# 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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May 2002

While it is typical for portions of the state to be experiencing dry conditions, this year is highly unusual in that the entire state is under drought. This is demonstrated by the SWSI values, which are in the moderate to severe drought range for all basins. Statewide the May 1 snowpack averages a paltry 19% of normal. The Rio Grande and San Juan/Dolores River basins tie for the lowest snowpack figure at 6% of normal, while the Yampa/White River basin has the highest at 32% of normal. Most of the lower elevation snowpack measuring sites were already snow free on May 1.

Stream flows during April were all below normal. While as we enter the runoff season actual quantities of flow will rise, flows will drop when measured as a percent of average. NRCS forecasted volumes over the runoff season are nearly all lower than 50% of average, with some less than 25% of average. The lowest forecasts are in the southern portion of the state. In typical years the runoff peaks in May or June, this year some streams peaked in April. Diversions for irrigation have started in many areas of the state, and only ditches with senior priority dates are able to take water. Many junior priority farmers and ranchers, some who rely on spring runoff flows as the only time they can take water, will not have any stream flow water to irrigate with this year.

Some reservoirs are holding above normal storage, most are below normal, with overall storage volumes below normal. Irrigation reservoirs will be heavily utilized this irrigation year and many are expected to be drained by the end of the season.

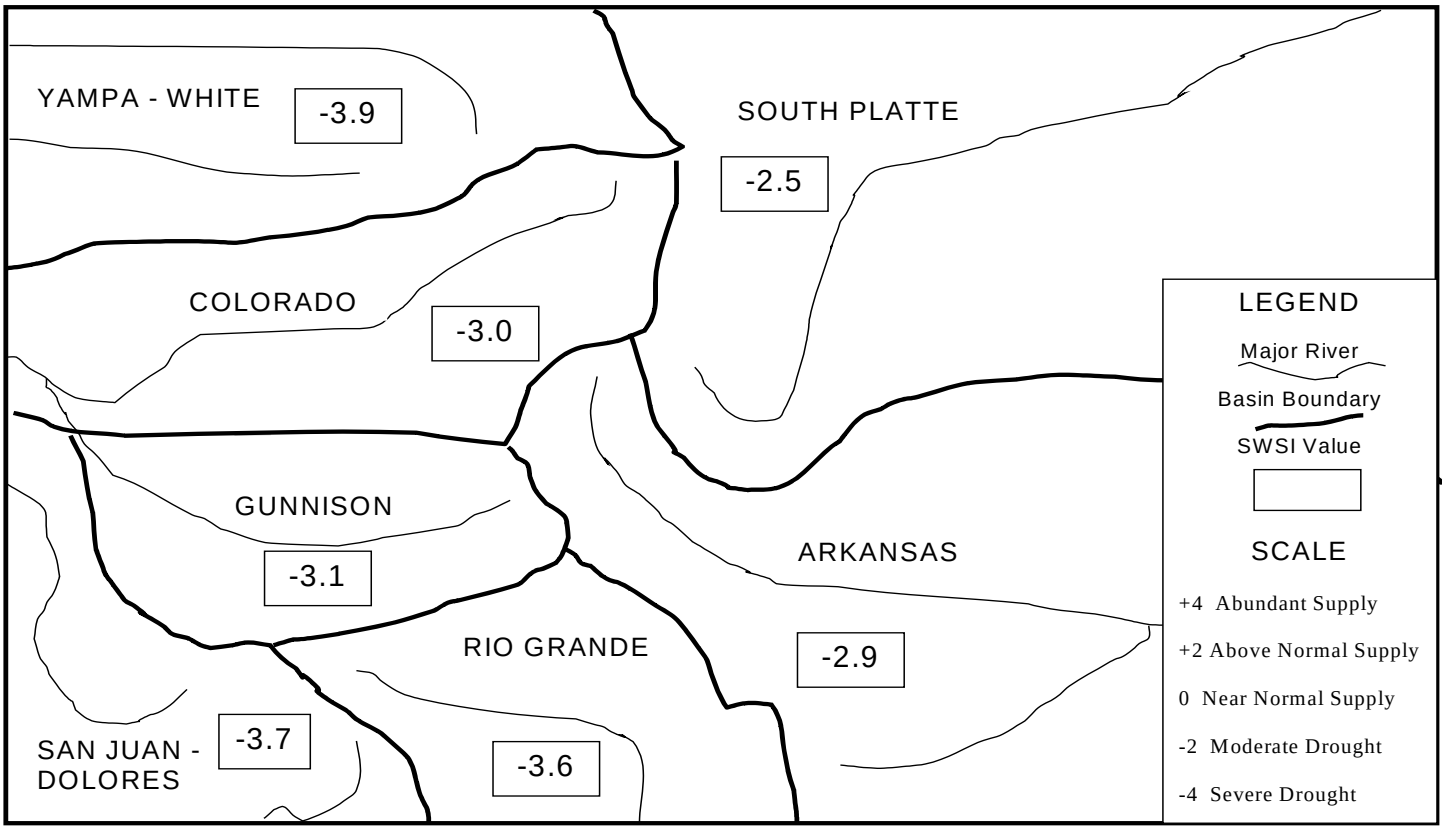
The Surface Water Supply Index (SWSI) developed by this office and the U.S.D.A. Natural Resources Conservation Service is used as an indicator of mountain-based water supply conditions in the major river basins of the state. It is based on snowpack, reservoir storage, and precipitation for the winter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

| Basin | May 1, 2002 SWSI Value | Change From Previous Month | Change From Previous Year |
|---|---|---|---|
| South Platte | -2.5 | -0.6 | -2.6 |
| Arkansas | -2.9 | -0.1 | -1.3 |
| Rio Grande | -3.6 | -0.5 | -4.7 |
| Gunnison | -3.1 | -0.3 | -1.6 |
| Colorado | -3.0 | -0.4 | -1.3 |
| Yampa/White | -3.9 | -0.4 | -1.1 |
| San Juan/Dolores | -3.7 | -0.2 | -3.6 |

