USDA United States Department of Agriculture

Colorado
Water Supply Outlook Report
April 1, 2014

Pictured is the marker at the Longs Peak snow course in the Big Thompson River drainage. The snow measured at the site on March 31st was 127 percent of median, with a depth of 49 inches and snow water equivalent of 13.2 inches. At this time last year the site reported just 5.4 inches of snow water equivalent. Photo taken by Mage Hultstrand.

REMINDER: We are soliciting field work photos from our snow surveyors again this year. Each month we will pick one to grace the cover of this report! The photographer will be given proper credit of course. Please include information on where, when and of who/what the photo was taken.

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

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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.

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Summary

March is an important month for snow accumulation in Colorado; the state typically receives 17 percent of its annual snowpack in March and it is normally the last full month for the state to add to its snowpack totals prior to the annual peak and subsequent melt. This March, weather patterns across the state were largely a continuation of the trends set the past few months. The winter storm track continued to favor the northern and central river basins, while generally missing the southwest portion of the state. March storms did not quite bring the moisture that the state received in February, and as a result a majority of the major river basins saw declines in snowpack percentages this month. Overall mountain precipitation tracked right at normal for the state during March and total water year precipitation remains above normal. Spring and summer streamflow forecasts for Colorado remain good to excellent for the northern and central basins and below normal for the southern basins. Statewide reservoir storage is in relatively good condition especially when comparing to the storage totals the state had last year at this time. Water users should continue to follow spring's weather patterns as the final touches are added to what has been a generally good snow season across the majority of the state.

Snowpack

The month of March did not pack the snow accumulation punch that February did, but as a whole the state continued to add to its snowpack at normal rates throughout the month. As of April 1 statewide snowpack was 115 percent of median and 156 percent of last year's snowpack at this same time. As of April 1 the state had already exceeded its typical peak snowpack and did not look like it had reached its peak for this season yet. Due to slower rates of snow accumulation in March compared to previous months, many of the major river basins in the state saw declines in their snowpack percentages. In spite of that, most of the basins are still well above normal for this time of year. The South Platte basin is still boasting the highest snowpack percentage statewide and was at 143 percent of median as of April 1 despite an 8 percentage point drop compared to last month. The most concerning decline was in the combined San Miguel, Dolores, Animas and San Juan basins whose snowpack dropped 6 percentage points, from 85 percent of median on March 1 to 79 percent of median as of April 1. The Yampa, White & North Platte basins and the Arkansas basin both saw slight improvements in snowpack percentages this month; they reported 130 and 112 percent of median respectively on April 1.

Precipitation

Statewide precipitation during the month of March was 100 percent of average and total precipitation recorded for the water year was 106 percent of average as of April 1. The current statewide numbers may be reassuring but they don't tell the whole story. Upon closer examination the disparity in precipitation received this month between northern Colorado and southern Colorado is very striking. The northern half of the state received above normal precipitation for the month with total's ranging from 107 percent of average in the South Platte basin to 125 percent of average in the Yampa, White and North Platte basins. The central part of the state recorded below normal precipitation for the month, with the Gunnison basin at 86 percent of average, and the Arkansas basin at only 78 percent of average. Southern Colorado continued the trend from the past four months; the Upper Rio Grande basin recorded 77 percent of average and the combined San Miguel, Dolores, Animas, and San Juan basins had 80 percent of average precipitation for March. These basins also have the lowest year-to-date precipitation percentages in the state, with the Upper Rio Grande at 79 percent of average and the combined southwest basins at 87 percent of average as of April 1.

