

Colorado Basin Outlook Report April 1, 2013



This month's photo was taken of Horseshoe Basin in the headwaters of South Platte River, on 3/27/2013 by Dan Olsen, Soil Conservationist in Woodland Park, CO. Dan and Jeremy Buss, Soil Conservation Technician from Woodland Park, survey four snow courses in the Upper South Platte each month.

REMINDER:

We are soliciting field work photos from our snow surveyors this year. There are only two months left to submit your photos for a chance to grace the cover of this report! Please include information on where, when and of who/what the photo was taken.

Basin Outlook Reports and Federal - State - Private Cooperative Snow Surveys

For more water supply and resource management information, contact:

Mage Hultstrand
Assistant Data Collection Office Supervisor
USDA, Natural Resources Conservation Service
Denver Federal Center, Bldg 56, Rm 2604
PO Box 25426
Denver, CO 80225-0426
Phone (720) 544-2855

How forecasts are made

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snow courses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Colorado Water Supply Outlook Report April 1, 2013

Summary

Unlike last year, the month of March continued to bring snow to Colorado. Unfortunately the state's snowpack, as of April 1, only showed a nominal increase from last month's report. Beneficial storms and relatively cool temperatures helped maintain the snowpack in the mountains but were not able to bring it closer to normal conditions. This marks the fourth consecutive month of below average snowpack for the state as well as the third consecutive month of below average precipitation in the mountains. Forecasts for spring and summer streamflows are well below average across the entire state with many streams expected to see volumes that are below 50 percent of average. We are also still feeling the ill effects of the previous year's paltry snowpack and the resulting streamflow runoff, in our reservoirs. The majority of the state's major river basins are reporting well below average reservoir storage. Judicious use of our existing supplies will be critical in minimizing impacts this season and there is always the potential for unexpected late season snowfall and above average spring precipitation to help ease impacts.

Snowpack

Overall the snowpack percentage for the state inched up during March. Current readings are now are 74 percent of median; up 1 percentage point from the report on March 1. On the bright side, the current snowpack is 130 percent of last year's April 1 snowpack report. By this time last year the statewide snowpack had already peaked and was melting rapidly. This year snow continued to accumulate in the mountains during March; however the storms were more focused on the northern mountains and the Front Range and missed the southwest portion of the state. While the snowpack percentages did increase in most basins, not all watersheds showed improvement, and some saw a substantial decline. The Upper Rio Grande basin dropped 9 percentage points from the March 1 readings and the combined San Juan, Animas, Dolores, and San Miguel basins lost 10 percentage points. The lowest snowpack percentages in the state occur in the Upper Rio Grande and the South Platte basins which are both at just 69 percent of median. The state's best snowpack percentage occurs in the North Platte basin which is at 81 percent of median; the Yampa and White basins are close behind with a snowpack at 78 percent of median. All basins currently have snowpacks that are better than those reported last year at this time; but comparing bad to worse could be considered a moot point.

Precipitation

Precipitation totals for the month of March, measured at SNOTEL sites across the state, were mostly below average. Statewide precipitation for the month was just 76 percent of average. The South Platte and the Colorado basins actually recorded precipitation in the mountains that was close to average. The South Platte reported totals at 97 percent of average and the Colorado was at 96 percent of average. The driest basins this month were the Upper Rio Grande and combined San Juan, Animas, Dolores, and San Miguel basins with precipitation totals at only 47 percent and 56 percent of average respectively. Precipitation in the remaining basins ranged from 84 percent of average in the Yampa, White and North Platte basins to 63 percent of average in the Arkansas. Water year to date totals range from only 66 percent of average in the Upper Rio Grande basin, to 78 percent of average in the Yampa, White and North Platte basins. Water year to date precipitation for the state is at 73 percent of average.

Reservoir Storage

Statewide reservoir storage was reported to be 71 percent of average at the end of March. The combined Yampa and White River basins boast the highest storage amounts in the state, currently storing 105 percent of average volumes for this date; though the basin has the fewest reservoirs and lowest capacity for storage. Storage volumes in the other major basins range from 84 percent of average in the South Platte basin, to 54 percent of average in the Upper Rio Grande basin. Statewide storage volumes are way below where they were this time last year. Last year at this time, the reservoirs in the state were storing 3,651,000 acre-feet of water which was 108 percent of the average volumes. This year the reservoirs are storing 2,421,000 acre-feet of water for agricultural and municipal use this season.

Streamflow

Colorado's water users can anticipate very low streamflow volumes this summer. Due to extremely poor snowpack conditions spring and summer streamflow volumes may approach the minimum volumes on record in some areas. The projected inflow into Dillon Reservoir calls for 66 percent of average flows; forecasts for some areas of Colorado River basin are even lower. Clear Creek at Golden is expected to flow at 72 percent of average from April to July and the forecast for the Big Thompson River is only 52 percent of average. The Gunnison and Upper Rio Grande River basins have some of the lowest forecasts in the state. Tomichi Creek at Gunnison is only expected to see volumes that are 34 percent of average and Sangre de Cristo Creek's forecast calls for flows that are 29 percent of average. All of these forecasts assume normal precipitation amounts throughout the forecast period.

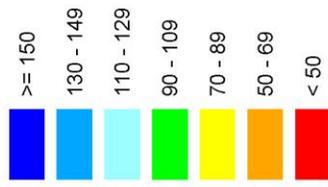
Special Note on Interpreting Forecasts

According to the National Water and Climate Center (NWCC), “a water supply forecast is a prediction of streamflow volume that will flow past a point on a stream during a specified season, typically in the spring and summer. These forecasts are given not as a single number, but as a range of numbers to reflect risk and forecast uncertainty. Each month, five forecasts are issued for each forecast point and each forecast period. Unless otherwise specified, all forecasts are for streamflow volumes that would occur naturally without any upstream influences.”

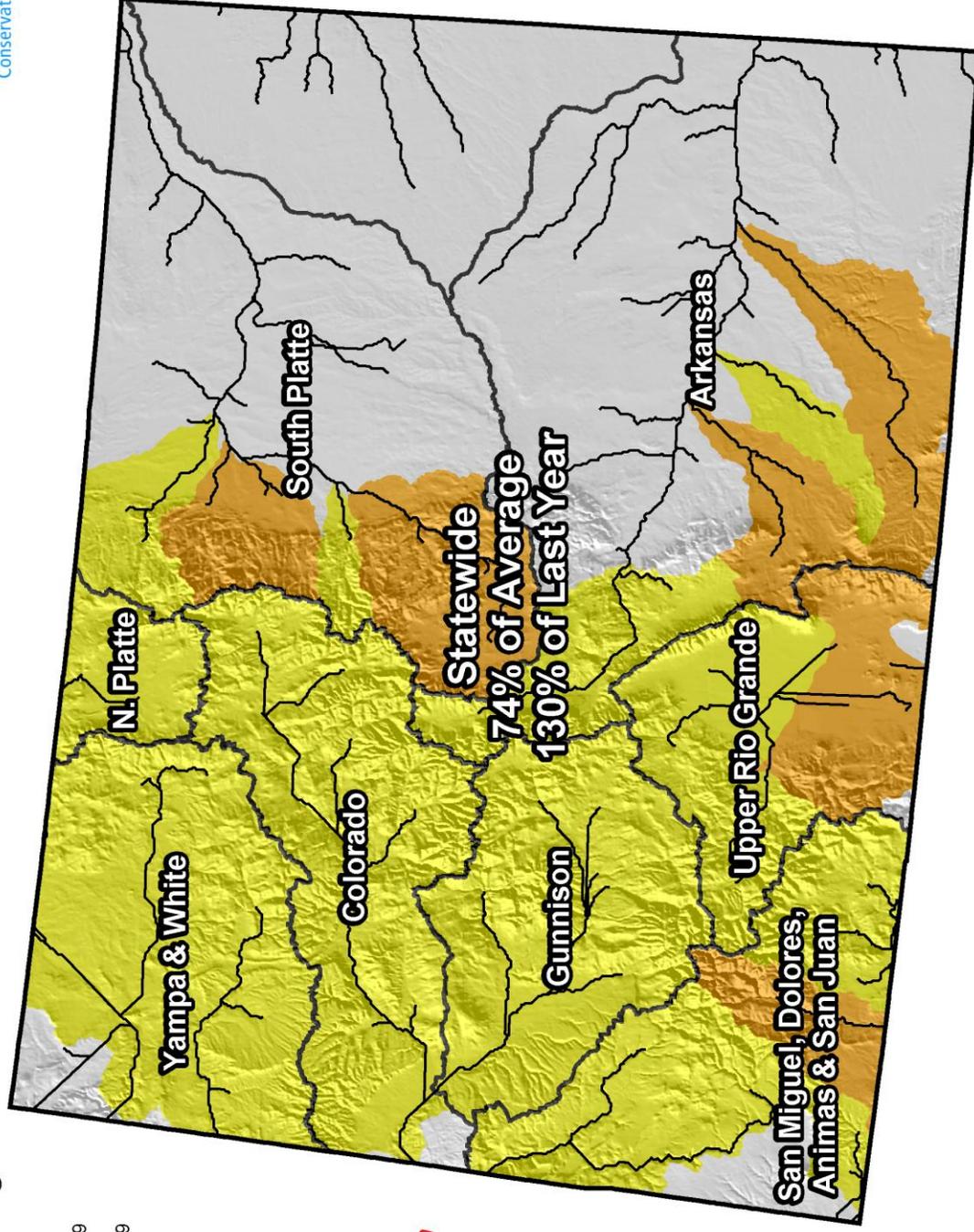
The forecasts we typically emphasize in this report are the 50 percent exceedance probability forecasts because they are in the middle of the range of forecasts with 50 percent chance that actual volumes will be above or below the predicted volume. The 50 percent exceedance forecasts assume that typical weather patterns will prevail into the forecast season. In a water year such as this one, when conditions have been anything but typical, it is important to pay attention to the other forecasts provided. If dry conditions prevail into the rest of this spring and summer it may be prudent to use the 70 or 90 percent exceedance forecasts for management purposes this season. If we continue to receive snowfall late into the season or above average precipitation this spring, actual streamflow volumes may be more in line with the 50 or 30 percent exceedance forecasts.