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



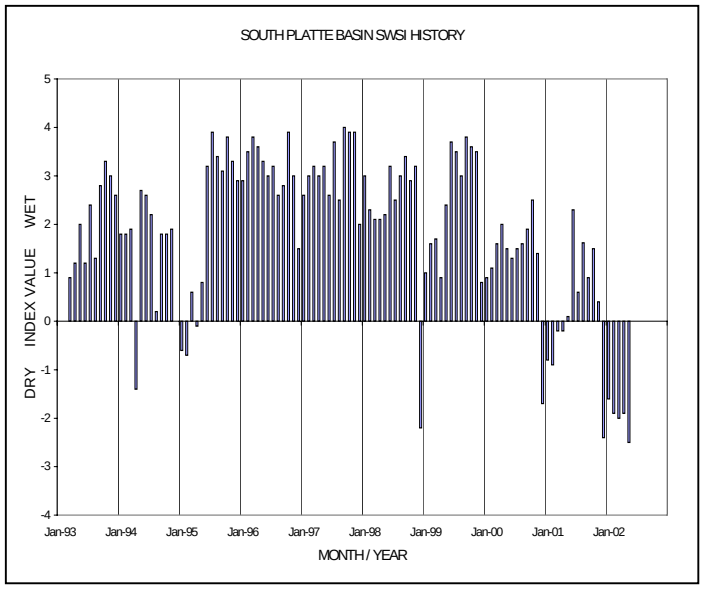

**MAY 1, 2002**

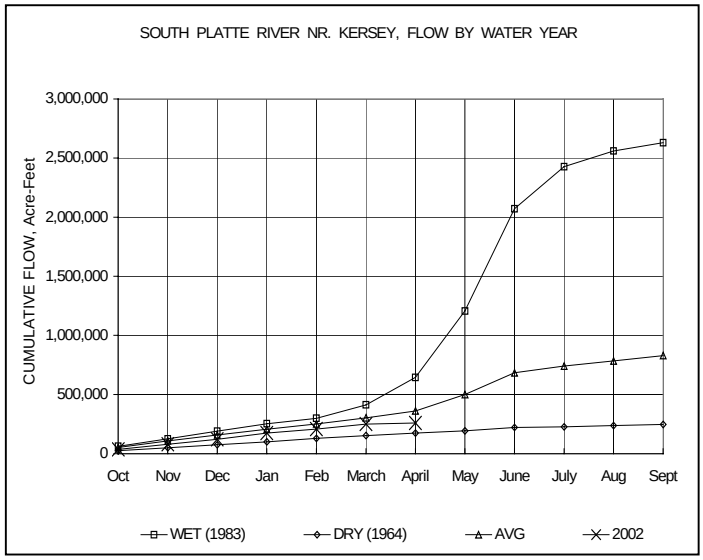
Basinwide Conditions Assessment

The SWSI value of –2.5 indicates that for April the basin water supplies were well below normal. Reservoir storage, the major component in this basin in computing the SWSI value, was 81% of normal as of the end of April. Cumulative storage in the major plains reservoirs: Julesberg, North Sterling, and Prewitt, is at 93% of capacity. Cumulative storage in the major upper-basin reservoirs: Cheesman, Eleven Mile, Spinney, and Antero is at 82% of capacity. The Natural Resources Conservation Service reports that May 1 snowpack is 23% of normal. Flow at the gaging station South Platte River near Kersey was 171 cfs, as compared to the long-term average of 1,110 cfs. Flow at the Colorado/Nebraska state line averaged 97 cfs.

Some lower elevation snow courses show no remaining snow, which is very unusual for this time of year.

Stream flow conditions along the South Platte and all tributaries are significantly lower than normal. Flow at the Kersey gage has reached a near 25 year low. Direct flow calls on the mainstem and tributaries prior to runoff usually do not occur until late April, this year a direct flow call has existed on the South Platte since April 4. By the end of April the senior call on the South Platte above the confluence with the Saint Vrain was 1871, a call that usually only occurs in July of even dry years. Similar senior call conditions exist on the lower mainstem and the tributaries.



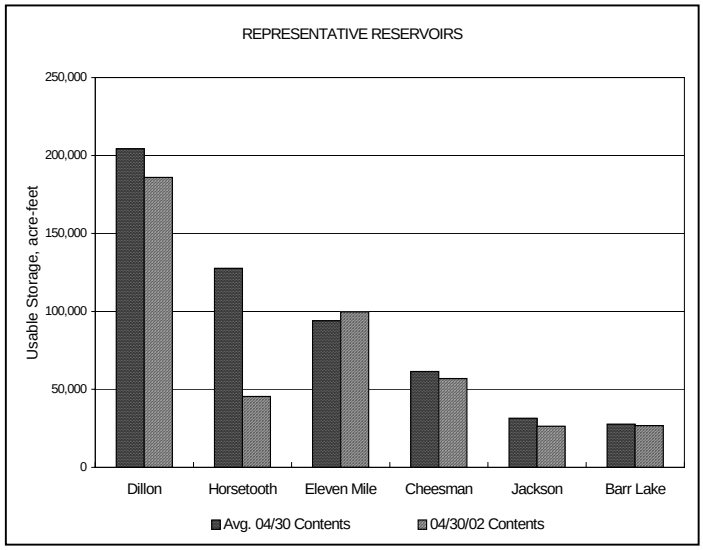

Outlook

Unlike most years, the senior calls may never be removed during runoff, and calls will remain more senior than normal throughout the year.

Major irrigation reservoirs along the South Platte generally filled, however, those along the tributaries did not fill under their senior rights. Reservoir storage will be needed for irrigation almost immediately unless significant rainfall events occur. Because of the early draw on irrigation reservoirs and poor runoff forecasts, it is likely the major irrigation reservoirs will be empty by the end of the season, or even before.

