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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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May 2007

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 snowpack, reservoir storage, and precipitation for the winter period (November through April). During the winter period, snowpack is the primary component in all basins except the South Platte basin where reservoir storage is given the most weight.

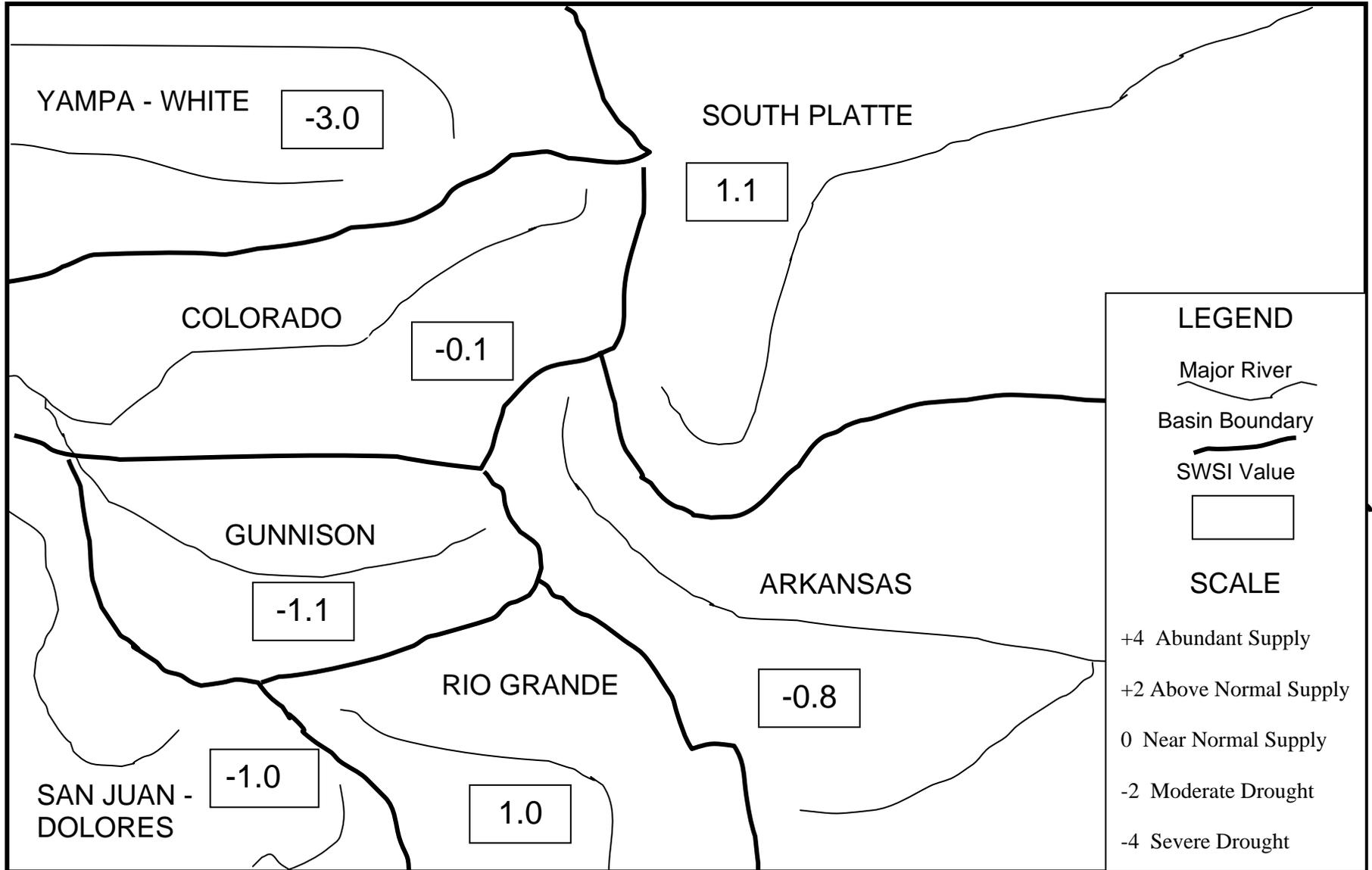
The statewide SWSI values for May range from a high value of 1.1 in the South Platte Basin to a low value of -3.0 in the White/Yampa Basin. Three of the basins (South Platte, Colorado, and Yampa/White) experienced a loss from the previous month's values. Three of the basins (Arkansas, Rio Grande, and Gunnison) experienced a gain from the previous month's values. One of the basins (San Juan/Dolores) remained unchanged from the previous month's values.

The following SWSI values were computed for each of the seven major basins for May 1, 2007, and reflect the conditions during the month of April.

<u>Basin</u>	<u>May 1, 2007 SWSI Value</u>	<u>Change From Previous Month</u>	<u>Change From Previous Year</u>
South Platte	+1.1	- 0.1	+1.2
Arkansas	- 0.8	+0.8	+0.1
Rio Grande	+1.0	+1.2	+2.7
Gunnison	- 1.1	+0.4	- 0.8
Colorado	- 0.1	- 0.1	- 0.7
Yampa/White	- 3.0	- 0.2	- 3.7
San Juan/Dolores	- 1.0	0.0	+0.7

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



May 1, 2007

Basinwide Conditions Assessment

The SWSI value for the month of May was 1.1. Cumulative storage for the six reservoirs graphed on this page was 111% of normal as of the end of April. Cumulative storage in the major plains reservoirs: Julesberg, North Sterling, and Prewitt, is at 101% of capacity. Cumulative storage in the major upper-basin reservoirs: Cheesman, Eleven Mile, Spinney, and Antero is at 95% of capacity. The Natural Resources Conservation Service reports that the May 1 snowpack is 101% of normal. Flow at the gaging station South Platte River near Kersey was 1566 cfs, as compared to the long-term average of 843 cfs. Flow at the Colorado/Nebraska state line averaged 201 cfs.

