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# COLORADO

## WATER SUPPLY CONDITIONS UPDATE

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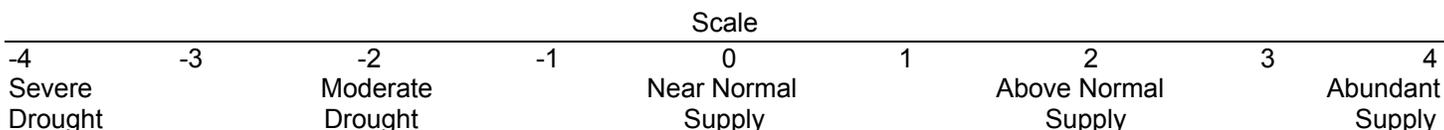
FROM THE OFFICE OF THE STATE ENGINEER: COLORADO DIVISION OF WATER RESOURCES  
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 303-866-3581; [www.water.state.co.us](http://www.water.state.co.us)

JUNE 2005

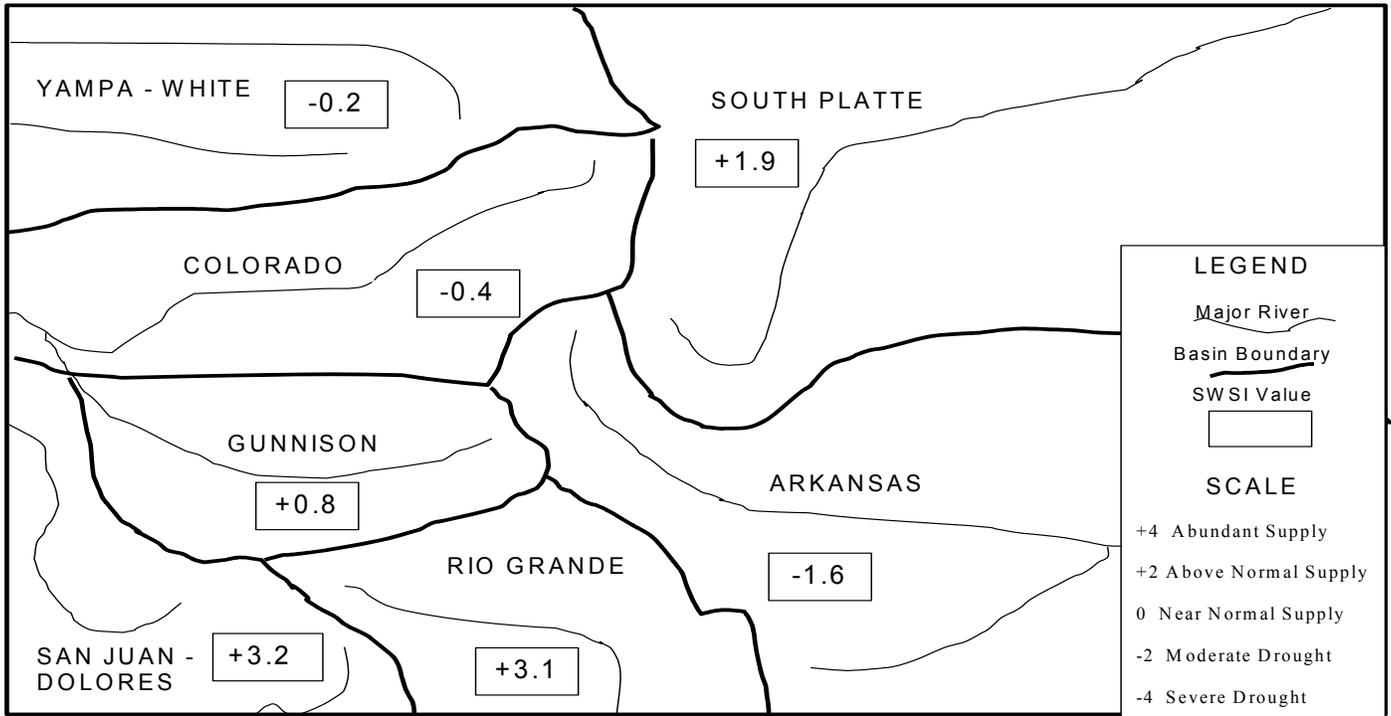
The runoff began in earnest throughout Colorado the second half of May when temperatures warmed up after the middle of the month. Stream flows in the northern portions of the state were below average, and those in the southern portions were above average, both of which were expected based on their respective May 1 snowpack values. While peak runoff flows typically occur in June, it appears that this year the peaks on many streams may have occurred in May. June 1 snowpack values indicate that below average flows will continue to occur in the north, and above average flows will continue in the south. Overall reservoir storage is improving, with the cumulative storage for all the reservoirs graphed in this report at 105% of average as of the end of May, an increase from a 97% of average value at the end of April.

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 June 1, 2005, and reflect the conditions during the month of May.

<u>Basin</u>	<u>June 1, 2005 SWSI Value</u>	<u>Change From Previous Month</u>	<u>Change From Previous Year</u>
South Platte	+1.9	+2.1	+2.1
Arkansas	-1.6	-0.2	+0.8
Rio Grande	+3.1	+0.4	+2.3
Gunnison	+0.8	-1.9	+0.8
Colorado	-0.4	-0.3	+1.4
Yampa/White	-0.2	-2.1	+3.0
San Juan/Dolores	+3.2	+1.7	+2.5



# SURFACE WATER SUPPLY INDEX FOR COLORADO



**JUNE 1, 2005**

Basinwide Conditions Assessment

The SWSI value of 1.9 indicates that for May the basin water supplies were slightly above normal. Reservoir storage, the major component in this basin in computing the SWSI value, was 108% of normal as of the end of May. Cumulative storage in the major plains reservoirs: Julesberg, North Sterling, and Prewitt, is at 94% of capacity. Cumulative storage in the major upper-basin reservoirs: Cheesman, Eleven Mile, Spinney, and Antero is at 85% of capacity. The Natural Resources Conservation Service reports that June 1 snowpack is 47% of normal. Flow at the gaging station South Platte River near Kersey was 1,210 cfs, as compared to the long-term average of 2,130 cfs. Flow at the Colorado/Nebraska state line averaged 95 cfs.

