
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 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.

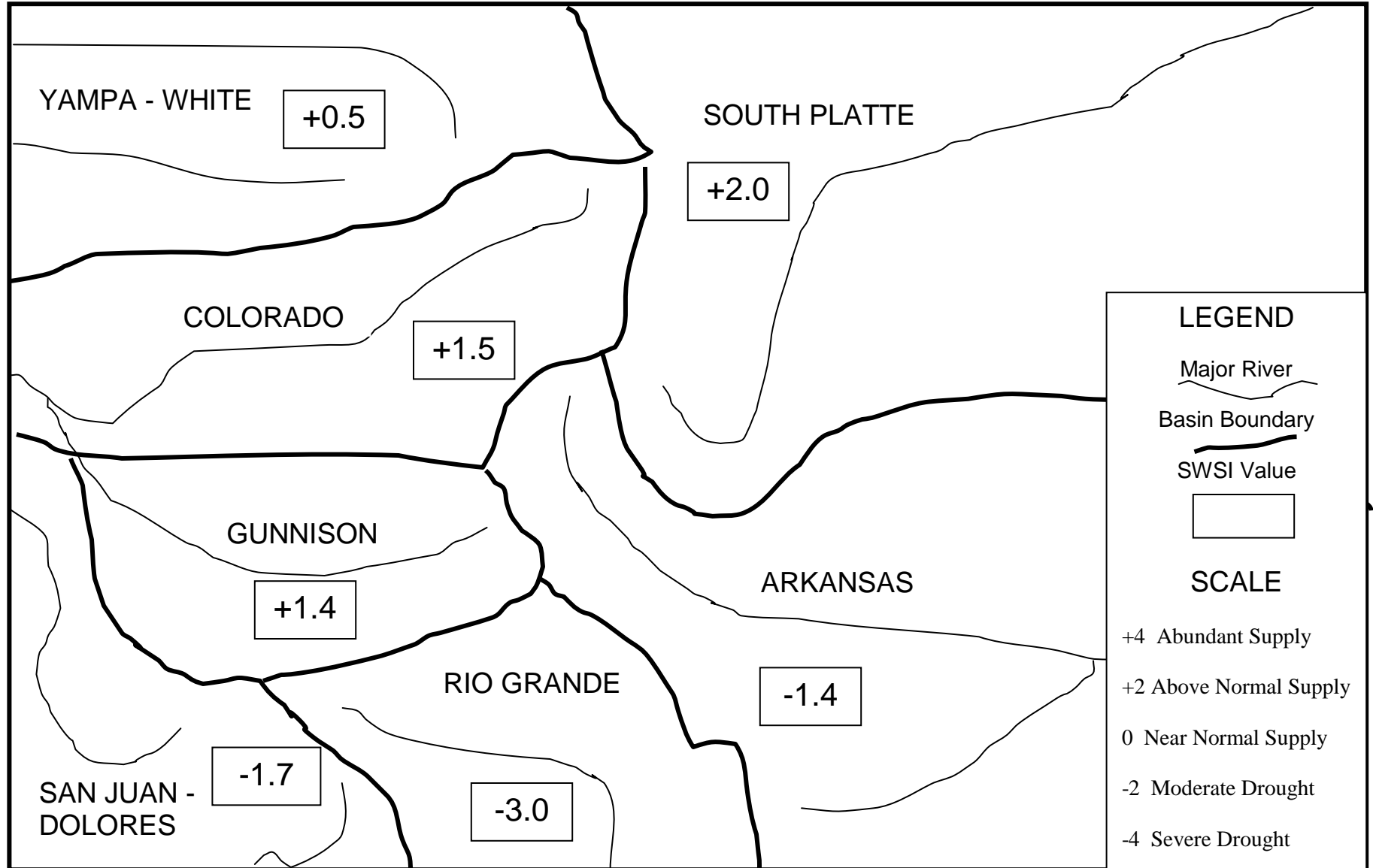
The statewide SWSI values for May (June 1) range from a high value of +2.0 in the South Platte Basin to a low value of -3.0 in the Rio Grande Basin. All seven of the basins (South Platte, Arkansas, Rio Grande, Gunnison, Colorado, Yampa/White, and San Juan/Dolores) experienced a loss from the previous month's value. This is likely due to a combination of the delayed runoff most basins are experiencing this year, and many reservoirs being lowered to make space for the anticipated runoff.

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

<u>Basin</u>	<u>June 1, 2011 SWSI Value</u>	<u>Change From Previous Month</u>	<u>Change From Previous Year</u>
South Platte	+2.0	- 1.0	- 1.1
Arkansas	- 1.4	- 3.1	- 1.2
Rio Grande	-3.0	- 3.8	- 4.0
Gunnison	+1.4	- 2.1	+1.8
Colorado	+1.5	- 2.5	+2.3
Yampa/White	+0.5	- 3.6	+2.5
San Juan/Dolores	-1.7	- 2.2	- 2.3

