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 2000

December 1 marks the beginning of the winter period for Surface Water Supply Index (SWSI) calculation. During this period, the SWSI calculation shifts from integrating the summer stream flow to utilizing the winter snowpack. Snowpack throughout the state, as of December 1, 2000, ranged from 74% of normal in the South Platte Basin to 129% of normal in the San Juan/Dolores Basin. The statewide average snowpack was 84% of normal. Continued snowpack accumulation will be key to recovering from this summer's drought and ensuring adequate water supplies for next irrigation season.

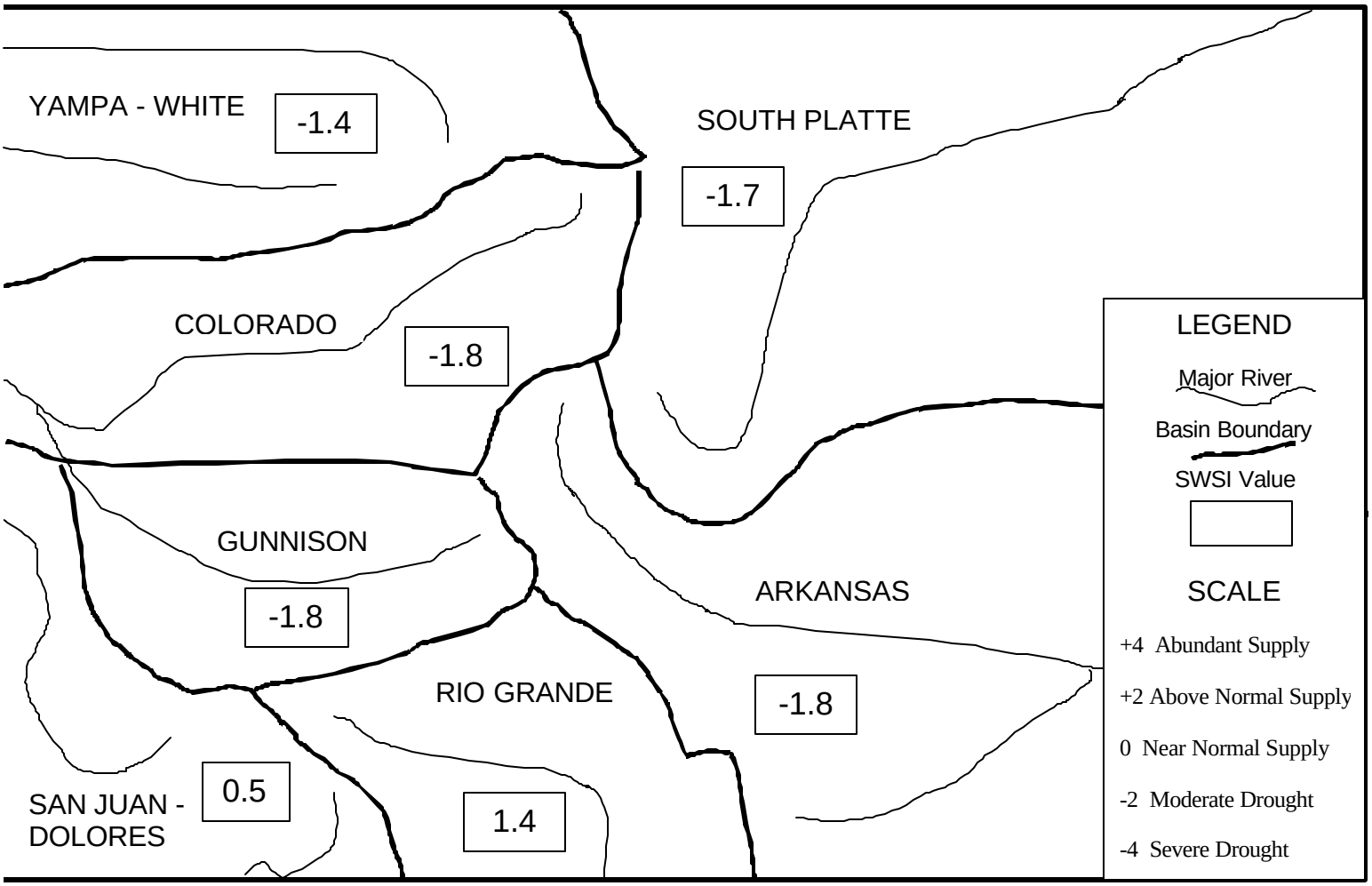
The Surface Water Supply Index (SWSI) developed by this office and the U.S.D.A. Natural Resources Conservation Service is used as an indicator of mountain-based water supply conditions in the major river basins of the state. It is based on snowpack, reservoir storage, and precipitation for the winter 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, 2000, and reflect the conditions during the month of November.

