
COLORADO

WATER SUPPLY CONDITIONS UPDATE

FROM THE OFFICE OF THE STATE ENGINEER: COLORADO DIVISION OF WATER RESOURCES
 ROOM 818, 1313 SHERMAN ST., DENVER, CO 80203
 303-866-3581; www.water.state.co.us

October 2002

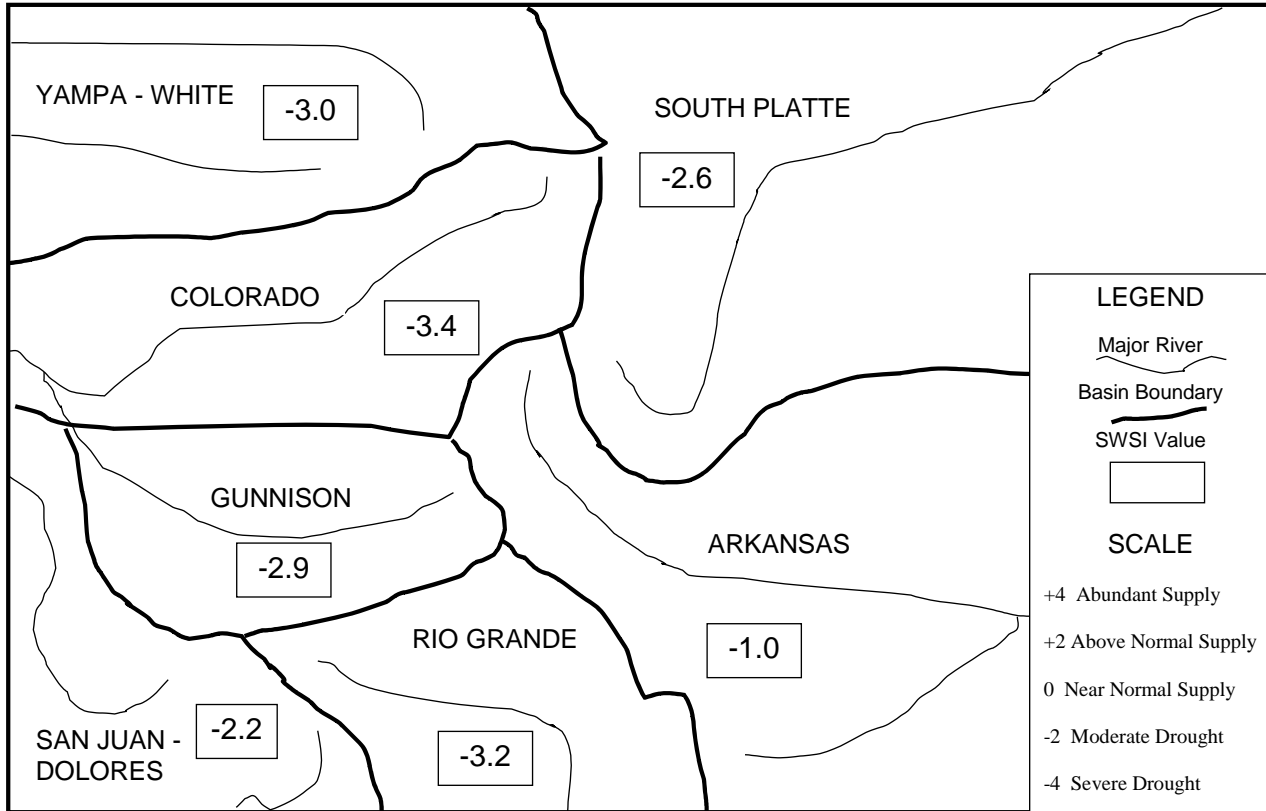
This report closes an extremely dry and difficult water year in Colorado. However, the final SWSI Report for the water year shows some encouragement as all of the basins have higher index numbers this month than last month, with the San Juan/Dolores Basin improving by nearly two index points on a scale that ranges from -4 to + 4. The improvements are a result of higher than normal precipitation for September in all basins. The Gunnison Basin had the highest precipitation index component at 97% of the highest probable amount (a 97th percentile). Precipitation, however, accounts for only a minor part (5-10%) of a basin's index number. Thus, the index is still very low, and ranges from a high of -1.0 in the Arkansas Basin (which is believed to over-represent conditions in that basin) to a low of -3.4 in the Colorado Basin. An exceptional snowpack in the upcoming winter would be required to bring the SWSI numbers back to a normal range because the soil moisture profile is very low which will cause reduced river flows next spring, and most reservoirs are very low. Reservoir storage and stream flows contribute 90-95% of the final index calculation.

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 October 1, 2002, and reflect the conditions during the month of September.

<u>Basin</u>	<u>Oct 1, 2002 SWSI Value</u>	<u>Change From Previous Month</u>	<u>Change From Previous Year</u>
South Platte	-2.6	+0.6	-4.1
Arkansas	-1.0	+0.9	-0.9
Rio Grande	-3.2	+0.4	-2.7
Gunnison	-2.9	+1.0	-0.4
Colorado	-3.4	+0.4	-2.5
Yampa/White	-3.0	+0.8	-0.7
San Juan/Dolores	-2.2	+1.9	-1.1

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



OCTOBER 1, 2002

Basinwide Conditions Assessment

The SWSI value of -2.6 indicates that for September the basin water supplies were below normal. Reservoir storage, the major component in this basin in computing the SWSI value, was 56% of normal as of the end of September. Cumulative storage in the major plains reservoirs: Julesburg, North Sterling, and Prewitt, is at 6.2% of capacity. Cumulative storage in the major upper-basin reservoirs: Cheesman, Eleven Mile, Spinney, and Antero is at 53% of capacity. Flow at the gaging station South Platte River near Kersey was 143 cfs, as compared to the long-term average of 809 cfs. Flow at the Colorado/Nebraska state line averaged 13 cfs.