Outlook

A very large spring rain and snow storm improved flow conditions during the latter part of April completely removing the call on the South Platte River on April 25. The return flows and low elevation snow melt associated with this storm will allow free river conditions to exist for at least a couple of weeks. This is the longest period of free river in the spring after April 1 since 2001 and bodes well for a good irrigation year.

The flow at the Kersey gage has exceeded the average in the last three months. This above average flow has allowed the major irrigation reservoirs on the South Platte to fill despite the fact that many of these reservoirs were either near or totally empty going into this water year back in November, 2006. Above average flows for the last three months have not occurred since 2001. With overall snowpack at approximately average at the end of April, it is possible that high flows will continue for much of May and June.

Administrative/Management Concerns

The free river conditions and high flows allowed users to recharge significant amounts of water in addition to storage. The river credits associated with this recharge will be an invaluable resource of replacement water for well user groups to replace their delayed depletions from well pumping later this year and in the years to come.

Flow at the state line continued to be below average despite the wet conditions due to the demand to fill reservoirs, recharge demand and the dry conditions the last several years along the South Platte.

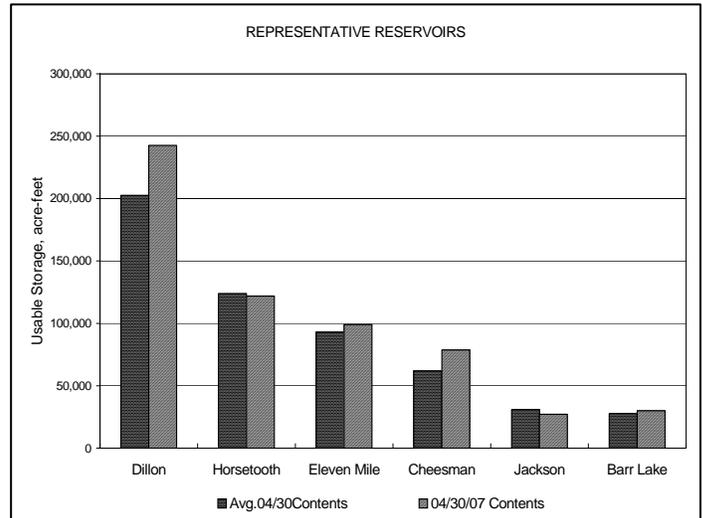
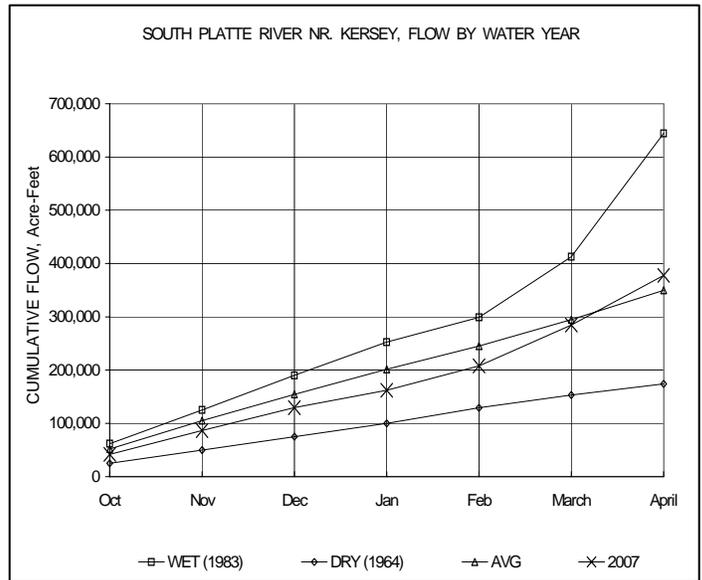
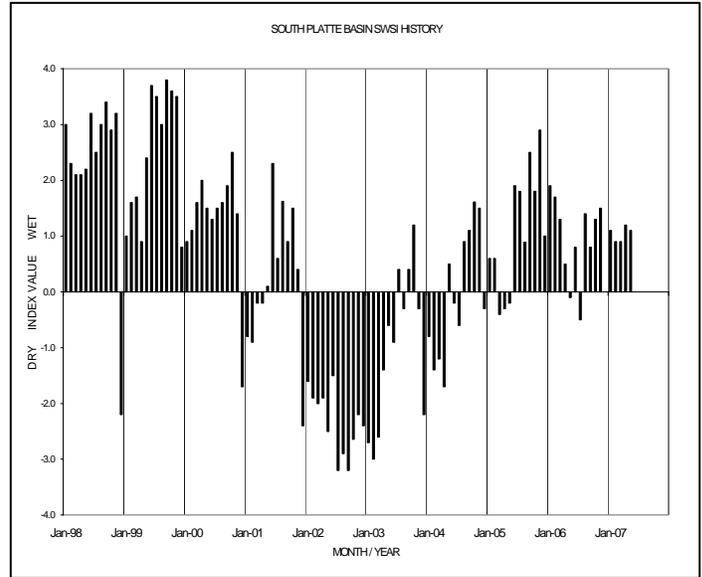
The only tributary basin with significantly below average flows and storage is the Poudre basin. Like the remainder of the South Platte basin downstream of Denver, the Poudre suffered a very dry year last year. Unlike the southern part of the South Platte basin, there have not been significant storms in the Poudre basin this year adding to the flow. This may have a significant impact as the Poudre is by far the largest tributary basin in respect to agriculture. As of this date, we do not anticipate any shortages of supply for municipal users in the Poudre basin.

With the high flows toward the end of the month, the concern about flooding existed on the South Platte for the first time in several years. Along that line, the Corp of Engineers took control of operation of both Cherry Creek and Chatfield after the late April storm. This only occurs when the flow of the river reaches into the flood pool of these reservoirs or releases from the reservoirs are limited in response to downstream high flow conditions. Otherwise, Division 1 operates the gates in accordance with the prior appropriation doctrine.

Public Use Impacts

The Northern Colorado Water Conservancy District set its quota for the CBT system at 80%. This source of supplemental supply is valuable to both cities and farming communities. We anticipate the quota will be very helpful to agricultural users in the Poudre basin.

