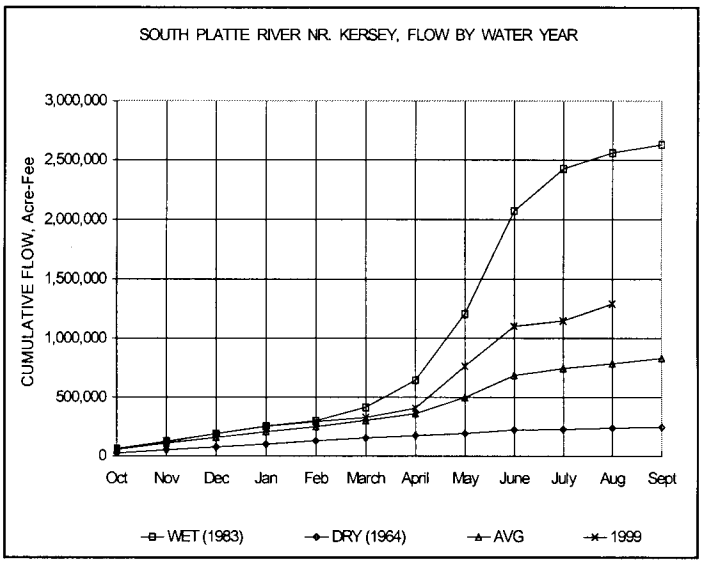
Flows in the South Platte and its tributaries continued at above-average levels throughout August. These flows allowed all water rights on the South Platte to be filled without a call. This is very rare in August, as many water users usually depend upon storage to meet their demand at this time.

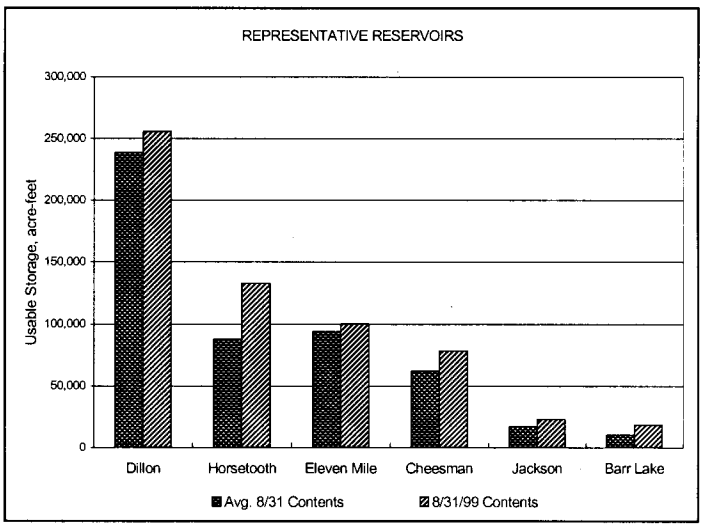
Unfortunately, some areas experienced late season storms that damaged crops prior to their harvest.

Outlook

Due to an excellent water year, reservoir levels are relatively high. The outstanding reservoir carryover will provide a good starting point for next year's supply. Reservoirs not already full are expected to refill this winter without significant difficulty. Additionally, the river conditions have allowed significant recharge in the basin, which will also help river conditions the next couple of years.