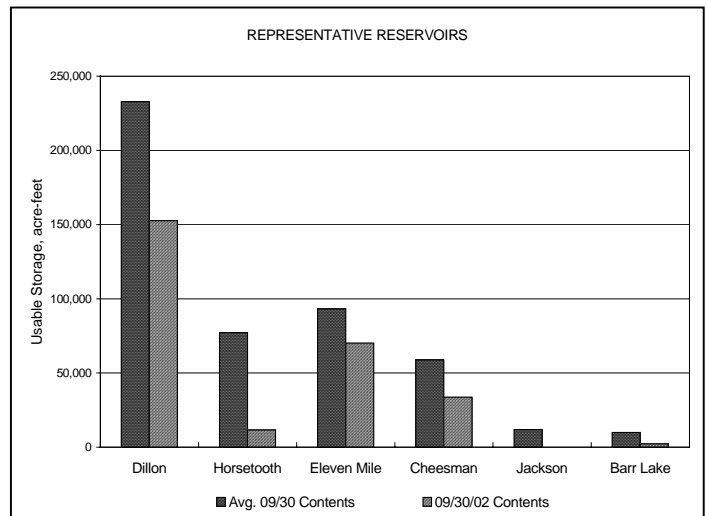
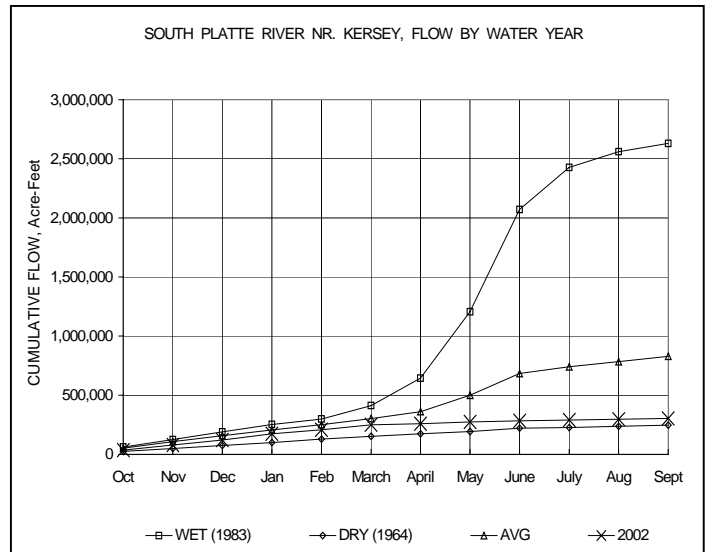
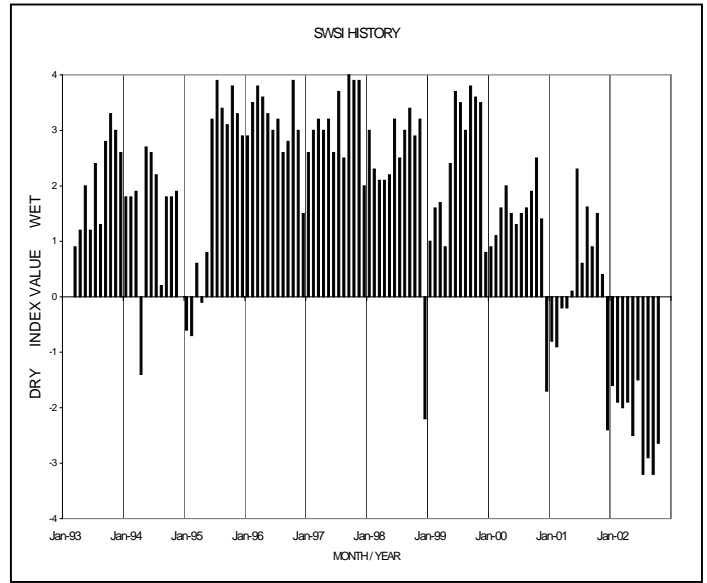
Outlook

Dry conditions continued the short fall in water supplies in the South Platte basin. Total flow of the South Platte at Kersey, a key measurement gage, was at a historic low for the third consecutive month. In a normal year, we will not have a senior irrigation direct flow call in September because irrigation demand drops off and users on the mainstem begin recharging or divert to refill reservoirs. This year, demand was higher than in previous years along many ditches as farmers tried to finish off their crops or get water on their hay. The increased demand along with the extremely low flows did not allow for the direct flow call to be removed. Thus, there was not any storage or recharge in September, nor do we expect significant amounts in October.

We anticipate that there will be a continued irrigation demand next month to water hay and beets. We anticipate there will also be a dramatic increase in planting of winter wheat in response to concerns about continued dry conditions and this wheat will require some initial irrigation water.