Colorado Snowpack Map

Percent of Average



*Provisional Data
Subject to Revision*

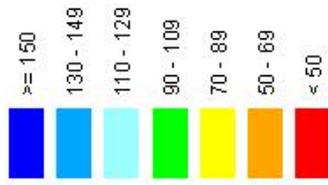


Current as of April 1, 2013

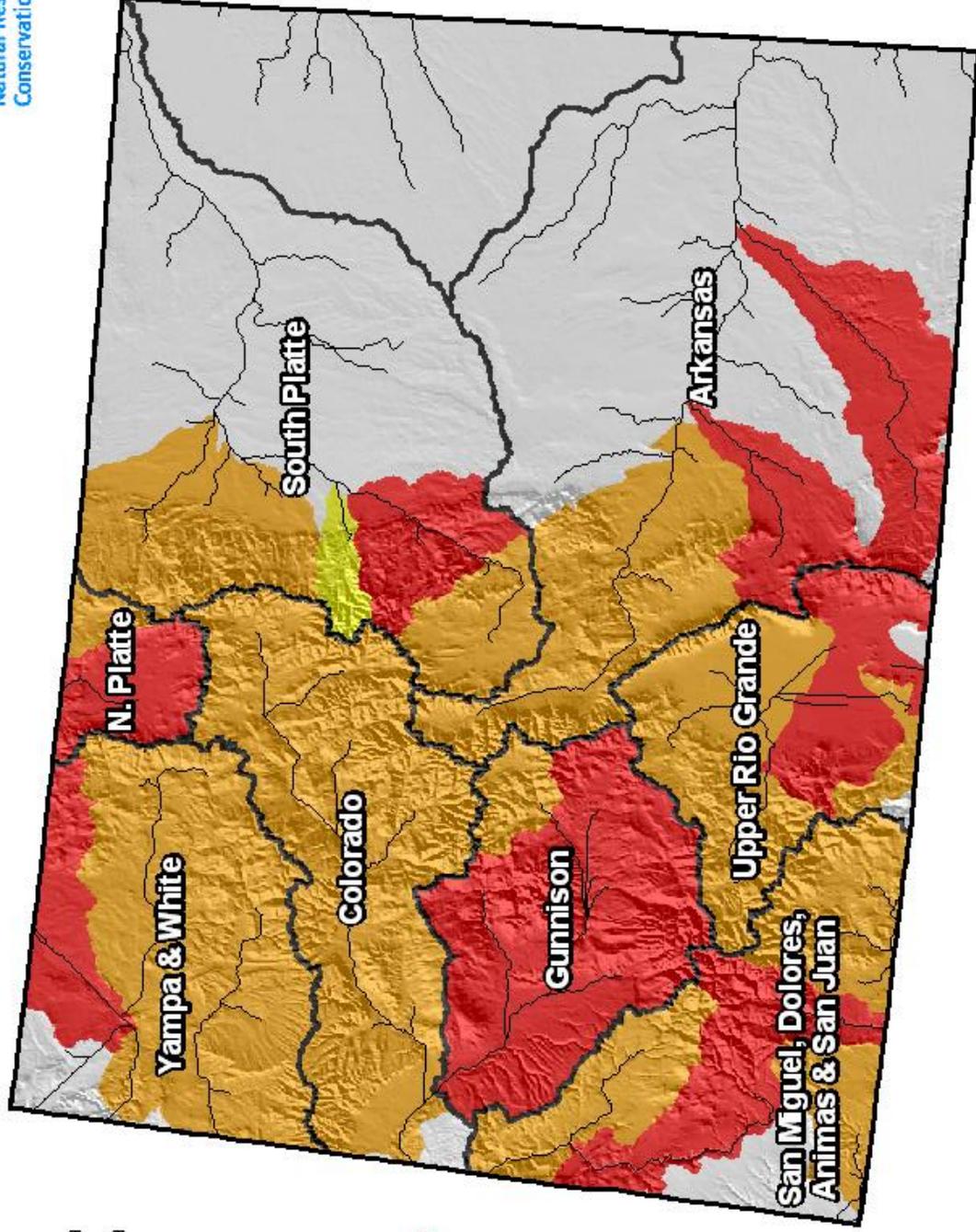
Colorado Streamflow Forecast Map



Percent of Average



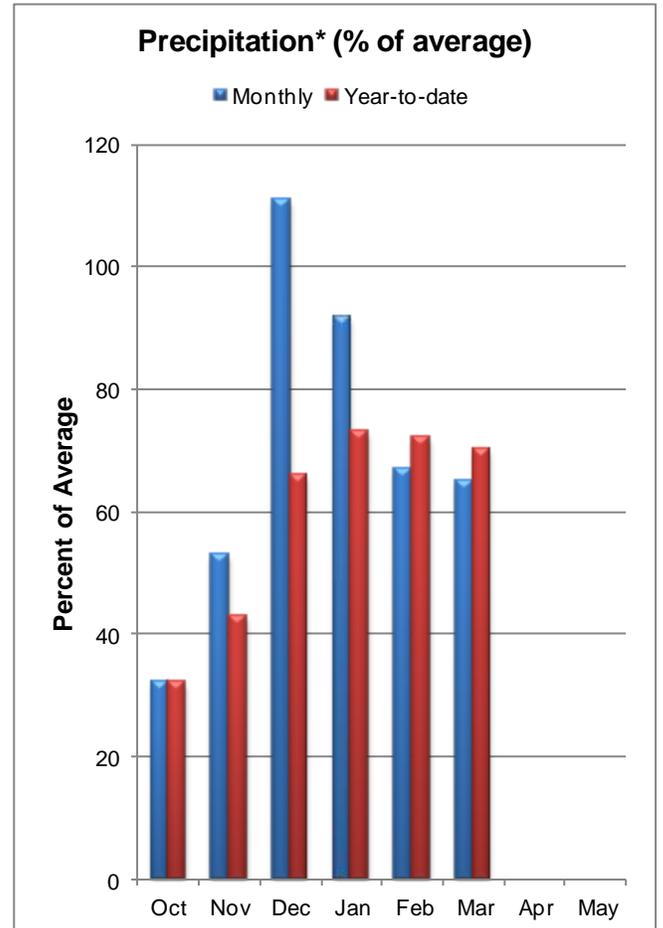
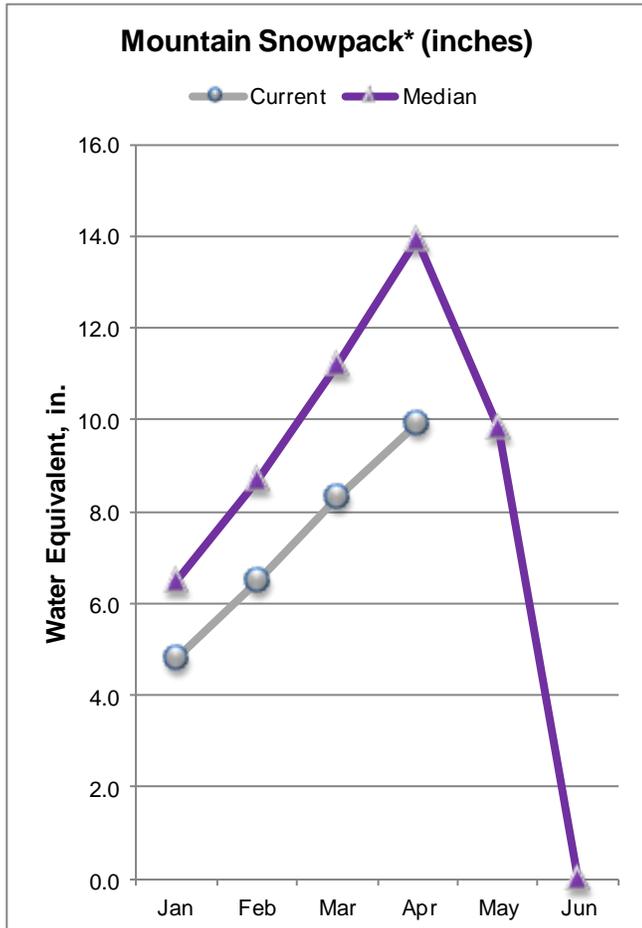
*Provisional Data
Subject to Revision*



Current as of April 1, 2013

GUNNISON RIVER BASIN

as of April 1, 2013



*Based on selected stations

The snowpack in the Gunnison River basin actually decreased 3 percentage points during the month of March. The April 1 snowpack was reported to be 71 percent of the median compared to 74 percent recorded on March 1. Total snow water equivalent (SWE), as recorded at SNOTEL sites within the basin, has declined over the last week. It is likely that the basin reached peak snowpack for this season on March 28th. Total precipitation recorded in the basin during March was just 65 percent of average. The year to date precipitation total declined for the second consecutive month to 70 percent of average as of April 1.