Basin	December 1, 2000 SWSI Value	Change From Previous Month	Change From Previous Year
South Platte	-1.7	-3.1	-2.5
Arkansas	-1.8	-2.2	+0.9
Rio Grande	1.4	+2.4	+5.1
Gunnison	-1.8	-0.1	+1.9
Colorado	-1.8	-1.5	+1.3
Yampa/White	-1.4	-0.4	+2.1
San Juan/Dolores	0.5	+1.1	+3.8

Scale

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

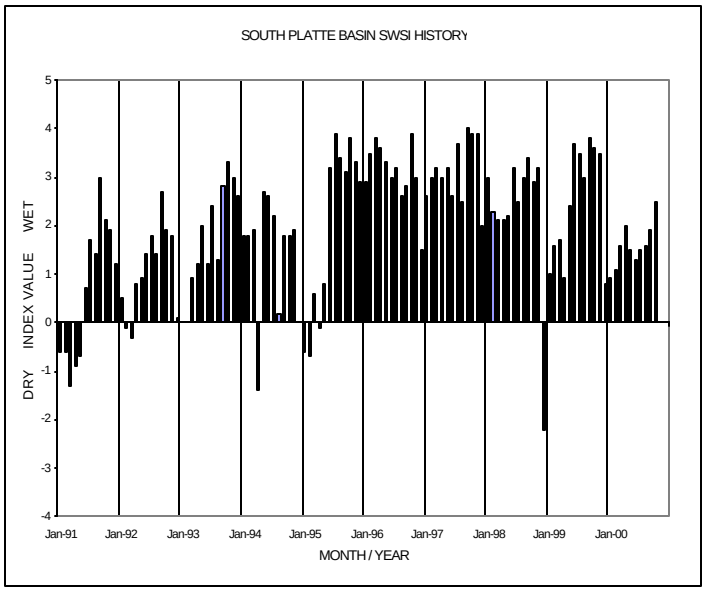
SURFACE WATER SUPPLY INDEX FOR COLORADO



DECEMBER 1, 2000

Basinwide Conditions Assessment

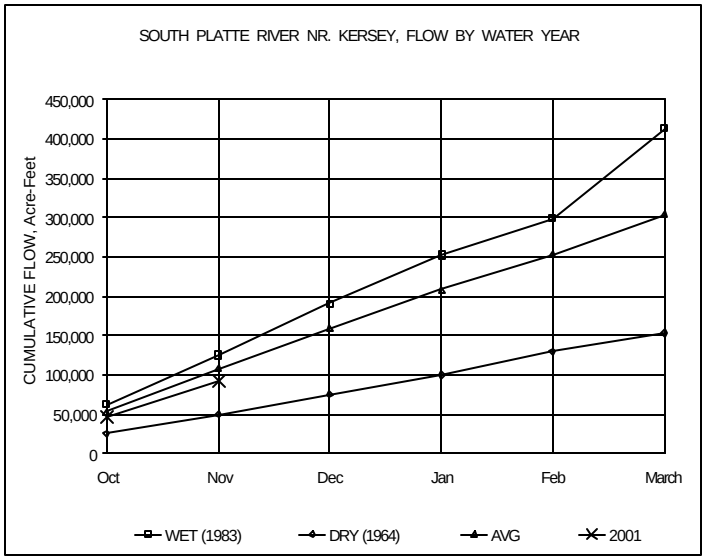
The SWSI value of -1.7 indicates that for November the basin water supplies were below normal. Reservoir storage, the major component in this basin in computing the SWSI value, was 88% of normal as of the end of November. Storage in the major plains reservoirs: Julesburg, North Sterling, and Prewitt, increased overall by 15,660 acre-feet during November and are at 43% of capacity. Storage in the major upper basin reservoirs: Cheesman, Eleven Mile, Spinney, and Antero, decreased by 3,847 acre-feet overall during November and are at 76% of capacity. The Natural Resources Conservation Service reports that December 1 snowpack is 74% of normal. Flow at the gaging station South Platte River at Kersey was 763 cfs, as compared to the long-term average of 894 cfs.



Outlook

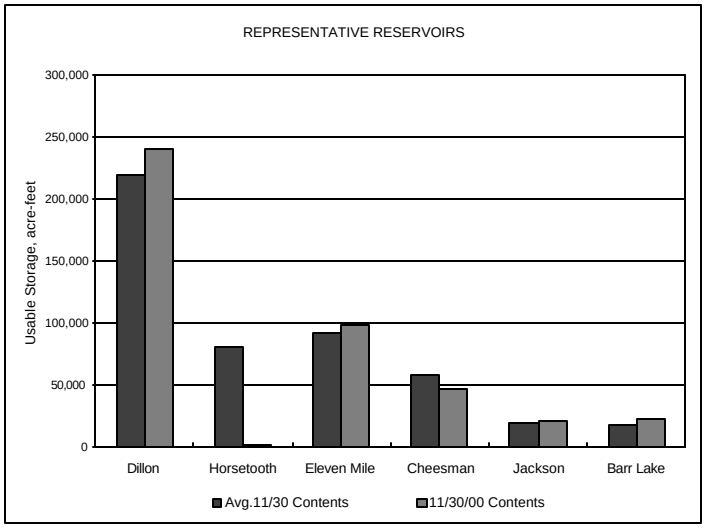
Reservoir storage continued in November for the plains reservoirs on the South Platte. The call for the whole month was for storage on the mainstem and many tributaries. This is the first storage call on the mainstem of the South Platte in several years and is indicative of the concern of irrigators that they be able to fill their reservoirs. By the end of the month, three of the main irrigation reservoirs - Empire, Julesburg and Jackson were at or near their winter storage level. We expect that Riverside Reservoir will fill during December. North Sterling Reservoir will continue to fill during the remainder of the year and hopefully will fill to capacity by next spring.