May started with a junior 1977 recharge call on the South Platte. Calls on the South Platte continued to be for refill storage rights or recharge until May 19<sup>th</sup> because of rainstorm events and snow melt runoff due to warm weather. This is much better than last year when there was a direct flow irrigation call beginning May 3 and extending through out May.

High surface flows and moderately wet conditions in May significantly helped irrigators dependent on reservoirs, as they did not have to use reservoir supplies to "irrigate up" their crops. This bodes well for at least a reasonably adequate supply year for most irrigation users. The adequacy of their supply will be significantly enhanced if we have significant rain in June allowing them to not use their reservoir supplies and allowing additional recharge.

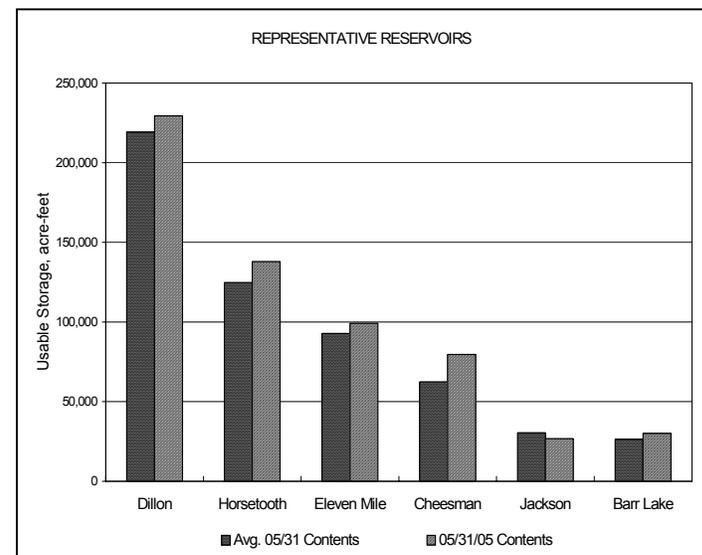
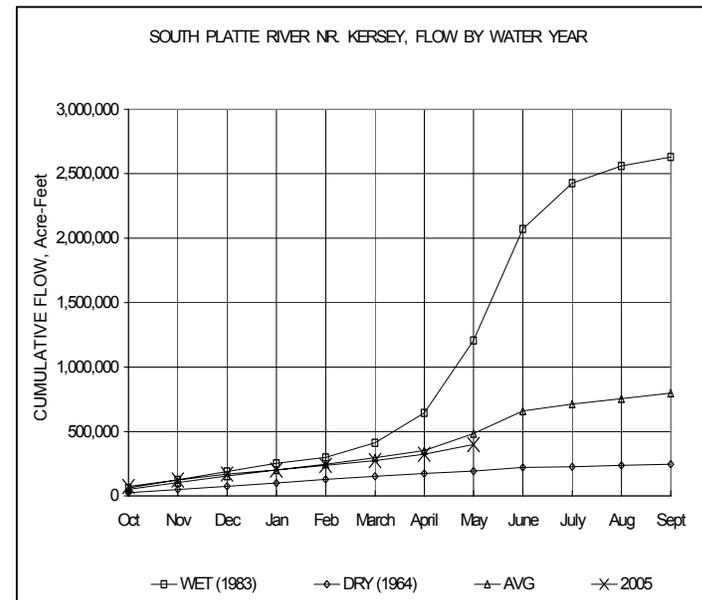
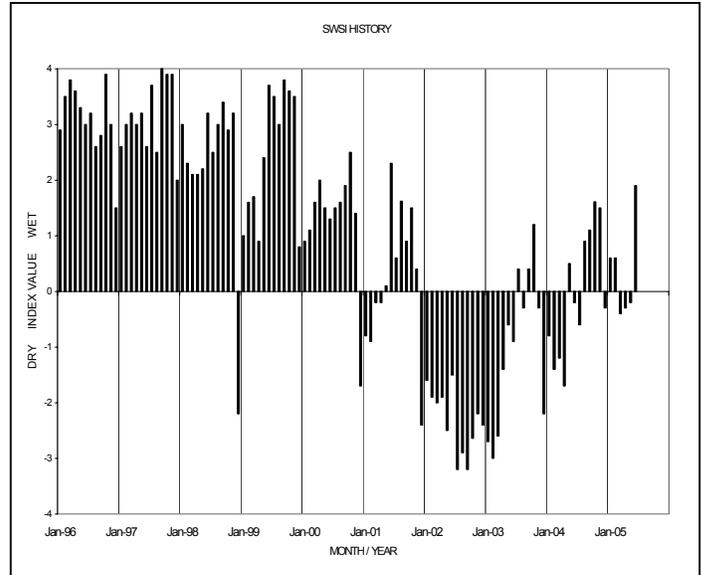
Storage conditions in the tributaries are in good condition and municipal suppliers find themselves in a good water supply situation.

Outlook

Even with better snowpack than the last few years, we only reached a free river for one day on the South Platte in May on May 13, 2005. Historically, in good runoff years, we will have several days of free river. In addition, it appears we have already seen peak snow melt runoff flows as snowpack quickly diminished the later part of May due to the warm conditions. In most years, peak snowmelt runoff does not occur until some time in early June. High flows still may occur in June if there are one or more significant area wide rainstorms as we get some years.