Reservoirs in the basin are storing at total of 505, 000 acre-feet of water compared to 808, 000 acre-feet stored last year at this same time. These volumes, recorded at the end of March, were 76 percent of average volumes for this time of year. April 1 streamflow forecasts for the Gunnison basin have decreased significantly for nearly all forecasts points compared to those issued last month. The largest decline was for the Cochetopa Creek below Rock Creek forecast; it dropped 21 percentage points from last month's forecast. It is now expected to flow at 36 percent of average this season. Elsewhere in the basin, April to July streamflow volumes are expected to range from just 34 percent of average for Tomichi Creek at Gunnison to 60 percent of average for the Slate River near Crested Butte.

GUNNISON RIVER BASIN
Streamflow Forecasts - April 1, 2013

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		<<===== Drier =====>>		===== Wetter =====>>				
		90% (1000AF)	70% (1000AF)	Chance Of Exceeding * 50% (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
Taylor Park Reservoir Inflow (2)	APR-JUL	38	48	55	56	63	75	99
Slate R nr Crested Butte	APR-JUL	36	44	50	60	56	66	83
East R at Almont	APR-JUL	68	82	92	51	103	119	182
Gunnison R nr Gunnison (2)	APR-JUL	115	146	170	46	196	235	370
Tomichi Ck at Sargents	APR-JUL	5.9	9.8	13.0	43	16.7	23	30
Cochetopa Ck bl Rock Ck nr Parlin	APR-JUL	1.3	3.4	5.4	36	7.8	12.3	15.0
Tomichi Ck at Gunnison	APR-JUL	6.2	15.9	25	34	36	56	74
Lake Fk at Gateview	APR-JUL	43	56	65	53	75	91	123
Blue Mesa Reservoir Inflow (2)	APR-JUL	210	265	310	46	355	430	675
Paonia Reservoir Inflow (2)	MAR-JUN	22	31	38	40	46	59	96
	APR-JUN	19.7	29	36	40	44	57	91
	APR-JUL	21	32	40	41	49	65	97
NF Gunnison R nr Somerset (2)	APR-JUL	100	123	140	48	158	187	290
Surface Ck at Cedaredge	APR-JUL	5.6	6.8	7.8	46	8.8	10.4	16.8
Ridgway Reservoir Inflow (2)	APR-JUL	36	47	55	55	64	79	101
Uncompahgre R at Colona (2)	APR-JUL	34	51	64	47	79	103	137
Gunnison R nr Grand Junction (2)	APR-JUL	380	505	600	41	705	870	1480

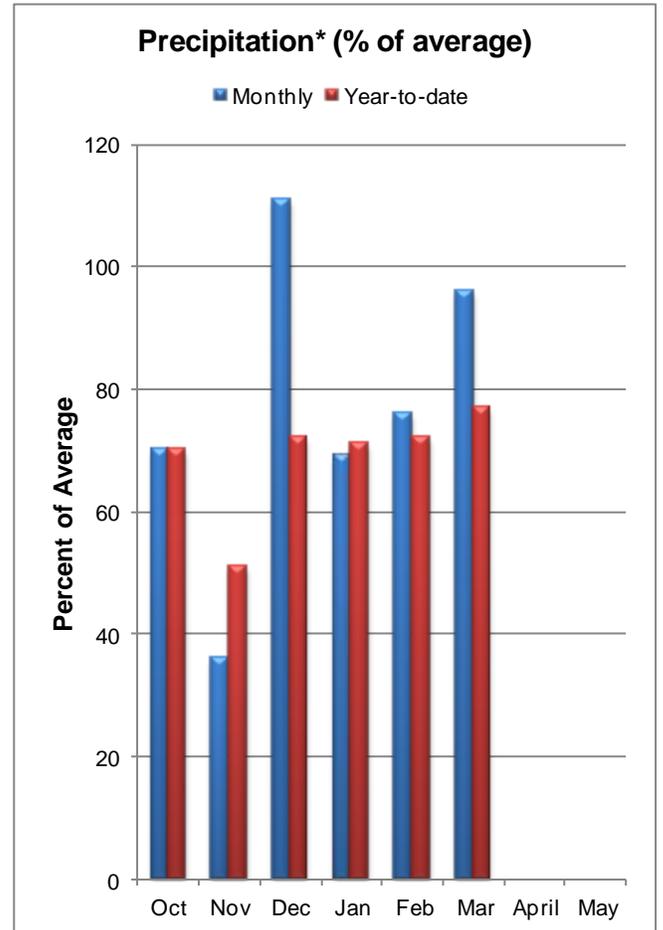
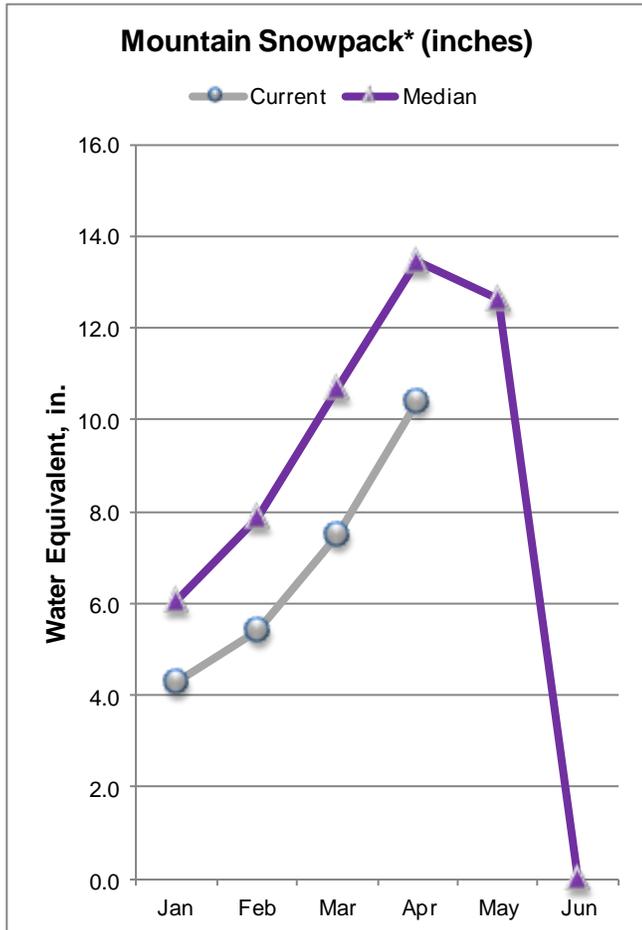
GUNNISON RIVER BASIN Reservoir Storage (1000 AF) - End of March					GUNNISON RIVER BASIN Watershed Snowpack Analysis - April 1, 2013			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Median
BLUE MESA	830.0	335.7	538.9	404.5	UPPER GUNNISON BASIN	15	112	70
CRAWFORD	14.0	2.5	9.0	10.8	SURFACE CREEK BASIN	3	102	77
FRUITGROWERS	3.6	2.5	3.6	4.0	UNCOMPAHGRE BASIN	4	130	76
FRUITLAND	9.2	1.8	3.0	2.5	TOTAL GUNNISON RIVER BASIN	19	115	71
MORROW POINT	121.0	104.8	114.0	113.6				
PAONIA	15.4	1.3	1.0	4.6				
RIDGWAY	83.0	0.0	70.9	60.9				
TAYLOR PARK	106.0	56.9	67.2	61.9				

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1981-2010 base period, except for the reservoir averages which are from 1971-2000.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.
- (3) - Median value used in place of average.

UPPER COLORADO RIVER BASIN as of April 1, 2013



*Based on selected stations

As of April 1 the snowpack in the Colorado River basin was 77 percent of the median which is 143 percent of last year's snowpack at this time of year. Last year, the snowpack in this basin reached its peak on March 4th and by this time had already melted significantly. This year the basin continues to accumulate snow and has already surpassed last year's peak snowpack reading. The snowpack's in the sub basins vary widely, ranging from 76 percent of median in the Roaring Fork River basin to 92 percent of median in the Muddy Creek drainage.

Precipitation recorded at the SNOTEL sites in the basin was near normal for the month of March, at 96 percent of average. This boosted the year to date precipitation to 77 percent of average from 72 percent reported last month.

Reservoir storage in the Colorado River basin was 66 percent of average at the end of March. This is 55 percent of the storage the basin had last year at this time and 40 percent of the capacity of the reservoirs. Thanks to the relatively decent precipitation received during March, April 1 seasonal streamflow forecasts remained fairly constant compared to those issued on March 1. All streams in the basin are still expected to see well below normal runoff from April to July. Current forecasts range from 54 percent of average for the Roaring Fork at Glenwood Springs to 68 percent of average for the Inflow to Willow Creek Reservoir.

