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 2010

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 of November through April (December 1 through May 1). 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 statewide SWSI values for November (December 1) range from a high value of +3.9 in the Yampa/White Basin to a low value of -1.8 in the Rio Grande Basin. Four of the basins (Arkansas, Gunnison, Colorado, and Yampa/White) experienced a gain from the previous month's value. Three of the basins (South Platte, Rio Grande and San Juan/Dolores) experienced a loss from the previous month's value, largely due to the switch from using streamflow information in the calculation to using snowpack information in the calculation.

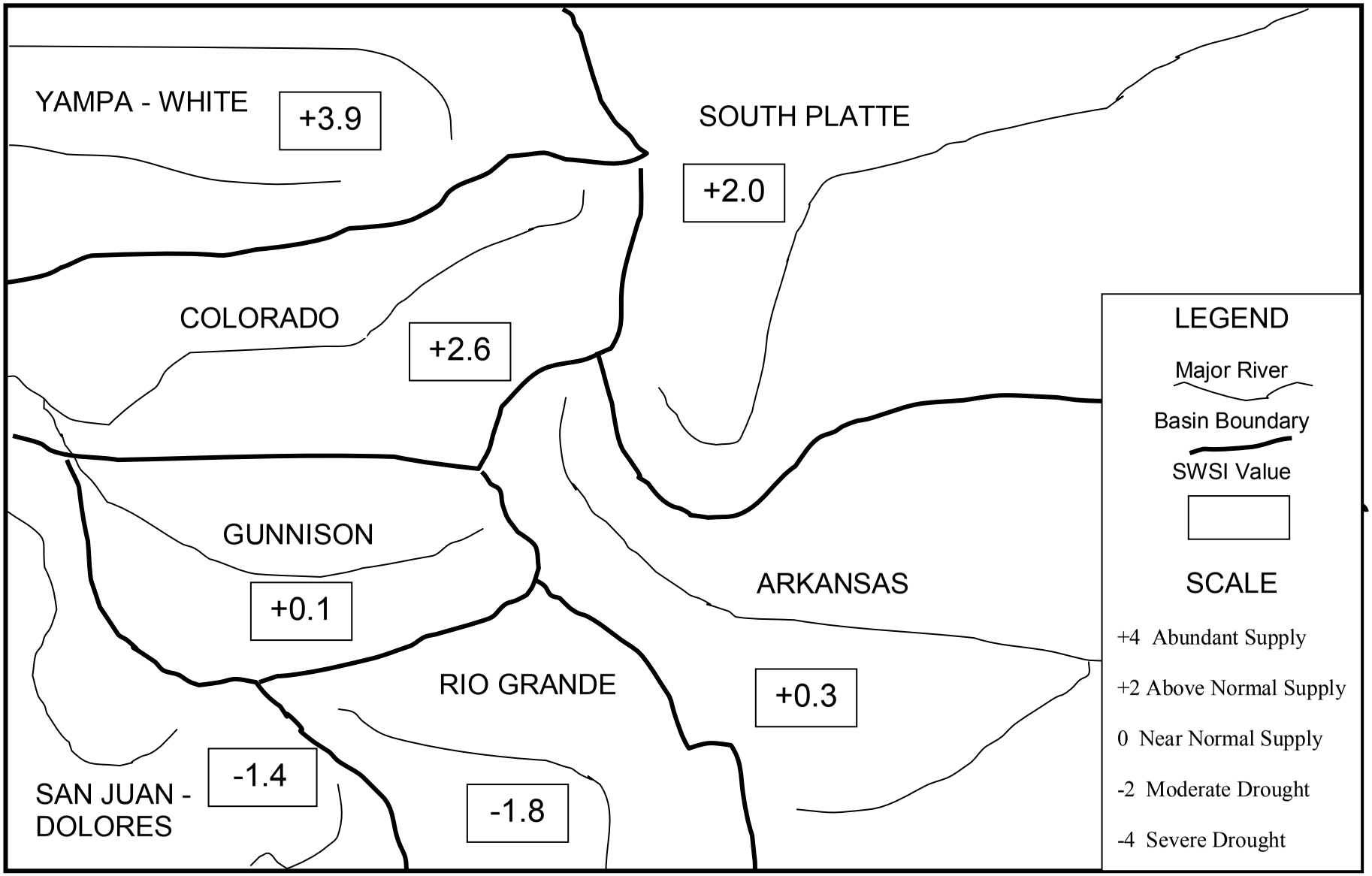
The following SWSI values were computed for each of the seven major basins for December 1, 2010, and reflect the conditions during the month of November.

Basin	December 1, 2010 SWSI Value	Change From Previous Month	Change From Previous Year
South Platte	+2.0	- 0.8	+0.7
Arkansas	+0.3	+0.2	+0.3
Rio Grande	- 1.8	- 1.4	0.0
Gunnison	+0.1	+1.9	+2.0
Colorado	+2.6	+2.6	+4.6
Yampa/White	+3.9	+4.7	+6.1
San Juan/Dolores	- 1.4	- 0.3	+1.2