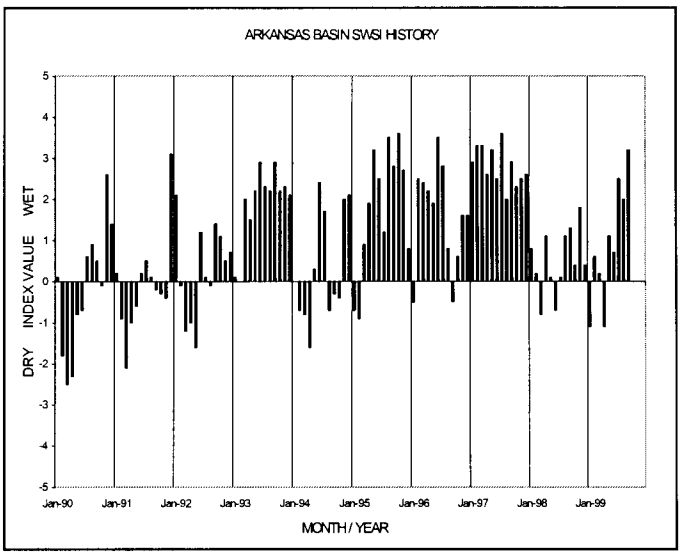






Basinwide Conditions Assessment

The SWSI value of 3.2 indicates that for August the basin water supplies were well above normal. Flow at the gaging station Arkansas River near Portland was 1,425 cfs, as compared to the long-term average of 1,008 cfs. Storage in Turquoise, Twin Lakes, Pueblo, and John Martin reservoirs totaled 226% of normal as of the end of August.



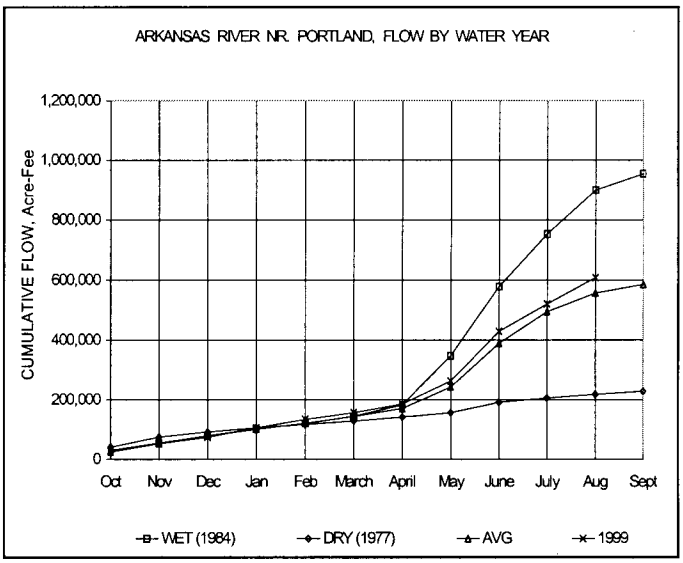
Outlook

The water supply in the Arkansas River remains remarkable. Rainfall for most of the month kept the mainstem river call very junior, or in a free river condition.

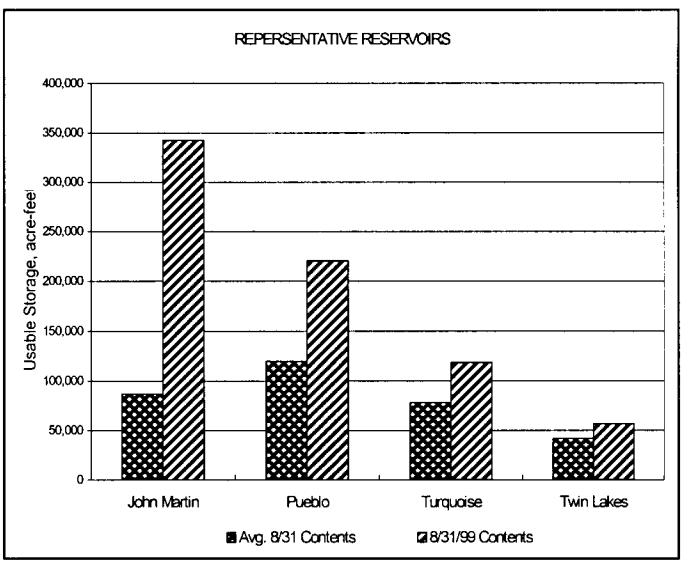
Storage facilities continue to be full. Reservoir releases for irrigators were not needed until the latter part of the month.

Administrative/Management Concerns

In an effort to improve the data in the Hydrologic Institute Model used by Colorado and Kansas to verify compliance with the interstate compact, the Colorado Division of Water Resources has completed the first phase of work on quantification of acreage irrigated during 1998 in the lower basin by ground water and surface water. This work was accomplished utilizing a dual methodology, which included collecting survey data from the 725 farmers who had wells in replacement plans in 1998, and using satellite images from August of 1998, coupled with aerial photos to determine total acreage irrigated and the portion of that acreage irrigated by ground water.



