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
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November 2002

The state enters the 2003 water year with dry conditions statewide, evidenced by all basins having negative SWSI values. The widespread above average precipitation that began in September continued into October over some areas, resulting in select streams experiencing a minor increase in flow. Those basins with increased SWSI values over last month reflect the benefit of those precipitation and stream flow affects. Even though there were some small benefits, all stream flows remain significantly below average. Statewide reservoir storage is also well below normal, at about 52% of average, with only rare instances of individual reservoirs containing above normal amounts.

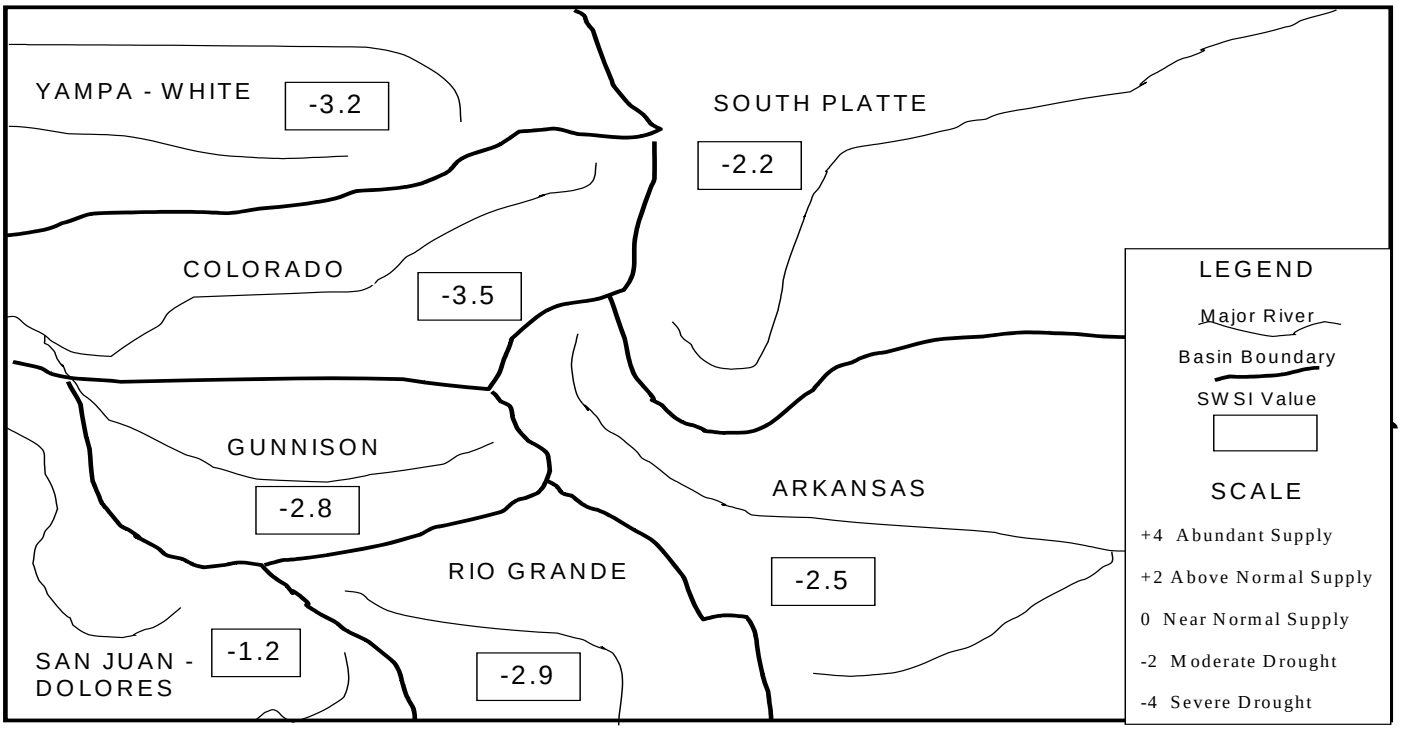
The Surface Water Supply Index (SWSI) developed by this office and the U.S.D.A. Natural Resources Conservation Service is used as an indicator of mountain-based water supply conditions in the major river basins of the state. It is based on stream flow, reservoir storage, and precipitation for the summer 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 November 1, 2001, and reflect the conditions during the month of October.

Basin	November 1, 2001 SWSI Value	Change From Previous Month	Change From Previous Year
South Platte	-2.2	+0.4	-2.6
Arkansas	-2.5	-1.5	-2.0
Rio Grande	-2.9	+0.3	-1.0
Gunnison	-2.8	+0.1	-0.6
Colorado	-3.5	-0.1	-2.2
Yampa/White	-3.2	-0.2	-1.5
San Juan/Dolores	-1.2	+1.0	+1.4

