COLORADO
WATER SUPPLY CONDITIONS UPDATE

FROM THE OFFICE OF THE STATE ENGINEER: COLORADO DIVISION OF WATER RESOURCES
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November 2014

The Surface Water Supply Index (SWSI) developed by this office and the U.S.D.A. Natural Resources Conservation Service (NRCS) is used as an indicator of mountain-based water supply conditions in the major river basins of the state. It is based on streamflow, reservoir storage, and precipitation for the summer period of May through October (June 1 through November 1). During the summer period, streamflow is the primary component in all basins except the South Platte basin, where reservoir storage is given the most weight. The enclosed narratives are provided by the Division of Water Resources Office in each stream basin.

The statewide SWSI values for October (November 1) range from a high value of +3.7 in the South Platte and Yampa/White basins to a low value of +0.8 in the Gunnison Basin. Streamflow and reservoir storage were above normal across the state for the month of October.

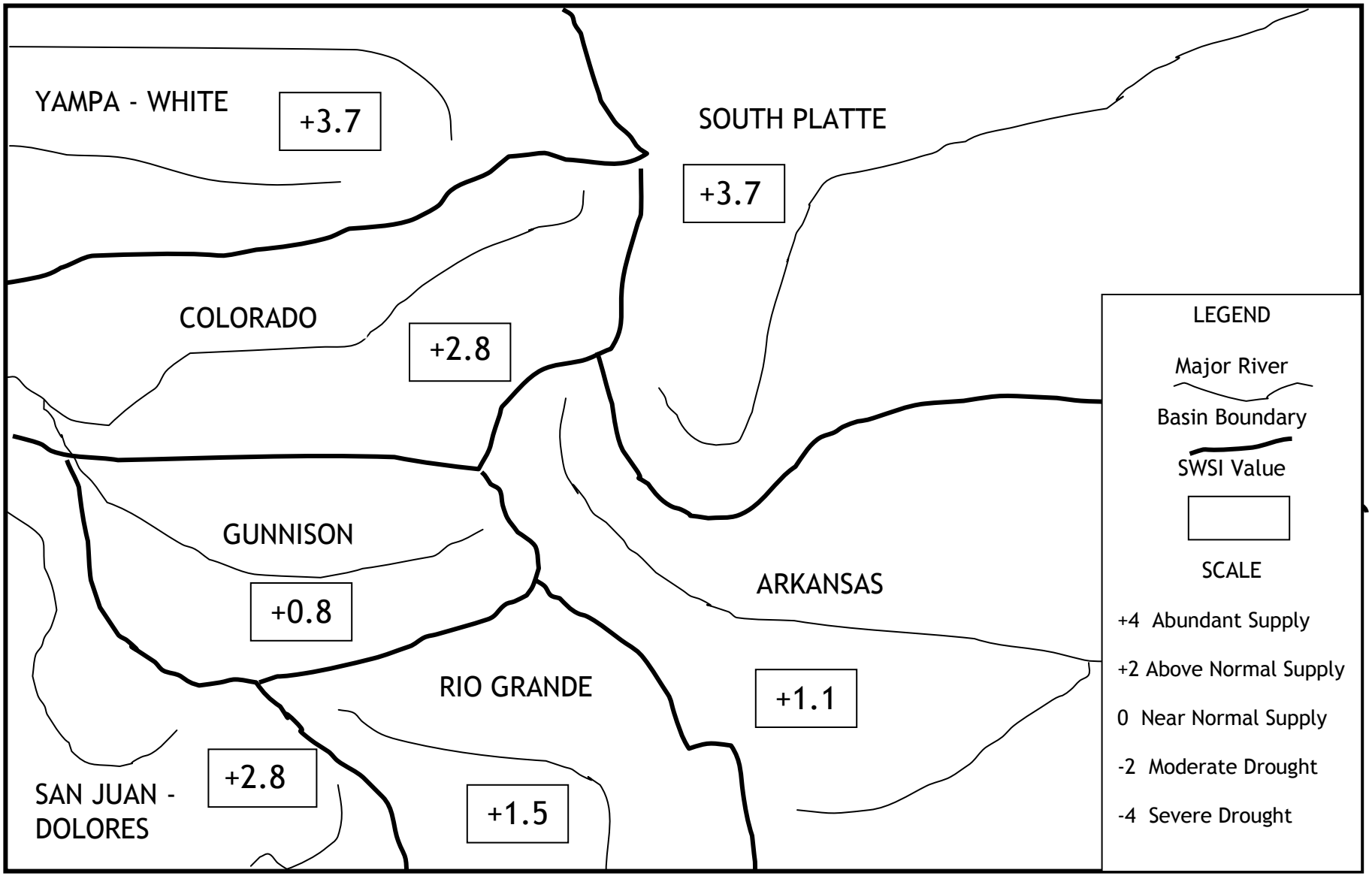
The following SWSI values were computed for each of the seven major basins for November 1, 2014. Additional information about SWSI calculations and the NRCS National Water and Climate Center SWSI by HUC are included on Page 10.