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, 2011

Basinwide Conditions Assessment

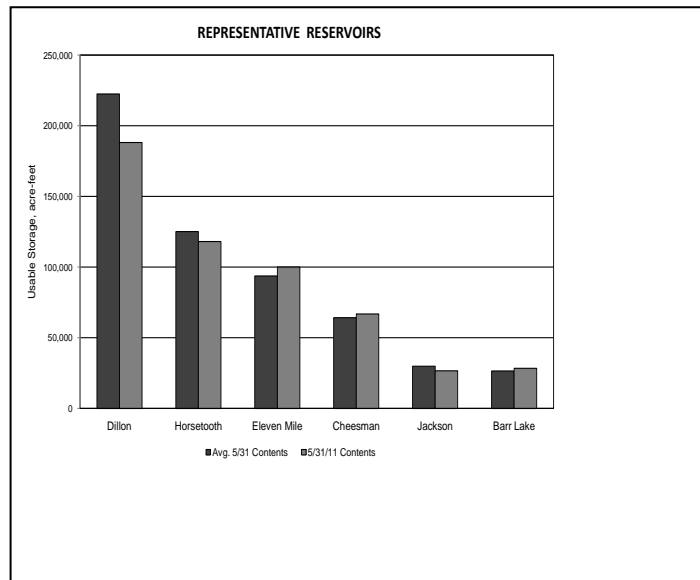
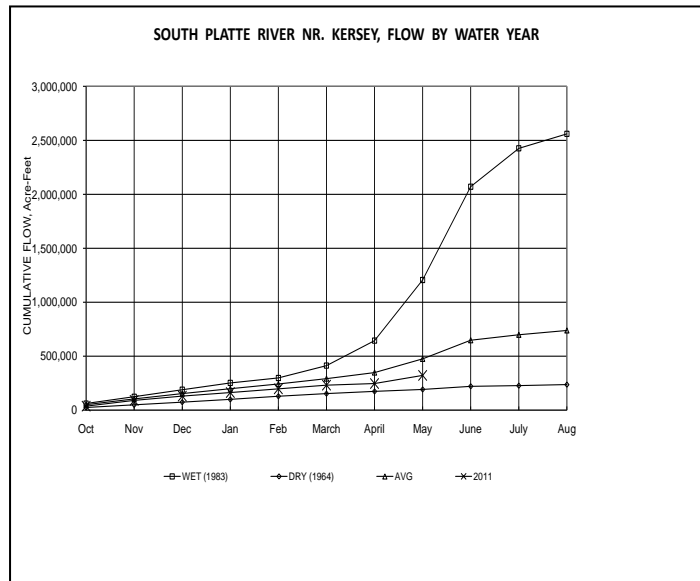
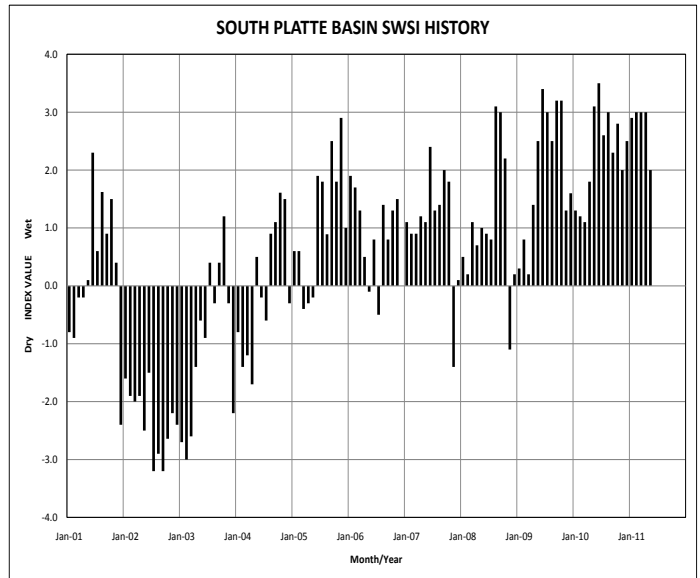
The SWSI value for the month was +2.0. Reservoir storage in Dillon, Horsetooth, Eleven Mile, Cheesman, Jackson, and Barr Lake, the major component in this basin in computing the SWSI value, was 94% of normal as of the end of May. Cumulative storage in the major plains reservoirs (Julesburg, North Sterling, and Prewitt) is at 99% of capacity. Cumulative storage in the major upper-basin reservoirs (Cheesman, Eleven Mile, Spinney, and Antero) is at 90% of capacity. Flow at the gaging station South Platte River near Kersey was 1,224 cfs, as compared to the long-term average of 1,758 cfs. Flow at the Colorado/Nebraska state line averaged 550 cfs, as compared to the long-term average of 1,015 cfs.

Outlook

May turned out to be quite a topsy-turvy month in the South Platte basin. The warm dry conditions from April continued for the first part of the month, but then gave way to extremely wet conditions (May 2011 was the 8th wettest ever recorded in Denver). The basin also suffered somewhat of a north-south divide roughly along I70 with conditions generally being wetter north of I70 and dryer south of I70. This is further shown by the call for the mainstem above metro Denver for virtually the entire month, but the mainstem downstream of Denver going to free river for about the last 1/3 of the month, even though the flows at the key index mainstem gage near Kersey were below average for the month as a whole. However, reservoir storage remained good with an end of May value of 97% of average for the basin as a whole.

The extremely large snowpack at the higher elevations continued to raise major flooding concerns, especially in the Cache la Poudre and Big Thompson River basins. Rather than declining as is normal in May, the snowpack continued to increase at most locations throughout May. This pushed the South Platte basin snowpack to 332 % of average for June 1.

The weather outlook for June through September is for a high probability of warmer than normal temperatures but equal chances of wet or dry conditions for all but the extreme northeastern part of the South Platte basin.



Basinwide Conditions Assessment

The SWSI value for the month was -1.4. Flow at the gaging station Arkansas River near Portland was 701 cfs, as compared to the long-term average of 1,175 cfs. Storage in Turquoise, Twin Lakes, Pueblo, and John Martin reservoirs totaled 83% of normal as of the end of May.