Administrative/Management Concerns

Many well users remain curtailed as they do not have adequate long-term resources available to develop permanent plans to augment the out-of-priority depletions from their wells.



Basinwide Conditions Assessment

The SWSI value of -1.6 indicates that for May the basin water supplies were slightly below normal. The Natural Resources Conservation Service reports that June 1 snowpack was 57% of normal. Flow at the gaging station Arkansas River near Portland was 929 cfs, as compared to the long-term average of 1,154 cfs. Storage in Turquoise, Twin Lakes, Pueblo, and John Martin reservoirs totaled 77% of normal as of the end of May.

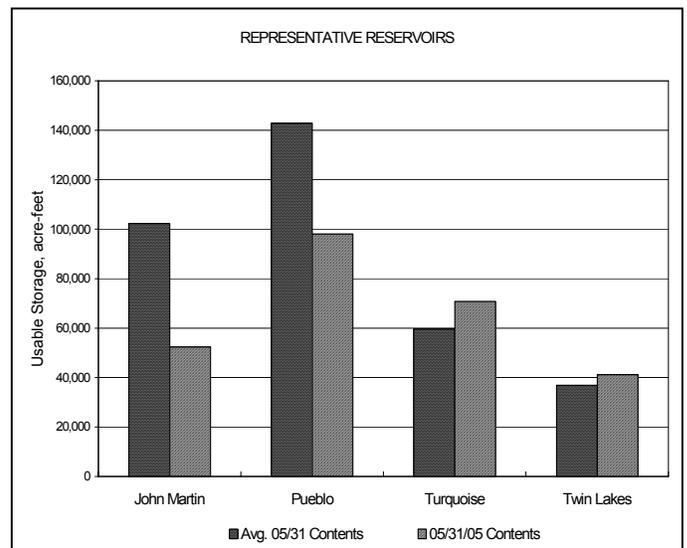
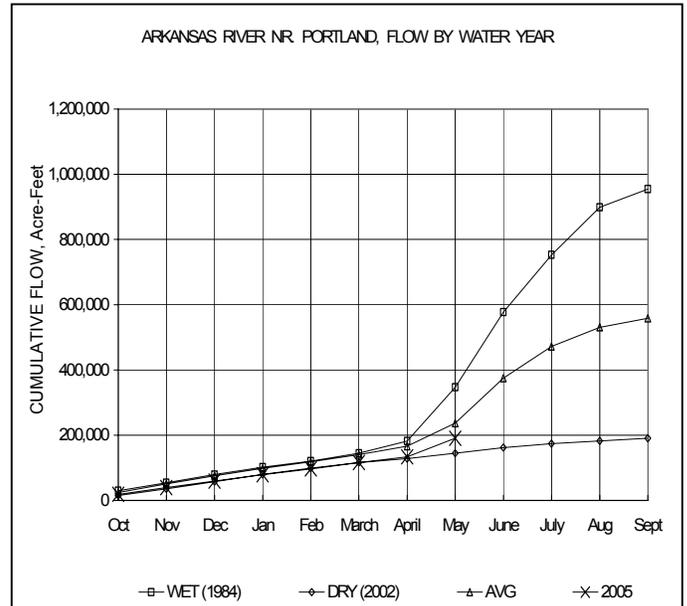
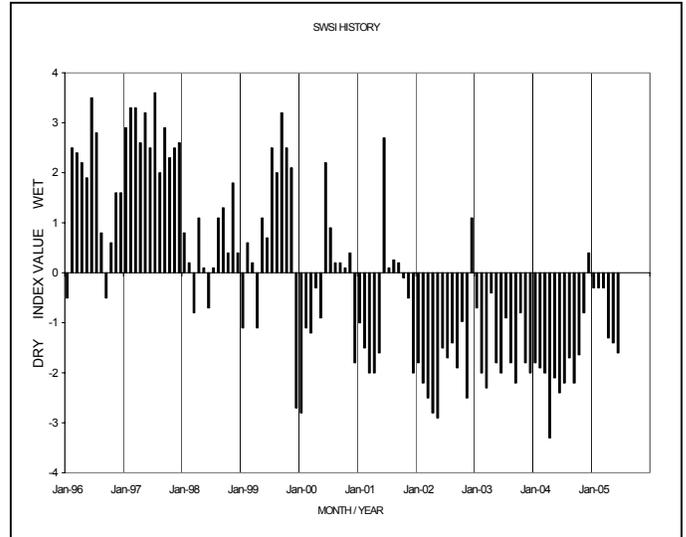
Stream flows in May appear to indicate the peak runoff has occurred at most gaging locations in the Arkansas Basin. The Arkansas river call moved towards a much more junior call with many mainstem ditches diverting junior rights that have seen few days of in-priority diversion in the past three years. The river call began at the Fort Lyon #2 call on May 1<sup>st</sup> (3/1/1887) and ended with the call set at the Great Plains storage right (8/1/1896) with the Amity directing the Great Plains right to be stored in John Martin Reservoir. A brief conservation storage event in John Martin Reservoir also occurred at the end of May due to particularly high flows on the Purgatoire River.

Administrative/Management Concerns

Some junior ditches that have not been able to divert for several years enjoyed much better diversions in May, but suffered some effects from ditch deterioration throughout the prolonged drought. Removal of tumbleweeds and growth from ditches was a problem that plagued many of the Arkansas ditches.

Plans approved for well pumping in the Arkansas Basin were approved at pumping levels that were up significantly from the past few years. Augmentation supplies appear to be rebounding slightly.