The first phase report has been completed in draft form and it intended to soon be finalized. The second phase of the project involves analysis of a second set of satellite images from earlier in the 1998 growing season (late May – early June) to improve confidence in classification of irrigation status and to allow classification of crop types. The Division will also complete additional field verification work in the project's second phase. The anticipated completion time frame for the second phase report is mid-September, 1999.



Public Use Impacts

Rains during the middle of August continued to hinder the harvesting of crops.

Basinwide Conditions Assessment

The SWSI value of 3.3 indicates that for August the basin water supplies were well above normal. Flow at the gaging station Rio Grande near Del Norte was 1,800 cfs, as compared to the long-term average of 702 cfs. The Conejos River near Mogote had a mean flow of 304 cfs (150% of normal). Storage in Platoro, Rio Grande, and Santa Maria reservoirs totaled 174% of normal as of the end of August.

Precipitation in Alamosa was 3.08 inches, 1.96 inches above normal. Alamosa temperatures ranged from 39° to 82°F, where the average monthly temperature was 62.7°F, 0.3° above normal.

Outlook

The amount of stream flow recorded at the Rio Grande near Del Norte gaging station was the highest in recorded history (since 1890) for the month of August. Consistent rains along the tributaries and headwaters of the Rio Grande have resulted in runoff much higher than anyone expected. All other streams in the basin are experiencing above-normal flows, although not quite as high as the Rio Grande.

DWR personnel are forecasting that flows in most of the basin's streams will stay well above average throughout the fall.

Administrative/Management Concerns

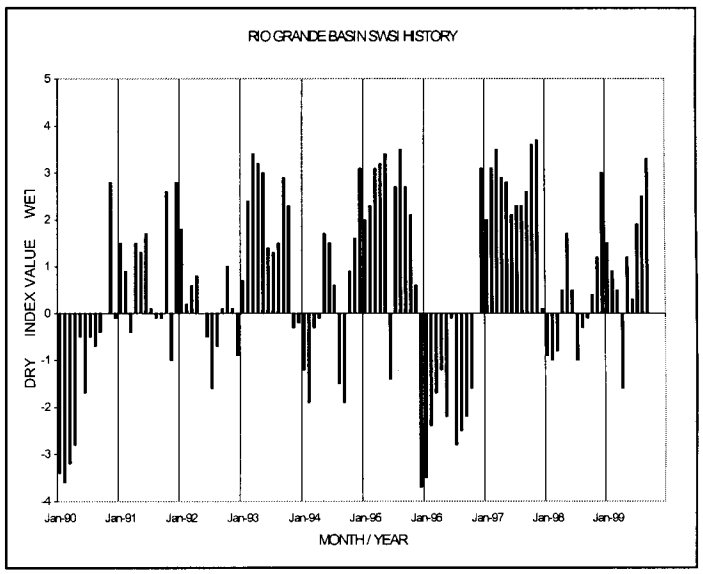
High stream flow in the basin has forced administrators to maintain curtailment of water rights on the Rio Grande and Conejos for interstate compact purposes. Fortunately, the excess rainfall made this duty much easier as farmers and ranchers' need for irrigation water was very limited.

