COLORADO
WATER SUPPLY CONDITIONS UPDATE

FROM THE OFFICE OF THE STATE ENGINEER: COLORADO DIVISION OF WATER RESOURCES
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December 2011

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 +1.5 in the South Platte Basin to a low value of -1.0 in the Gunnison Basin. All seven basins (South Platte, Arkansas, Rio Grande, Gunnison, Colorado, Yampa/White, and San Juan/Dolores) experienced a loss from the previous month's value. SWSI values typically decline as a result of the switch from using stream flow information to using snowpack information in the calculation.

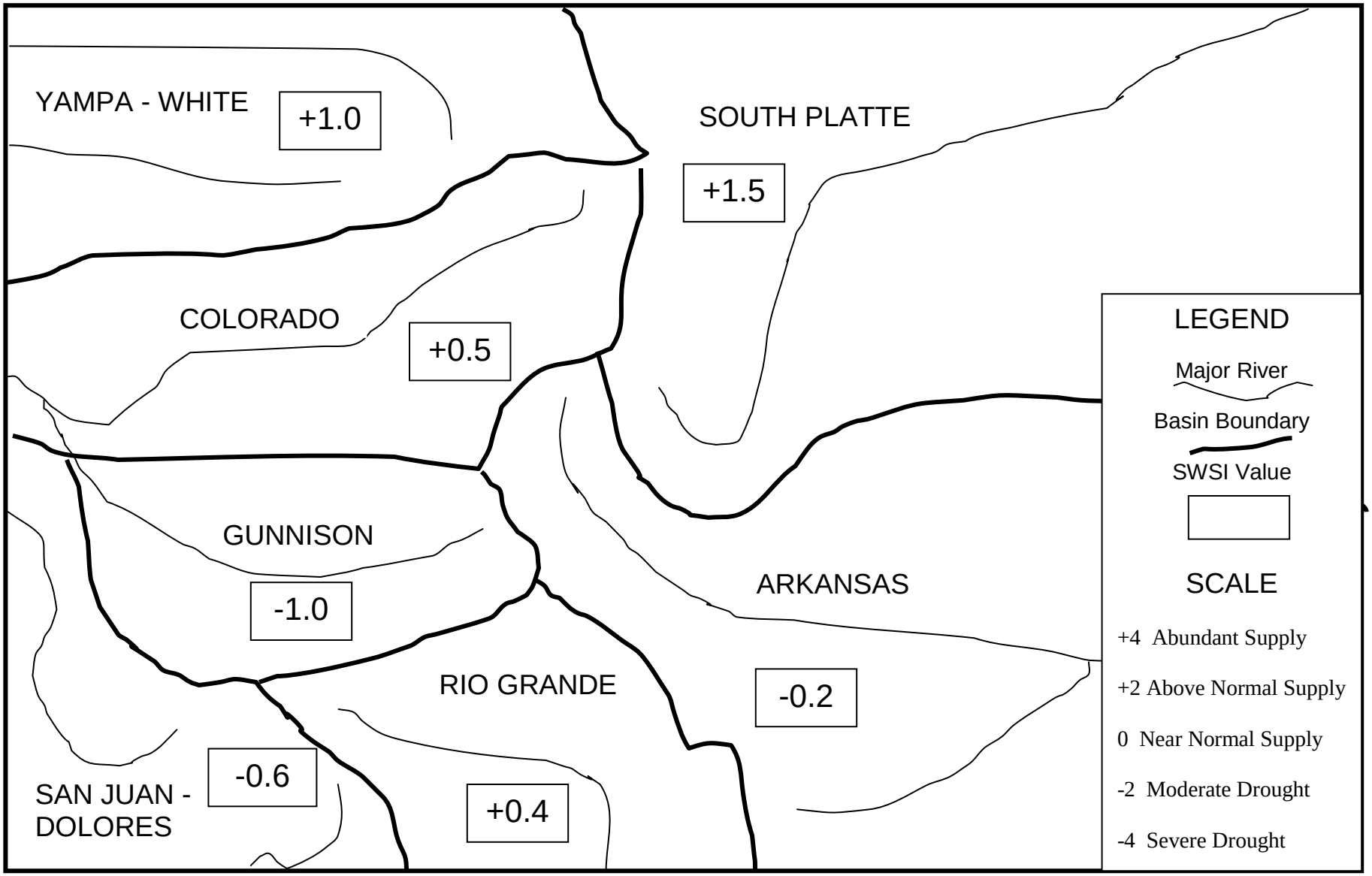
The following SWSI values were computed for each of the seven major basins for December 1, 2011, and reflect the conditions during the month of November.

Basin	December 1, 2011 SWSI Value	Change From Previous Month	Change From Previous Year
South Platte	+1.5	- 1.8	- 0.5
Arkansas	- 0.2	- 0.4	- 0.5
Rio Grande	+0.4	- 0.9	+2.2
Gunnison	- 1.0	- 1.5	- 1.1
Colorado	+0.5	- 2.2	- 2.1
Yampa/White	+1.0	- 2.5	- 2.9
San Juan/Dolores	- 0.6	- 0.6	+0.8