Basin	November 1 SWSI	Change from Previous Month	Change from Previous Year
South Platte	3.7	-0.1	0.5
Arkansas	1.1	0.5	0.6
Rio Grande	1.5	1.1	-1.1
Gunnison	0.8	1.6	1.5
Colorado	2.8	-0.3	1.5
Yampa/White	3.7	0.9	1.9
San Juan/Dolores	2.8	0.6	0.6

SWSI 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



November 1, 2014

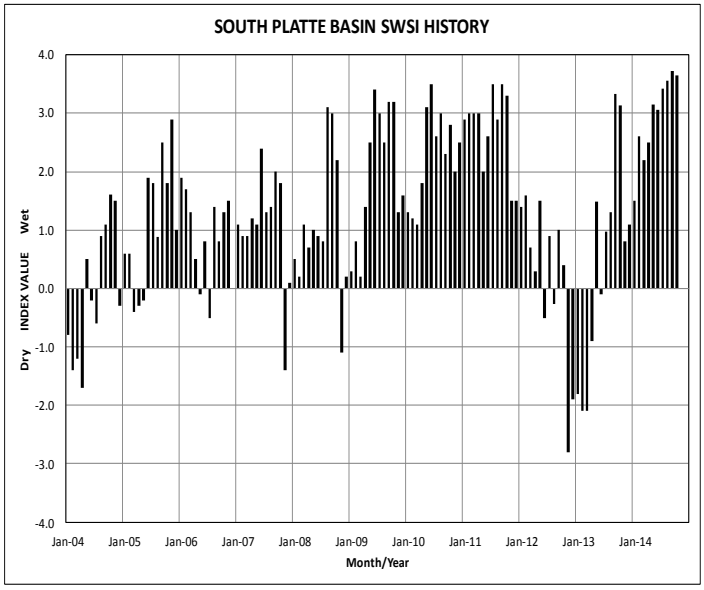
Basinwide Conditions Assessment

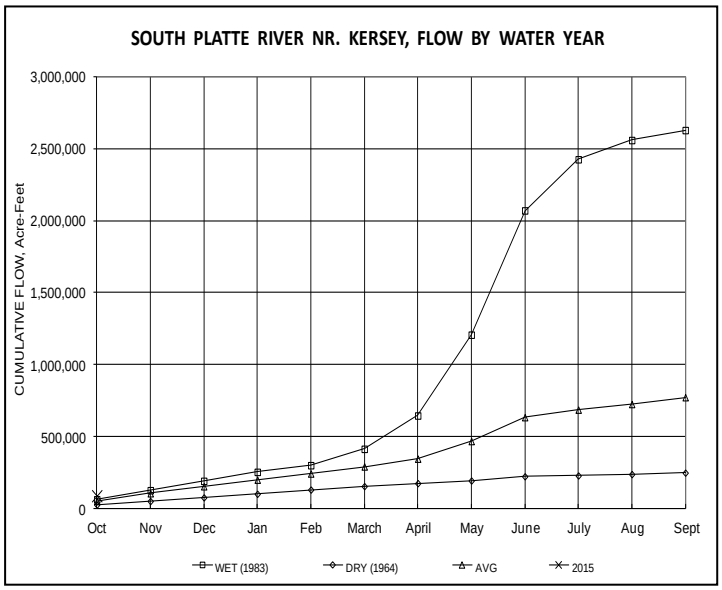
The SWSI value for the month was 3.7. October 2014 was unseasonably warm and dry in northeast Colorado. Temperatures were well above average and precipitation was generally below average. There were a few areas near and in the foothill/mountain areas that received close to normal precipitation, but they were the exception rather than the rule. Temperatures showed very little variability as they were uniformly above average.

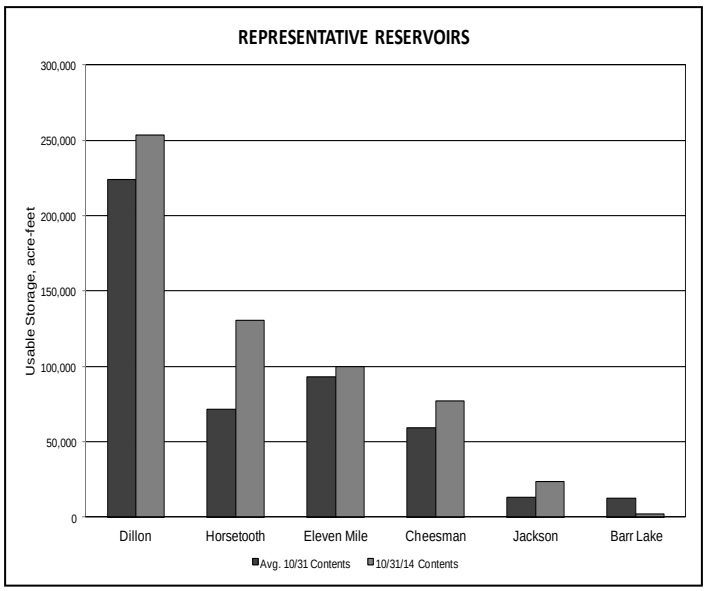
Despite the warm and dry conditions, October continued the 2014 run of above historic mean stream flow. Flow at the Kersey gage has been above average every month in the 2014 irrigation year except April, when it was almost exactly at the historic mean. The monthly mean stream flow at Kersey was 1410 cfs or 211% of the 669 cfs historic mean flow. Flow at the Julesburg has been much more variable than Kersey, but was above the historic mean for the fifth month in a row. The monthly mean stream flow at Julesburg was 570 cfs or 189% of the 301 cfs historic mean flow.

River calls in the South Platte basin also reflected the continuation of the generally excellent 2014 flow conditions. For the second straight month there were no calls on the South Platte River mainstem during October. The South Platte mainstem went to free river on August 26 and has remained there. There were also a total or four calls on the major South Platte tributaries in October. This very low number of calls is another indication of the excellent flow conditions.

By the end of October reservoir storage was well ahead of normal with many reservoirs already at "winter fill". Many reservoirs generally don't reach "winter fill" before mid-December or later, so being at that point by the end of October indicates an excellent start on the water supply for the 2015 irrigation season. Overall storage at the end of October was at about 80% of capacity. This compares to an average storage of about 55% of capacity at the end of October.

