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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December 2003

The SWSI values for the month of November range from a high of +2.5 in the Yampa/White Basin to a low of –2.0 in the Arkansas Basin. The monthly improvement is quite dramatic for the Yampa/White Basin and to a lesser degree the three southwest basins (Gunnison, Rio Grande, San Juan) as well. November values often vary substantially from the previous month due to replacing the streamflow component with a snowpack component in the computation, especially during very dry years.

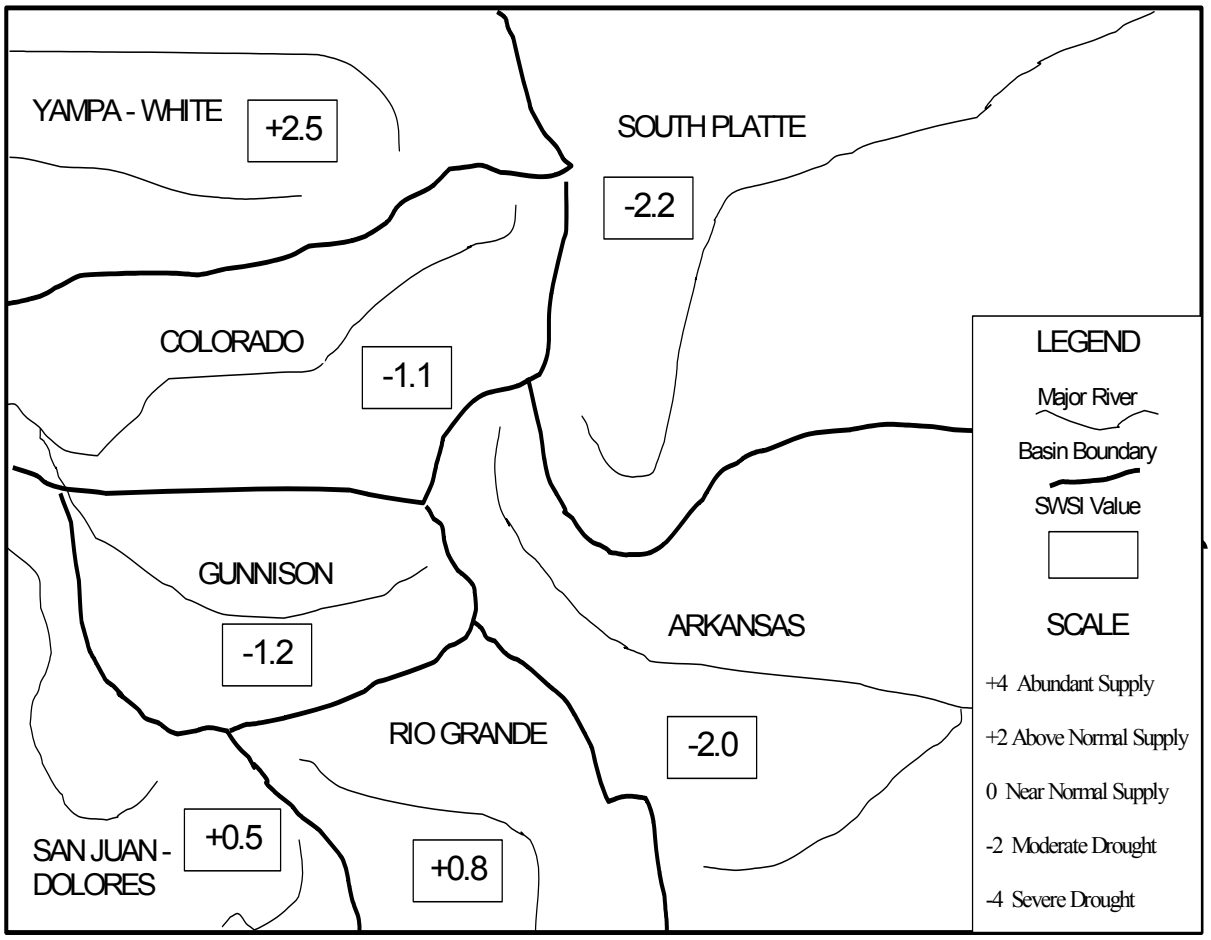
The Surface Water Supply Index (SWSI) developed by this office and the U.S.D.A. Natural Resources Conservation Service is used as an indicator of mountain-based water supply conditions in the major river basins of the state. It is based on snowpack, reservoir storage, and precipitation for the winter 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 following SWSI values were computed for each of the seven major basins for December 1, 2003, and reflect the conditions during the month of November.

Basin	Dec 1, 2003 SWSI Value	Change From Previous Month	Change From Previous Year
South Platte	-2.2	-0.9	+1.2
Arkansas	-2.0	-0.2	-3.1
Rio Grande	+0.8	+2.8	+1.3
Gunnison	-1.2	+2.2	-2.0
Colorado	-1.1	-1.2	-2.1
Yampa/White	+2.5	+5.7	+1.6
San Juan/Dolores	+0.5	+2.2	0.0

Scale

-4	-3	-2	-1	0	1	2	3	4
Severe Drought		Moderate Drought		Near Normal Supply		Above Normal Supply		Abundant Supply

