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

June 2003

During the month of May, most of Colorado experienced warm temperatures and only minor amounts of precipitation. The higher temperatures have caused higher than average melting of the mountain snowpack, which improved river flows during May and allowed for many reservoirs to take in good quantities of water for storage. However, the earlier meltout will cause stream flows to quickly recede to below average for the remainder of the summer. The Natural Resources Conservation Service projects that the state is on track to completely meltout by mid-June, which is about one month earlier than average. The Yampa/White Basin has the highest SWSI value of +0.8 for May due to the higher than average stream flows in the basin. The Yampa/White Basin is calculated only on stream flow and precipitation factors. The other basins all have a reservoir storage component to the index calculation. The lowest SWSI value was for the Rio Grande Basin at –2.3.

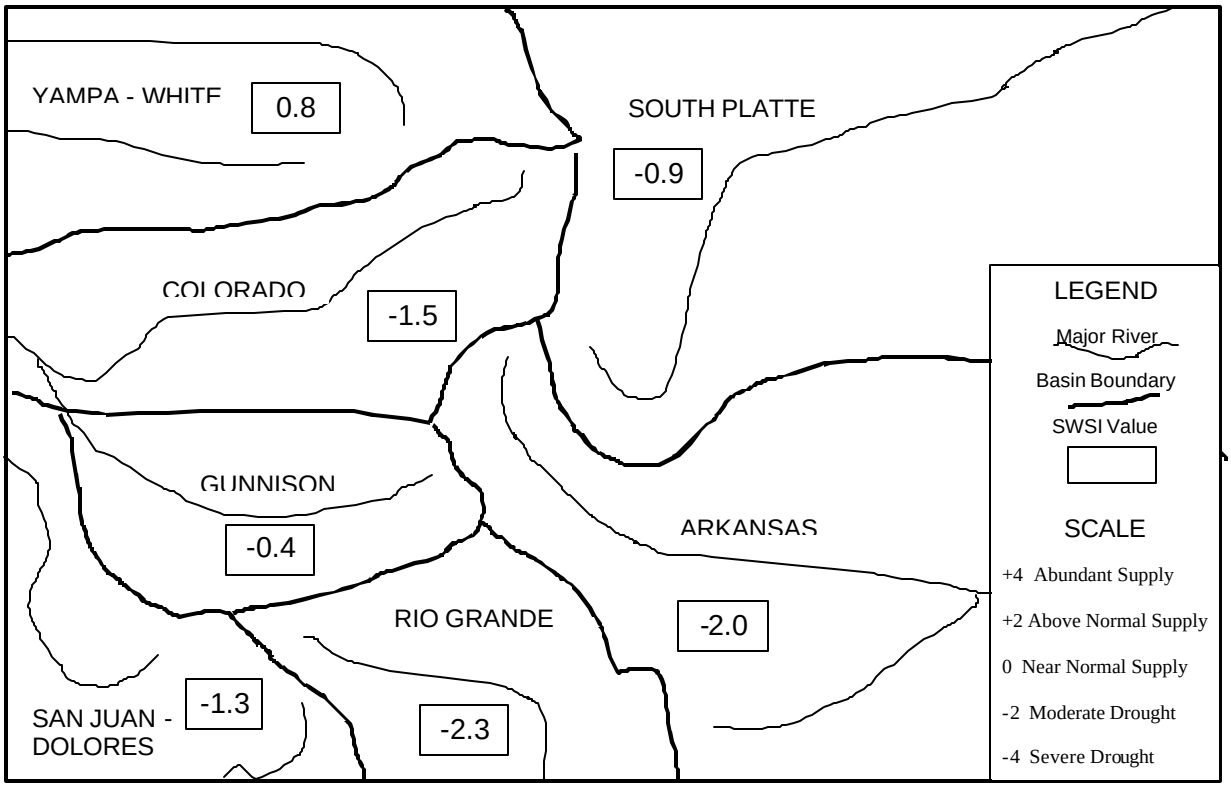
The Surface Water Supply Index (SWSI) developed by this office and the U.S.D.A. Natural Resources Conservation Service is used as an indicator of mountain-based water supply conditions in the major river basins of the state. It is based on stream flow, reservoir storage, and precipitation for the summer 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, 2003, and reflect the conditions during the month of May.

Basin	June 1, 2003 SWSI Value	Change From Previous Month	Change From Previous Year
South Platte	-0.9	-0.3	+0.6
Arkansas	-2.0	-0.2	-0.5
Rio Grande	-2.3	+0.9	+1.2
Gunnison	-0.4	+1.3	+2.1
Colorado	-1.5	-1.9	+2.2
Yampa/White	+0.8	+2.1	+4.8
San Juan/Dolores	-1.3	+1.7	+2.8