Kansas called for release of water from the Offset Account in John Martin Reservoir (special account used to provide well augmentation water for replacing stateline depletions to usable flow) and enjoyed a sustained run at levels between 180 and 200 cfs released from John Martin Reservoir for most of May.



Basinwide Conditions Assessment

The SWSI value of 3.1 indicates that for May the basin water supplies were above normal. The Natural Resources Conservation Service reports that June 1 snowpack was 119% of normal. Storage in Platoro, Rio Grande, and Santa Maria reservoirs totaled 117% of normal as of the end of May.

Flow at the gaging station Rio Grande near Del Norte averaged 3,899 cfs (155% of normal). The Conejos River near Mogote had a mean flow of 1,309 cfs (118% of normal). Stream flow in the Rio Grande at the Colorado / New Mexico stateline were 166% of normal. This was expected, as Colorado's water delivery obligation to New Mexico and Texas is in excess of 500,000 acre-feet this year.

Precipitation in San Luis Valley was below normal during the month. Temperatures were generally well above normal during May, which promoted the high runoff. Stream flow was well above average throughout the basin during the latter part of May.

Outlook

NRCS stream flow forecasts are predicting April – September runoff volumes from 106% to 182% of average for the Division's larger drainages. Based on the unusually high volumes seen in May, these predictions seem to be valid. Although most streams had already reached peak flow by the end of the month, administrators expect a prolonged runoff.

Administrative/Management Concerns

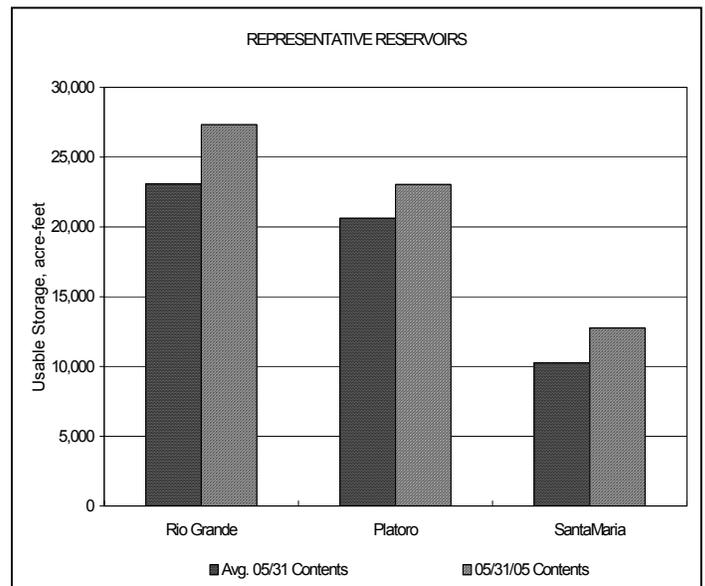
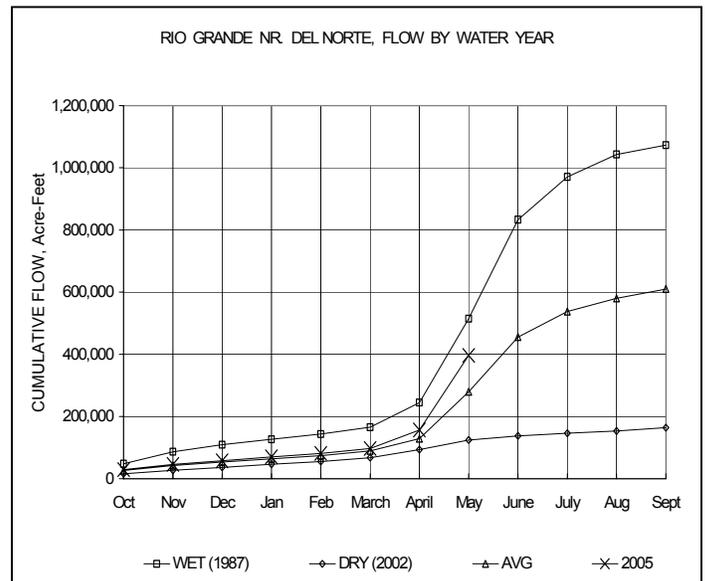
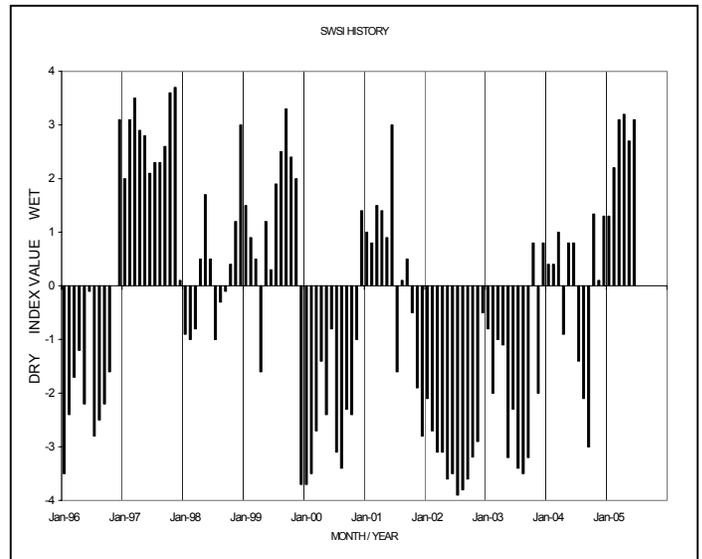
Last year's drought and extreme use of the Valley's aquifers has created a "hole" in the system that is requiring a great deal of water to fill. A surprisingly large portion of the runoff is recharging this void. Thus, return flows to the system are much lower than normally expected.

