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# COLORADO

## WATER SUPPLY CONDITIONS UPDATE

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FROM THE OFFICE OF THE STATE ENGINEER: COLORADO DIVISION OF WATER RESOURCES  
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September 2005

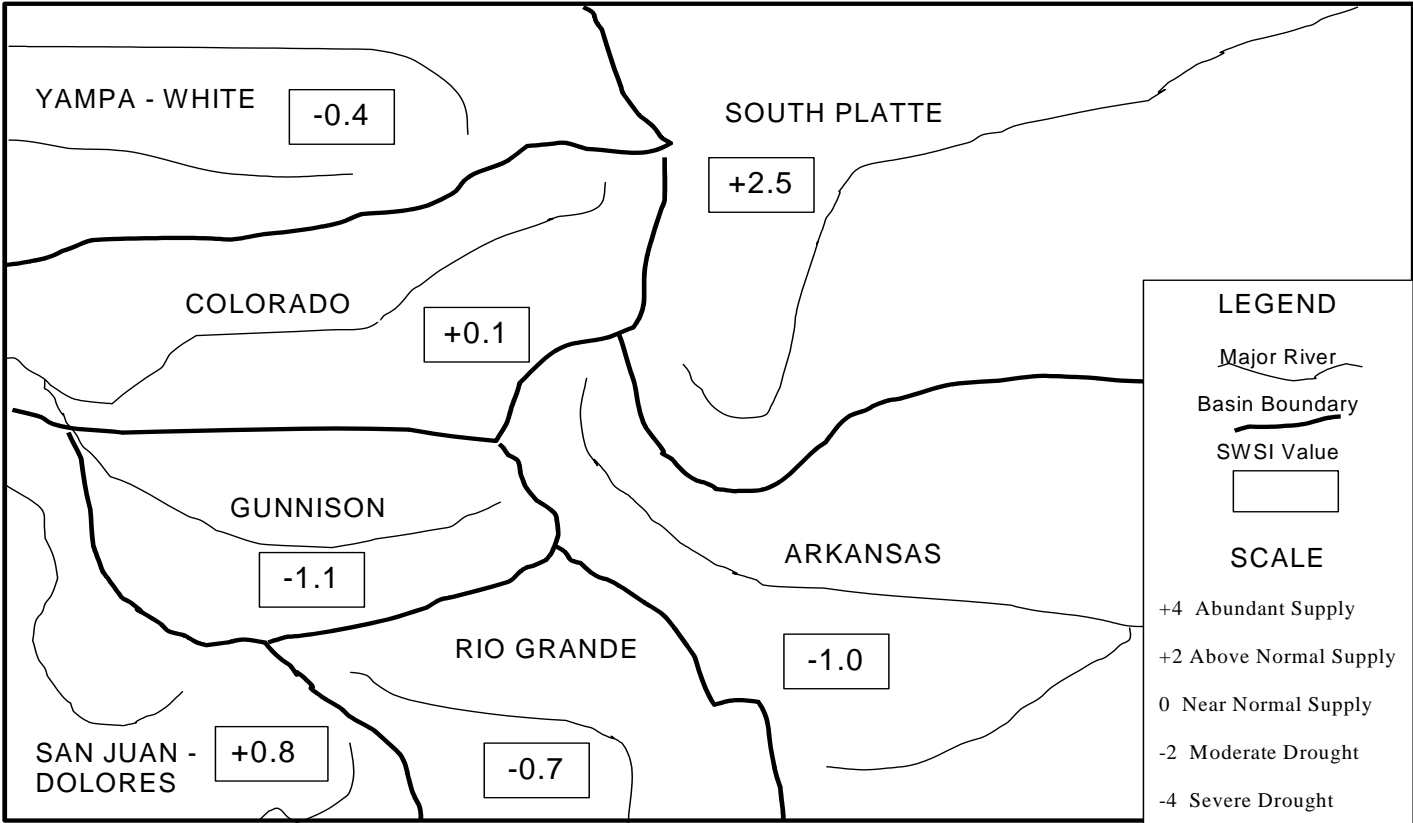
Although more field offices reported lower than normal stream flows and precipitation in August than reported above normal amounts, conditions did vary across the state during the month as represented by the combination of positive and negative SWSI values. Current conditions are much improved from those that affected the entire state and bottomed out in 2002, but there are few, if any, areas where all water supply aspects would be considered to have improved to good conditions. Continuing affects of the multiple years of drought are widespread, whether in the form of low stream flows, empty reservoir storage, lowered ground water tables, or dry soil moisture. An extended period of above normal precipitation appears needed to get back into what would be considered wet conditions.

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, 2005, and reflect the conditions during the month of August.