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



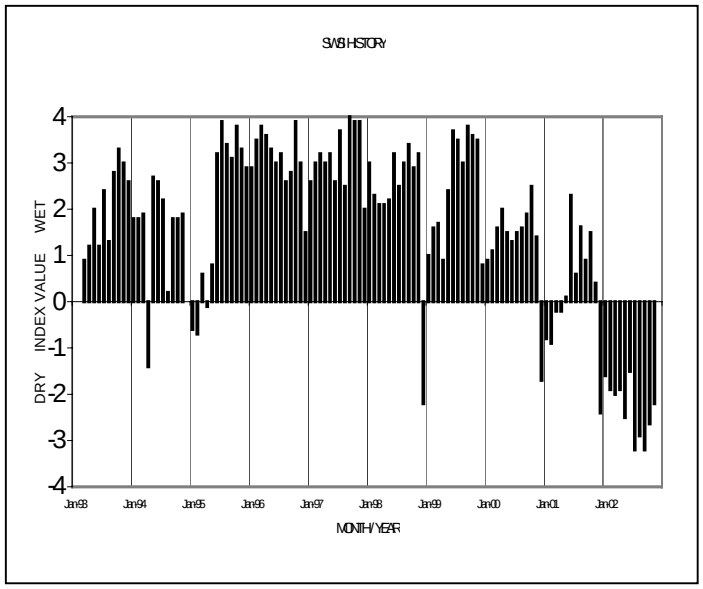
NOVEMBER 1, 2002

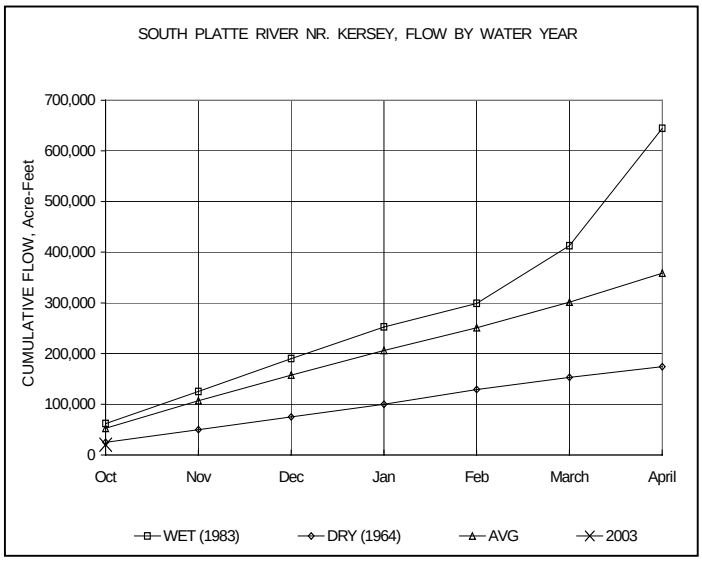
Basinwide Conditions Assessment

The SWSI value of –2.2 indicates that for October 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 October. Cumulative storage in the major plains reservoirs: Julesberg, North Sterling, and Prewitt, is at 5% of capacity. Cumulative storage in the major upper-basin reservoirs: Cheesman, Eleven Mile, Spinney, and Antero is at 50% of capacity. Flow at the gaging station South Platte River near Kersey was 325 cfs, as compared to the long-term average of 894 cfs. Flow at the Colorado/Nebraska state line averaged 25 cfs.

A more extended period of irrigation for hay and beets, and initial irrigation of winter wheat planted by users as a safeguard in case the drought continues and there is not adequate water for irrigation next spring, kept a direct flow irrigation call on the whole South Platte River until the last week of October. The call changed during the last week as a regional storm reduced irrigation demand and provided additional water supplies.

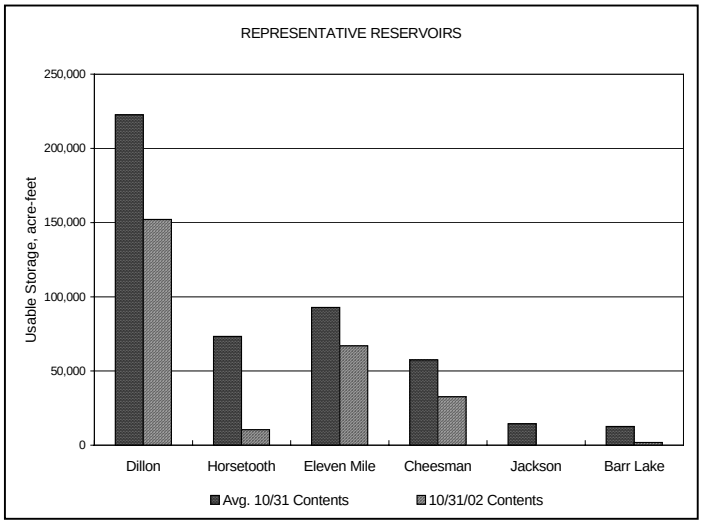
The storm the last week of October did allow for some storage to begin as water was taken at North Sterling Reservoir. Beginning November 1 reservoir storage began in earnest throughout the basin. The first plains reservoirs to receive water will be Jackson, Julesburg, and Riverside Reservoirs. As these reservoirs approach their winter storage levels, storage will be allowed in the remaining plains reservoirs. To assure maximum beneficial use, out-of-priority storage is being allowed in situations where there would not be injury, meaning situations where the junior user can release any out-of-priority water and get it to senior users should the seniors not fill their reservoir.





Outlook

Because of irrigation demand, the storage and recharge that normally occurs in October did not occur. Even in recent dry years like 1994 and 2000, conditions allowed for significant storage in plains reservoirs during October. With empty reservoirs at the end of the season and no significant storage in October, it will be very hard to fill all the plains reservoirs by spring even if conditions are normal. In addition, the loss of recharge in October will seriously impact the amount of augmentation water available to wells next spring.



