# 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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June 2002

The water supply for May was very poor statewide and particularly extreme in the Yampa/White and the San Juan/Dolores Basins. All basins report lower index values than the previous month, except for the South Platte, which increased by one full index point and the Gunnison, which increased by 6/10 of a point. The Rio Grande Basin was relatively unchanged. For the June 1 SWSI values, the basis of the index changes from winter to summer values. Snowpack drops out as a variable and streamflow values take its place. This change may explain the full index point increase for the South Platte Basin, which repeats this month as the highest SWSI value of –1.5, near the moderate drought stage. The lowest values are the San Juan/Dolores at –4.1 and Yampa/White at –4.0, reaching the stage of severe drought. These two values are the lowest SWSI values ever recorded since the SWSI was instituted in 1981. The lowest possible value is –4.2.

Many basins are reporting early river calls that would normally only be called in late summer. These calls are taking place during the normal peak flow runoff season, at a time when river calls are unusual. Instead of filling reservoirs with excess runoff, the reservoirs are being used earlier to meet irrigation demands. Many reservoirs could be empty by the end of the summer if there are no significant summer rainstorms. Some Division Offices have expressed concern that water relied upon for augmentation plans may not be available.

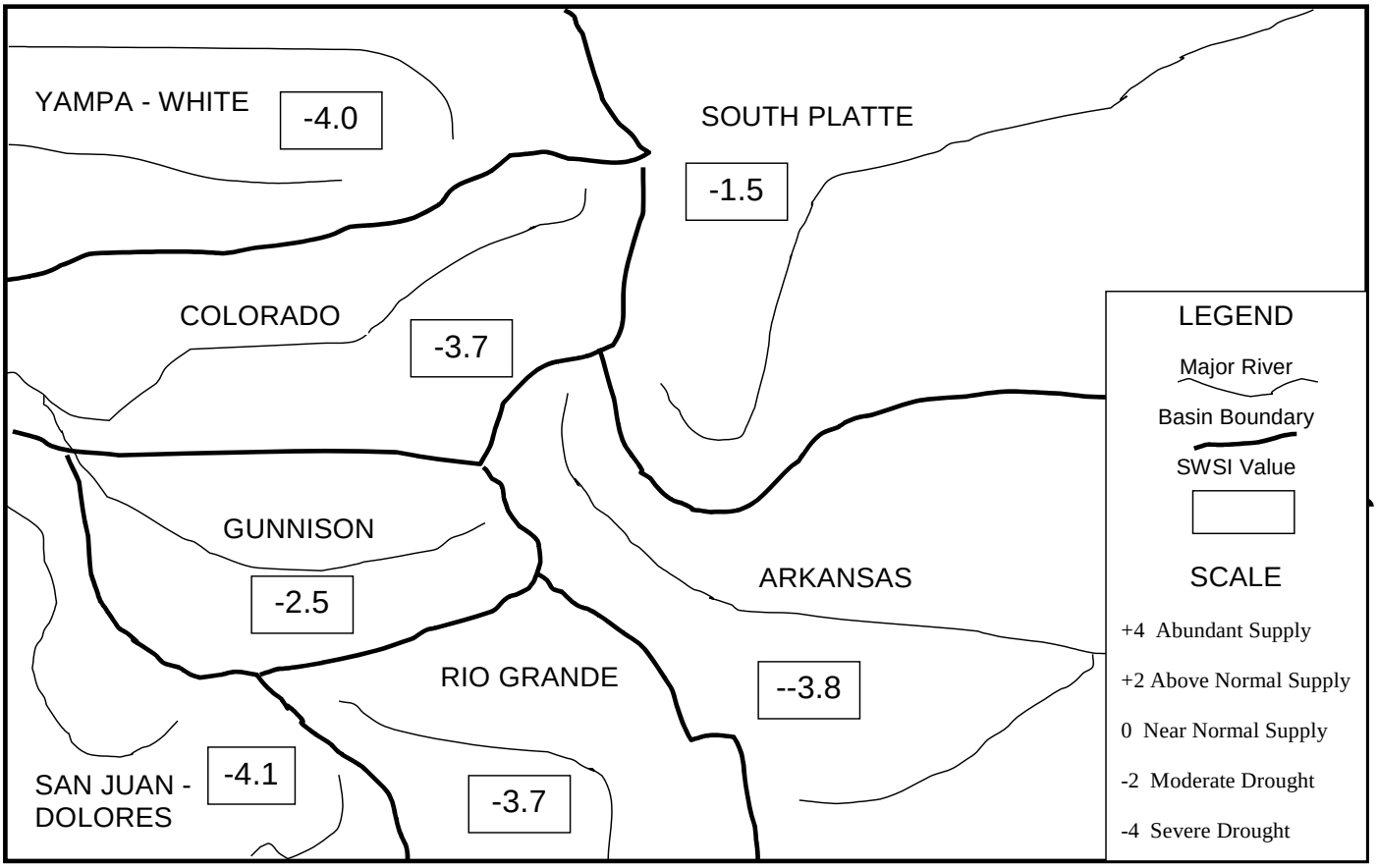
The Surface Water Supply Index (SWSI) developed by this office and the U.S.D.A. Natural Resources Conservation Service is used as an indicator of mountain-based water supply conditions in the major river basins of the state. It is based on stream flow, reservoir storage, and precipitation for the summer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

| Basin | June 1, 2002 SWSI Value | Change From Previous Month | Change From Previous Year |
|---|---|---|---|
| South Platte | -1.5 | +1.0 | -3.8 |
| Arkansas | -3.8 | -0.9 | -6.5 |
| Rio Grande | -3.7 | -0.1 | -6.7 |
| Gunnison | -2.5 | +0.6 | -3.4 |
| Colorado | -3.7 | -0.7 | -2.8 |
| Yampa/White | -4.0 | -0.1 | -3.1 |
| San Juan/Dolores | -4.1 | -0.4 | -6.9 |