<u>Basin</u>	<u>September 1, 2005 SWSI Value</u>	<u>Change From Previous Month</u>	<u>Change From Previous Year</u>
South Platte	+2.5	+1.6	+1.4
Arkansas	-1.0	+0.5	+1.2
Rio Grande	-0.7	-1.6	+2.3
Gunnison	-1.1	-1.0	+2.2
Colorado	+0.1	-0.4	+3.1
Yampa/White	-0.4	-0.4	+3.0
San Juan/Dolores	+0.8	-0.6	+3.7

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, 2005

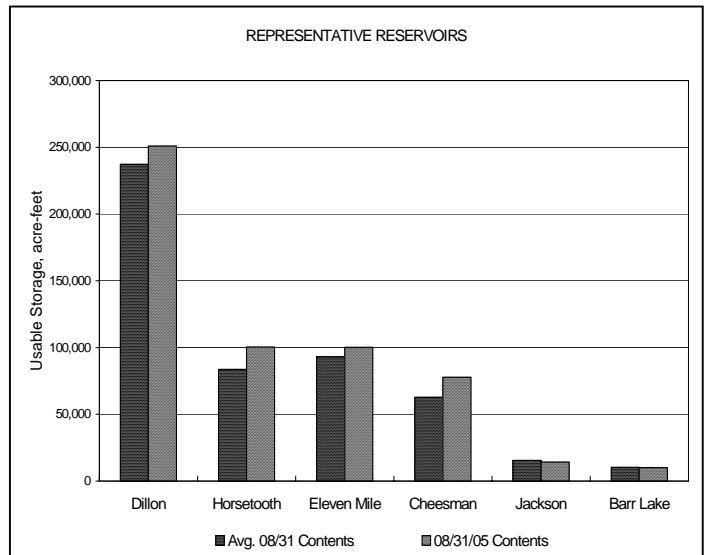
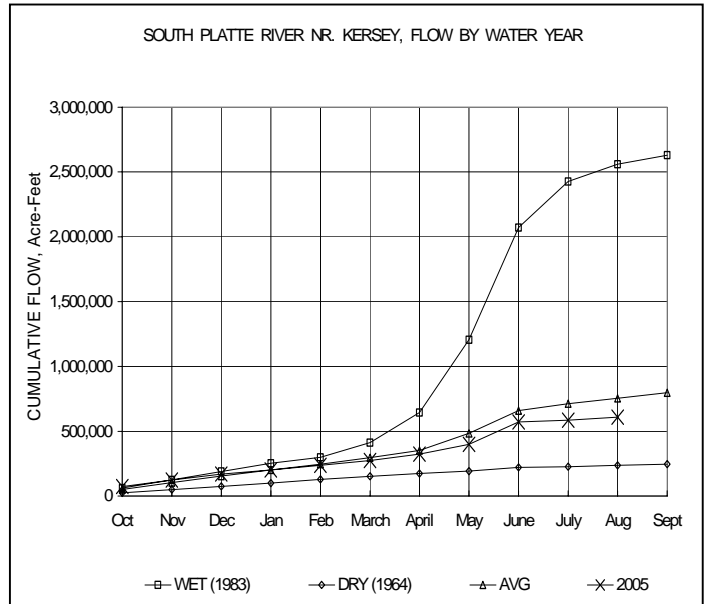
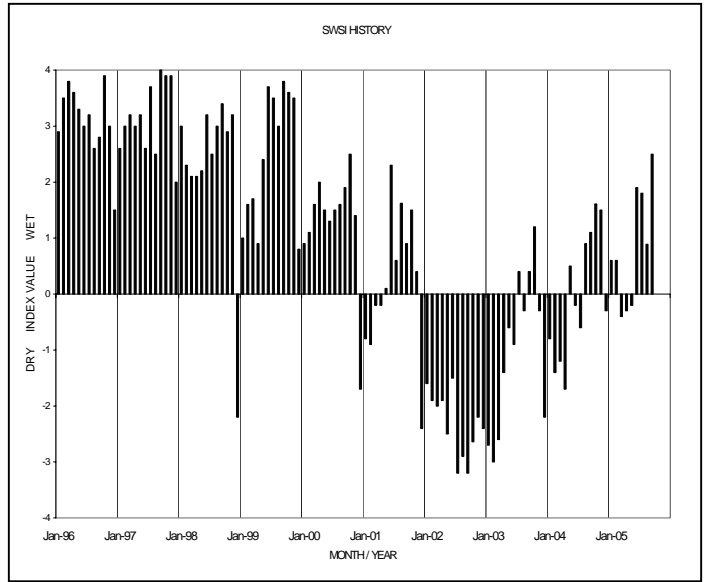
Basinwide Conditions Assessment

The SWSI value of +2.5 indicates that for August the basin water supplies were above normal. Reservoir storage, the major component in this basin in computing the SWSI value, was 110% of normal as of the end of August. Cumulative storage in the major plains reservoirs: Julesberg, North Sterling, and Prewitt, is at 42% of capacity. Cumulative storage in the major upper-basin reservoirs: Cheesman, Eleven Mile, Spinney, and Antero is at 89% of capacity. Flow at the gaging station South Platte River near Kersey was 393 cfs, as compared to the long-term average of 505 cfs. Flow at the Colorado/Nebraska state line averaged 74 cfs.

A fairly large storm the first part of August allowed calls to become more junior along the entire South Platte River basin. This allowed the owner of junior direct flow rights the opportunity to take water, which reduced demand on irrigation reservoirs in the basin.

Outlook

Because of the wet conditions in June and storms like the one at the beginning of August, water supply conditions for users in the basin for 2005 have been good. Thus, it does not appear there will be shortage for any major surface water users this year as irrigation begins to slow down in September and October. Further, the storage in the basin is better than it has been in the last few years at this time of year and thus it would appear that the initial supply for municipal users and irrigators in 2006 will be better than it has been since 2001.