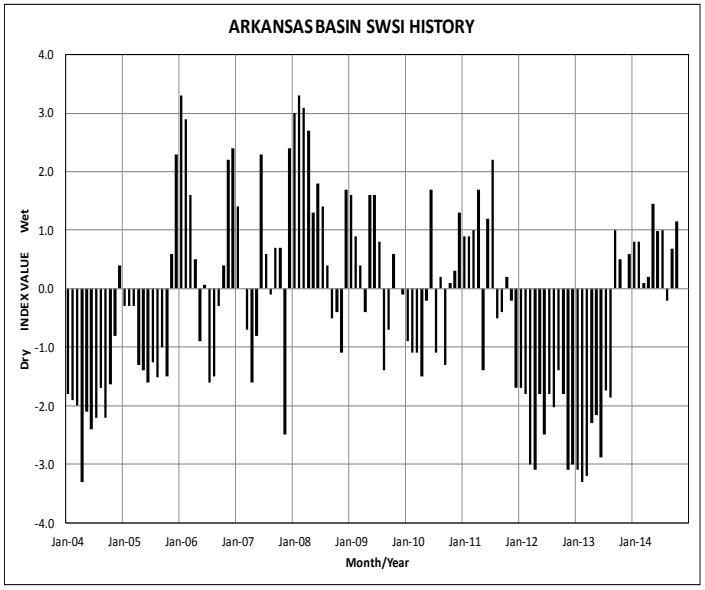






Basinwide Conditions Assessment

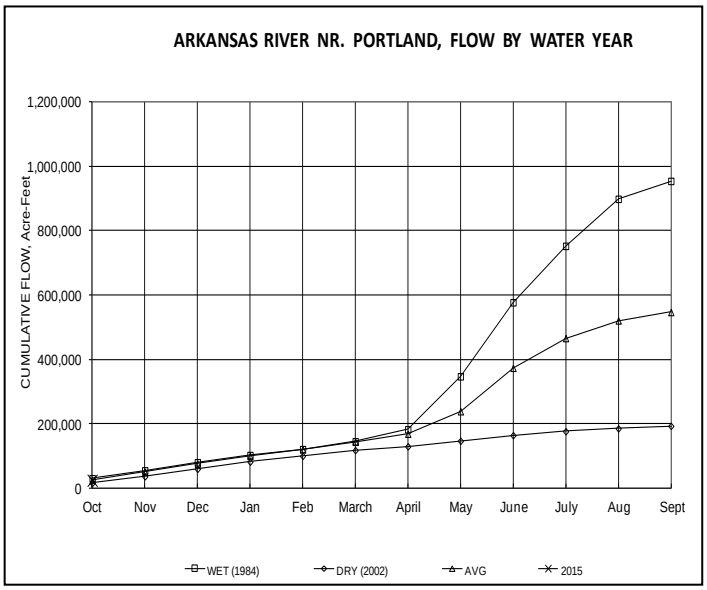
The SWSI value for the month was +1.1. The river call for October began with a split call with the Rocky Ford Highline (3-11-1886) as the call upstream of John Martin Reservoir and the Lamar Canal (11-4-1886) being the call below John Martin Reservoir split with a call by the X-Y Canal for flows in the river below the Lamar Canal. The month ended with the call above John Martin Reservoir at the Fort Lyon Canal (3-1-1887) call, Amity Canal (2-21-1887) the call below John Martin Reservoir with a call by the X-Y Canal for flows in the river below the Amity Canal. The late season monsoon moisture continued to contribute to cause stream flows to be higher than the last few years primarily as a result of lagged return flow accretions in the river.

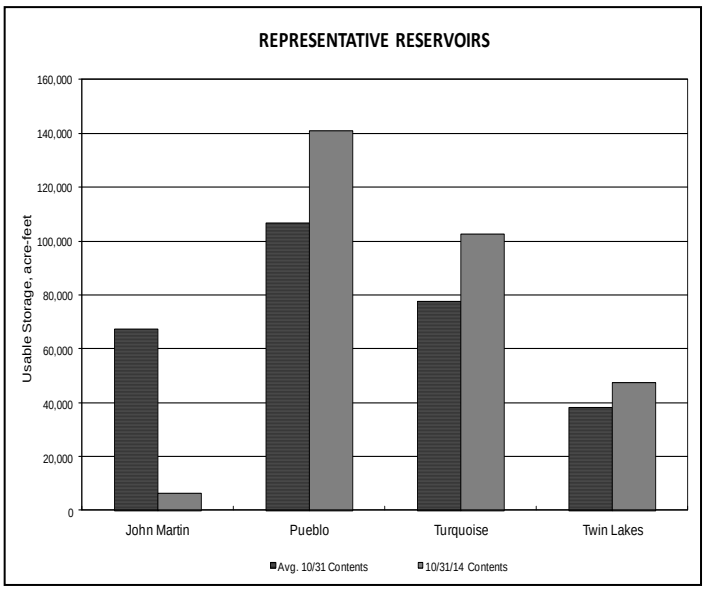


Administrative / Management Concerns

A meeting of the Winter Water Board of Directors was held on October 17, 2014. Planning for the upcoming storage season which runs from November 15, 2014 through March 14, 2015 was the topic at this meeting. A meeting related to flood control on Fountain Creek was hosted just following the Winter Water Meeting to provide opportunity for interested parties to begin to participate in the evaluation of flood control alternatives on water rights.

Winter Compact storage in John Martin Reservoir began at midnight on October 31, 2014. Storage in Trinidad Reservoir began on October 14, 2014.





Basinwide Conditions Assessment

The SWSI value for the month was +1.5. Flow at the gaging station Rio Grande near Del Norte averaged 750 cfs (160% of normal). The Conejos River near Mogote had a mean flow of 95 cfs (70% of normal). Streamflow in the majority of the upper Rio Grande basin was above average during September due to the welcome rain and a bit of snow in the high country. The Conejos River and its tributaries continue to languish with below average precipitation and streamflow. The southern part of the San Luis Valley has just not had good runoff in 2014 while most of the other drainages have had near-average flow.

A month of decent rainfall on the mountains and plains helped. However the Valley floor is still nearly two inches below average on annual accumulated precipitation.