UPPER COLORADO RIVER BASIN
Streamflow Forecasts - April 1, 2013

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		<<===== Drier =====>>		===== Wetter =====>>				
		90% (1000AF)	70% (1000AF)	50% (1000AF)	30% (1000AF)	10% (1000AF)	Chance Of Exceeding * (% AVG.)	
Lake Granby Inflow (2)	APR-JUL	98	125	145	66	167	200	220
Willow Ck Reservoir Inflow (2)	APR-JUL	17.1	25	32	68	39	51	47
Williams Fk bl Williams Fk Reservoir	APR-JUL	45	57	65	67	74	88	97
Blue R bl Dillon (2)	APR-JUL	74	93	107	66	122	146	163
Blue R bl Green Mountain Reservoir (APR-JUL	125	158	182	66	210	250	275
Muddy Ck bl Wolford Mtn Reservoir nr	APR-JUL	19.3	26	32	59	38	48	54
Eagle R bl Gypsum (2)	APR-JUL	141	180	210	63	240	295	335
Colorado R nr Dotsero (2)	APR-JUL	555	730	860	61	1000	1230	1400
Ruedi Reservoir Inflow (2)	APR-JUL	56	69	78	56	88	104	139
Roaring Fk at Glenwood Springs (2)	APR-JUL	270	325	370	54	415	485	690
Colorado R nr Cameo (2)	APR-JUL	890	1110	1280	55	1460	1740	2350

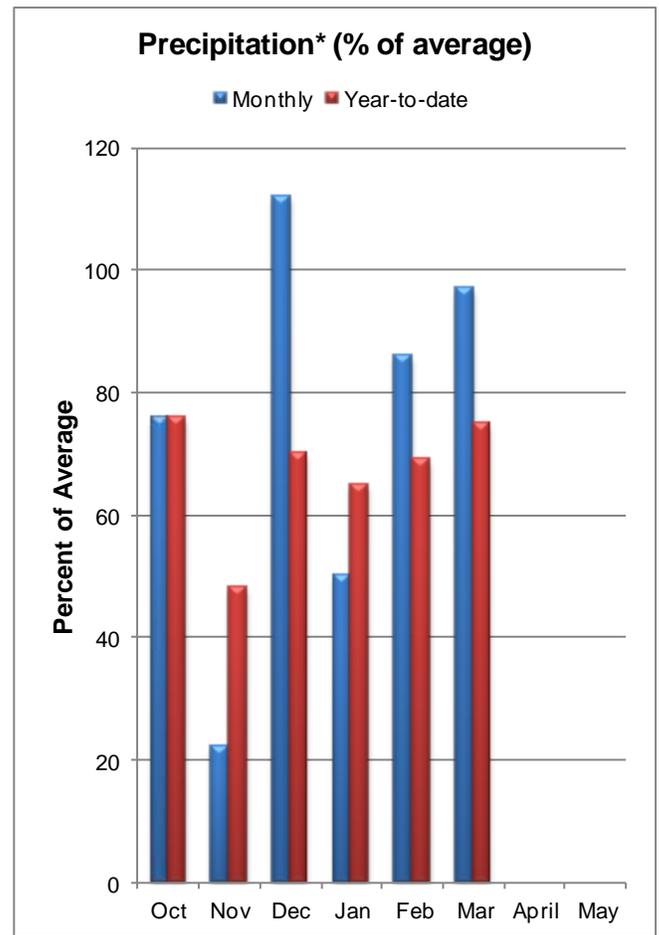
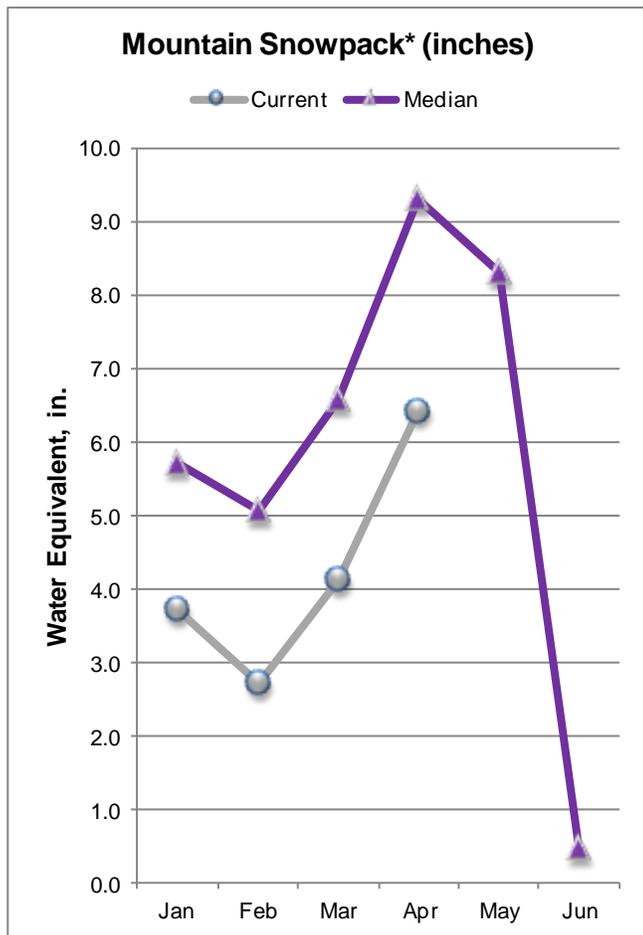
UPPER COLORADO RIVER BASIN Reservoir Storage (1000 AF) - End of March					UPPER COLORADO RIVER BASIN Watershed Snowpack Analysis - April 1, 2013			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Median
DILLON	254.0	163.3	243.1	214.5	BLUE RIVER BASIN	9	139	79
LAKE GRANBY	465.6	123.4	338.2	263.7	UPPER COLORADO RIVER BASI	31	144	77
GREEN MOUNTAIN	146.8	53.0	72.9	59.8	MUDDY CREEK BASIN	3	126	86
HOMESTAKE	43.0	0.3	0.5	22.5	PLATEAU CREEK BASIN	3	102	77
RUEDI	102.0	61.3	71.3	61.9	ROARING FORK BASIN	8	141	77
VEGA	32.9	8.8	18.8	13.1	WILLIAMS FORK BASIN	3	165	89
WILLIAMS FORK	97.0	41.9	82.4	54.8	WILLOW CREEK BASIN	4	125	81
WILLOW CREEK	9.1	7.1	6.6	6.8	TOTAL COLORADO RIVER BASI	42	138	77

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1981-2010 base period, except for the reservoir averages which are from 1971-2000.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.
- (3) - Median value used in place of average.

SOUTH PLATTE RIVER BASIN as of April 1, 2013



*Based on selected stations

Despite recording near average precipitation in the mountains during March, the South Platte River basin's snowpack remains well below average for this time of year. Precipitation for March was 97 percent of average which helped boost the year to date precipitation in the basin up to 75 percent of average, and 92 percent of last year's total. The snowpack as of April 1 was 69 percent of median, up from the March 1 report of 63 percent. The sub basin's snow survey results range from only 55 percent of median in the Saint Vrain watershed, to 80 percent of median in the Clear Creek drainage. Unless the basin continues to benefit from late season storms this spring, snow accumulation in the South Platte River basin will likely peak in the next week or so.

Combined reservoir storage in the basin was 84 percent of average at the end of March. Chambers Lake was missing data this month and is not included in the basin average. Most April 1 streamflow forecasts for the basin have decreased from last month's predictions. The exceptions were in the Clear Creek and Boulder Creek drainages which received good amounts of precipitation in March. Forecasts now range from only 47 percent of average for the Inflow to Antero Reservoir to 72 percent of average for Clear Creek at Golden. Boulder Creek near Orodell is now expected to flow at 69 percent of average from April to July.