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, 2010

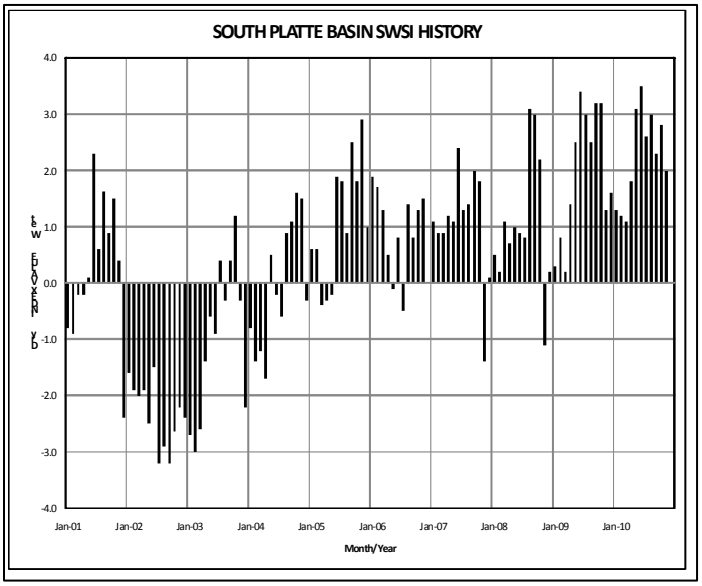
Basinwide Conditions Assessment

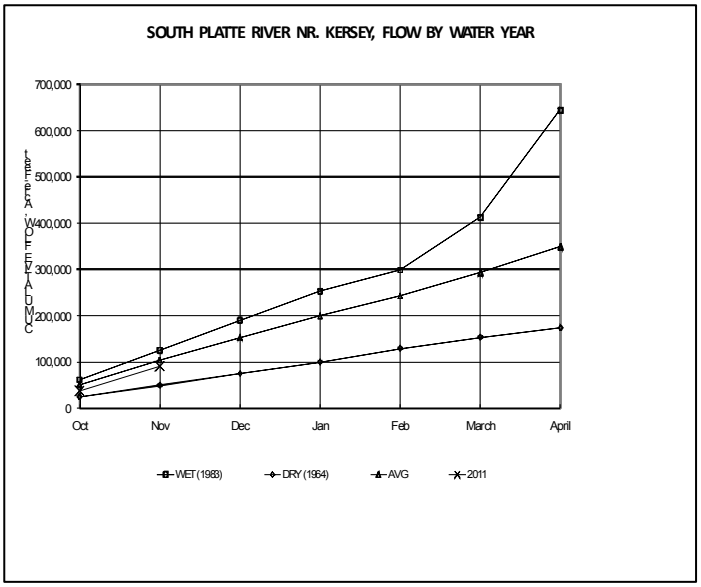
The SWSI value for the month was +2.0. Cumulative storage for the six reservoirs graphed on this page was 105% of normal as of the end of November. Cumulative storage in the major plains reservoirs: Julesberg, North Sterling, and Prewitt, is at 60% of capacity. Cumulative storage in the major upper-basin reservoirs: Cheesman, Eleven Mile, Spinney, and Antero is at 95% of capacity. The Natural Resources Conservation Service reports that December 1 snowpack is 114% of normal. Flow at the gaging station South Platte River near Kersey was 899 cfs, as compared to the long-term average of 740 cfs. Flow at the Colorado/Nebraska state line averaged 186 cfs.

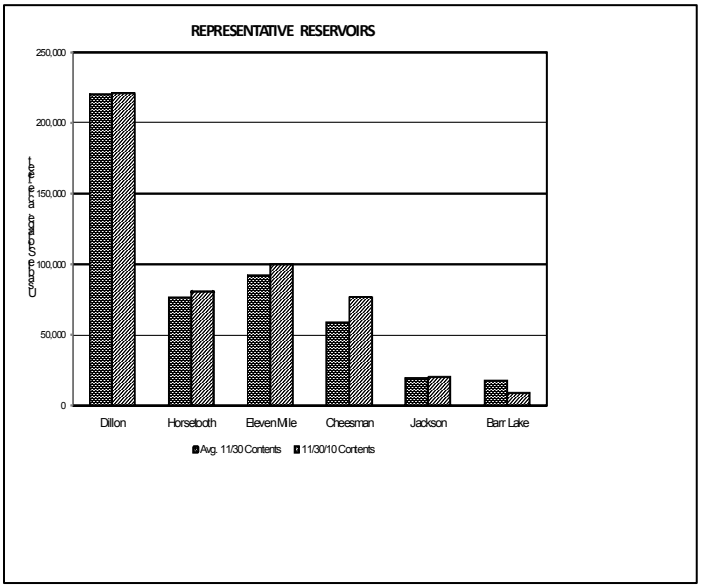
Outlook

November continued the warm and dry autumn conditions at the lower elevations of Division 1, though the higher elevations began to pick up significant snowfall amounts. The northeast plains also experienced the first decent snowstorm of the season around Veterans Day. However, even with the warm, dry conditions, stream flow at the South Platte gage near Kersey shifted from the below normal trend established since July to above normal for November. Also, the declining reservoir storage trend that had been reversed in October continued with most of the major reservoirs running slightly above their average end of November storage contents.

The outlook for December is for near to above average temperatures and equal chances of above or below average precipitation. This probably means a continuation of the relatively mild and dry conditions that have prevailed since October. This should continue to translate into near normal flow at the Kersey gage as most of flow at this time of year is not precipitation dependent. This, in turn, should mean that most reservoirs will be able to continue filling at or above normal rates since the flow is available and the mild temperatures are preventing the inlet ditch icing conditions that generally begin to limit fill ability in December.