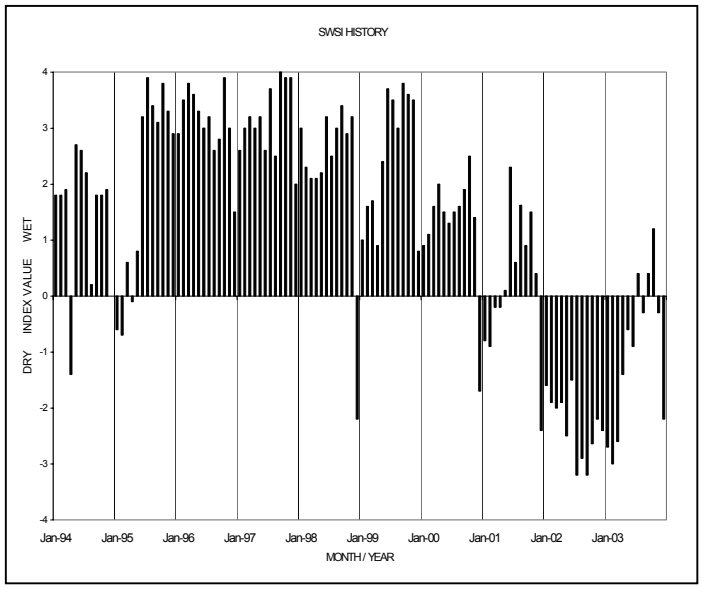
SURFACE WATER SUPPLY INDEX FOR COLORADO



DECEMBER 1, 2003

Basinwide Conditions Assessment

The SWSI value of –2.2 indicates that for November the basin water supplies were below normal. Cumulative storage for the six reservoirs graphed on this page was 94% of normal as of the end of November. Cumulative storage in the major plains reservoirs: Julesberg, North Sterling, and Prewitt, is at 30% of capacity. Cumulative storage in the major upper-basin reservoirs: Cheesman, Eleven Mile, Spinney, and Antero is at 65% of capacity. The Natural Resources Conservation Service reports that December 1 snowpack is 69% of normal. Flow at the gaging station South Platte River near Kersey was 671 cfs, as compared to the long-term average of 944 cfs. Flow at the Colorado/Nebraska state line averaged 19 cfs.



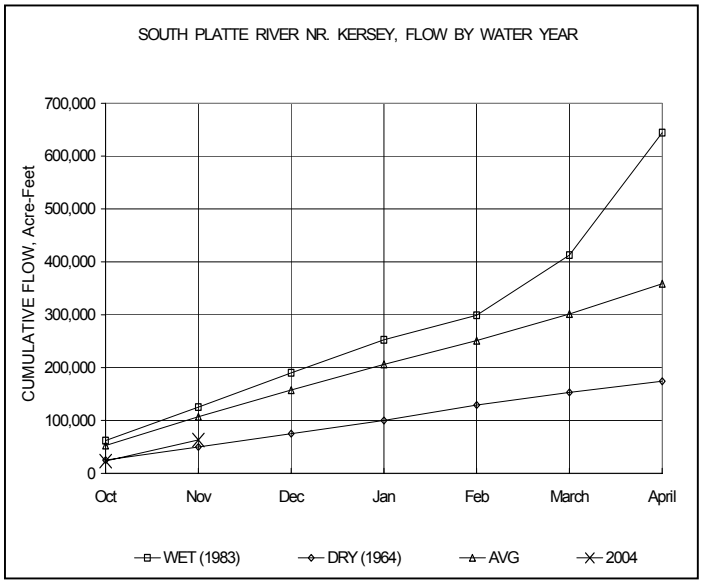
Outlook

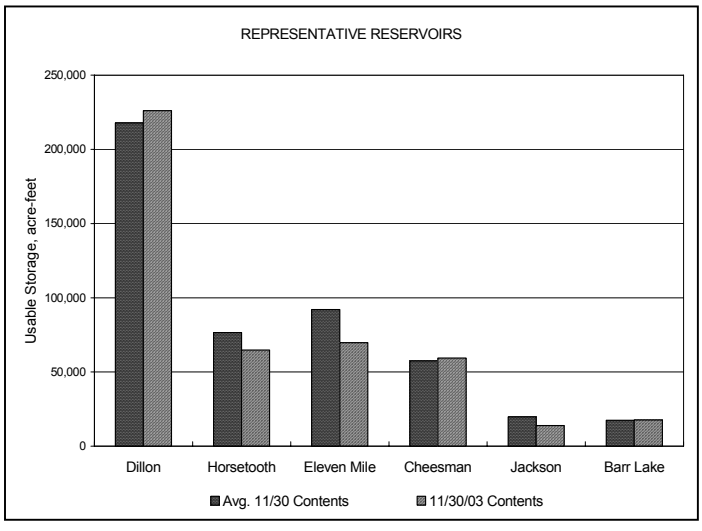
Reservoir storage began in November for reservoirs along the mainstem and tributaries. While storage conditions are significantly better than last year, this is the third year in the last four that an actual call for storage occurred during November along the South Platte downstream of Denver. Prior to that, there had been over 20 years without a storage call in this area. Calls for storage also existed on tributaries in November, the normal situation for this time of year.

Conditions were warm in November; thus, no restrictions were required for storage based on weather conditions. As we reach further into the winter, it is probable storage in some reservoirs will be limited not just by flow conditions, but also freezing temperatures.

Of note, municipal suppliers go into the winter with significantly better storage situation than last fall. As long as conditions do not become extremely dry this winter and spring, we do not foresee most municipalities having difficulty with having adequate supplies next summer.