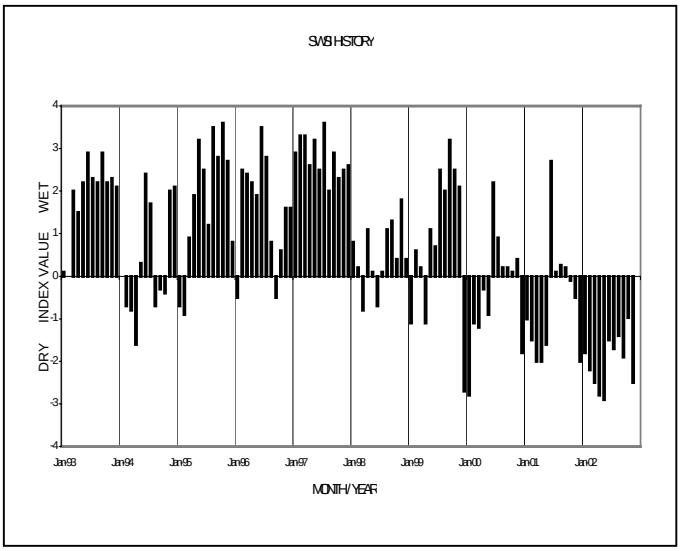
Public Use Impacts

Denver Water, which owns all water in Chatfield Reservoir, is designing 3 pump stations that will allow it to use Chatfield water directly in its treated water system. Until now it has only been able to use the water indirectly by exchange or via contract deliveries to other water users. The first temporary pump will be installed this fall. Next spring permanent pumps will be installed at the manifold works of Chatfield and upstream of the reservoir. The primary purpose will be to take water released from Strontia Reservoir for minimum flows below Strontia, but they could be used to lower the reservoir itself if drought conditions continue.

Basinwide Conditions Assessment

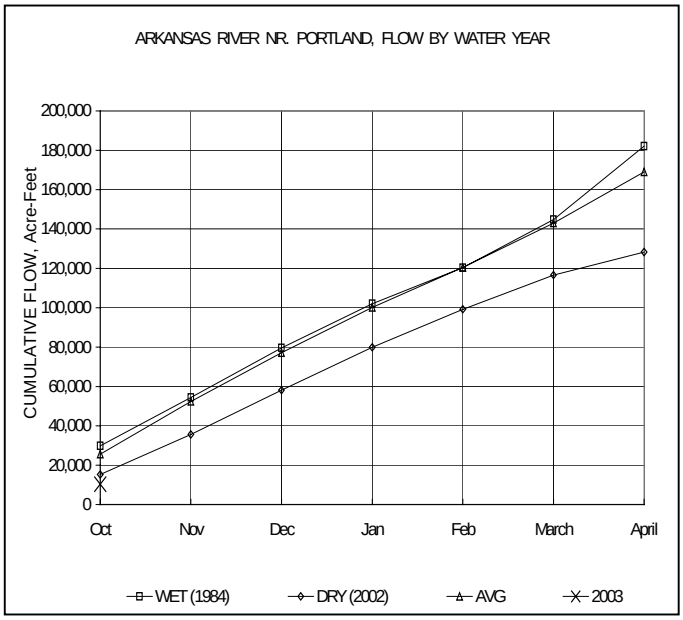
The SWSI value of –2.5 indicates that for October the basin water supplies were below normal. Flow at the gaging station Arkansas River near Portland was 168 cfs, as compared to the long-term average of 426 cfs. Storage in Turquoise, Twin Lakes, Pueblo, and John Martin reservoirs totaled 45% of normal as of the end of October.

NOTE: Due to changes in reservoir operations since the SWSI was developed in 1981, which caused an inappropriately high SWSI value to be computed in recent years, the reservoir statistic used in computing the SWSI value has been adjusted as of this month.



Outlook

The trend towards an increasingly junior river call continued in October. The Fort Lyon Canal was finally able to consistently divert water under their April 15,1884 right for the first time since July 2002. There is still some lingering uncertainty about operations during the Pueblo Winter Water Program and the Winter Conservation Storage period in John Martin Reservoir. River flows above Pueblo Reservoir trended slightly higher, but still well below averages. River flows into John Martin Reservoir are sill significantly below average.

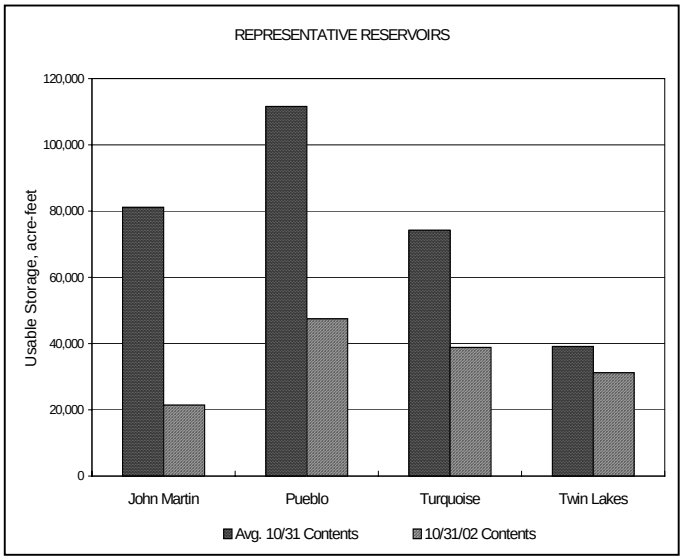


Administrative/Management Concerns

Water users and administrators are looking optimistically at some of the early season snowfall amounts, but continue to prepare for what looks to be another water short year in 2003 in terms of water available for augmentation purposes.