SOUTH PLATTE RIVER BASIN
Streamflow Forecasts - April 1, 2013

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		Drier		Wetter				
		90% (1000AF)	70% (1000AF)	50% (1000AF) (% AVG.)	30% (1000AF)	10% (1000AF)		
Antero Reservoir Inflow (2)	APR-JUL	3.6	5.3	6.8	47	8.8	12.8	14.5
	APR-SEP	4.2	6.3	8.3	47	10.9	16.3	17.8
Spinney Mountain Res Inflow (2)	APR-JUL	14.6	21	27	56	35	50	48
	APR-SEP	17.0	25	33	54	43	64	61
Elevenmile Canyon Res Inflow (2)	APR-JUL	14.2	21	27	54	35	51	50
	APR-SEP	16.2	25	33	52	44	67	64
Cheesman Lake Inflow (2)	APR-JUL	26	39	51	51	67	101	100
	APR-SEP	32	48	64	51	85	129	126
South Platte R at South Platte (2)	APR-JUL	41	64	88	49	120	190	180
	APR-SEP	51	81	111	49	152	245	225
Bear Ck ab Evergreen	APR-JUL	4.0	6.4	8.7	53	11.9	18.8	16.4
	APR-SEP	5.9	9.2	12.5	60	17.0	27	21
Bear Ck at Morrison	APR-JUL	4.1	7.0	10.2	46	14.8	26	22
	APR-SEP	5.7	9.8	14.1	50	20	35	28
Clear Ck at Golden	APR-JUL	45	63	76	72	89	107	105
	APR-SEP	52	77	94	73	111	136	128
St. Vrain Ck at Lyons (2)	APR-JUL	31	41	48	55	55	65	88
	APR-SEP	38	50	58	56	66	78	103
Boulder Ck nr Orodell (2)	APR-JUL	26	32	37	69	42	48	54
	APR-SEP	28	37	43	68	49	58	63
S Boulder Ck nr Eldorado Springs(2)	APR-JUL	41	47	50	63	53	59	79
	APR-SEP	48	54	59	65	64	70	91
Big Thompson R at Canyon Mouth (2)	APR-JUL	25	38	47	52	56	69	90
	APR-SEP	32	48	59	55	70	86	107
Cache La Poudre at Canyon Mouth (2)	APR-JUL	98	125	147	65	173	220	225
	APR-SEP	111	141	166	66	195	250	250

SOUTH PLATTE RIVER BASIN
Reservoir Storage (1000 AF) - End of March

SOUTH PLATTE RIVER BASIN
Watershed Snowpack Analysis - April 1, 2013

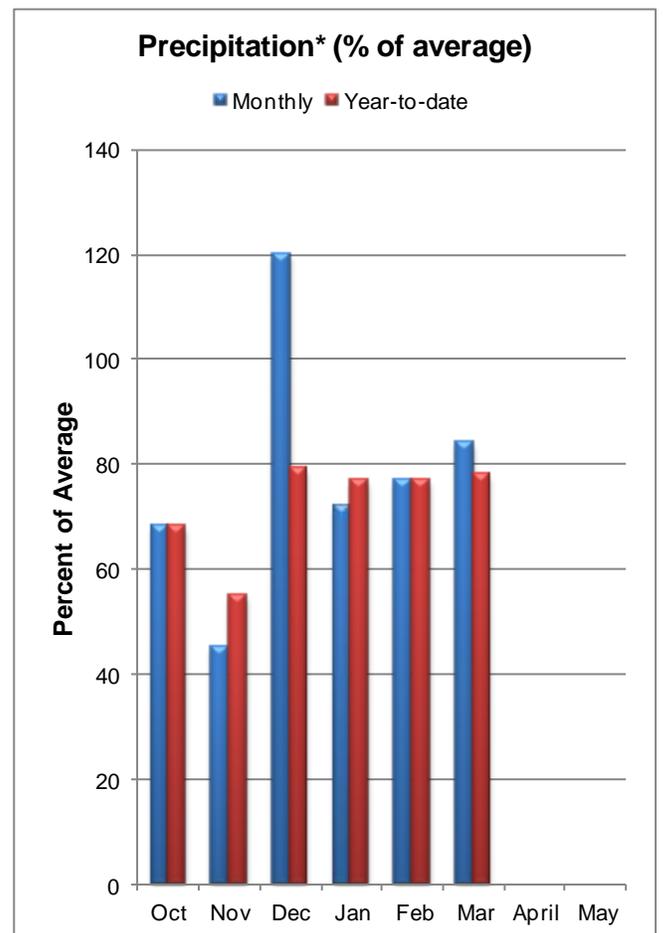
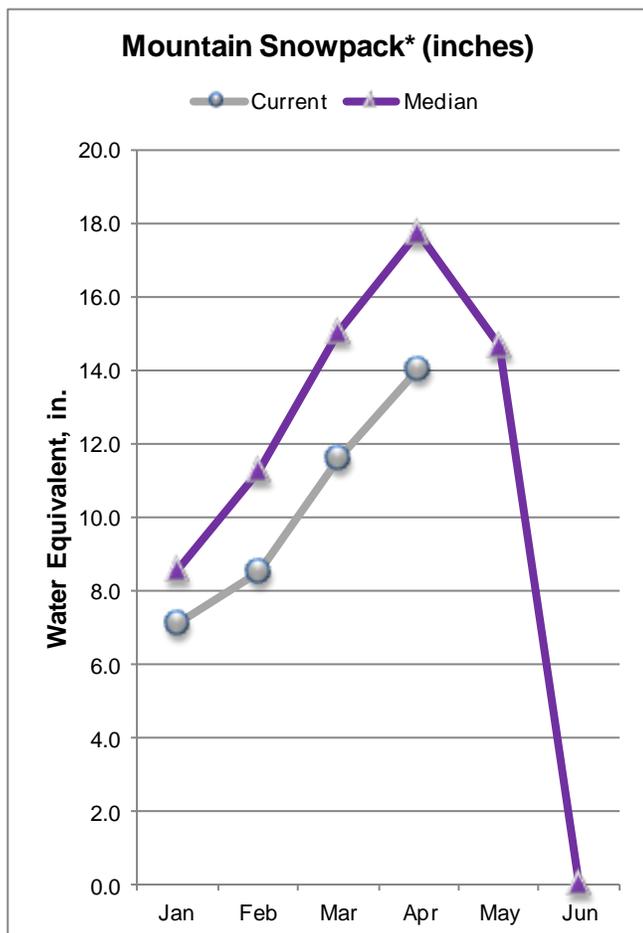
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Median
ANTERO	19.9	15.3	16.0	15.9	BIG THOMPSON BASIN	7	94	59
BARR LAKE	30.1	19.0	28.6	27.9	BOULDER CREEK BASIN	5	113	69
BLACK HOLLOW	6.5	2.3	3.6	4.0	CACHE LA POUFRE BASIN	9	130	78
BOYD LAKE	48.4	16.0	40.2	33.0	CLEAR CREEK BASIN	3	138	80
BUTTON ROCK/RALPH PRICE	16.2	12.8	12.5	12.1	SAINT VRAIN BASIN	3	86	55
CACHE LA POUFRE	10.1	5.2	10.6	8.6	UPPER SOUTH PLATTE BASIN	11	119	68
CARTER	108.9	87.4	74.6	100.9	TOTAL SOUTH PLATTE BASIN	38	114	69
CHAMBERS LAKE		NO REPORT						
CHEESMAN	79.0	46.4	66.8	60.8				
COBB LAKE	22.3	11.7	19.2	13.9				
ELEVEN MILE	98.0	98.4	99.8	96.4				
EMPIRE	36.5	21.0	36.4	31.8				
FOSSIL CREEK	11.1	10.8	9.5	7.9				
GROSS	41.8	26.0	28.1	23.9				
HALLIGAN	6.4	5.3	5.0	4.7				
HORSECREEK	14.7	3.1	12.2	13.9				
HORSETOOTH	149.7	103.0	137.5	119.1				
JACKSON	26.1	26.0	26.1	29.9				
JULESBURG	20.5	19.9	20.5	20.8				
LAKE LOVELAND	10.3	3.3	9.1	9.0				
LONE TREE	8.7	7.6	7.8	7.2				
MARIANO	5.4	2.5	3.1	4.5				
MARSHALL	10.0	6.3	8.5	6.0				
MARSTON	13.0	9.4	4.7	13.3				
MILTON	23.5	22.7	21.7	18.3				
POINT OF ROCKS	70.6	62.2	69.4	68.8				
PREWITT	28.2	18.1	24.5	25.0				
RIVERSIDE	55.8	53.9	55.6	58.2				
SPINNEY MOUNTAIN	49.0	19.9	46.4	32.1				
STANDLEY	42.0	29.0	36.5	34.6				
TERRY LAKE	8.0	4.8	5.5	5.4				
UNION	13.0	5.6	12.3	11.1				
WINDSOR	15.2	11.1	12.6	12.4				

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1981-2010 base period, except for the reservoir averages which are from 1971-2000.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.
- (3) - Median value used in place of average.

YAMPA, WHITE, NORTH PLATTE AND LARAMIE RIVER BASINS as of April 1, 2013



*Based on selected stations

The weather patterns that began in February persisted in the Yampa, White, North Platte, and Laramie River basins during March. Snow continued to accumulate and we did not see a repeat of last year when the snowpack began to melt in early March. The basins also saw a nominal increase in their snowpack percentage this month; as of April 1 the basin wide snowpack was at 79 percent of median compared to 77 percent of median reported on March 1. Precipitation measured during March at the SNOTEL sites in these basins was 84 percent of average. As of April 1, cumulative precipitation totals for these basins were at 78 percent of average.

Yamcolo and Stagecoach reservoirs continue to report above average storage volumes for this time of year. Storage in these reservoirs is at 105 percent of the average storage and 73 percent of capacity. Streamflow forecasts have declined slightly from those issued last month for most forecast points. The exception is the forecast for the North Platte River near Northgate which increased 6 percentage points from the March 1 forecast. April to July streamflow volumes elsewhere in the basins are now expected to range from 37 percent of average for Elkhead Creek above Long Gulch to 67 percent of average for the Elk River near Milner. The Yampa River at Steamboat Springs is now expected to flow at 60 percent of average this season.

