COLORADO
WATER SUPPLY CONDITIONS UPDATE

FROM THE OFFICE OF THE STATE ENGINEER: COLORADO DIVISION OF WATER RESOURCES
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January 2003

The drop in SWSI values during December reflects a poor snowpack accumulation during the month. In contrast to the good snows that most of the state received during November, poor snowfall amounts came in December, resulting in below average snowpack over most of the state by the end of the month.

Stream flows continue to be significantly below average, at a time of the year when streams are at their lowest rates of the year anyway. With snowpack currently being below average, stream flow forecasts are also for below a normal runoff. Even though the majority of the snowpack accumulation season does lie after December, it would be prudent for water users to at least make plans for another year of low runoff in 2003. The dry soil profile will likely capture a greater portion than normal of the snowpack that does melt in spring. With a cumulative storage of 58% of normal for all reservoirs graphed in this report, it is only the rare reservoir that contains above normal amounts.

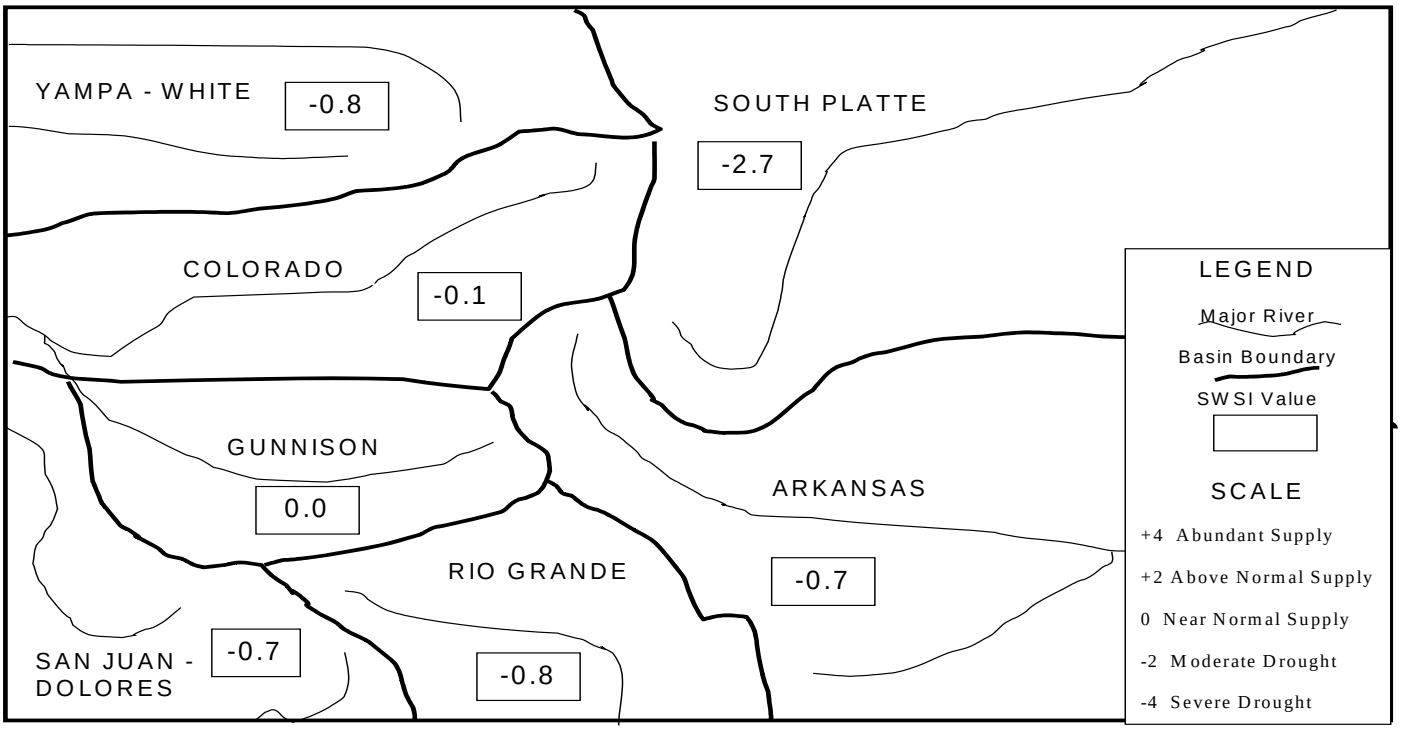
The Surface Water Supply Index (SWSI) developed by this office and the U.S.D.A. Natural Resources Conservation Service is used as an indicator of mountain-based water supply conditions in the major river basins of the state. It is based on snowpack, reservoir storage, and precipitation for the winter 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 January 1, 2002, and reflect the conditions during the month of December.