All of the major well users associations are evaluating their replacement supplies and are looking for any new sources that could be tapped to allow some reasonable level of augmented well pumping to occur in 2003.

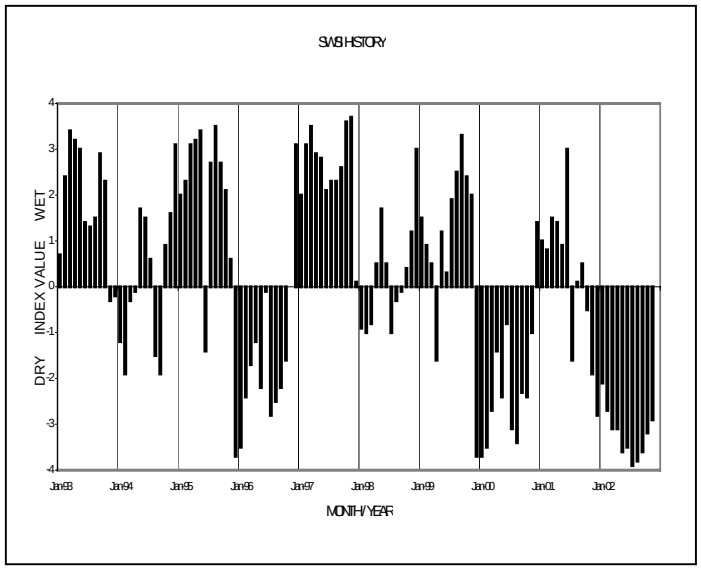
Imports of Fryingpan-Arkansas Project water will still be a critical factor in determining how tight water supplies will be in 2003.



Basinwide Conditions Assessment

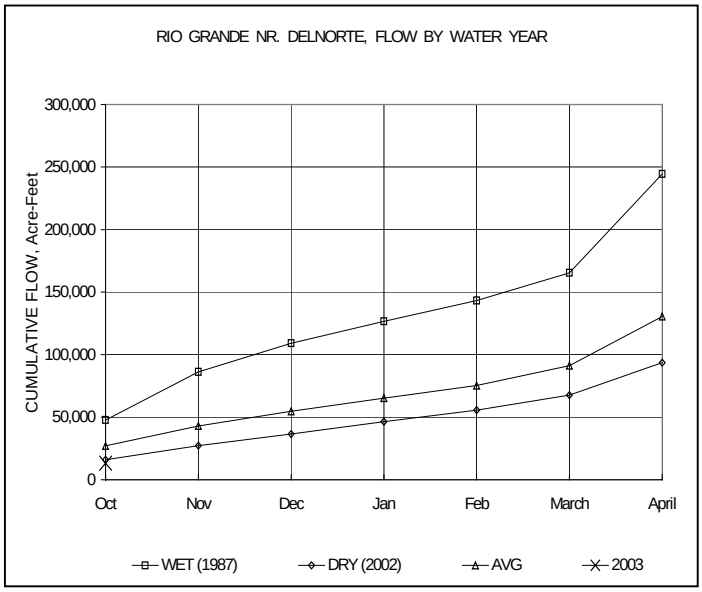
The SWSI value of –2.9 indicates that for October the basin water supplies were well below normal. Flow at the gaging station Rio Grande near Del Norte was 215 cfs, as compared to the long-term average of 446 cfs (48% of normal). The Conejos River near Mogote had a mean flow of 48 cfs (41% of normal). Storage in Platoro, Rio Grande, and Santa Maria reservoirs totaled 88% of normal as of the end of October.

During October precipitation in Alamosa was 0.57 inches, 0.10 inches below normal. Rain and snowfall events late in the month brought significant snowpack to the mountains. As the month drew to a close, the sight of white-capped peaks surrounding the San Luis Valley was delightful.



Outlook

Precipitation in the basin during October improved the soil moisture and stream flow conditions. Although not yet back to normal, the increases were encouraging. Optimism over the snowpack in the higher elevations may be a bit premature. Natural Resource Conservation Service precipitation reports indicate the current snowpack to be near historic averages. A look back at the last several years revealed the trend that high runoff years were preceded by above average snowpack in the fall and low runoff years by poor fall snowpack.