Reservoir Storage

As of April 1, Colorado's reservoirs were storing 3,192.5 kilo acre-feet of water, which is 89 percent of average storage for this time of year. Storage volumes have dipped slightly compared to last month as reservoir operators are expecting above average inflows across the majority of the state this runoff season. Storage volumes in the South Platte are the highest in the state; the basin reported 108 percent of average storage at the end of March. Reservoir storage in the Colorado and Gunnison basins is at 93 and 94 percent of average respectively. Storage in the combined San Miguel, Animas, Dolores and San Juan basins is at 82 percent of average which is a huge improvement over last year when they were storing volumes at just 66 percent of average. The Arkansas basin, with current volumes at just 60 percent of average has the lowest storage, as a percent of average, statewide. The basin of most concern is the Upper Rio Grande, which has had multiple seasons of below average snowpack and where storage volumes have not recovered since the early 2000's. As of April 1 storage in the Upper Rio Grande basin was 70 percent of average and 23 percent of capacity.

Streamflow

Colorado's water users can expect above normal streamflows across the majority of the state this spring and summer. As we approach the maximum accumulation of the state's snowpack the forecasts for Colorado's river flows are becoming more refined and have greater skill. In general the April 1 forecasts follow the trends documented in snowpack totals across the state. The forecasts for the Colorado river basin are all well above normal and have improved compared to last month's forecasts, especially in the headwaters portion of the basin. As a result of slightly drier conditions in the South Platte during March most of the forecasts in the basin have declined slightly compared to last month. The current forecasts are still calling for well above normal flows in the streams this season however. Streams in the Yampa, White and North Platte basins are projected to see April-July flows that are well above normal with the exception of the White River near Meeker. The Arkansas basin is very split, with the headwater streams expected to flow above normal this spring and summer and the southern tributaries expected to see very low flows this season. The Gunnison river basin is also somewhat split with most of the streams in the headwaters expected to see above normal flows and some of the lower tributaries, such as the Uncompahgre, expected to be slightly below normal. The Upper Rio Grande and combined southwest basins both saw significant decreases in their streamflow forecasts this month resulting from very dry conditions during March.