Basinwide Conditions Assessment

The SWSI value of -1.0 indicates that for August the basin water supplies were slightly below normal. Flow at the gaging station Arkansas River near Portland was 582 cfs, as compared to the long-term average of 954 cfs. Storage in Turquoise, Twin Lakes, Pueblo, and John Martin reservoirs totaled 71% of normal as of the end of August.

August continued a trend of lower than normal precipitation in the Arkansas Basin with very little relief from monsoon patterns. However, judicious use of stored Winter Water and Fry-Ark Project imports by the canal companies helped to provide adequate agricultural water supplies for a much-improved growing season over what has been seen over the past several years.

Administrative/Management Concerns

August marked the delivery of approximately 1,575 acre-feet to the Offset Account against the projected stateline deficit. This delivery was made possible by a lease of fully consumable waters to the Lower Arkansas Valley Water Conservancy District by the Pueblo Board of Water Works.

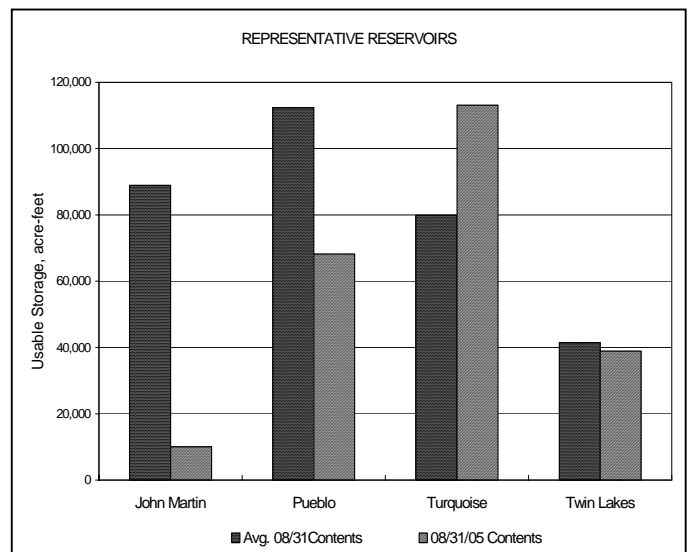
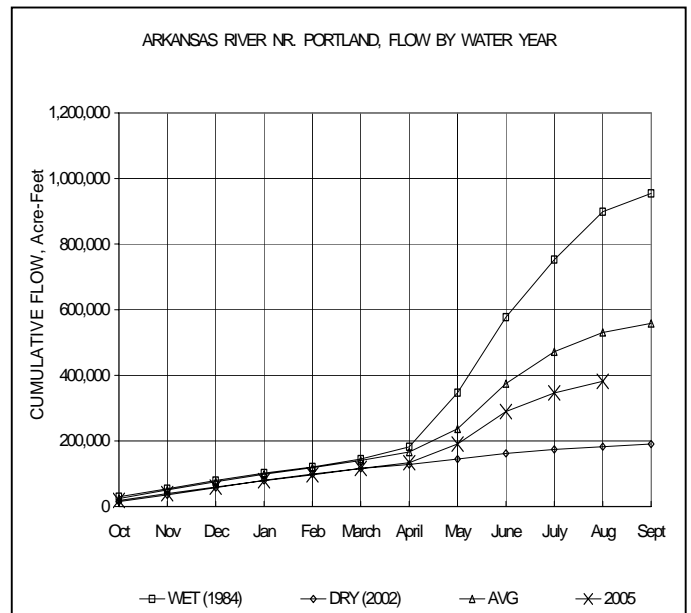
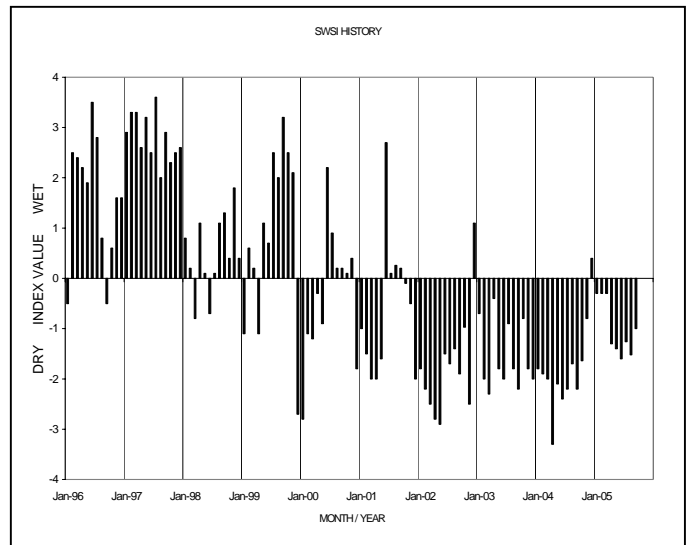
Low flows in the Arkansas River through Pueblo in late August triggered curtailment of some exchanges into Pueblo Reservoir according to the Inter-Governmental Agreement (IGA) between the City of Pueblo and exchanging entities such as Pueblo Board of Water Works, Colorado Springs Utilities, the City of Aurora and others. Associated with this IGA are complications of additional reservoir operations, additional accounting, routing of curtailed exchange waters to alternate storage which have placed a large additional administrative burden on DWR personnel. The IGA Flow Management Committee has been asked to meet to discuss ways to mitigate this burden.