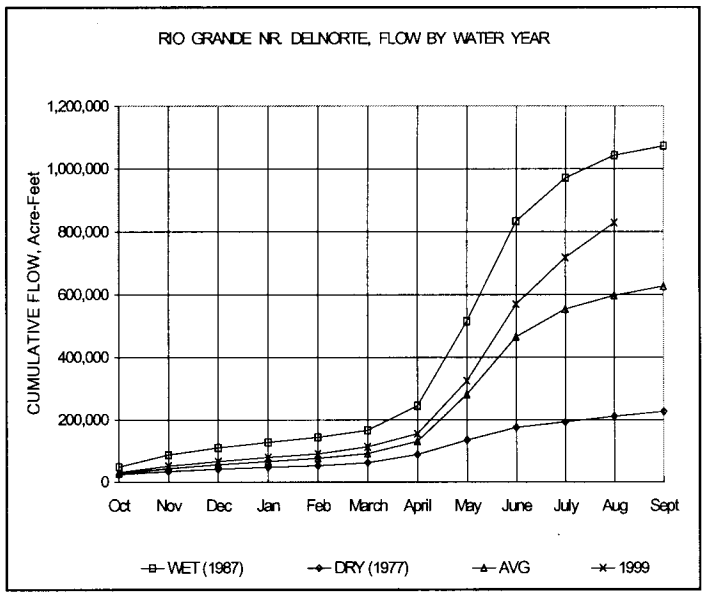
Public Use Impacts

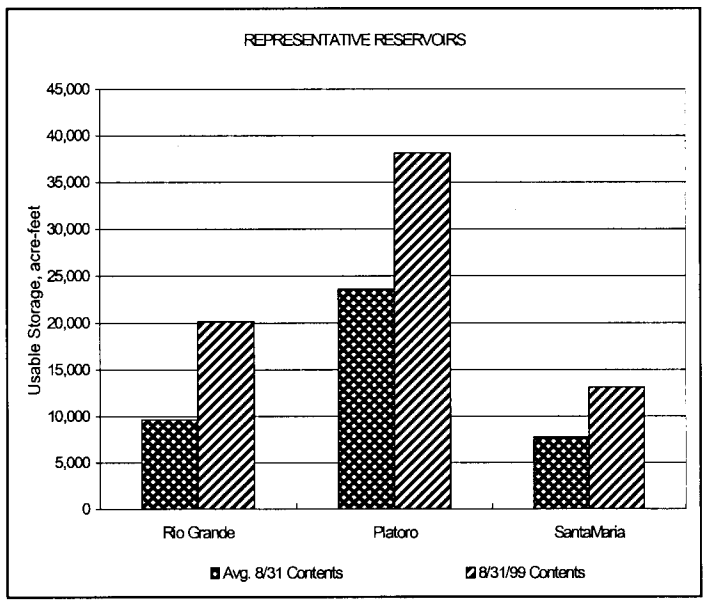
Consistent rain during August had a very detrimental impact on crop harvest and yield. Farmers with grain and alfalfa crops suffered the worst as rainstorm after rainstorm delayed the harvest or molded what was cut and lying in the field. Large economic losses are expected for these farmers.

Late blight, a potato-attacking fungus, appeared in the Valley again this year. However, in the majority of cases, it was successfully combated with application of fungicides.

Rio Grande Reservoir is being drained to a minimum level to allow repair of the outlet structure. Higher than normal releases from the dam are expected through the end of September.







Basinwide Conditions Assessment

The SWSI value of 1.9 indicates that for August the basin water supplies were above normal. Flow at the gaging station Uncompahgre River near Ridgway was 264 cfs, as compared to the long-term average of 166 cfs. Storage in Taylor Park, Crawford, and Fruitland reservoirs totaled 103% of normal as of the end of August.