Municipal water providers in general have a larger safety factor in their available storage water. Providers with drought plans may begin implementing such plans soon. If conditions do not improve by next year, some water providers may really begin to feel the pinch in supplies. Many municipal suppliers have already reduced the amount of their supplies they lease to farmers.

Small water providers and individual users in the mountains who are dependent on fractured rock wells and small tributaries may have physical supply limitations.




Administrative/Management Concerns

Administrators will be stretched in monitoring illegal users, responding to complaints, and measuring stream flows to accurately maximize beneficial use.

Public Use Impacts

Irrigators who do not have senior irrigation rights or augmented wells may not have an adequate water supply.

Basinwide Conditions Assessment

The SWSI value of –2.9 indicates that for April the basin water supplies were well below normal. The Natural Resources Conservation Service reports that May 1 snowpack is 24% of normal. Flow at the gaging station Arkansas River near Portland was 197 cfs, as compared to the long-term average of 448 cfs. Storage in Turquoise, Twin Lakes, Pueblo, and John Martin reservoirs totaled 74% of normal as of the end of April.

Stream flows and reservoir storage amounts continued to be dismal in the Arkansas River basin. River calls continued to be set at water rights more senior than typically seen at this time of the irrigation season. A portion of the month of April included a call by the Pueblo Board of Water Works above Pueblo Reservoir with a priority of April 1, 1874.

Outlook

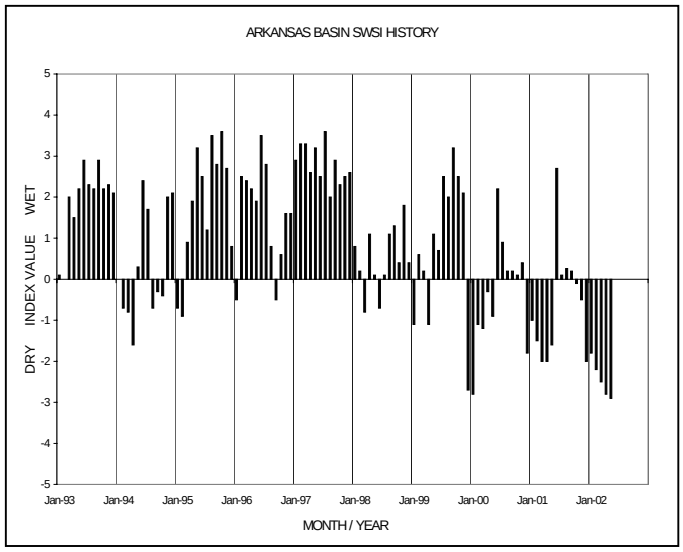
A number of the large irrigation ditches with water rights that are comparatively junior are anticipating fairly poor surface water irrigation supplies, and are making cropping and irrigation decisions accordingly.

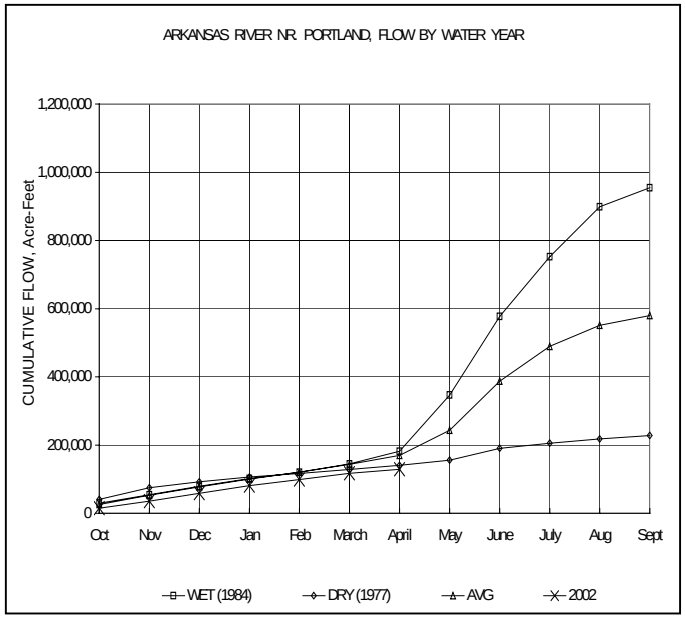
Administrative/Management Concerns

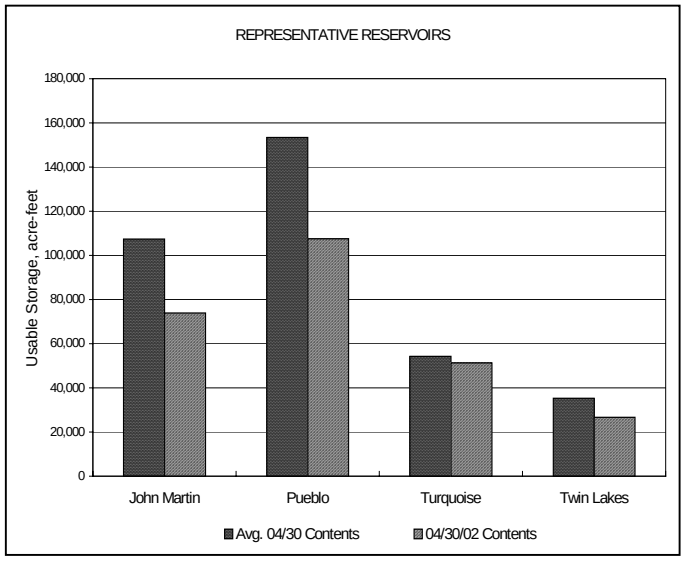
With the Kansas v. Colorado litigation entering the trial phase to determine how well Colorado has complied with the interstate compact, attention will be focused on how well the Division of Water Resources can enforce the Amended Use Rules for wells under drought conditions. Tighter budgets will make field enforcement efforts more difficult at a critical time.