From the middle of July through the first two weeks of August, the Bureau of Reclamation made releases of Fry-Ark Project water of up to 275 cfs out of Twin Lakes to augment rafting flows on the upper Arkansas. The Pueblo Board of Water Works joined the Bureau in this effort by releasing 125 cfs from Clear Creek Reservoir. The Bureau and the Board released a total of about 6,100 acre-feet and 3,900 acre-feet respectively to honor this voluntary flow program that has worked very well for the recreation interests of the upper Valley.

Following a 4.9 magnitude earthquake near Trinidad Reservoir, the Army Corps of Engineers requested a short duration gate cut on August 11 to inspect the outlet works for damage. No problems were found and the release was restarted within less than two hours with very little impact on the river.

Public Use Impacts

The Twin Lakes Reservoir and Canal Company cooperated with organizers of the Leadville Trail 100 foot race near Leadville to reduce flows in Lake Creek below the Twin Lake tunnel, where participants cross Lake Creek. TLRC shut down the tunnel during the race in the interest of the participants' safety.



Basinwide Conditions Assessment

The SWSI value of -0.7 indicates that for August the basin water supplies were near normal. Flow at the gaging station Rio Grande near Del Norte averaged 497 cfs (62% of normal). The Conejos River near Mogote had a mean flow of 218 cfs (107% of normal). The above-average flow in the Conejos River was due to extensive storage releases from Platoro Reservoir for downstream irrigation need.

Storage in Platoro, Rio Grande, and Santa Maria reservoirs totaled 101% of normal as of the end of August.

Precipitation in Alamosa was 1.59 inches, 0.40 inches above normal. Temperatures ranged from 38° to 89° in Alamosa where the average monthly temperature was 62.3°, 0.2° above normal.

Outlook

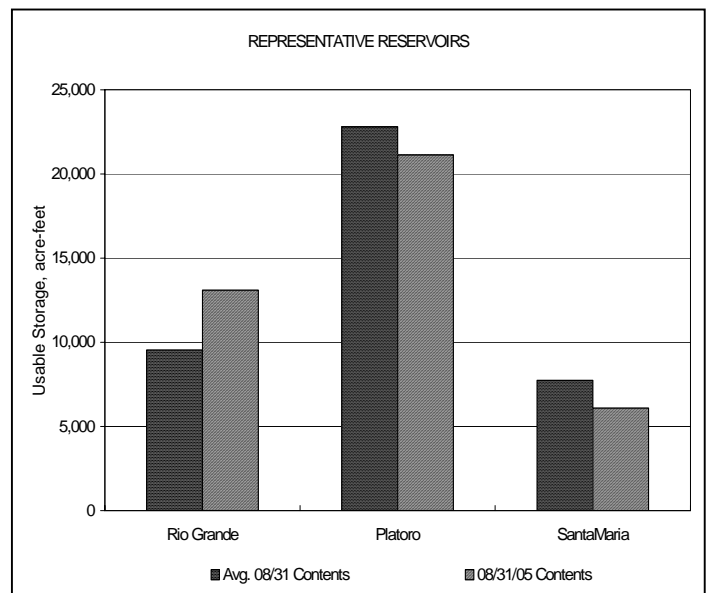
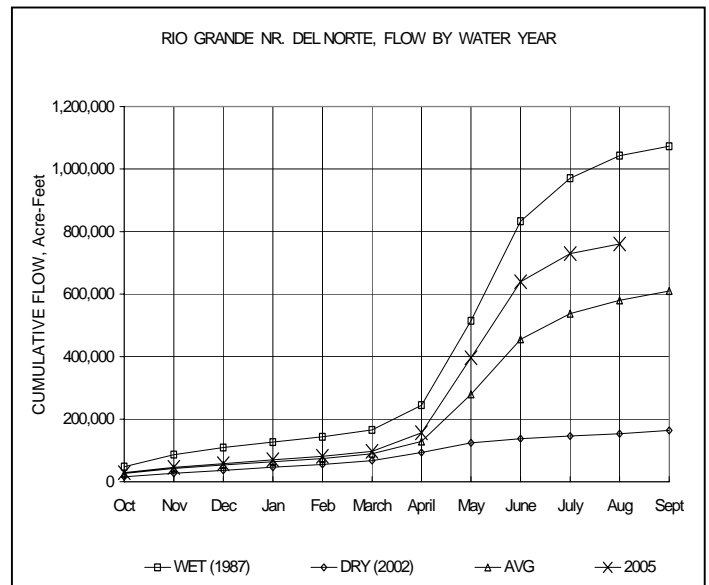
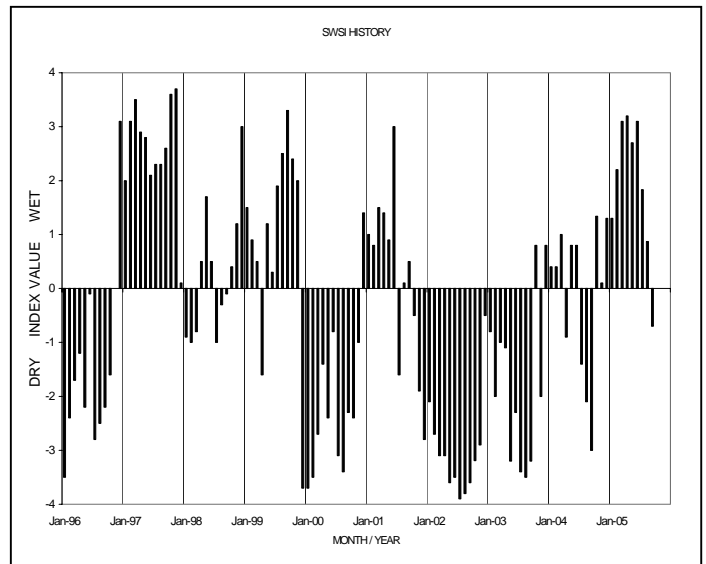
Despite better than average rainfall in parts of the basin during August, the effect on flow in area streams was not as significant as expected. As the month came to a close, most streams in the basin were below historic levels. DWR personnel are forecasting that flows in the basin's streams will remain below average throughout the fall.

