



WATER AVAILABILITY TASK FORCE MEETING

November 21, 2011

October (Nov. 1) SWSI Report

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Colorado Division of Water Resources

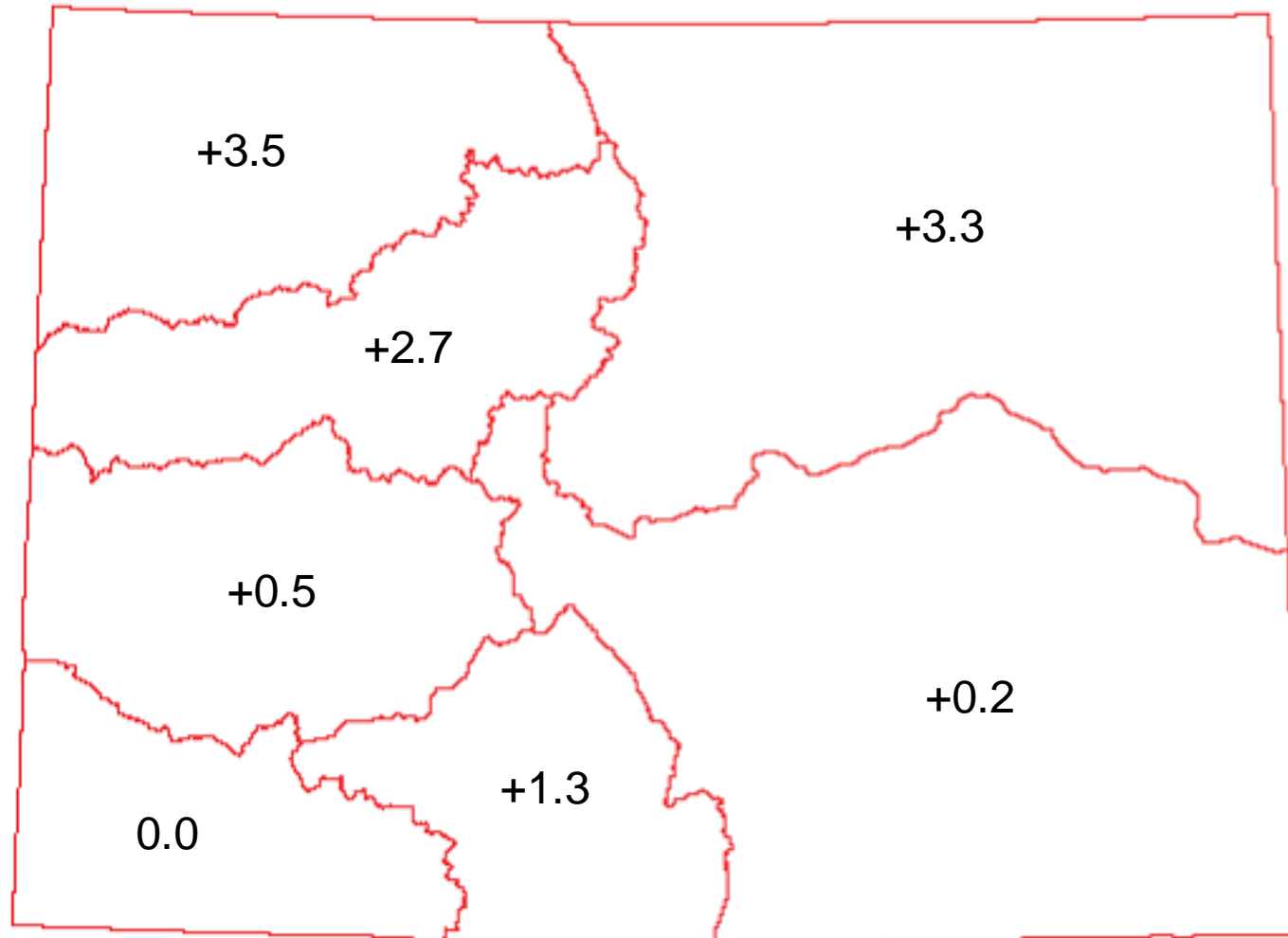


SUMMER SWSI

- Happy New Water Year!
- Still in the summer period for SWSI calculations, which rely on Reservoir Storage (P_{RS}), Stream Flow (P_{SF}), and Precipitation (P_{PCP}).
- The primary component in calculating the summer SWSI value is Stream Flow for all basins except the South Platte, where Reservoir Storage is the primary component.



SURFACE WATER SUPPLY INDEX FOR COLORADO



November 1, 2011



DIVISION 1 – SOUTH PLATTE BASIN

$$SWSI = \frac{(0.25 \times PN_{SF}) + (0.10 \times PN_{PCP}) + (0.65 \times PN_{RS}) - 50}{12}$$

- The SWSI value for the month was +3.3, down 0.2 from last month's value.
 - Reservoir storage was 115% of normal
 - Flow at South Platte near Kersey was above average, while streamflow at the state line (Julesburg) was below average
 - Basinwide precipitation was slightly below average
- Continued abundant water supply conditions
- Significant rainfall event on October 8 and significant snow event on October 25
- Outlook positive for the rest of the calendar year



DIVISION 2 – ARKANSAS BASIN

$$SWSI = \frac{(0.55 \times PN_{SF}) + (0.10 \times PN_{PCP}) + (0.35 \times PN_{RS}) - 50}{12}$$

- The SWSI value for the month was +0.2, up 0.6 from last month's value.
 - Reservoir storage was 101% of normal
 - Flow at Arkansas River near Portland was below average
 - Precipitation was slightly below average
- Storage in John Martin Reservoir should begin to rise as Winter Compact storage began at midnight on October 31



DIVISION 3 – RIO GRANDE BASIN

$$SWSI = \frac{(0.90 \times PN_{SF}) + (0.05 \times PN_{PCP}) + (0.05 \times PN_{RS}) - 50}{12}$$

- The SWSI value for the month was +1.3, up 2.4 from last month's value.
 - Reservoir storage was 88% of normal
 - Flow at Rio Grande – Del Norte was near average
 - Precipitation was below average overall
- Precipitation was above average in the San Juan Mountains and scarce in the Sangre de Christos
- A substantial snowfall event on October 7 and 8 in the mountains produced a welcome start to the winter snowpack and increased local streamflow
- Reservoirs in the basin have reduced outflows and began storing inflow as October came to a close



DIVISION 4 – GUNNISON BASIN

$$\text{SWSI} = \frac{(0.60 \times \text{PN}_{\text{SF}}) + (0.10 \times \text{PN}_{\text{PCP}}) + (0.30 \times \text{PN}_{\text{RS}}) - 50}{12}$$

- The SWSI value for the month was +0.5, up 0.5 from last month's value.
 - Reservoir storage was 101% of normal
 - Flow at Uncompahgre near Ridgeway was above average
 - Precipitation was above average
- Higher elevations received above average precipitation in October, with lower elevations of the Dolores basin receiving below normal precipitation
- Snowpack was well above average through mid-October due to some heavy early storms but decreased to slightly below average by the end of the month due to warmer weather