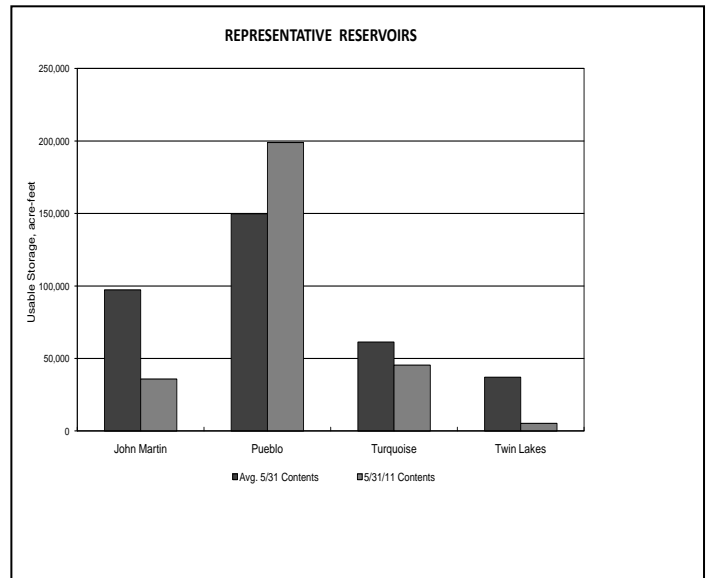
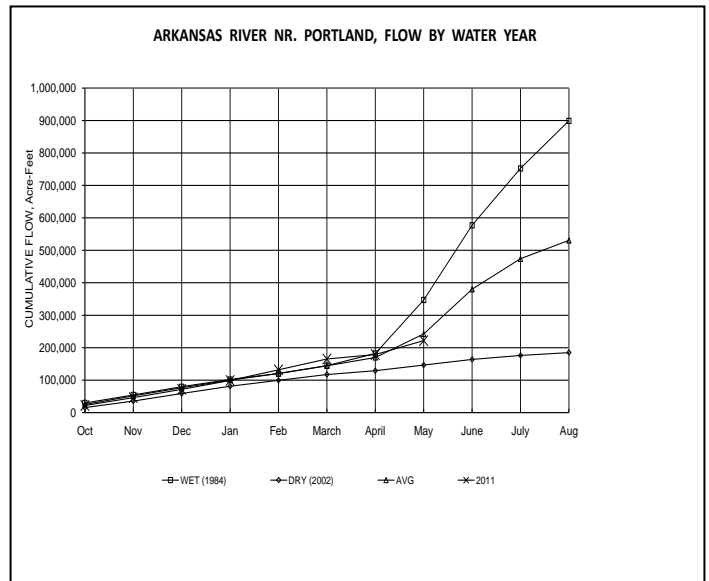
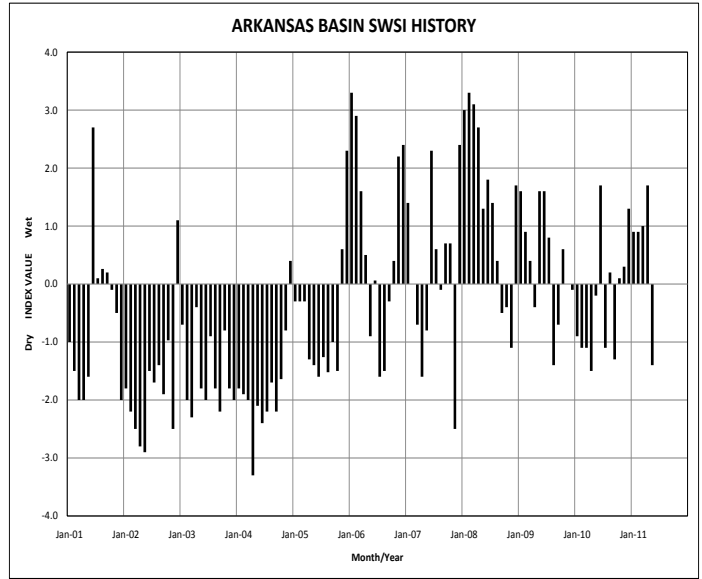
Outlook

Unlike May of 2010 when the Arkansas River flows appeared to experience a near peak flow by the end of May (Arkansas River at Portland peaked at just below 4,000 cfs in late May 2010), runoff in 2011 has been lethargic and river calls have stayed very senior. A significant snowpack in the upper basin, and the prospect of potentially large transmountain imports from the Fryingpan-Arkansas Project, cause farmers to have hope of a good year, but current stream flow conditions are alarming to those who are making planting decisions. Irrigation well pumping has been occurring at the highest levels in over a decade for the period March through May.

The river call at the beginning of the month was Fort Lyon Canal's #1 water right (4/15/1884) with the Lamar Canal's #2 water right (11/4/1886) below John Martin Reservoir being the call for most of May. The river call became slightly more junior towards the latter part of May with the Catlin Canal (12/3/1884) above John Martin Reservoir and the Amity Canal (2/21/1887) below John Martin Reservoir being the calling rights the last few days of the month.

Administrative/Management Concerns

Supplies have been short and river calls very senior on the southern tributaries (Purgatoire River, Cucharas River, Huerfano River and St. Charles River) as well as on Fountain Creek. Calls on these tributaries are significantly senior to Arkansas River mainstem calls (1866 to 1870). Reservoir stored water in John Martin Reservoir for irrigation use has been largely exhausted except for a few ditches. Kansas has not yet called for the release of approximately 10,500 acre-feet of supply they hold in John Martin Reservoir for irrigation and have not called for release of the well augmentation water held in the Offset Account in John Martin Reservoir (approximately 8,500 acre-feet). Release of this pool of nearly 20,000 acre-feet will significantly shrink the John Martin Reservoir pool which contained nearly 36,000 acre-feet at the end of May.



Basinwide Conditions Assessment

The SWSI value for the month was -3.0. Storage in Platoro, Rio Grande, and Santa Maria reservoirs totaled 85% of normal as of the end of May.

Flow at the gaging station Rio Grande near Del Norte averaged 1,564 cfs (63% of normal). The Conejos River near Mogote had a mean flow of 485 cfs (44% of normal). Precipitation in Alamosa was a paltry 0.18 inches during May, 0.52 inches below normal. Temperatures in the San Luis Valley were generally below normal during May.