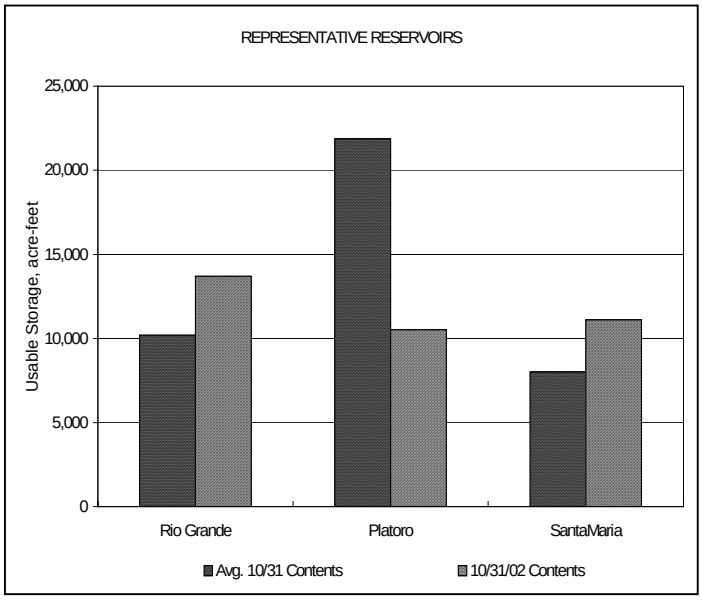


Administrative/Management Concerns

Reservoirs in the basin reduced outflows and began storing inflow as October came to a close. The irrigation demand should continue until weather conditions make water diversions a solid, rather than liquid, proposition. Administrators look at these late season irrigation runs as an opportunity to recharge the Valley's aquifers. Also, they won't adversely impact Colorado's delivery obligation under the Rio Grande Compact as any delivery requirement to New Mexico and Texas was fulfilled earlier this year.

Public Use Impacts

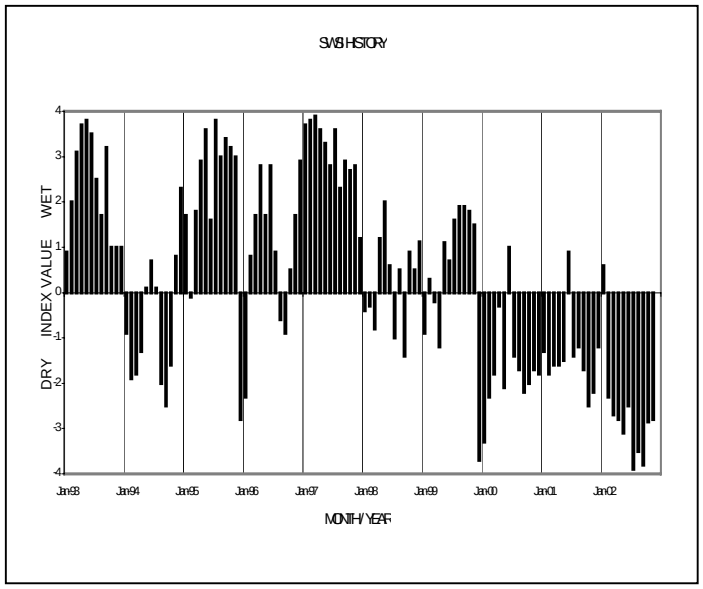
The weather was sufficiently mild to allow those ditches in priority to continue to divert for irrigation throughout October. Lack of water for livestock continues to be a problem for many ranchers. A couple of reports were received that artesian flow recently returned to some confined aquifer wells. Enough snow fell in the mountains that Wolf Creek ski area opened for business.



Basinwide Conditions Assessment

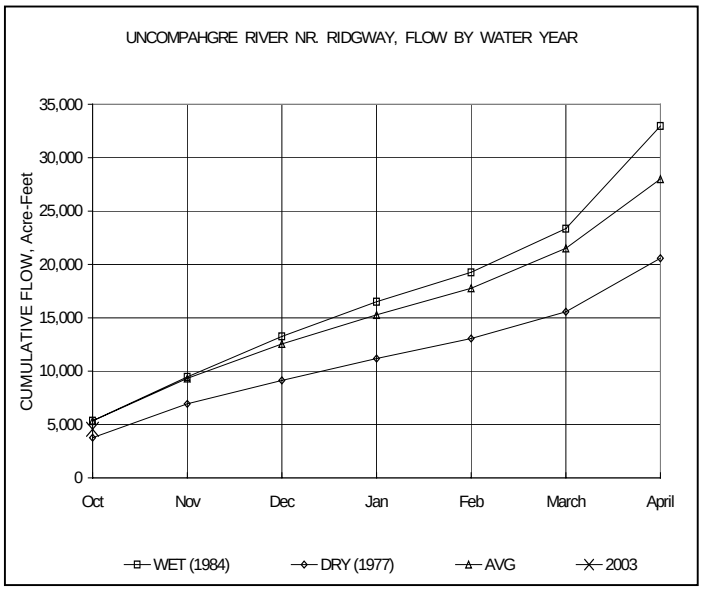
The SWSI value of –2.8 indicates that for October the basin water supplies were well below normal. Flow at the gaging station Uncompahgre River near Ridgway was 74 cfs, as compared to the long-term average of 88 cfs. Storage in Taylor Park, Crawford, and Fruitland reservoirs totaled 59% of normal as of the end of October.

The water supply outlook for October in the Gunnison and San Miguel basins continued to improve. Many areas reported above average precipitation for October, with Delta reporting the highest percentage above normal at 323% (3.07 inches). Others reporting above average moisture included Norwood at 188%, and Cedaredge at 182%. Unfortunately, there were a few areas reporting below normal precipitation, led by Cochetopa with only 35%, Gunnison at 66%, and Telluride at 78%. Storage in the Aspinall Unit (Blue Mesa, Morrow Point, and Crystal Reservoirs) finally began to increase beginning October 23rd.