Scale

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

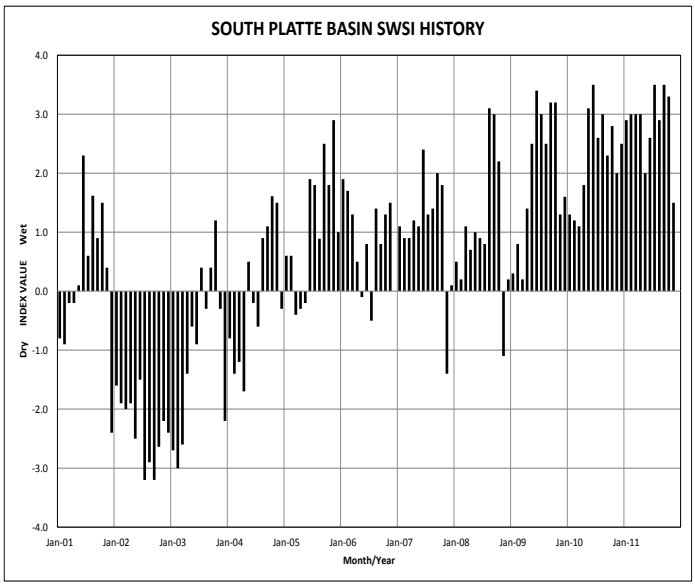
SURFACE WATER SUPPLY INDEX FOR COLORADO



December 1, 2011

Basinwide Conditions Assessment

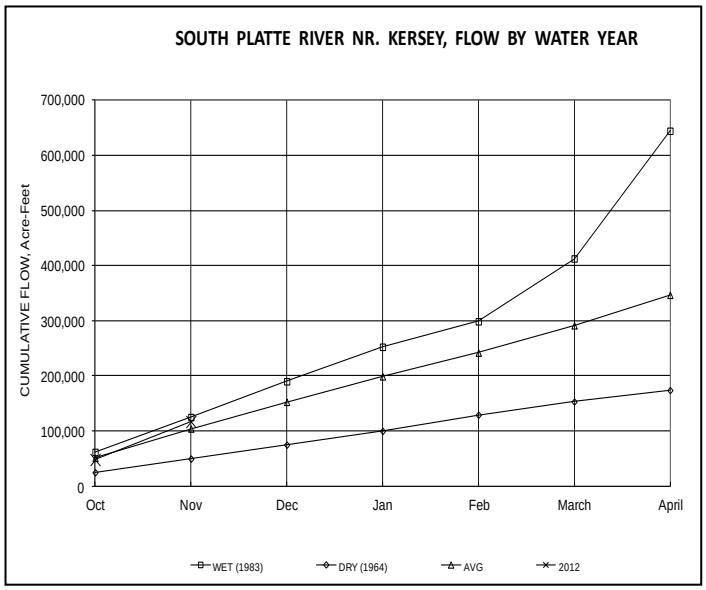
The SWSI value for the month was +1.5. The Natural Resources Conservation Service (NRCS) reports that December 1 snowpack is 91% of normal. Reservoir storage in Dillon, Horsetooth, Eleven Mile, Cheesman, Jackson, and Barr Lake, the major component in this basin in computing the SWSI value, was 117% of normal as of the end of November. Cumulative storage in the major plains reservoirs (Julesburg, North Sterling, and Prewitt) is at 61% of capacity. Cumulative storage in the major upper-basin reservoirs (Cheesman, Eleven Mile, Spinney, and Antero) is at 95% of capacity. Flow at the gaging station South Platte River near Kersey was 1,162 cfs, as compared to the long-term average of 744 cfs (110 years of record). Flow at the Colorado/Nebraska state line averaged 411 cfs, as compared to the long-term average of 339 cfs (109 years of record).

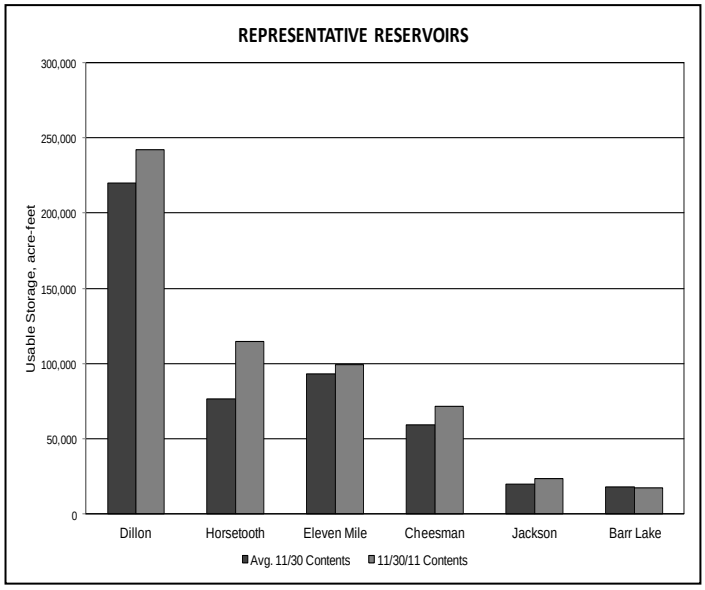


Outlook

November started off the 2011-12 Irrigation Year in excellent fashion. There were no calls on the South Platte mainstem for the entire month and only a few of the tributaries were under call for the month. The snow pack, though not as good as last year, is still good at 93% of average. The stream flows at Kersey and Julesburg were above average to well above average for the month (156% of average for Kersey and 121% of average for Julesburg). Storage in the basin also remained strong with end of November reservoir storage numbers at 117% of average.

The December – January outlook for the South Platte basin is for equal chances of above or below average precipitation and temperatures. The same equal chances outlook holds true for January through March, however the trend after that tends toward warmer and dryer than average conditions.