The cool temperatures and lack of mid-elevation snowpack resulted in a very late start to the 2011 run-off. Stream flow throughout the basin was below average until the end of the month. But the warm Memorial Day weekend brought all streams with high elevation snowpack up to normal level or better. Flooding will not be a concern this summer unless a major rainstorm occurs.

Areas that have been irrigated generally look good, but lack of precipitation the past three months has left the Valley dry and dusty. Windy conditions persisted throughout the month.

Outlook

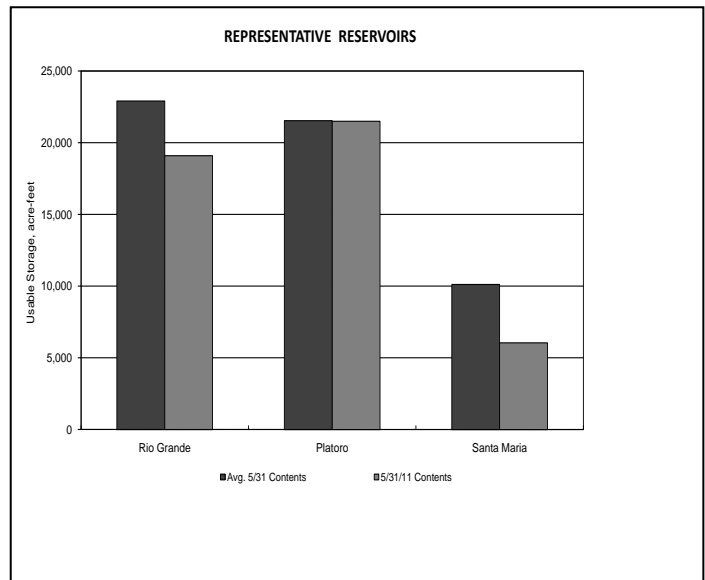
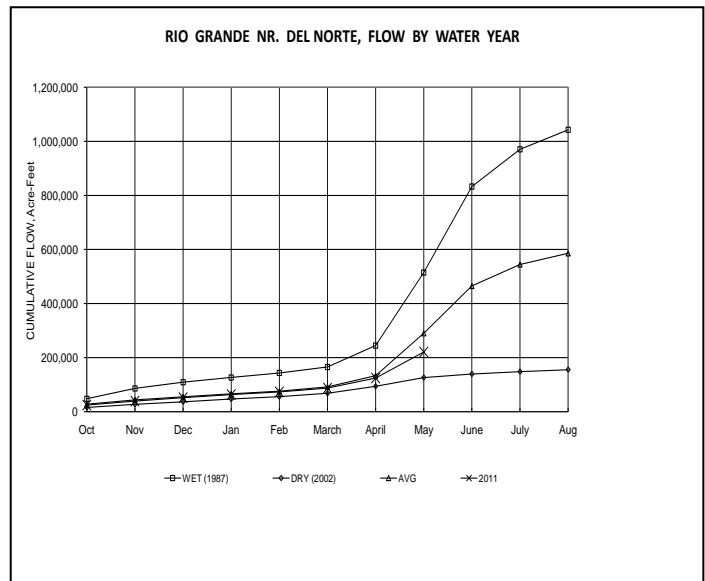
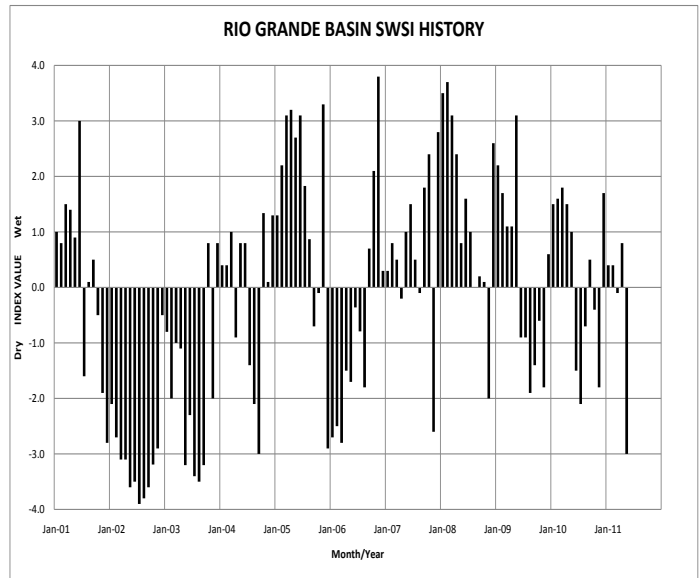
The June 1st NRCS stream flow forecasts were predicting a well-below average runoff for streams throughout the Rio Grande Basin. The Sangre de Cristo Range creeks are in very poor condition with forecasted runoffs of 28 to 40% of normal. Forecasted runoff for Saguache Creek, in the northern part of the Valley, is very optimistic at 85% of normal. Actual streamflow conditions thus far in that area indicate flows well below that forecast. The two major rivers in the basin, the Rio Grande (82%) and the Conejos River (75%) are in much better shape than other streams due to the amount of high-elevation drainage area.

Administrative/Management Concerns

Due to the expected below normal runoff, Colorado should have no problem meeting the delivery requirements to New Mexico and Texas pursuant to the Rio Grande Compact. Curtailments of 10 to 15% on the Conejos River, the Rio Grande, and their tributaries should be enough to meet water delivery requirements to the state line.

Public Use Impacts

Normal farming and ranching operations were in full swing during May. However, wind and the lack of precipitation made the need for irrigation even higher. Groundwater levels in the basin continue to decline as massive pumping from the aquifers is needed to irrigate crop and pasture land.