Scale

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

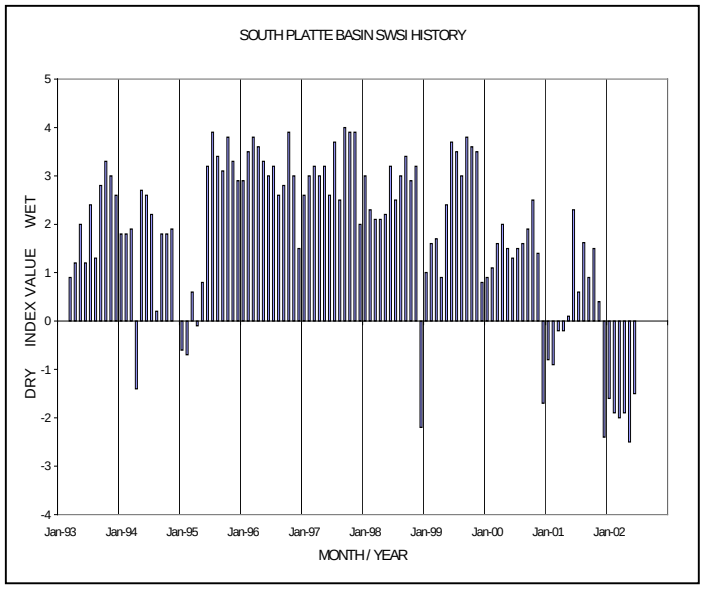
## SURFACE WATER SUPPLY INDEX FOR COLORADO




**June 1, 2002**

Basinwide Conditions Assessment

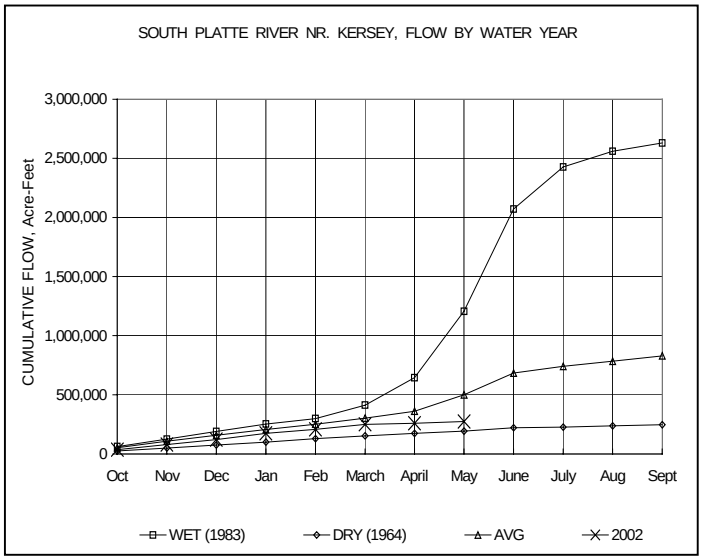
The SWSI value of –1.5 indicates that for May the basin water supplies were below normal. Reservoir storage, the major component in this basin in computing the SWSI value, was 73% of normal as of the end of May. Cumulative storage in the major plains reservoirs: Julesberg, North Sterling, and Prewitt, is at 76% of capacity. Cumulative storage in the major upper-basin reservoirs: Cheesman, Eleven Mile, Spinney, and Antero is at 78% of capacity. Flow at the gaging station South Platte River near Kersey was 235 cfs, as compared to the long-term average of 2,486 cfs. A flow rate of only 57 cfs on May 2nd was the lowest flow at Kersey in over 25 years. Flow at the Colorado/Nebraska state line averaged 24 cfs.




Outlook

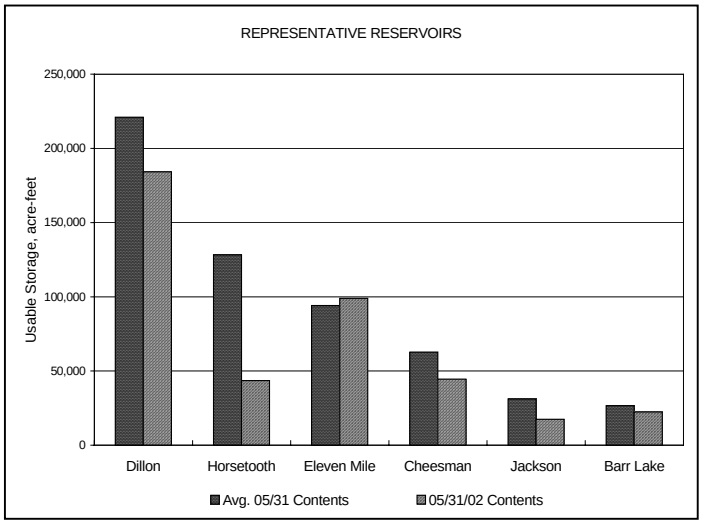
In many years, we do not have a mainstem call in Division 1 until the later part of June when runoff begins to drop of. In dry years, we will often have a call late April and early May until the runoff exceeds demand. With flow conditions so low early in the month, the first mainstem direct agricultural call began April 4th. By the beginning of May, the call on the South Platte, and all the tributaries were extremely senior. For example, the 4-26-1882 Bijou ditch call on May 2 was the most senior call we have had on that part of the South Platte River since 1981.

In almost all years, we have at least a brief period when there is no call as the runoff begins. This is especially important to refilling reservoirs on the plains. We do not anticipate that there will be conditions that allow much if any refill of reservoirs unless flow comes as a result of large rainstorms. Therefore, we expect reservoirs through out the basin to be empty by the end of the summer. There has already been a significant draft on many of these reservoirs even though we have not yet entered the hot summer months. Similar conditions exist in many of the tributaries. In fact, many of the large tributary reservoirs like Windsor Reservoir, Boyd Lake, Union Reservoir, and Marshall Reservoir did not reach a first fill this spring.