Public Use Impacts

Anticipated reservoir draw down during the season to meet irrigation demand will likely cause recreational impacts for fishermen and boating enthusiasts. It may also be difficult to meet desirable targets for stream flows in areas used for rafting and fishing on the mainstem of the Arkansas River above Pueblo Reservoir.



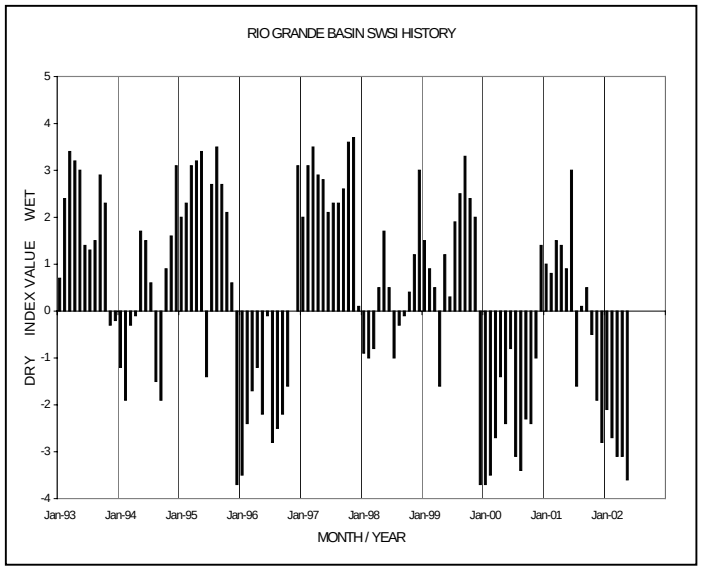



Basinwide Conditions Assessment

The SWSI value of –3.6 indicates that for April the basin water supplies were well below normal. The Natural Resources Conservation Service reports that May 1 snowpack is 6% of normal. Flow at the gaging station Rio Grande near Del Norte was 435 cfs (56% of normal). The Conejos River near Mogote had a mean flow of 170 cfs (53% of normal). Flow to the state line was only 15% of normal as upstream diversions for irrigation needs continued. Storage in Platoro, Rio Grande, and Santa Maria reservoirs totaled 76% of normal as of the end of April.

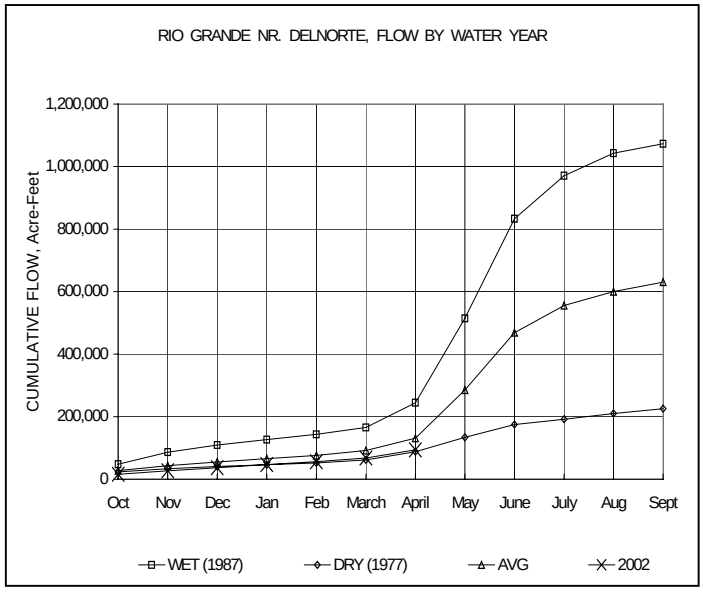
For the first April in over 20 years, none of the precipitation on the valley floor came in the form of snowfall. Alamosa received only 0.15 inches of moisture during April, 0.39 inches below normal. This was the warmest April in the last 10 years. Steady winds pounded the area during the month, whisking away precious snowpack in the mountains. The only snowtel site indicating snow on the pillow at the end of the month was at the summit of Wolf Creek Pass.




Outlook

NRCS forecasts are now predicting runoff to be only 25% of average on both the Rio Grande at the Del Norte gate and on the Conejos River near Mogote. Other drainages of particular concern are the Alamosa River (25% of normal) and Saguache Creek (26% of normal) where runoff will be early and diminished.

Should these forecasts hold true, the upper Rio Grande basin will experience the worst runoff season in recorded history, surpassing even the 1977 season.



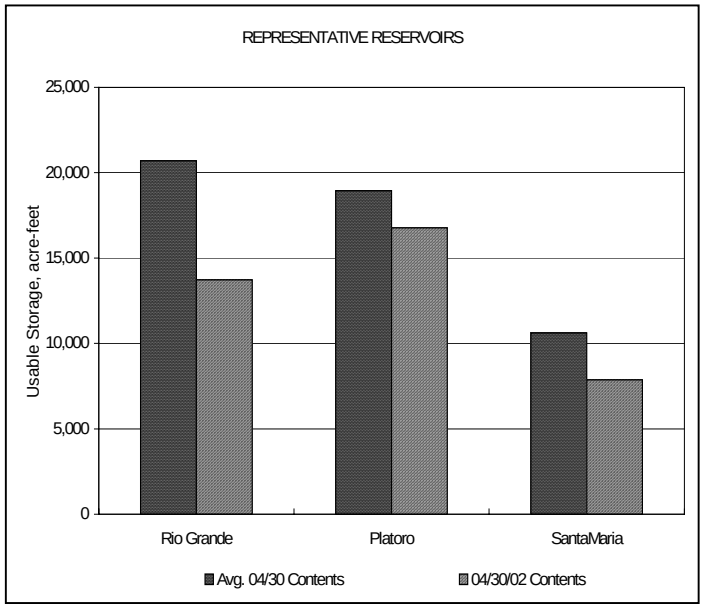

Administrative/Management Concerns

With only the most senior surface rights able to divert through the summer, massive pumping from the valley's aquifers will be necessary to meet irrigation demand. Applications to replace existing domestic wells and irrigation wells are already arriving at the Division of Water Resources office in unprecedented numbers.