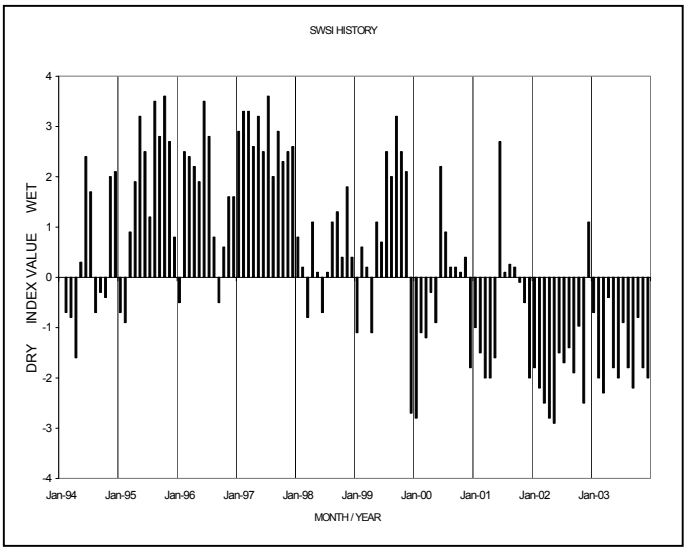
Early snowpack was below average in the South Platte basin. However, it is very early in the year and present conditions are not a good indicator of conditions through the winter period. As always, we are extremely dependent on the late winter and early spring snow and rain to assure an adequate supply through out the basin for next summer's supply.





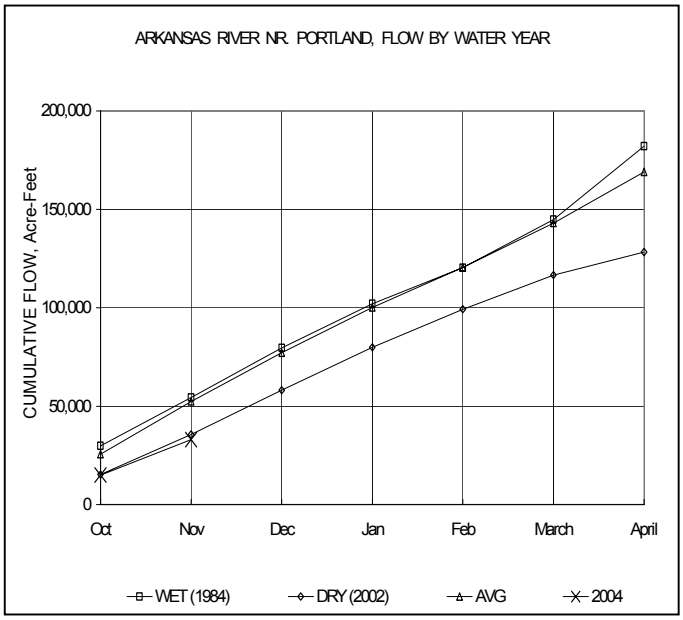
Basinwide Conditions Assessment

The SWSI value of –2.0 indicates that for November the basin water supplies were below normal. The Natural Resources Conservation Service reports that December 1 snowpack is 71% of normal. Flow at the gaging station Arkansas River near Portland was 302 cfs, as compared to the long-term average of 451 cfs. Storage in Turquoise, Twin Lakes, Pueblo, and John Martin reservoirs totaled 55% of normal as of the end of November.



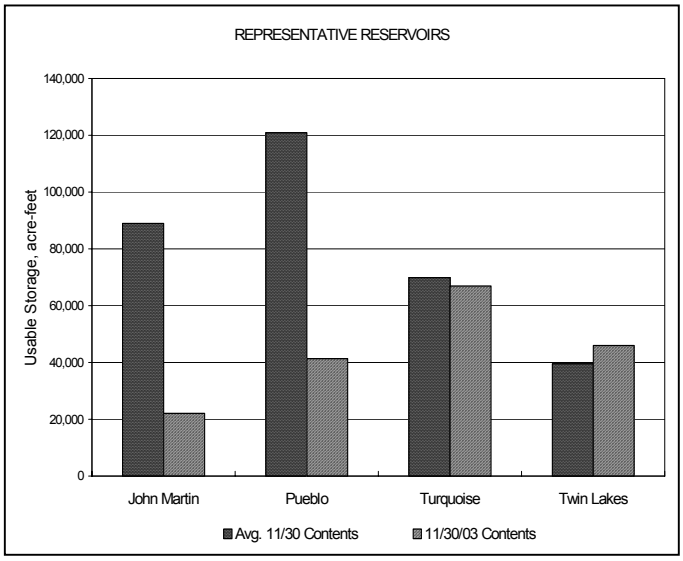
Outlook

Winter Compact storage began in John Martin Reservoir on November 1, 2002. The Pueblo Winter Water Program began operation on November 15, 2002 with storage taking place in both Pueblo and John Martin Reservoirs and several off-channel locations. Several ditches that are non-participants in the Pueblo Winter Water Program (Collier, Otero and Excelsior) elected to direct flow irrigate during the Pueblo Winter Water Program period. For the second year in a row some of the Pueblo Winter Water participants that would normally elect to take delivery to their own off-channel reservoirs are pooling their diversions at the Colorado Canal to store in Lake Meredith and are interested in as much storage as possible in Pueblo Reservoir of Winter Water flows.