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

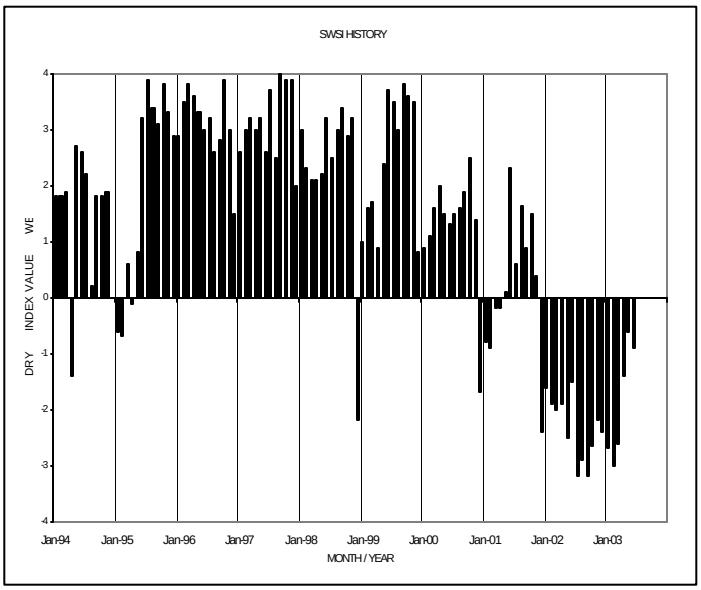


June 1, 2003

Basinwide Conditions Assessment

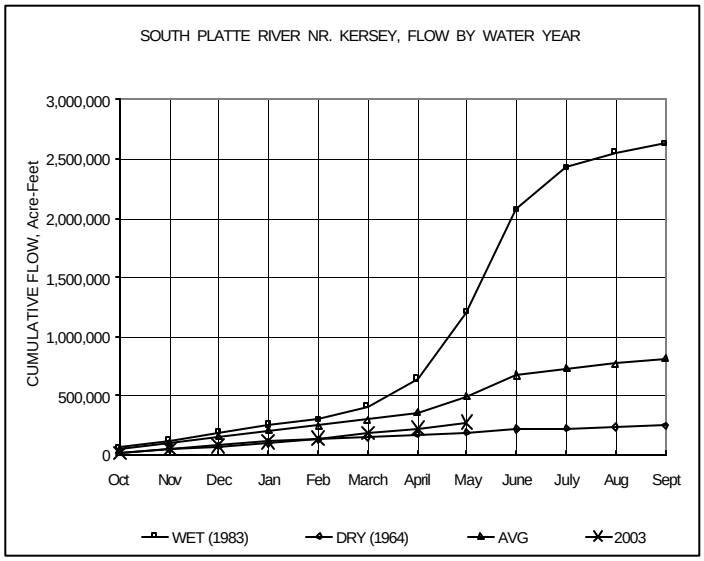
The SWSI value of –0.9 indicates that for May the basin water supplies were about normal. Reservoir storage, the major component in this basin in computing the SWSI value, was 69% of normal as of the end of May. Cumulative storage in the major plains reservoirs: Julesberg, North Sterling, and Prewitt, is at 81% of capacity. Cumulative storage in the major upper-basin reservoirs: Cheesman, Eleven Mile, Spinney, and Antero is at 52% of capacity.

May was neither extremely wet nor dry. While it appeared a couple of times that direct flow demand would exceed supply creating a direct flow call situation, this never occurred due to timely rain events and then runoff. As direct flow needs were met, reservoir storage along the mainstem continued the whole month of May. By the end of the month, there were significant flows in many of the drainages due to runoff. This created near flooding situations along a few tributaries. However, there was sufficient demand on the mainstem to take all of the water not needed for use on the tributaries even during these times. Much of the runoff was captured by the several reservoirs that had not filled along the mainstem. As of the end of the month, there remained a few irrigation reservoirs along the mainstem and tributaries that still had not completely filled.



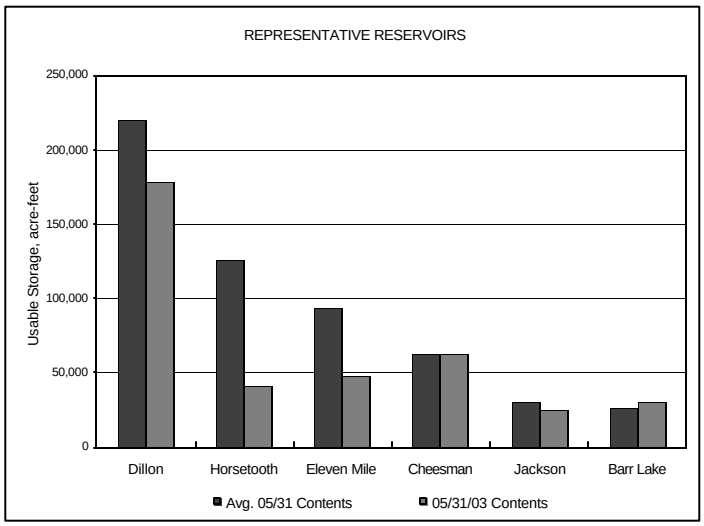
Outlook

Because of the very warm conditions during a portion of the month, much of the snowpack had already melted by the end of May. We expect peak flows along the mainstem and tributaries to occur early in June.



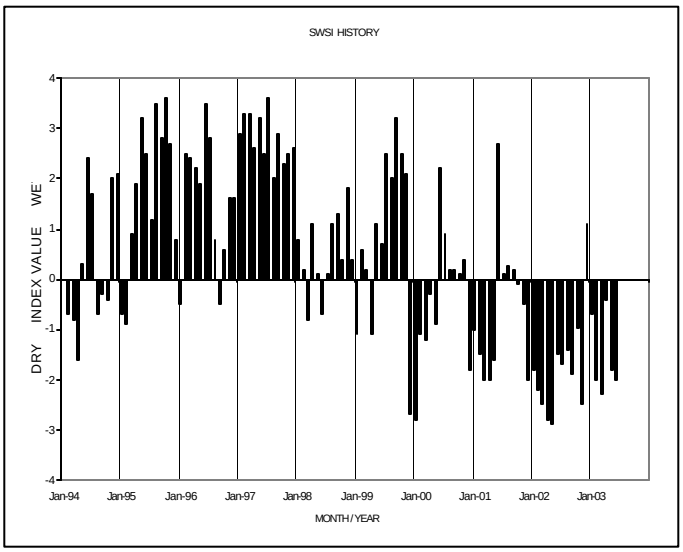
Administrative/Management Concerns

Conditions continued to improve for water suppliers in the South Platte basin. While some have relaxed their conservation restrictions, most still are maintaining some conservation use limitations to assure adequate supplies into the future.