Basinwide Conditions Assessment

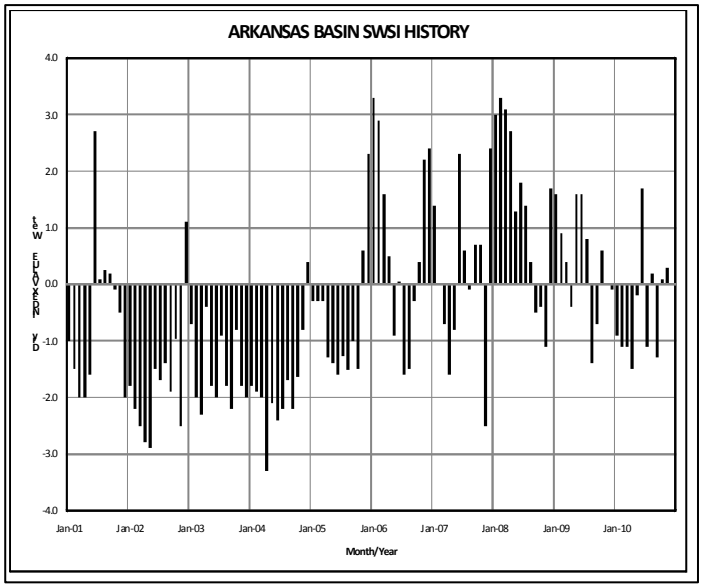
The SWSI value for the month was +0.3. The Natural Resources Conservation Service reports that December 1 snowpack is 76% of normal. Flow at the gaging station Arkansas River near Portland was 410 cfs, as compared to the long-term average of 446 cfs. Storage in Turquoise, Twin Lakes, Pueblo, and John Martin reservoirs totaled 105% of normal as of the end of November.

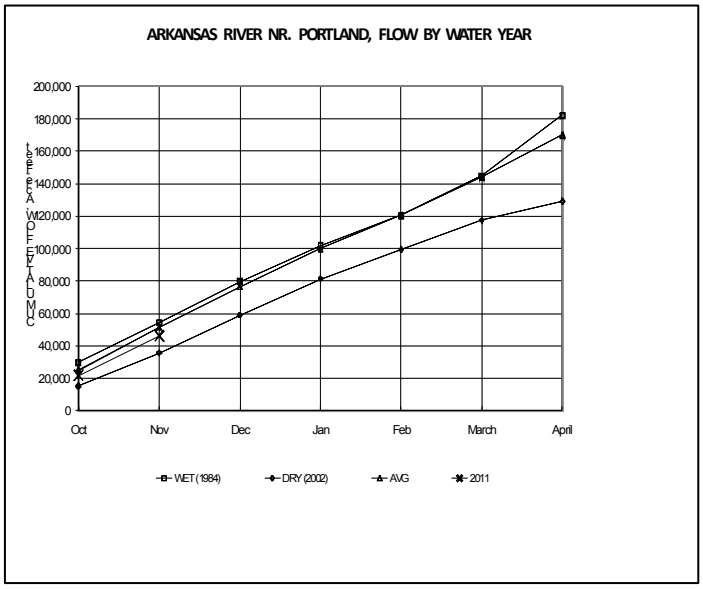
Outlook

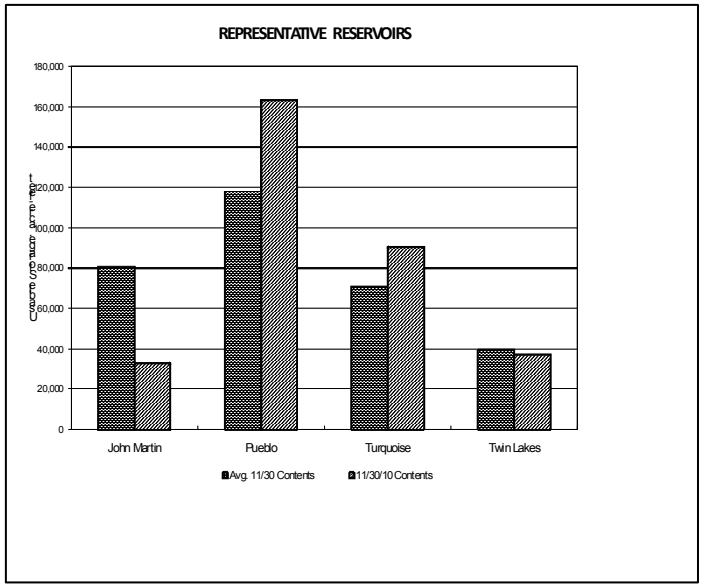
Winter Compact storage began in John Martin Reservoir on November 1, 2010. The Pueblo Winter Water Program began operation on November 15, 2010 with storage taking place initially in Pueblo and John Martin Reservoirs and under the Fort Lyon Canal system in Adobe Creek Reservoir. Storage in John Martin Reservoir during November totaled approximately 4,534 acre-feet for Conservation Storage and 1,459 acre-feet for Winter Water participants. Storage overall under the Pueblo Winter Water Program in November totaled approximately 18,047 acre-feet in all storage locations.

Administrative/Management Concerns

Administration of seepage ditch water rights in Water Districts 17 and 67 continues to be a topic of discussion with owners of seep ditch water rights. These owners are adjusting to the requirement to properly measure their diversions and submit to regulation under the priority system.







Basinwide Conditions Assessment

The SWSI value for the month was -1.8. The Natural Resources Conservation Service reports that December 1 snowpack is 56% of normal. Flow at the gaging station Rio Grande near Del Norte averaged 252 cfs (91% of normal). The Conejos River near Mogote had a mean flow of 45 cfs (46% of normal). Stream flow in the basin remained below normal due to the general lack of precipitation since Spring. Storage in Platoro, Rio Grande, and Santa Maria reservoirs totaled 101% of normal as of the end of November.

Precipitation during November in Alamosa was only 0.02 inch, 0.46 inch below normal and high temperatures reached at least 60 degrees on six days during the month.

Outlook

Winter hasn't really hit the San Luis Valley yet as only one-half inch of measureable snow has fallen in Alamosa during October and November. The higher elevation snowpack was poor throughout the upper Rio Grande basin as of December 1st.