Administrative/Management Concerns

There is some question whether the supplies from reservoirs, along with natural flow, will be able to meet the demand of agriculture on the plains this year. In addition, concern remains that augmenting groups will not have sufficient water to provide replacement of all out-of priority well depletions in the basin.




Public Use Impacts

In response to the drought conditions, many farmers have taken steps to reduce demand by the types of crops they have planted. In addition, many cities and other users are beginning to scramble to find additional resources and have implemented their drought plans. In some drainages, city representatives report that conditions are worse than in the 1950's, a time period many cities use in planning simulations.

Basinwide Conditions Assessment

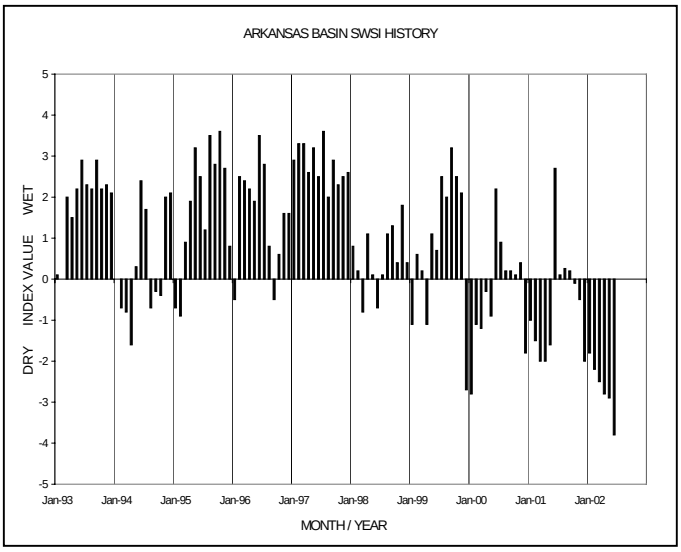
The SWSI value of –3.8 indicates that for May the basin water supplies were well below normal. Flow at the gaging station Arkansas River near Portland was 279.6 cfs, as compared to the long-term average of 1,200 cfs. Storage in Turquoise, Twin Lakes, Pueblo, and John Martin reservoirs totaled 71% of normal as of the end of May.

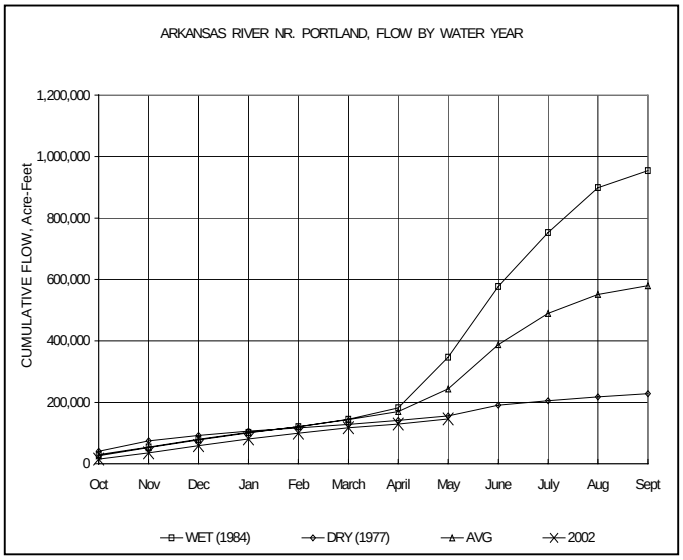
Outlook

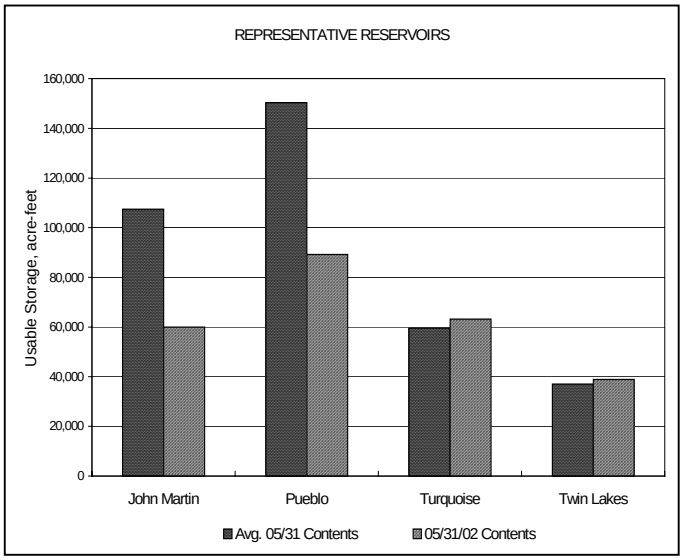
The impact of drought conditions has been evident in low runoff throughout the month of May. River calls have continued to be very senior. Interruption of numerous river exchanges occurred during the month.

Administrative/Management Concerns

Several large ditches with water rights junior to the current call range have exhausted almost all of their stored supply. Well pumping has been notably high throughout the March through May time period. Close field monitoring by water commissioners and ground water commissioners has been underway to monitor closely the adherence to replacement plan limits for well pumping and to ensure no out-of-priority diversions by surface water rights.