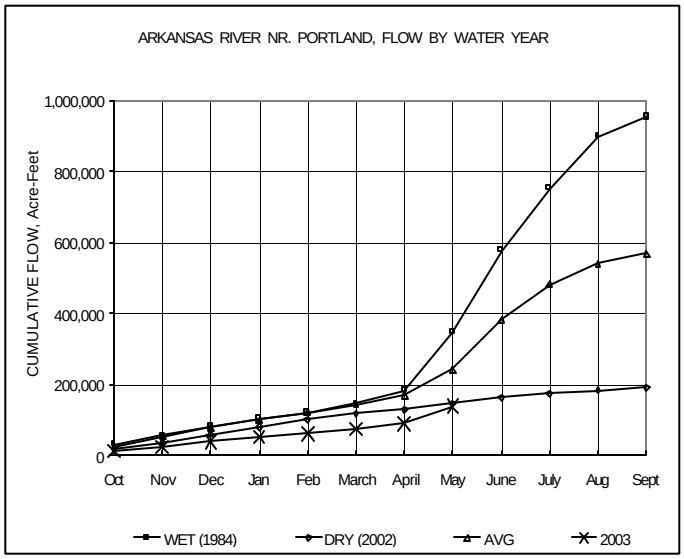
Basinwide Conditions Assessment

The SWSI value of –2.0 indicates that for May the basin water supplies were below normal. Flow at the gaging station Arkansas River near Portland was 812 cfs, as compared to the long-term average of 1,176 cfs. Storage in Turquoise, Twin Lakes, Pueblo, and John Martin reservoirs totaled 44% of normal as of the end of May.



Outlook

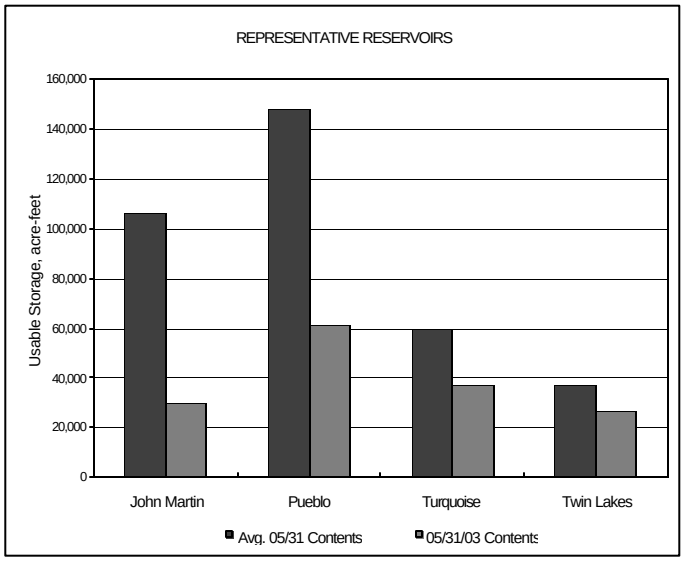
The long awaited benefits from a better snowpack finally began to show up in terms of runoff as the Arkansas River at Canon City gradually climbed from less than 200 cfs to what may be near peak runoff levels of over 3,400 cfs by the end of the month. Coupled with some rainfall events that occurred during the latter part of the month, the river call conditions loosened from a fairly senior call of April 15, 1884 (Fort Lyon #1) at the start of the month to the Colorado Canal call of June 9, 1890 by the end of the month. Water rights came into priority during late May that were out of priority for the entire 2002 irrigation season.



Administrative/Management Concerns

The 2002 drought created conditions in the river channel that make river operations much less predictable than in normal years. Certain sections of the river, particularly the reach below La Junta to John Martin Reservoir, appear to either be suffering from significant deficits in bank and channel storage and/or have become choked with plant growth making it very difficult to determine the appropriate amounts to push past the Fort Lyon Canal to satisfy water rights senior to Fort Lyon's #2 and #3 water rights.

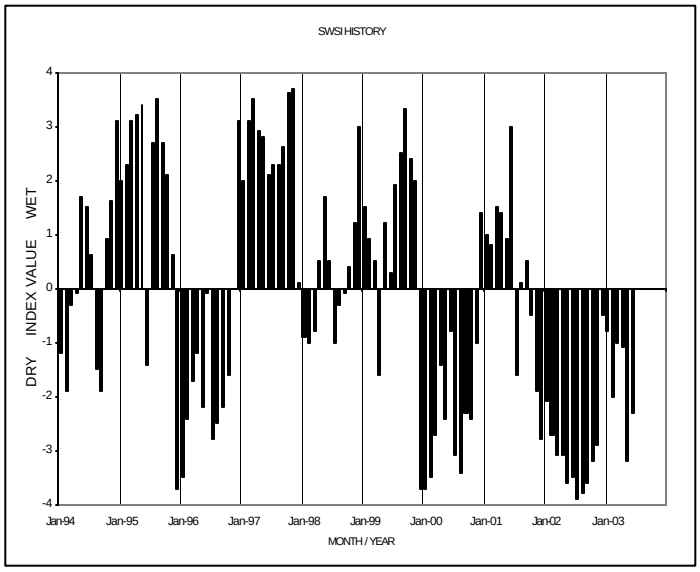
Although river conditions have improved, replacement water available for well pumping has not significantly increased through May and is continuing to cause greatly reduced well pumping far below the levels in 2002.