The trial for the Central Colorado Well Augmentation Plan (WAS) representing over 200 wells is scheduled to conclude the first week of May. After trial, the court will allow parties several weeks to submit proposed terms of approval or denial of the plan. The Judge has indicated that it is unlikely he will rule in this case for a significant time period after this information is submitted.



Basinwide Conditions Assessment

The SWSI value for the month of May was -0.8. The Natural Resources Conservation Service reports that the May 1 snowpack is 90% of normal. Flow at the gaging station Arkansas River near Portland was 489 cfs, as compared to the long-term average of 425 cfs. Storage in Turquoise, Twin Lakes, Pueblo, and John Martin reservoirs totaled 101% of normal as of the end of April.

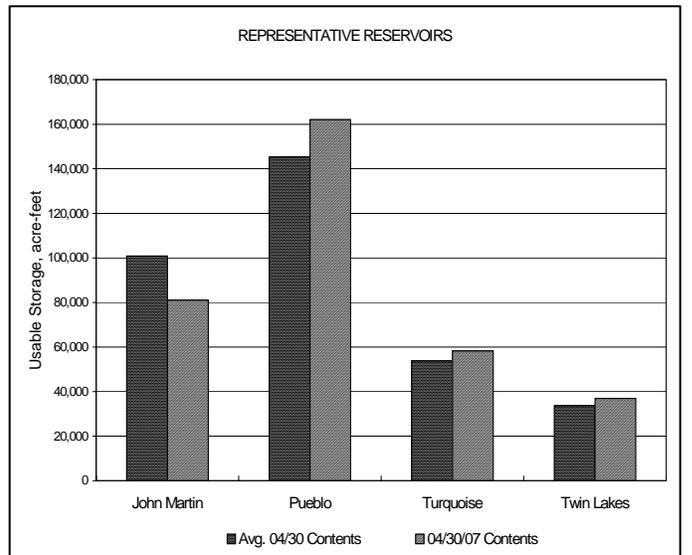
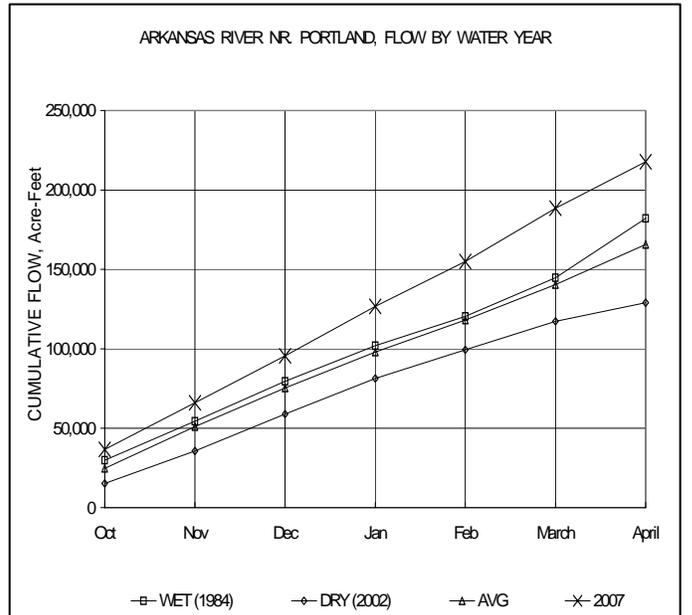
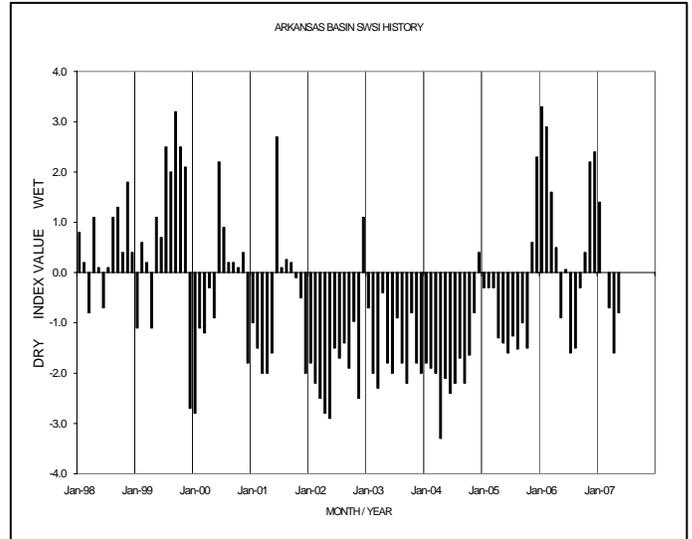
Outlook

Ditches below John Martin Reservoir did not call for water from the reservoir prior to April 7, 2007 at 08:00 hours; consequently the distribution of conservation storage into accounts per the 1980 Operating Agreement for John Martin Reservoir began on the above date and time. Total storage from November 1, 2006 through April 30, 2007 distributed into accounts in John Martin Reservoir was approximately a net of 52,790 acre-feet. This storage volume was a large improvement from last year when the conservation storage totals were less than 20,000 acre-feet.

The Arkansas River call started at Fort Lyon Canal's second water right (3/1/1887) and ended on Holbrook Canal's water right (9/25/1889). Irrigation demand was surprisingly low in April, partially due to the eastern plains snows that inhibited early farming operations, especially below John Martin Reservoir.

Administrative/Management Concerns

Preliminary compliance model results (H-I Model) produced by Colorado experts at the end of March indicated that the well associations in the Arkansas Basin were successful in providing adequate replacement water to the river and to the Offset Account in John Martin Reservoir to bring Colorado into compliance with the Arkansas River Compact for the first ten-year accounting period (1997-2006). Kansas experts have until May 15, 2007 to review the model results and provide any revisions, but the preliminary results were extremely good news for the well associations.