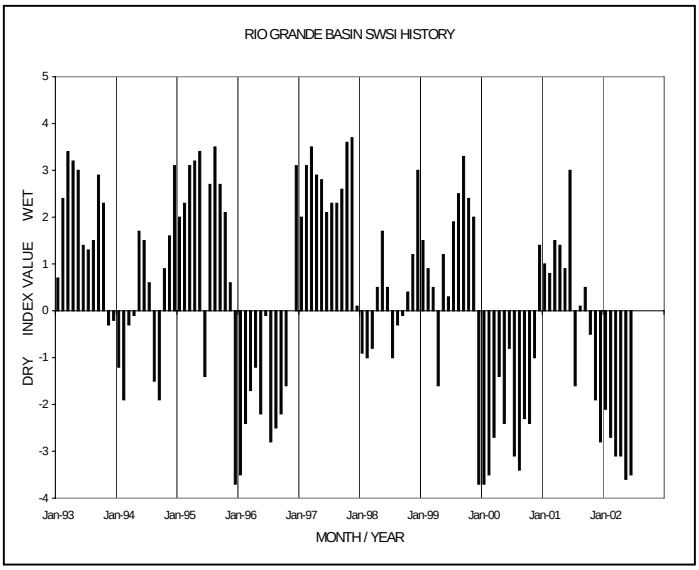



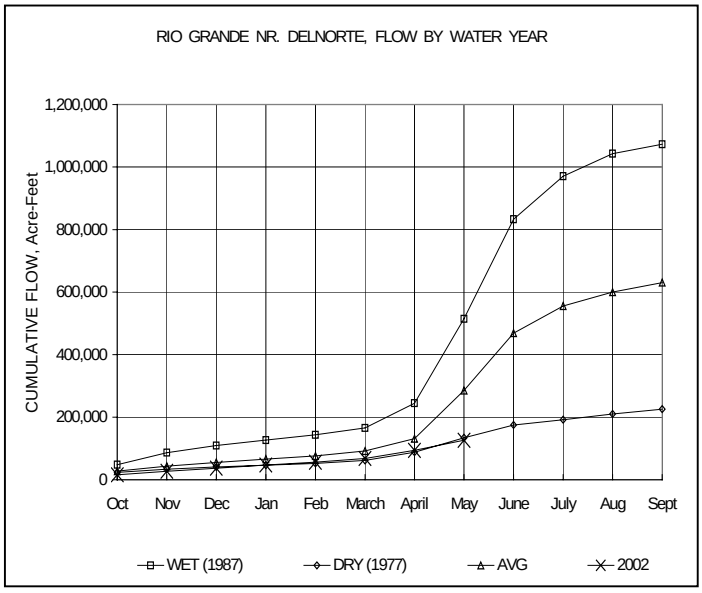
Basinwide Conditions Assessment

The SWSI value of –3.7 indicates that for May the basin water supplies were well below normal. Flow at the gaging station Rio Grande near Del Norte was 522.7 cfs, as compared to the long-term average of 2,505 cfs. The Conejos River near Mogote had a mean flow of 282 cfs (25% of normal). Stream flow in the basin was extremely below average. All streams in the division have already experienced peak runoff and are on a drastic decline toward record low levels. Of particular note is the total monthly flow at the Rio Grande near Del Norte gaging station. The actual volume of 31,068 acre-feet was only 2/3rds of the lowest volume ever recorded for the month of May (45,914 acre-feet in 1977).

Storage in Platoro, Rio Grande, and Santa Maria reservoirs totaled 81% of normal as of the end of May. Temperatures ranged from 21 to 90 degrees in Alamosa, and the 90 degree reading set a new record for high temperature in the month of May. However, cold nighttime temperatures early in the month slowed crop growth.

Precipitation in Alamosa was only 0.04 inches, 0.66 inches below normal. Since last September, only 1.52 inches of precipitation have fallen in the Alamosa area, the average during that time span is 4.62 inches.



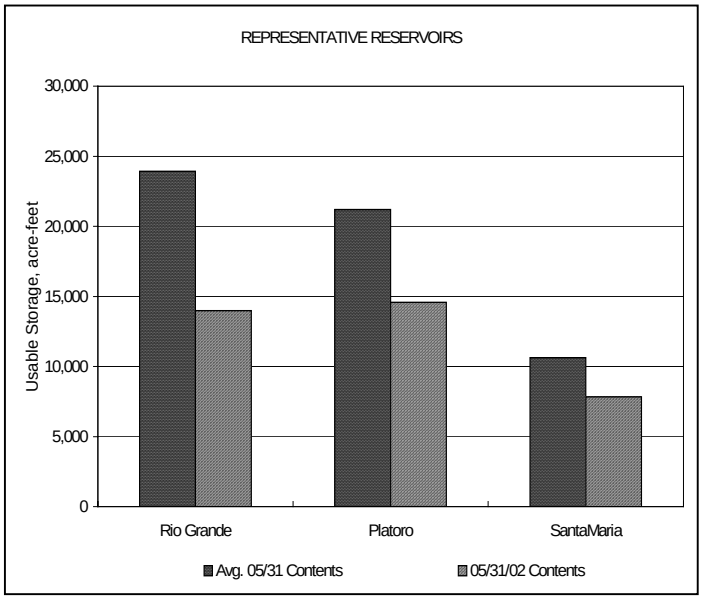

Outlook

NRCS stream flow forecasts are predicting somewhere between 15 and 25 percent of average runoff for streams in the upper Rio Grande Basin.

Administrative/Management Concerns

A glance around the San Luis Valley reveals all the characteristics of serious drought: little or no snow on the peaks, parched rangeland, a trickle of flow in creeks and rivers, low reservoir levels, and persistent winds. This water year will likely surpass 1977 as the "drought of the century".

The aquifers of the valley, thought to be the only reliable source of water this year, are strained to the limit as irrigation and domestic needs increase. Record numbers of well permit applications have been received, many to replace wells that have gone dry.




Public Use Impacts

The extremely dry weather conditions have affected the agricultural, ranching, and tourism operations in the San Luis Valley to a great degree this spring.