YAMPA, WHITE, AND NORTH PLATTE RIVER BASINS
Streamflow Forecasts - April 1, 2013

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		<<==== Drier =====		===== 50% (% AVG.)		===== Wetter =====>>		
		90% (1000AF)	70% (1000AF)	50% (1000AF)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)	
North Platte R nr Northgate	APR-JUL	25	62	100	44	138	193	225
	APR-SEP	30	72	115	46	158	220	250
Laramie R nr Woods	APR-JUL	36	59	75	65	91	114	115
	APR-SEP	39	65	83	66	101	127	126
Yampa R ab Stagecoach Reservoir (2)	APR-JUL	5.2	8.9	12.0	52	15.5	22	23
Yampa R at Steamboat Springs (2)	APR-JUL	104	133	155	60	179	215	260
Elk R nr Milner	APR-JUL	133	180	215	67	255	315	320
Elkhead Ck ab Long Gulch	APR-JUL	11.4	19.9	27	37	35	49	73
Yampa R nr Maybell (2)	APR-JUL	285	405	495	53	595	760	935
Little Snake R nr Slater (2)	APR-JUL	47	62	74	47	87	108	156
Little Snake R nr Savery (2)	APR-JUL	62	107	145	42	189	265	345
Little Snake R nr Lily (2)	APR-JUL	66	112	151	44	195	270	345
White R nr Meeker	APR-JUL	94	126	151	54	178	220	280

YAMPA, WHITE, AND NORTH PLATTE RIVER BASINS
Reservoir Storage (1000 AF) - End of March

YAMPA, WHITE, AND NORTH PLATTE RIVER BASINS
Watershed Snowpack Analysis - April 1, 2013

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Median
STAGECOACH	36.4	29.4	33.7	24.6	LARAMIE RIVER BASIN	4	118	85
YAMCOLO	8.7	3.6	6.6	6.9	NORTH PLATTE RIVER BASIN	7	135	79
					TOTAL NORTH PLATTE BASIN	10	128	80
					ELK RIVER BASIN	1	145	70
					YAMPA RIVER BASIN	11	152	81
					WHITE RIVER BASIN	6	144	75
					TOTAL YAMPA AND WHITE RIV	16	151	78
					LITTLE SNAKE RIVER BASIN	8	122	75
TOTAL YAMPA, WHITE AND NO	31	138	79					

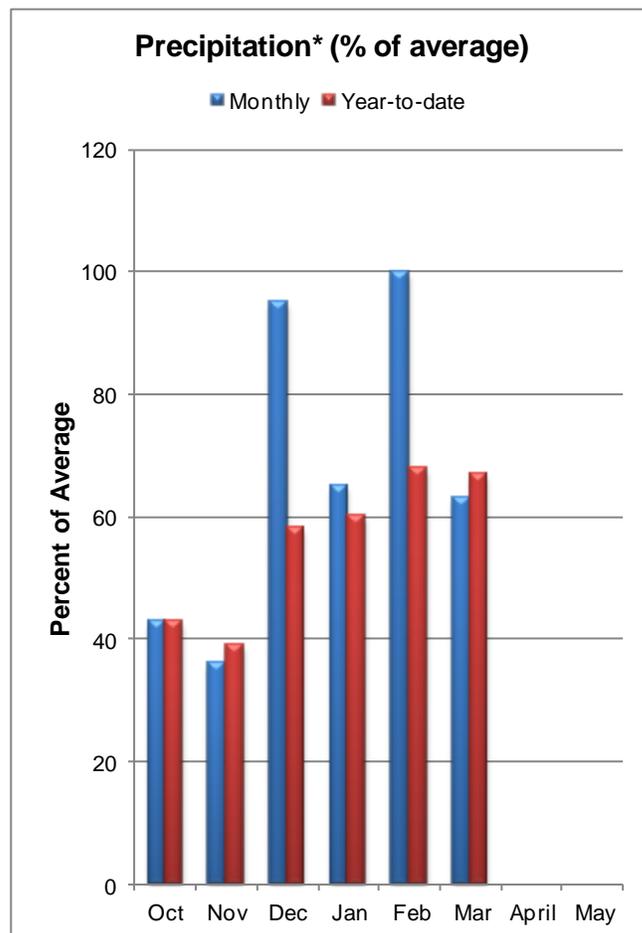
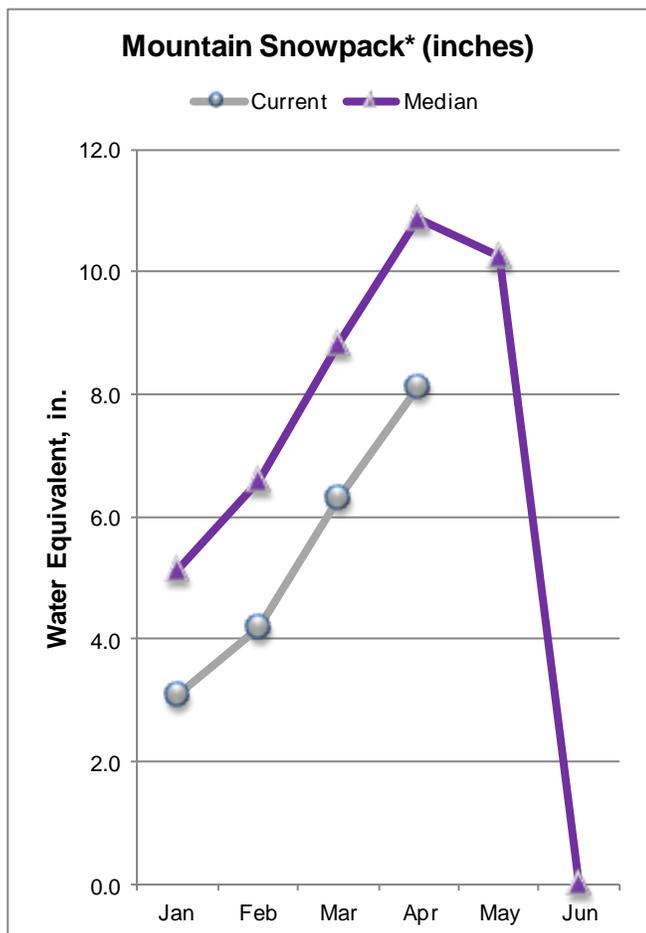
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1981-2010 base period, except for the reservoir averages which are from 1971-2000.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.
- (3) - Median value used in place of average.

ARKANSAS RIVER BASIN

as of April 1, 2013



*Based on selected stations

The snowpack in the Arkansas basin increased from 71 percent of median on March 1 to 74 percent of median as of April 1. This bump was mainly due to the snow received in the headwaters portion of the basin. The Upper Arkansas sub basin jumped from a reading of 69 percent of median on March 1 to 78 percent of median on April 1. Whereas the lower Arkansas sub basins actually reported declines in snowpack percentages this month; the Cucharas and Huerfano drainages saw a 9 percentage point decline and the Purgatoire's snowpack dropped a whopping 24 percentage points. Mountain precipitation received in the basin for March was a meager 63 percent of the average. Total year to date precipitation in the basin was just 67 percent of average as of April 1.

Reservoir storage within the Arkansas basin is currently at 55 percent of average, and 64 percent of last year's storage for the same date. The total volume of water stored in the reservoirs is just 19 percent of capacity. The forecast for the Arkansas River at Salida is the only forecast that did not decrease from those issued last month; it is still expected to flow at 56 percent of average this spring and summer. Streamflows in other parts of in the basin are expected to range from 38 percent of average for the Cucharas River near La Veta to 56 percent of average for the Arkansas River above Pueblo.

ARKANSAS RIVER BASIN
Streamflow Forecasts - April 1, 2013

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		<<==== Drier ====		====>> Wetter >>>				
		90% (1000AF)	70% (1000AF)	Chance Of Exceeding * 50% (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
Chalk Ck nr Nathrop	APR-JUL	4.7	7.8	10.3	49	13.2	18.2	21
	APR-SEP	5.8	9.6	12.7	49	16.2	22	26
Arkansas R at Salida (2)	APR-JUL	119	128	134	56	140	150	240
	APR-SEP	139	154	165	56	176	194	295
Grape Ck nr Westcliffe	APR-JUL	5.8	7.4	8.6	54	9.9	11.9	15.9
	APR-SEP	8.2	9.5	10.5	54	11.5	13.1	19.6
Arkansas R ab Pueblo (2)	APR-JUL	90	150	200	56	255	350	360
	APR-SEP	120	200	255	56	320	460	455
Huerfano R nr Redwing	APR-JUL	2.9	4.7	6.2	52	7.9	10.8	11.9
	APR-SEP	4.4	6.8	8.7	57	10.8	14.4	15.2
Cucharas R nr La Veta	APR-JUL	1.4	3.1	4.6	38	6.5	9.8	12.2
	APR-SEP	2.2	4.2	5.8	41	7.7	11.1	14.1
Purgatoire R at Trinidad (2)	MAR-JUL	4.2	10.4	16.4	44	24	38	37
	APR-JUL	3.2	9.4	15.4	44	23	37	35
	APR-SEP	13.1	17.6	21	45	25	31	47