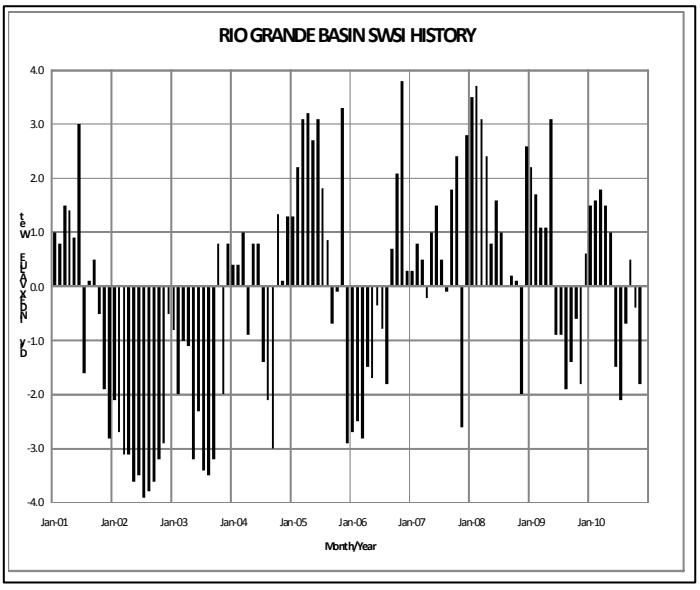
Administrative/Management Concerns

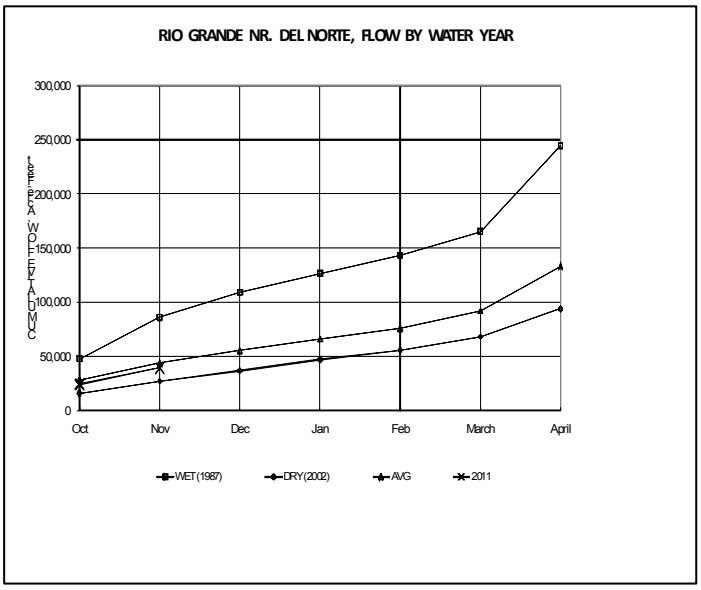
Ditch and Irrigation Well diversions within Water District 20 (the Rio Grande and its tributaries including the Closed Basin) ceased on November 1st and reservoirs in that basin went into storage. The end of the irrigation season came a couple weeks later for drainages in Water Districts 21 (Alamosa and LaJara), 24 (Culebra Creek), 25 (northern Sangre de Cristo Range), 26 (Saguache Creek), and 35 (Trinchera Creek).

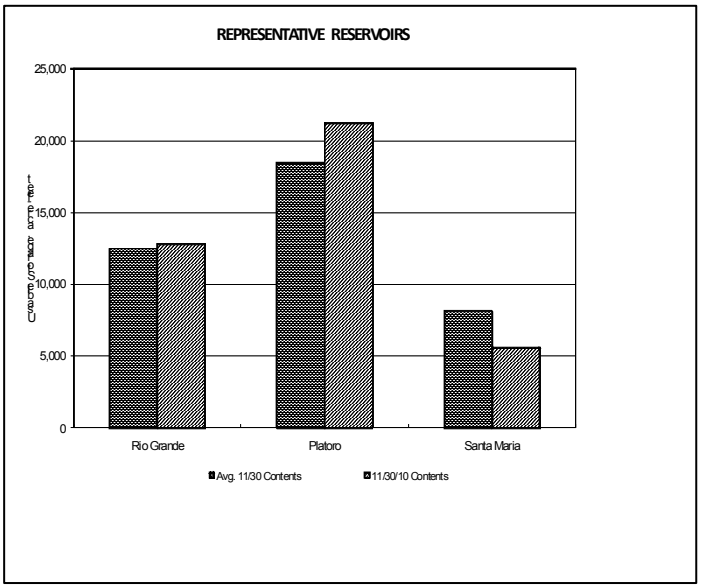
Water users on the Conejos River and its tributaries continued to divert water for irrigation and recharge purposes throughout November. The delivery requirements for the Conejos and the Rio Grande should be met or exceeded this year.

Public Use Impacts

The first part of November was very mild, with clear skies, warm temperatures and low wind. As pleasant as that may be for area residents, the resultant lack of snowpack in the higher elevations doesn't bode well for next year's water supply. Outdoor activities not dependent on snowfall continued as the warm and dry autumn sustained through Thanksgiving.







Basinwide Conditions Assessment

The SWSI value for the month was +0.1. The Natural Resources Conservation Service reports that December 1 snowpack is 87% of normal. Flow at the gaging station Uncompahgre River near Ridgway was 63.8 cfs, as compared to the long-term average of 67.7 cfs. Storage in Taylor Park, Crawford, and Fruitland reservoirs totaled 108% of normal as of the end of November.

The storm track shifted further north during the month of November, which resulted in below average precipitation (70 to 90 percent of average) in the southern part of the Gunnison basin and the entire San Miguel basin. Northern parts of the Gunnison basin, however, received slightly above 100 percent of their average precipitation for the month. This brings water year precipitation to 110 percent of average in the Gunnison basin. Snotel data, as expected, shows that northern portions of the Gunnison basin contain more snow water equivalent (SWE) as a percent of average than the southern areas (75 to 85 percent vs. 55 to 65 percent). Overall, snowpack in the Gunnison and San Miguel basins are at 87 and 72 percent of average, respectively. Basin wide streamflows on December 1st were generally near or above average for their respective dates, probably due to warmer temperatures that melted most of the lower snow that fell in November.