Basinwide Conditions Assessment

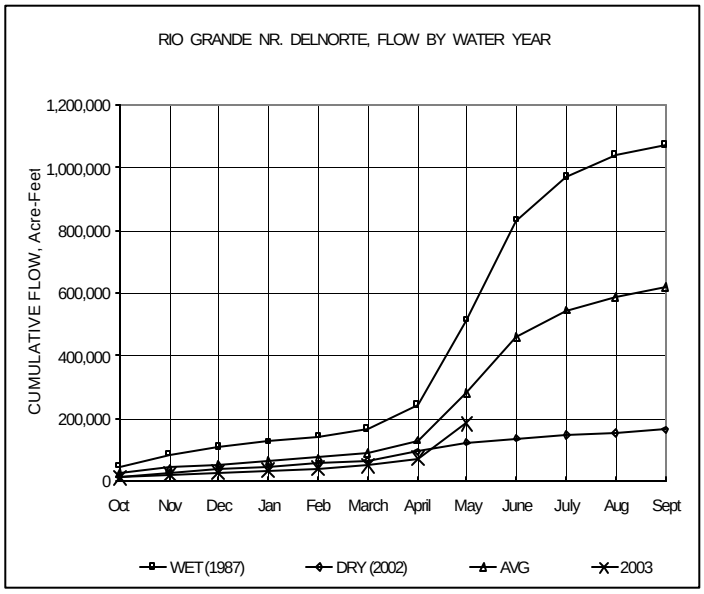
The SWSI value of –2.3 indicates that for May the basin water supplies were below normal. Flow at the gaging station Rio Grande near Del Norte was 1,797 cfs, as compared to the long-term average of 2,458 cfs. The Conejos River near Mogote had a mean flow of 684 cfs (62% of normal). Storage in Platoro, Rio Grande, and Santa Maria reservoirs totaled 52% of normal as of the end of May. Precipitation in Alamosa was a paltry 0.11 inches during May, 0.59 inches below normal. For the 6th consecutive month, the average monthly temperatures in the San Luis Valley were above normal.

Stream flow in the basin was generally below average. By the end of the month, many streams had taken on a late summer appearance, low and clear. Flooding should not be a concern this summer unless a major rainstorm occurs.



Outlook

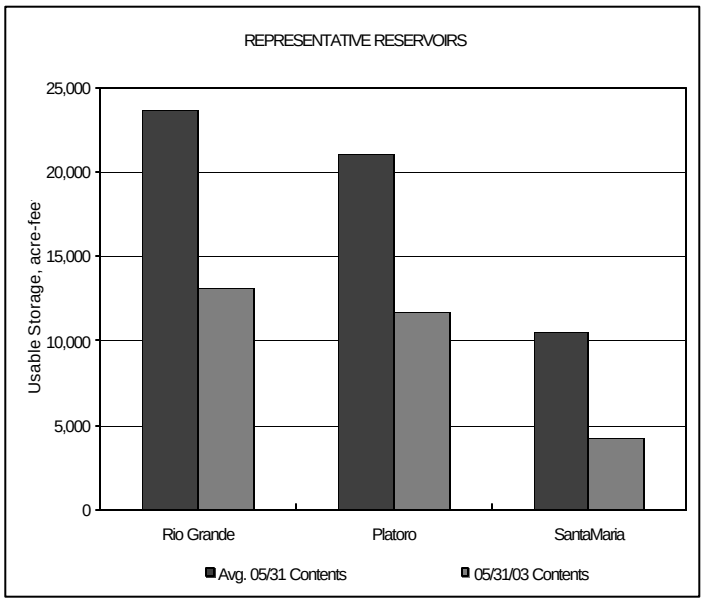
The June 1st NRCS stream flow forecasts were predicting a well-below average runoff for streams throughout the Rio Grande Basin. The Alamosa River drainage checks in at the lowest expected runoff, 44% of normal. The eastern side of the valley will receive the best runoff, ranging from 78 to 96% of average. The two major rivers in the basin, the Rio Grande (48%) and the Conejos River (58%) are in much better shape than last year, but indicate the southwest portion of the state is far from recovery of the 2002 drought.



Administrative/Management Concerns

Due to the expected low runoff, Colorado should have no problem meeting the delivery requirements to New Mexico and Texas pursuant to the Rio Grande Compact. No curtailment of water rights on the Conejos River and its tributaries should be necessary to increase water delivery to the state line. The Rio Grande and its tributaries should expect 4 to 7% curtailment to meet delivery requirements.

Storage releases for irrigation needs from the major reservoirs in the upper Rio Grande drainage are underway. Water levels behind these dams will be very low throughout the remainder of the year.



Public Use Impacts

Normal farming and ranching operations were in full swing during May. However, wind and the lack of precipitation made the need for irrigation even higher. Groundwater levels in the basin continue to decline as massive pumping from the aquifers is needed to irrigate crop and pasture land.