Basin	January 1, 2003 SWSI Value	Change From Previous Month	Change From Previous Year
South Platte	-2.7	-0.3	-1.1
Arkansas	-0.7	-1.8	+1.1
Rio Grande	-0.8	-0.3	-1.3
Gunnison	0.0	-0.8	-0.6
Colorado	-0.1	-1.1	+1.2
Yampa/White	-0.8	-1.7	+1.0
San Juan/Dolores	-0.7	-1.2	-0.9

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

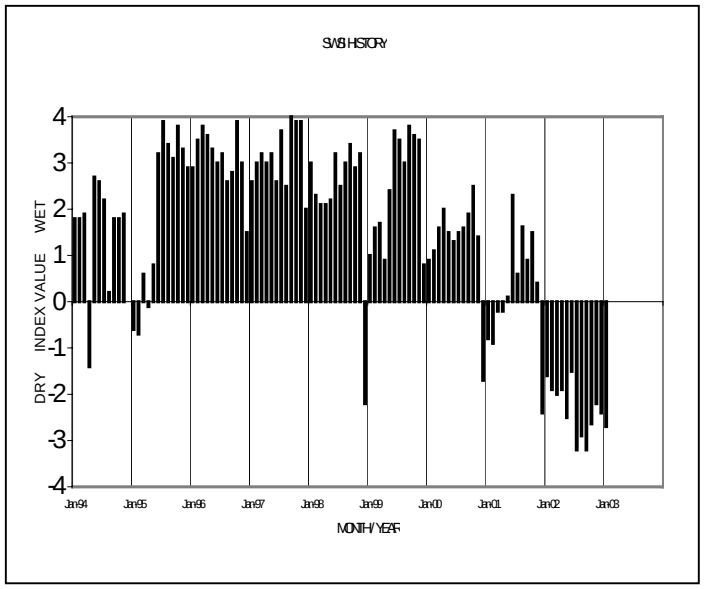


JANUARY 1, 2003

Basinwide Conditions Assessment

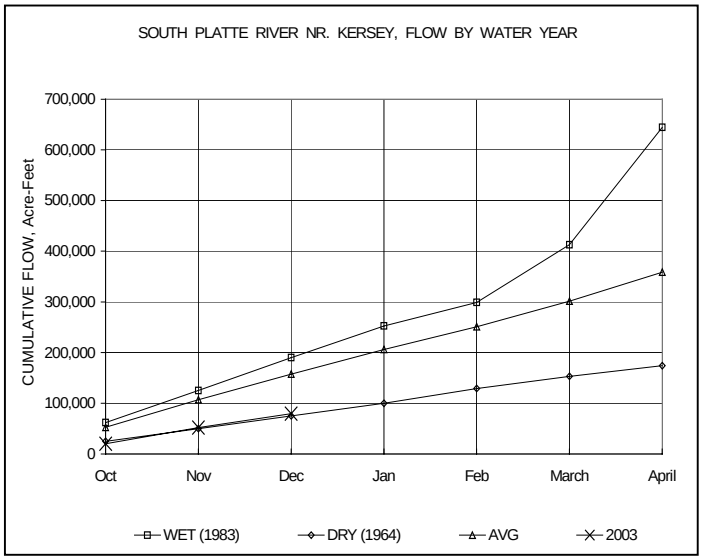
The SWSI value of –2.7 indicates that for December the basin water supplies were below normal. Reservoir storage, the major component in this basin in computing the SWSI value, was 59% of normal as of the end of December. Cumulative storage in the major plains reservoirs: Julesberg, North Sterling, and Prewitt, is at 32% of capacity. Cumulative storage in the major upper-basin reservoirs: Cheesman, Eleven Mile, Spinney, and Antero is at 47% of capacity. The Natural Resources Conservation Service reports that January 1 snowpack is 73% of normal. Flow at the gaging station South Platte River near Kersey was 445 cfs, as compared to the long-term average of 863 cfs. Flow at the Colorado/Nebraska state line averaged 23 cfs.

Reservoir storage continued in December for the plains reservoirs on the South Platte. Some reservoirs have reached their winter fill including Jackson, Latham, and Julesburg. The call on the mainstem for the month continued to be to fill North Sterling Reservoir, Empire Reservoir, and Riverside Reservoir. Unfortunately, the rate of fill is not as great as we would hope, as conditions remain very dry.



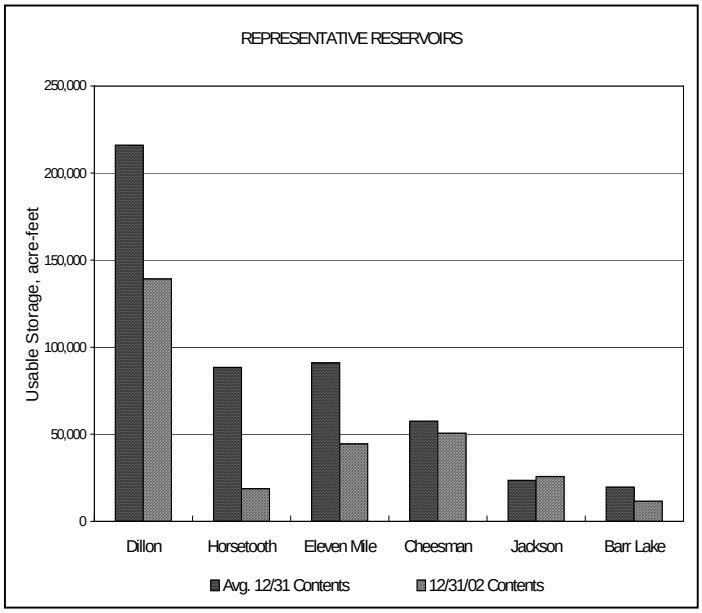
Outlook

We foresee the storage call continuing into the spring until a direct flow call occurs, unless spring conditions are sufficiently wet to alleviate the need for an early direct flow call for initial irrigation of crops. It is looking more and more likely that all reservoirs will not fill this spring unless weather conditions in the spring are very wet with both snow runoff and rain on the plains. Storage levels are similar to those in the 1950's when irrigation reservoirs did not fill.