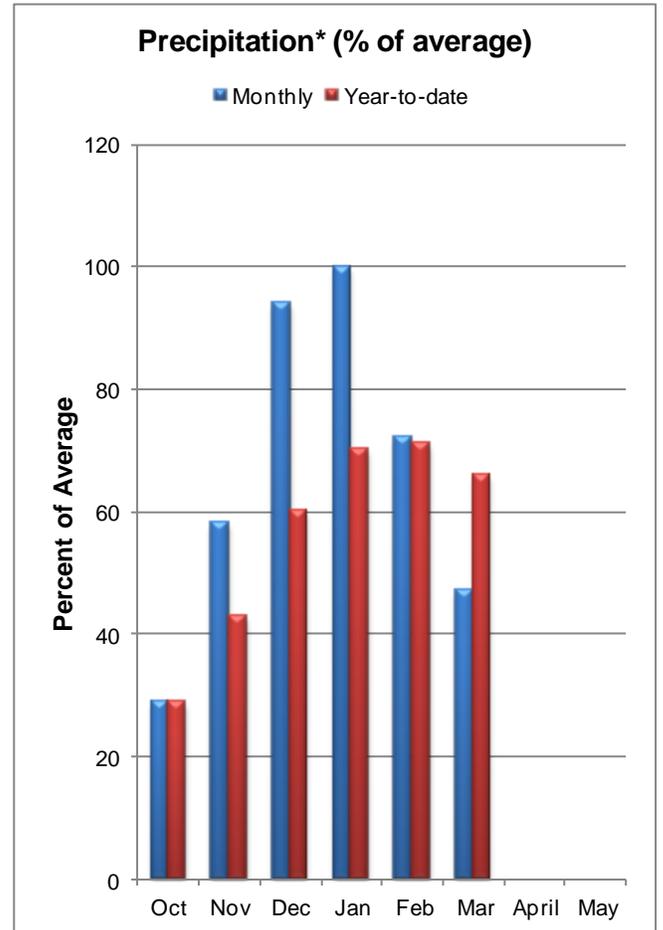
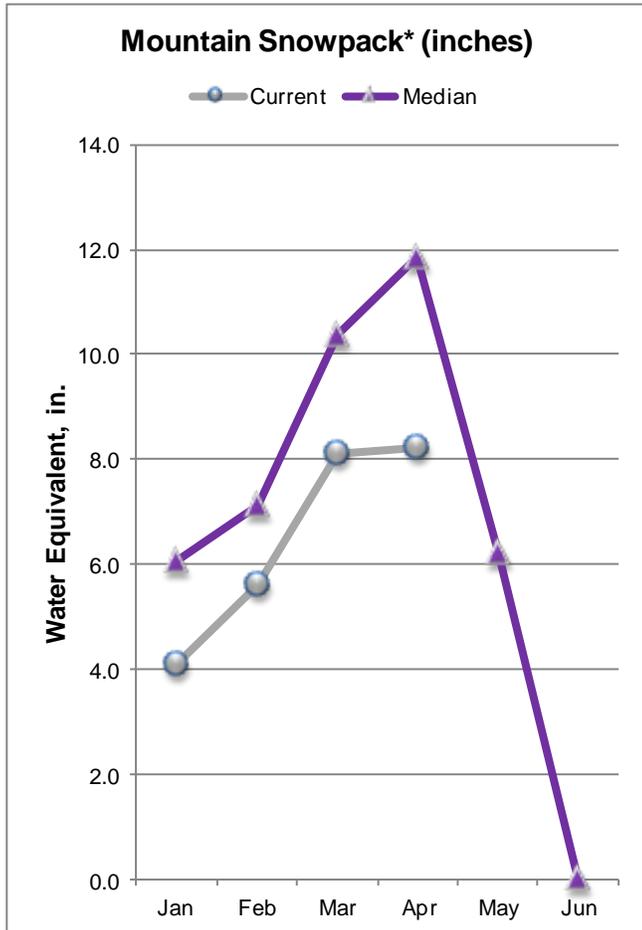
ARKANSAS RIVER BASIN Reservoir Storage (1000 AF) - End of March					ARKANSAS RIVER BASIN Watershed Snowpack Analysis - April 1, 2013			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Median
ADOBE	62.0	6.8	40.5	37.0	UPPER ARKANSAS BASIN	10	131	78
CLEAR CREEK	11.4	7.2	7.8	6.7	CUCHARAS & HUERFANO RIVER	3	91	68
CUCHARAS RESERVOIR	40.0	0.1	0.1	5.4	PURGATOIRE RIVER BASIN	2	89	61
GREAT PLAINS	150.0	0.0	0.0	41.9	TOTAL ARKANSAS RIVER BASIN	14	120	75
HOLBROOK	7.0	5.2	2.0	4.9				
HORSE CREEK	27.0	0.0	0.0	12.6				
JOHN MARTIN	616.0	31.2	45.5	137.3				
LAKE HENRY	8.0	6.1	7.8	6.7				
MEREDITH	42.0	29.3	37.0	19.0				
PUEBLO	354.0	173.1	244.1	173.3				
TRINIDAD	167.0	13.0	17.0	27.5				
TURQUOISE	127.0	31.0	63.8	74.0				
TWIN LAKES	86.0	20.5	39.1	42.5				

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1981-2010 base period, except for the reservoir averages which are from 1971-2000.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.
- (3) - Median value used in place of average.

UPPER RIO GRANDE RIVER BASIN as of April 1, 2013



*Based on selected stations

Thanks to cooler than normal temperatures, the snowpack in the Upper Rio Grande River basin (as measured in inches of snow water equivalent (SWE) by SNOTEL sites in the basin) has been holding pretty steady since early March. It has only begun to melt in the last week or so. Unfortunately the snowpack in this basin has not managed to reach even the peak snowpack recorded last year. As of April 1, the basin wide snowpack was 69 percent of median, down 9 percentage points from the March 1 report. Declines in some of the sub basins were even more extreme. The Alamosa Creek watershed dropped to just 38 percent of median this month from 63 percent measured the previous month. Precipitation recorded during March in the basin was just 47 percent of average, the lowest monthly total reported in the state. The basin also has the lowest year to date precipitation in the state at just 66 percent of the average.

As of April 1, reservoirs in the basin are storing volumes that are 54 percent of average and 74 percent of what was stored on April 1, 2012. The most recent streamflow volume forecasts for April to September are all below 65 percent of average in the basin. They range from only 26 percent of average for the San Antonio River at Ortiz to 64 percent of average for the Rio Grande River at Thirty Mile Bridge.

UPPER RIO GRANDE BASIN
Streamflow Forecasts - April 1, 2013

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		<<===== Drier =====>>		===== Wetter =====>>				
		90% (1000AF)	70% (1000AF)	Chance Of Exceeding * 50% (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
Rio Grande at Thirty Mile Bridge	(2) APR-SEP	51	69	83	64	98	122	129
	APR-JUL	47	61	72	64	84	102	113
Rio Grande at Wagon Wheel Gap	(2) APR-SEP	126	174	210	62	250	315	340
SF Rio Grande at South Fork	(2) APR-SEP	48	61	71	56	82	98	127
Rio Grande nr Del Norte	(2) APR-SEP	159	220	265	52	315	395	515
Saguache Ck nr Saguache	(2) APR-SEP	8.6	14.0	18.5	58	24	32	32
Alamosa Ck ab Terrace Reservoir	APR-SEP	25	33	39	57	45	55	68
La Jara Ck nr Capulin	MAR-JUL	2.6	3.9	5.0	56	6.3	8.6	8.9
	APR-JUL	1.7	3.1	4.2	51	5.5	7.8	8.2
Trinchera Ck ab Turners Ranch	APR-SEP	3.4	4.6	5.5	44	6.5	8.2	12.6
Sangre de Cristo Ck	(2) APR-SEP	1.0	2.9	4.8	29	7.1	11.4	16.3
Ute Ck nr Fort Garland	APR-SEP	2.5	4.3	5.8	45	7.5	10.5	12.8
Platoro Reservoir Inflow	(2) APR-JUL	25	31	35	63	39	46	56
	APR-SEP	27	34	39	63	44	53	62
Conejos R nr Mogote	(2) APR-SEP	76	98	114	59	131	159	194
San Antonio R at Ortiz	APR-SEP	1.7	3.0	4.0	26	5.2	7.2	15.6
Los Pinos R nr Ortiz	APR-SEP	19.7	26	31	43	36	45	73
Culebra Ck at San Luis	(2) APR-SEP	3.2	5.9	8.2	36	10.9	15.6	23
Costilla Reservoir Inflow	(2) MAR-JUL	2.7	4.4	5.8	52	7.4	10.1	11.1
	APR-JUL	2.4	4.1	5.5	53	7.1	9.8	10.3
Costilla Ck nr Costilla	(2) MAR-JUL	4.8	8.7	12.2	47	16.3	24	26
	APR-JUL	3.8	7.7	11.2	47	15.3	23	24