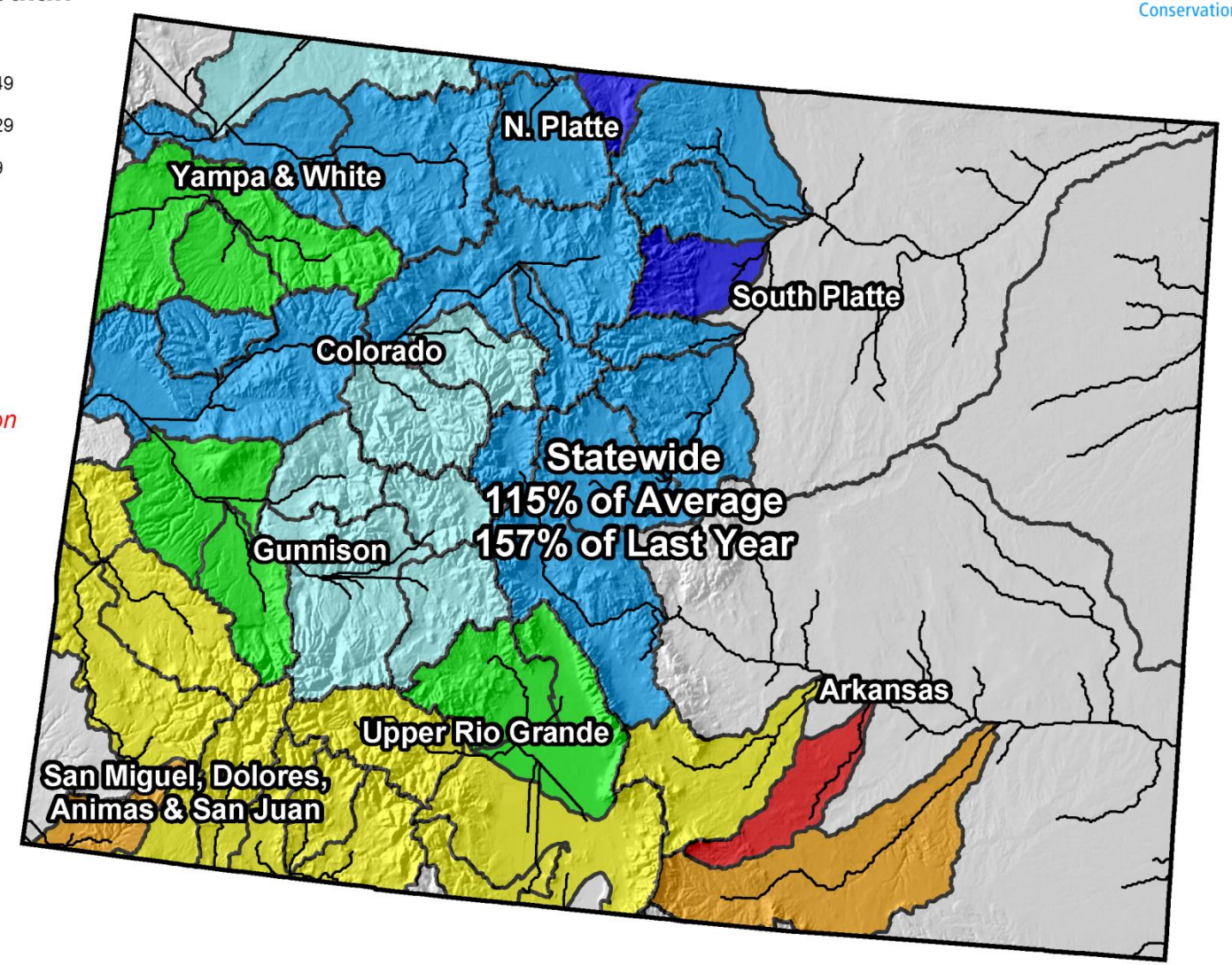
Colorado Snowpack Map

NRCS
Natural Resources Conservation Service

Percent of Median

- >= 150
- 130 - 149
- 110 - 129
- 90 - 109
- 70 - 89
- 50 - 69
- < 50

Provisional Data
Subject to Revision



Current as of April 1, 2014