Basinwide Conditions Assessment

The SWSI value of –0.4 indicates that for May the basin water supplies were normal. Flow at the gaging station Uncompahgre River near Ridgway was 398 cfs, as compared to the long-term average of 325 cfs. Storage in Taylor Park, Crawford, and Fruitland reservoirs totaled 85% of normal as of the end of May.

Outlook

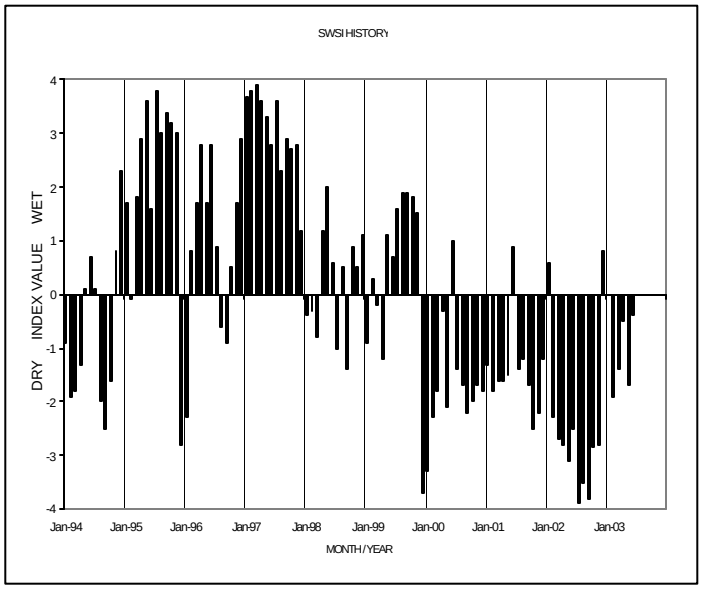
The unseasonable cool weather in April delayed the runoff, but the warmer weather in May caused the spring runoff to happen rather quickly. Since a lot of the snow pack has melted early, the flows in June are expected to drop quickly and be lower than normal.

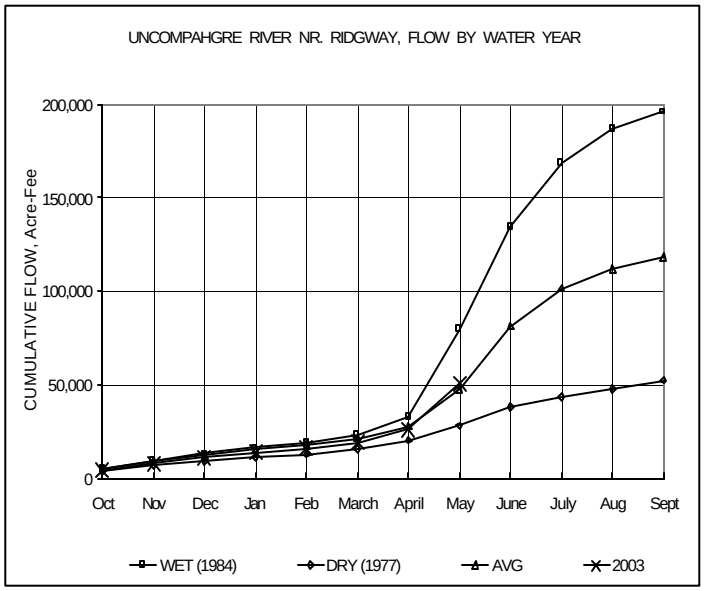
Administrative/Management Concerns

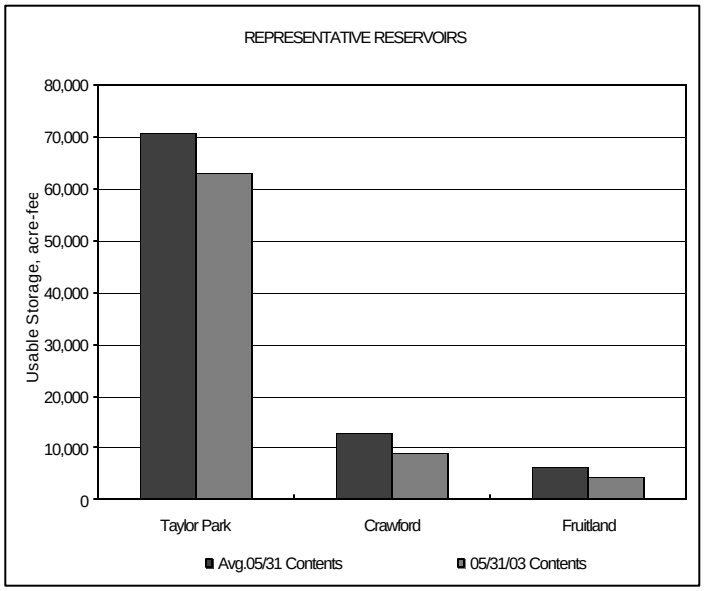
For all irrigators in the basin, it was a wonderful site to see the rivers full to their banks in May and the first part of June. Many irrigators that had not received any water in 2002 now have had a month long period where they received a full supply of water. Although some would have had the snow melt and the water come out a little slower, the high flows created an opportunity to store a lot of water in the reservoirs. For example, Blue Mesa Reservoir gained a whopping 103,000 af of storage in 10 days, Ridgway, Silver Jack, and Paonia Reservoirs filled and spilled, and Taylor Park gained 20,500 af. Many of the reservoirs on the Grand Mesa also filled, although some of the larger reservoirs could not. There were no major river calls in the month of May, but a call on both the Gunnison and Uncompahgre rivers are expected around the first of July.