Basinwide Conditions Assessment

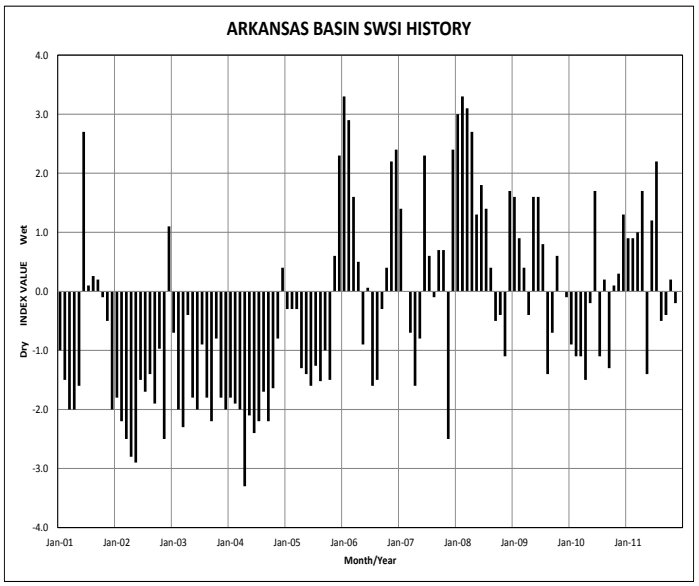
The SWSI value for the month was -0.2. The NRCS reports that December 1 snowpack is 88% of normal. Flow at the gaging station Arkansas River near Portland was 257 cfs, as compared to the long-term average of 445 cfs. Storage in Turquoise, Twin Lakes, Pueblo, and John Martin reservoirs totaled 96% of normal as of the end of November.

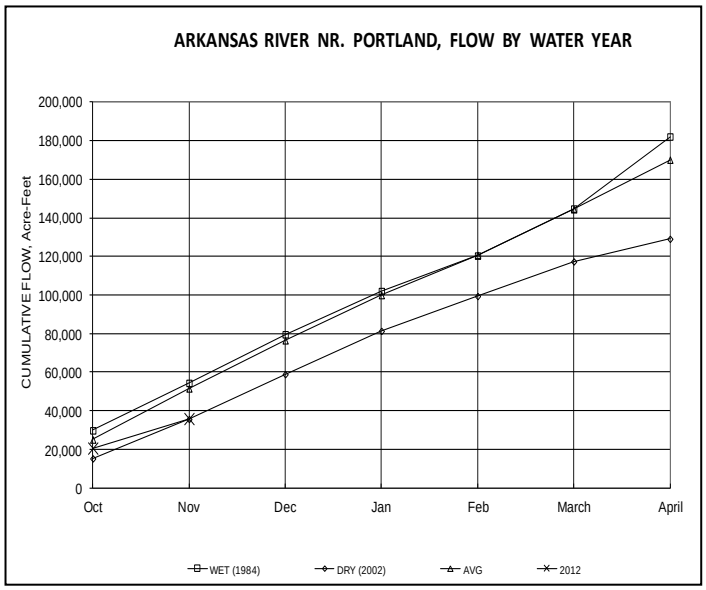
Outlook

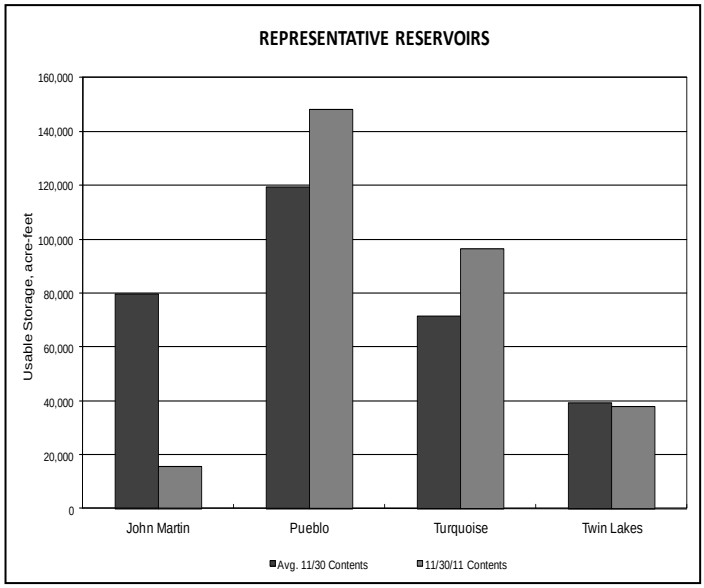
Winter Compact storage began in John Martin Reservoir on November 1, 2011. The Pueblo Winter Water Program began operation on November 15, 2011 with storage taking place initially in Pueblo and John Martin Reservoirs and under the Fort Lyon Canal system in Adobe Creek Reservoir. Storage in John Martin Reservoir during November totaled approximately 4,075 acre-feet for Conservation Storage and 1,501 acre-feet for Winter Water participants. Storage overall under the Pueblo Winter Water Program in November totaled approximately 19.573 acre-feet in all storage locations.

Administrative/Management Concerns

Several key grants were approved for study and development of projects related to Alternative Agricultural Transfer Methods and specifically related to the Super Ditch Project being sponsored by the Lower Arkansas Valley Water Conservancy District.