Reservoir storage in the basin has been severely depleted to help meet irrigation demand. Some of the reservoirs have gained a slight amount of storage in the past month.

Outlook

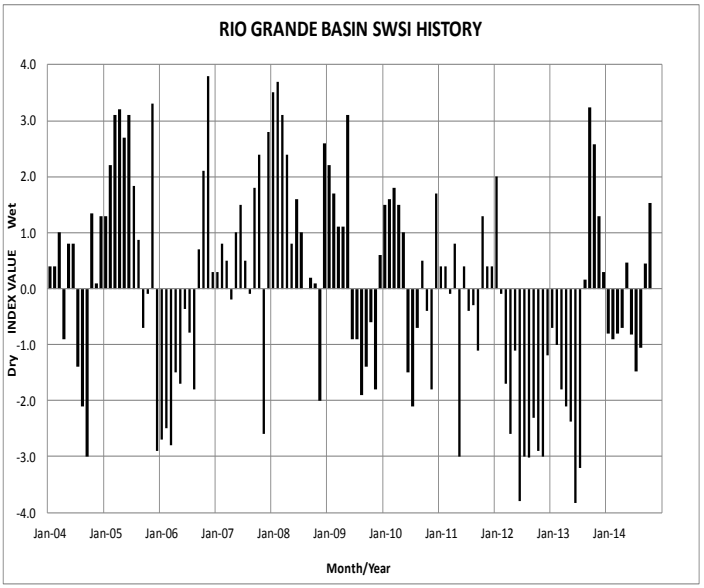
Recently-released National Weather Service 90-day precipitation and temperature outlooks call for a chance of above average precipitation for December through February for this region.

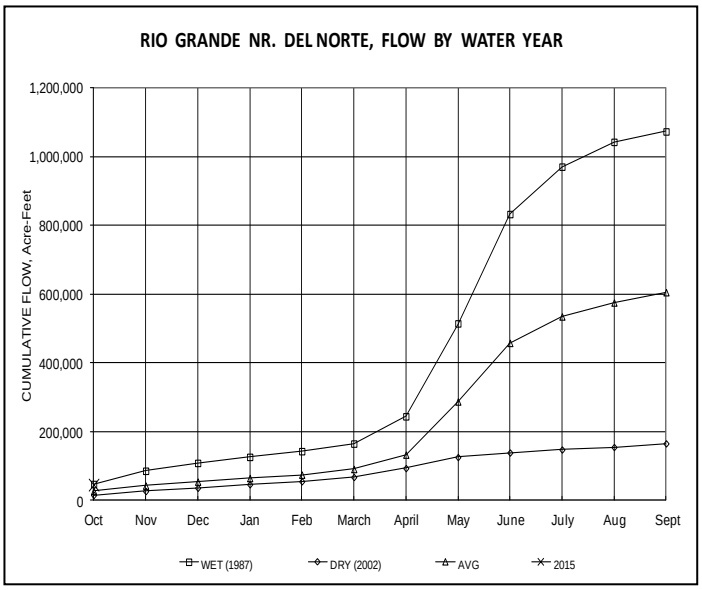
Administrative/Management Concerns

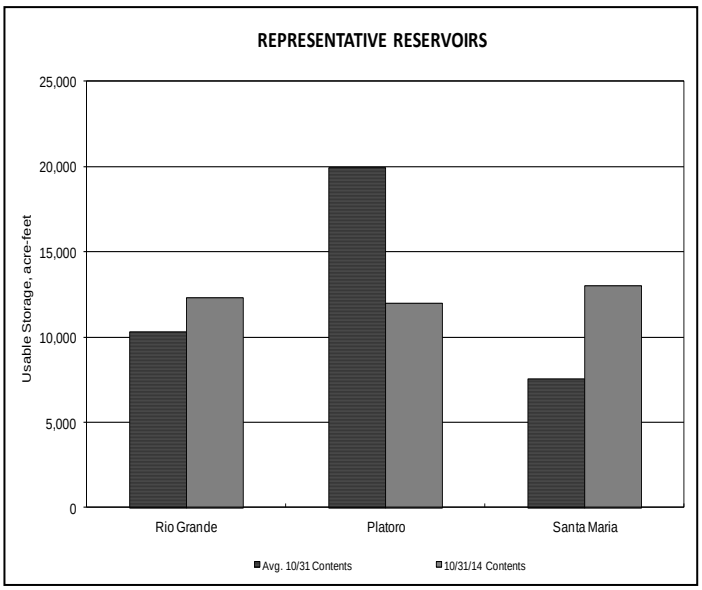
The State Engineer's policy no. 2010-01 dealing with the irrigation season within Water Division No. 3 is in effect. Water users in the Conejos River system were required to discontinue all diversion of water from ditches, reservoirs and wells on October 20 in order to assure required delivery to the state line for the Rio Grande Compact. The Rio Grande, its tributaries, and the other areas of the San Luis Valley had a November 1st shut-off date to effect Compact delivery requirement compliance.

Public Use Impacts

The autumn weather patterns have been very comfortable and have had little or no effect on crop harvest.







Basinwide Conditions Assessment

The SWSI value for the month was +0.8. Precipitation in the Gunnison basin was well below average in October, with most of the basin receiving between 50 and 70 percent of the 30-year average for the month. In addition, temperatures were 1-3 degrees above normal during October. As a result, snow water equivalent (SWE) values on November 1st suffered and range from 14% of average above Ridgway Reservoir to 25% of average above Taylor Park Reservoir. Thankfully, snowpack averages on November 1st are rarely a good predictor of the kind of spring runoff we will have, but water users are hoping that the storm track changes in the coming months.

Outlook

The National Weather Service outlook for the period including November, December, and January includes equal chances of above average precipitation and temperatures due to the uncertainty of a potential weak El Nino that would bring above average precipitation south of the Gunnison and below average to the north.