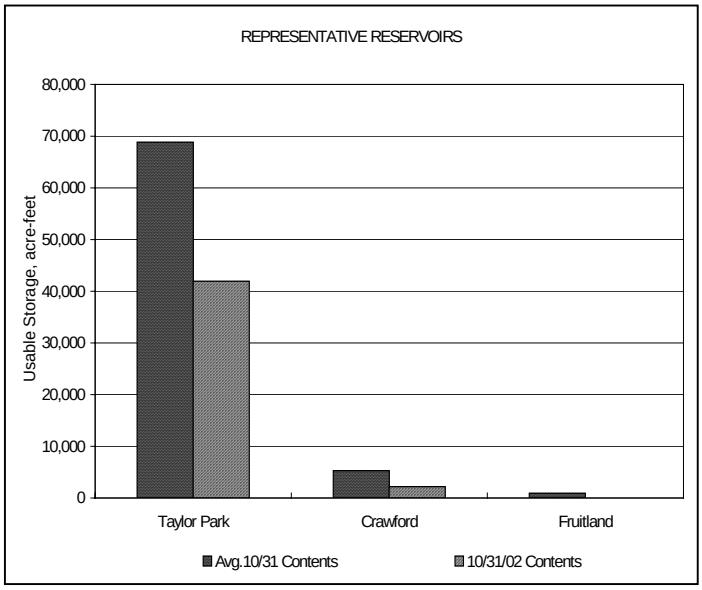
Administrative/Management Concerns

The periodic heavy rains in September caused several administrative calls to be released or removed, and many of these calls remained inactive during October. The Gunnison Tunnel demand was met for the entire month, partly due to conservation efforts by the Uncompahgre Valley Water Users Association. Reducing deliveries to 50% resulted in a significant reduction in demand. Coupled with increased stream flows, this meant that the Tunnel did not need to call out users in the Upper Gunnison Basin.



Public Use Impacts

The widespread October moisture lessened the likelihood of wildfires. Emergency officials were dreading the hunting seasons and the prospects of fighting fires caused by hunters. The rain and snow helped avoid a potentially deadly fall fire season and provided some desirable tracking snow for big game.



Basinwide Conditions Assessment

The SWSI value of –3.5 indicates that for October the basin water supplies were well below normal. Flow at the gaging station Colorado River near Dotsero was 707 cfs, as compared to the long-term average of 1,317 cfs. Storage in Green Mountain, Ruedi, and Williams Fork reservoirs totaled 41% of normal as of the end of October.

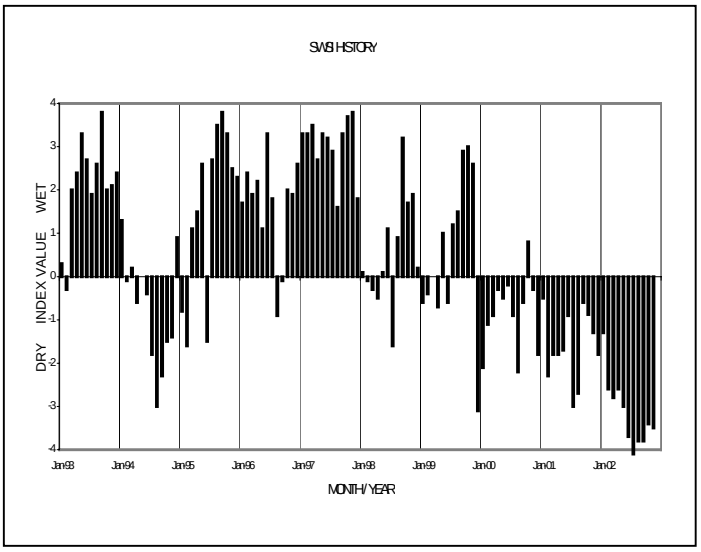
October and early November precipitation was above average throughout the Colorado River basin. Rains at lower elevations have improved soil moisture levels. Stream flows have improved in some basins, but overall streams are still running less than historic averages.