Basinwide Conditions Assessment

The SWSI value for the month of May was 1.0 The Natural Resources Conservation Service reports that the May 1 snowpack is 74% of normal. April flow at the Rio Grande near Del Norte gaging station averaged 913 cfs (120% of normal). The Conejos River near Mogote had a mean flow of 282 cfs (90% of normal). Flow to the state line was 78% of normal. Alamosa received 276% of its average precipitation during April while the mountains surrounding the San Luis Valley received 132% of their average precipitation. This was the first month since January that Division 3 had seen above normal precipitation. The average temperature at Alamosa for April was 42.6 degrees Fahrenheit, which is 1.8 degrees above normal. Storage in Platoro, Rio Grande, and Santa Maria reservoirs totaled 95% of normal as of the end of April.

Outlook

Even with the above average precipitation in April, NRCS forecasts are now predicting irrigation season runoff to be 73% of average for the Rio Grande near Del Norte and 72% for the Conejos River near Mogote. The Sangre de Cristo Mountain Range is fairing better than the San Juan Range in terms of runoff potential, but is still lower than normal. Runoff forecasts for Sangre de Cristo streams range from 78% of average for Culebra Creek to 96% of average for Sangre de Cristo Creek. The lowest runoff, compared to average, is expected on the San Antonio River, with a projection of just 49% of average flow for the April through September time period.

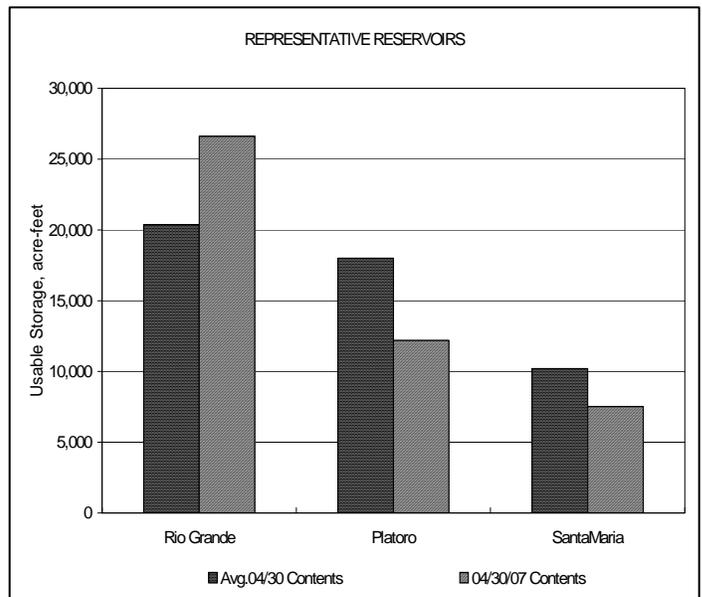
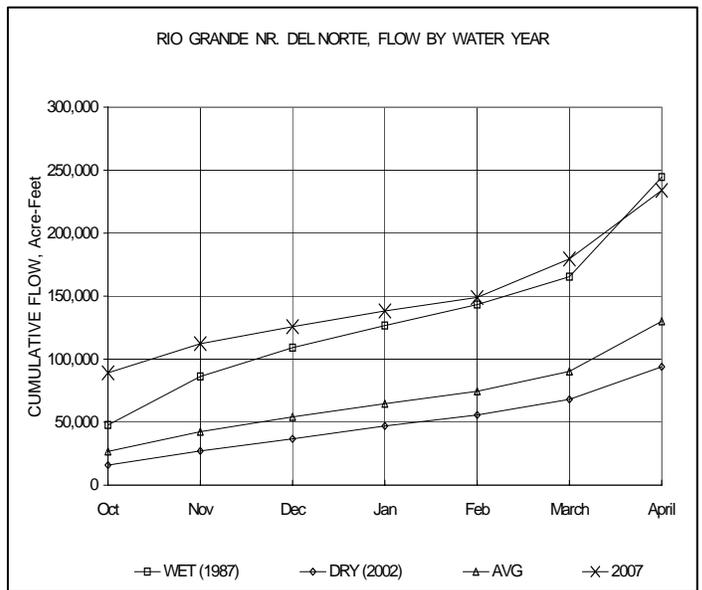
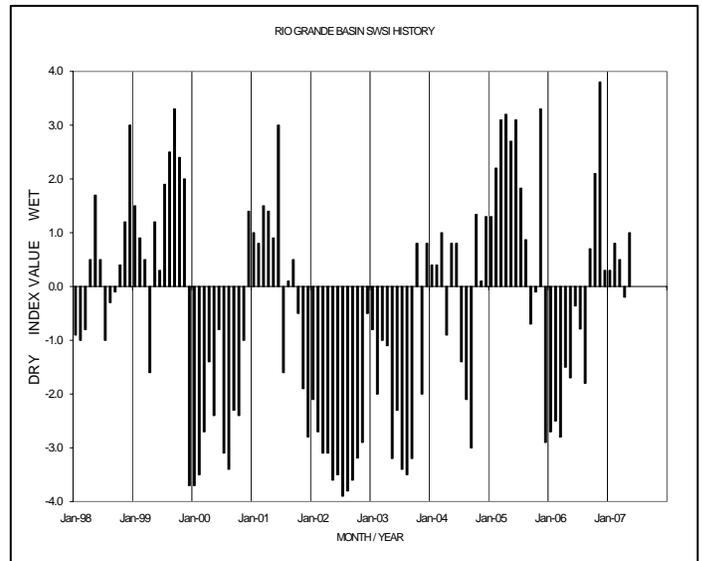
Administrative/Management Concerns

Diversions on both the Rio Grande and Conejos River systems were turned on April 4, allowing those ditches that wanted water to begin diverting. Many ditches bypassed all or a portion of their available water throughout most of the month of April due to the relative abundance of moisture on the valley floor, and the difficulty of cleaning their ditches in the wet conditions. Current projections indicate that Colorado's obligation to downstream states under the Rio Grande Compact will be met without having to curtail Rio Grande or Conejos River surface water users this summer. Presently there is no curtailment on either river, but there is still a significant amount of flow at the state line due mainly to return flows and tributary inflows. A curtailment of ditches may still be necessary this year if we encounter large rainfall events that greatly increase the amount of flow in the rivers, and consequently increase the compact delivery obligation.