Administrative/Management Concerns

All of the major plains irrigation reservoirs including Jackson, Riverside, Empire, North Sterling, Prewitt and Julesburg are essentially empty except for dead storage. As this water year closes, Division 1 staff are extremely concerned that there will not be enough water this coming year to fill reservoirs before next irrigation season. Unless conditions improve, it is unlikely that all South Platte plains reservoirs will fill, nor many of the reservoirs on tributaries. In 2000, the last time when South Platte plains reservoirs were emptied, there was sufficient supply in September and October to begin to fill these reservoirs. When storage does begin, we will allow out-of-priority storage in accordance with statute provided users can make adequate measurement of their storage and release water stored out-of-priority back to the river.



Basinwide Conditions Assessment

The SWSI value of -1.0 indicates that for September the basin water supplies were below normal. Conditions are actually drier than the index value indicates. Flow at the gaging station Arkansas River near Portland was 132 cfs, as compared to the long-term average of 478 cfs. Storage in Turquoise, Twin Lakes, Pueblo, and John Martin reservoirs totaled 47% of normal as of the end of September.

Outlook

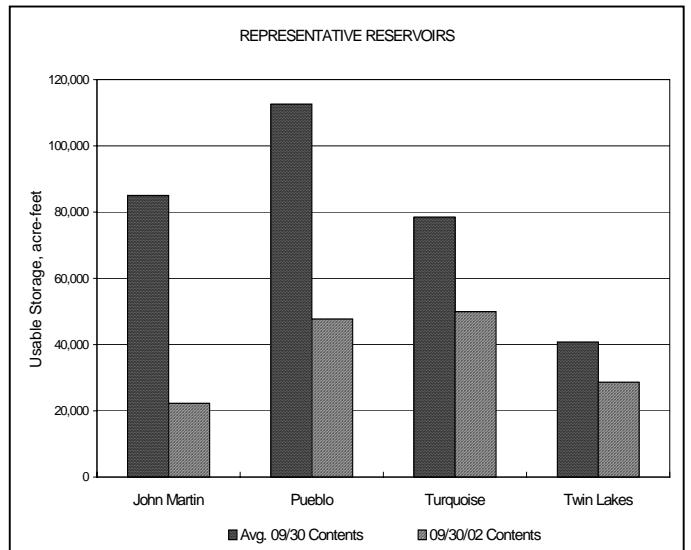
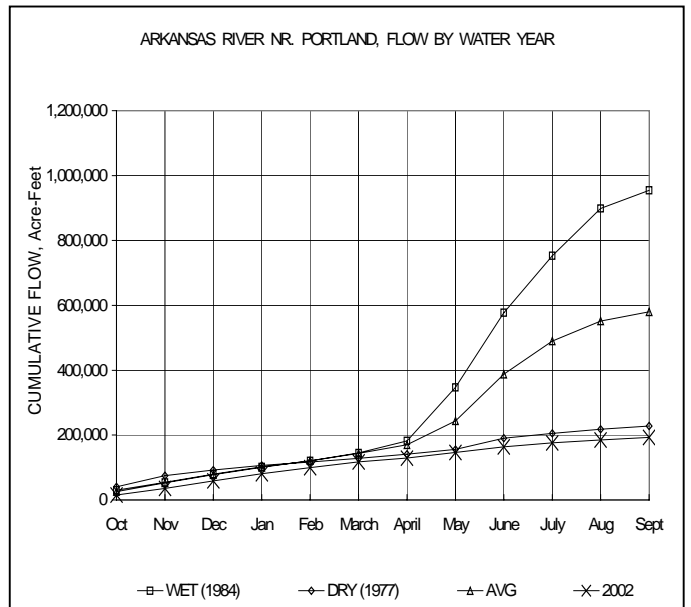
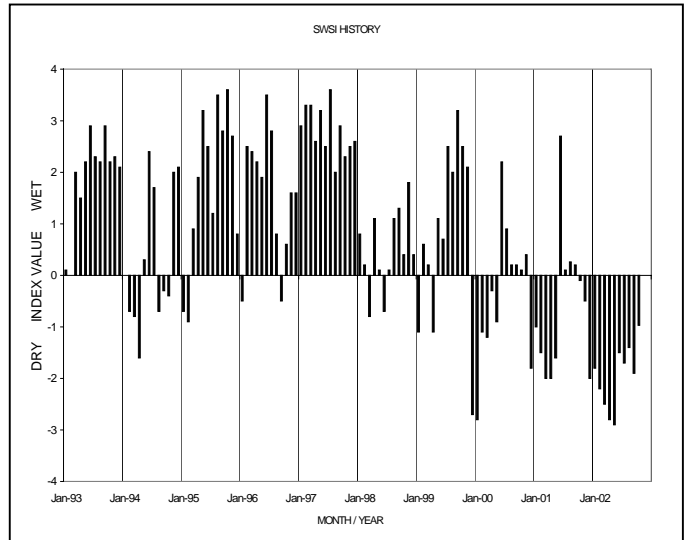
The Arkansas River Basin finally received the benefit of some much-needed rain in September that caused the mainstem call to begin to move more junior. The critical 1874 Pueblo Board of Water Works call was able to be filled to a greater extent and there were several days of call at 1884.