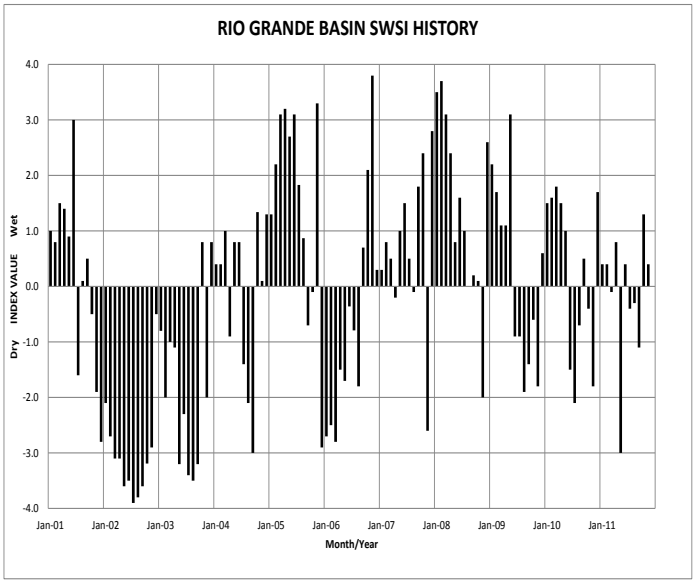




Basinwide Conditions Assessment

The SWSI value for the month was +0.4. The NRCS reports that December 1 snowpack is 88% of normal. Flow at the gaging station Rio Grande near Del Norte averaged 260 cfs (94% of normal). The Conejos River near Mogote had an elevated mean flow of 125 cfs (129% of normal) due to releases of stored Compact water from Platoro Reservoir. Storage in Platoro, Rio Grande, and Santa Maria reservoirs totaled 90% of normal as of the end of November.

The melting of the early October snowfall has generally increased streamflow levels in the upper Rio Grande basin to near-normal condition. Precipitation during November in Alamosa was 0.51 inches, 0.03 inches above normal. A spotty snowstorm on November 7 – 8 blanketed most of the valley floor. So far, snowpack accumulation in the basin is near normal.



Outlook

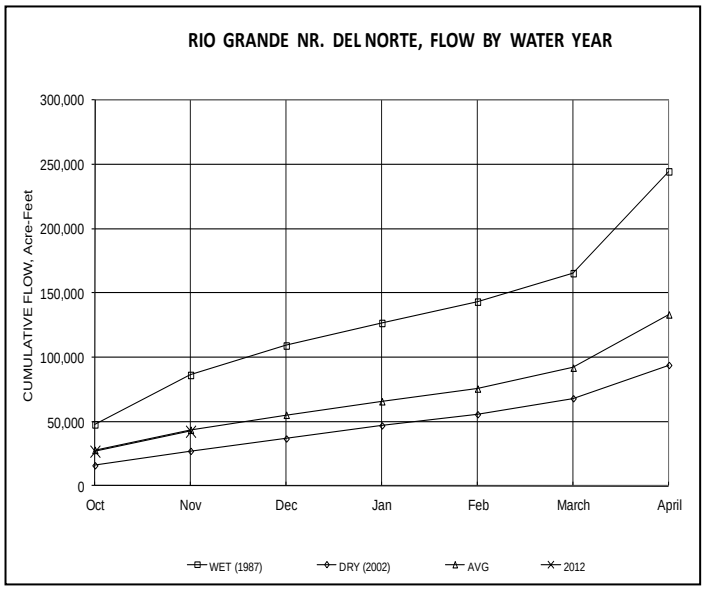
Weather conditions have been generally very pleasant with sunny days and mild temperatures this autumn. These conditions may persist, but National Weather Service forecasts are now inconclusive as to the expected precipitation and temperatures for the next three months in this area of the State.

Administrative/Management Concerns

Colorado will slightly over-deliver on the amount required to meet the Rio Grande Compact delivery requirement to New Mexico and Texas during 2011. Individually, the Conejos basin is just about dead-on with their delivery requirement, while the Rio Grande is expected to over-deliver less than 4000 acre-feet.

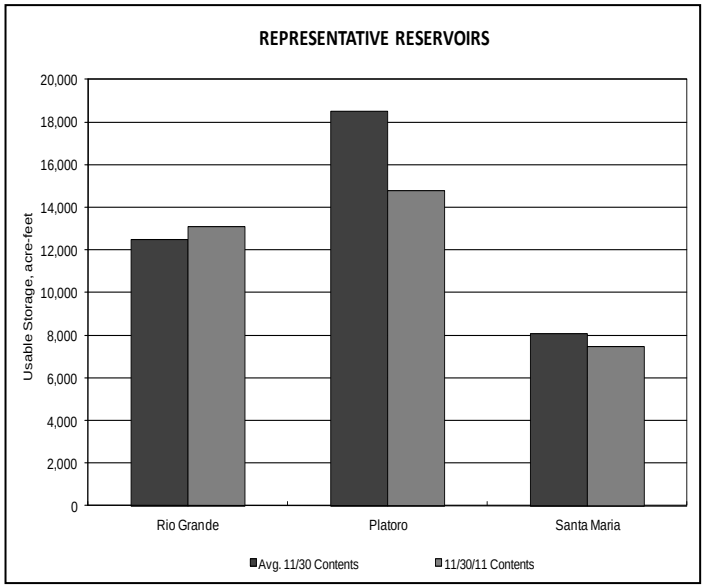
December 1st was the deadline for annual submittal of meter readings on irrigation wells in Water Division 3. Compliance has been generally good, with a few stragglers still working out data submittal issues with the staff.

The reservoir storage season typically begins November 1st each year. Current reservoir storage in the basin is in poor condition. Heavy demand during the previous irrigation season drew down most reservoirs to 2002 – 03 drought levels. These reservoirs must rely on capturing winter inflows as their junior rights are normally called-out during the irrigation season. Winter flows in recent years have been disappointing. About one-half dozen reservoirs in the upper Rio Grande basin have storage restrictions on them due to the current condition of the dam and/or spillway.