Outlook

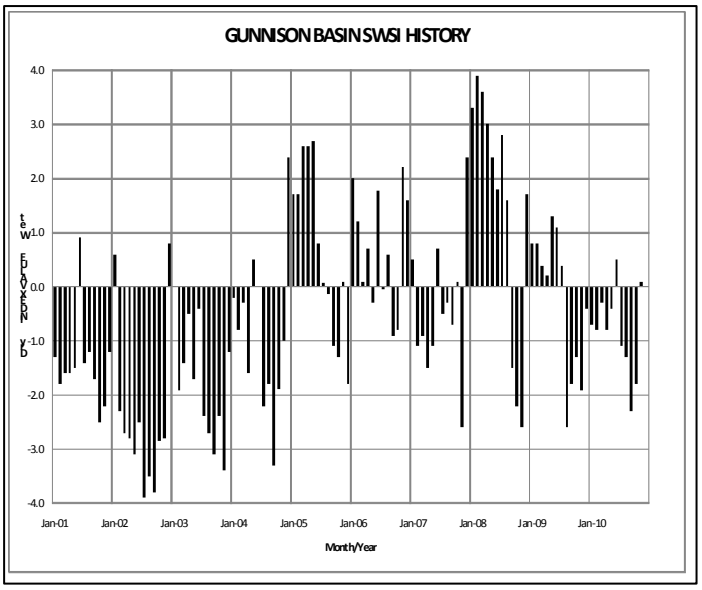
The National Weather Service (NWS) 30 and 90 day climate forecasts continue to predict that the Gunnison basin, although within the area forecasted for equal chances of below or above average precipitation, is on the northern edge of predicted below average conditions to the south. So far this season these forecasts have been fairly accurate in the Gunnison basin as we have seen greater amounts of precipitation in the northern areas with amounts decreasing the further south you go.

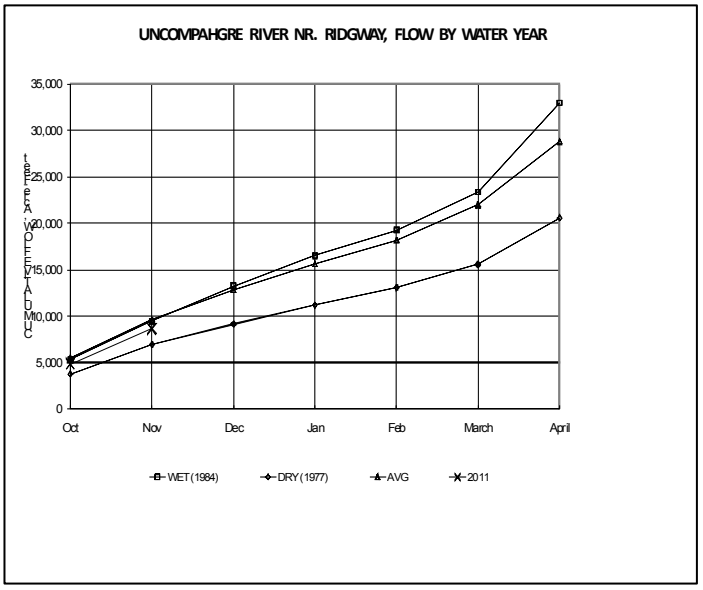
Administrative/Management Concerns

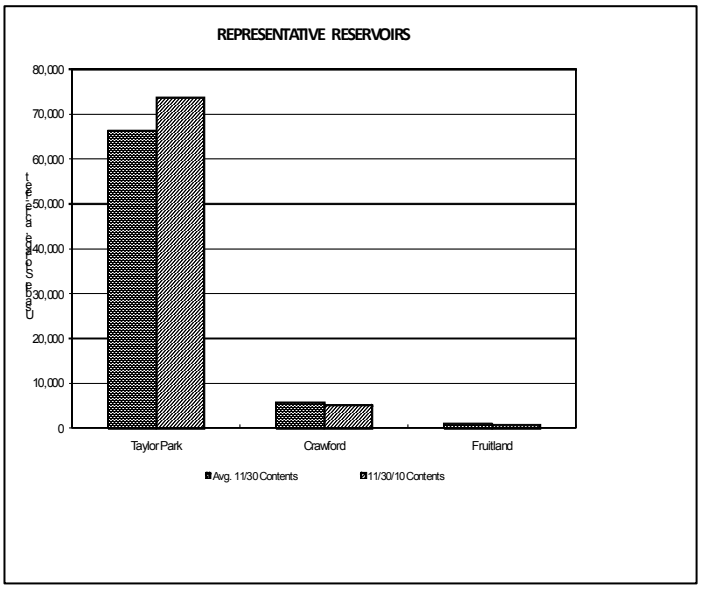
Administrative concerns during this time of year are few because irrigators are off and calls have been lifted. Future concerns are also limited as snowpack conditions during December are rarely a good predictor of the spring runoff conditions and as a result, water supply forecasts based on snowpack are not available until January.

Public Use Impacts

The winter recreation season has started slowly this year due to the lower early season snowpack and warmer than average temperatures plaguing most of the basin. In fact, Powderhorn Resort was forced to delay their scheduled December 16th opening due to a lack of snow. In addition, above seasonal temperatures have kept Blue Mesa Reservoir ice free with the exception of the area east of the S.H. 149 bridge to Lake City. Irrigators and recreation enthusiasts alike are hoping for significant December snowfall and colder weather in order to elevate snowpack to average levels.