Administrative/Management Concerns

The Winter Water Board of Trustees met in La Junta on September 13th to discuss the upcoming season. Steve Witte, the Division Engineer for Division 2, discussed what might occur this storage season. There was some degree of optimism that the river flows above Pueblo Reservoir appear to be returning to at least a comparable drought year level (similar to 1977) as opposed to a situation where storage amounts would trend to new historic lows. Several ditches that are not participants in the Winter Water program have indicated that they will call for some direct flow diversions this winter and this will cause a higher level of administration to take place.

Public Use Impacts

Municipalities were gearing towards further reductions in outside watering to begin October 1st and the cooler weather should ease the watering demand.



Basinwide Conditions Assessment

The SWSI value of -3.2 indicates that for September the basin water supplies were below normal. Flow at the gaging station Rio Grande near Del Norte averaged 178 cfs (35% of normal). The Conejos River near Mogote had a mean flow of 32 cfs (25% of normal). Storage in Platoro, Rio Grande, and Santa Maria reservoirs totaled 83% of normal as of the end of September.

Despite the above-average rainfall during September, stream flow in the Upper Rio Grande basin remained well below normal levels during September. The precipitation in the basin during September doubled the amount received in the past five months. However, the cumulative precipitation during 2002 still lags well behind the average. Valley residents woke to a wondrous sight on the morning of the 19th, all the local mountains were covered with a blanket of snow.

Outlook

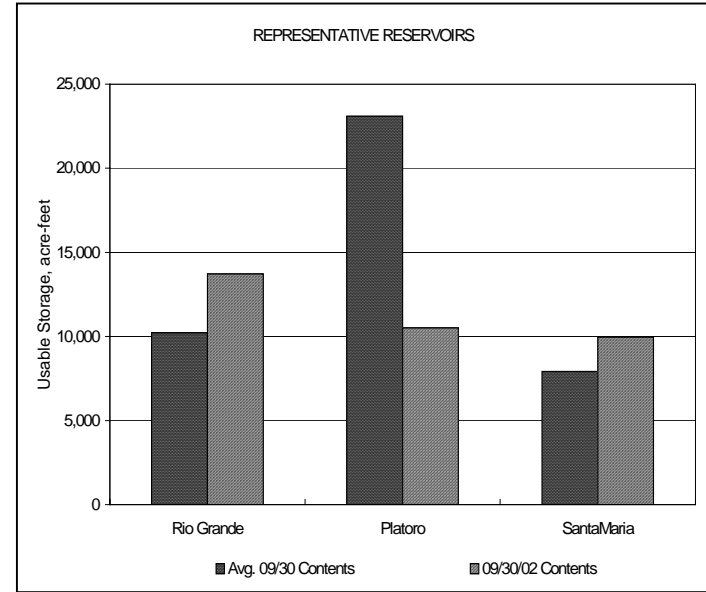
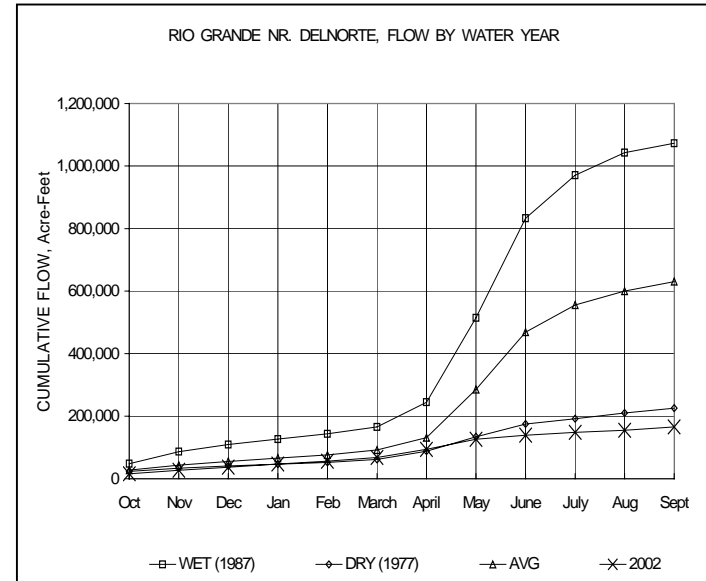
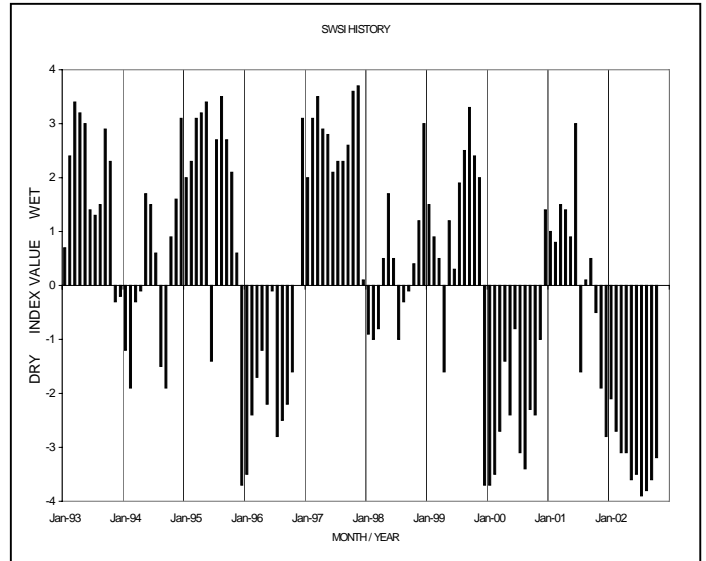
The hydrographs for some area streams are just recently increasing enough to approach the previous historic lows. For example, the Rio Grande near Del Norte set historic low daily flows from May 21 through September 10. Despite the recent reprieve, streams in the upper Rio Grande basin will experience well below normal flows this fall. The call remains very senior on all creeks and rivers in the Division.