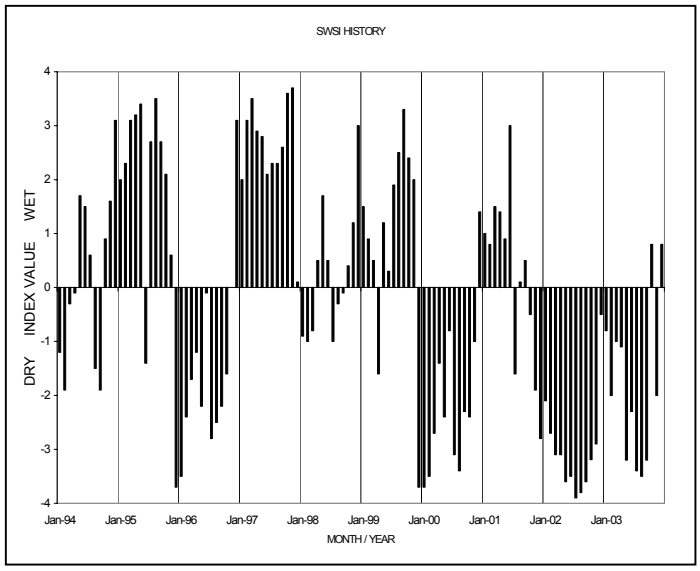
Administrative/Management Concerns

A construction project to replace a sanitary sewer line crossing in the Arkansas River channel just upstream of the confluence with Fountain Creek in Pueblo has caused some additional coordination among agencies to ensure that flows can be managed around the construction through the Historic Arkansas River Project channel to maintain a balance in the Winter Water storage program and to meet the needs of downstream calling rights.



Basinwide Conditions Assessment

The SWSI value of +0.8 indicates that for November the basin water supplies were slightly above normal. Flow at the gaging station Rio Grande near Del Norte averaged 200 cfs (70% of normal). The Conejos River near Mogote had a mean flow of 60 cfs (62% of normal). In general, stream flow in the basin remained below normal. Precipitation in Alamosa was 0.58 inch for the whole month, 0.10 inch above normal. Storage in Platoro, Rio Grande, and Santa Maria reservoirs totaled 44% of normal as of the end of November.



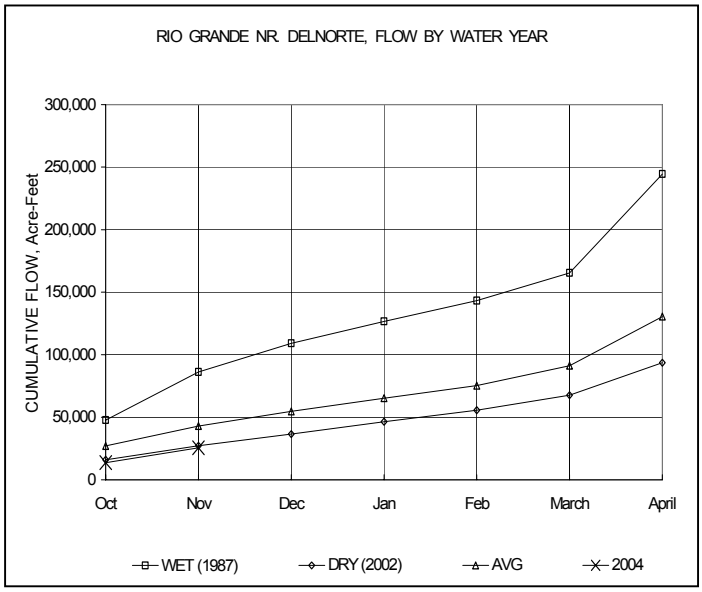
Outlook

Snowfall in the higher elevations was very generous during the early part of the month. However, as November came to a close, snowpack in the upper Rio Grande basin was near normal, checking in at about 100%. This pattern mimics what happened last winter where a fantastic start was followed by a couple of very dry months. Long-range forecasts indicate a trend towards warmer than normal conditions during December, January, and February. Precipitation forecasts are non-committal, giving equal chance for above or below normal precipitation.

Administrative/Management Concerns

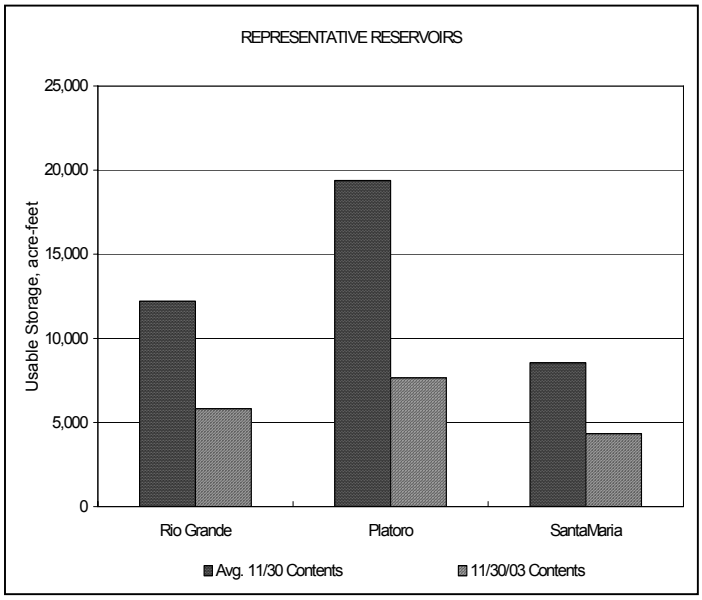
The reservoirs on the upper Rio Grande and its tributaries went into storage on November 10 this year and diversions from the river for irrigation needs were shut off on November 15. Water users on the Conejos River will be able to divert until mid-December. Thereafter, the water will re-wet the Conejos channel down to the confluence with the Rio Grande and begin Compact deliveries to the downstream states for 2004.