Basinwide Conditions Assessment

The SWSI value of –2.5 indicates that for May the basin water supplies were well below normal. Flow at the gaging station Uncompahgre River near Ridgway was 148 cfs, as compared to the long-term average of 330 cfs. Storage in Taylor Park, Crawford, and Fruitland reservoirs totaled 86% of normal as of the end of May.

Outlook

The water supply outlook continued its downward trend during May in the Gunnison and San Miguel Basins. The predominant weather pattern remains warm, windy, and dry. Once again the basin wide precipitation was well below normal, with several small towns reporting only a trace of precipitation. Record high temperatures were recorded in Orchard Mesa on the 19th, Crested Butte on the 30th, and Grand Junction on the 31st. Frequent strong winds accelerated the drying process, with a gust to 95 mph reported at 9400 feet in southern Gunnison County on the 21st.

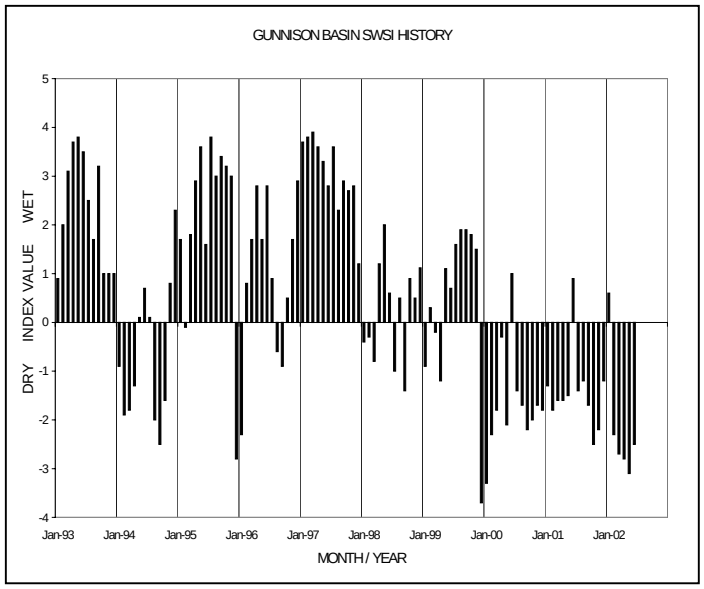
Administrative/Management Concerns

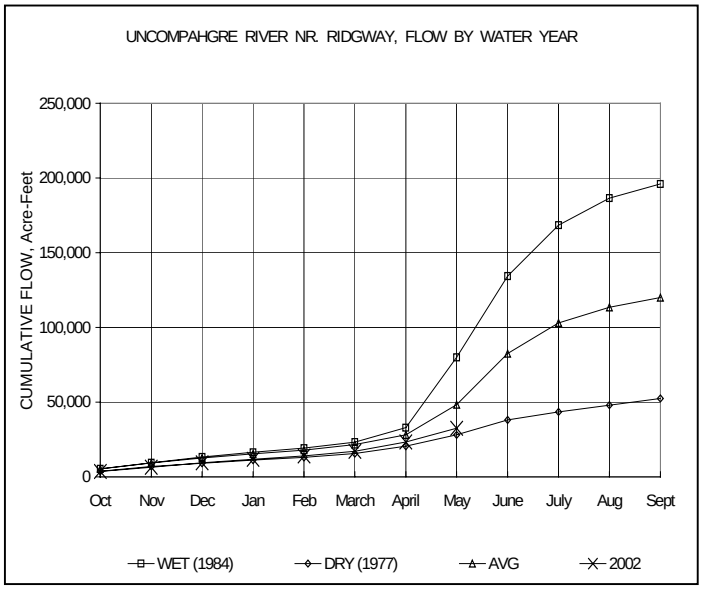
The Division 4 office continued to honor a river call for the Gunnison Tunnel. This was the first time in nearly 50 years that available inflows were less than the demand at the Tunnel.

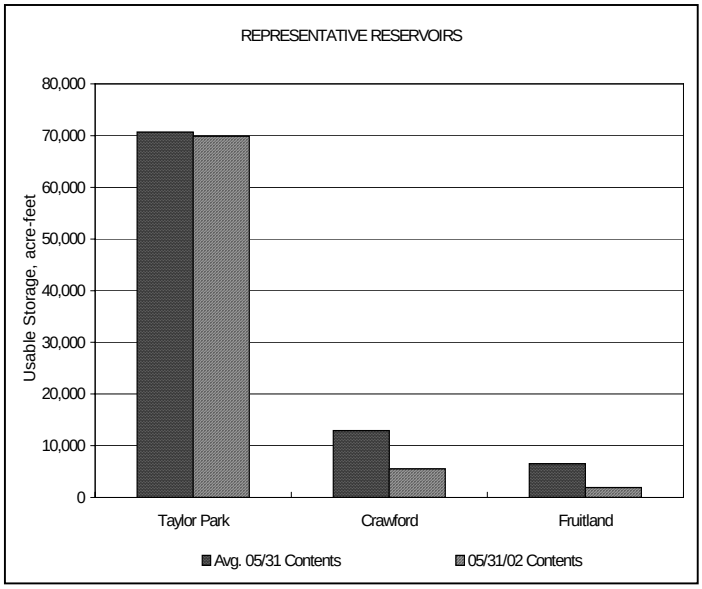
Applications for new well permits have been filed at near-record levels due to the dry conditions. Domestic springs that have supplied homeowners for decades are now going dry, forcing people to have new wells drilled for their household needs. Numerous other homeowners have had their existing wells go dry, and are applying for redrill permits.