Administrative/Management Concerns

Unlike 2000 when municipal suppliers were able to keep nearly full reservoirs, storage levels for municipal providers along the South Platte and its tributaries and west slope storage reservoirs (Granby and Dillon) continue to be low. December was very dry in the basin. The now below average snow pack creates even more concern over both short and long term supplies for all municipalities.



Basinwide Conditions Assessment

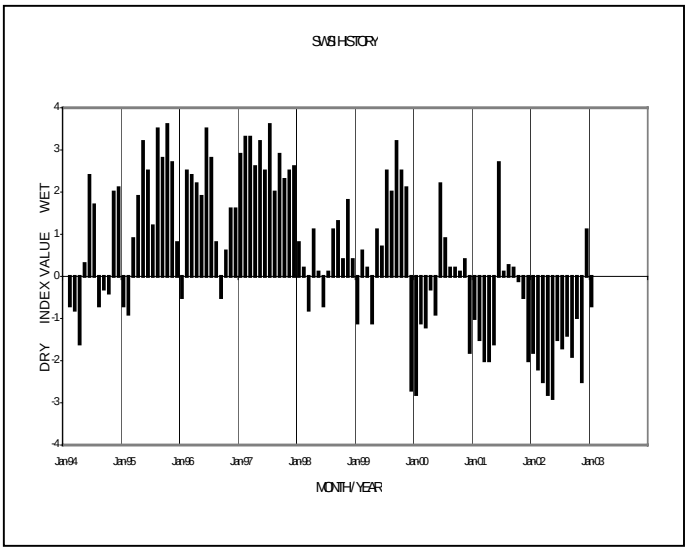
The SWSI value of –0.7 indicates that for December the basin water supplies were slightly below normal. This value indicates conditions are better than they actually are. The Natural Resources Conservation Service reports that January 1 snowpack is 72% of normal. Flow at the gaging station Arkansas River near Portland was 230 cfs, as compared to the long-term average of 402 cfs. Storage in Turquoise, Twin Lakes, Pueblo, and John Martin reservoirs totaled 65% of normal as of the end of December.

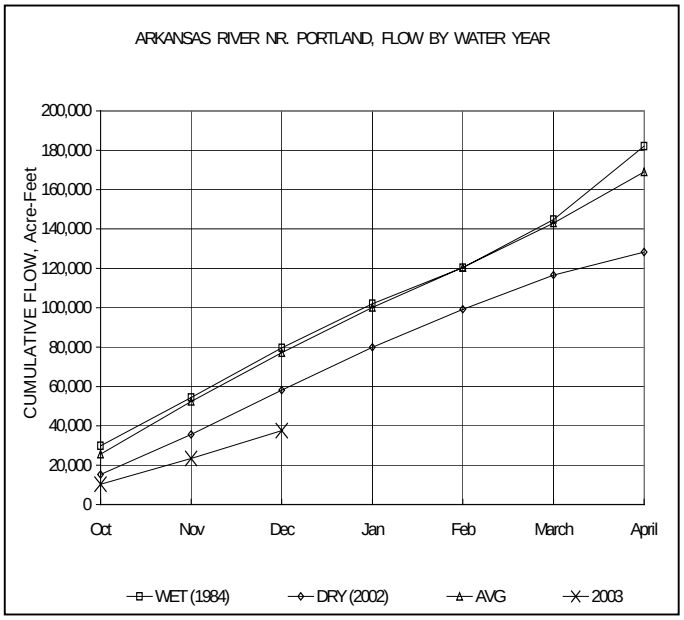
The Pueblo Winter Water storage program is continuing with several non-participating ditches also diverting for irrigation to attempt to build back a soil moisture profile. The Winter Water system grand total of 27,671 acre-feet is much lower than last year's storage at this time of 59,162 acre-feet, while the previous five-year average for this period is 73,688 acre-feet.

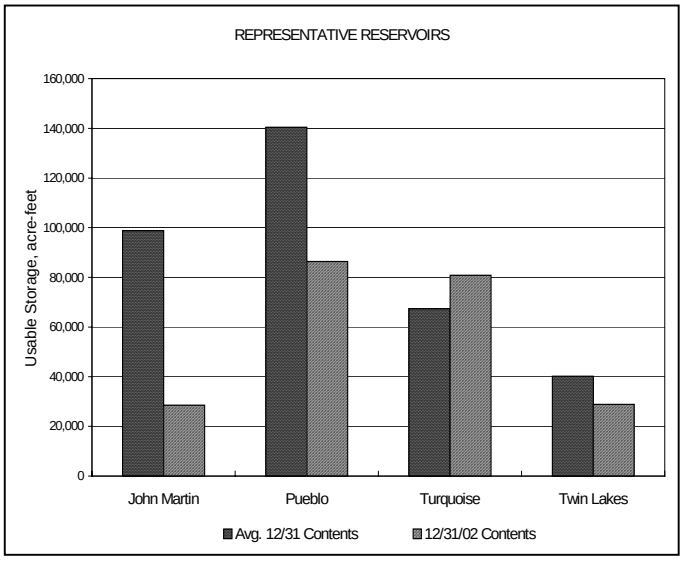
Conservation storage in John Martin Reservoir is similarly lagging behind recent year's deliveries. Storage since November 1st has been 3,267 acre-feet while storage a year ago for the same time period was 9,345 acre-feet. Inflow contributions from the Purgatoire River have been almost nonexistent.

Administrative/Management Concerns

Division 2 staff continues to work with the major well associations and the Southeastern Colorado Water Conservancy District to review potential sources of replacement water and the District's allocation policy for transmountain water for the 2003-04 plan year. All of the well associations are preparing their membership for a year with very limited and high priced replacement sources, unless there is a dramatic improvement in hydrologic conditions in 2003. It is anticipated that the initial replacement plan applications will include almost no agricultural well pumping, at least for the early part of the summer.