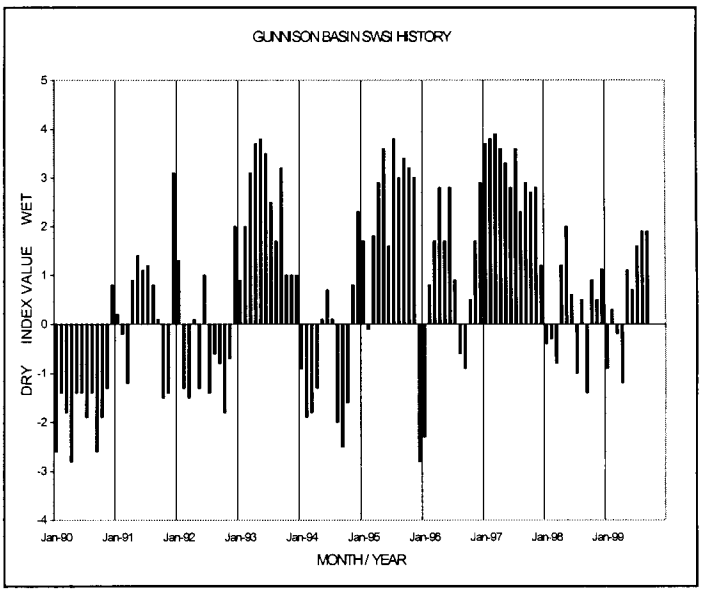
Outlook

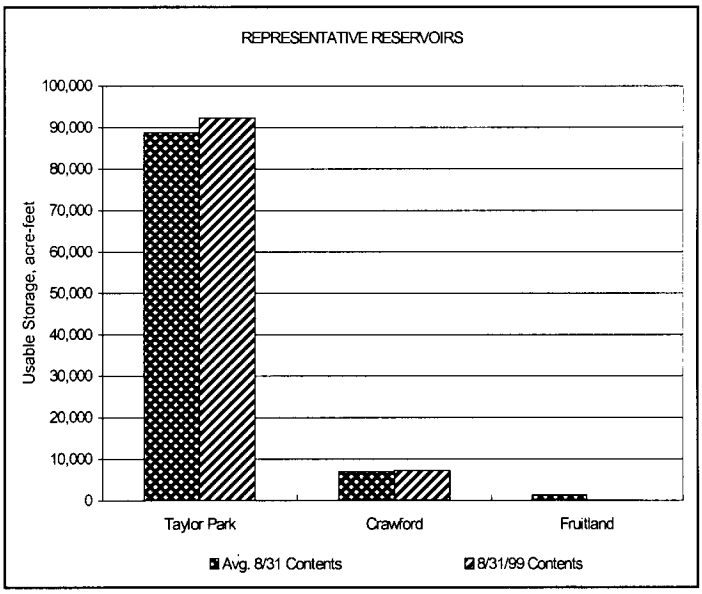
Montrose received 3.14 inches of precipitation this August, about three times as much as is normal for this month. The additional rain continues to hamper harvesting around the valley. The scenario is reflection of the previous July.

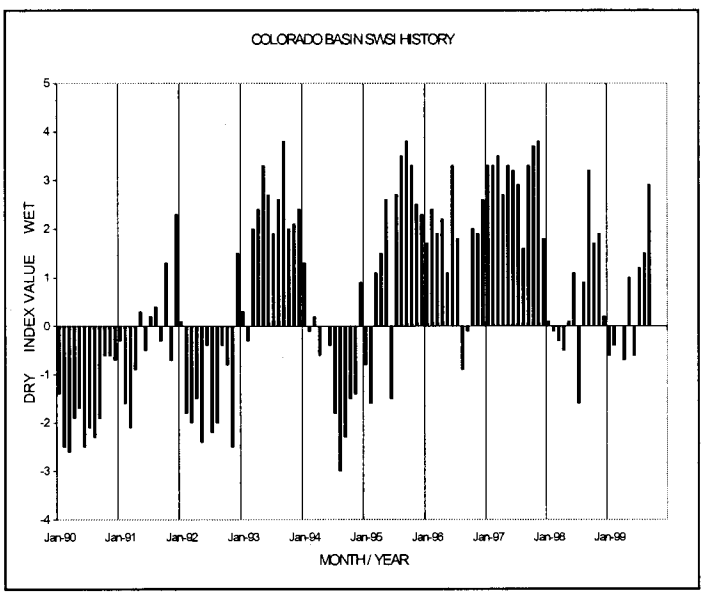
Administrative/Management Concerns

The state is presently attempting to obtain funds to replace the gaging station washed out by flooding last July.

No water administration was necessary throughout August. Reservoirs have remained full, as expected.