Public Use Impacts

The rafting industry continues to suffer this season as streamflow levels continue to drop. The seasonal peak flows appeared to be only 20-25 percent of normal on many of the floatable reaches in the area. Cattle operations are being severely impacted by the drought conditions. Grazing permits on public lands are not enough to ensure raising a successful herd. One Gunnison area rancher was limited to only a 30-day permit on the BLM. The rancher brought their cattle back after only 11 days due to poor forage conditions and lack of stock water. The likelihood looms that some cattle operations will sell all their livestock this year due to lack of summer and especially winter feed.

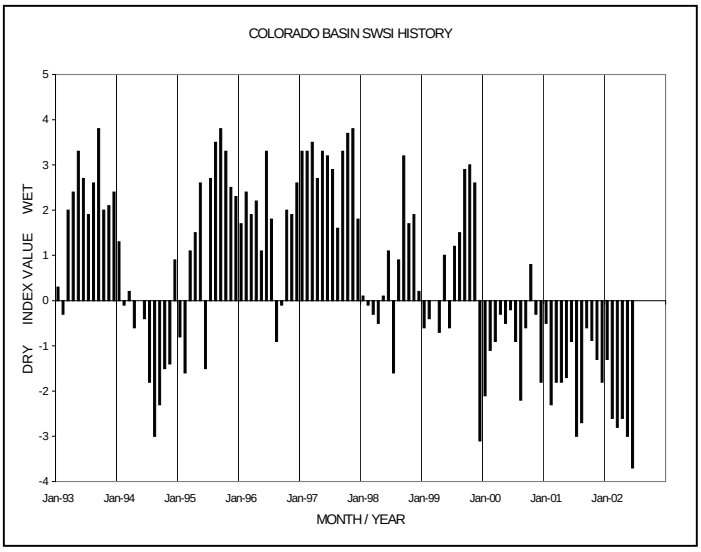


Basinwide Conditions Assessment

The SWSI value of –3.7 indicates that for May the basin water supplies were well below normal. Flow at the gaging station Colorado River near Dotsero was 1,254 cfs, as compared to the long-term average of 4,550 cfs. Storage in Green Mountain, Ruedi, and Williams Fork reservoirs totaled 93% of normal as of the end of May.




Outlook

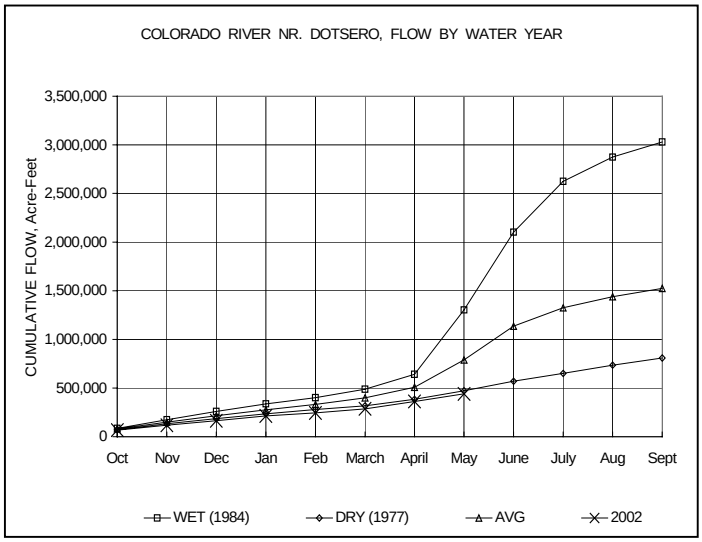
It appears that the Colorado River basin discharge peaked on June 1st and there is very limited snowpack remaining the entire basin.

Administrative/Management Concerns

The Cameo and Shoshone mainstem river calls remain off as June begins due to increased runoff in most upper tributaries. By mid-June, flows should have dropped enough that these administrative calls will come on and remain on until late summer.

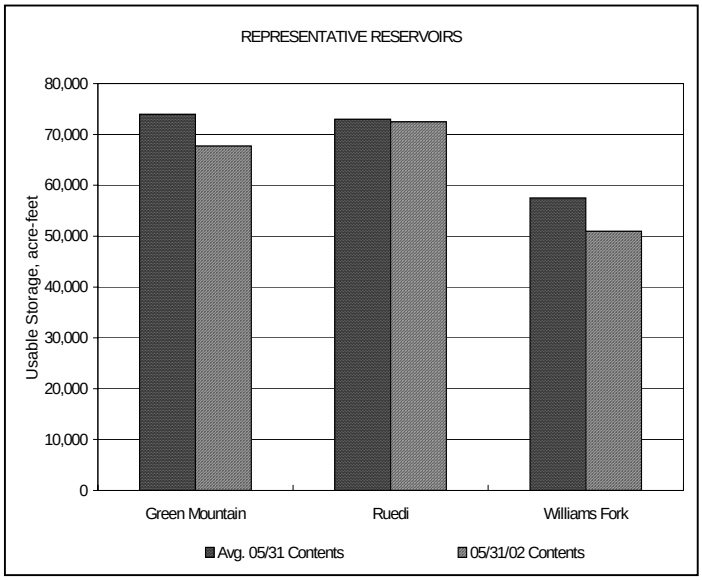
The forecasted storage content for Green Mountain reservoir is 100,000 to 110, 000 acre-feet, and the 66,000 acre-feet Historic User Pool "HUP" is projected to not fill this year. The HUP was established to ensure that Western Slope agricultural, domestic, and municipal users placed in service prior to 1977, but junior to the Colorado Big Thompson Project water rights priority, would still be allowed to divert when the Colorado River mainstem call came on. With the HUP not filling, the contract pool in Green Mountain will not receive any water, and many augmentation plans in Division 5 rely on this pool. The Colorado Water Conservation Board, Bureau of Reclamation, and the Colorado Division of Water Resources are working on a plan to exchange unused contract water in Ruedi Reservoir into Green Mountain Reservoir in order to satisfy the HUP and contract pools.