Public Use Impacts

Weather conditions during April prevented many farmers from working in the fields as early as they would like. If the current pattern of spring storms continues, the groundwater usage should decrease, allowing for a better chance of some aquifer recovery.

The warmer weather to come should cause the flow in area rivers and streams to increase significantly in the near future, although no flooding is currently anticipated.



Basinwide Conditions Assessment

The SWSI value for the month of May was -1.1. The Natural Resources Conservation Service reports that the May 1 snowpack is 52% of normal. Flow at the gaging station Uncompahgre River near Ridgway was 128 cfs, as compared to the long-term average of 111 cfs. Storage in Taylor Park, Crawford, and Fruitland reservoirs totaled 143% of normal as of the end of January.

Most of the Grand Mesa reservoirs have filled and Crawford, Fruitland, and Fruitgrowers Reservoirs are spilling. Blue Mesa Reservoir gained approximately five feet of storage during April due to a low and consistent release from the Aspinall Storage Unit. Streamflow through the Black Canyon was in the 400 to 500 cfs range during April. Ridgway Reservoir storage was reduced during the month to create space for runoff.

Streamflows fluctuated widely during April as unusual weather patterns brought little snow and warm temperatures. In general, streamflow was well above normal the first two weeks of the month, followed by a two-week lull where streamflow stabilized due to a mid-month snowstorm and cooler temperatures. Warm, almost hot, temperatures at the end of the month created a five-day "spike" in streamflow. Significant snow and cold temperatures May 4 – 6 dropped streamflow radically.

Outlook

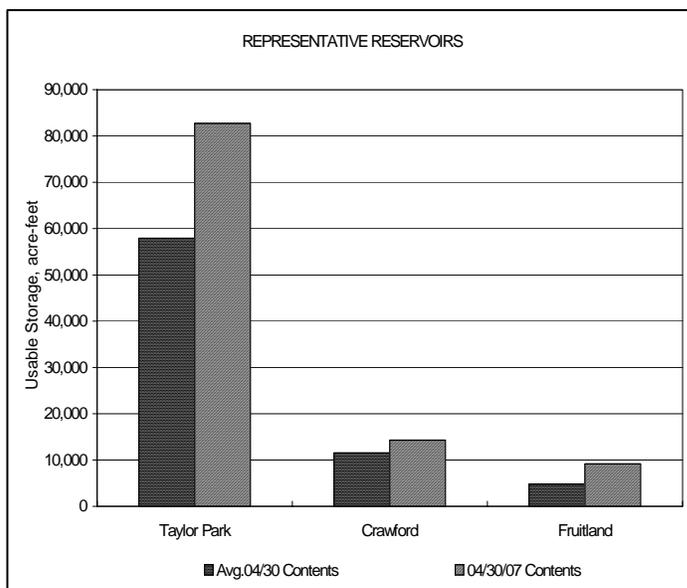
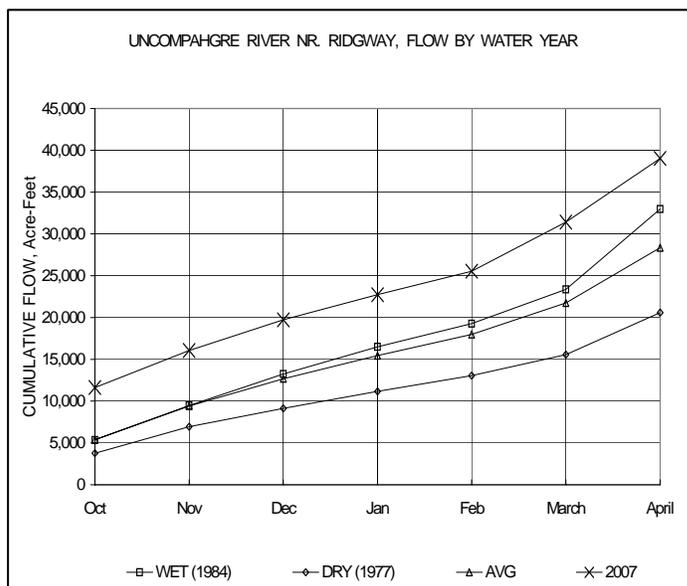
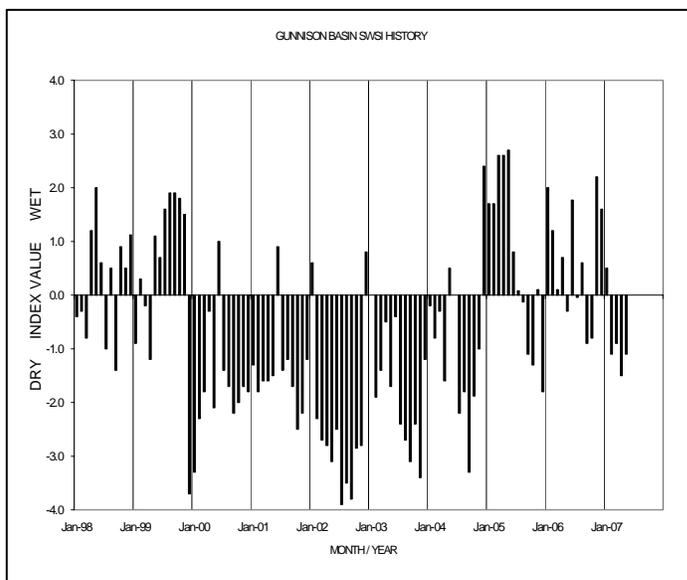
The May 1, 2007 streamflow forecasts issued by the Natural Resources Conservation Service (NRCS) for runoff in the Gunnison River basin are poor. There was little or no improvement during April, typically a very snowy month. At this time, no sub-basins of the Gunnison are forecasted to experience an average runoff this year. The highest is the Lake Fork of the Gunnison at 87%. The lowest is the Tomichi Creek basin at only 49% of normal. The San Miguel near Placerville is slated for only 64% of normal runoff. Most of the major rivers and creeks in the Gunnison basin are expected to produce 55 to 70% of normal runoff. A drive around the basin reveals meager snowpack conditions at elevations below 11,000 feet. The runoff is expected to peak early and be of much shorter duration this year. Reservoir storage releases will be necessary to meet irrigation demands. Many creeks will go "on call" earlier than normal.