Administrative/Management Concerns

Colorado will have no problem meeting its delivery obligation to New Mexico and Texas under the Rio Grande Compact this year. However, if next year's runoff is well above average, Colorado will incur some complication meeting that higher obligation. Experience has taught administrators that getting water down those dry river channels to the state line is very difficult when a wet year follows a dry one. So, while most everyone may hope for an abundant snowpack this winter; that too has its pitfalls.

Public Use Impacts

For those irrigated areas in the San Luis Valley fortunate enough to have underground water rights, crop yields are reportedly very good. Applications to replace domestic and stock water wells continue to be submitted at a record pace. On September 21, all fire restrictions on public lands in the San Luis Valley were lifted.



Basinwide Conditions Assessment

The SWSI value of -2.9 indicates that for September the basin water supplies were below normal. Flow at the gaging station Uncompahgre River near Ridgway was 92.1 cfs, as compared to the long-term average of 109 cfs. Storage in Taylor Park, Crawford, and Fruitland reservoirs totaled 53% of normal as of the end of September.

Outlook

The water supply outlook improved markedly for September in the Gunnison and San Miguel Basins. Most areas reported above-average precipitation for the month, with Cedaredge reporting the highest amount above normal at 269% (3.41 inches). Others reporting above-average monthly moisture included Blue Mesa and Delta, both at 234% of normal, and Ouray, at 218% of normal. Ouray received the highest precipitation at 4.71 inches. However, even with the abundant rain during September, the large area reservoirs continued to release storage. Blue Mesa Reservoir dropped another eight vertical feet, or 43,000 acre-feet of storage.

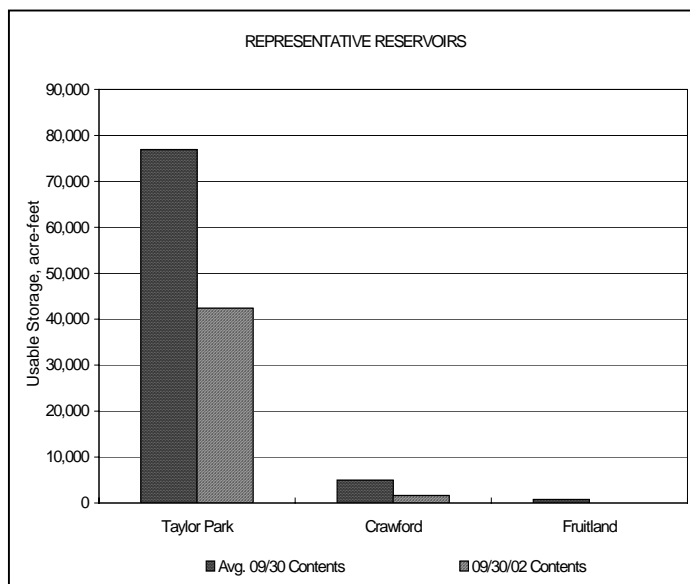
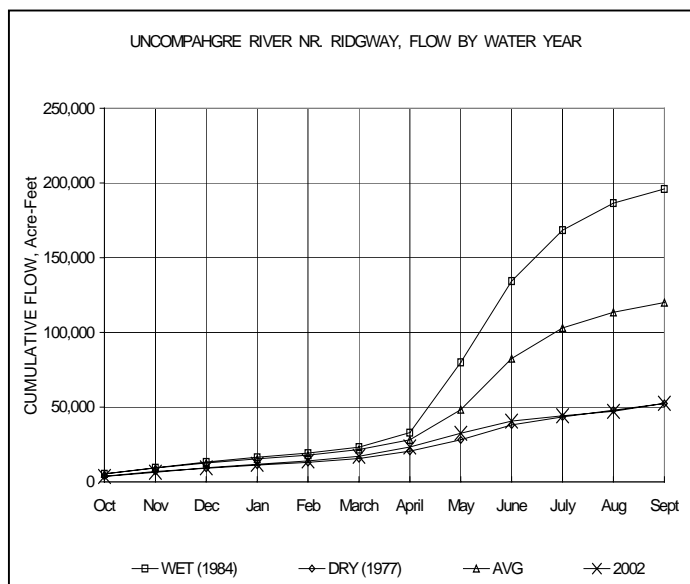
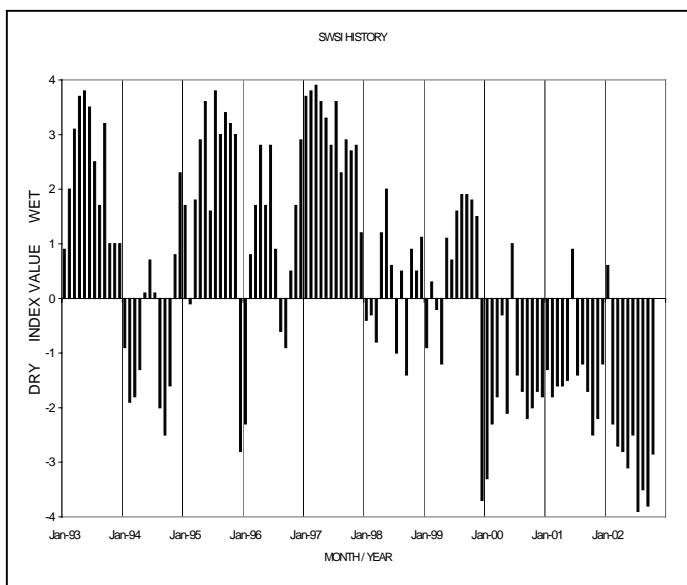
Flash floods were experienced in a few areas in the Gunnison/San Miguel Basin. The evening of the 10th saw heavy rains fall in the area of the Burn Canyon Fire. This produced flooding on Dry Creek in the Naturita area. On the 11th, a heavy thunderstorm near Delta flooded across U.S. Highway 50 just west of town. The flood moved automobiles and swept away several empty tanks from a propane facility.