DIVISION 5 – COLORADO BASIN

$$SWSI = \frac{(0.70 \times PN_{SF}) + (0.05 \times PN_{PCP}) + (0.25 \times PN_{RS}) - 50}{12}$$

- The SWSI value for the month was +2.7, down 0.1 from last month's value.
 - Reservoir storage 105% of normal
 - Flow at Colorado River near Dotsero remained above average
 - Precipitation was slightly below average
- Maintenance work continues at the Shoshone Power Plant
- Snowmaking operations have begun at many area ski resorts



DIVISION 6 – YAMPA/WHITE BASIN

$$\text{SWSI} = \frac{(0.90 \times \text{PN}_{\text{SF}}) + (0.10 \times \text{PN}_{\text{PCP}}) - 50}{12}$$

- The SWSI value for the month was +3.5, up 0.5 from last month's value.
 - Flow at Yampa – Steamboat Springs was above average
 - Precipitation was above average for the month, and for water year 2011
- Snowmaking at both Steamboat Ski Resort and Howelsen Hill began in late October as temperatures dropped below freezing



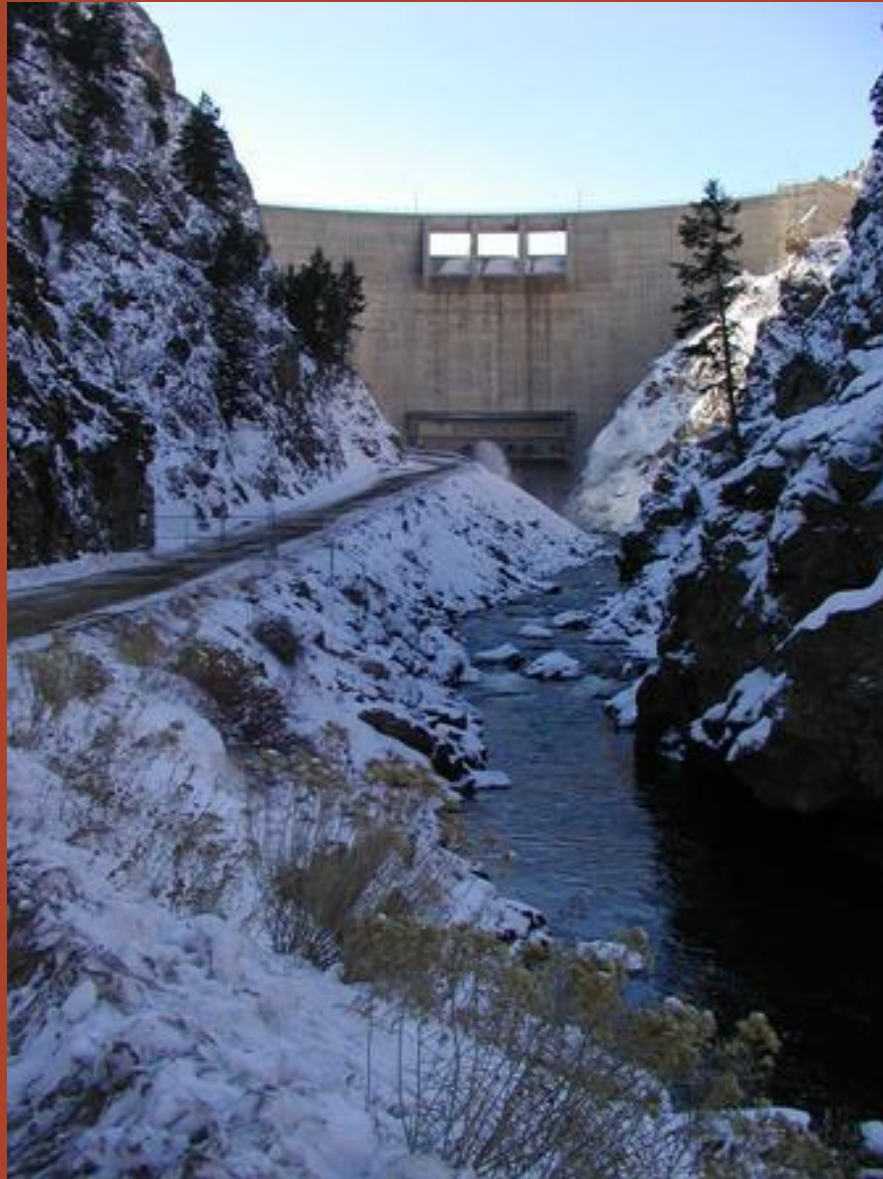
DIVISION 7 – SAN JUAN/DOLORES BASIN

$$\text{SWSI} = \frac{(0.85 \times \text{PN}_{\text{SF}}) + (0.05 \times \text{PN}_{\text{PCP}}) + (0.10 \times \text{PN}_{\text{RS}}) - 50}{12}$$

- The SWSI value for the month was 0.0, up 1.3 from last month's value.
 - Reservoir storage was 111% of normal
 - Flow at Animas River at Durango was below average
 - Precipitation was above average for October
- Durango finally had weather that was cooler and wetter than normal



QUESTIONS?



COLORADO

WATER SUPPLY CONDITIONS UPDATE

FROM THE OFFICE OF THE STATE ENGINEER: COLORADO DIVISION OF WATER RESOURCES
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November 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 stream flow, reservoir storage, and precipitation for the summer period of May through October (June 1 through November 1). 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.