The latest consequence of the drought has water users in the northern end of the San Luis Valley fighting over winter-time diversions of water onto their meadows. The water administration season just seems to be getting longer every year.



Public Use Impacts

Wintertime activities got a quick start this fall after the generous snowfall in early November.



Basinwide Conditions Assessment

The SWSI value of –1.2 indicates that for November the basin water supplies were below normal. The Natural Resources Conservation Service reports that December 1 snowpack is 82% of normal. Flow at the gaging station Uncompahgre River near Ridgway was 59.6 cfs, as compared to the long-term average of 66.8 cfs. Storage in Taylor Park, Crawford, and Fruitland reservoirs totaled 101% of normal as of the end of November.

Outlook

November was drier than normal, and the base flows are very low. Should the trend continue, the amount of water going into storage during the winter would be below normal.

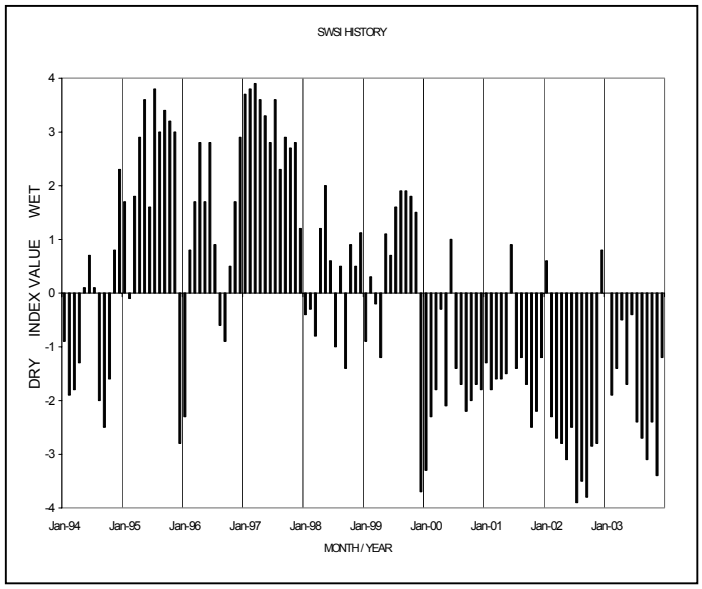
Administrative/Management Concerns

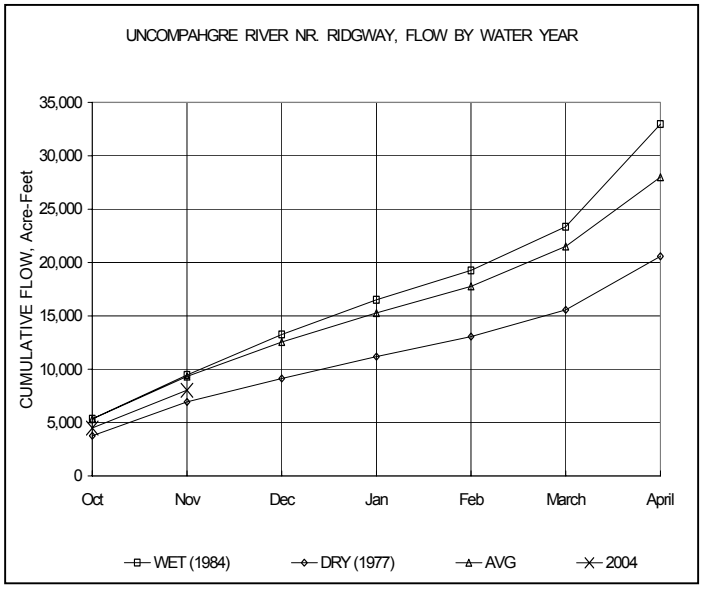
The low flows on the East River above Crested Butte are causing some concerns with snowmaking at the Crested Butte Ski Area. They have an agreement with the USFS to cease their pumping diversion for snowmaking if the flow drops below a certain level. December is the key month for their snowmaking operations. So far, they have been able to divert, but if the weather turns cold and flows diminish, the snowmaking could be jeopardized. The low flows have also caused a call from the CWCB right on the Slate River at Crested Butte. Releases were made for augmentation plans to replace depletions.