Administrative/Management Concerns

The periodic heavy rains in September caused several administrative calls to be released or removed. In some areas, primarily the Upper Gunnison Basin, the rains created more difficult river administration. The Gunnison Tunnel call was satisfied and then reinstated four separate times during the month. This became an administrative burden having to repeatedly tell Upper Basin juniors to turn on or off.

Public Use Impacts

One significant benefit of the widespread September rainfall was the lifting of the statewide fire ban. Emergency officials were dreading the upcoming hunting seasons and the prospects of enforcing fire bans or fighting fires caused by hunters. The rains helped avoid a potentially deadly fall fire season.

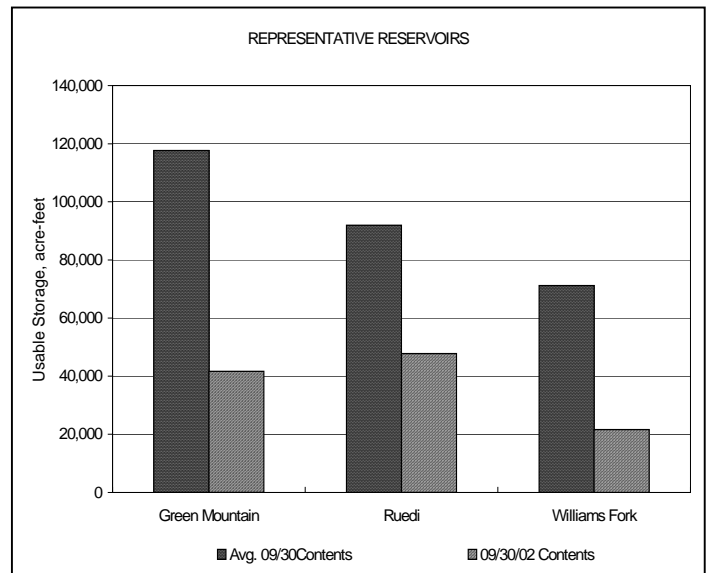
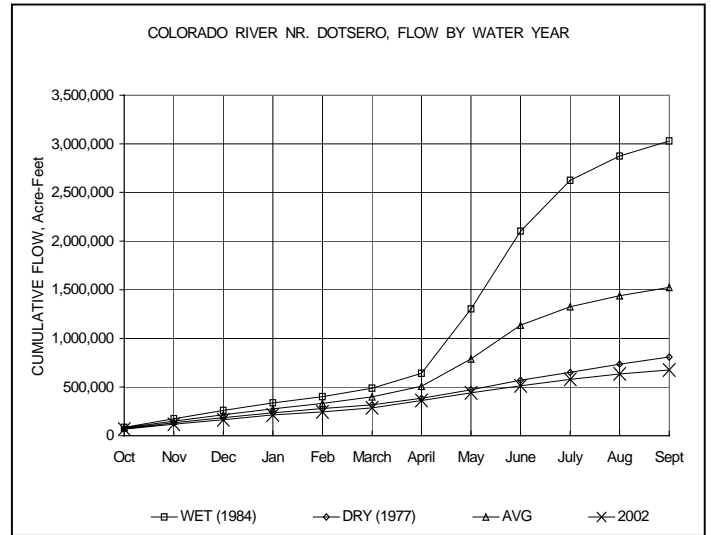
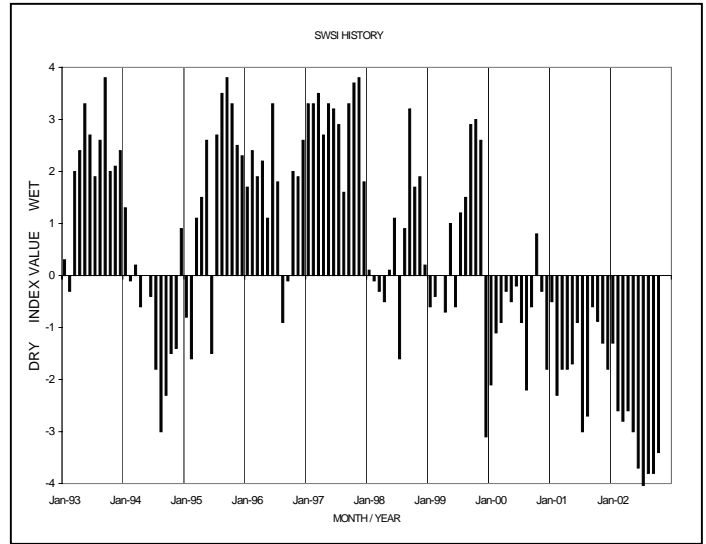


Basinwide Conditions Assessment

The SWSI value of -3.4 indicates that for September the basin water supplies were below normal. Flow at the gaging station Colorado River near Dotsero was 664 cfs, as compared to the long-term average of 1,433 cfs. Storage in Green Mountain, Ruedi, and Williams Fork reservoirs totaled 40% of normal as of the end of September.