Reservoir storage also continued above Kersey on the South Platte. Overall irrigation storage on the river above and below Kersey and tributaries is ahead of the 1994-1995 year, the year after the last dry summer on the South Platte. Municipal storage also continues to be satisfactory. Many of these reservoirs tend to stay somewhat full as the Cities reserve them for severe droughts.



Administrative/Management Concerns

The Division is gaining optimism that major irrigation reservoirs will fill this winter and spring especially if the weather is not unseasonably cold this winter. Filling reservoirs is very important in having an adequate water supply in the spring. Division 1 continues to be concerned that there be adequate recharge to provide augmentation supplies and maintain flows in the river during next summer.



Public Use Impacts

None.

Basinwide Conditions Assessment

The SWSI value of –1.8 indicates that for November the basin water supplies were below normal. The Natural Resources Conservation Service reports that December 1 snowpack is 86% of normal. Flow at the gaging station Arkansas River near Portland was 413 cfs, as compared to the long-term average of 441 cfs. Storage in Turquoise, Twin Lakes, Pueblo, and John Martin reservoirs totaled 117% of normal as of the end of November.

Outlook

Reservoir storage levels in Pueblo and John Martin will permit Winter Water Storage Program participants to store typical winter water amounts with a high degree of confidence that water will not spill.

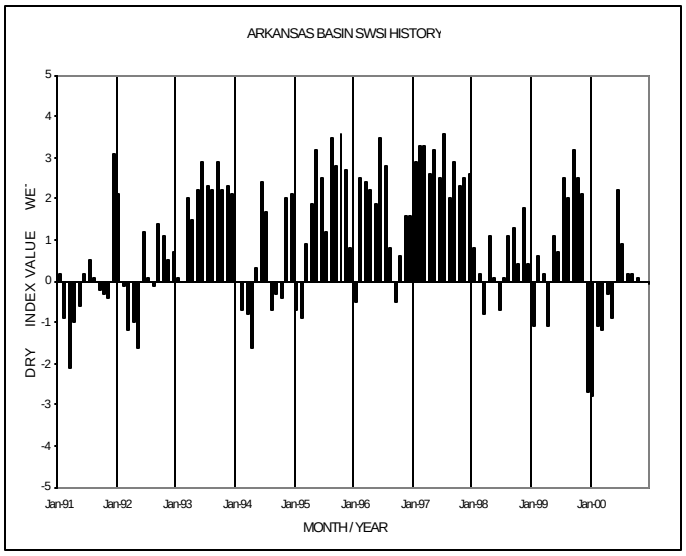
Administrative/Management Concerns

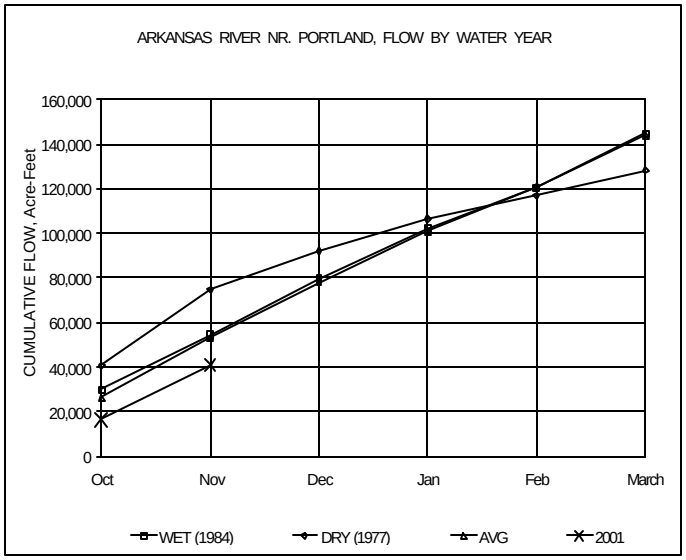
Winter Water Storage Program began on November 15th. The river call will stay at March 1, 1910 through March 14, 2000 pursuant to the program's court decree. The first two weeks of the four-month program shows a storage total of 18,150 acre feet, which is 55% of last year's total for the same time period.

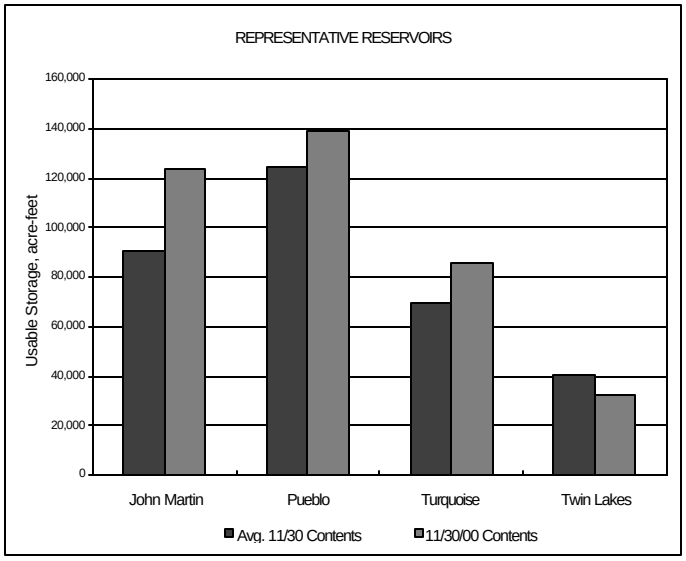
The annual meeting of the Colorado-Kansas Arkansas River Compact Administration took place in Lamar, Colorado on December 11th and 12th. Major topics of discussion included the past year's operations at John Martin Reservoir, Trinidad Reservoir and state line deliveries.