Windy Gap was not in priority this year and did not pump, so there will be no Middle Park Water Conservancy District water available in Granby Reservoir to satisfy their contracts after July 1st. Therefore, they will have to rely on exchanges from Wolford Mountain Reservoir this year.




Public Use Impacts

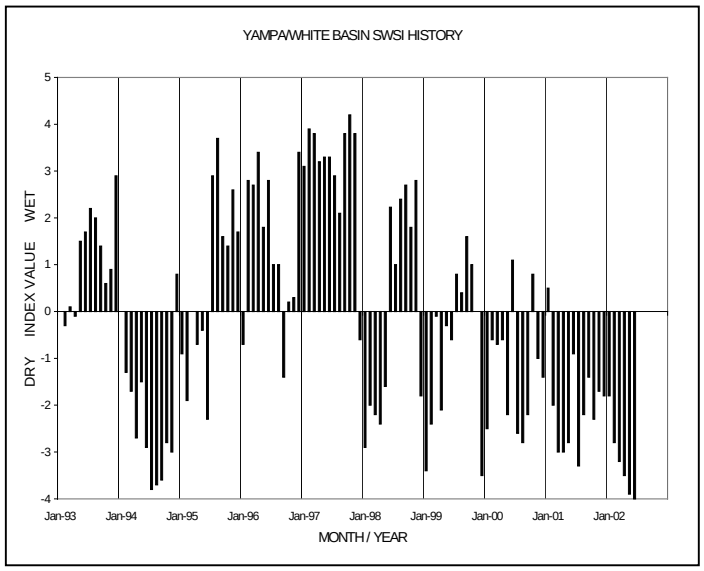
Many farmers and ranchers that depend on junior priority water do not expect to have sufficient water supplies this year, and many are already selling stock or prematurely cutting their only hay crop for the year. Hay prices are steadily climbing in anticipation of reduced production this year. Low river flows and warm air temperatures have fishery managers worried about fish kills later this summer due to high water temperatures. Recreational boating on many rivers will be limited this year; however, the mainstem Colorado River through Glenwood Canyon should see heavy boating use because this river segment will be one of the few state-wide this summer with consistent boatable flows. This is due to the required administrative flows for the senior water rights at the Shoshone Power Plant and at the Cameo irrigation/power canals. Low reservoir levels at almost all reservoirs in Division 5 will adversely affect recreation at those reservoirs.



Basinwide Conditions Assessment

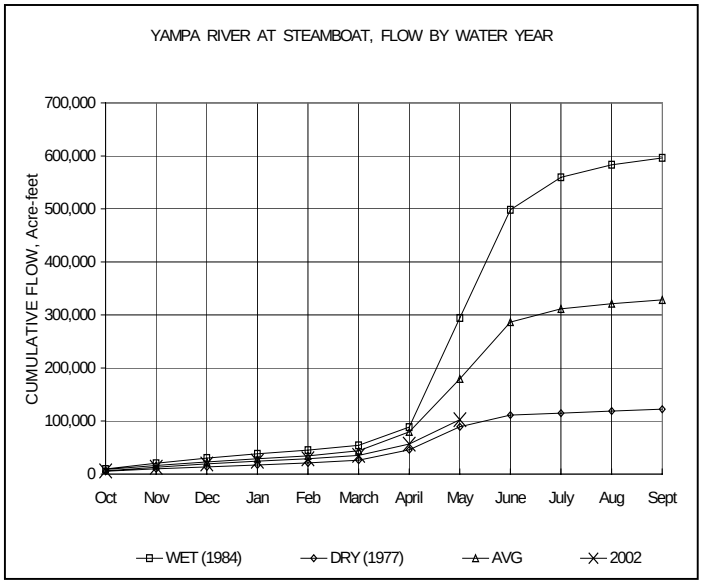
The SWSI value of –4.0 is the lowest value ever recorded for this basin and indicates that for May the basin water supplies were extremely below normal. Flow at the gaging station Yampa River at Steamboat was 750 cfs, as compared to the long-term average of 1,625 cfs.

Precipitation for May was only 33% of average for the basin. This represents the lowest monthly total for this water year. Only 2 of the 14 SNOWTEL sites in the basin still had measurable snow remaining at the end of May. The snowpack at the end of the month for the North Platte River drainage was 21% of average while the Yampa and White River Basin was only 7% of average. These snowpack measurements represent the highest in the State. Many reservoirs in the basin are not expected to fill and some started releases for irrigation use towards the end of the month. Stream flows are running at or below the levels experienced in 1977.




Outlook

The June 1st runoff forecast, provided by the Natural Resource Conservation Service lowered the expected volume of runoff slightly from the previous month. Estimates of the most probable runoff on the various major drainages range from 21% of average on the North Platte near Northgate to 43% of average on the Yampa River at Steamboat Springs. The forecast for the Yampa River near Maybell is 33% of average, the White River near Meeker is 38% of average, and the Little Snake River near Slater is forecasted to be 35% of average.




Administrative/Management Concerns

Absent significant rainfall, water availability is expected to be very low this year. Numerous stream systems are already under administration, or only have water available for the most senior water rights. Most irrigation reservoirs are expected to be drained or lowered to minimum levels before the end of the summer. Additional budget reductions will limit the time field staff will have available for administration.

Public Use Impacts

Reservoir levels and stream flows will be greatly reduced as the summer continues. On-channel recreation will be greatly limited as flows decrease. The possibility exists for substantial impact on the fisheries as stream flows decline and water temperatures increase.