Public Use Impacts

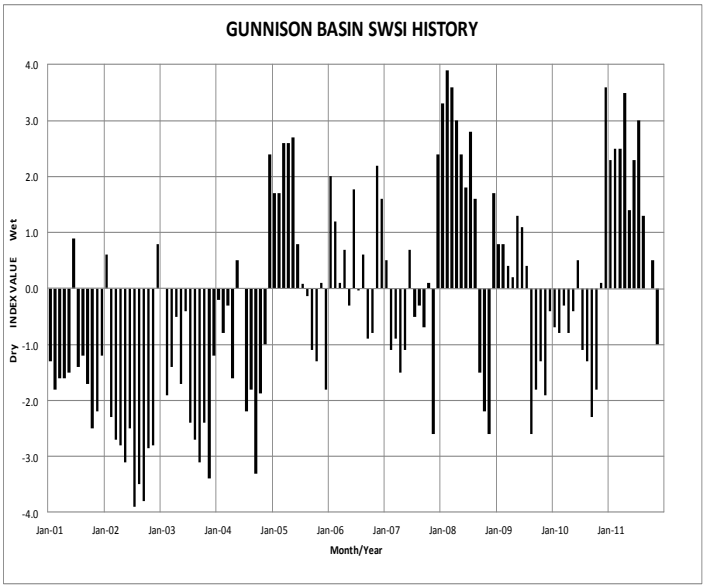
Mild weather conditions continued into early December when a significant snowstorm brought bitter cold to the Valley.



Basinwide Conditions Assessment

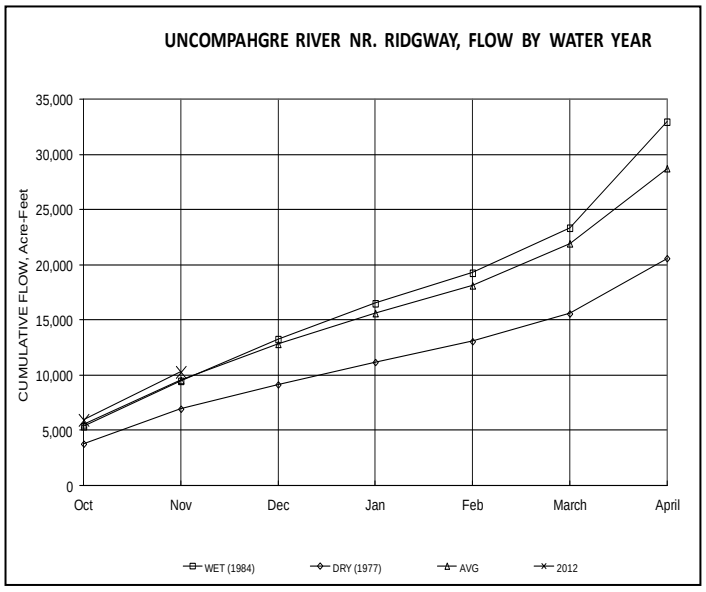
The SWSI value for the month was -1.0. The NRCS reports that December 1 snowpack is 69% of normal. Flow at the gaging station Uncompahgre River near Ridgeway was 73.1 cfs, as compared to the long-term average of 67.6 cfs. Storage in Taylor Park, Crawford, and Fruitland reservoirs totaled 103% of normal as of the end of November.

The Gunnison and San Miguel basins began November with great expectations as a snowstorm early in the month brought our snow water equivalent to above average through November 23rd, however, warm weather in the last week of November dropped the snowpack to 79 percent of normal as of December 1st. This trend has continued into early December and as of December 20th the Gunnison basins sit at 70 percent of average. We have past the time in 2010 when the Gunnison basin received epic amounts of snow from a pineapple express storm and are well behind last year at 62 percent of 2010 snow water equivalent. Interestingly, warm weather last year during the big storm kept the snow level high until January, while this year colder weather in November has resulted in shallow snowpack even in the lower valleys. In another twist from 2010, weather patterns have brought more snow to the southern areas of the basin such as Red Mountain Pass where they sit at 77 percent and less snow to the northern areas such as the Grand Mesa where they sit at 62 percent. Last year at this time the snowpack in northern basin areas was greater than in the southern areas.



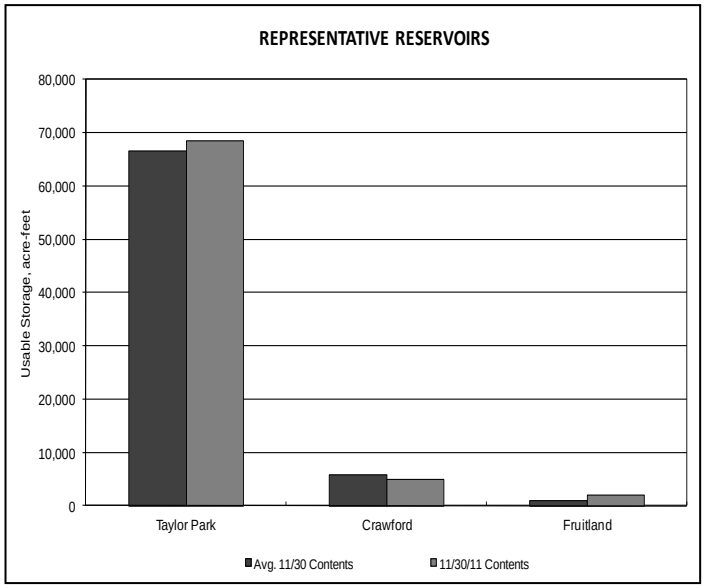
Outlook

Current Climate Prediction Center forecasts predict equal chances of above or below average precipitation and temperatures for the next 90 days. Thankfully snowpack conditions during this time of year are rarely a good predictor of seasonal snowpack. Hopefully the wet weather patterns that resulted from last year's La Nina will materialize during the spring of 2012.