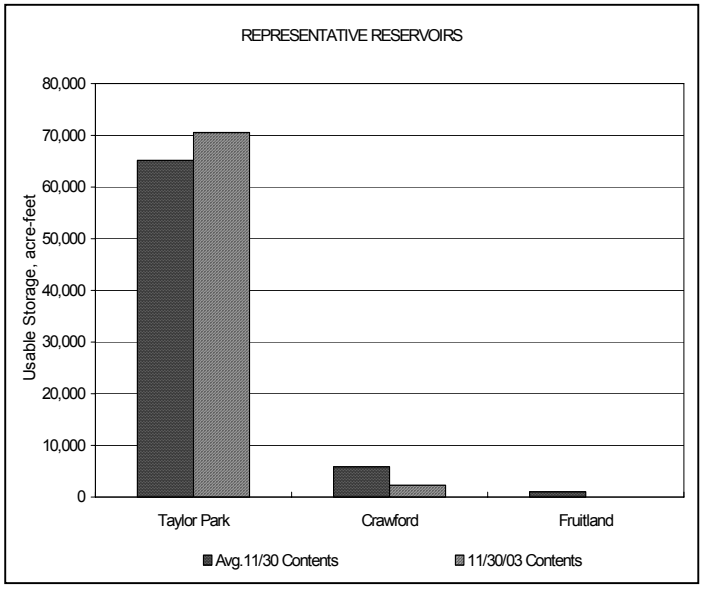
Ridgway reservoir has 11,000 af more in storage than last year at this time, and the current level is right at the 10 year average. The Aspinall Unit is releasing just above the minimum amount of 300 cfs to satisfy the Gunnison River in the Black Canyon. Because of the minimum releases, Blue Mesa Reservoir was able to store 6000 af in November, raising the reservoir about 1 foot. Given the current levels, and without losing too much storage this winter, the USBR is forecasting that a normal runoff on the Gunnison River could come close to filling the reservoir. This would be a great accomplishment given the low inflows and levels the last 4 years.

Public Use Impacts

Everyone wants more snow, and the storms in the first part of December have really helped. Seeing the storage in reservoirs increase throughout the winter is also encouraging. It is really too early to tell how the snowpack is doing. Forecasters usually wait until the first of January for the initial indication of the volume of water contained in the snowpack.



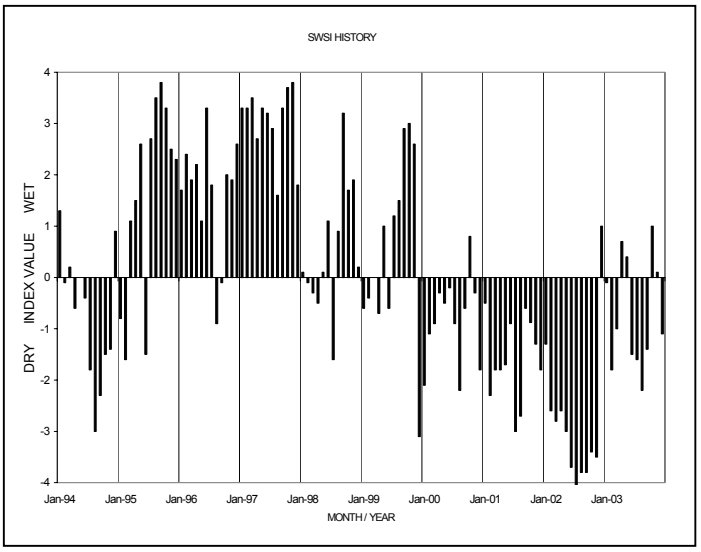


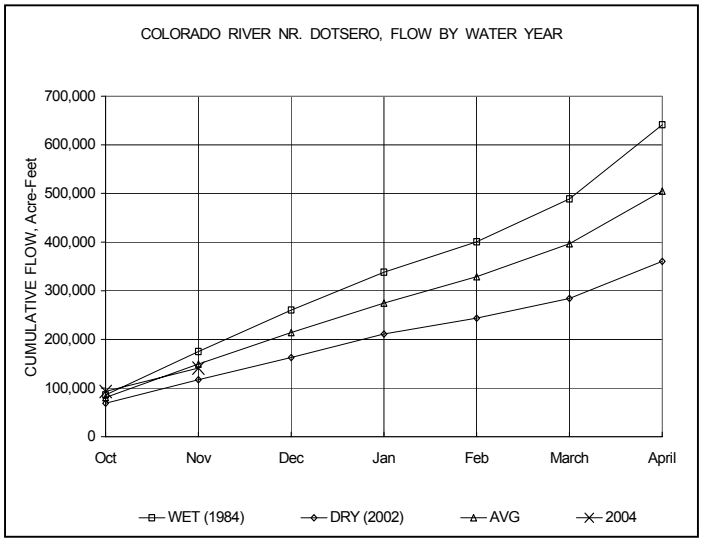


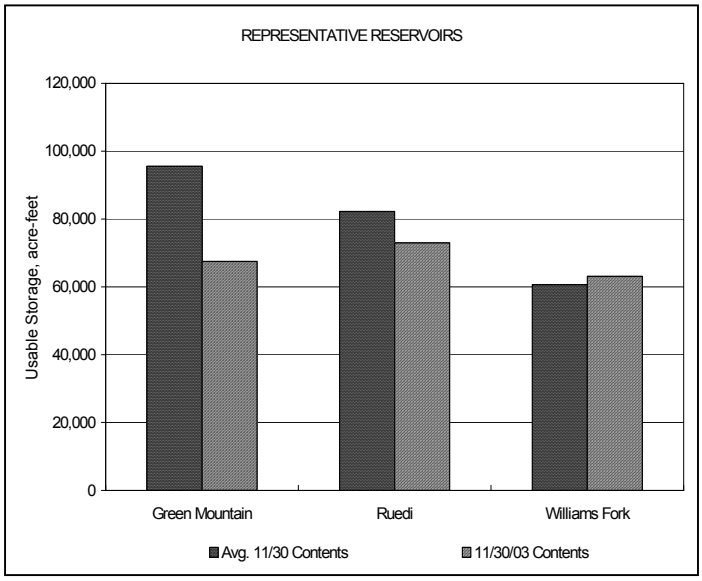
Basinwide Conditions Assessment

The SWSI value of –1.1 indicates that for November the basin water supplies were below normal. The Natural Resources Conservation Service reports that December 1 snowpack is 83% of normal. Flow at the gaging station Colorado River near Dotsero was 806 cfs, as compared to the long-term average of 1,154 cfs. Storage in Green Mountain, Ruedi, and Williams Fork reservoirs totaled 85% of normal as of the end of November.