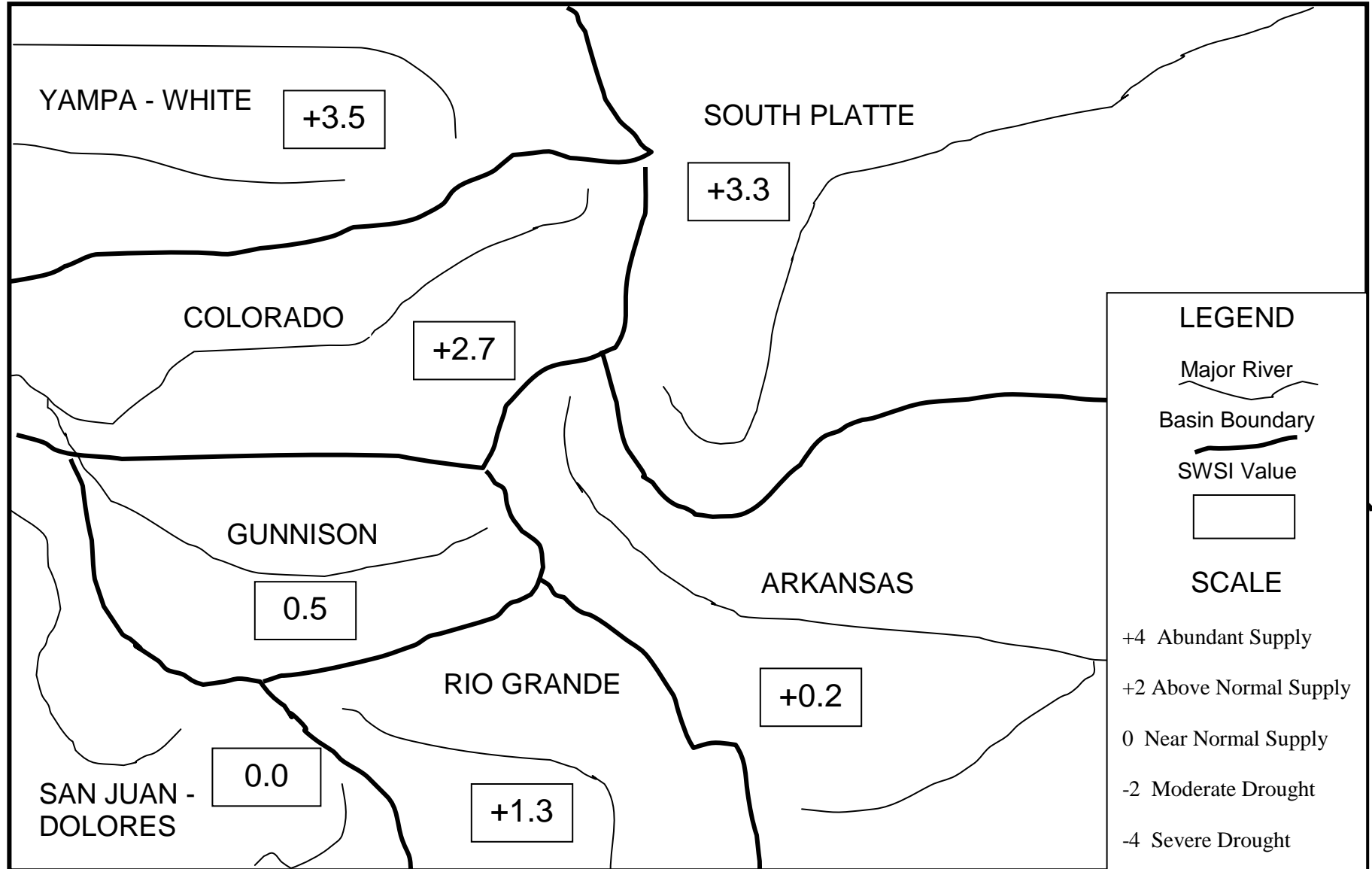
The statewide SWSI values for October (November 1) range from a high value of +3.5 in the Yampa/White Basin to a low value of 0.0 in the San Juan/Dolores Basin. Five of the basins (Arkansas, Rio Grande, Gunnison, Yampa/White, and San Juan/Dolores) experienced a gain from the previous month's value, and two of the basins (South Platte and Colorado) experienced a loss from the previous month's value.

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

<u>Basin</u>	<u>November 1, 2011 SWSI Value</u>	<u>Change From Previous Month</u>	<u>Change From Previous Year</u>
South Platte	+3.3	- 0.2	+0.5
Arkansas	+0.2	+0.6	+0.1
Rio Grande	+1.3	+2.4	+1.7
Gunnison	+0.5	+0.5	+2.3
Colorado	+2.7	- 0.1	+2.7
Yampa/White	+3.5	+0.5	+4.3
San Juan/Dolores	0.0	+1.3	+1.1

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, 2011

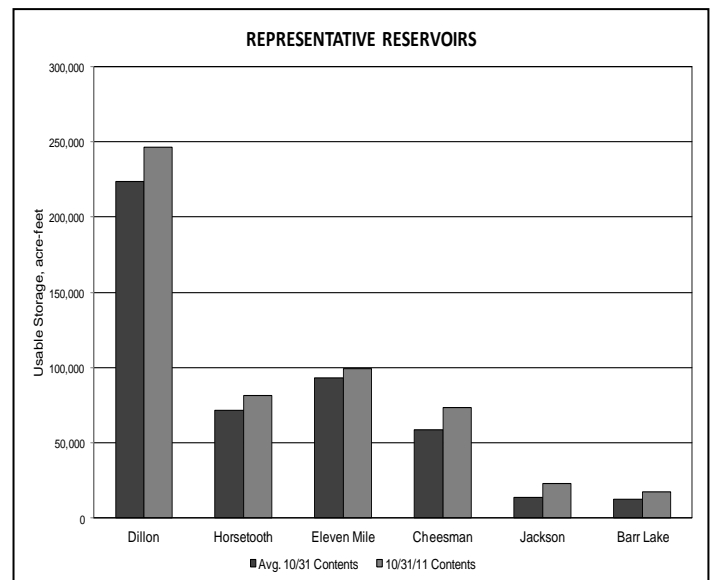
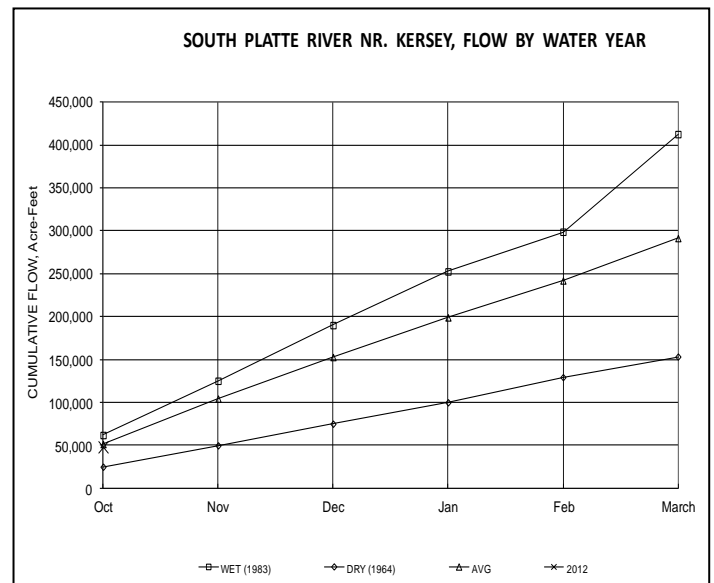
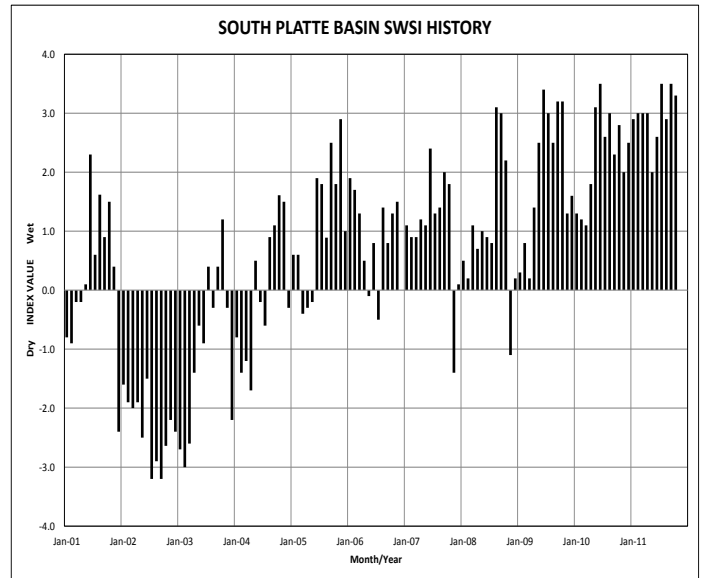
Basinwide Conditions Assessment

The SWSI value for the month was +3.3. Reservoir storage in Dillon, Horsetooth, Eleven Mile, Cheesman, Jackson, and Barr Lake, the major component in this basin in computing the SWSI value, was 115% of normal as of the end of October. 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 94% of capacity. Flow at the gaging station South Platte River near Kersey was 780 cfs, as compared to the long-term average of 670 cfs (109 years of record). Flow at the Colorado/Nebraska state line averaged 227 cfs, as compared to the long-term average of 303 cfs (108 years of record).