Basinwide Conditions Assessment

The SWSI value for the month was +1.4. Flow at the gaging station Uncompahgre River near Ridgeway was 272 cfs, as compared to the long-term average of 345 cfs. Storage in Taylor Park, Crawford, and Fruitland reservoirs totaled 90% of normal as of the end of May. May storms that brought more snow and colder than average temperatures to the Gunnison basin have resulted in well above average snowpack as of June 1st. In fact, the Gunnison Basin snowpack remained at 65% of the seasonal total (one and a half months after the average peak) and 230% of normal for the date.

Outlook

April to July runoff predictions declined slightly (5%) in May, but are still above average with a median prediction for streams in the Gunnison basin of 125% of the 30 year average. Although northern areas of the basin continue to have predictions higher than the southern, areas such as the Uncompahgre above Ridgeway caught up some with the storms in May and are now forecast to have 117% of the average April to July runoff. When the lowest forecast runoff is 100% (Tomichi Creek) you can understand that 2011 is shaping up to be a good water year throughout the Gunnison basin, especially considering the current weather patterns that have prolonged the runoff. Runoff predictions for the San Miguel River continue to be less than the Gunnison, but increased in May to 93%.

The National Climate Center currently predicts above average temperatures and average precipitation for the June through August period.

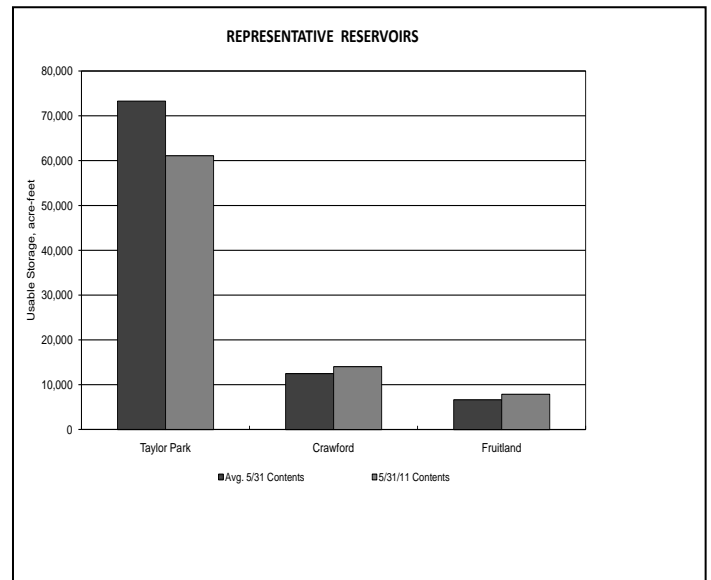
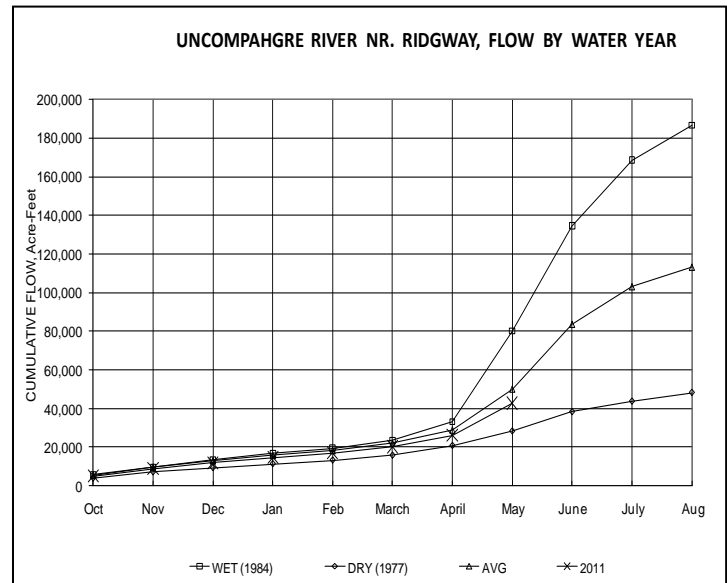
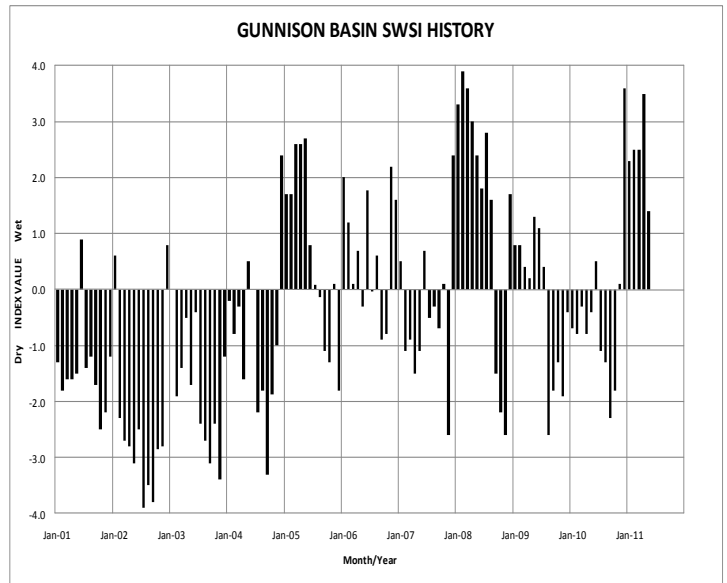
Administrative/Management Concerns

As with the rest of the state, runoff has been delayed this year due to unseasonably cool (-6 degrees from average) and unsettled weather in May. Although it is good that the runoff is occurring slowly it has frustrated water commissioners in some areas because the roller coaster pattern has been that stream flows increase, satisfying certain rights and then decrease during storm periods, requiring many of those rights to be curtailed. In fact, areas such as Kannah Creek did not reach free river conditions until very late in May, which is well behind the average.