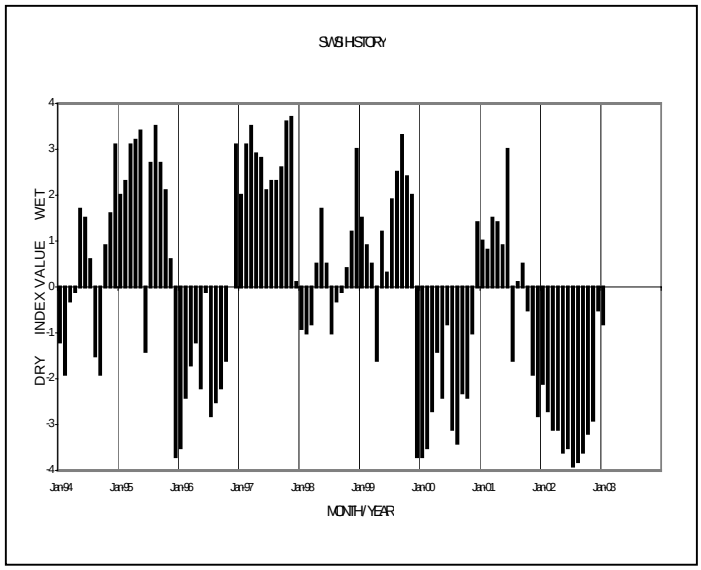




Basinwide Conditions Assessment

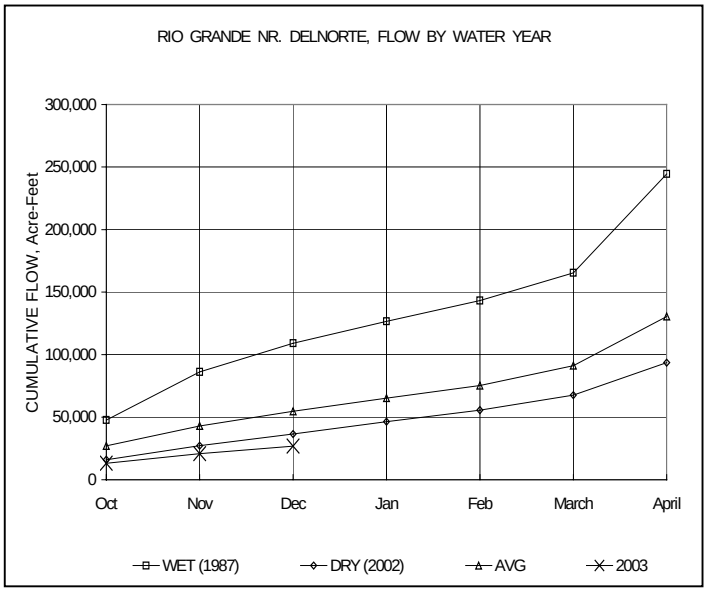
The SWSI value of –0.8 indicates that for December the basin water supplies were slightly below normal. This value indicates conditions are better than they actually are. The Natural Resources Conservation Service reports that January 1 snowpack is 67% of normal. Flow at the gaging station Rio Grande near Del Norte was 99 cfs (47% of normal). The Conejos River near Mogote had a mean flow of 25 cfs (49% of normal). Storage in Platoro, Rio Grande, and Santa Maria reservoirs totaled 90% of normal as of the end of December.

Alamosa received 0.24 inches of precipitation during December, 0.09 inches below normal. Alamosa's total precipitation of 4.44 inches in 2002 was almost 3 inches below the annual average. For the fifth consecutive year the average annual temperature was well above normal.



Outlook

Stream flow in the basin should be below average for the next few months. The Natural Resources Conservation Service (NRCS) is forecasting 2003 runoff levels of 63 to 76 percent of normal for key streams in the San Luis Valley.

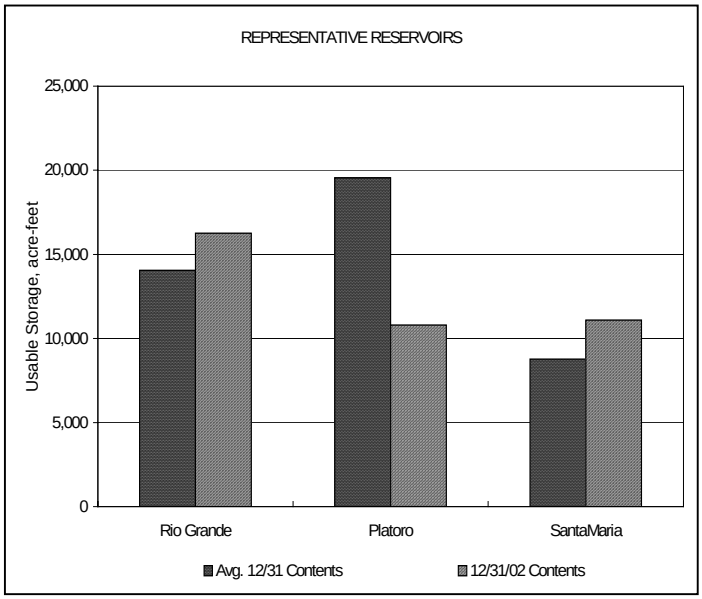


Administrative/Management Concerns

Pursuant to the provisions of the Rio Grande Compact, Colorado over-delivered approximately 30,000 acre-feet to the downstream states of New Mexico and Texas during 2002. An estimated 40,000 acre-feet of delivery credit will be available to offset Colorado's obligation in 2003. Closed Basin Project production to the Rio Grande totaled about 11,700 acre-feet during 2002. All Project canal deliveries met water quality standards.