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 and their tributaries are no longer being curtailed from diverting the entire stream flow.

Public Use Impacts

The rain during August had a 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.



Basinwide Conditions Assessment

The SWSI value of -1.1 indicates that for August the basin water supplies were slightly below normal. Flow at the gaging station Uncompahgre River near Ridgway was 173 cfs, as compared to the long-term average of 164 cfs. Storage in Taylor Park, Crawford, and Fruitland reservoirs totaled 93% of normal as of the end of August.

The month of August was close to normal, both in temperature and precipitation. As a result, river flows dropped the way they normally do. The occasional thunderstorms in the mountains have kept the soil moisture conditions from becoming too dry.

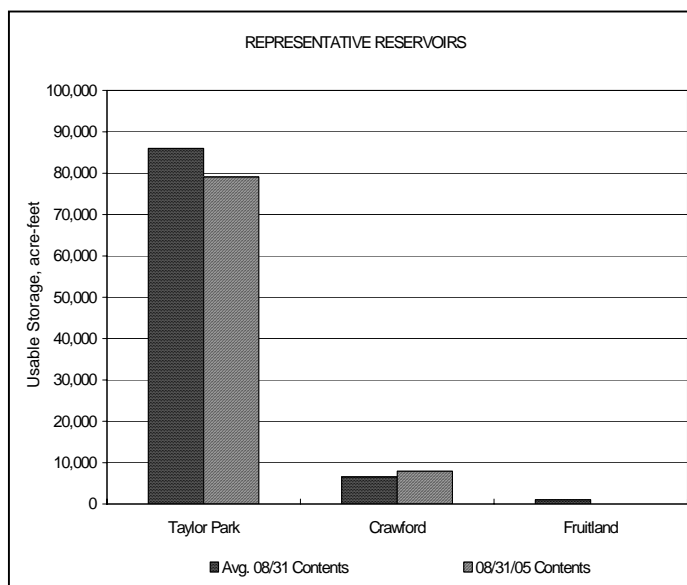
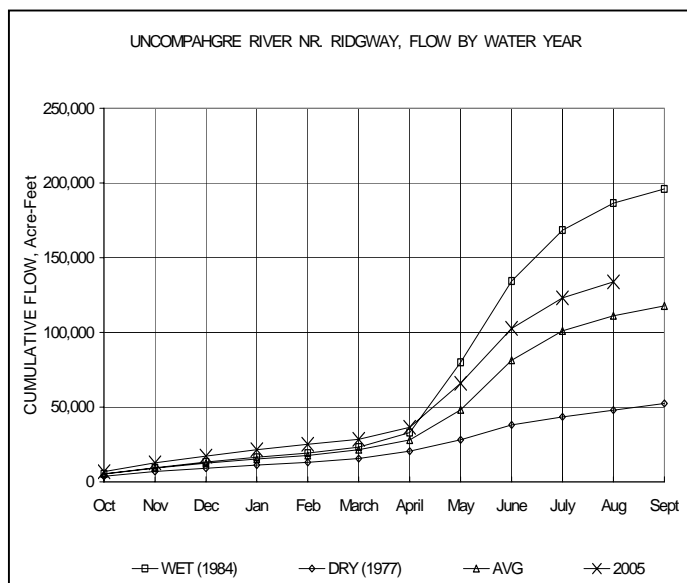
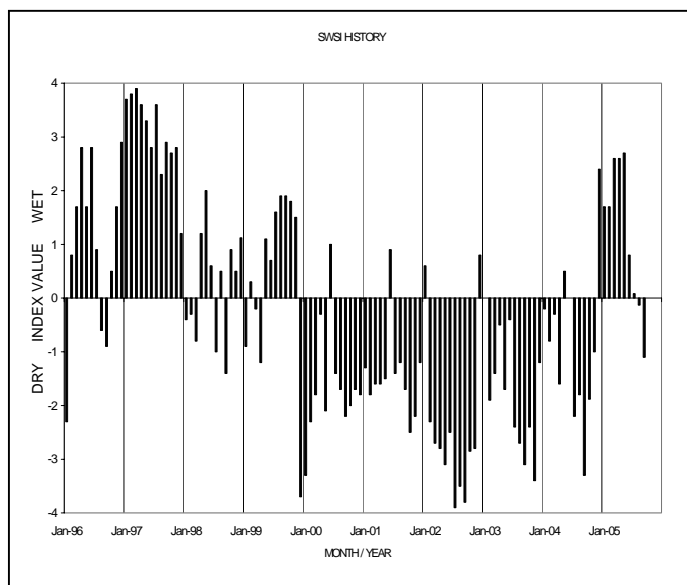
Outlook

Those with reservoir storage will enjoy a large carryover going into the winter; which gives them certainty that they will have a full reservoir again next year. As the fall harvest winds down, and irrigators try to get fields wet for the last time, flows should be sufficient for that purpose.