The USBR decreased the forecast for April to July inflow into Blue Mesa by 5% to 895,000 acre-feet. The peak one day release from Crystal Dam was 8,000 cfs on June 8th. This peak produced around 7,000 cfs in the Black Canyon, exceeding the 6,800 cfs prescribed by the Black Canyon Federal Reserve water right. Many reservoirs, such as Ridgeway and Taylor Park, prepared for the heavy runoff by dropping reservoir levels more than normal and delaying the fill period, which has caused some concern from water users, however, it appears that most basin reservoirs will fill to capacity this year.

Public Use Impacts

The 2011 rafting/boating season appears to be a good one with prolonged high runoff on many streams that could continue well into July. Minor flooding occurred in some areas such as Delta, where the peak was around 14,000 cfs. The cooler temperatures, however, prevented additional flooding that could have occurred. Flooding potential still exists if the temperatures were to increase dramatically for a long period, but so far it looks like the Gunnison basin may have dodged that bullet this year as well.



Basinwide Conditions Assessment

The SWSI value for the month was +1.5. Flow at the gaging station Colorado River near Dotsero was 7,499 cfs, as compared to the long-term average of 4,442 cfs. Storage in Green Mountain, Ruedi, and Williams Fork reservoirs totaled 99% of normal as of the end of May.

Outlook

Basin wide river flows will continue to be significantly above average in June with increased run-off. Unsettled conditions which continued throughout May has held runoff in check.

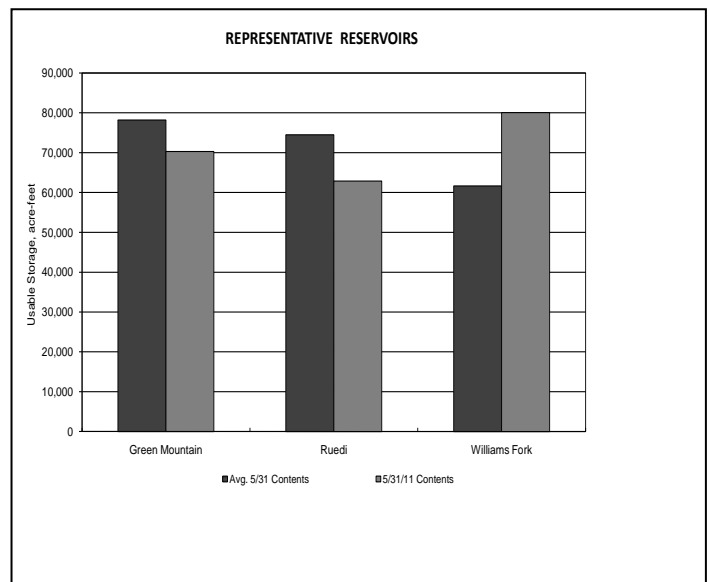
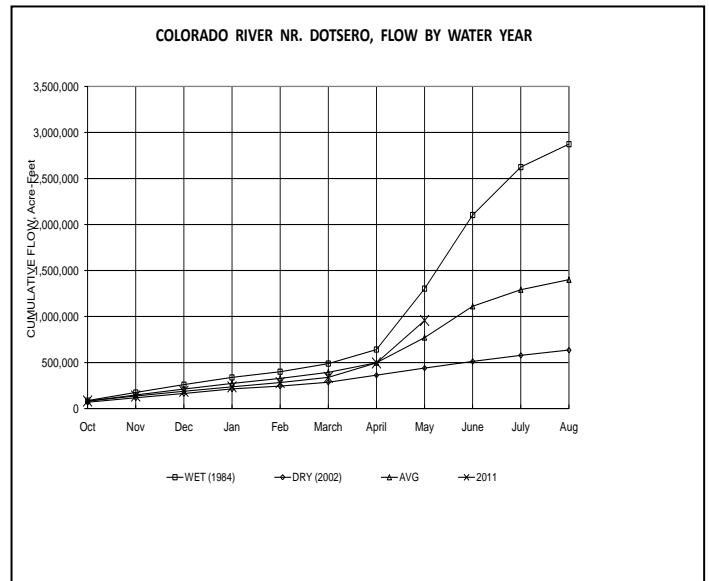
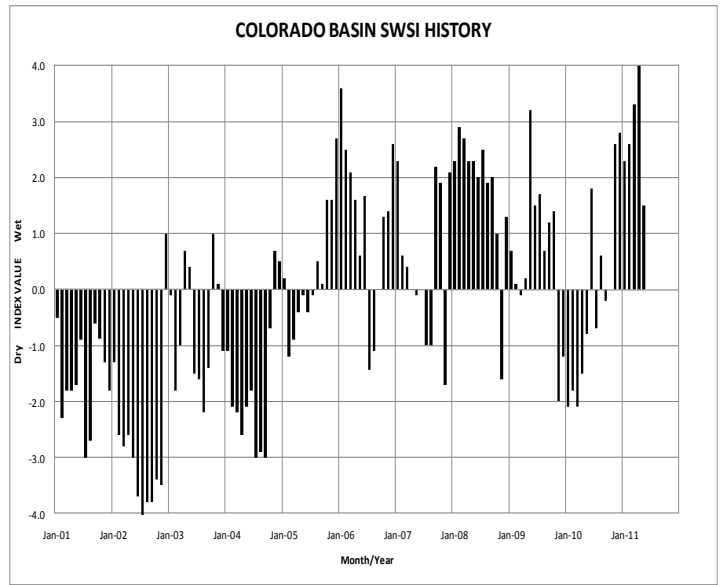
Administrative/Management Concerns

Lake Granby reservoir fill is accelerating with increasing runoff and will begin spilling in mid-June for the first time since Water Year 2000. Contrary to previous reports, Willow Creek Pump canal will likely begin operation in late June to contain Willow Creek Reservoir outflows below 1300 cfs; which will further accelerate Lake Granby reservoir fill. Adams Tunnel diversions will end in late June as East Slope reservoirs are nearly full. Green Mountain Reservoir releases have been increased by an additional 400 cfs in late May/early June. Ruedi Reservoir releases will be increased by at least 400 cfs and the reservoir will likely fill by late June. Contrary to previous reports, it is unlikely that Ruedi Reservoir releases can be maintained below 800 cfs.