Severe curtailment of available native flows is necessary this year to meet Colorado's delivery requirement under the Rio Grande Compact. Currently, over 25% of the indexed native flows on the Rio Grande and Conejos are being passed through the system to the state line.

After a "cool" start to the month of May, a heat wave mid-month really got things rolling in the entire Rio Grande basin. Very high stream flow was experienced in almost every drainage. Flooding was localized and thankfully, minimal, considering the potential for damaging flows. Much of the credit for minimizing flooding should go to cooperative efforts between the reservoir owners and water administrators. Mother Nature lent a hand also, just as flows were reaching peak stage, a cooling trend in the weather reduced stream flow to safe levels.

Public Use Impacts

The pleasant weather conditions and abundant water supplies have been a boon to the local farmers and ranchers.



Basinwide Conditions Assessment

The SWSI value of 0.8 indicates that for May the basin water supplies were near normal. The Natural Resources Conservation Service reports that June 1 snowpack was 119% of normal. Flow at the gaging station Uncompahgre River near Ridgway was 479 cfs, as compared to the long-term average of 329 cfs. Storage in Taylor Park, Crawford, and Fruitland reservoirs totaled 112% of normal as of the end of May.

After high snowpack levels, and a cooler than normal April, the spring runoff finally got started after a warm spell in the middle of May. The stream flows in the Gunnison River and tributaries were well above average in the month of May. The high flows, discussed later in this report, have subsided with cooler weather at the end of the month. Although it was anticipated that the peak runoff would occur in the middle of June, it probably happened on May 22<sup>nd</sup> for streams from the Grand Mesa and the North Fork of the Gunnison River.

Outlook

The upper Gunnison River and Uncompahgre Rivers will likely come back strong when the hot summer weather comes and the high snow gets it's highest daily melt. Whether they have enough snow left to exceed the peak in May remains to be seen.

Administrative/Management Concerns

The high flows on May 20 through 25 caused some localized flooding on Surface Creek near Cedaredge, Kannah Creek Near Grand Junction, and the North Fork of the Gunnison River near Paonia. The high water damaged headgate structures, eroded banks, and flooded low-lying areas.

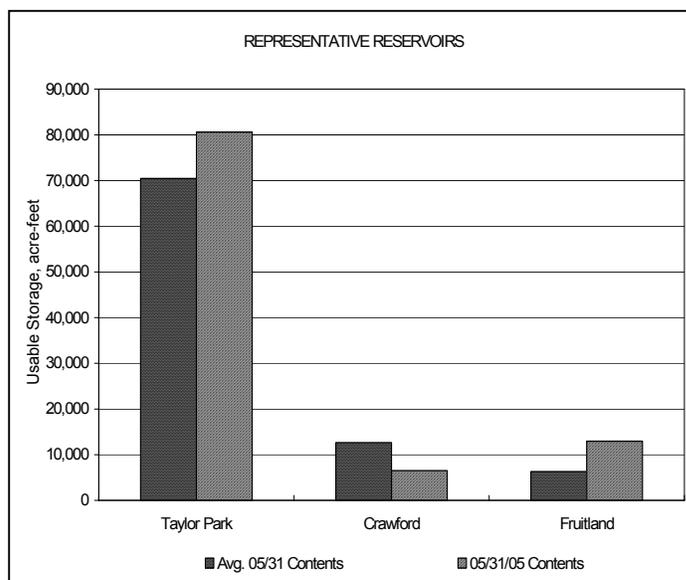
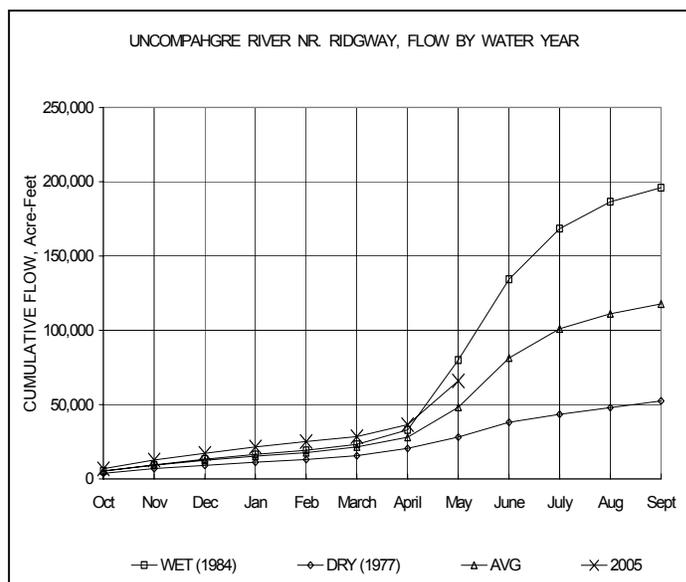
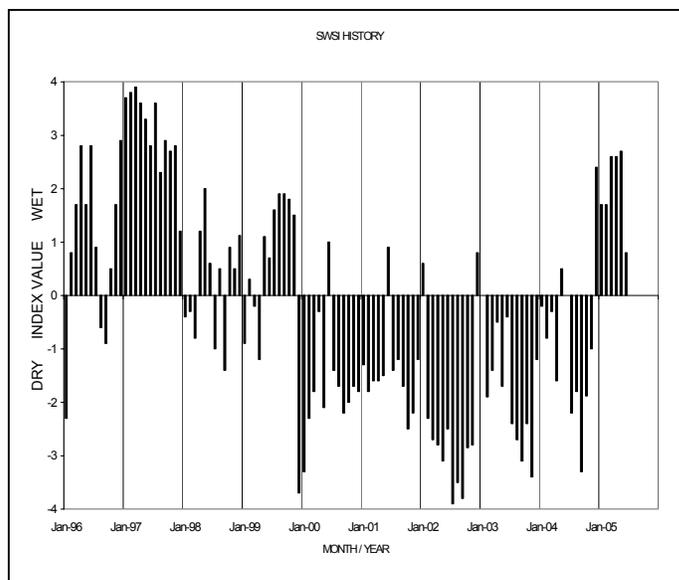
Since the stream channels haven't had high water in 8-10 years, there was a lot of debris moving in the high flows. Local officials were busy keeping the bridge piers free from logjams and Water Commissioners aided ditch owners in keeping the sticks and logs from clogging the headgates.