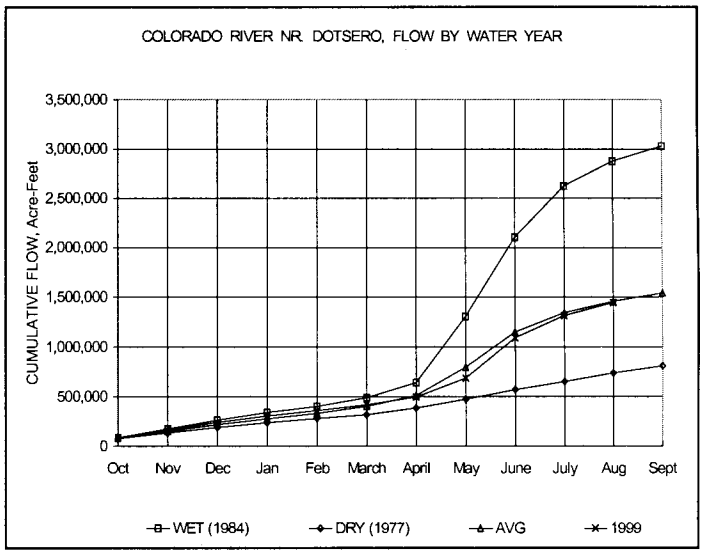




Basinwide Conditions Assessment

The SWSI value of 2.9 indicates that for August the basin water supplies were well above normal. Flow at the gaging station Colorado River near Dotsero was 2,098 cfs, as compared to the long-term average of 1,760 cfs. Storage in Green Mountain, Ruedi, and Williams Fork reservoirs totaled 110% of normal as of the end of August.

This past August was Glenwood's wettest since 1988, with 2.03 inches of rain, compared to an August average of 1.44 inches.

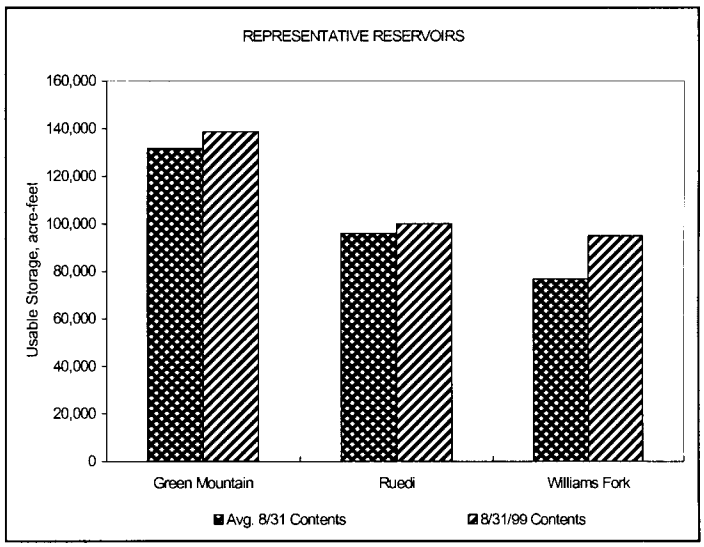


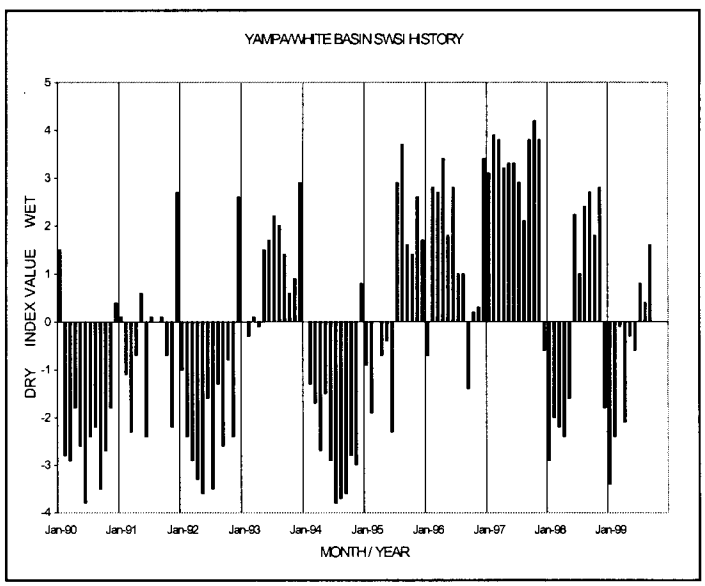
Outlook

The National Weather Service in Grand Junction anticipates above-normal precipitation in the Glenwood Springs vicinity for September.

Administrative/Management Concerns

In spite of high precipitation, water may be as difficult to appropriate in late September as that elusive bull elk. Shoshone's junior right of 158 cfs is anticipated to place the call in late September.