Administrative/Management Concerns

In the tightly administered Grand Mesa system, the 2005 water year has been one of the best in a long time. Normally, administrators start to curtail junior water rights the first part of June. The users then start running reservoir water to supplement their needs. This year, there were free river conditions until the first part of July. Although a lot of reservoir water was used in August there is still a sizable amount left. Because some of the dams develop problems if they are left full for too long, some of the stored water may be dumped this fall. Hopefully, there will be sufficient runoff next spring to refill the reservoirs.

The Uncompahgre Valley Water Users Association uses water to irrigate the Uncompahgre Valley from both the Gunnison and Uncompahgre Rivers. Because Blue Mesa did not fill this year, they are pulling as much water as possible from the Uncompahgre River and Ridgway Reservoir to meet their needs. This will draw the reservoir down substantially, but it is relatively easy to refill next spring. The saved water in the Gunnison River will help maintain Blue Mesa Reservoir at a higher elevation. It will take another good runoff year to fill it entirely.



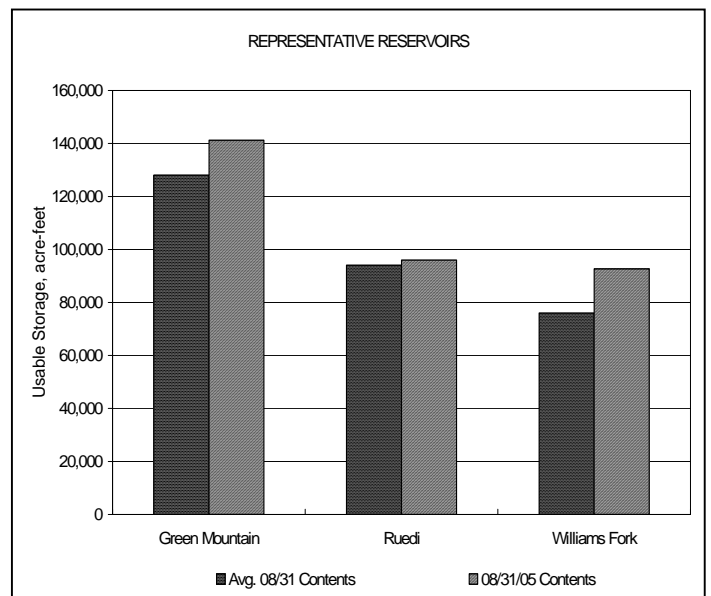
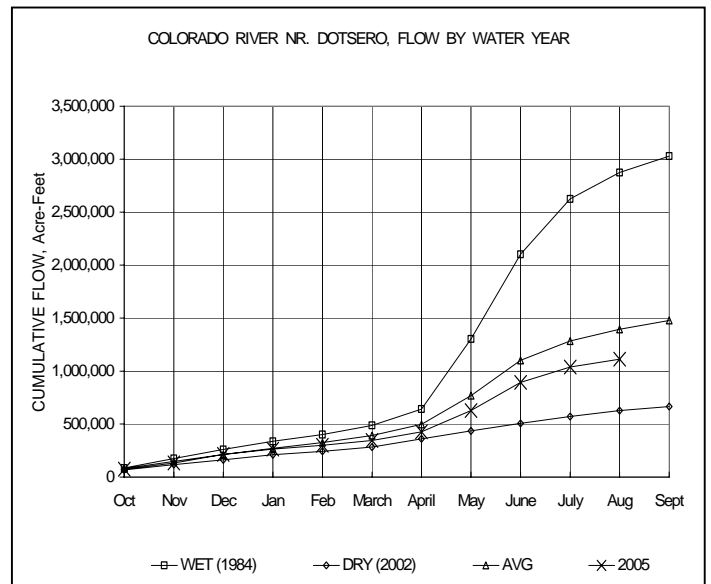
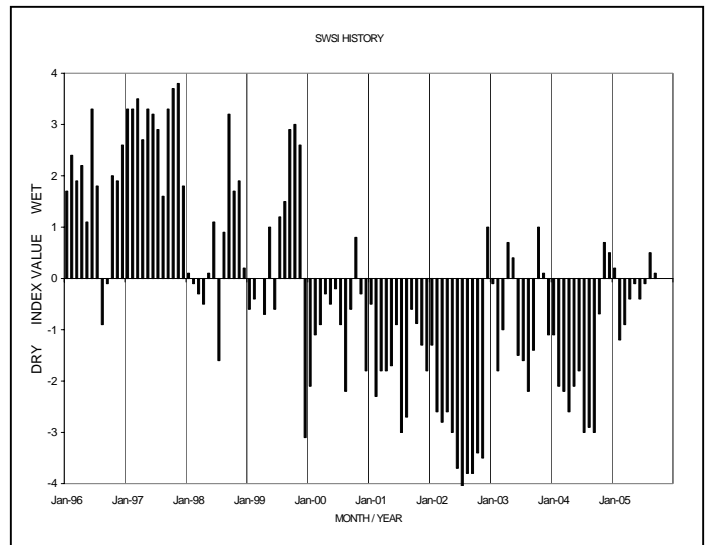
Basinwide Conditions Assessment

The SWSI value of +0.1 indicates that for August the basin water supplies were near normal. Flow at the gaging station Colorado River near Dotsero was 1,188 cfs, as compared to the long-term average of 1,796 cfs. Storage in Green Mountain, Ruedi, and Williams Fork reservoirs totaled 111% of normal as of the end of August.