The majority of the over-delivery came from the Conejos system where uncontrollable wintertime flows inflate the over-delivery number. According to the Compact, the Conejos has no delivery obligation if the index is less than 100,000 acre-feet. In a true indication of how poor 2002 was, their annual index was only 59,000 acre-feet. This is a horribly low amount of water to support the irrigation of approximately 85,000 acres. There was even a period during the summer when the #1 water rights on the Conejos River could not be served and their call was considered futile. This was caused by channel losses so extreme that the Conejos was dry before it ever reached Antonito.

The Rio Grande and its tributaries generated only 154,000 acre-feet through the gage near Del Norte during 2002. The long-term average is 650,000 acre-feet. This total runoff easily beat the previous low of 215,000 acre-feet during 1977. Peak flow in the Rio Grande was only 689 cfs, well short of the 5,300 cfs average.

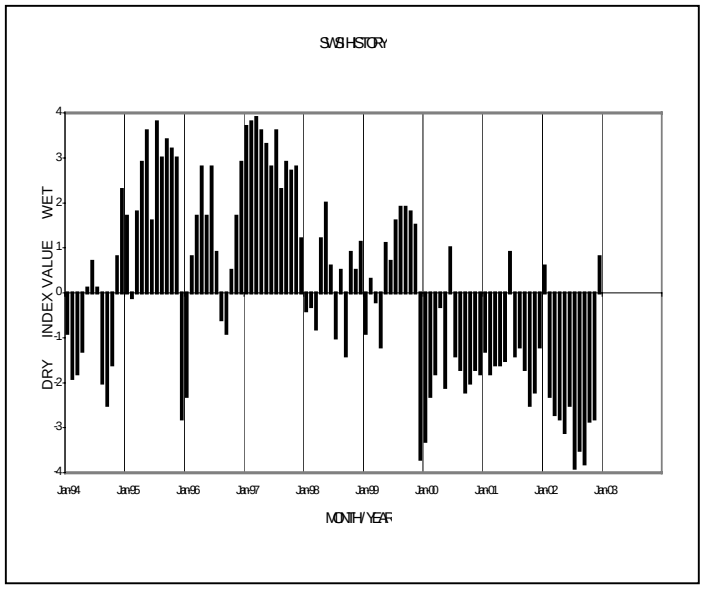


Public Use Impacts

With such a limited surface water supply, many fields went unirrigated in 2002. Those farmers and ranchers fortunate enough to own irrigation wells relied heavily on that water source. The current condition of the aquifers in the San Luis Valley can best be described as poor. The sustainability of these aquifers is a major topic of discussion at every water forum this winter.

Basinwide Conditions Assessment

The SWSI value of 0.0 indicates that for December the basin water supplies were near normal. This value indicates conditions are better than they actually are. The Natural Resources Conservation Service reports that January 1 snowpack is 93% of normal. Flow at the gaging station Uncompahgre River near Ridgway was 50 cfs, as compared to the long-term average of 53 cfs. Storage in Taylor Park, Crawford, and Fruitland reservoirs totaled 62% of normal as of the end of December.

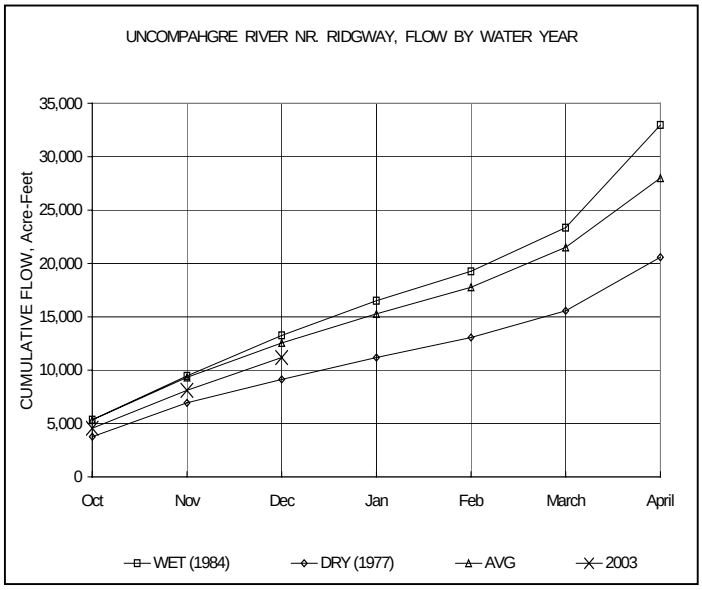


Outlook

The water supply outlook worsened somewhat for December in the Gunnison and San Miguel Basins, as most areas reported below-average precipitation for the month. Grand Junction and Montrose received only 42% and 46% of their normal December precipitation, respectively. Doyleville and Paradox only reported 0.26 and 0.33 inches of moisture, respectively.