Outlook

October continued the abundant water supply situation for much of the basin that characterized most of the 2011 irrigation season. Much of the basin experienced a significant rainfall event on October 8 and significant snow events on October 25 and November 2. The mainstem of the South Platte below metro Denver had gone to free river on September 16 and the mainstem above metro Denver went to free river on October 13 and remained there the rest of the month. Though the many of the front-range tributaries did not go to free river, the calls on them were generally very junior for October. The stream flows at Kersey remained above average (118 % of average for the month) while the flow at Julesburg fell to below average for the first time since May (75% of average for the month). The basin end of October reservoir storage numbers were 118% of the end of October average.

The November–January outlook for the South Platte basin is for above average temperatures and equal chances of above or below average precipitation. However, the December–February outlook is for above average precipitation and equal chances of above or below average temperatures.



Basinwide Conditions Assessment

The SWSI value for the month was +0.2. Flow at the gaging station Arkansas River near Portland was 335 cfs, as compared to the long-term average of 408 cfs. Storage in Turquoise, Twin Lakes, Pueblo, and John Martin reservoirs totaled 101% of normal as of the end of October.

Outlook

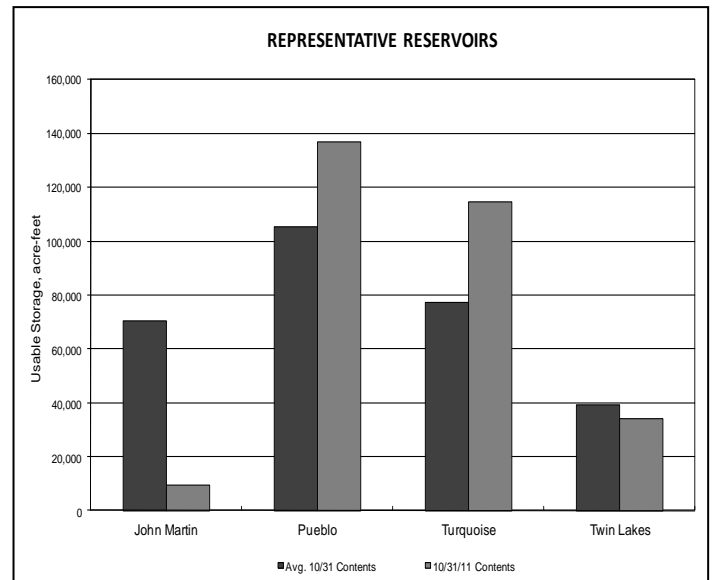
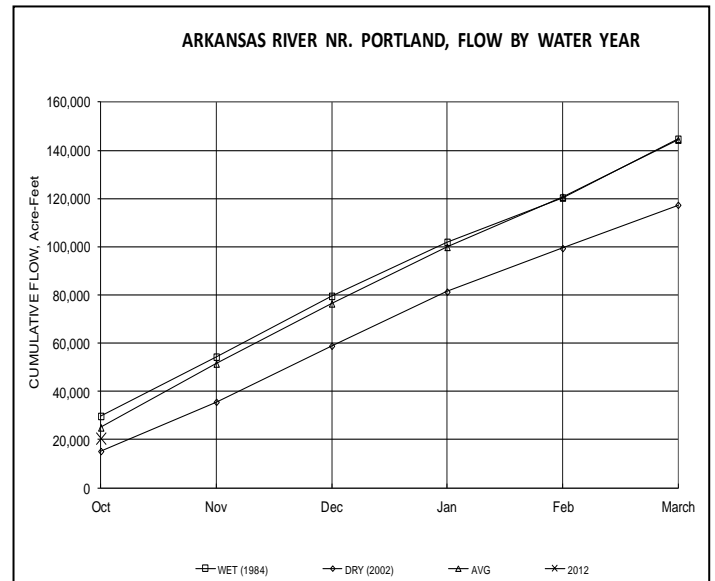
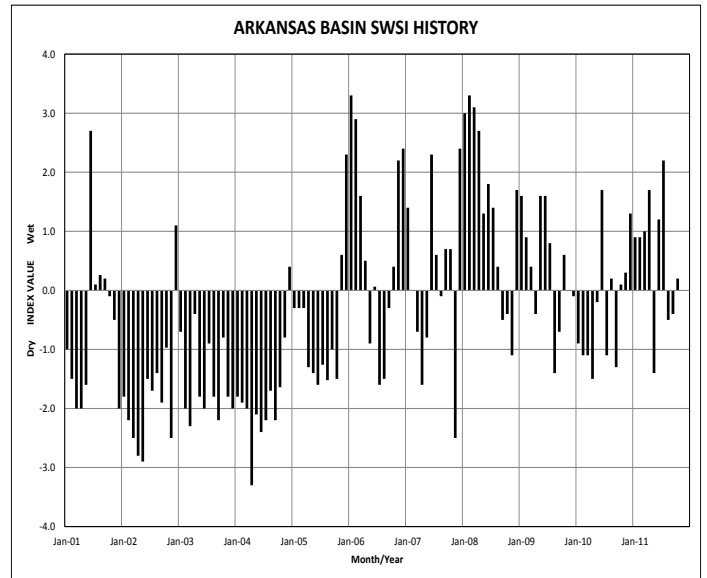
The river call for October began at the Las Animas Consolidated Canal call of 12/3/1884 and ended with an Amity Canal #1 2/21/1887 call.

A meeting of the Winter Water Board of Directors was held on October 21, 2011. Planning for the upcoming storage season which runs from November 15, 2011 through March 14, 2012 was the topic at this meeting.

Winter Compact storage in John Martin Reservoir began at midnight on October 31, 2011. Storage in Trinidad Reservoir began on October 15, 2011.

Administrative/Management Concerns

The "COMPACT RULES GOVERNING IMPROVEMENTS TO SURFACE WATER IRRIGATION SYSTEMS IN THE ARKANSAS RIVER BASIN IN COLORADO" became effective on January 1, 2011. These rules ensure that improvements such as sprinkler systems do not decrease the amount of historic return flows downstream of a ditch system. Those owners who did not comply with the above Rules received orders from the Division Engineer's Office requiring them to either comply or discontinue use of the improvement.