Basinwide Conditions Assessment

The SWSI value for the month was +2.6. The Natural Resources Conservation Service reports that December 1 snowpack is 130% of normal. Flow at the gaging station Colorado River near Dotsero was 926 cfs, as compared to the long-term average of 1122 cfs. Storage in Green Mountain, Ruedi, and Williams Fork reservoirs totaled 99% of normal as of the end of November.

Outlook

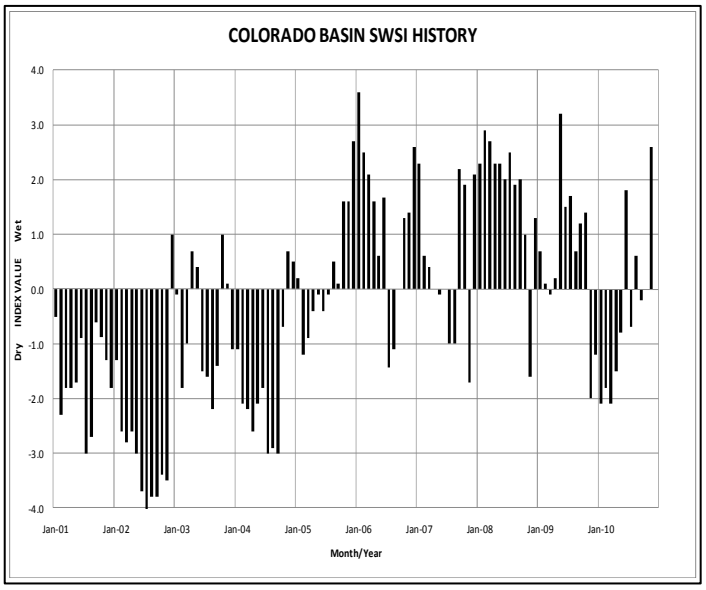
Colorado and Roaring Fork River flows should remain near average through December, although significant precipitation and/or substantially low temperatures could cause minor variances. Ruedi Reservoir releases will remain near 75 cfs for power generation through December. Blue River flows should remain near average for the month of December as well.

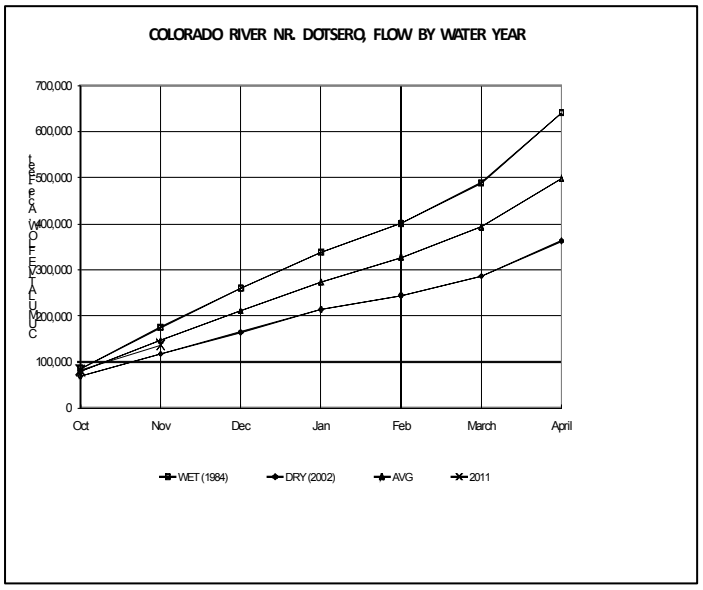
Administrative/Management Concerns

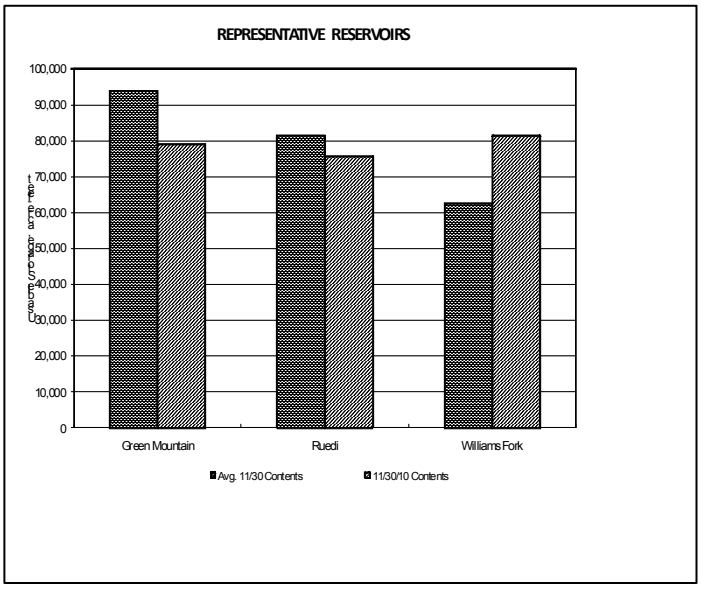
The Denver Water Department will close the Roberts Tunnel for significant maintenance and repairs around December 15th. This impacts snowmaking operations at Keystone Ski Area (Vail Resorts) which pumps water from the Roberts Tunnel via the Montezuma Shaft to maintain the minimum Snake River in-stream flow of 6 cfs. Following approval from the Forest Service and Corps of Engineers, Keystone Ski Area will be allowed to reduce flows to 2 cfs to maintain their snowmaking water supply. Dillon Reservoir's second fill will replace Denver Waters' call on the Blue River during this period. Shoshone Power Plant is scheduled to resume power generating operations in mid-December.