Public Use Impacts

Severe impacts on the local farming and ranching economy are expected. Due to the extremely dry conditions, grazing on public lands will be either very limited or prohibited altogether.

Water related recreational activities will suffer greatly from reduced levels in streams and reservoirs. It might be easier to catch fish with a net than a hook this year.



Basinwide Conditions Assessment

The SWSI value of –3.1 indicates that for April the basin water supplies were well below normal. The Natural Resources Conservation Service reports that May 1 snowpack is 18% of normal. Flow at the gaging station Uncompahgre River near Ridgway was 105 cfs, as compared to the long-term average of 109 cfs. Storage in Taylor Park, Crawford, and Fruitland reservoirs totaled 106% of normal as of the end of April.

Outlook

The water supply outlook worsened during April in the Gunnison and San Miguel Basins. The predominant weather pattern was warm, windy and dry. Once again the basin wide precipitation was only about 50% of normal, and mirrors the percent of normal precipitation received during the October through March period. Grand Junction reported that the January through April precipitation was the lowest since 1972.

Two storms brought light snow to the high country, with Crested Butte receiving two inches of snow on the 10th and 11th, and Ouray receiving over 0.40 inches of precipitation a week later. Unfortunately, warm and windy conditions returned and reduced the amount of snowpack available for the spring runoff season.

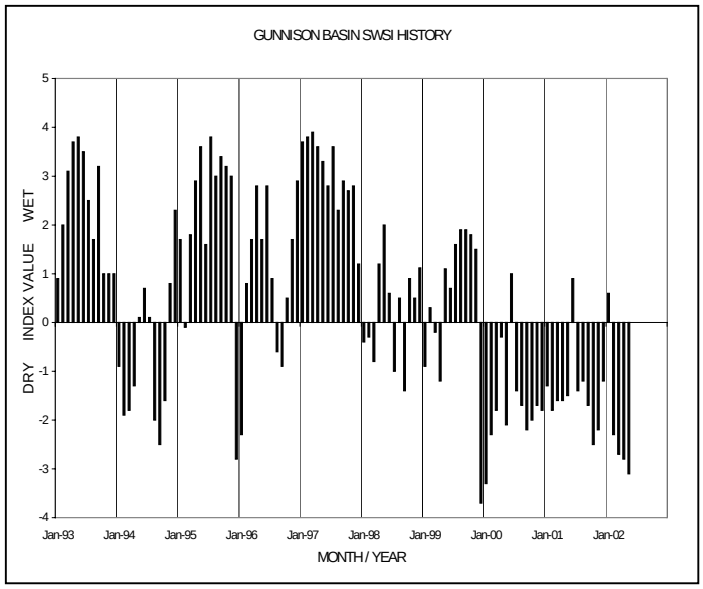
Administrative/Management Concerns

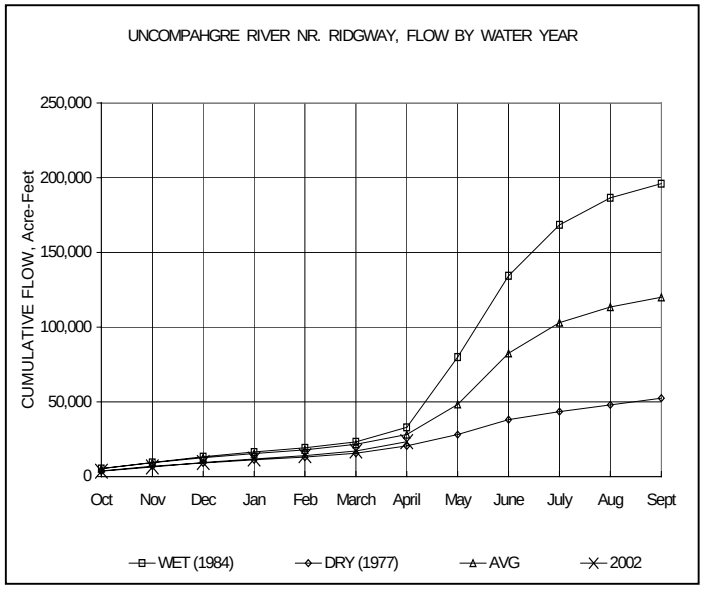
Basin administrators received a river call for the Gunnison Tunnel. This was the first time in nearly 50 years that the Tunnel demand was less than available inflows. Irrigators in the upper Gunnison basin were particularly hard hit by curtailment of water rights junior to the 1905 Tunnel right.

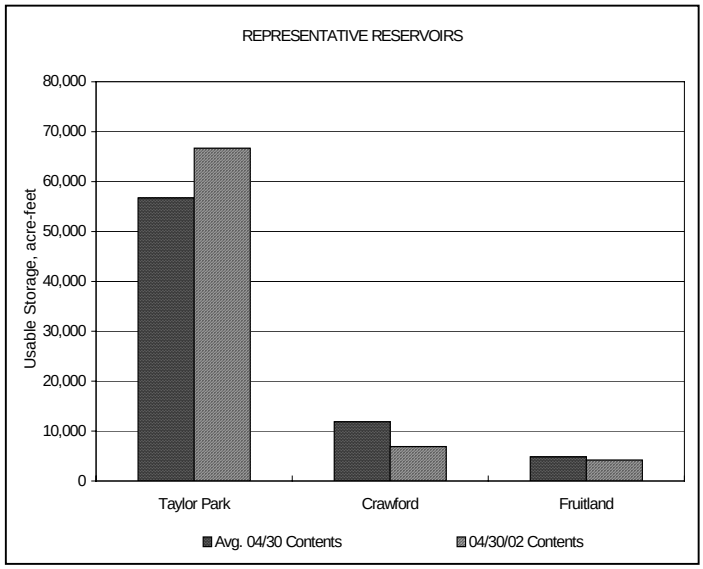
Another call of significance was placed by the Redlands Power Canal. This structure is located in Grand Junction near the confluence with the Colorado River. As a result, administration would impact nearly the entire Gunnision Basin. Fortunately, the call was only honored for one day before warmer weather caused higher stream flows

Public Use Impacts

Grazing permits on the National Forests and Bureau of Land Management property have been severely curtailed due to lack of adequate forage. This, in combination with poor deeded pasture conditions, has caused great concern in the local cattle industry. Cattle prices have dropped precipitously as numerous ranchers try to reduce their head size. This has been accompanied by rapidly rising feed costs. The ongoing drought will severely test the economic viability of many ranchers in the Gunnison Basin.