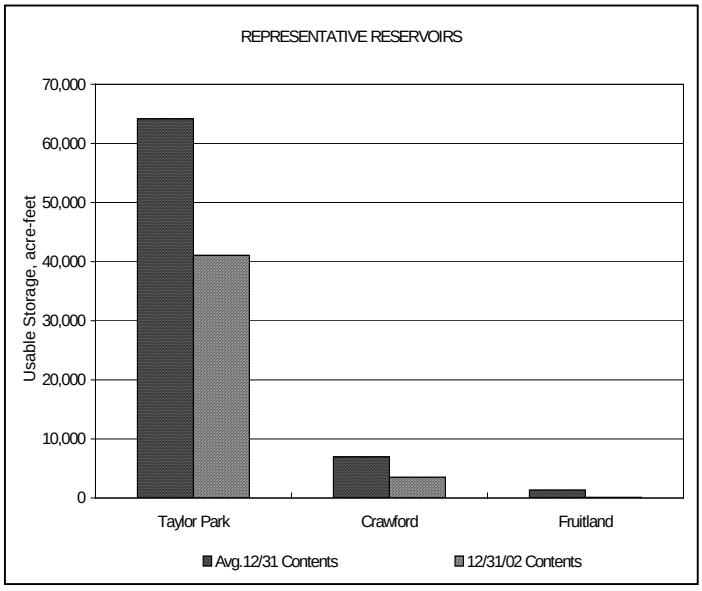
Administrative/Management Concerns

The Colorado Water Conservation Board has several in-stream flow water rights that may have an impact on snowmaking operations and domestic uses.



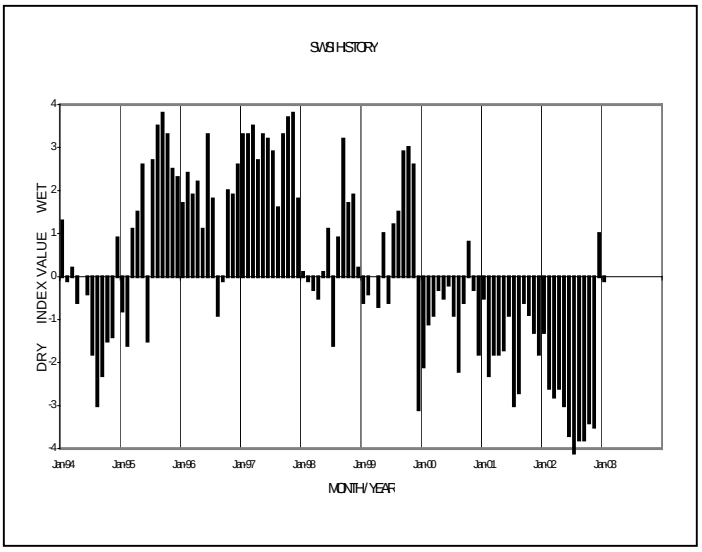
Public Use Impacts

Flood damage would not normally be a concern during periods of drought. However, abnormally low stream levels can cause water temperatures to drop well below normal, resulting in significant ice buildup. Such a situation developed in the Gunnison River near Almont, where ice blocked the river and forced water into an irrigation ditch. Ice dams in the ditch caused water to overflow into adjacent cabins. A large excavator was used to cut the ditch bank and allow water to flow back into the river, thus averting the flooding problems.



Basinwide Conditions Assessment

The SWSI value of –0.1 indicates that for December the basin water supplies were near normal. This value indicates conditions are better than they actually are. The Natural Resources Conservation Service reports that January 1 snowpack is 93% of normal. Flow at the gaging station Colorado River near Dotsero was 616 cfs, as compared to the long-term average of 1,068 cfs. Storage in Green Mountain, Ruedi, and Williams Fork reservoirs totaled 41% of normal as of the end of December.

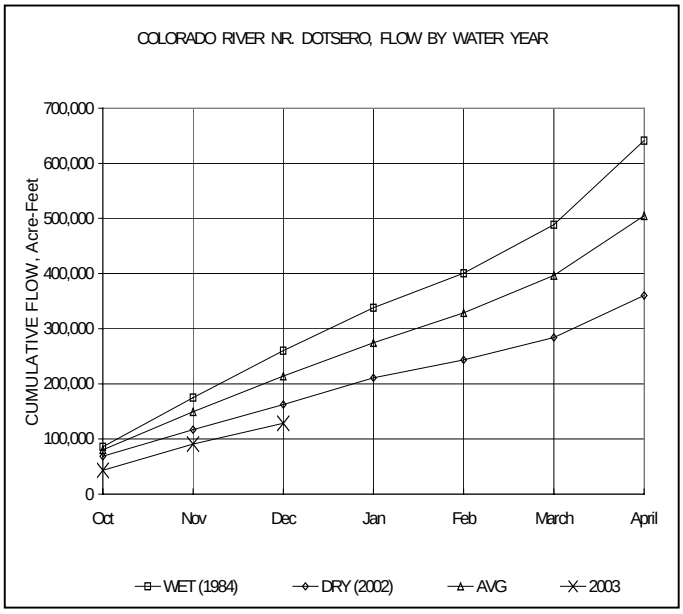


Outlook

Early basin wide runoff predictions are calling for 80% to 89% of average volume runoff, with the exception of Plateau Creek (Grand Mesa), where only 61% of average is predicted. If these predictions prove accurate, runoff would be two to three times the 2002 runoff.