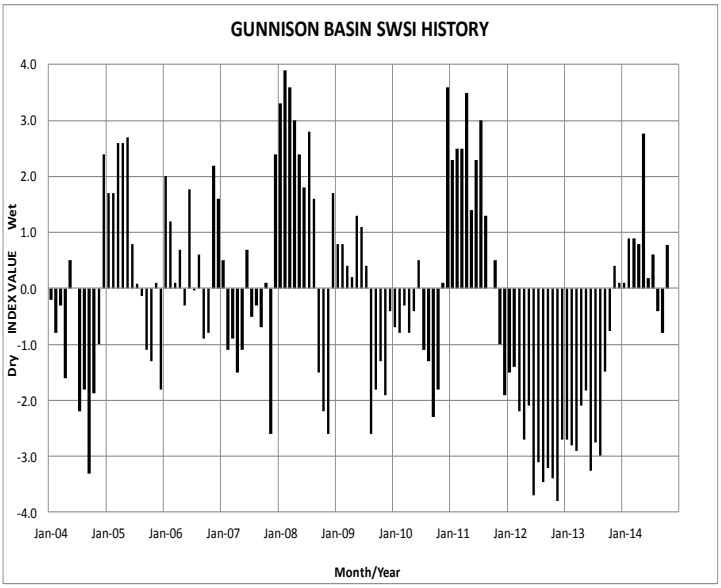
Administrative/Management Concerns

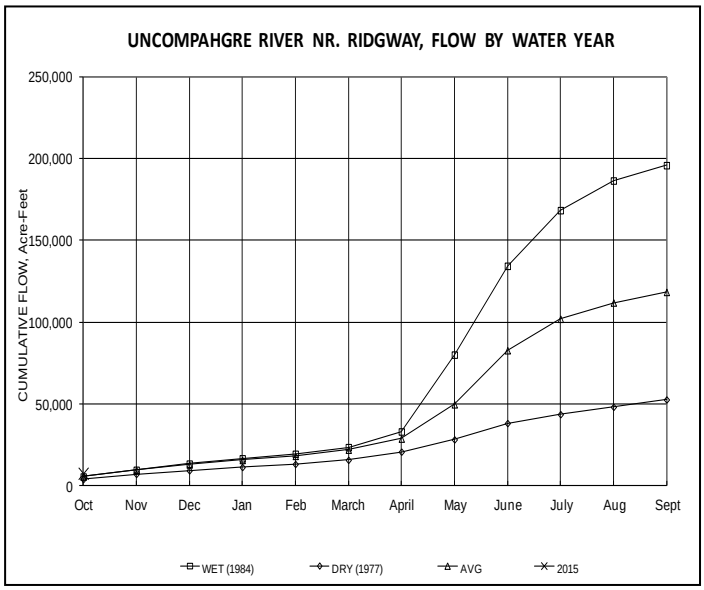
Gunnison Tunnel diversions were met by natural inflow to the Aspinall Unit for all but one day during the month of October and Taylor Park ended the season with 78,761 acre-feet in storage, which is greater than the annual November 1st target of 70,000 acre-feet. Taylor Park's first fill account carried over a full 106,230 acre-feet, when combing the physical Taylor Park storage and the 27,469 acre-feet they are allowed to carryover in the Aspinall Unit. This is possible because of carry over provisions for storage that is moved into Blue Mesa Reservoir throughout the year pursuant to the decree in Case No. 86CW203. Although the first fill account in the Aspinall Unit contained over 105,000 acre-feet on October 31st, the subject decree only allows the UVWUA to carry over a full 106,230 acre-feet between both locations. UVWUA turned off the Gunnison Tunnel on October 31st and through the winter will run approximately 100 cfs for one day every two weeks to refill Fairview Reservoir for municipal use by the Project 7 Water Authority that provides treated water to most of the Uncompahgre Valley.

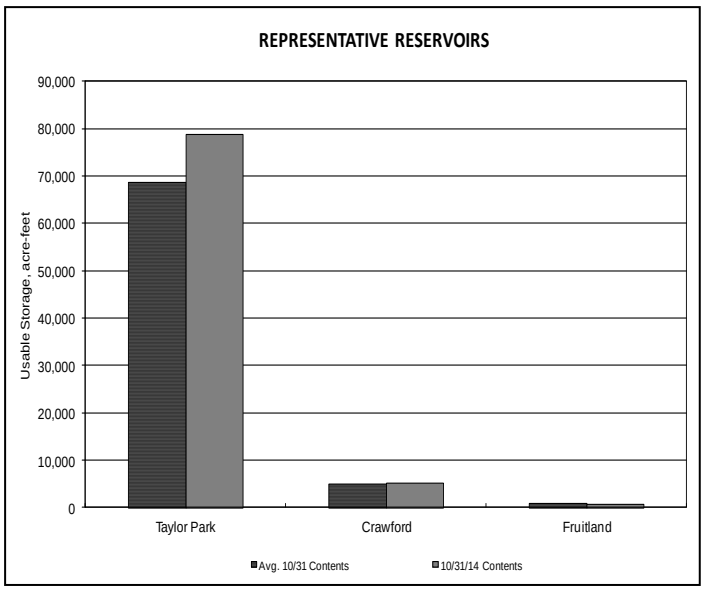
Despite the large releases in June to meet the Aspinall Operations Record of Decision, another great monsoon season helped Blue Mesa Reservoir end October almost 240,000 acre-feet higher than in 2013 at 587,261 acre-feet, which corresponds to an elevation of 7490.25 feet. This is above the December 31st target of 7480.00 feet that is intended to prevent damage from ice buildup above the Reservoir. Consequently, releases during November will be increased to reach a level closer to the target by the end of the year.