Administrative/Management Concerns

The lack of precipitation during the late Spring has resulted in administrative adjustments. In an effort to prepare for the low runoff, streamflow below the Gunnison Tunnel and into the Black Canyon will be held less at than 500 cfs until the beginning of July when a gradual increase will bring flows up to the 800 cfs range by mid-September. The balance of meeting irrigation, environmental and recreational demands on the mainstem of the Gunnison River is very difficult.

Public Use Impacts

Lack of snowfall during April was very discouraging for the agricultural and recreational interests of the basin.



Basinwide Conditions Assessment

The SWSI value for the month of May was -0.1. The Natural Resources Conservation Service reports that the May 1 snowpack is 67% of normal. Flow at the gaging station Colorado River near Dotsero was 1526 cfs, as compared to the long-term average of 1785 cfs. Storage in Green Mountain, Ruedi, and Williams Fork reservoirs totaled 142% of normal as of the end of April.

Outlook

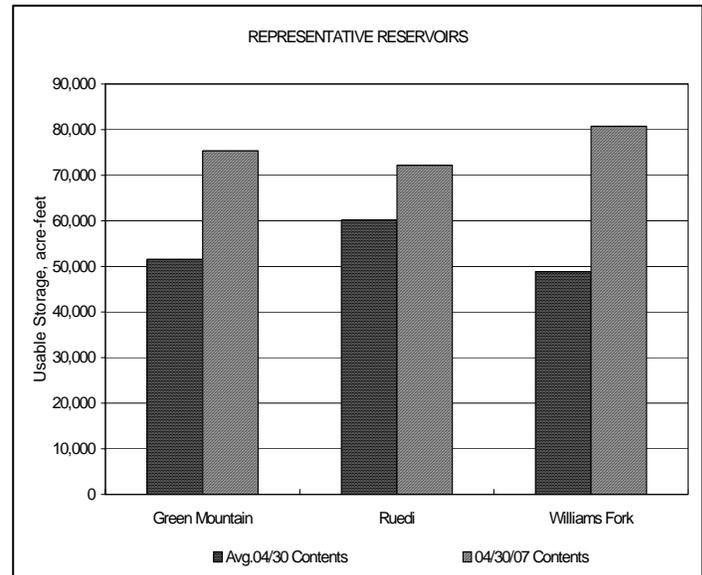
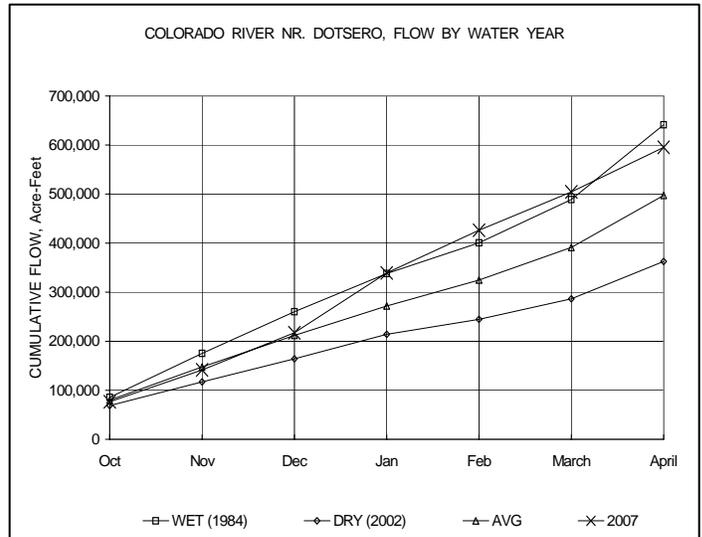
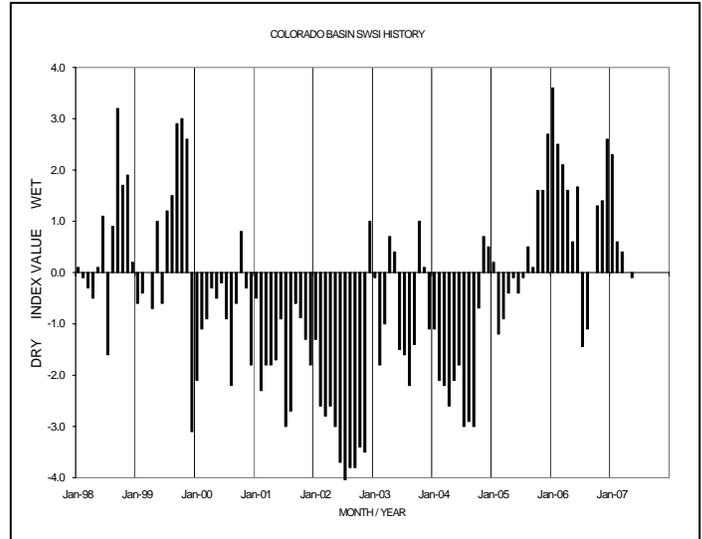
According to the BLM, experts are predicting an average wild fire season due to above average spring precipitation. Wild fire activity is expected to range from stagnant to short lived blazes for May through August. June's forecast will highlight fire activity for the late summer.

Administrative/Management Concerns

Although the outlook is promising for the reservoirs to fill, meetings are being held to determine if the Coordinated Reservoir Operations (CROS) will occur. Established over a decade ago as part of the Upper Colorado River Basin Endangered Fish Recovery Program, CROS attempts to have reservoir releases help enhance peak flows in the 15 Mile Reach in the Grand Junction area. When snow pack is at or above average, reservoir managers coordinate to determine if this extra water can be passed to the endangered fish. April data gave the operators an uncomfortable indication for the operation this spring.