Dam safety is always priority one for DWR, and the Water Commissioners on the Grand Mesa have been busy watching the numerous dams, making sure the snow and ice is cleared out of the spillway and they are functioning properly. So far, the only problem has been the overtopping failure of a class III dam on Leroux Creek north of Hotchkiss. The water was caught and contained by a larger dam just below it, and no damage occurred.

Although the forecasted inflows for Blue Mesa and Taylor reservoirs have decreased from the April 1 forecast, both are expected to almost fill. The USBR has reduced the releases accordingly, trying to store as much water as possible.

Public Use Impacts

Many ditches will be rebuilding headgate structures after the high flows. Although there are some of these types of problems, water users are glad to have full ditches for an extended period of time, especially after the years of drought conditions. These higher flows also fill the reservoirs and ensure a full supply later in the irrigation season.



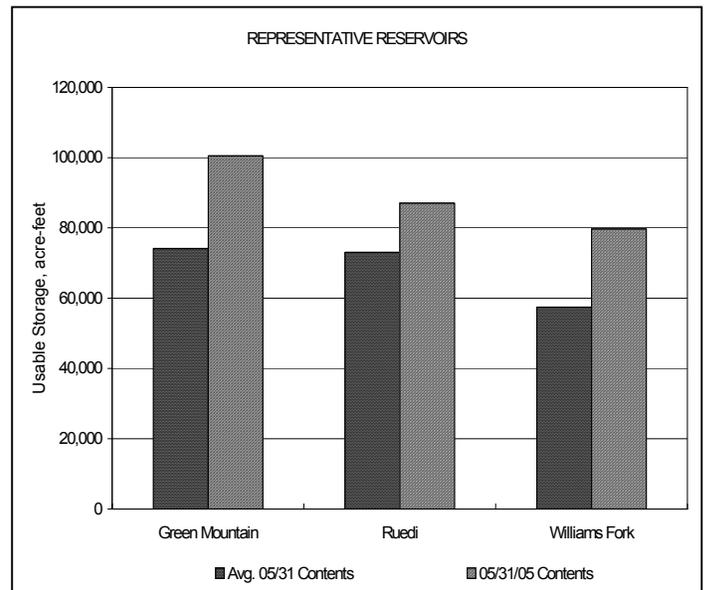
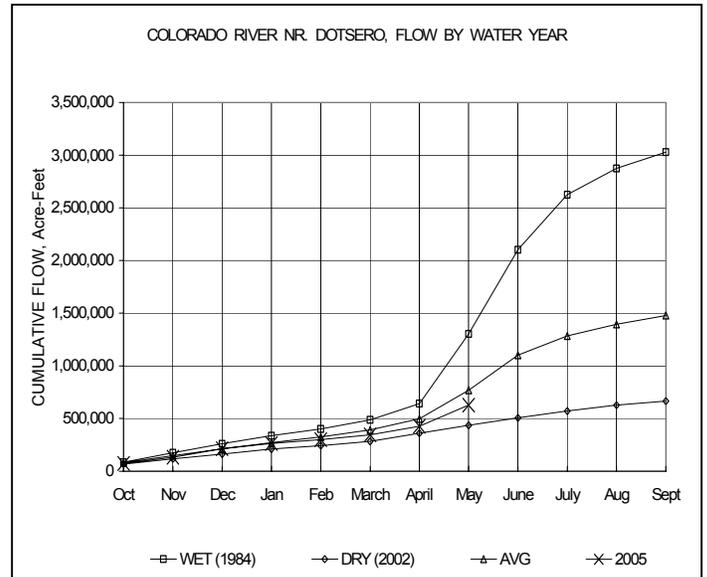
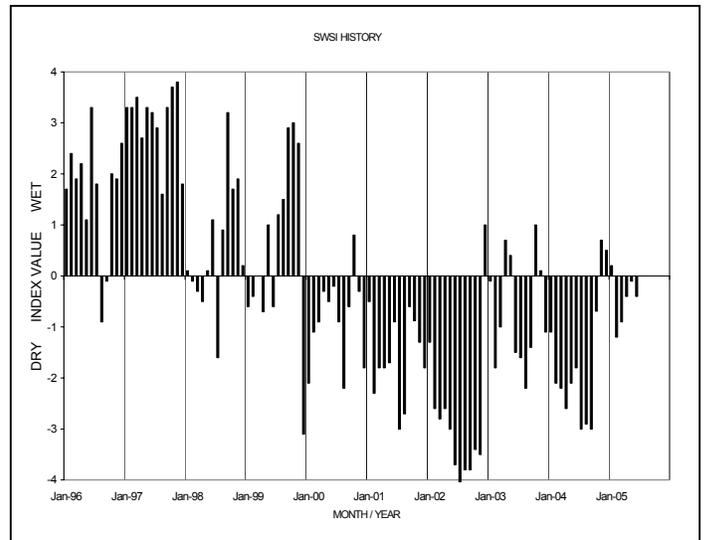
Basinwide Conditions Assessment

The SWSI value of  $-0.4$  indicates that for May the basin water supplies were near normal. The Natural Resources Conservation Service reports that June 1 snowpack is 73% of normal. Flow at the gaging station Colorado River near Dotsero was 3,238 cfs, as compared to the long-term average of 4,395 cfs. Storage in Green Mountain, Ruedi, and Williams Fork reservoirs totaled 131% of normal as of the end of May.