Administrative/Management Concerns

September rains were above average for many parts of the basin. This was the first month in 2002 that was not less than average precipitation at most measuring locations. The Cameo call was voluntarily lifted in early October in order to allow reservoirs below Shoshone to begin filling this fall. These reservoirs include Ruedi, Rifle Gap, and Vega.



Basinwide Conditions Assessment

The SWSI value of -3.0 indicates that for September the basin water supplies were below normal. Flow at the gaging station Yampa River at Steamboat was 60.4 cfs, as compared to the long-term average of 122 cfs.

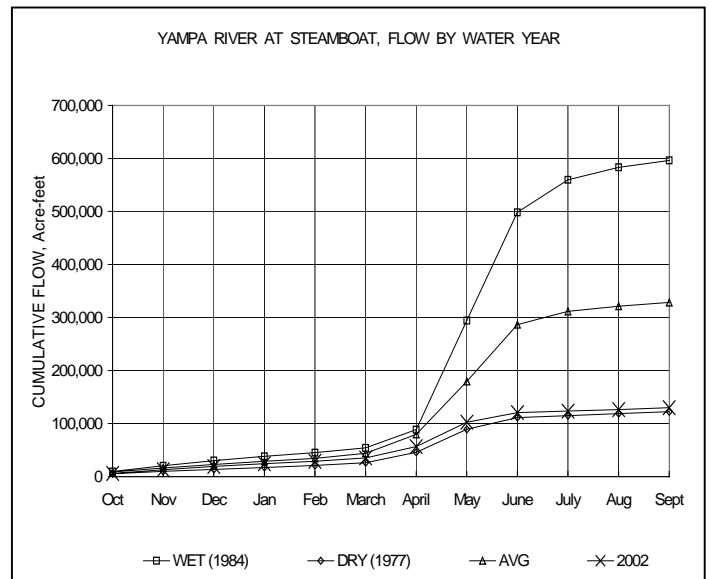
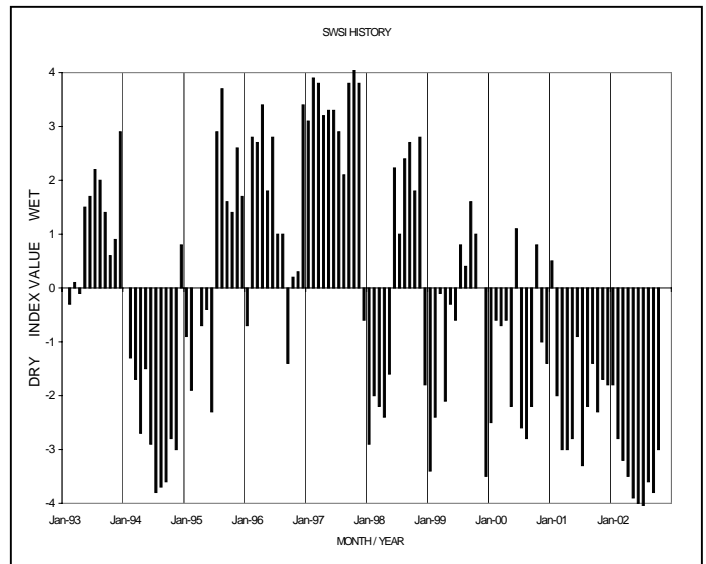
Precipitation for September was 119% of average for the basin as measured at the NRCS Snotel sites. This was the first time this water year that precipitation in the basin was above average. Most of the moisture came in storms in the second half of the month. With the increase in precipitation, stream flows increased. The call on the mainstem of the White River was lifted and reservoir releases on the mainstem of the Yampa were halted. As cooler weather moved into the area evaporation and evapotranspiration losses decreased, further adding to the increased stream flows. While not yet at average flow rates, stream flows are trending upward towards the long term averages.

Outlook

Flows continue to approach more normal levels. Irrigation demand is decreasing and should continue to do so over the next month. Reservoirs should be able to start storing in October or early November if precipitation remains near normal.

Administrative/Management Concerns

The call on most rivers in the Division was lifted in September. While some minor tributaries are still under administration, these irrigation calls should be lifted in October.



Basinwide Conditions Assessment

The SWSI value of -2.2 indicates that for September the basin water supplies were below normal. Flow at the gaging station Animas River near Durango was 318 cfs, as compared to the long-term average of 481 cfs. Storage in McPhee, Vallecito, and Lemon reservoirs totaled 50% of normal as of the end of September.

September started at the lowest river levels of the year and some of the lowest recorded values for water streams and structures in Division Seven. Lemon Reservoir fell to a record low of 3,261 acre feet, of 40,000 capacity. Vallecito was as low as any time since 1959 with 114,855 acre feet. McPhee Reservoir retained several thousand acre feet live water, which was a historic low for this time of year.