Public Use Impacts

None.





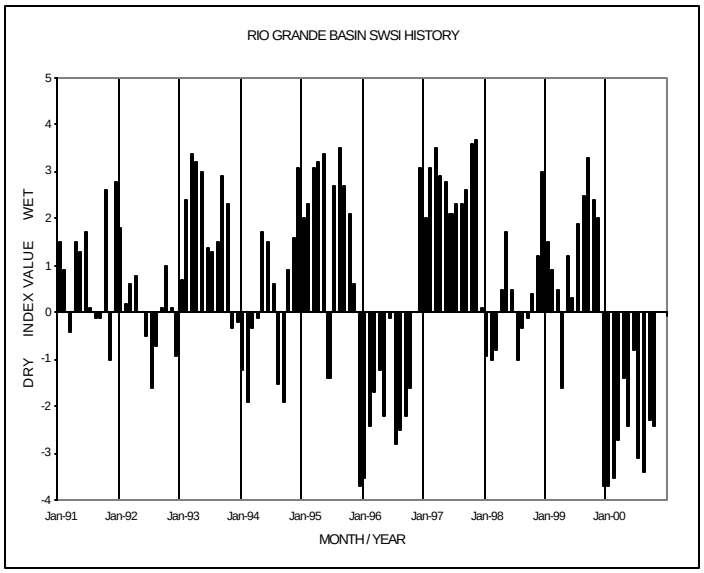


Basinwide Conditions Assessment

The SWSI value of 1.4 indicates that for November the basin water supplies were above normal. The Natural Resources Conservation Service reports that December 1 snowpack is 117% of 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 (61% of normal). In general, stream flow in the basin remained significantly below normal. Precipitation in Alamosa was only 0.05 inch for the whole month, 0.38 inch below normal.

Storage in Platoro, Rio Grande, and Santa Maria reservoirs totaled 85% of normal as of the end of November.



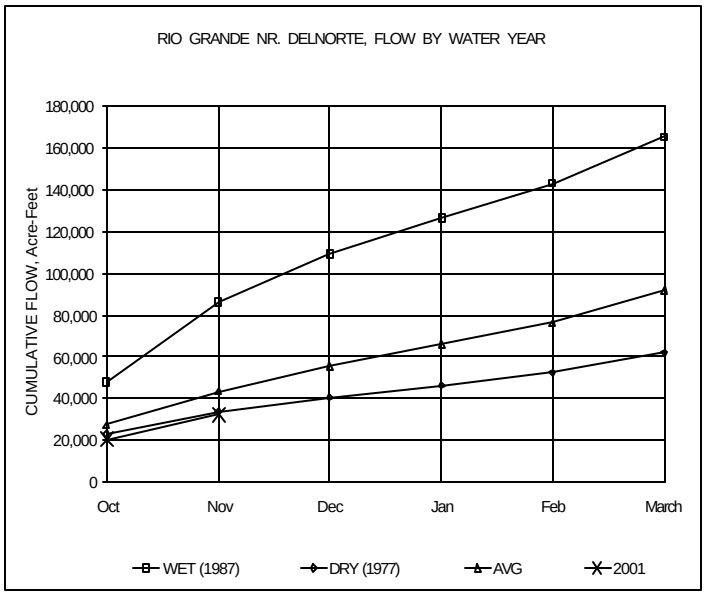
Outlook

Snowfall in the higher elevations was abundant during the early part of the month. Snowpack was nearly twice the normal level at that point. However, it had dropped back to near average as November came to a close. Still, this represented a great improvement over last year.

Administrative / Management Concerns

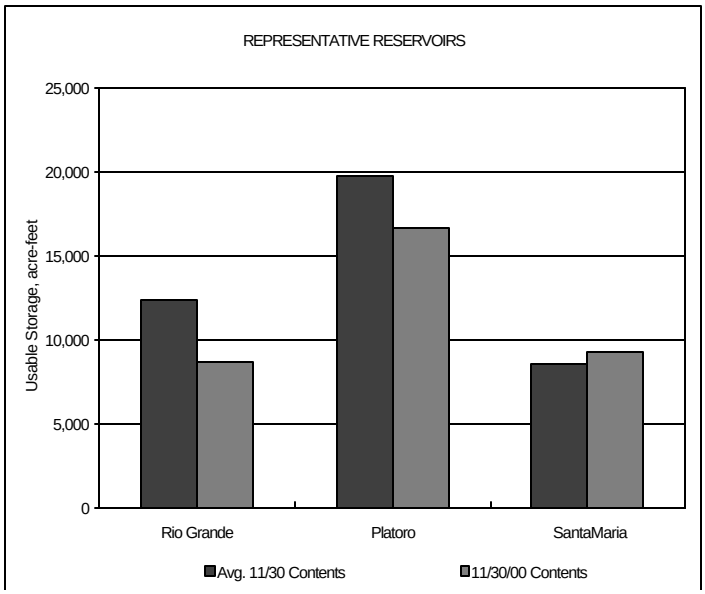
Colorado will once again meet its annual delivery requirement to the downstream states under the provisions of the Rio Grande Compact. Water was diverted from streams in the basin for irrigation and recharge purposes during November. Recharge diversions provide a means to reduce over-delivery and refill the aquifers after the abnormally high well withdrawals this past irrigation season.