Early winter snowpack in the Colorado River Basin is below historic average. Streamflows are running 10-20% below seasonal averages throughout most of the basin. Snowmaking diversions are running near capacity at most major ski resorts when temperatures allow, as they try to supplement the low natural snowfall before the holiday season.



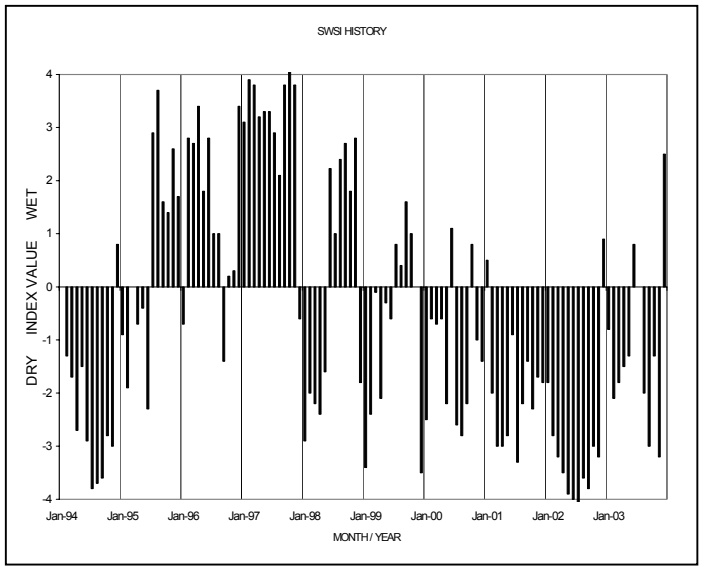




Basinwide Conditions Assessment

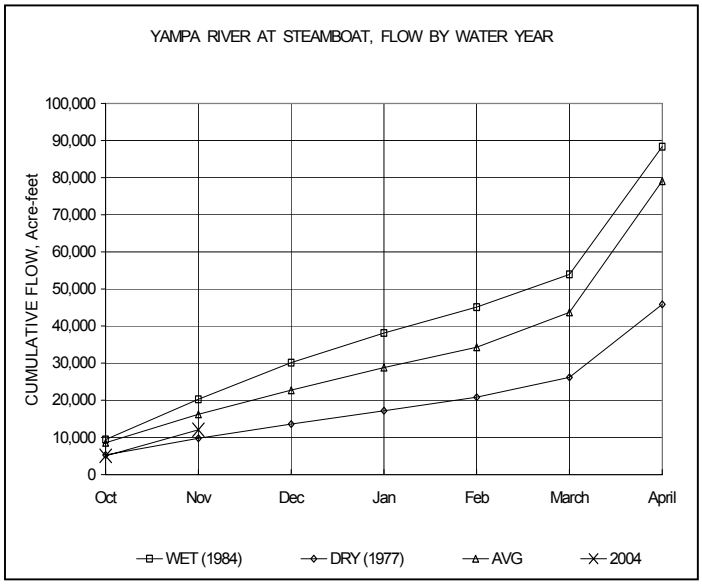
The SWSI value of +2.5 indicates that for November the basin water supplies were above normal. The Natural Resources Conservation Service reports that December 1 snowpack is 108% of normal. Flow at the gaging station Yampa River at Steamboat was 118 cfs, as compared to the long-term average of 129 cfs.

Winter finally arrived in Northwest Colorado in November. Heavy snowstorms moved into the region in the middle of the month bringing much needed precipitation. By the end of the month Snowtel readings for the Laramie and North Platte basins were at 103 % of average, and on the Yampa and White River basins they were 121% of average. As a consequence of the increase in moisture stream flows began to edge up towards normal levels. At the beginning of December, most of the gages that were still unaffected by ice were showing flows near or above the long-term averages for this time of year.



Outlook

The long-range winter forecast calls for an equal chance of above or below temperatures and moisture for the region. In addition, the most recent Drought Monitor shows most of this area of Colorado as being in the moderate to severe intensity classification. The moisture at the end of the month brought hope that the weather patterns were finally changing and hopefully the area will at least see normal levels of precipitation this winter.



Public Use Impacts

Snowmobiling and skiing are in full swing in the mountainous regions in the area.

Basinwide Conditions Assessment

The SWSI value of +0.5 indicates that for November the basin water supplies were about normal. The Natural Resources Conservation Service reports that December 1 snowpack is 83% of normal. Flow at the gaging station Animas River near Durango was 201 cfs, as compared to the long-term average of 284 cfs. Storage in McPhee, Vallecito, and Lemon reservoirs totaled 66% of normal as of the end of November.