Pubic Use Impacts

Crystal Reservoir releases decreased at the end of October, but mostly due to reduction in diversions at the Gunnison Tunnel. Flows in the Gunnison Gorge remained around 450 cfs for much of October. Area ski resorts are getting a late start to their snow making season due to the unseasonably warm temperatures in October.







Basinwide Conditions Assessment

The SWSI value for the month was +2.8.

Outlook

Colorado, Roaring Fork and Eagle River flows should trend from slightly above, to at or near average throughout November with falling average daily temperatures. There is a Slight chance for both of above average temperatures, and below average precipitation forecast for western Colorado through November.

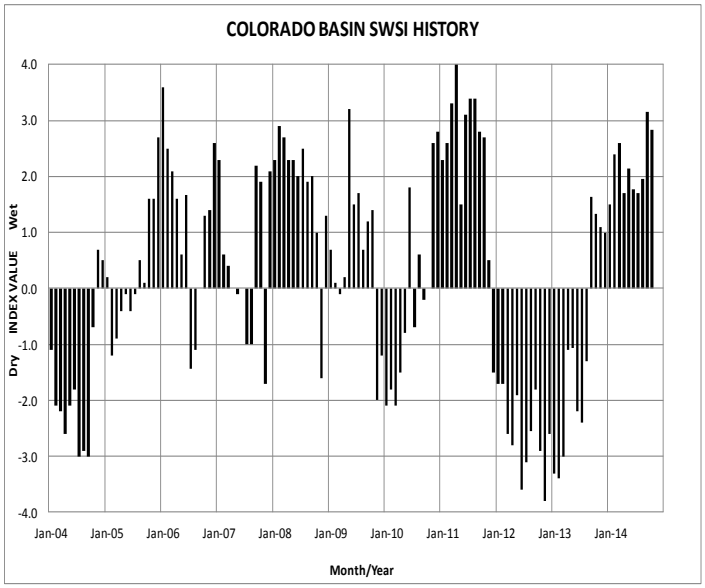
Administrative/Management Concerns

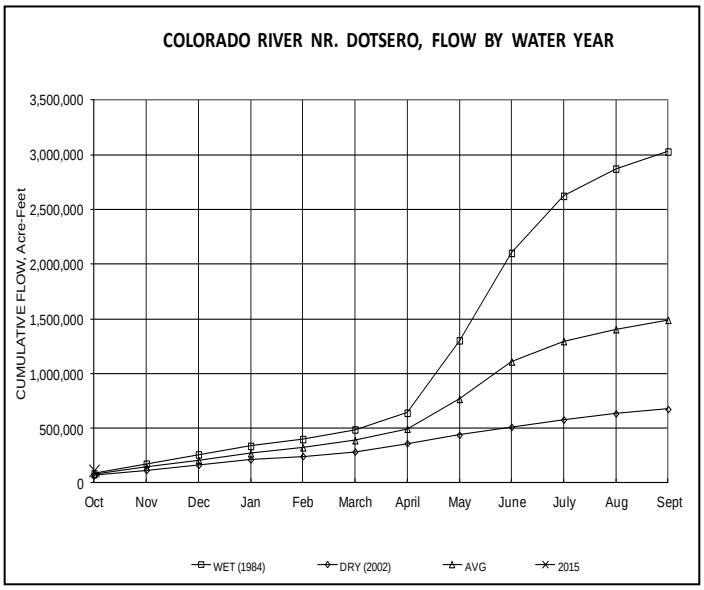
There will be no main stem call on the Colorado River with the end of grand valley irrigation season. Green Mountain Reservoir HUP surplus releases ended in early November. There will be no Shoshone Hydro Power right call at Dotsero given the facility remains non-operational. Although provisions of the Shoshone Outage Protocol were triggered November 1st, increases to Green Mountain Reservoir releases were required only a few days before the protocol flow decrease to 900 cfs. Willow Creek and Ruedi Reservoir releases will likely remain unchanged throughout November.

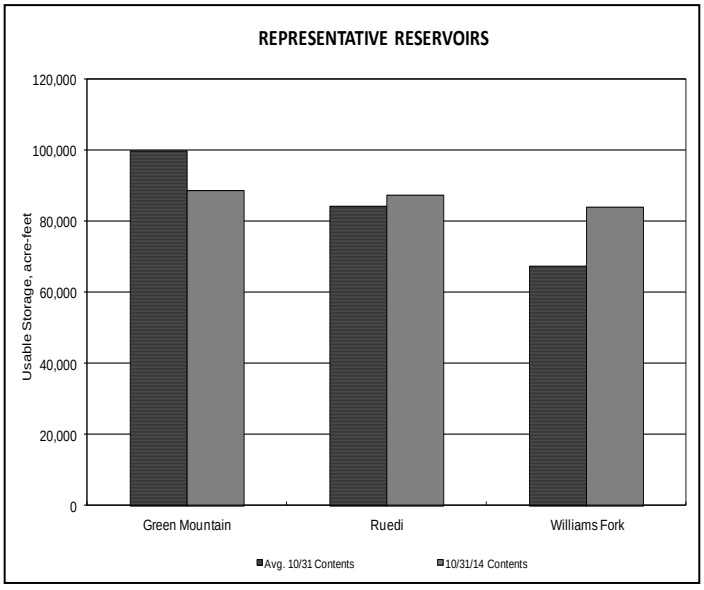
Public Use Impacts

The Bureau of Reclamation will conduct an experimental high flow release at Glen Canyon dam in mid November in accordance with the high flow protocol. The release rate will be increased from approx. 9000 to 37,500 cfs over a 96 hour period.

The Ski industry is off to a slower start this year with only six resorts open with limited trails, including Arapahoe Basin, Copper Mnt., Loveland, Winter Park, Keystone, and Breckenridge. Additional area openings are not anticipated with additional high altitude precipitation not forecast until late November.