Basinwide Conditions Assessment

The SWSI value of –4.1 is the lowest value ever recorded for this basin and indicates that for May the basin water supplies were extemely below normal. Rivers ran well below average. Many were at historical low levels. Some such as Junction Creek and Lightner Creek have not yet run to the lower reaches. The Falls Creek waterfall has been reported as dry for the first time in over 60 years. The Animas River, the Dolores River, and the La Plata River averaged 548 cfs, 266 cfs, and 23.2 cfs, respectively. These rates were well below their averages of 2,307 cfs, 1,750 cfs, and 172 cfs, respectively.

Reservoir storage is well below normal levels. Storage values ranged from 27% to 61% of normal. McPhee is the closest to normal storage with 196,253 acre-feet (61% of normal), well below its previous low of 298,804 acre-feet. The combined storage in McPhee, Vallecito, and Lemon reservoirs totaled 54% of normal as of the end of May.

The monthly precipitation continued the experience of the past five months since early December 2001. This has led to a severe decline in the mountain snowpack. In nearly all areas, the snowpack has declined to 0% of normal water content. The San Juan/Dolores Basin was 0% of normal at the end of the month. The only sites reporting above 0% was Columbus Basin (1%), Mancos (5%), and Mineral Creek (7%). Average temperatures were warmer than normal by approximately 4 degrees. The precipitation totals amounted to 0.00 inches in Durango, leaving the water year average at 35% or normal.

Outlook

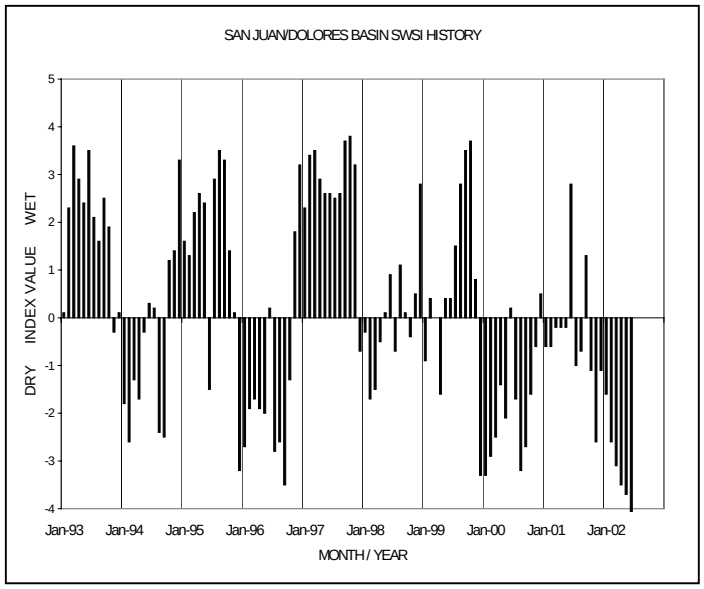
The outlook is poor. This year appears to be worse than the record low year of 1977, a year that ended with consistent and frequent rainstorms to improve the drought conditions. If this scenario develops, it would provide significant relief.

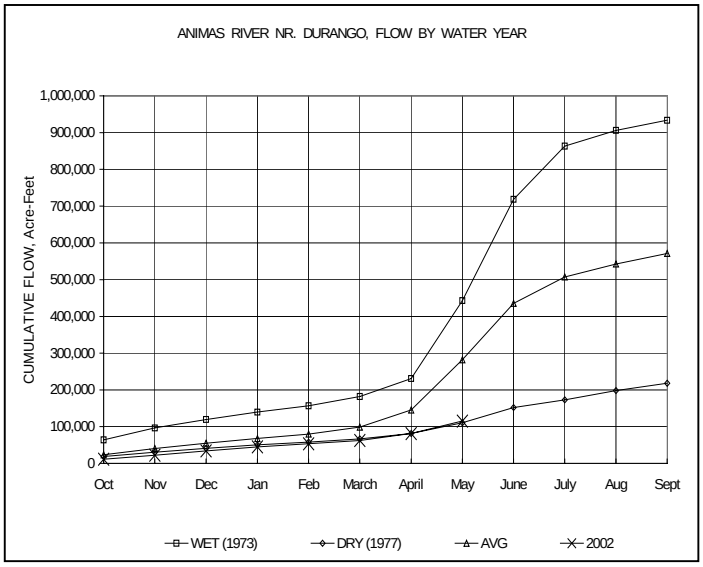
Administrative/Management Concerns

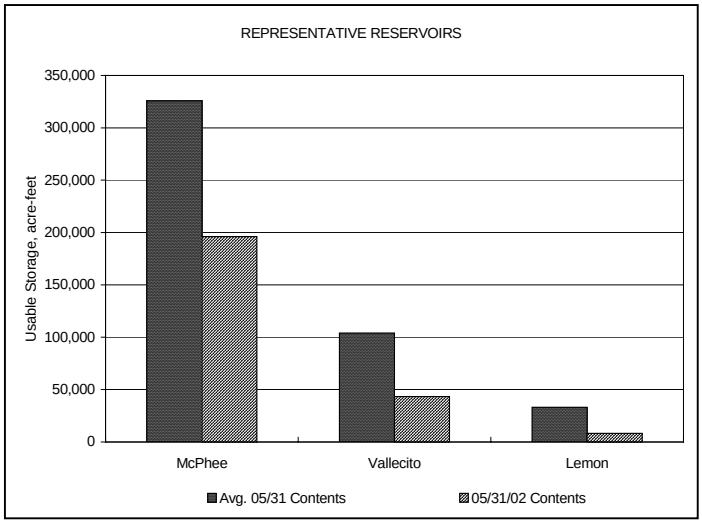
Depending on the continued usage for the ditches, there could be very little additional storage available to meet the late season demands. It is not known what effect would be seen to springs below the mesa top lands if reservoirs are drained and the natural stream is the only remaining supply.

Public Use Impacts

River recreational boating will be shortened significantly, but fishing recreation continues to be popular early in the season.



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