Many area farms may be liquidated this winter due to the extremely low crop prices. Potato growers are especially hard-hit. Those farmers able to survive this disastrous year must consider growing alternative crops and/or acreage reductions to reduce supply.



Public Use Impact

Wintertime activities got off to a fast start after the early jump in the snowpack and the cold temperatures during November.



Basinwide Conditions Assessment

The SWSI value of –1.8 indicates that for November the basin water supplies were below normal. The Natural Resources Conservation Service reports that December 1 snowpack is 80% of normal. Flow at the gaging station Uncompahgre River near Ridgway was 71.0 cfs, as compared to the long-term average of 66.1 cfs. Storage in Taylor Park, Crawford, and Fruitland reservoirs totaled 93% of normal as of the end of November.

Outlook

The Gunnison Basin needs to recover from the lack of summer precipitation to fill reservoirs and supply springs.

The Division continues to see an increase in groundwater activity and the installation of the geothermal closed-loop heating systems. This is a long-term, cost-effective way of heating and cooling that our local cooperative Electric Company is offering.

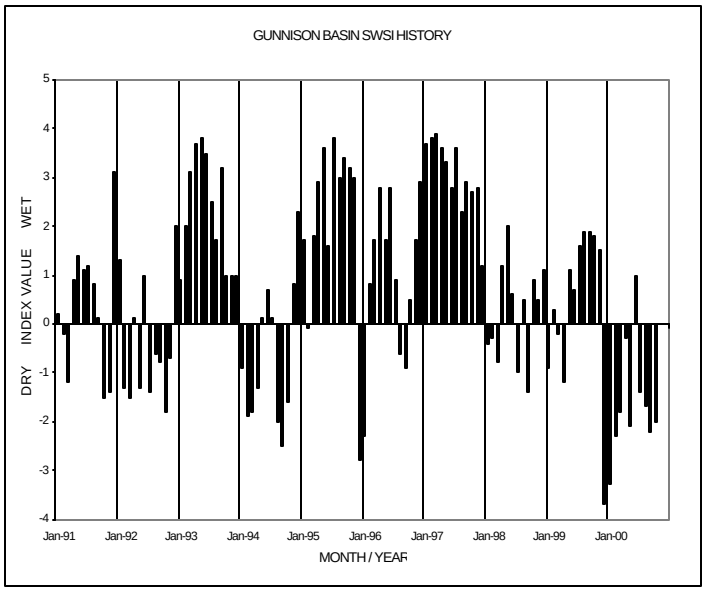
Administrative/Management Concerns

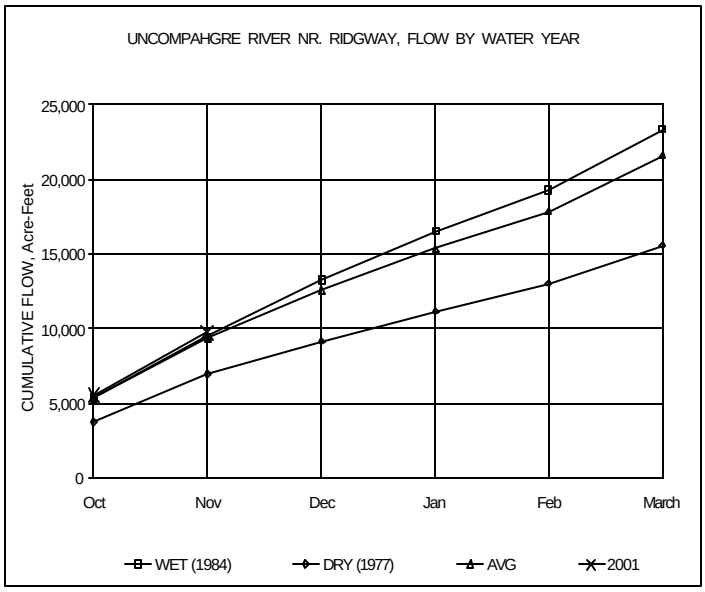
Several orders for repairs on reservoirs were finally acted upon. Two outlets were lined, and three staff gauge rods were repaired. A diversion dam around Carson Reservoir was also repaired. Because of low water levels and the draining down of reservoirs, the Division was able to inspect some other outlets that were found in need of repair.