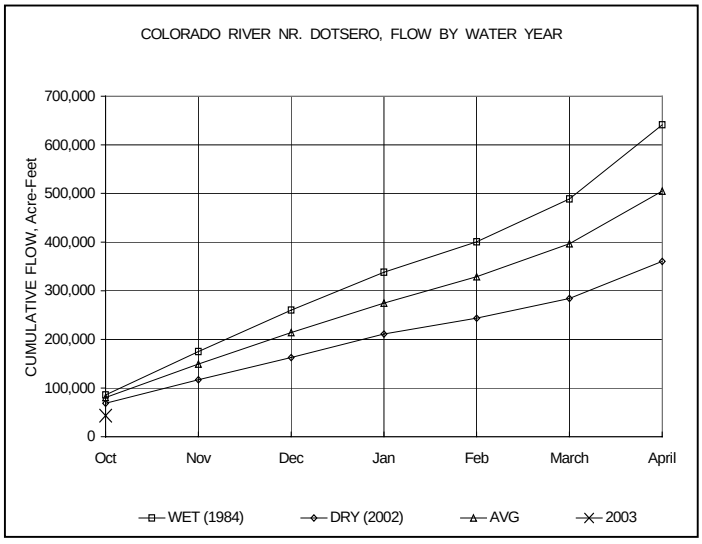
Administrative/Management Concerns

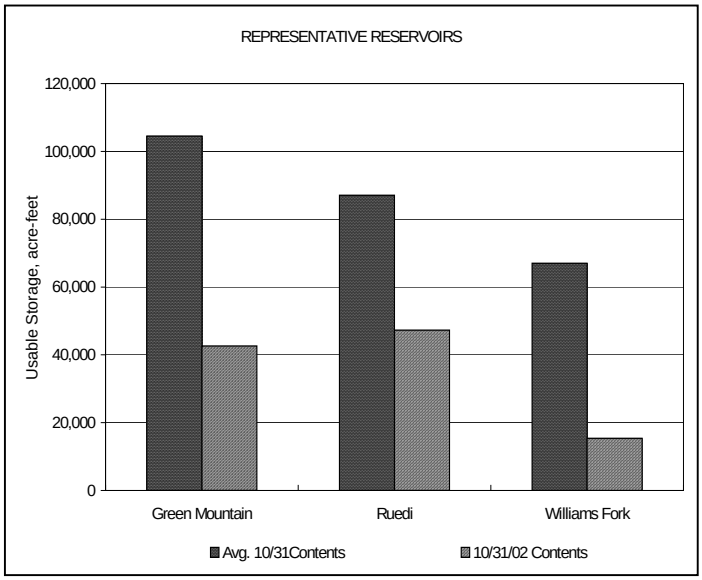
The senior Shoshone call remained on throughout the month. The Cameo call remained off, allowing reservoirs below Shoshone to store water during October, but a winter Cameo power call may occur this year. Snow making at ski resorts requires close monitoring and gaging in order to protect decreed instream flows.

Public Use Impacts

Several ski areas have opened early with great early season conditions.



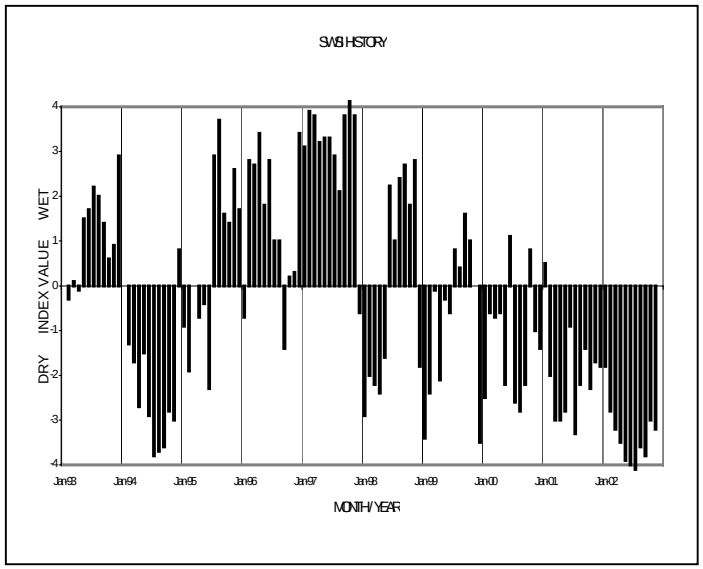




Basinwide Conditions Assessment

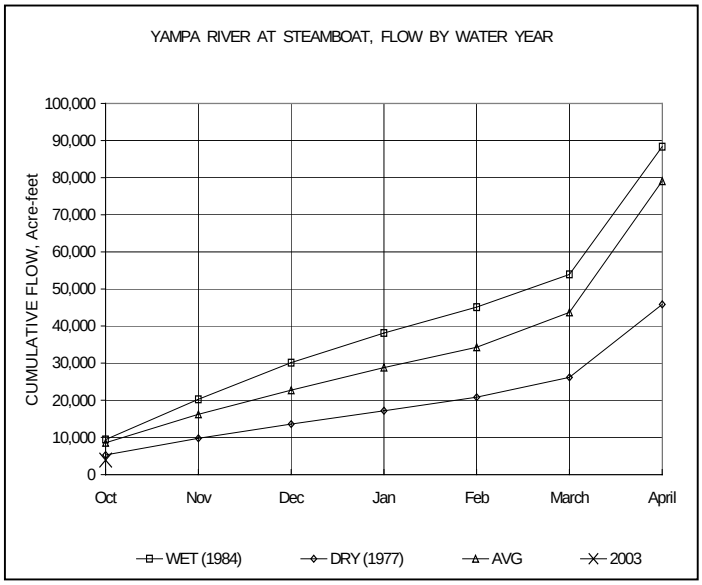
The SWSI value of –3.2 indicates that for October the basin water supplies were well below normal. Flow at the gaging station Yampa River at Steamboat was 63 cfs, as compared to the long-term average of 141 cfs.

October stared a new water year with above average moisture. Storms at the beginning and end of the month resulted in precipitation totaling 119% of average for the basin, as measured at the NRCS Snowtel sites. In Steamboat Springs, precipitation for the month was 2.22 inches, also 119% of average. Stream flows increased as a result of the moisture, but with varying results. On the White River flows are at seasonal averages, on the Yampa flows are approximately 50% of average, and on the North Platte at the State Line they are only 33% of average.