Basinwide Conditions Assessment

The SWSI value of 1.6 indicates that for August the basin water supplies were above normal. Flow at the gaging station Yampa River at Steamboat was 204 cfs, as compared to the long-term average of 157 cfs.

August was a month of above-average precipitation throughout the Division. Steamboat Springs received 1.69 inches of moisture for the month, 114% of average. At Marvine Ranch in the White River drainage, 2.16 inches of rain fell, 106% of average. The precipitation was a result of the continuing summer monsoon moisture flow from the Gulf of Mexico. While providing many areas with late season moisture, the rains delayed the hay harvest in many of the higher elevations. Stream flows stayed above average throughout the basin, while most reservoirs remained at near full levels.

Outlook

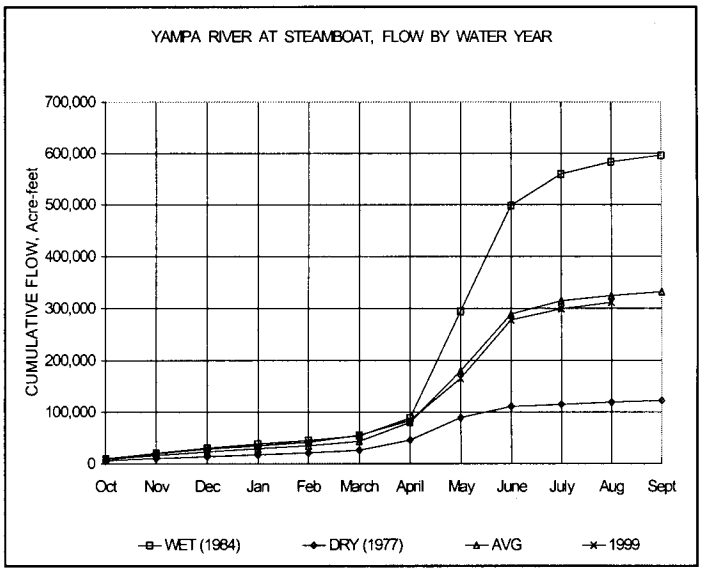
Stream flows are expected to be near normal levels in September.

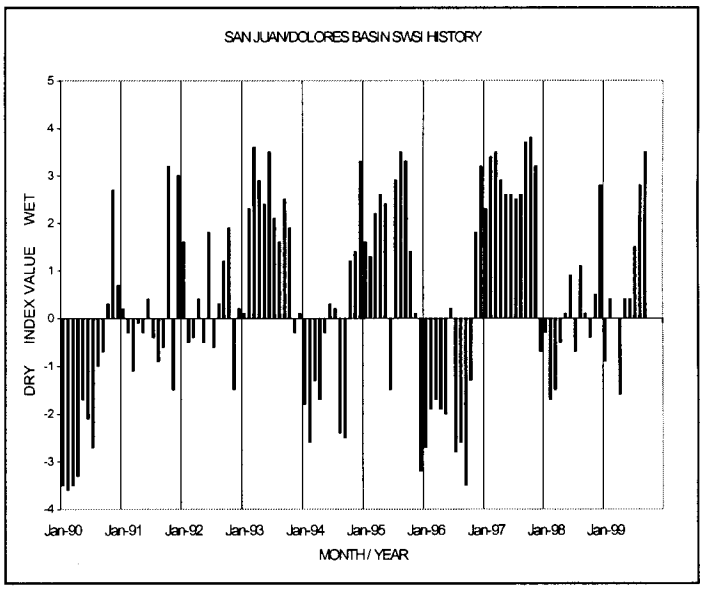
Administrative/Management Concerns

No administrative problems are anticipated for September.

Public Use Impacts

Streams and rivers in the basin should remain near normal levels.





Basinwide Conditions Assessment

The SWSI value of 3.5 indicates that for August the basin water supplies were well above normal. Flow at the gaging station Animas River near Durango was 911 cfs, as compared to the long-term average of 556 cfs. Storage in McPhee, Vallecito, and Lemon reservoirs totaled 133% of normal as of the end of August.