UPPER RIO GRANDE BASIN
Reservoir Storage (1000 AF) - End of March

UPPER RIO GRANDE BASIN
Watershed Snowpack Analysis - April 1, 2013

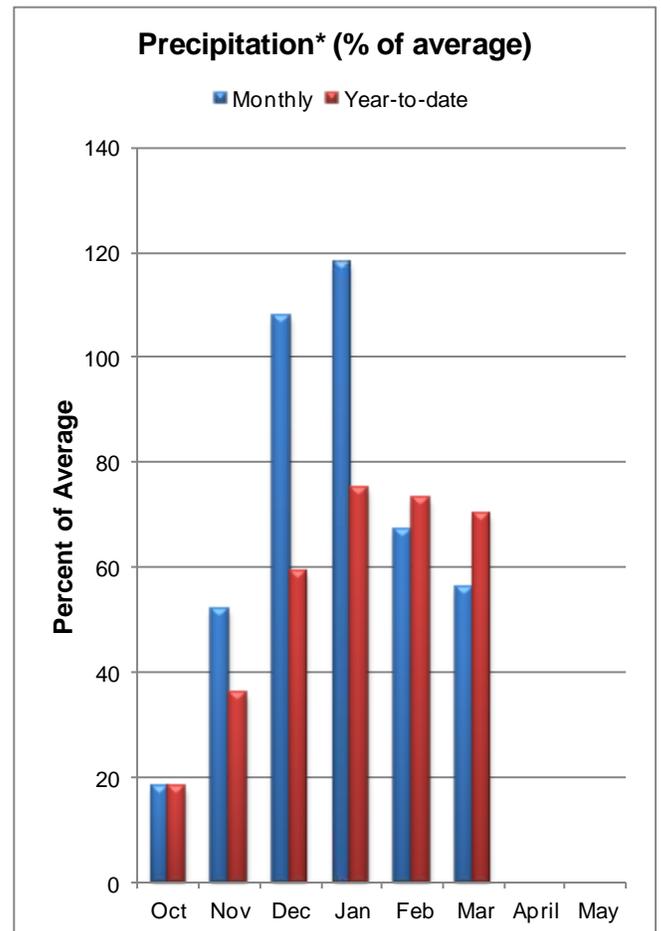
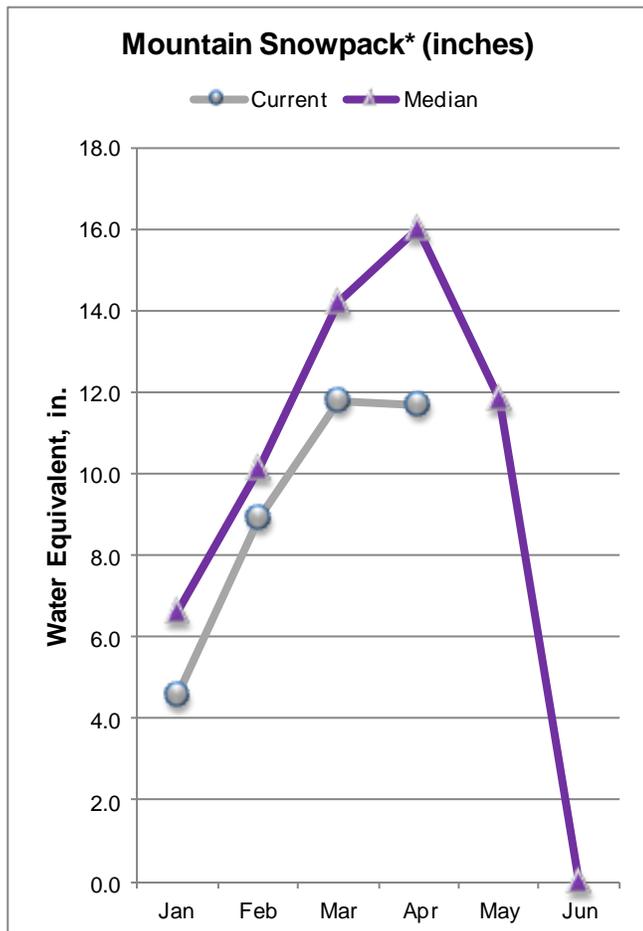
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Median
CONTINENTAL	27.0	8.3	5.8	5.9	ALAMOSA CREEK BASIN	2	171	38
PLATORO	60.0	8.8	15.5	24.5	CONEJOS & RIO SAN ANTONIO	4	114	60
RIO GRANDE	51.0	14.2	21.3	19.3	CULEBRA & TRINCHERA CREEK	4	166	76
SANCHEZ	103.0	7.1	9.0	24.9	UPPER RIO GRANDE BASIN	11	108	70
SANTA MARIA	45.0	7.7	8.5	10.8	TOTAL UPPER RIO GRANDE BA	20	123	67
TERRACE	18.0	4.1	7.6	7.6				

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1981-2010 base period, except for the reservoir averages which are from 1971-2000.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.
- (3) - Median value used in place of average.

SAN MIGUEL, DOLORES, ANIMAS, AND SAN JUAN RIVER BASINS as of April 1, 2013



*Based on selected stations

For the last two weeks the snowpack, as measured in inches of snow water equivalent (SWE), in the San Miguel, Dolores, Animas, and San Juan basins has been declining. These basins may have already reached their peak snowpack, around March 22nd, and begun to melt. April 1 snow surveys reported the snowpack at just 73 percent of the median, which is a drop of 10 percentage points from the March 1 surveys. Mountain precipitation recorded at the SNOTEL sites in these basins during March was a measly 56 percent of average. Year to date precipitation has also decreased from last month to 70 percent of average as of April 1. Reservoirs in these basins increased their volumes slightly this past month. At the end of March they were storing 264,000 acre-feet of water. This equates to 68 percent of average storage for this time of year and just 44 percent of the total capacity. Current streamflow forecasts in these basins have fallen significantly compared to those issued last month. On average forecasts across the basins have declined by 12 percentage points! The largest decrease was the forecast for the Navajo River at Oso Diversion, which dropped 18 percentage points to 54 percent of average as of April 1. Runoff for the April to July period in these basins is now expected to range from 46 percent of average for the Inflow to Navajo Reservoir to 61 percent of average for both the Inflow to Vallecito Reservoir and the Inlet to Gurley Reservoir.

SAN MIGUEL, DOLORES, ANIMAS, AND SAN JUAN RIVER BASINS
Streamflow Forecasts - April 1, 2013

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		<<===== Drier =====>>		===== Wetter =====>>				
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Dolores R at Dolores	APR-JUL	87	113	132	54	153	187	245
McPhee Reservoir Inflow (2)	APR-JUL	91	121	144	49	169	210	295
San Miguel R nr Placerville	APR-JUL	43	58	70	55	83	104	128
Gurley Reservoir Inlet	APR-JUL	6.6	8.5	10.0	61	11.6	14.3	16.4
Cone Reservoir Inlet	APR-JUL	0.5	1.1	1.8	58	2.6	4.2	3.0
Lillylands Reservoir Inlet	APR-JUL	0.5	0.8	1.0	52	1.3	1.7	1.9
Rio Blanco at Blanco Diversion (2)	APR-JUL	19.4	25	30	56	35	43	54
Navajo R at Oso Diversion (2)	APR-JUL	23	30	35	54	41	50	65
San Juan R nr Carracas (2)	APR-JUL	116	158	190	50	225	280	380
Piedra R nr Arboles	APR-JUL	69	90	106	51	123	150	210
Vallecito Reservoir Inflow (2)	APR-JUL	83	103	118	61	134	159	194
Navajo Reservoir Inflow (2)	APR-JUL	210	285	340	46	400	500	735
Animas R at Durango	APR-JUL	137	176	205	49	235	285	415
Lemon Reservoir Inflow (2)	APR-JUL	20	26	30	55	34	41	55
La Plata R at Hesperus	APR-JUL	8.4	10.6	12.3	54	14.1	16.9	23
Mancos R nr Mancos (2)	APR-JUL	10.1	14.1	17.1	55	20	26	31

SAN MIGUEL, DOLORES, ANIMAS, AND SAN JUAN RIVER BASINS
Reservoir Storage (1000 AF) - End of March

SAN MIGUEL, DOLORES, ANIMAS, AND SAN JUAN RIVER BASINS
Watershed Snowpack Analysis - April 1, 2013

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Median
GROUNDHOG	22.0	5.8	5.4	12.2	ANIMAS RIVER BASIN	8	106	69
JACKSON GULCH	10.0	1.4	4.2	5.1	DOLORES RIVER BASIN	5	153	77
LEMON	40.0	8.4	16.2	21.2	SAN MIGUEL RIVER BASIN	5	135	70
MCPHEE	381.0	188.4	303.1	273.6	SAN JUAN RIVER BASIN	4	116	75
NARRAGUINNEP	19.0	9.9	19.0	15.5	TOTAL SAN MIGUEL, DOLORES	21	121	73
VALLECITO	126.0	49.7	84.2	62.0	AN JUAN RIVER BASINS			

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1981-2010 base period, except for the reservoir averages which are from 1971-2000.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.
- (3) - Median value used in place of average.



Denver Federal Center, Bldg 56, Rm 2604
PO Box 25426
Denver, CO 80225-0426

In addition to the basin outlook reports, water supply forecast information for the Western United States is available from the Natural Resources Conservation Service and the National Weather Service monthly, January through May. The information may be obtained from the Natural Resources Conservation Service web page at <http://www.wcc.nrcs.usda.gov/wsf/westwide.html>

Issued by

Jason Weller
Acting Chief
Natural Resources Conservation Service
U.S. Department of Agriculture

Released by

Phyllis Ann Philipps
State Conservationist
Natural Resources Conservation Service
Lakewood, Colorado

Colorado
Basin Outlook Report
Natural Resources Conservation Service
Lakewood, CO