Basinwide Conditions Assessment

The SWSI value of –3.0 indicates that for April the basin water supplies were well below normal. The Natural Resources Conservation Service reports that May 1 snowpack is 27% of normal. Flow at the gaging station Colorado River near Dotsero was 1,281 cfs, as compared to the long-term average of 1,845 cfs. Storage in Green Mountain, Ruedi, and Williams Fork reservoirs totaled 110% of normal as of the end of April.

Releases from Granby Reservoir, which would typically be a minimum of 75 cfs under the operating principles, were reduced to 56 cfs after the April 1 runoff forecast, and to 53 cfs after the May 1 forecast.

Administrative/Management Concerns

Effective May 3, the Cameo call was voluntarily reduced form 2,260 cfs to 1,950 cfs in order to conserve upstream storage. Also, the Grand Valley Power Plant, operated by the Orchard Mesa Irrigation district, is not calling for their 310 cfs in order to maximize retention of storage in Green Mountain Reservoir.

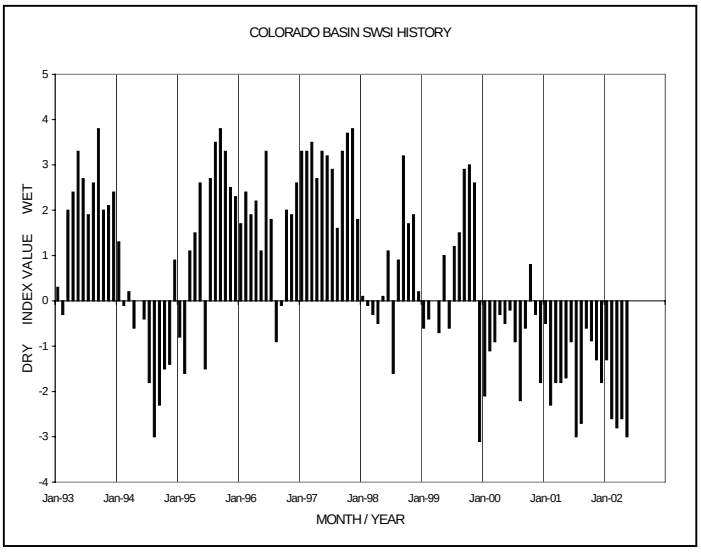
So far, Rudei, Williams Fork, and Green Mountain Reservoirs have been able to satisfy calling rights.

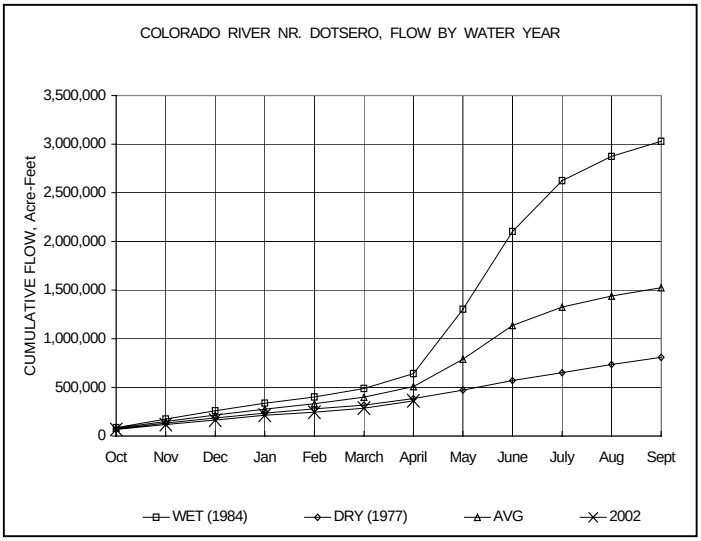
The Shoshone Power Plant had its junior (1929) 158 cfs right calling since June 30, 2001, and its senior (1902) 1,250 cfs right calling since August 11, 2001 (except for a 2 week maintenance period in November/December). Currently, the plant has also temporarily relaxed its call in order to conserve upstream storage. The average daily flow at the Dotsero gage has been below 1,250 cfs since May 3 and appears to be holding in the 1,100 cfs range.

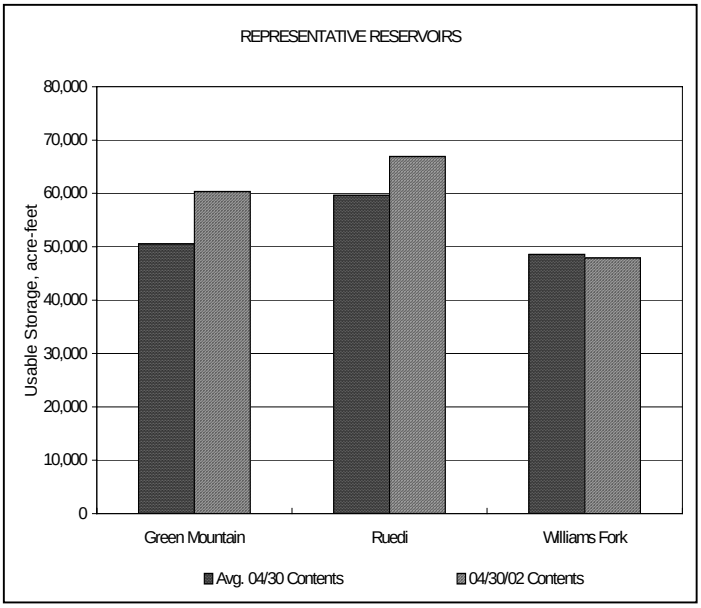
Low water levels in Green Mountain Reservoir will not allow the ring seal project on the outlet works to be done because water is not high enough to be alternately discharged through the spillway.