Basinwide Conditions Assessment

The SWSI value for the month was +1.3. Flow at the gaging station Rio Grande near Del Norte averaged only 438 cfs (90% of normal). The Conejos River near Mogote had a mean flow of 208 cfs (179% of normal). Precipitation during October in Alamosa was 0.48 inches, 0.19 inches below normal. A substantial snowfall event on October 7 and 8 in the mountains produced a welcome start to the winter snowpack and increased local streamflow.

The above average stream flow in the Conejos River was due mostly to the release of pre-Compact irrigation rights stored in Platoro Reservoir. Once the storage water was evacuated, Conejos River flow dropped to normal levels.

Streamflow levels in other parts of the upper Rio Grande basin continued to be below normal. This has been the general trend since July.

Storage in Platoro, Rio Grande, and Santa Maria reservoirs totaled 88% of normal as of the end of October.

Outlook

Weather forecasts are calling for above normal temperatures the next several months, but are inconclusive on the expected precipitation. A glance at the snowpack conditions during the first week of November indicates snowpack in most of the upper Rio Grande basin is slightly above average.

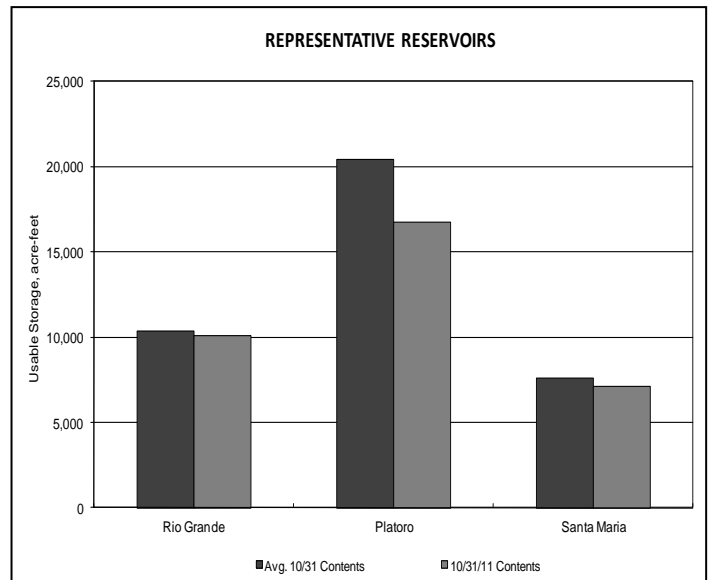
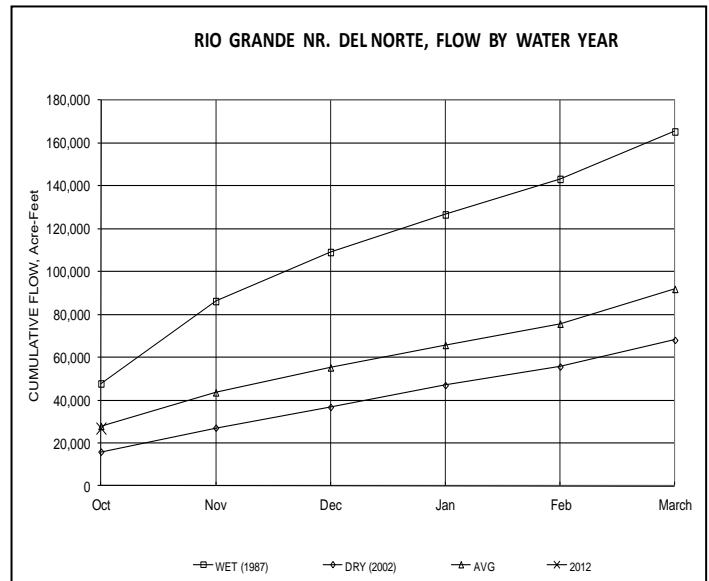
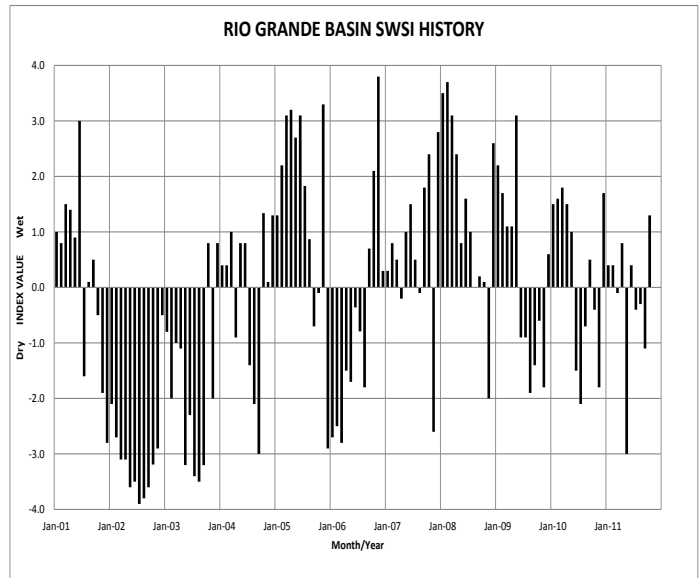
Administrative/Management Concerns

Reservoirs in the basin reduced outflows and began storing inflow as October came to a close. The summer irrigation demand significantly decreased the storage in most of the basin's reservoirs.

Colorado may slightly under-deliver on the amount required to meet the Rio Grande Compact delivery requirement to New Mexico and Texas during 2011. The final, precise credit status won't be determined until February.

Public Use Impacts

Mild weather conditions allowed those water users in priority to continue irrigation through the end of October. The end of the irrigation season was officially set for November 1st in all sub-drainages of Water Division No. 3 with the exception of the Conejos River, where the irrigation season ended on October 20.



Basinwide Conditions Assessment

The SWSI value for the month was +0.5. Flow at the gaging station Uncompahgre River near Ridgeway was 99.8 cfs, as compared to the long-term average of 89.8 cfs. Storage in Taylor Park, Crawford, and Fruitland reservoirs totaled 101% of normal as of the end of October.

The high country in the Gunnison and San Miguel basins began the 2011 water year with above average precipitation in October. In fact, precipitation in the higher elevations in the basin (as reported by the Colorado Basin River Forecast Center) was between 110 and 129 percent of average. Lower areas did not receive as much precipitation during October with lower elevations in the Gunnison receiving between 100 to 109 percent of average and lower areas of the Dolores receiving below normal at 70 to 89 percent. Streamflows continued generally near their averages throughout the month.

Snowpack in October was well above average through the middle of the month due to some heavy early storms, but due to warmer weather, decreased during the end of the month to slightly below average. Since the end of October, however, snowpack has increased to between 105 and 130 percent of average at the middle of November.