Administrative/Management Concerns

Most reservoirs remain at least at average storage levels for this time of year and it is early in the snowpack building season. Consequently, few administrative concerns exist yet, although water users are anxiously awaiting more snow storms to boost the currently low snowpack.



Public Use Impacts

Releases from Crystal Dam and the resulting flow in the Gunnison Gorge were increased to 800 cfs on November 19th and 1,500 cfs on December 3rd to generate additional power. Flows below Taylor Park Reservoir were reduced in early November to 97 cfs so fishing below the dam should be good.

Basinwide Conditions Assessment

The SWSI value for the month was +0.5. The NRCS reports that December 1 snowpack is 83% of normal. Flow at the gaging station Colorado River near Dotsero was 1,146 cfs, as compared to the long-term average of 1,118 cfs. Storage in Green Mountain, Ruedi, and Williams Fork reservoirs totaled 111% of normal as of the end of November.

Outlook

Roaring Fork, Eagle and Colorado River flows will likely continue to hover near average throughout December, dropping moderately below average during periods of colder average daily temperatures. Blue River flows have and will continue to run moderately above average. Early season snowfall has been significantly below average in the upper Colorado basin, with the snow water equivalent at 85 percent of average as of December 1st.

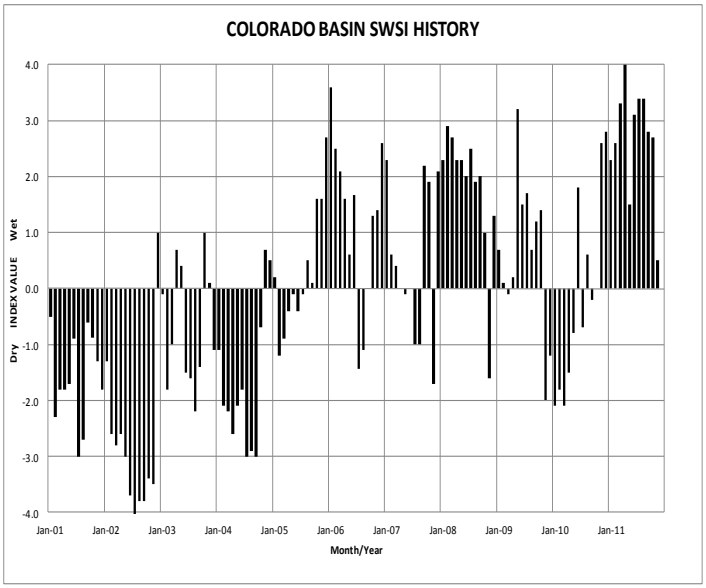
Administrative/Management Concerns

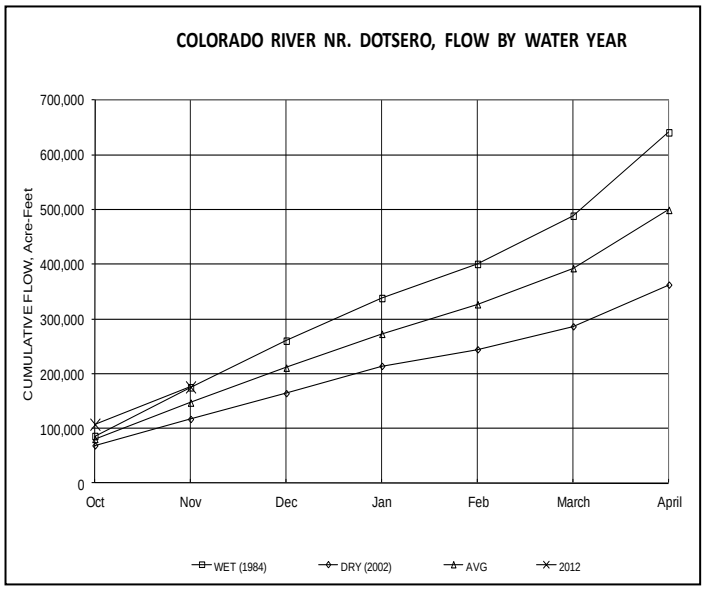
Green Mountain Reservoir releases will be incrementally increased later in December as maintenance work nears completion at Shoshone Power Plant. Ruedi Reservoir releases will remain below 100 cfs throughout December.

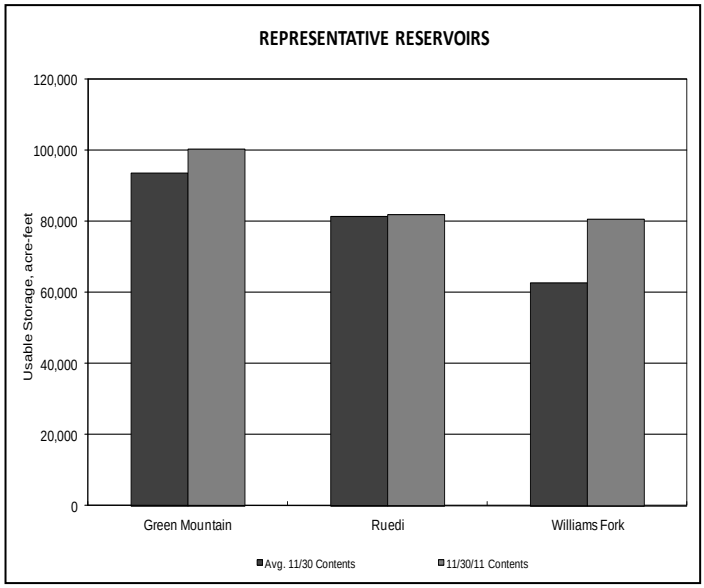
Public Use Impacts

With snowfall significantly below normal, snow making operations continue at many of the area ski resorts.