Public Use Impacts

The probability for record Colorado River flows remains high. Mild and slightly below average May and early June temperatures have kept runoff moderate thus far. However, an increase to above average temperatures combined with reservoir spills will likely push flows above the peaks seen as of early June. Minor flooding along the lower Fryingpan River will occur with releases above 800 cfs.

The Bureau of Reclamation is forecasting Lake Powell inflow over the next three months in million acre feet (maf) as follows: June - 6.1 maf (198 percent of average), July - 3.3 maf (212 percent of average), August - 0.95 maf (155 percent of average). These result in a total projected inflow volume of 16.7 maf for water year 2011 (138 percent of average).



Basinwide Conditions Assessment

The SWSI value for the month was +0.5. Flow at the gaging station Yampa River at Steamboat was 1,743 cfs, as compared to the long-term average of 1,616 cfs. May precipitation was again above the monthly 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 143% of average for the Yampa, White, and North Platte River basins. Total precipitation for the water year as a percent of average to date in the combined basins at the end of May is 141%.

The snow water equivalent (SWE) for the water year to date on May 31, 2011 was 273% of average for the North Platte River basin and 272% of average for the Yampa and White River basins.

As of June 1, 2011, NRCS predicts well above average spring and summer streamflows in the Yampa, White, and North Platte River basins. The latest runoff forecasts from the NRCS for the May through July period are 327% of average for the North Platte River near Northgate, 201% of average for the Yampa River near Maybell, 224% of average for the Little Snake River near Lily, and 160% of average for the White River near Meeker. Localized flooding has occurred in all Division 6 river basins during May and potential flood conditions are predicted to continue through the remainder of June.

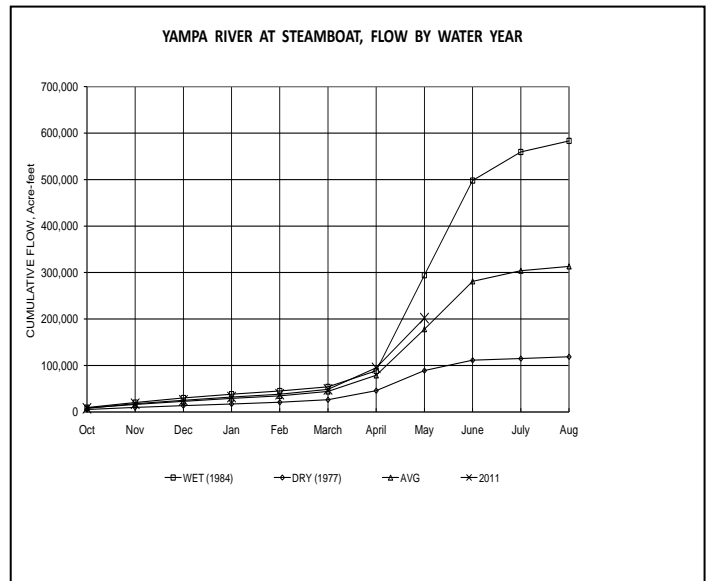
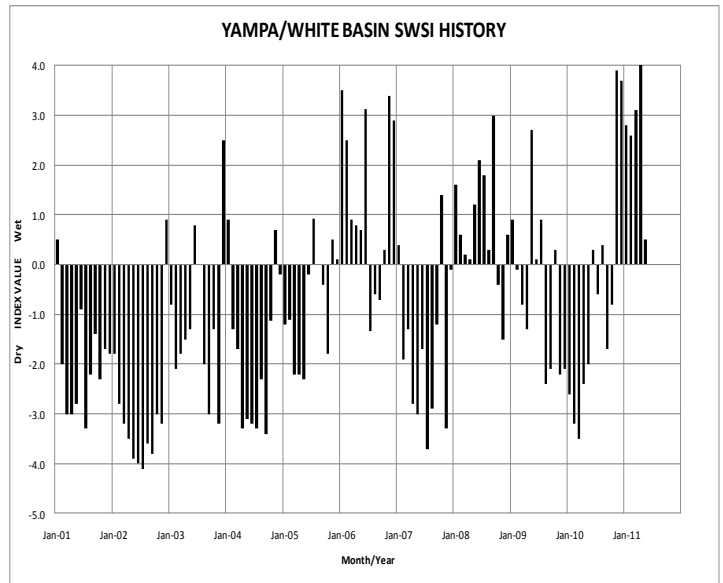
Bridge flow measurements were conducted at all of the Division 6 stream gages during May. At each station the measured flow was the highest ever measured.

Outlook

As of May 31st Fish Creek Reservoir was storing 2,546 AF, 61.1% of capacity. The capacity of Fish Creek Reservoir is 4,167 AF. Water stored in Yamcolo Reservoir increased during May to 9,806 AF. That volume represents 102% of Yamcolo Reservoir's capacity. On April 30th Elkhead Creek Reservoir was storing 25,509 AF. Elkhead Reservoir is 100% full and spilling. At the end of May, Stagecoach Reservoir was storing approximately 37,200 AF. Stagecoach Reservoir is 100% full and spilling as well.