Public Use Impacts

State of the River meetings are scheduled to be held throughout Division 5 this month. Coordinated through the Colorado River District, these community meetings help the local water users with their interests and concerns. The meeting places and dates are: 1) for the Roaring Fork valley at the Basalt High School on May 9th; 2) for Mesa County at the Grand Junction City Council Chambers on May 10th; 3) for Grand County at the Granby Town Hall on May 15<sup>th</sup> and 4) for Summit County at the Community and Senior Center on May 16. All meetings start at 7:00 p.m.



Basinwide Conditions Assessment

The SWSI value for the month of May was -3.0. Flow at the gaging station Yampa River at Steamboat was 578 cfs, as compared to the long-term average of 596 cfs. April precipitation was below average for the basin. Precipitation for the month, as measured at the SNOTEL sites operated by the NRCS, averaged 66% of normal for the Yampa, White, and North Platte River basins combined. For the Yampa and White River basins, precipitation totaled 62% of average and, for the North Platte River basin, precipitation totaled 71% of average. The snow water equivalent (SWE) as of May 1, 2007 for the Yampa and White River basins was 41% of average and for the Laramie and North Platte River basins was 66% of average. For the individual basins, the snowpack at the end of the month were: 64% of average for the North Platte River basin, 37% of average for the Yampa River basin and 57% of average for the White River basin. The latest runoff forecasts from the NRCS for the May through July period are 67% of average for the North Platte River at Northgate, 46% of average for the Yampa River near Maybell, 40% of average for the Little Snake River near Lily, and 52% of average for the White River near Meeker.

Outlook

The May forecast for the area, based on NOAA data, is for an equal chance of normal temperatures and an equal chance of normal precipitation.

Fish Creek Reservoir storage level at the end of April was reported at approximately 85% of capacity. Yamcolo Reservoir storage level at the end of April was at capacity. Officials continued to store as much inflow as possible at Elkhead Creek Reservoir, which was at its' enlarged capacity (approximately 24,900 acre-feet) and spilling by April 21. Water stored in Fish Creek Reservoir is used primarily for municipal purposes, Yamcolo Reservoir for irrigation purposes, and Elkhead Creek Reservoir for municipal, industrial, recreation, and in the future, fish recovery releases.

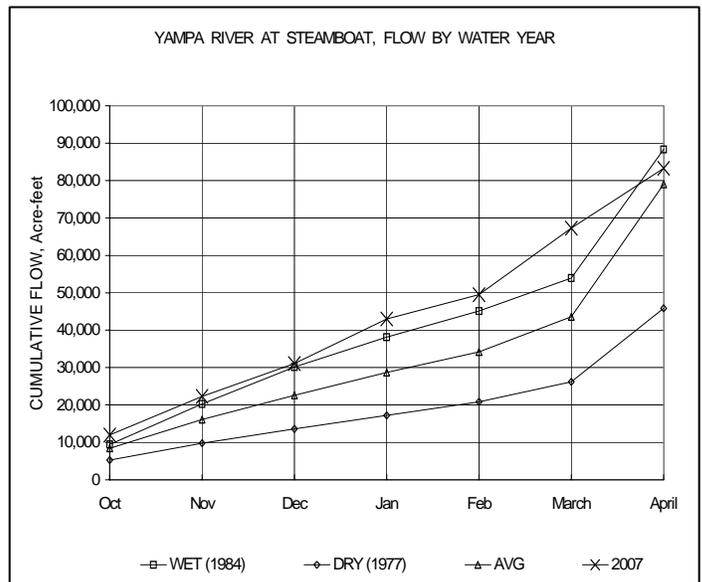
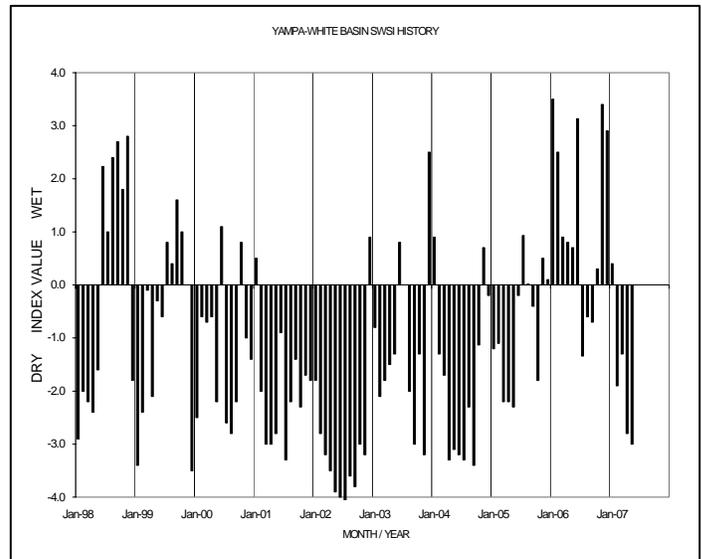
Administrative/Management Concerns

A review of April 30 snowpack/SWE data since the year 2000 indicates that only 2002 had a lower % of average than this year. Due to this extremely low snowpack/SWE, Division 6 is anticipating a dry irrigation season with many streams under administration over the next several months. A call was placed on the Michigan River on April 25 and it was under administration until April 29.

The River District is intending to release water from Elkhead Creek Reservoir this summer, which Division 6 is responsible for protecting through the Yampa River critical habitat reach.

Public Use Impacts

Elkhead Creek Reservoir opened on May 5 for day-use fishing and recreational activities after being closed for almost two years.



Basinwide Conditions Assessment

The SWSI value for the month of May was -1.0. The Natural Resources Conservation Service reports that the May 1 snowpack is 53% of normal. Flows at the Animas River at Durango averaged 832 cfs (99% of normal) with a maximum average daily peak flow of 1760 cfs on Apr. 30<sup>th</sup>. The Dolores River at Dolores averaged 743 cfs (84% of normal) with a maximum average daily peak flow of 1190 cfs on Apr. 30<sup>th</sup>. The La Plata River at Hesperus averaged 44.6 cfs (55% of normal) with a maximum average daily peak flow of 93.3 cfs on Apr. 30<sup>th</sup>. Precipitation in Durango was 1.26 inches for April which is below the 30-year average of 1.49 inches. Precipitation to date in Durango, for the water year, is 10.18 inches which is below the average of 11.37 inches. After a warmer than normal March, temperatures in April were in the normal range for the month. Durango was 0.4° above its 30-year average high and 0.6° above its 30-year average low.