Public Use Impacts

Reservoir storage helps everyone in the basin, including recreation and minimum stream flows when water is released later in the season. It also ensures a supply for crops to finish them to full harvest maturity, including the world famous Olathe-Sweet sweet corn the Uncompahgre Valley is known for. Overall, even though the snowpack was below average, it is so much better than last year. After experiencing the drought of 2002, people are thankful for an increased supply this year.







Basinwide Conditions Assessment

The SWSI value of –1.5 indicates that for May the basin water supplies were below normal. Flow at the gaging station Colorado River near Dotsero was 3,543 cfs, as compared to the long-term average of 4,470 cfs. Storage in Green Mountain, Ruedi, and Williams Fork reservoirs totaled 95% of normal as of the end of May.

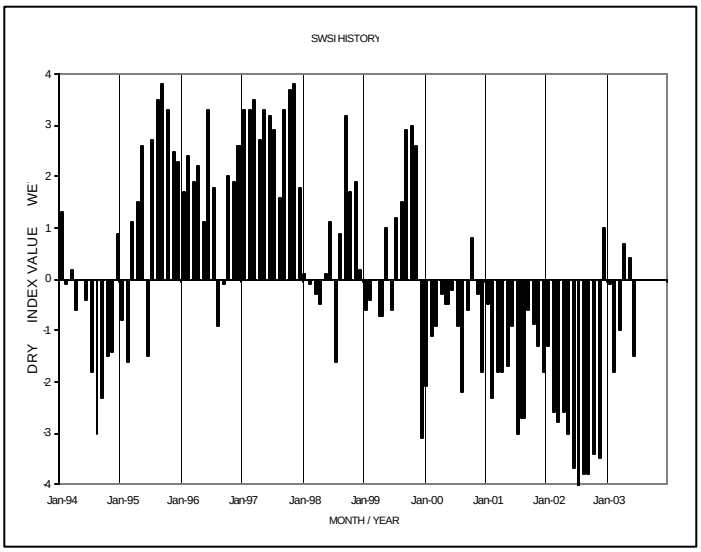
May precipitation was about 90% of average in the Colorado River basin, and well above average temperatures caused high runoff to many streams. Most streams peaked just before or on June 1, which is 2-3 weeks earlier than average, and runoff amounts were higher than has been seen since 1997. Colorado River flows at Cameo exceeded 20,000 cfs for the first time since 1997 and the Eagle River peaked at about 6000 cfs, only 1000 cfs below the all-time peak for the Eagle River.

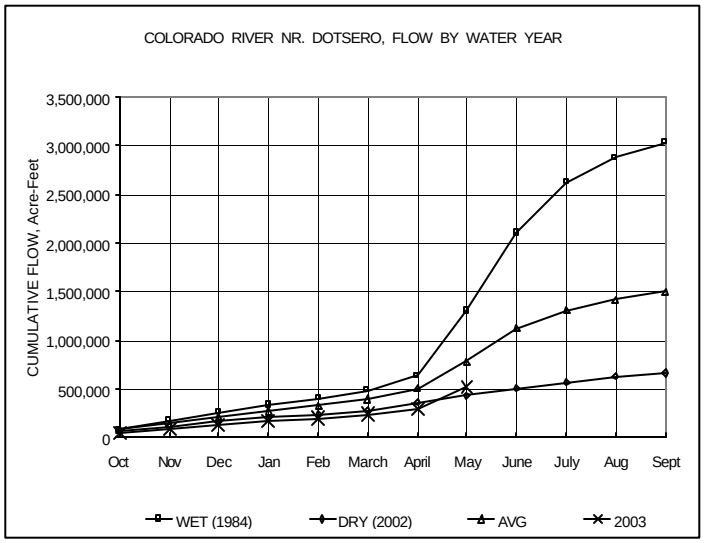
Snowpack for May started the month at over 100% of average but ended the month at less than 50% of average because of the fast, early meltout. Streamflow volume forecasts for April-July still range from 60-120% of average, with low runoff volumes predicted for Plateau Creek, Muddy Creek near Kremmling, Roaring Fork River and the Fryingpan River.

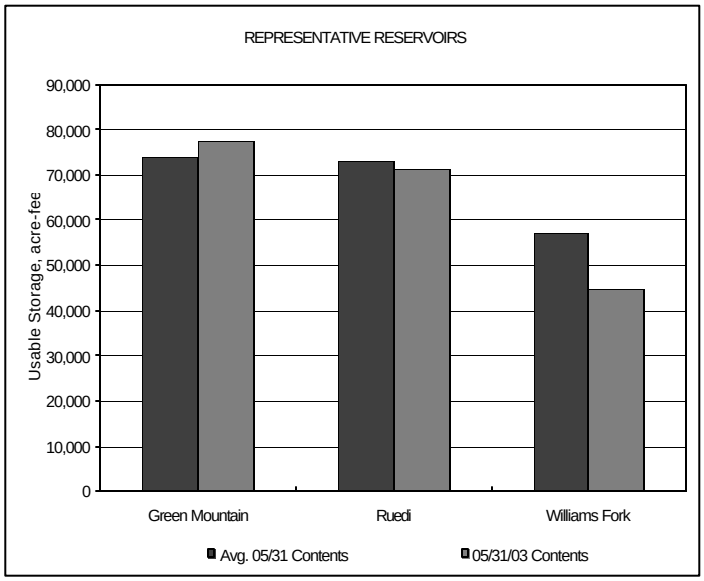
Reservoir storage has benefited from the large runoff in May with Vega Reservoir coming within 28AF of filling and predictions that Green Mountain, Ruedi, and Dillon Reservoirs will fill to within 90% of capacity this year.