Public Use Impacts

Forecasted low elevation contents in Dillon Reservoir are anticipated to negatively impact both the Dillon and Frisco marinas, but allow Denver Water to complete the spillway patching project scheduled to occur from June through October.



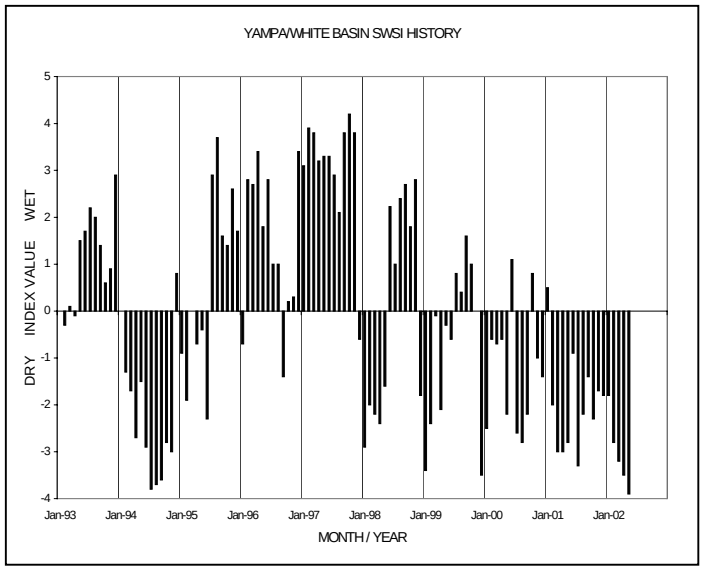



Basinwide Conditions Assessment

The SWSI value of –3.9 indicates that for April the basin water supplies were well below normal. The Natural Resources Conservation Service reports that May 1 snowpack is 32% of normal. Flow at the gaging station Yampa River at Steamboat was 358 cfs, as compared to the long-term average of 605 cfs.

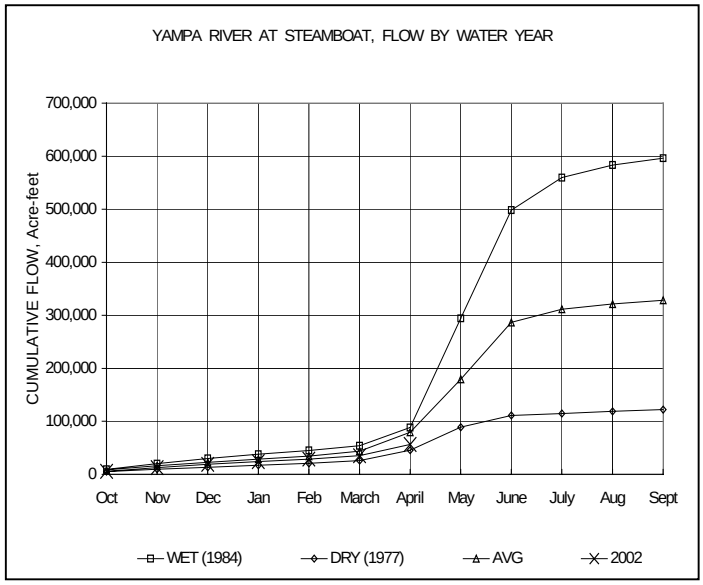
April continued the string of dry months in the basin. Basin wide precipitation was only 54% of average for April. At the end of the month snowpack in the basin ranged from a high of 50% of average for the Little Snake River to a low of 32% of average for the Yampa River. The Yampa and White Rivers had a combined snowpack of 32% of average and the North Platte drainage was at 44% of average. While these averages are the highest in the state, they are significantly lower than reported last month. The only snowpack still remaining is at high elevation.

River flows continue to be about 25% to 30% of normal for this time of year. Peak flows are expected to be well below normal throughout the basin.




Outlook

The May 1 runoff forecast, provided by the NRCS, significantly lowered the expected volume of runoff from the previous month. Estimates of the most probable runoff on the various major drainages will range from 28% of average on the North Platte near Northgate to 47% of average on the Little Snake River near Later. The forecast for the Yampa River near Maybell is 34% of average, and the White River near Meeker is forecasted to be 39% of average.




Administrative/Management Concerns

The forecast numbers indicate that the severity of the drought continues to worsen. Weather patterns have continued to be dry with above normal temperatures and windy conditions. Many low elevation tributaries have peaked at levels considerably below normal. Availability of water will be limited in many cases to the senior priority on the stream, unless the users agree to share the resource. Many streams will only have enough water available to provide for livestock watering.

Public Use Impacts

Reservoirs are relatively full and should provide adequate fishing opportunities early this summer. Stream flows will be much lower than normal and are expected to remain at low levels throughout the summer.

Basinwide Conditions Assessment

The SWSI value of –3.7 indicates that for April the basin water supplies were well below normal. The Natural Resources Conservation Service reports that May 1 snowpack is 6% of normal. Flow at the gaging station Animas River near Durango was 322 cfs, as compared to the long-term average of 779 cfs. Storage in McPhee, Vallecito, and Lemon reservoirs totaled 71% of normal as of the end of April.

Only one Snotel snow pillow registered a snowpack of over 7% of average, that being Wolf Creek Pass at 26% of average. It appears that the drop in snowpack has occurred about 2 months ahead of normal.