Outlook

Snows at the end of October brought much needed moisture to the basin. Hopes are that the winter storm patterns will continue to provide above average precipitation.



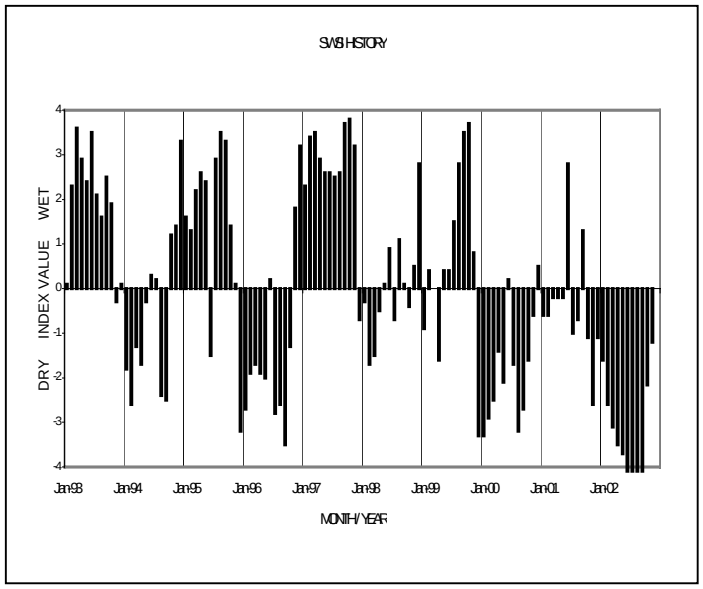
Basinwide Conditions Assessment

The SWSI value of –1.2 indicates that for October the basin water supplies were below normal. Flow at the gaging station Animas River near Durango was 316 cfs, as compared to the long-term average of 413 cfs. Storage in McPhee, Vallecito, and Lemon reservoirs totaled 53% of normal as of the end of October.

October continued September's pattern of regular and significant precipitation. A complete snow cover started the 2003 water year out on a positive note.

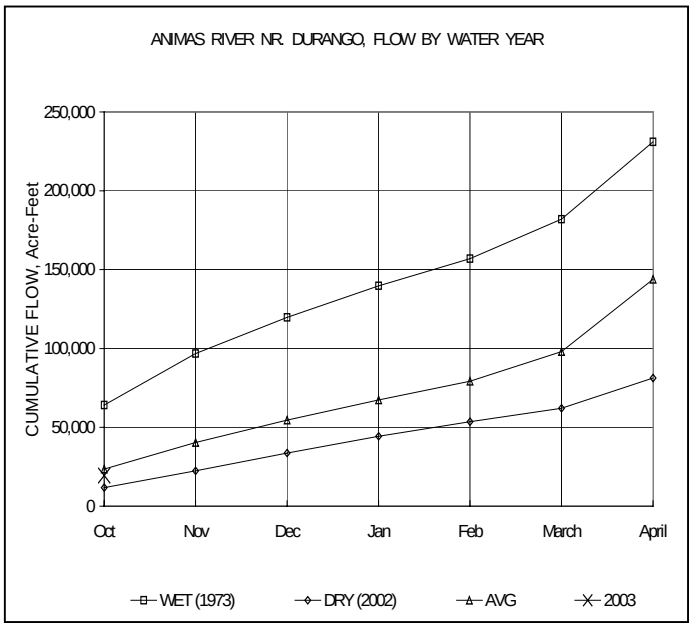
The snowpack development came accompanied by general rainfall across the area, leaving ground water moisture in the best condition since a year ago. Temperatures moderated with the highs being about 5^{o} below the thirty-year average. The lows, however, were warmer than normal.

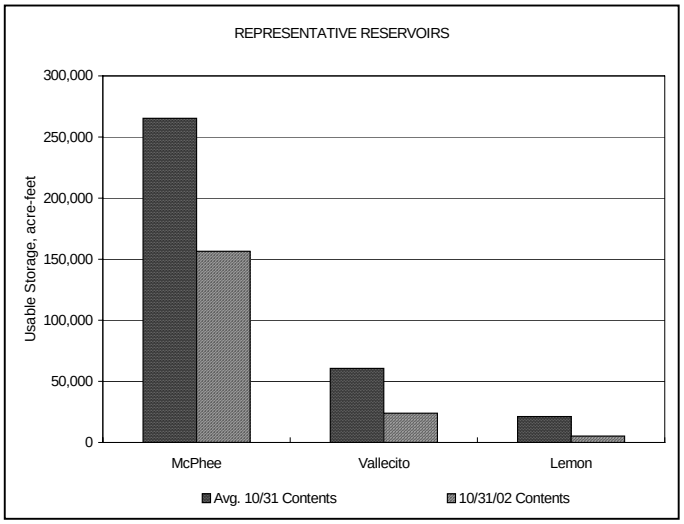
Reservoirs remained well below average as stream flow also failed to rise back to normal. The Dolores River was running at only about 54% of normal, although this was much better than would have been predicted a few months ago.



Outlook

Although it is premature to give a firm prediction, the outlook appears to be for a better water supply, and it is hoped that the upcoming months will yield enough to bring the area out of crisis and back into production.





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