The upper Colorado River basin has been subject to a senior administrative call from the Shoshone power plant as we enter September. However, the lower basin has so far this year escaped a River call from Cameo.

Administrative/Management Concerns

A surplus was declared in the Green Mountain Reservoir historic user pool on August 16, which permitted extra releases to be made to the Grand Valley. Green Mountain Reservoir releases have been approximately 300 cfs, which have benefited the endangered fish habitat in the 15-Mile Reach of the Grand Valley. In addition, Ruedi Reservoir has been releasing 185 cfs and Williams Fork Reservoir has been releasing 50 cfs, both from endangered fish pools.



Basinwide Conditions Assessment

The SWSI value of -0.4 indicates that for August the basin water supplies were near normal. Flow at the gaging station Yampa River at Steamboat was estimated at 107 cfs, as compared to the long-term average of 152 cfs.

While not as dry as July, August brought below average precipitation across the basin. Precipitation, as recorded at the SNOTEL sites operated by the NRCS, totaled 83% of average for August and 94% of average for the water year. Following the dry July, river flows dropped below normal level on the majority of rivers and streams in the White, Yampa, and North Platte river basins in August. The two exceptions to this flow situation were the Elk River, a tributary to the Yampa, and the Yampa River near Craig. Both of these stations reported above average flows for most of August. The above average flows at the Craig gage were due in part to releases from Elkhead Reservoir in connection with construction activities at the dam site.

Outlook

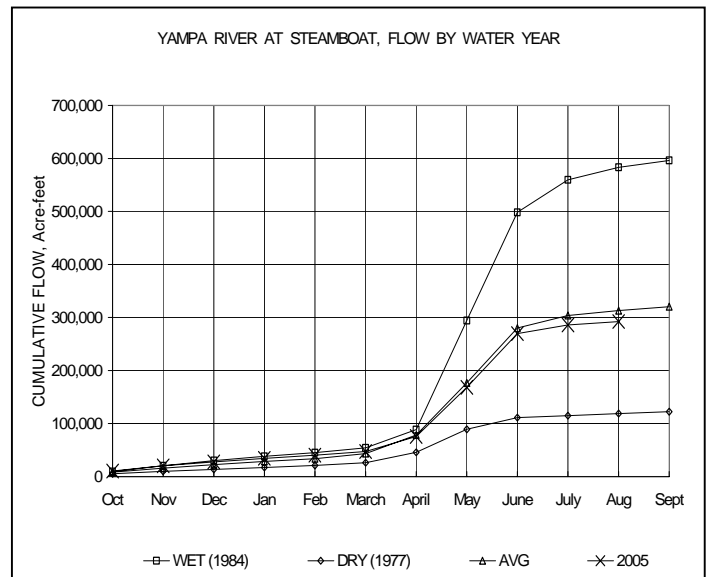
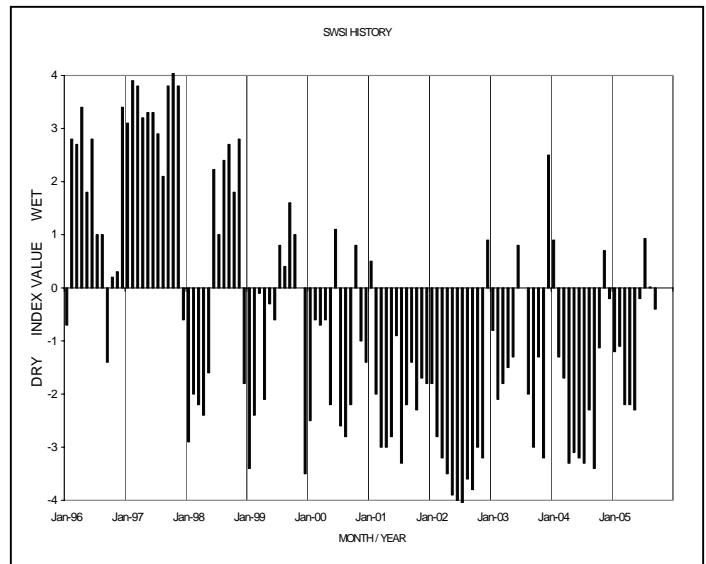
The September forecast predicts average temperatures and precipitation for the basins. Irrigation demands should begin to decrease as cooler nighttime temperatures mark an end to the growing season.

Administrative/Management Concerns

The low flows in the Yampa River at the Maybell gage are approaching the threshold where releases may be made by the U. S. Fish and Wildlife Service for the endangered fish species in the critical habitat area below Craig, Colorado. Such releases may require regulation of diversions on the lower Yampa drainage depending on the demands of water rights for native flow.

Public Use Impacts

Flows in the rivers and streams are below normal in most of the basin resulting in minimal boating activity. Reservoir levels remain normal for most recreational uses.





Basinwide Conditions Assessment

The SWSI value of +0.8 indicates that for August the basin water supplies were near normal. Flow at the gaging station Animas River near Durango was 545 cfs, as compared to the long-term average of 552 cfs. Storage in McPhee, Vallecito, and Lemon reservoirs totaled 121% of normal as of the end of August.