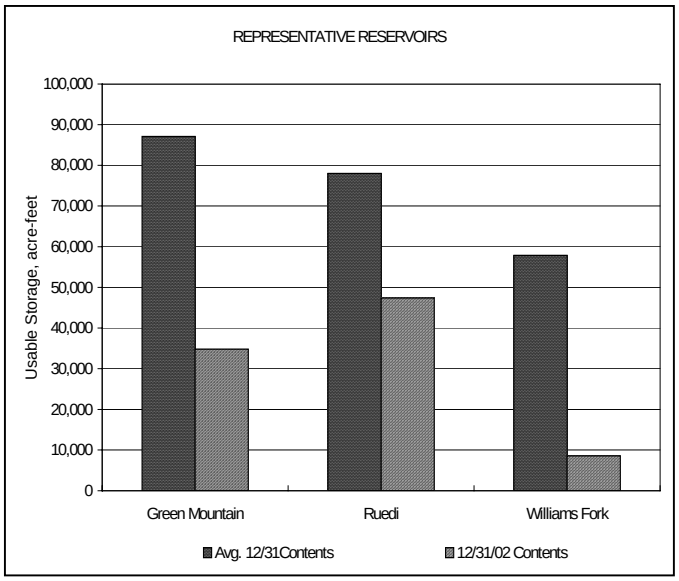
Administrative/Management Concerns

The senor Shoshone power call remained on into the start of 2003, although water users entities are negotiating a possible relaxation of the call for the purpose of allowing some upstream storage and transmountain diversion that would not normally occur. With stream flows down this winter, monitoring snowmaking diversions has been important in order to protect in-stream flows. Reservoir releases to snowmaking have been difficult to administer because of uncertainties associated with winter transit loss estimates.



Public Use Impacts

Near average snowpack during December allowed many ski resorts to have a successful holiday season.

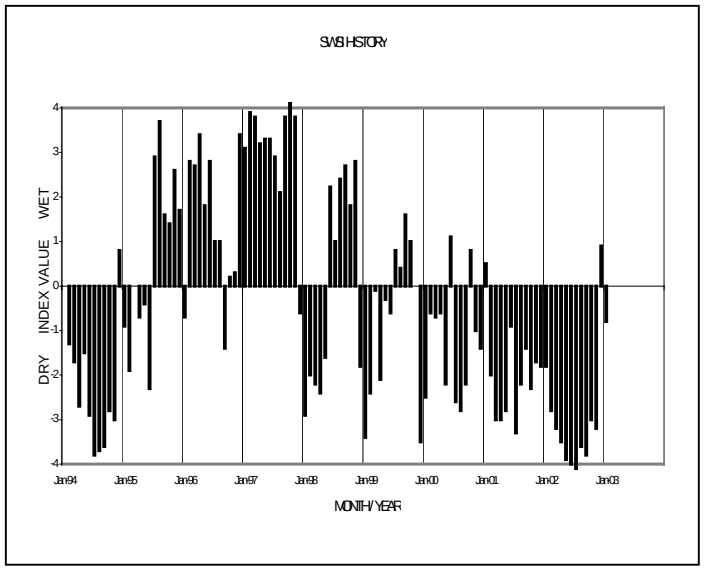


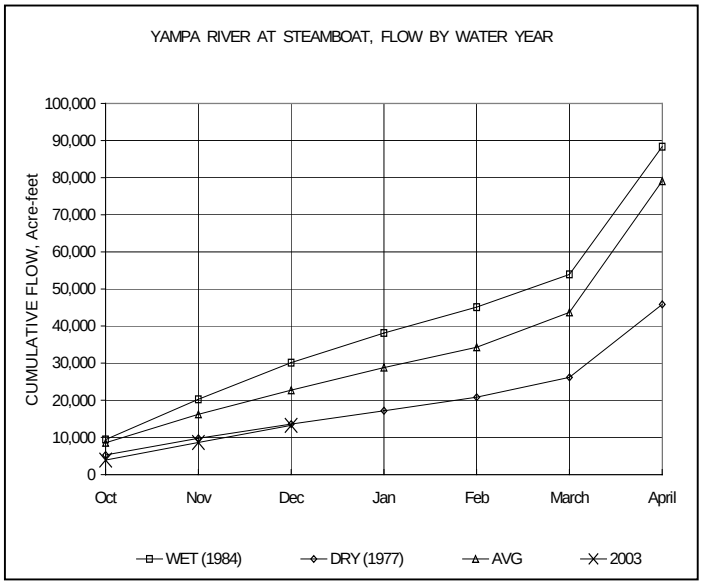
Basinwide Conditions Assessment

The SWSI value of –0.8 indicates that for December the basin water supplies were slightly below normal. This value indicates conditions are better than they actually are. The Natural Resources Conservation Service reports that January 1 snowpack is 91% of normal. Flow at the gaging station Yampa River at Steamboat was 75 cfs, as compared to the long-term average of 106 cfs.

December brought one major snowstorm to the basin and abundant sunshine. Snowfall amounts did little to increase the snowpack and alleviate concerns of a continuing drought. At the end of the month the snowpack for the North Platte River Basin was 88% of average; for the Yampa River Basin 94 % of average; and for the White River Basin 91 % of average, all down slightly from the previous month. Basin-wide, precipitation was only 67% of average for December and 93% of average for the water year. The majority of the precipitation came in a major storm over the holiday season.

Reservoirs in the Division are storing but little inflow is currently available. Most of the gages in the Division are shut down or reporting ice-affected readings.





Outlook

If weather patterns do not change in the upcoming months, spring runoff may not relieve the water shortages seen last summer.

Administrative/Management Concerns

On-channel reservoirs appear to be filling at below normal rates, raising concerns over the possibility that they will not fill before the next irrigation season

Basinwide Conditions Assessment

The SWSI value of –0.7 indicates that for December the basin water supplies were slightly below normal. The Natural Resources Conservation Service reports that January 1 snowpack is 84% of normal. Flow at the gaging station Animas River near Durango was 174 cfs, as compared to the long-term average of 231 cfs. Storage in McPhee, Vallecito, and Lemon reservoirs totaled 56% of normal as of the end of December.