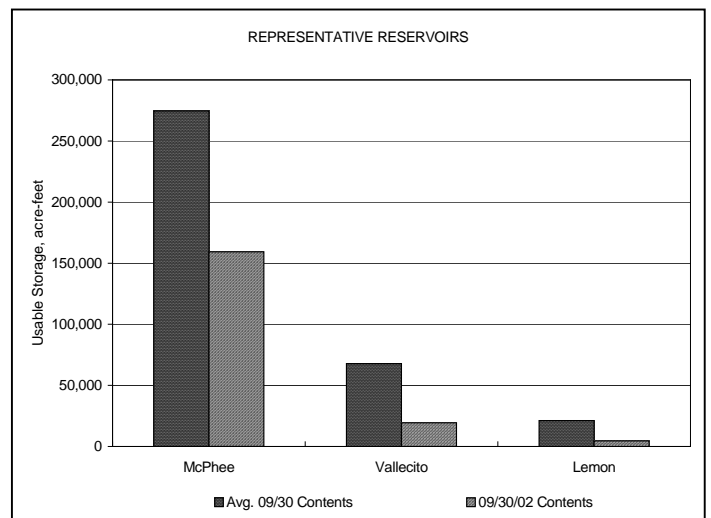
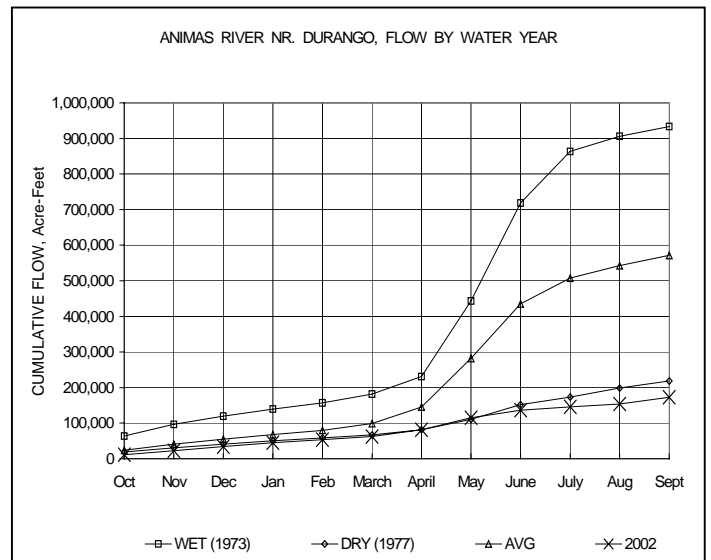
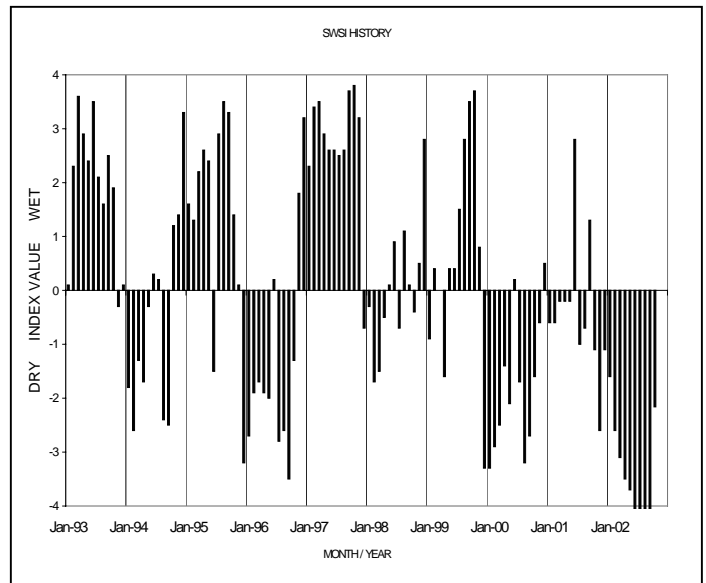
On September 11, rain fell in great amounts throughout the area. 1.75 inches fell in Durango after a week of showers. This led to significant runoff on every stream in the area. 16,000 cfs was recorded at one point on the San Juan River near Four Corners. The Animas River reached 1,080 and the La Plata River reached 88 cfs, highs for the year. The Dolores also ran up to 312 cfs on September 12. These and other streams recorded their yearly peak levels during this time.

The 3.50 inches of rain was 150 % of normal. This total exceeded the previous months accumulation since January 1. The total for the year was one of three, which did not exceed 10 inches in Durango. Of the past record, only calendar year 1901 reached a total less than the 9.86 inches this year in Durango. Temperatures were very warm. The lows exceeded the average by about 7° F. A mild frost occurred in some areas on the 19th.

Reservoir storage increased in most areas because the surface irrigators did not press for a late season irrigation. This benefit may at least give some carryover storage into an uncertain year. Local grasses were growing rapidly at the end of the season. Stock use in the mountains was curtailed, however, due to the late growth start.

Outlook

Prospects are that there will likely be an improvement in supply if the September weather pattern continues.



OFFICE OF THE STATE ENGINEER
COLORADO DIVISION OF WATER RESOURCES
DEPARTMENT OF NATURAL RESOURCES
1313 SHERMAN STREET ROOM 818
DENVER CO 80203