Outlook

Current Climate Prediction Center forecasts include a high probability of above average temperatures during the next three months, but due to the forecast uncertainty that the La Niña conditions in the Pacific cause for central Colorado, the Gunnison is predicted to be south of the above average precipitation and north of the below average precipitation. Consequently, they are currently predicting equal chances of below or above average precipitation in the Gunnison basin. Snowpack conditions during this time of year are rarely a good predictor of seasonal snowpack, however, water users are hoping that the weather patterns continue and produce another average to above average year.

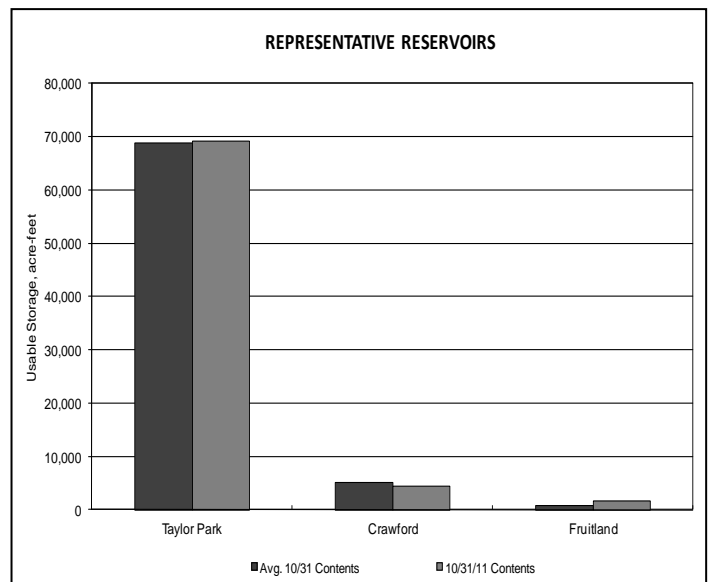
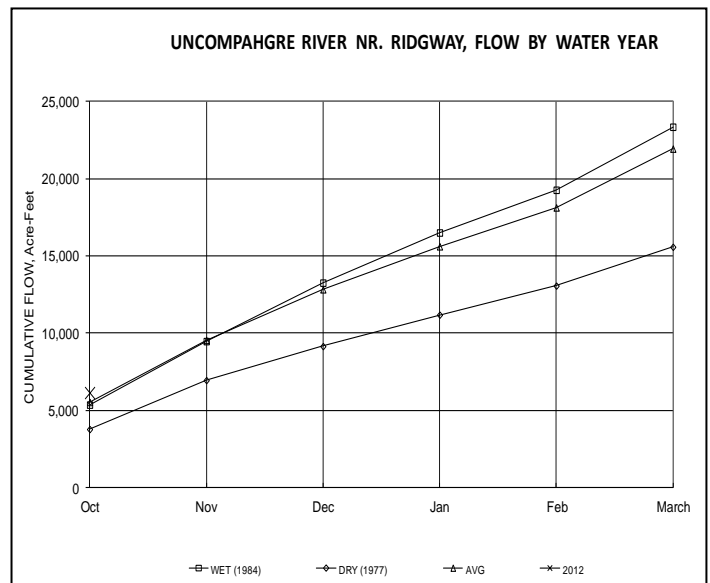
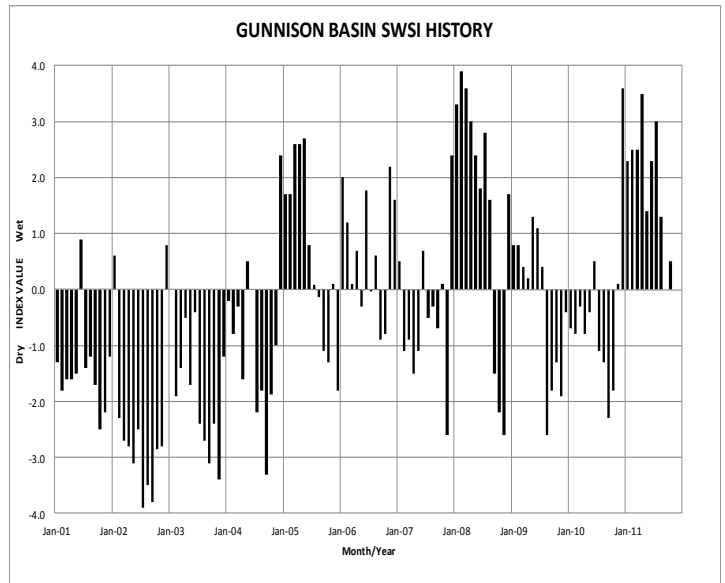
October rain in the lower elevations and the cycle of snow and melt in the high country increased the soil moisture during October, which should boost spring runoff because of the reduced amount of snowmelt that will infiltrate into the soil.

Administrative/Management Concerns

The Uncompahgre Valley Water Users Association closed the Gunnison tunnel on November 1st and most of their diversions from the Uncompahgre River, which rely on water delivered from the Gunnison, were off a few days later. Most reservoirs remain at least at average storage levels for this time of year. Consequently, barring a below average snowpack, most areas in the basins should have adequate storage in 2011.

Public Use Impacts

Releases from Crystal Dam and the resulting flow in the Gunnison Gorge were reduced to the winter target of 600 cfs in the first week of October. The Gunnison River Basin economy relies heavily on hunting, especially during the height of the rifle seasons in mid to late October. During the beginning of October, the weather was generally cooler than average and included a few storms in the high country that moved game down prior to the first rifle season.



Basinwide Conditions Assessment

The SWSI value for the month was +2.7. Flow at the gaging station Colorado River near Dotsero was 1,768 cfs, as compared to the long-term average of 1,310 cfs. Storage in Green Mountain, Ruedi, and Williams Fork reservoirs totaled 105% of normal as of the end of October.