August started with signs of a break from the dry spell experienced in July. Storms brought needed moisture into the division culminating with a major event on August 8<sup>th</sup> with almost an inch of precipitation in Durango. The rains were sporadic and distributed so that some areas received more than others. After August 16 no precipitation was recorded in Durango, although some mountain areas continued to have thundershower activity. Durango ended the month with 73% of normal precipitation (1.86 inches), bringing the water year total down to 115% of normal (20.18 inches).

Temperatures were fairly warm. Daily lows were 4° above the 100-year average at 52.9°F in Durango.

Some rivers rose slightly, although in general ran slightly below average for the month. The Dolores River finished its Groundhog releases early and flows at the Dolores gage dropped significantly to about 120 cfs at the end of August.

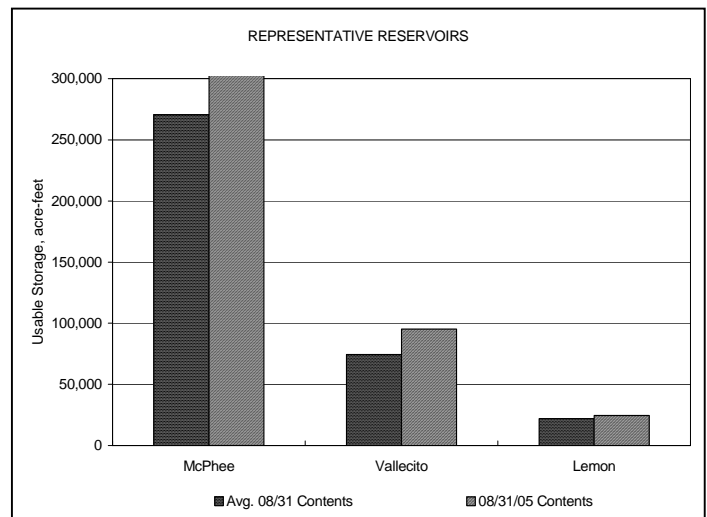
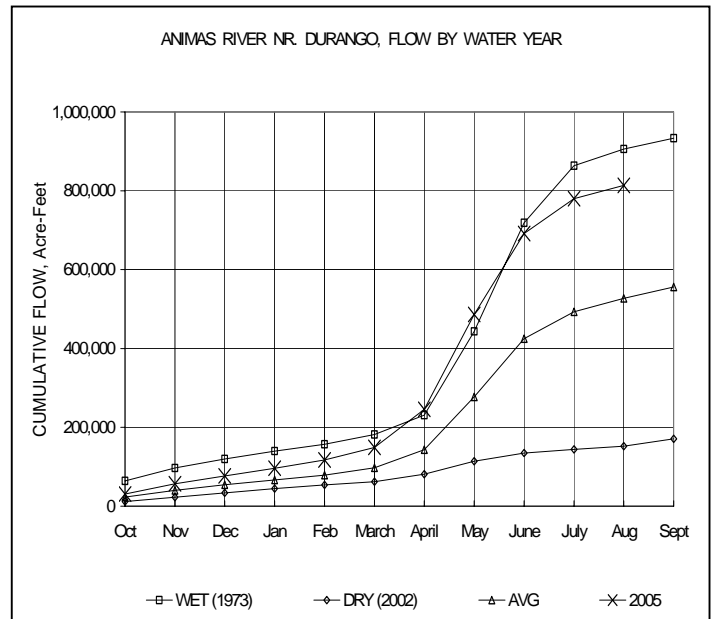
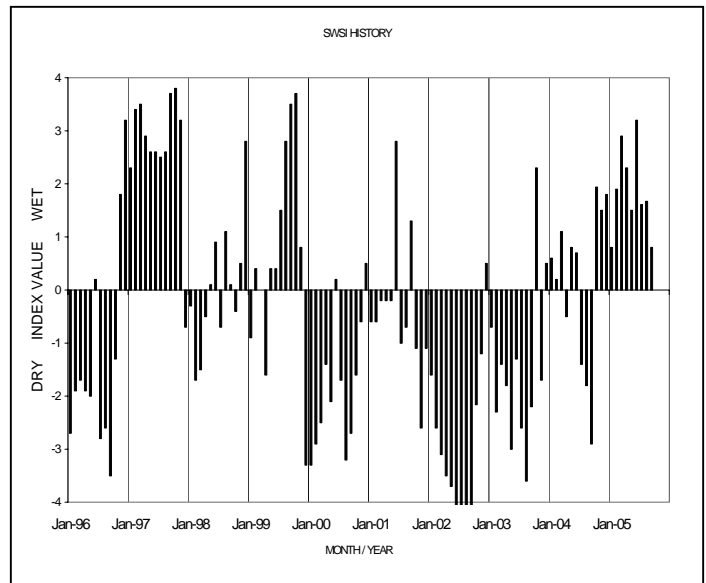
Reservoirs continued to hold up on storage staying above average at the major reservoirs across the area. Vallecito Reservoir still contained 95,000 acre-feet at the end of the month, 137% of average.

Outlook

The outlook is for continued dry conditions, as it appears the weather cycle of non-productive storm development similar to the past several years is the current pattern. This could change quickly, however. It does appear that ample water will be carried over by the reservoirs into next year.

Public Use Impacts

Normal summer activities continued with fishing use being observed in many areas. River sports continued and the mountain springs continued flowing for the most part.



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