A water quality study performed by the Colorado Geological Society found streams of 11 Colorado headwater areas to be naturally acidic with high concentrations of aluminum, manganese and iron. The study was launched in coordination with the U.S. Forest Service to identify environmental problems associated with abandoned mines. It was determined that water upstream of any significant human impact, such as mining operations, wasn't free from contaminants as originally thought. The report could assist wildlife managers in fish restocking, and regulators who set stream water quality standards.







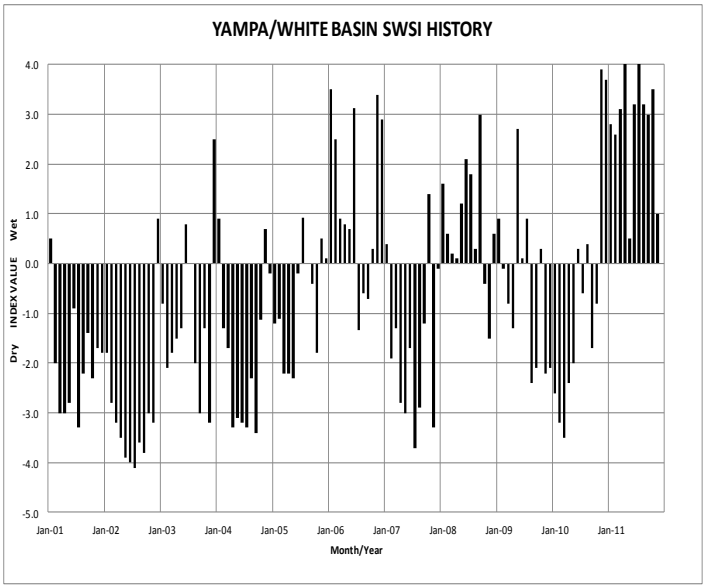
Basinwide Conditions Assessment

The SWSI value for the month was +1.0. The NRCS reports that December 1 snowpack is 88% of normal. Flow at the gaging station Yampa River at Steamboat was 151 cfs, as compared to the long-term average of 131 cfs.

November precipitation was slightly 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 104% of average for the combined Yampa, White, and North Platte River basins. Total precipitation for the water year to date as a percent of average at the end of November was 107%.

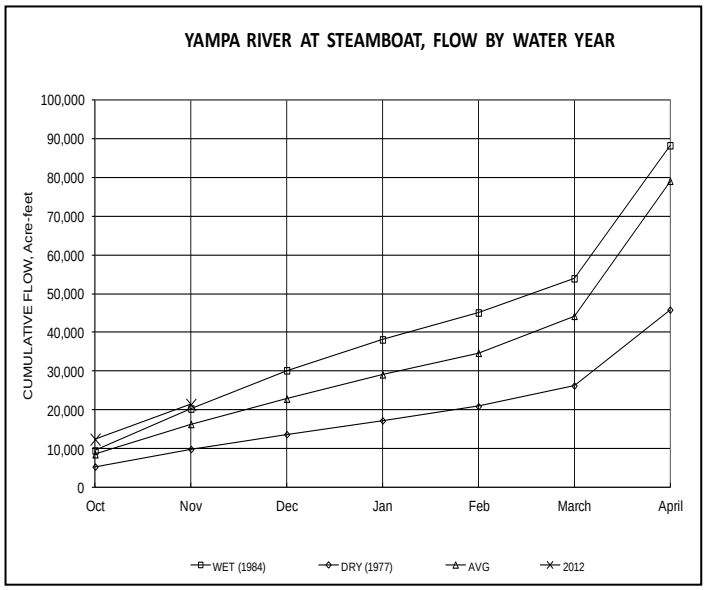
The snow water equivalent (SWE) as of November 30, 2011 was 87% of average for the North Platte River basin and 89% of average for the Yampa and White River basins.

All seasonal Division 6 stream gages have been closed for winter and will reopen at the commencement of spring runoff along with ice-free river conditions.



Outlook

As of November 31st Fish Creek Reservoir was storing 2,944 AF, which is equal to 70.7% of capacity. Fish Creek Reservoir is used primarily for municipal purposes. Yamcolo Reservoir was storing 7,911 AF at the end of November 2011. The capacity of Yamcolo Reservoir is 9,580 AF. On November 31st Elkhead Creek Reservoir was storing 23,347 AF. The capacity of Elkhead Creek Reservoir is 24,778 AF. On November 30th, 2011, Stagecoach Reservoir was storing 31,700 AF and at 95.2% of capacity.