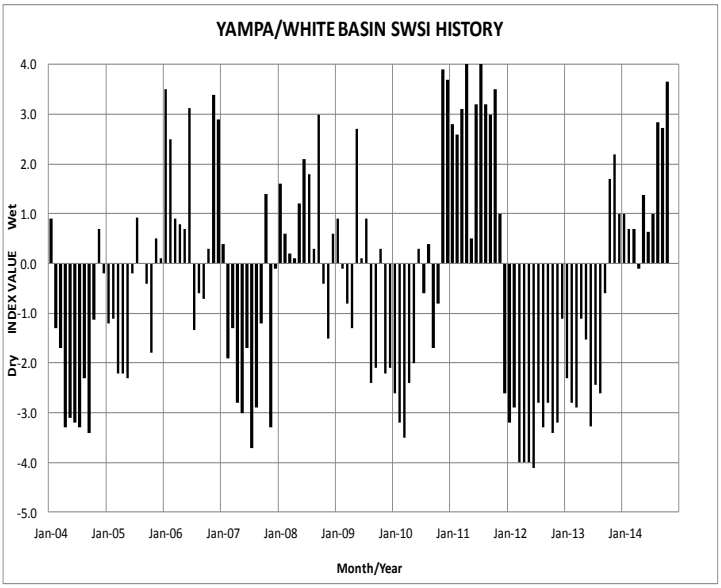


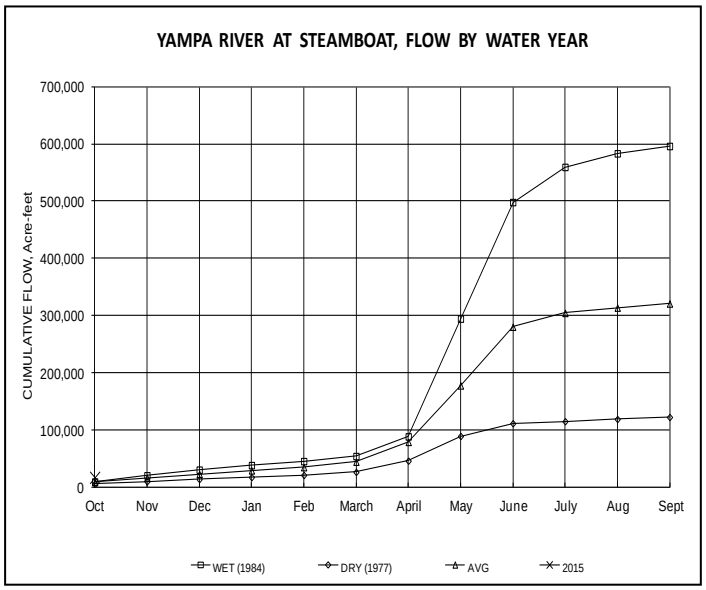


Basinwide Conditions Assessment

The SWSI value for the month was +3.7. October precipitation was below 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 72% of average for the Yampa, North Platte and White River Basins. Given that October is the first month of water year 2015 total precipitation for the water year as a percent of average to date is equal to the previously stated October figure. Snowpack in all major river basins in Division 6 is off to a very slow start with snow water equivalent varying between 19% and 32% of average.

Flow in the major rivers of the Yampa, White, and North Platte River basins was above average during October due to precipitation from previous months. All seasonal stream gaging stations in Division 6 are now closed for winter.





Outlook

As of October 31st, Fish Creek Reservoir was storing 4,038 AF which is 97% of capacity. Yamcolo Reservoir was storing 5,800 AF at the end of October 2014. The capacity of Yamcolo Reservoir is 8,700 AF. On October 31st, Elkhead Creek Reservoir was 92% full and storing 22,665 AF. On October 31, 2014, Stagecoach Reservoir was 106% full and storing 35,200 AF.

Water stored in Fish Creek Reservoir is used primarily for municipal purposes, Yamcolo Reservoir for irrigation purposes, and Elkhead Creek Reservoir for municipal, industrial, recreational, and fish recovery releases. Stagecoach Reservoir is primarily used for recreation though a significant amount of stored water is allocated for municipal, industrial, irrigation and augmentation uses.

Public Use Impacts

At Stagecoach State Park, fishing has improved and recently the reservoir was stocked with 35,000 rainbow trout. The reservoir is closed to boating until May 1st, 2015. The reservoir water level is reported as 1.5 feet from full.

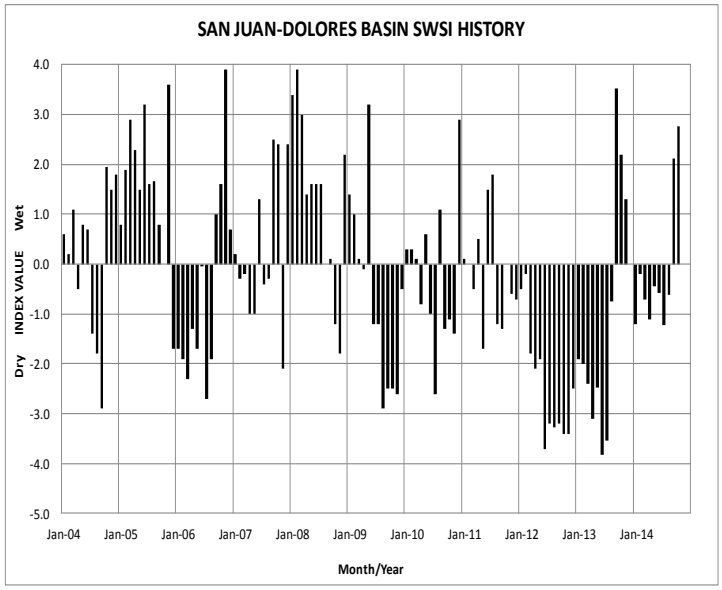
Low temperatures in the Yampa Valley during late October have allowed snowmaking to begin at both Howelsen Hill and Steamboat Ski Resort.