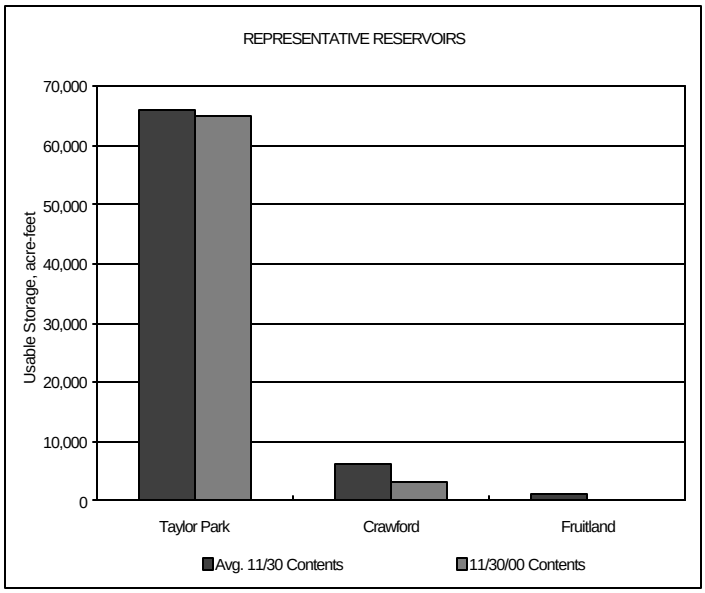
The strong introduction of the geo-thermal systems is creating concern as everyone seems to be getting on the bandwagon and the Division is discovering that unlicensed contractors are installing these systems. In many instances, the required geothermal well permits have not been sought for these systems.

Public Use Impacts

Once again the snow is slow in coming to the local ski areas. Their salvation is the ability to make snow in order to operate. Crested Butte has not offered free early-season skiing this year, as they have in the past.







Basinwide Conditions Assessment

The SWSI value of –1.8 indicates that for November the basin water supplies were below normal. The Natural Resources Conservation Service reports that December 1 snowpack is 84% of normal. Flow at the gaging station Colorado River near Dotsero was 924 cfs, as compared to the long-term average of 1156 cfs. Storage in Green Mountain, Ruedi, and Williams Fork reservoirs totaled 77% of normal as of the end of November.

Outlook

Snowpack started the month of November at about average for the Colorado River basin but limited snowfall amounts throughout the month caused the snowpack to drop to 75% of average for the basin by early December. Grand Mesa had particularly low snowpack, with less than 50% of average snowpack.

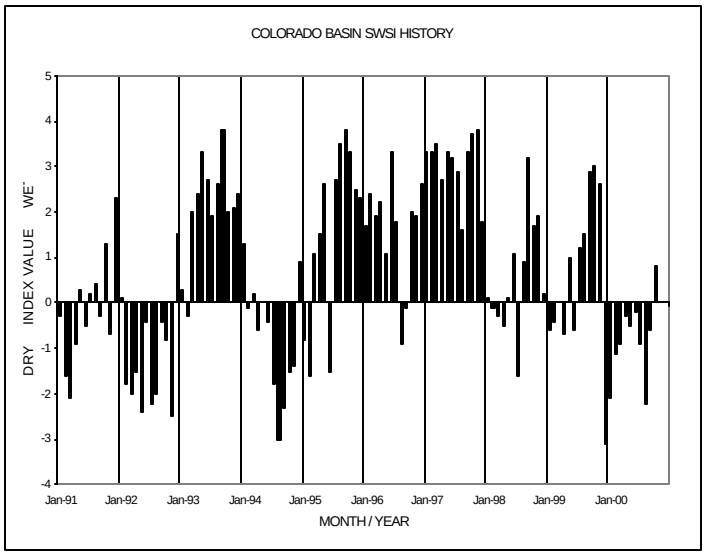
The senior Shoshone power call should remain on the Colorado River mainstem until scheduled turbine maintenance in January.