Public Use Impacts

Rafting outfitters have been taking advantage of the high runoff on the Colorado River below Shoshone.



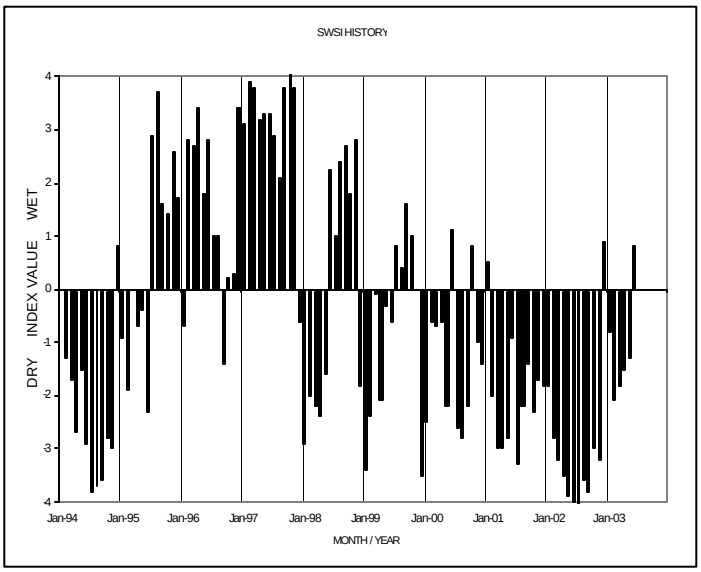


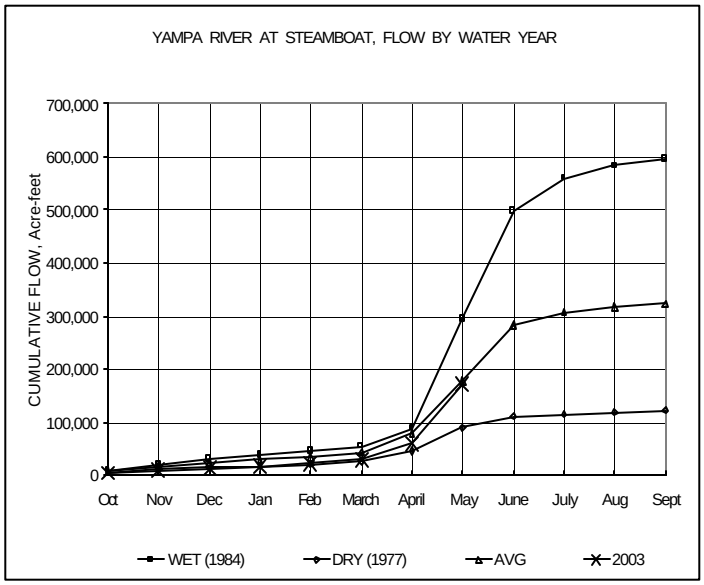


Basinwide Conditions Assessment

The SWSI value of +0.8 indicates that for May the basin water supplies were normal. Flow at the gaging station Yampa River at Steamboat was 1,830 cfs, as compared to the long-term average of 1,604 cfs.

May was the fourth month in a row with above average moisture. Basin-wide, precipitation was 110% of average as measured at the Snotel sites. For the water year to date, the basin is at 100 % of average precipitation. May was also warmer than normal and snowmelt began early. At the end of May, the snowpack for the North Platte River Basin was only 25% of average, down from 100% on May 1; for the Yampa-White River Basin end-of-month snowpack was 28 % of average, down from 85%. The early meltout resulted in above normal stream flows with some localized flooding. The June 1 stream flow forecast reported by the Natural Resources Conservation Service are 79 % of average for the North Platte near Northgate, 89 % of average for the Yampa River near Maybell, 79 % of average on the Little Snake near Dixon, and 85% for the White River near Meeker. The forecast runoff predictions for this month as compared to last are slightly lower for the North Platte River and considerably higher for the White River. Most reservoirs in the basin are either full or are expected to fill, with the exceptions of Stillwater and Yamcolo Reservoirs, which are at the headwaters of the Yampa River.





Outlook

The early meltout brought streamflows well above average. However, there is little snow remaining even at the higher elevations. If the rapid melt rate continues, measurable snow will be gone by the middle of June, with a corresponding drop in stream flows.

Administrative/Management Concerns

Storage in the North Platte will reach the limit of 17,000 acre-feet for irrigation use contained in the US Supreme Court decree in Nebraska v. Wyoming in early June. Storage will have to be released from junior storage rights to stay within the limit. Administration began on Piceance Creek in the White River basin in mid-May.

Public Use Impacts

Reservoirs are open and fishing activity is increasing. While the main rivers are running high, tributaries are dropping and many are running clear. Kayakers are enjoying the high flows on the Yampa River and its tributaries. Extreme caution is advised during this period of high stream flow.

Basinwide Conditions Assessment

The SWSI value of –1.3 indicates that for May the basin water supplies were below normal. Storage in McPhee, Vallecito, and Lemon reservoirs totaled 75% of normal as of the end of May.