Outlook

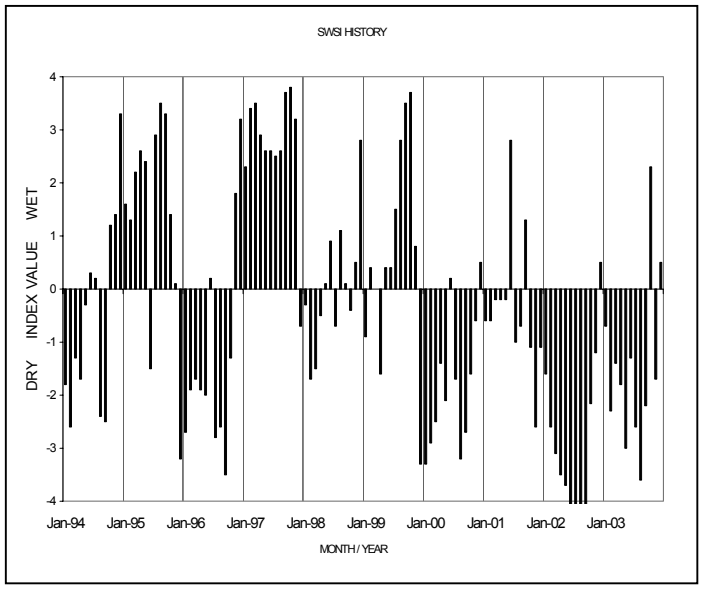
November water supply results were similar to the last two years. Snow and precipitation events then gave the false hope of a good year to come. However, at this point precipitation in any form is welcome in the drought stressed San Juan- Dolores River Basins.

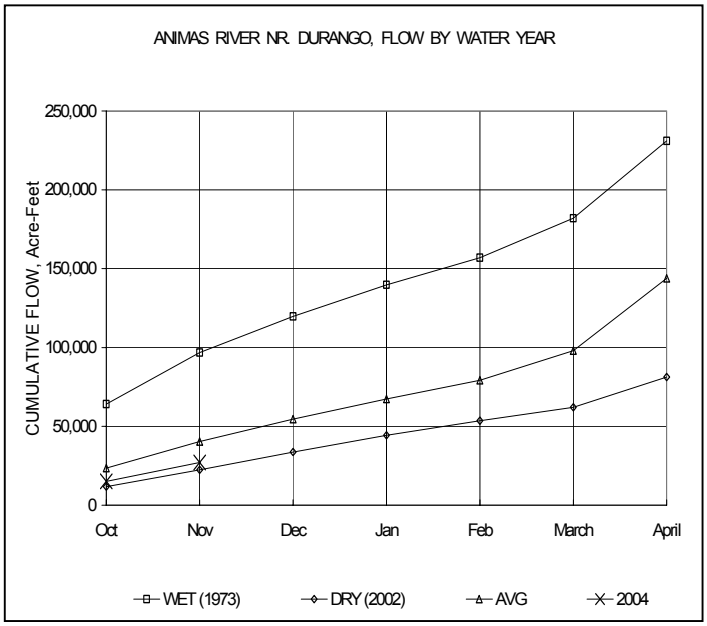
Temperatures moderated and were near normal. The cold temperature experienced on November 26 dropped down to 4 degrees F in Durango. The early snow in the mountains was especially helpful to the ski area for early opening conditions. Wolf Creek received excellent snow early and accumulated over 60" during the month at the ski area to 159% of normal on November 28. Basin wide the snow conditions reduced slightly by the month's end and showed an average of 90% of normal water content. This accumulation is a quarter of that needed for an average water accumulation in the mountains.

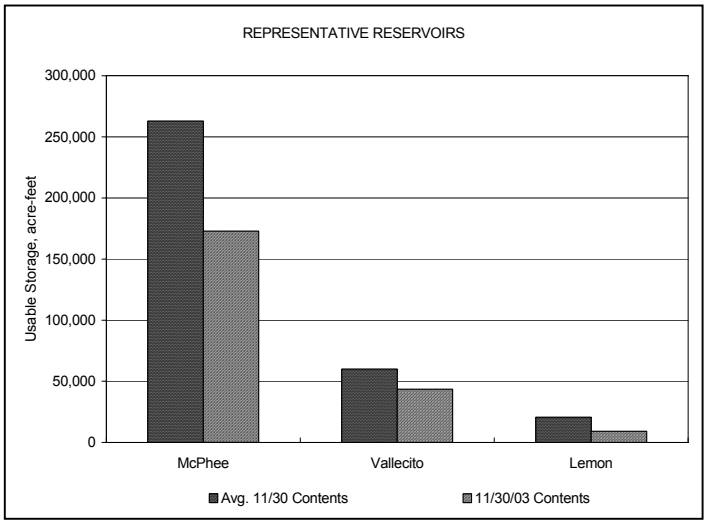
The stream flow reached base levels below normal with flows from 65-75% of normal in most cases. The Animas River reported 179 cfs on December 1. It averages 284 cfs in November.

Reservoirs continued at about the same levels and will provide only small amounts of carry over supplies for next spring. Vallecito Reservoir appeared to be in the best condition with 43,000 of 125,000-acre feet storage amount. This would be 85% or normal. Other reservoirs including ones needed for municipal supplies are not faring much better than last year at this time. The area still remains vulnerable to problems generated by a continuation of the drought.

Weather patterns for the winter appear to be more favorable for a better season this year and the outlook is continuously optimistic.







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