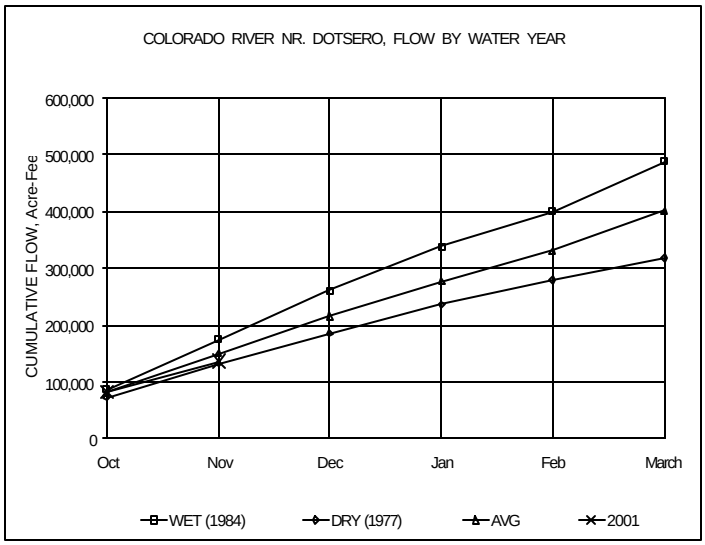
Administrative/Management Concerns

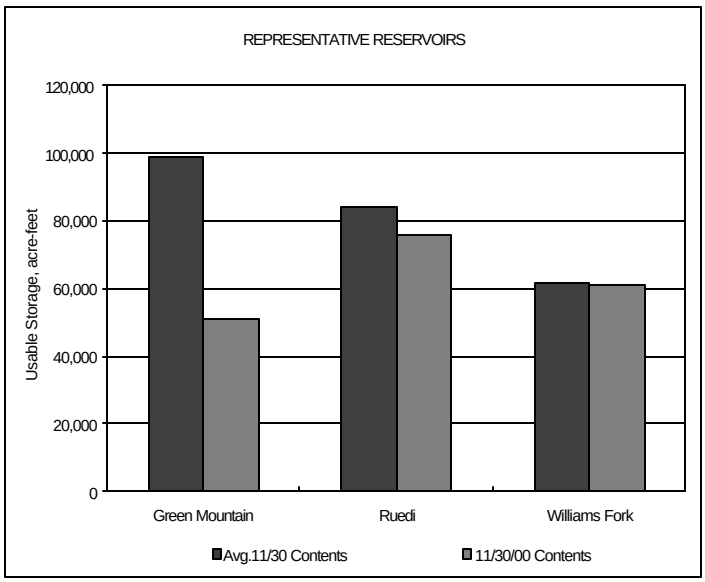
Maintenance of stream gaging stations at critical minimum streamflow sites will continue to be a priority throughout December and into January. Careful monitoring of these sites, which typically are at snowmaking diversion points, has not resulted in any curtailment to date this year.

Public Use Impacts

Streamflows should continue to meet or exceed minimum flow limits, allowing several major ski areas to keep up their snowmaking efforts. If typical December snowfall occurs, most ski areas should have sufficient snowpack for the upcoming, busy holiday season. However, at least one ski area without snowmaking remained closed in early December because of limited snowpack.



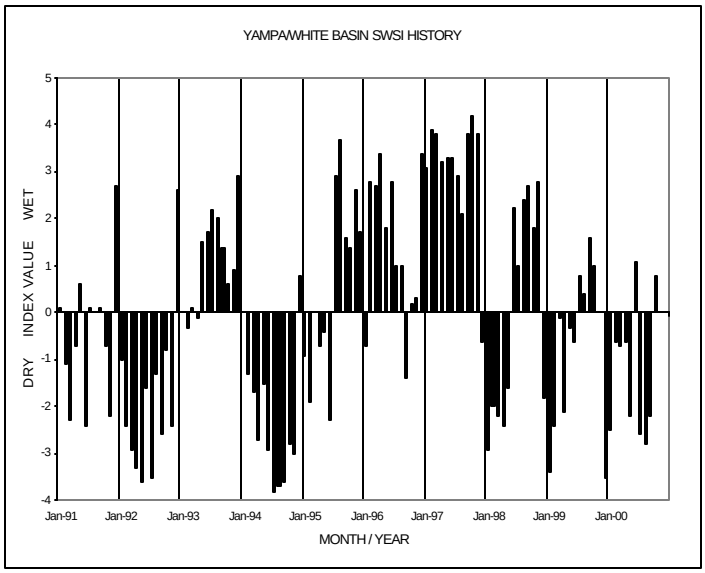




Basinwide Conditions Assessment

The SWSI value of –1.4 indicates that for November the basin water supplies were below normal. The Natural Resources Conservation Service reports that December 1 snowpack is 79% of normal. Flow at the gaging station Yampa River at Steamboat was 105 cfs, as compared to the long-term average of 124 cfs.

Conditions in November continued the snowy pattern that started at the end of October. For the month, precipitation was 98% of average basin wide, with the mountains above Steamboat Springs receiving close to 130% of average. Temperatures were much below average resulting in little melting of the snowfall. Soil moisture content remains low. Stream flows throughout the basin are near normal levels. Reservoirs have gone into storage mode.



Outlook

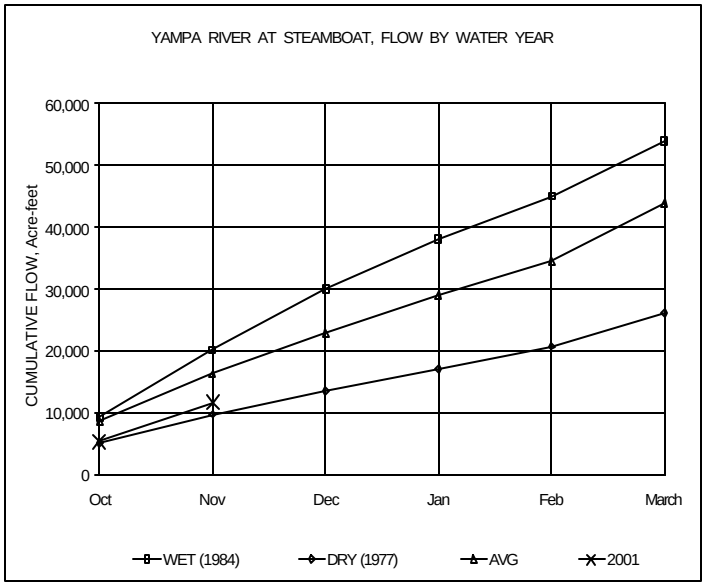
Hopes are high that snowfall will remain at or above average.

Administrative/Management Concerns

There are no administrative concerns at the present time.

Public Use Impacts

Winter recreational activities are in full swing.



Basinwide Conditions Assessment

The SWSI value of 0.5 indicates that for November the basin water supplies were normal. The Natural Resources Conservation Service reports that December 1 snowpack is 129% of normal. Flow at the gaging station Animas River near Durango was 289 cfs, as compared to the long-term average of 282 cfs. Storage in McPhee, Vallecito, and Lemon reservoirs totaled 73% of normal as of the end of November.