The last month of 2002 did not provide much of a change in the water supply status for Southwestern Colorado. Stream flows ran fairly steady at around 80% of normal, although the Dolores inflow to McPhee Reservoir dropped to 68% of average with about 40 cfs coming from all streams feeding the lake.

The precipitation figures were less encouraging than the previous month, running 81% of normal in Durango with 1.20 inches. About 5 inches of snow remained on the ground at the end of the month. Cold temperatures toward the end of December helped freeze the snow rather than melt it out. However, the average lows were still 3° above the long-term averages.

Snow reports are also showing around 80% of normal water content. The early snowpack reports indicate the Dolores River Drainage looked better than the San Juan River drainage.

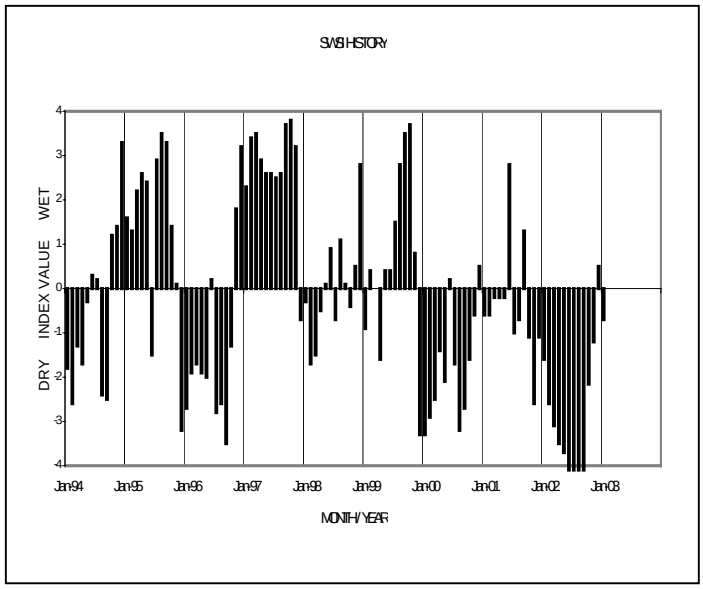
Reservoirs were able to gain some this month by carefully controlling releases. However, Lemon Reservoir remained under 6,000 acre feet at about 29% of average content, and McPhee Reservoir contained less than 10,000 acre feet of useable storage.

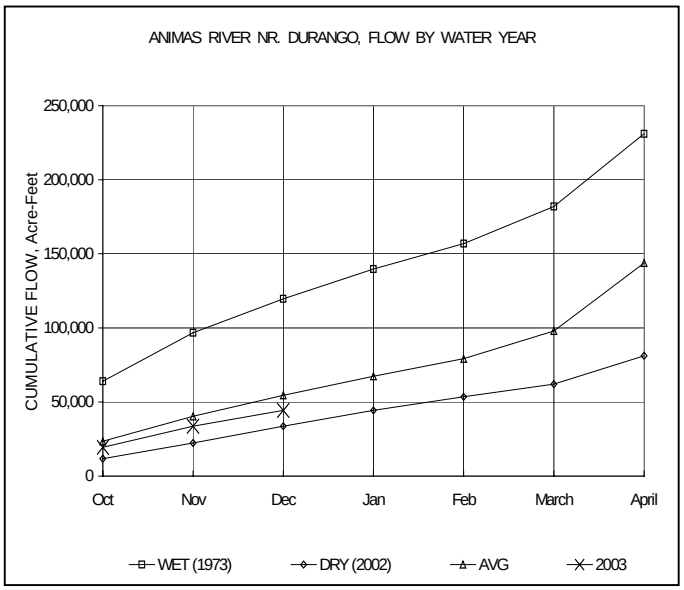
Outlook

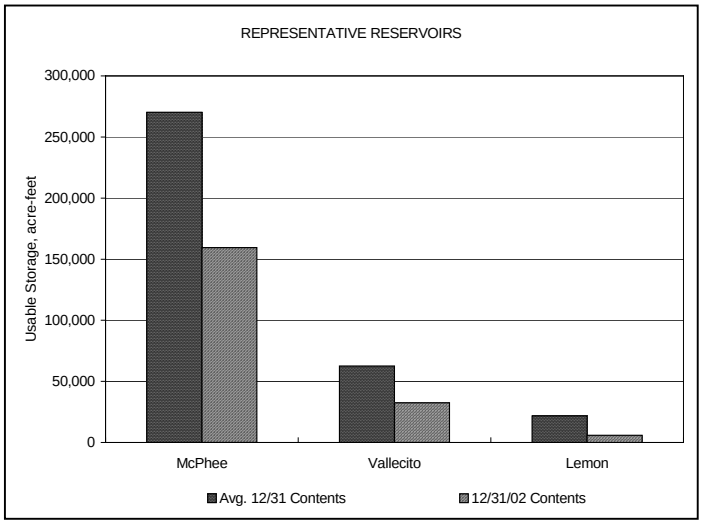
Current weather patterns do not show much relief coming on last year's shortage in water supply. Being early in the season, this situation could change considerably before spring.

Public Use Impacts

The ski areas continue operating at full capacity while the snow is in good condition. At this time the general conditions look much better than last year except for the carryover in water storage supplies.







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