At the end of the month Vallecito Reservoir contained 102,540 acre-feet compared to its normal contents of 62,980 acre-feet (163% of normal). The storage in Vallecito Reservoir is the highest amount stored for an end of April period based on 66 years of record. McPhee Reservoir was up to 343,764 acre-feet compared to its normal contents of 291,520 acre-feet (118% of normal), while Lemon Reservoir was up to 36,290 acre-feet as compared to its normal content of 22,294 acre-feet (163% of normal). The storage in Lemon Reservoir is the highest amount stored for an end of April period based on 44 years of record. Storage in McPhee, Vallecito, and Lemon reservoirs totaled 122% of normal as of the end of April.

Outlook

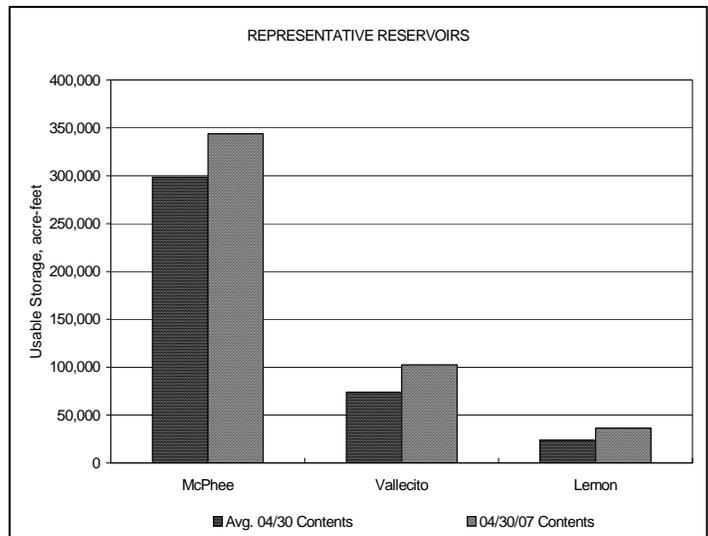
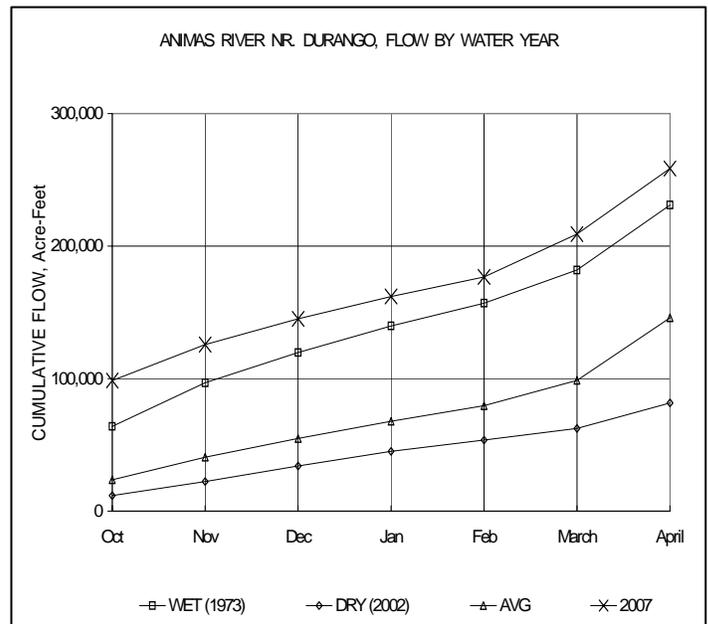
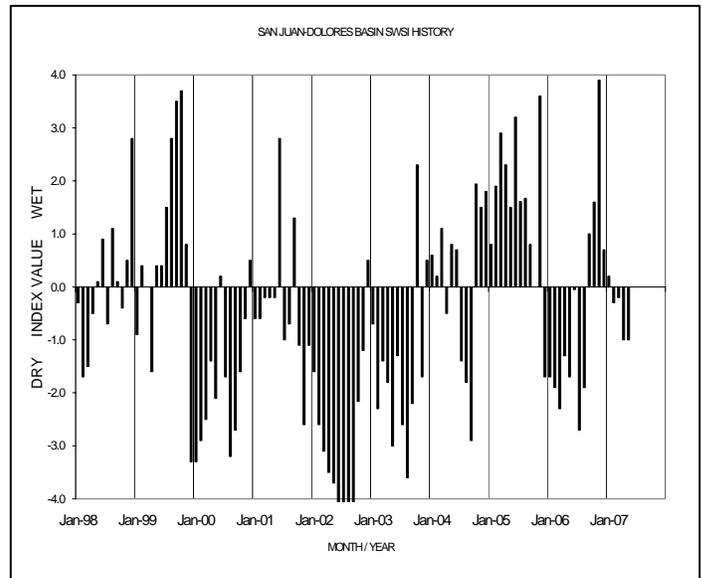
Normal temperatures in April have slowed the melting of snow pack which is good news considering the basin is at 55% of its average snow pack for this time of year. A couple of snow sites are reporting 0% snow water equivalent (Cascade and El Diente Peak) with a few snow sites clinging to a snow water equivalent slightly above 0% (Lone Cone 1%, Mancos 2%, Scotch Creek 3%). Reservoir storage remains the bright spot in the basin with above average storage. Late spring storms have brought snow to the high mountain peaks and rain to the lower levels. We hope this continues well into May in order to sustain stream and reservoir levels as the monsoon season does not begin until July.

Administrative/Management Concerns

The La Plata compact continued to be on call the entire month of April. New Mexico placed a call for 35 cfs on March 28<sup>th</sup> which continued until April 30<sup>th</sup> when they placed a call for 80 cfs.

Public Use Impacts

With spring in full bloom, kayaking has continued to be observed by DWR staff on the Animas River.



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