Although heavy snow fell in the area in October, there has been some disappointment in the lack of snowfall for November. Only two snowstorms, Nov. 4-5 and 10-12, moved through the area in November.

Temperatures remained well below normal. During November, the average high temperature was 8.0° below normal in Durango. The highest temperature of the month was 55° on November 5, 2000. The average low temperature was 1.7° below normal in Durango. The lowest temperature of the month was 8° on November 13 and 19, 2000. Precipitation in Durango was 80% of normal, 1.55 inches as opposed to a normal of 1.93 inches. For the water year to date, precipitation has been 182% of normal.

The snow pack remained above normal for the month but it dropped from a high of 186% of normal on November 14th to 129% of normal on December 1st. Much of the snow below 9500 feet had melted by the end of the month. Soil moisture conditions were good and the ground was frozen in the exposed areas.

Outlook

Rivers were running at near normal conditions according to local reporting gages. Reservoirs continue to suffer from the last water year's lack of precipitation. Storage levels range from 45% of normal at Lemon Reservoir to 81% of normal at McPhee Reservoir.

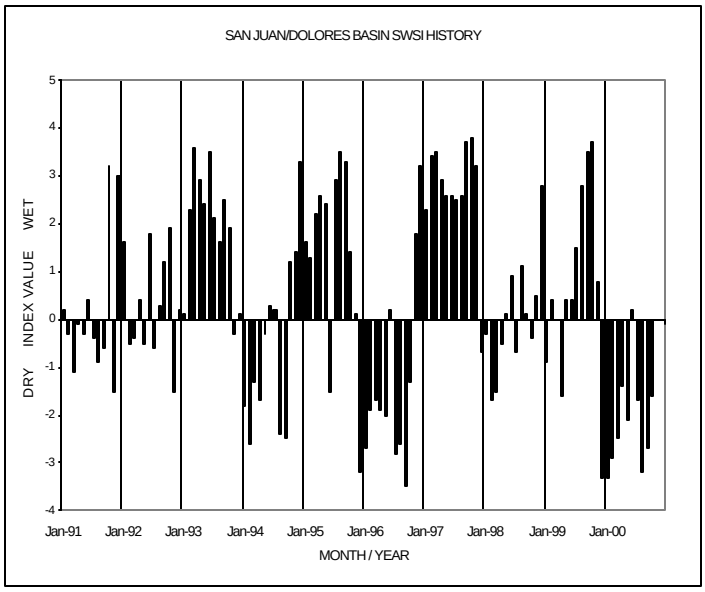
It is still early in the season and much more snowfall is needed to assure an adequate water supply for next year.

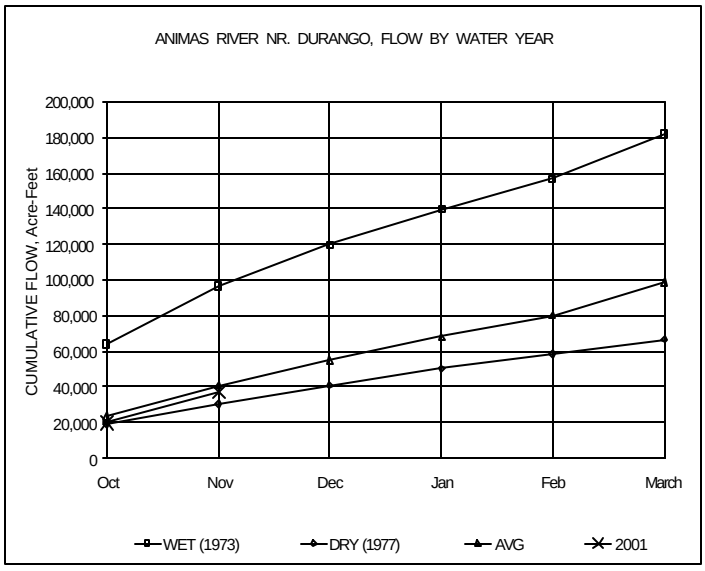
Administrative/Management Concerns

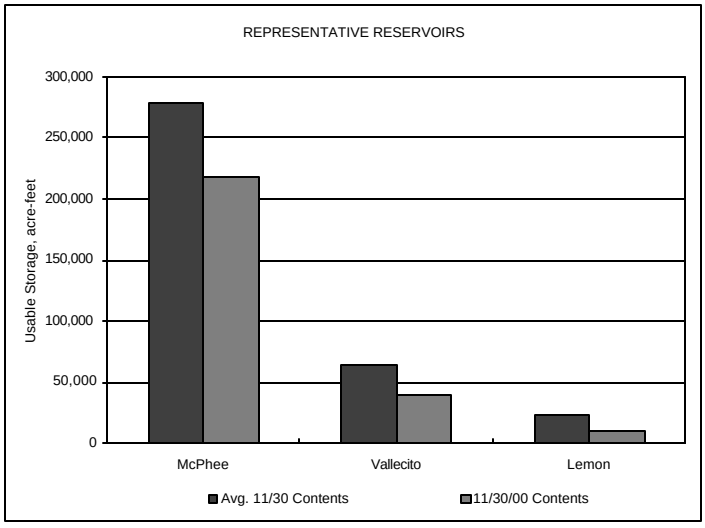
None.

Public Use Impacts

Winter recreation is off to a good start.







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