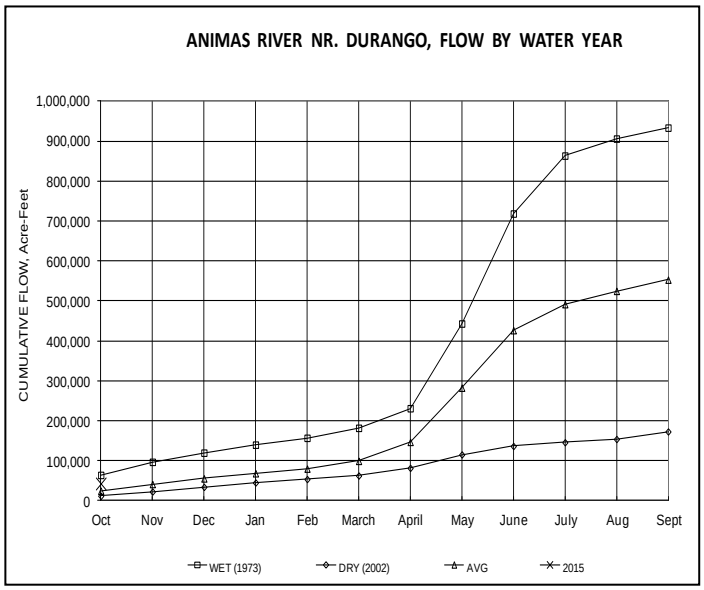
Basinwide Conditions Assessment

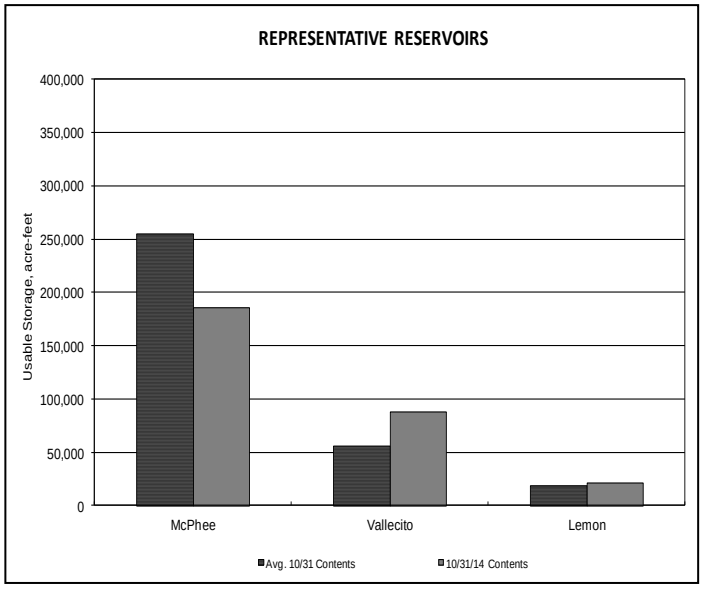
The SWSI value for the month was +2.8. Flow at the Animas River at Durango averaged 523 cfs (125% of average). The flow at the Dolores River at Dolores averaged 183 cfs (134% of average). The La Plata River at Hesperus averaged 18.0 cfs (116% of average). Precipitation in Durango was 0.83 inches for the month, 41% of the 30-year average of 2.00 inches. Precipitation to date in Durango, for the water year, is 0.83 inches, 43% of the 30-year average of 1.93 inches. The average high and low temperatures for the month of October in Durango were 70° and 36°. In comparison, the 30-year average high and low for the month is 66° and 34°. At the end of the month Vallecito Reservoir contained 88,134 acre-feet compared to its average content of 52,049 acre-feet (169% of average). McPhee Reservoir was up to 185,577 acre-feet compared to its average content of 263,798 (70% of average), while Lemon Reservoir was up to 20,930 acre-feet as compared to its average content of 19,196 acre-feet (109% of average).

Outlook

Precipitation (0.83 inches) was below average for October in Durango. There were 90 years out of 120 years of record where there was more precipitation than this year. The flows in the rivers within the basin were above average. The Animas River was above average. There were only 10 out of 104 years of record where the total flow past the Durango stream gauge was more than this year. There were 19 out of 106 years of record where the total flow past the Dolores stream gauge was more than this year and only 9 out of 98 years of record where the total flow past the La Plata River at Hesperus gauge was more than this year.







ADDITIONAL INFORMATION ABOUT COLORADO SWSI CALCULATIONS - Nov-14

The SWSI for each basin is based on probability of nonexceedance (PN) curves for each of three components: reservoir storage, streamflow, and precipitation for the month. The weighting, or importance, for each component in the SWSI calculation varies by basin as shown below.

Summer SWSI Component Weights

Basin	Reservoir Storage	Streamflow	Precipitation (this month only)
South Platte	0.65	0.25	0.1
Arkansas	0.35	0.55	0.1
Rio Grande	0.05	0.9	0.05
Gunnison	0.3	0.6	0.1
Colorado	0.25	0.7	0.05
Yampa/White	0	0.9	0.1
San Juan/Dolores/Animas	0.1	0.85	0.05

The PN curves were developed in the 1980s and are generally based on a period of record of 1950-1979. As reservoir storage (and streamflow for the summer SWSI) is affected by human action, the reservoir storage PN curves may not reflect current practices for reservoir operation. DWR and NRCS are currently considering options for modifying the SWSI to address this and other concerns about its computation.

SWSI BY HUC FROM NRCS NATIONAL WATER & CLIMATE CENTER

Included below is the SWSI generated by the NRCS National Water and Climate Center, based on data as of November 1. The SWSI below is a predictive indicator of surface water availability for the spring and summer water use seasons. It is calculated by combining reservoir storage with forecasts of spring and summer streamflow, based on current snowpack and other hydrologic variables. The scale of -4 to +4 is the same as shown on Page 1.