Rivers were running at or below 40% of normal. The Animas River did not exceed 450 cfs in Durango during the month. The Dolores River peaked at 447 cfs daily average on April 15. The La Plata River typically averages about 83 cfs during April, but this year averaged 22 cfs.

McPhee Reservoir carried over about 60,000 acre-feet of useable storage from last year (with about an additional 156,000 acre-feet of inactive storage), which is to be shared by most of the project users. The MVI company, with the most senior water rights, was cut to 75% supply. Other users were reduced to about 40%. Municipal and rural domestic users in the Montezuma Valley are probably in secure shape as the source water is very high in priority.

Navajo Reservoir inflow was only 35% of average. The Piedra River flow predictions are among the highest in the San Juan basin, however there is very little water use on this drainage with most water flowing to Navajo Reservoir.

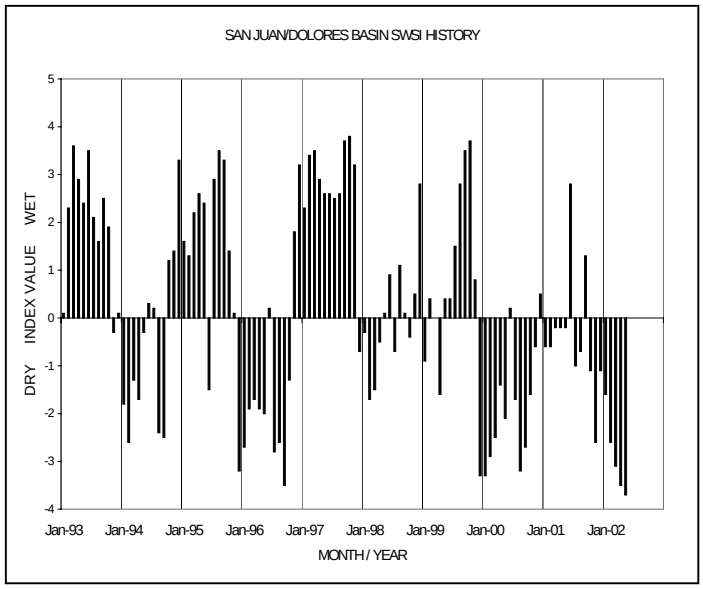
Administrative/Management Concerns

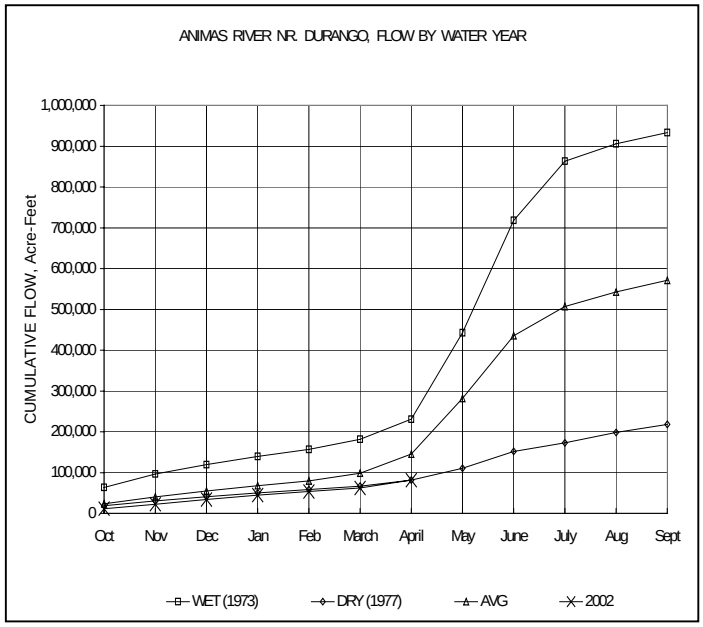
Ditches generally began irrigation runs on May 1, 2002. The calling priorities went to the very senior ditches almost immediately and only the streams with storage supplements were supplying water to more than those few ditches.

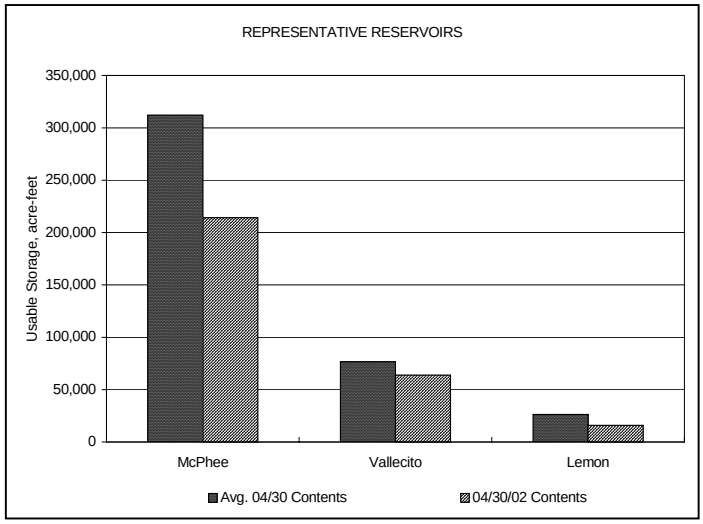
Public Use Impacts

The Mancos District (Jackson Gulch Reservoir) has already set aside and will carryover domestic supplies for year 2003. Remaining supplies give everyone 18% of normal supply for this year.

Rafting activities are going on in the Durango area early this year. At 400 cfs or more, the flows are adequate to cover up some of the rock so boats can move more freely.



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For those of you who are still receiving a paper copy of the *Update*, please be advised that due to resources constraints this is the last month we will be providing paper copies. If you wish to be e-mailed a copy of the *Update*, you may either submit the form below, or send an e-mail to keith.vanderhorst@state.co.us with your address expressing your desire to be put on the e-mail list.

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