Public Use Impacts

The U.S. Department of the Interior will meet with Mexican officials to reach a water deal. Canals and reservoirs that supply the agricultural area in northern Mexico were damaged from the 7.2 magnitude earthquake which struck earlier this year. As a result, Mexico is unable to take its full share of 1.5 million Acre-feet annual allotment of the Colorado River under a 1944 treaty. The deal could allow Mexico to leave as much as 260,000 acre-feet of water in Lake Mead through 2013. This could prevent potential restrictions from being imposed on California, Arizona, and Nevada should current drought conditions persist. Mexico could then take the stored water incrementally beginning in 2014, presumably conditional upon potential to worsen existing drought conditions, subtraction for evaporation, etc.







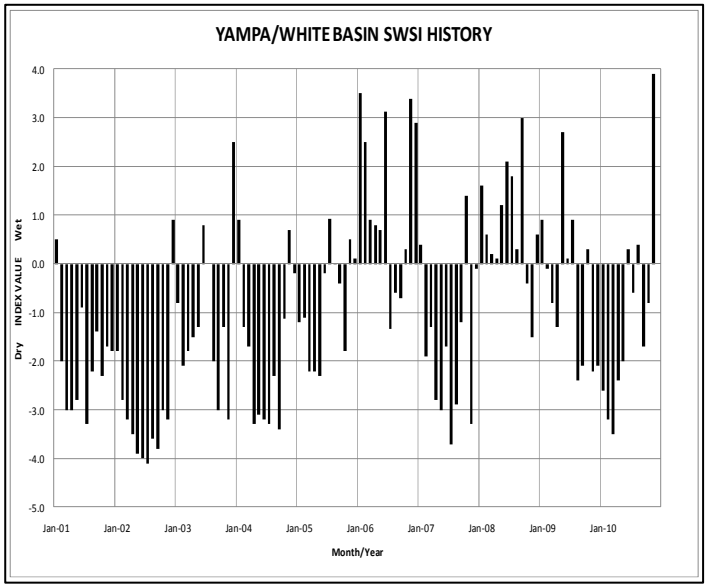
Basinwide Conditions Assessment

The SWSI value for the month was +3.9. Flow at the gaging station Yampa River at Steamboat was 164 cfs, as compared to the long-term average of 131 cfs.

November precipitation was well above average in the Yampa, White, and North Platte River basins. Precipitation for the month, as measured at the SNOTEL sites operated by NRCS, was reported at approximately 119% of average for both the Yampa/White River basin and North Platte River basin. Precipitation for the combined Yampa, White, and North Platte River basins was 122% of average for the water year to-date.

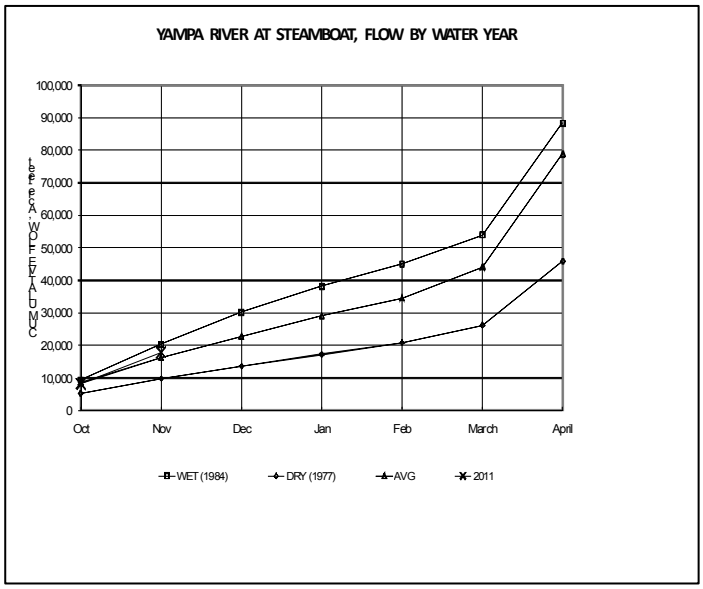
The snow water equivalent (SWE) as of November 30, 2010 was 147% of average for the North Platte River basin and 134% of average for the Yampa and White River basins combined.

Due to cold temperatures, many Division 6 stream gages are either closed for the winter season or ice-affected.



Outlook

At the end of November, Fish Creek Reservoir was storing 2,779 AF. The capacity of Fish Creek Reservoir is 4,167 AF. At the end of November, Yamcolo Reservoir was storing 6,345 AF. The capacity of Yamcolo Reservoir is 9,580 AF. At the end of November, Elkhead Creek Reservoir was storing 19,547 AF. The capacity of Elkhead Creek Reservoir is 24,778 AF. Construction of the four foot raise of the spillway at Stagecoach Reservoir has been completed. At the end of November, Stagecoach Reservoir was storing 22,615 AF. The enlarged capacity of Stagecoach Reservoir is 36,460 AF. Water stored in Fish Creek Reservoir is used primarily for municipal purposes, Yamcolo Reservoir for irrigation purposes, Elkhead Creek Reservoir for municipal, industrial, recreational and fish recovery purposes and Stagecoach Reservoir is primarily used for recreation though a significant amount of water stored is allocated for municipal, industrial, irrigation and augmentation uses. Water however is rarely released for these purposes.



Administrative/Management Concerns

At the end of November there were no stream systems on call within all of Division 6.

Public Use Impacts

As mentioned above, Stagecoach Reservoir was under construction through the months of September and October. Construction has now been completed. Fishing opportunities immediately downstream of the reservoir are magnificent. Steamboat Springs ski area opened on November 24, 2010 with excellent conditions and very little man-made snow.