Outlook

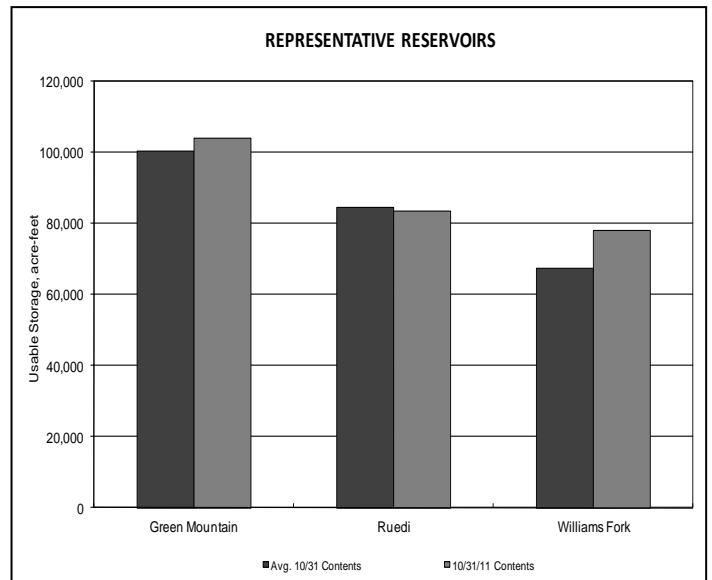
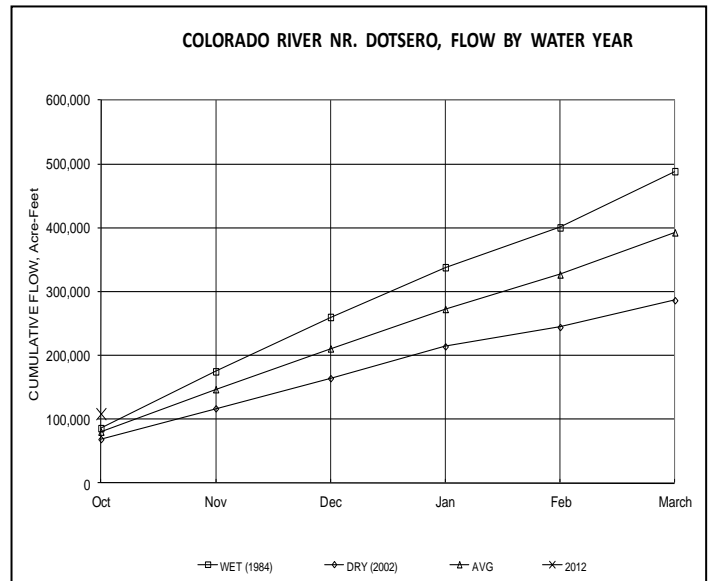
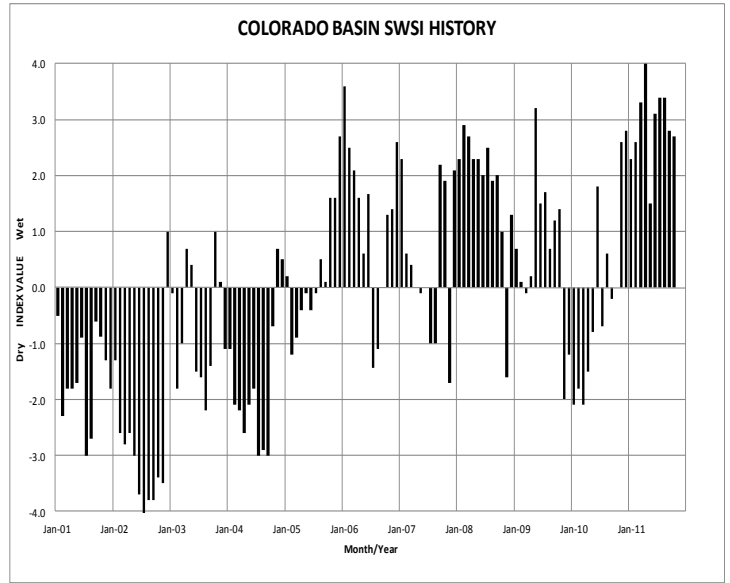
Basin wide river flows have continued a gradually decline to near average where they will likely remain through November.

Administrative/Management Concerns

Coordinated Reservoir operations to supplement endangered fish target flows in the 15-mile reach have ended. Green Mountain Reservoir releases have been incrementally ramped down to less than half their volume in early October. Ongoing maintenance work continues at Shoshone Power Plant, which anticipated returning to full operation by the end of the calendar year. Ruedi Reservoir releases will remain below 100 cfs throughout November. There is no call from grand valley irrigators.

Public Use Impacts

Snow making operations began at many of the area ski resorts. Upper Blue Reservoir will begin the seasonal 100 acre foot delivery at a rate of 5 cfs for snow making operations a Breckenridge Ski Resort on November 12th. This is part of a Colorado Springs Utilities substitution agreement which exchanges CSU water from Wolford Mountain Reservoir.



Basinwide Conditions Assessment

The SWSI value for the month was +3.5. Flow at the gaging station Yampa River at Steamboat was 212 cfs, as compared to the long-term average of 137 cfs.

October precipitation was 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 112% of average for the combined Yampa, White, and North Platte River basins. Total precipitation for the water year as a percent of average at the end of October was 112%.

The snow water equivalent (SWE) as of October 31, 2011 was 72% of average for the North Platte River basin and 59% of average for the Yampa and White River basins. It should be noted that these are early season numbers and may not provide a valid measure of conditions.

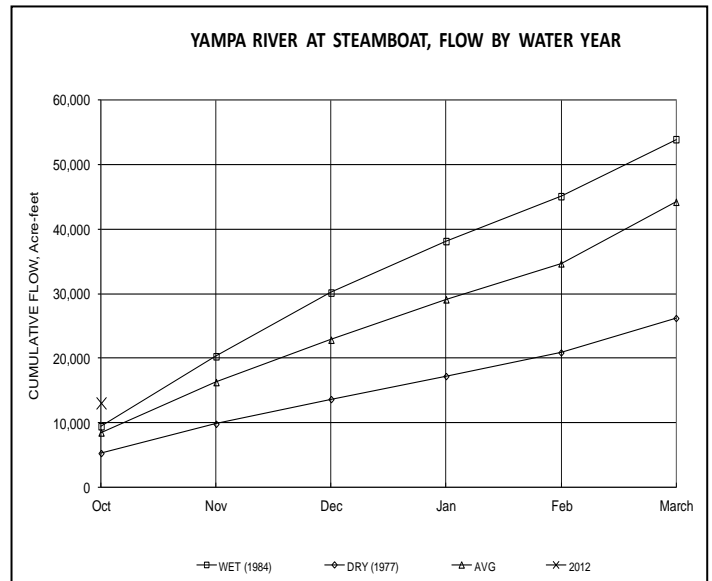
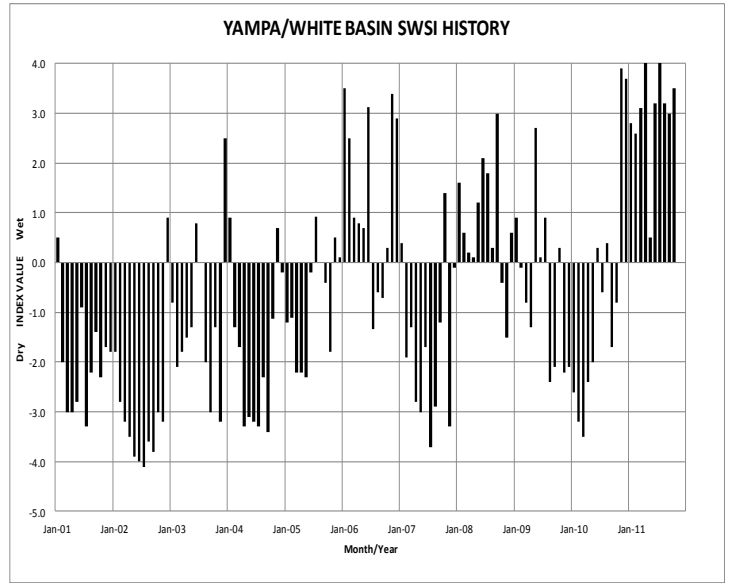
Due to cold temperatures, seasonal Division 6 stream gages were closed for the winter the last week of October.