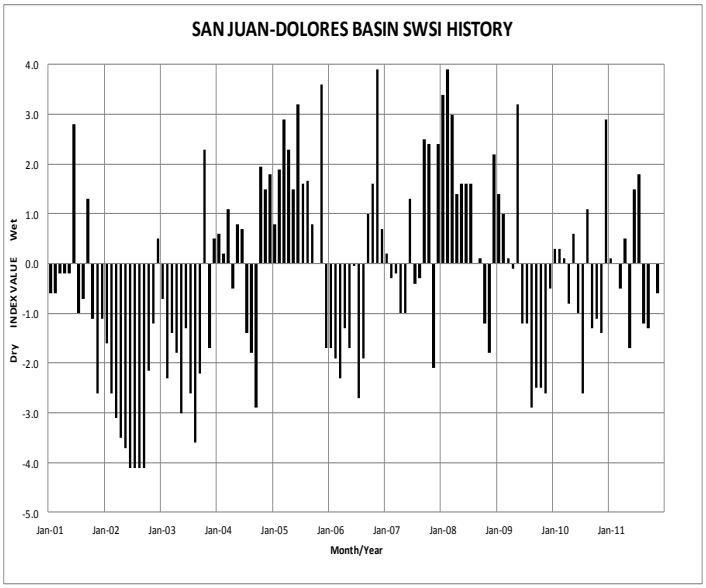
Public Use Impacts

Stagecoach Reservoir is currently iced over, however ice conditions vary across the lake with ice cover at approximately 6 inches in the coves and at the inlet. Ice fishing for trout has been notable at Stagecoach. Steamboat Lake is completely iced over with approximately 12 inches of ice confirmed in the coves near the Marina. Ice conditions may vary dramatically across the lake. Steamboat Lake State Park has a snow base of approximately 6-18 inches. Grooming of cross country ski trails will begin when there is a base of 18-24 inches.

Steamboat Ski Resort is reporting a base of 21 inches and snow making is ongoing with additional terrain being opened daily. 63.5 inches of snow have fallen at the resort this season to date. Howelsen Hill is open for skiing as well and snowmaking continues to add to the snow base and open terrain.

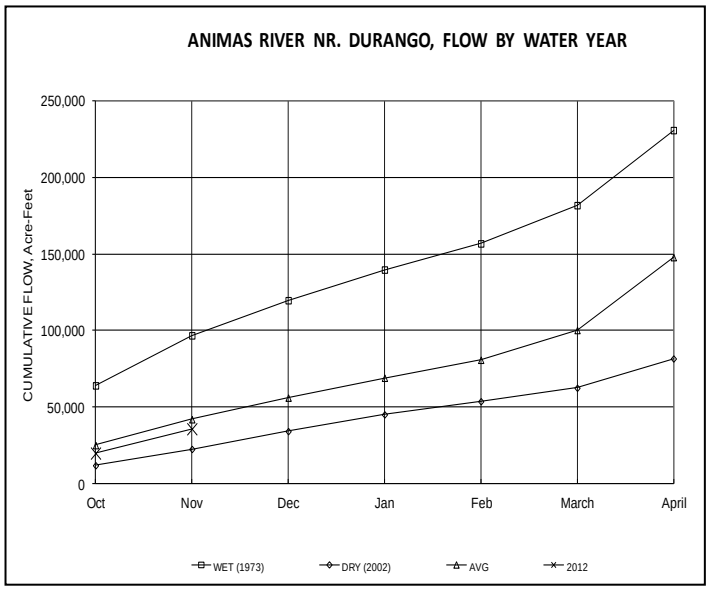
Basinwide Conditions Assessment

The SWSI value for the month was -0.6. The NRCS reports that December 1 snowpack is 68% of normal. Flow at the Animas River at Durango averaged 267 cfs (93% of average). The flow at the Dolores River at Dolores averaged 71 cfs (85% of average). The La Plata River at Hesperus averaged 9.3 cfs (88% of average). Precipitation in Durango was 1.08 inches for the month, 52% of the 30-year average of 1.89 inches. Precipitation to date in Durango, for the water year, is 4.35 inches, 130% of the 30-year average of 3.34 inches. The average high and low temperatures for the month of November in Durango were 49° and 21°. In comparison, the 30-year average high and low for the month is 51° and 23°. At the end of the month Vallecito Reservoir contained 71,710 acre-feet compared to its average content of 52,533 acre-feet (137% of average). McPhee Reservoir was up to 291,507 acre-feet compared to its average content of 257,745 (113% of average), while Lemon Reservoir was up to 13,840 acre-feet as compared to its average content of 19,553 acre-feet (71% of average).



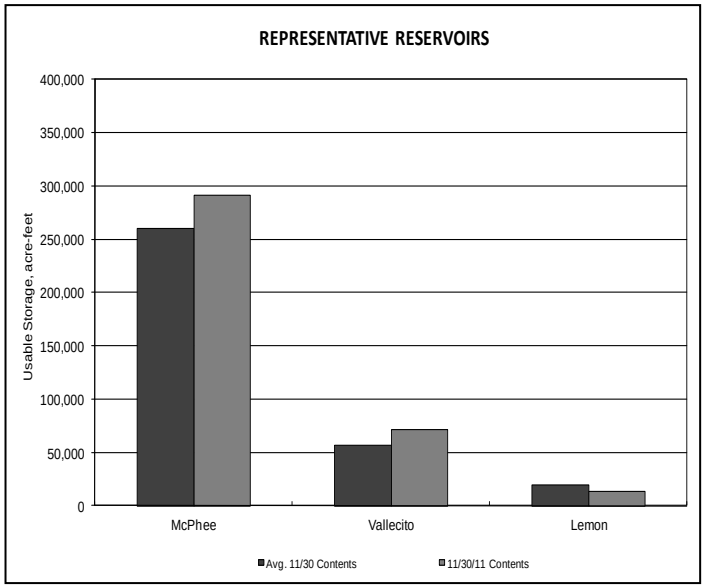
Outlook

Precipitation (1.08-inches) was below average for the month of November in Durango. There are 62 years out of 117 years of record where there was more precipitation than this year. We hope we will have an above average snowpack season to fill the reservoirs again. On November 30 the NRCS SNOTEL sites reported an average snow-water equivalent within the basin at 69%. Last month the snow-water- equivalent was 70%. The flows on the La Plata River were low. There are 43 years out of 95 years of record where there was more at Hesperus than this year.



Administrative/Management Concerns

The La Plata River compact call started on April 7, 2011 and will remain on call for the rest of the season. The La Plata River compact call ended on November 30.



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