Precipitation was below average for the month of May for the Colorado River basin. In addition, a period of very warm temperatures melted much of the snowpack, causing many streams to reach their peak early.

Outlook

NRCS//NWS forecasts for April-July stream flow volumes did not change significantly in May, with the entire Colorado River basin at less than 80% of average. The Colorado River near Dotsero stream flow is forecasted at only 76% of average. The Colorado River near Cameo stream flow is forecasted at 83% of average. Near average stream flow (95%) is forecasted for the Roaring Fork River at Glenwood Springs and above average stream flow is predicted for Plateau Creek (157%).



Basinwide Conditions Assessment

The SWSI value of -0.2 indicates that for May the basin water supplies were near normal. The Natural Resources Conservation Service reports that June 1 snowpack is 59% of normal. Flow at the gaging station Yampa River at Steamboat was estimated at 1,505 cfs, as compared to the long-term average of 1,600 cfs.

Precipitation for May was approximately 95% of average for the basin. Year-to-date precipitation for the water year is about 88% of average. The basin-wide snowpack for the Yampa/White River drainage was 49% of average at the end of May. For the Laramie/North Platte drainage the snow pack at the end of the month was 57 % of average. The first half of the month was the cool and wet; this resulted in a steady snowmelt that kept stream flows near seasonal norms. In the second half of the month, temperatures rose significantly and snowmelt increased dramatically. Several gaging stations on the Yampa River recorded record daily mean flows in the May 20 to 24 timeframe. In the last week of the month cool, wet weather returned to the basin.

Stream flows increased dramatically in mid-month due to the rapid snowmelt. The flows remained above average for the remainder of the month supplemented by the late month precipitation. Reservoirs are generally full, with only a few irrigation reservoirs on the Bear River in the upper Yampa drainage still below capacity.

Outlook

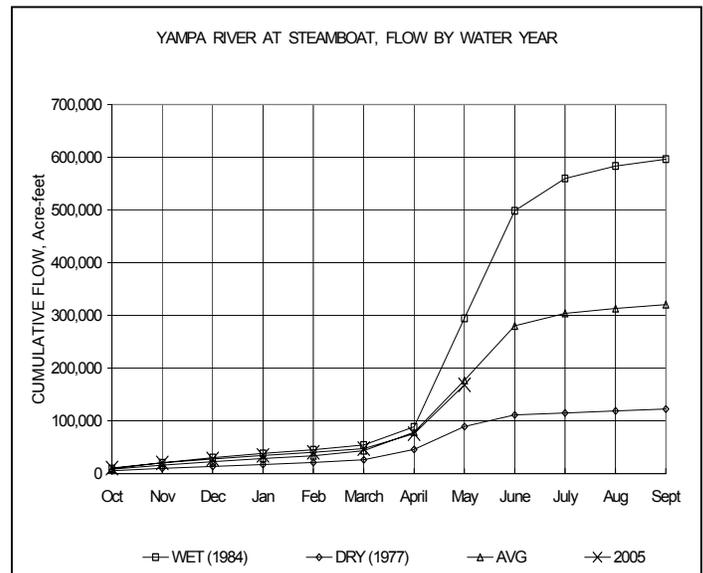
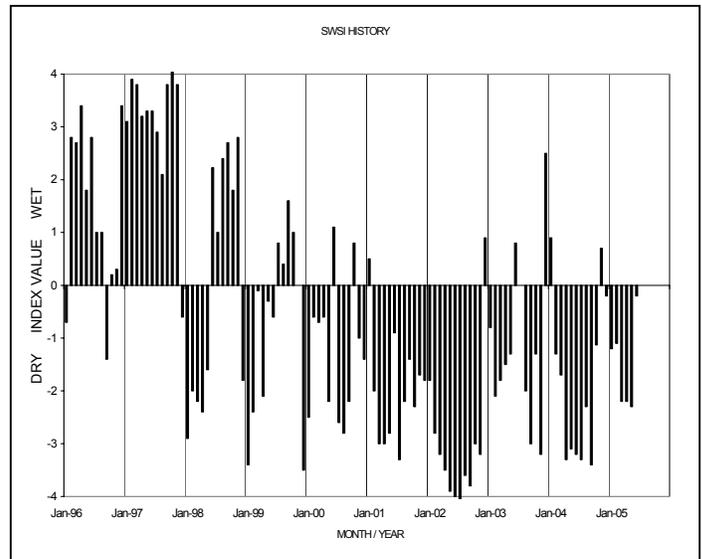
Cool, wet weather moved into the area in late May and continued into the early part of June. The cool weather has slowed the melting of the remaining snowpack, and the precipitation has kept irrigation demands below normal. Soil moisture content is high and the irrigation season is looking very promising.

Administrative/Management Concerns

Piceance Creek, a tributary to the White River, was taken off administrative call in May. High flows, which have not been seen in the last seven years, have allowed all of the ditches on the drainage to divert as much water as desired. While this will probably not last for an extended period of time, this is the first time in many years that some users have received any water at all in some of their ditches.

Public Use Impacts

Flows in the rivers and streams are at very high levels, with swift currents. Extreme caution should be exercised when recreating on or near the watercourses. Most high elevation reservoirs are now open.