Outlook

As of October 31st Fish Creek Reservoir was storing 2,838 AF, which is equal to 68.1% of capacity. Fish Creek Reservoir is used primarily for municipal purposes. Yamcolo Reservoir was storing 8,298 AF at the end of October 2011. The capacity of Yamcolo Reservoir is 9,580 AF. On October 31st Elkhead Creek Reservoir was storing 23,347 AF. The capacity of Elkhead Creek Reservoir is 24,778 AF. On September 30th, 2011, Stagecoach Reservoir was storing 31,100 AF and at 93.4% of capacity.

Public Use Impacts

Boat ramps at Stagecoach Reservoir are closed for the season. Hand launched boats are allowed until ice conditions exist. Fishing has picked up for trout and pike. Stocking is ongoing. There is still a high concentration of algae on the lake and so fishing deeper waters may be best. Steamboat Lake is now closed to trailered vessels. Fishing at Steamboat Lake has been slower but steady lately. Ice is beginning to form in the coves, but nothing significant yet. Steamboat Ski Resort will open on November 23, 2010. Snowmaking at both the resort and Howelsen Hill began in late October as temperatures dropped below freezing.



Basinwide Conditions Assessment

The SWSI value for the month was 0.0. Flow at the Animas River at Durango averaged 312 cfs (74% of average). The flow at the Dolores River at Dolores averaged 126 cfs (93% of average). The La Plata River at Hesperus averaged 11 cfs (70% of average).

Precipitation in Durango was 3.27 inches for the month, 163% of the 30-year average of 2.01 inches. Precipitation to date in Durango, for the water year, is 3.27 inches, 168% of the 30-year average of 1.94 inches. The average high and low temperatures for the month of October in Durango were 64° and 33°. In comparison, the 30-year average high and low for the month is 65° and 34°.

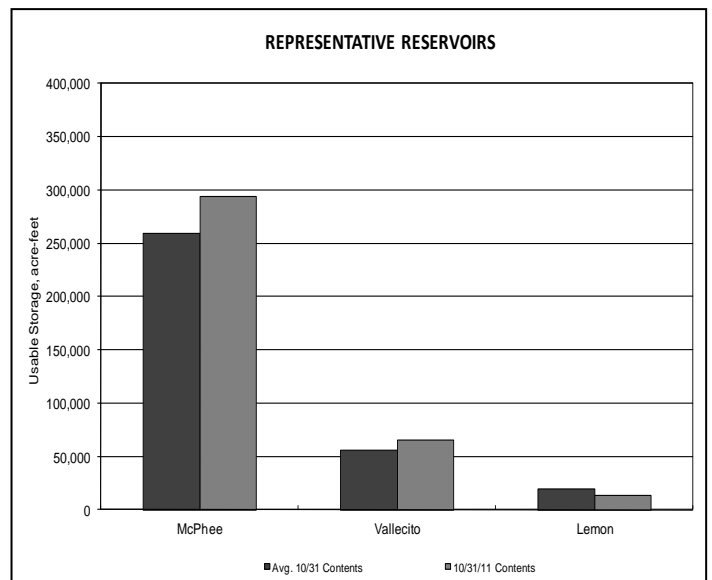
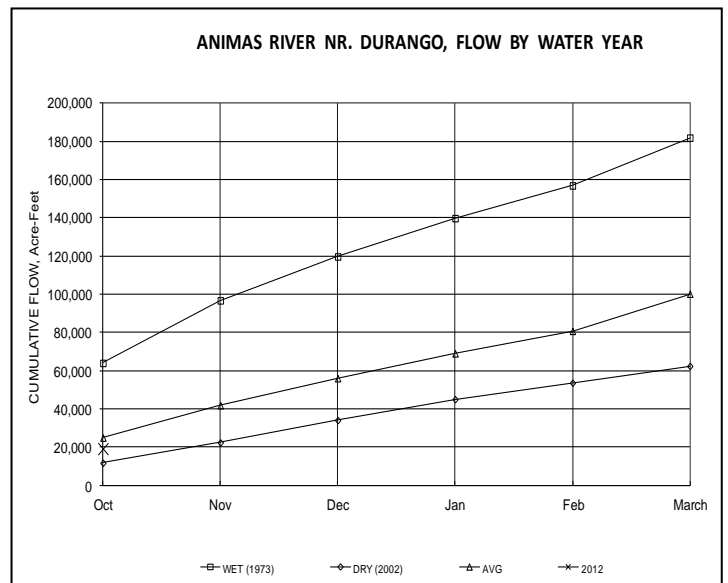
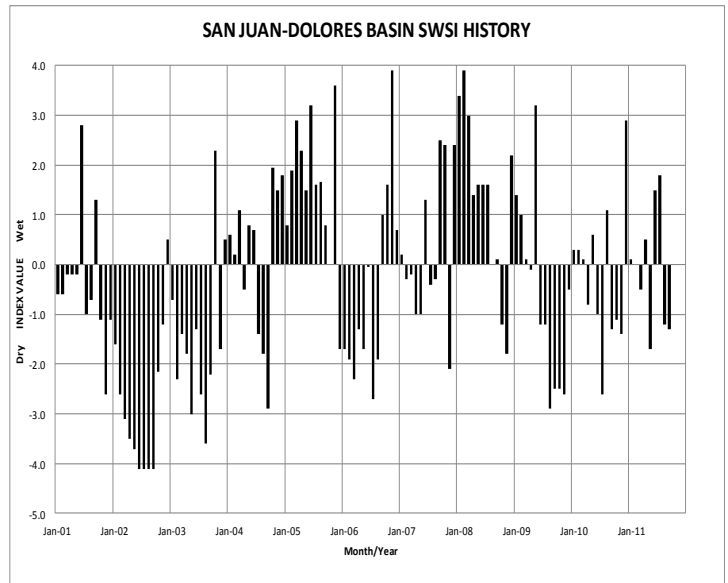
At the end of the month Vallecito Reservoir contained 65,320 acre-feet compared to its average content of 51,701 acre-feet (126% of average). McPhee Reservoir was up to 293,538 acre-feet compared to its average content of 260,447 (113% of average), while Lemon Reservoir was up to 13,620 acre-feet as compared to its average content of 19,335 acre-feet (70% of average).

Outlook

Precipitation (3.27-inches) was above average for the month of October in Durango. There are 23 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 replace the water that was used in the reservoirs. On October 31st the NRCS SNOTEL sites reported an average snow-water equivalent within the basin at 70%. The flow on the Dolores River at Dolores was near its average for this time of year but only because releases from Groundhog Reservoir kept the flows higher. The flows at the La Plata River at Hesperus remained low for the month. There are 43 years out of 95 years of record where there was more at Hesperus than this year.

Administrative/Management Concerns

The LaPlata River compact call started on April 7, 2011 and will remain on call for the rest of the season.



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