Public Use Impacts

Stagecoach Reservoir is now open to boating. Fishing at Stagecoach is reported as good from both the shore and boats. Steamboat Lake and Pearl Lake are now ice free and open for boating. Fishing at Steamboat Lake is described to be as good as it gets!



Basinwide Conditions Assessment

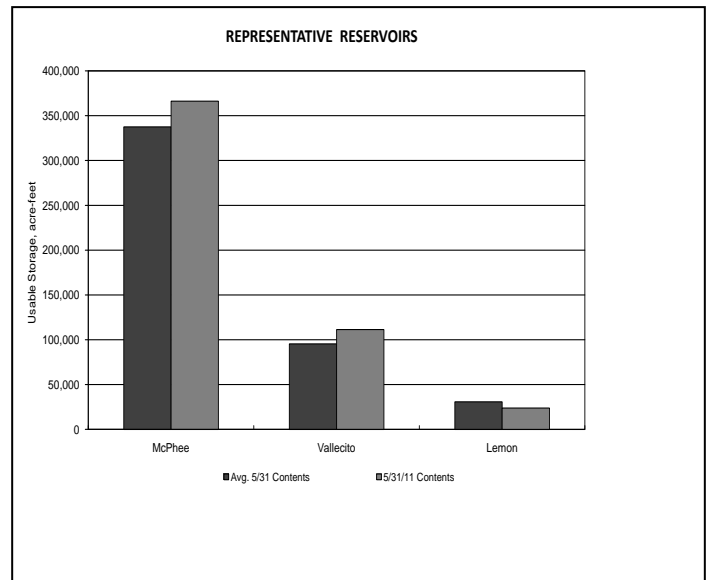
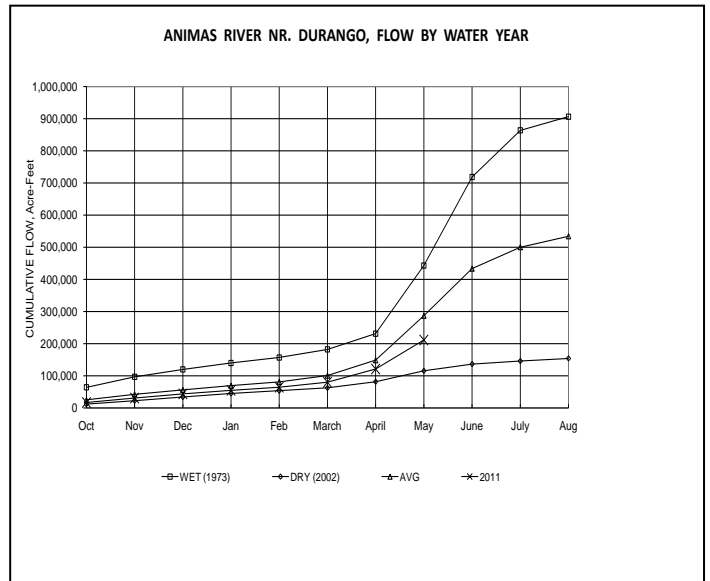
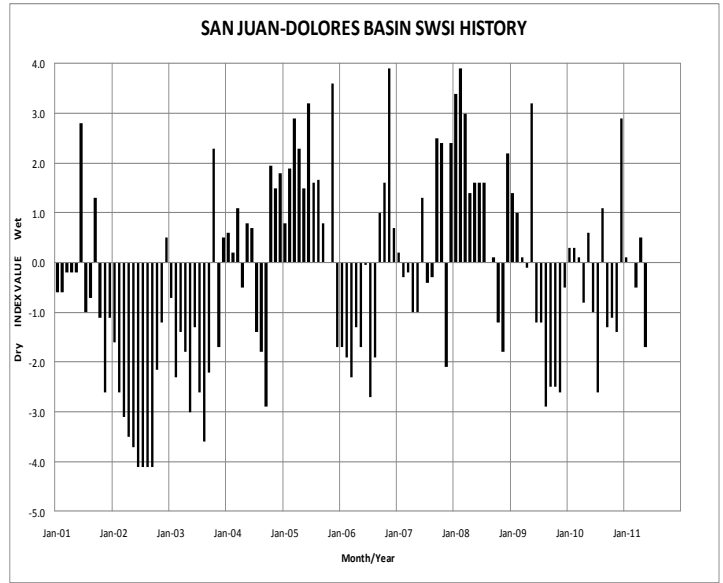
The SWSI value for the month was -1.7. Flow at the Animas River at Durango averaged 1,519 cfs (66% of average). The flow at the Dolores River at Dolores averaged 1,330 cfs (77% of average). The La Plata River at Hesperus averaged 115 cfs (69% of average). Precipitation in Durango was 1.85 inches for the month, 169% of the 30-year average of 1.09 inches. Precipitation to date in Durango, for the water year, is 10.39 inches, 83% of the 30-year average of 12.52 inches. The average high and low temperatures for the month of May in Durango were 67° and 34°. In comparison, the 30-year average high and low for the month is 72° and 39°. At the end of the month Vallecito Reservoir contained 111,340 acre-feet compared to its average content of 88,166 acre-feet (126% of average). McPhee Reservoir was up to 366,091 acre-feet compared to its average content of 325,289 (113% of average), while Lemon Reservoir was up to 23,7810 acre-feet as compared to its average content of 30,186 acre-feet (79% of average).

Outlook

Precipitation (1.85-inches) was slightly above average for May in Durango. There are 23 years out of 117 years of record where there was more precipitation than this year. On May 31st the NRCS SNOTEL sites estimated 127% snow-water equivalent within the basin which is slightly higher than last month 97% of average.

Administrative/Management Concerns

Lower than normal temperatures kept base flow in the rivers below average within the basin. The LaPlata River compact call started on April 7, 2011.



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