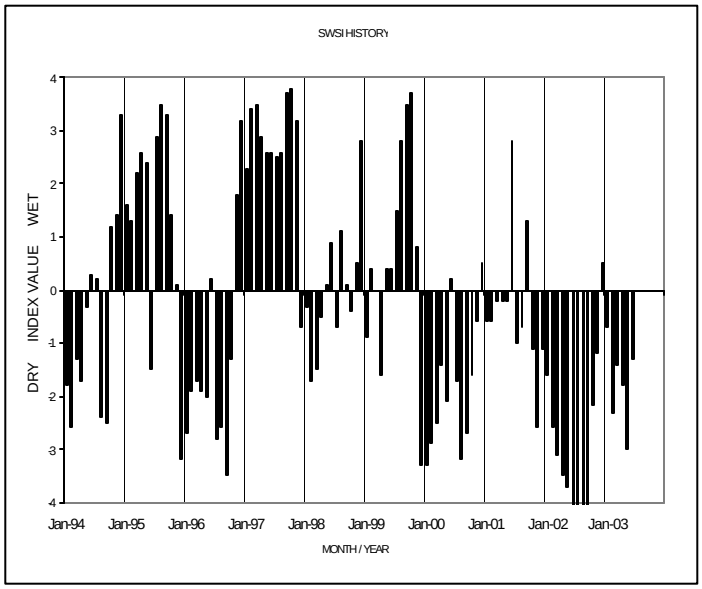
During May, stream flows made the water supply appear much better than it actually was. Temperatures were much warmer than normal. The lows in Durango averaged 6 degrees Fahrenheit higher than normal. The last freeze in Durango was on May 11. The last week of the month, highs were in the upper 80's and this resulted in much of the middle to high elevation snow melting out. By June 2, 2003 there was only 12% of normal snow water in the basin snow courses, the lowest in the state.

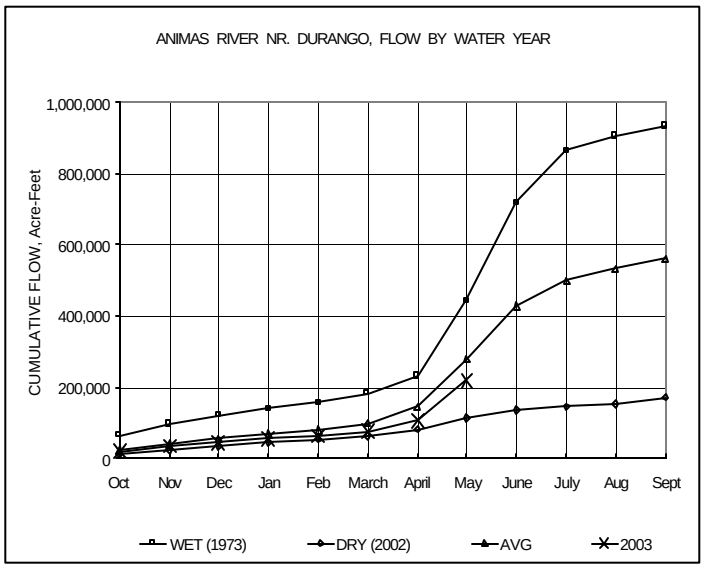
Stream flows, due to early melting, included water that would have run in June. The Animas River peaked at around 4700 cfs on May 29th in Durango. The Dolores River reached a peak day of 1850 cfs on May 28th. Other lower rivers reached apparent high flows between May 22 and May 29th. For the month they averaged above 60% of normal.

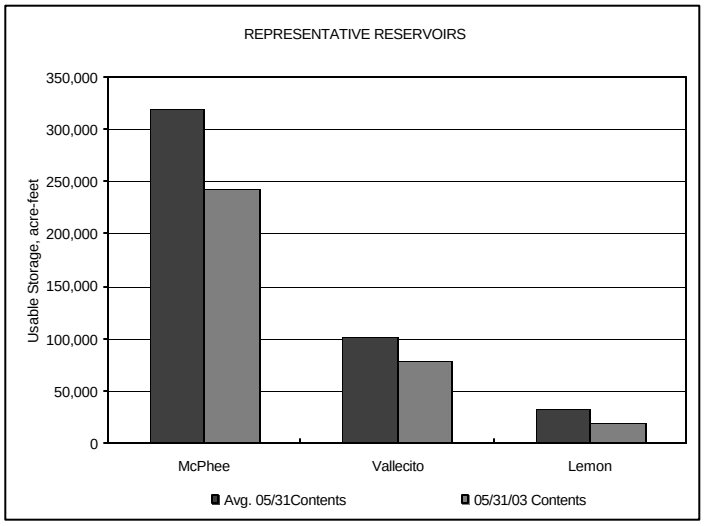
Reservoirs were able to manage supplies to store much more than originally expected. Vallecito reached 79,000 acre feet, which was 92% of normal. Lemon Reservoir stored almost half of its total capacity of 40,000 acre feet and McPhee reached a capacity of 77% of normal. This however will not be enough to give project users their needed supplies this year. The supply figures were encouraging but given the depleted mountain conditions and typical dry weather in June in this part of the state, it is expected that much of this stored water will be needed and little carryover will be available into the new year.

Spring fishing sports were active, and rafting and kayaking activities resumed with higher water. Rainstorms were infrequent, and the month ended with 0.77 inches of moisture, only 62% of normal.

Growth of native grasses in the fields was reported to be very good and the soil moisture was fair but drying out quickly with the warm breezes that blew daily.







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