Basinwide Conditions Assessment

The SWSI value of 3.2 indicates that for May the basin water supplies were above normal. The Natural Resources Conservation Service reports that June 1 snowpack is 121% of normal. Flow at the gaging station Animas River near Durango was 3,917 cfs, as compared to the long-term average of 2,178 cfs. Storage in McPhee, Vallecito, and Lemon reservoirs totaled 107% of normal as of the end of May.

The water supply and runoff followed predictions closely during May. The precipitation in Southwestern Colorado dropped off after the first week and left the remaining portion of the month with an increase in temperatures and resulting runoff. The total precipitation in Durango was nearly average at 1.18 inches leaving the yearly total at 142% average or 17.7 inches accumulated.

Flows increased in the rivers until May 24-26 when they topped out. Record high temperatures were set in Durango on May 20 and 21 and low temperatures were 5° above normal. The Animas reached a daily flow peak of 8,030, while the Dolores recorded a high daily flow of 4,890 and the La Plata River reached 630 cfs during this time. The San Juan River also peaked near 5,000 cfs while the Rio Blanco reached flows up to 3,000 cfs. The inflow to Navajo Reservoir was over 10,000 cfs for several days.

Reservoirs began to top out as they filled back in the vacancies created earlier in anticipation of the runoff. By the end of the month Lemon and Vallecito Reservoirs were 93% of average. McPhee was at 119% of average and very close to full.

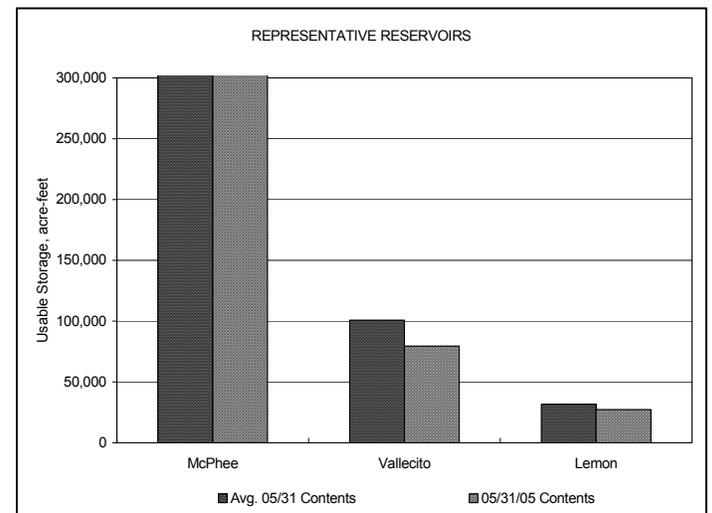
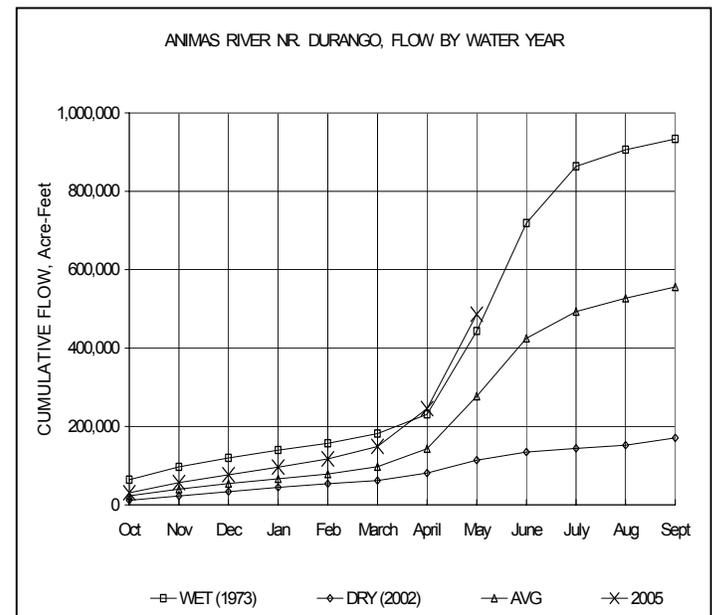
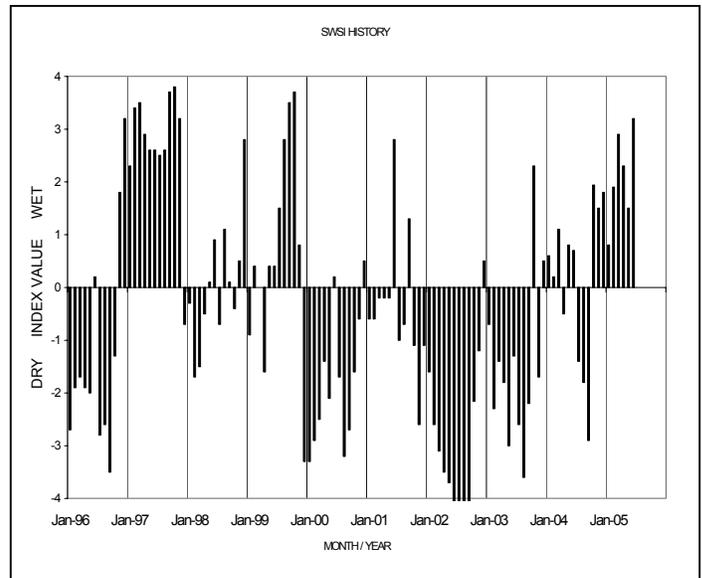
Early pasture and vegetative growth was excellent and there appeared to be a good hay crop early

Outlook

A cool spell at the end of the month slowed the runoff down. The flows observed were the highest since 1980 and led to minor flooding in low-lying areas. There is a prospect of another rise in the river during June from the remaining snow cover at the high elevations.

Public Use Impacts

River recreation, including the Dolores below McPhee, was proceeding with excellent opportunities for white water experiences.



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