Basinwide Conditions Assessment

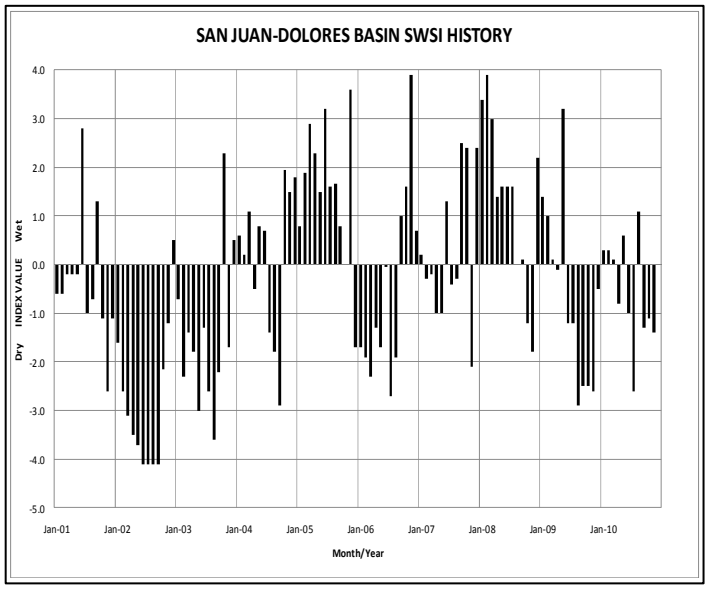
The SWSI value for the month was -1.4. The Natural Resources Conservation Service reports that December 1 snowpack is 66% of normal, which is slightly higher than last month at 49% of average. Flows at the Animas River at Durango averaged 230 cfs (80% of average). The flow at the Dolores River at Dolores was estimated to average 65 cfs (78% of average). The La Plata River at Hesperus averaged 12.6 cfs (119% of average). Precipitation in Durango was 0.46 inches for the month, 24% of the 30-year average of 1.91 inches. Precipitation to date in Durango, for the water year, is 2.42 inches, 72% of the 30-year average of 3.35 inches. The average high and low temperatures for the month of November in Durango were 48o and 19o. In comparison, the 30-year average high and low for the month is 51o and 23o. At the end of the month Vallecito Reservoir contained 62,770 acre-feet compared to its average content of 52,384 acre-feet (120% of average). McPhee Reservoir was up to 275,576 acre-feet compared to its average content of 257,059 (107% of average), while Lemon Reservoir was up to 14,040 acre-feet as compared to its average content of 19,673 acre-feet (71% of average).

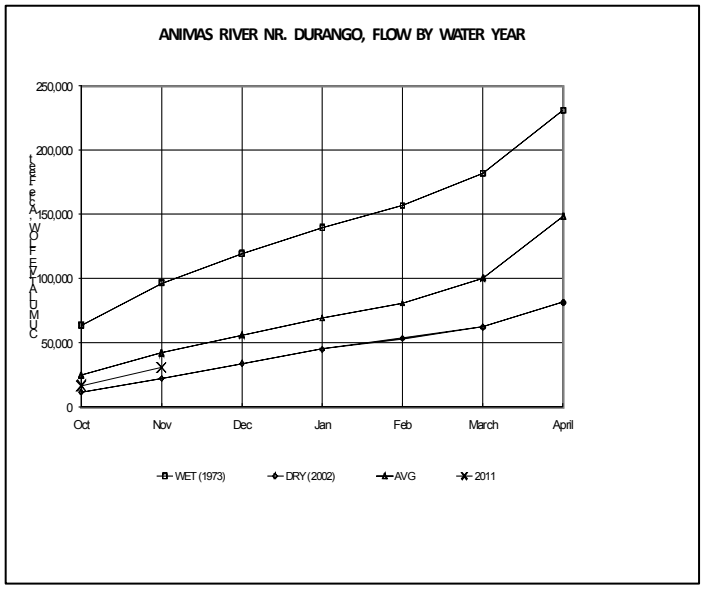
Outlook

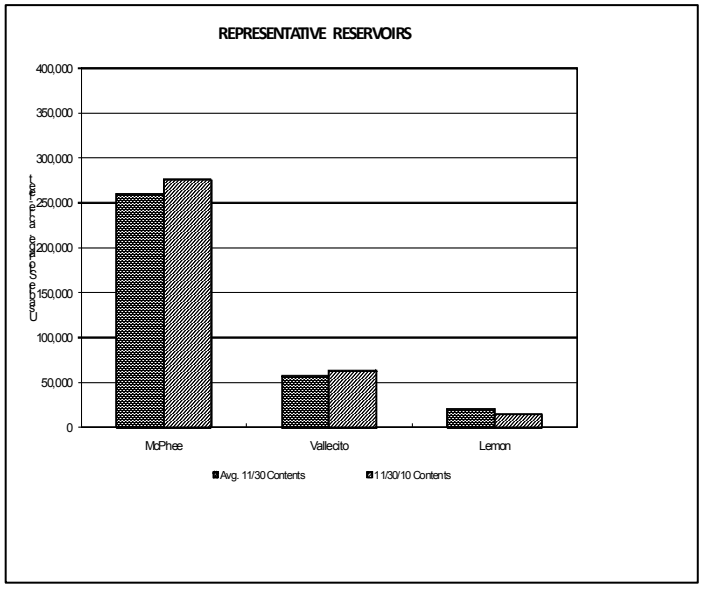
November precipitation was well below average. Reservoirs have been heavily relied upon for irrigation supplies all summer long this year. We hope we will have an above average snowpack season to replace the water that was used in the reservoirs this summer.

Administrative/Management Concerns

The La Plata River compact between Colorado and New Mexico remained on call for the entire month. The compact requires that half the flow at the upper index gages (Hesperus and above) must be delivered across the Stateline the following day.







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