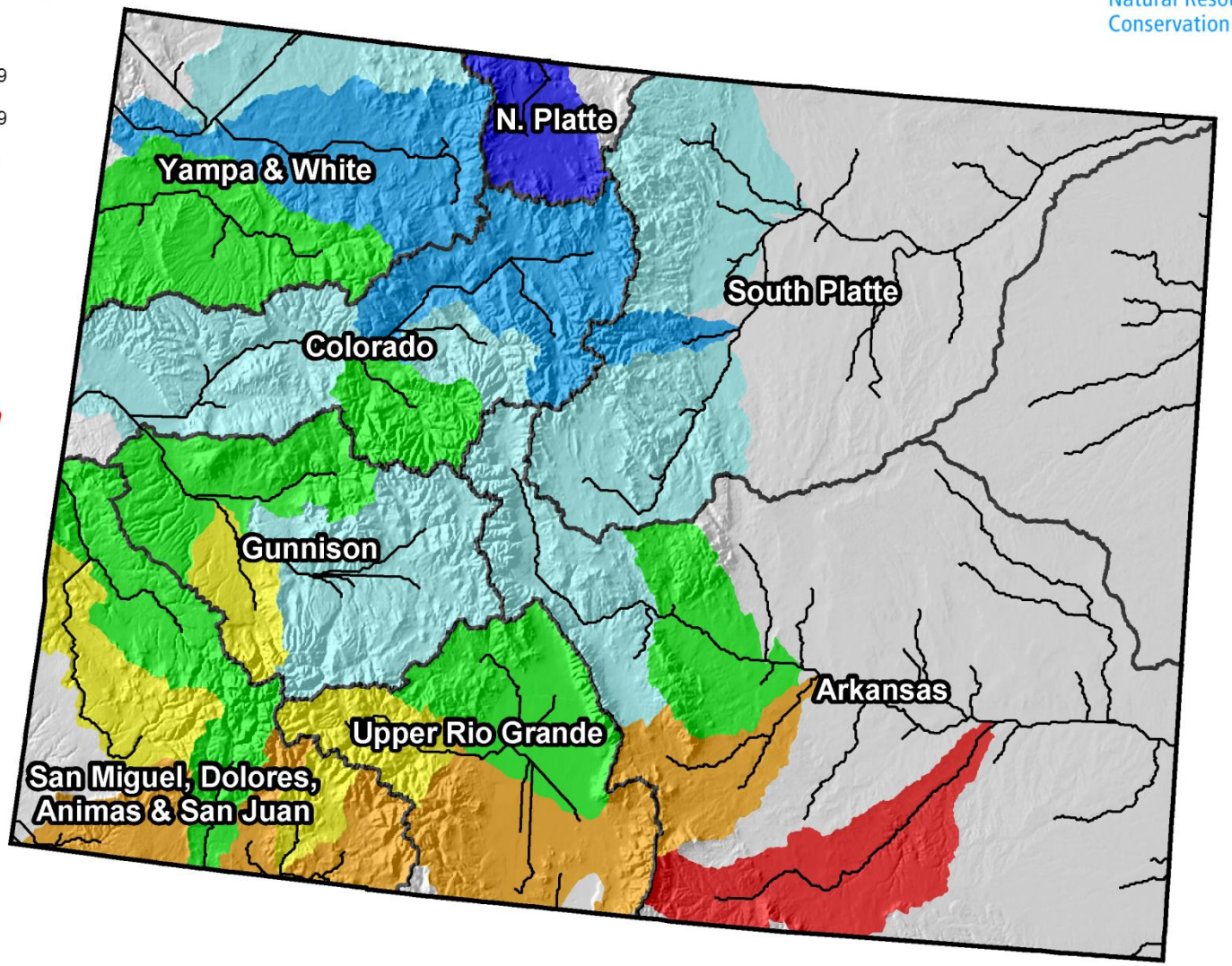
Colorado Streamflow Forecast Map

NRCS
Natural Resources
Conservation Service

Percent of Average

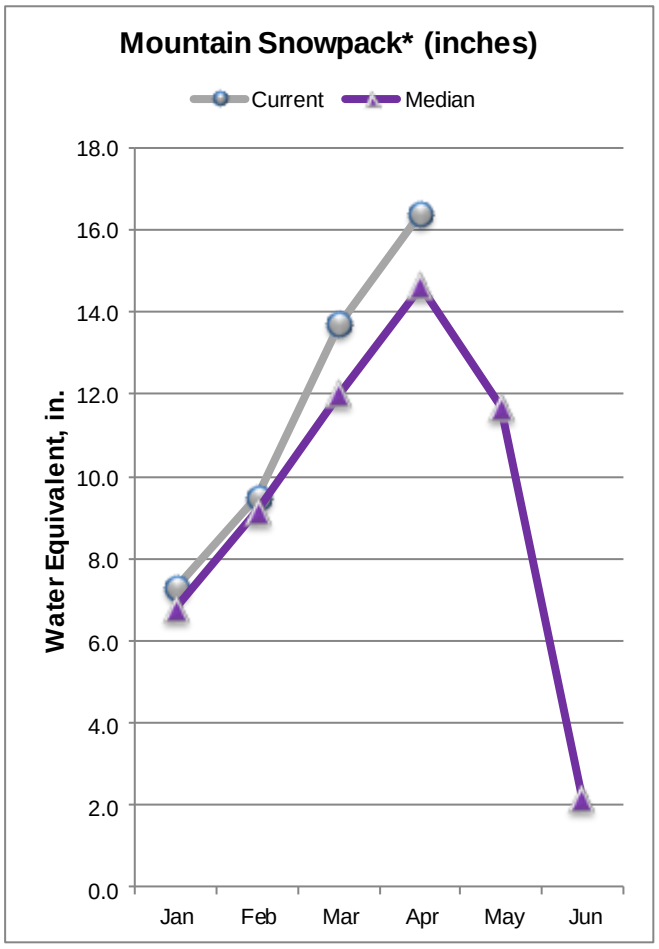
- >= 150
- 130 - 149
- 110 - 129
- 90 - 109
- 70 - 89
- 50 - 69
- < 50

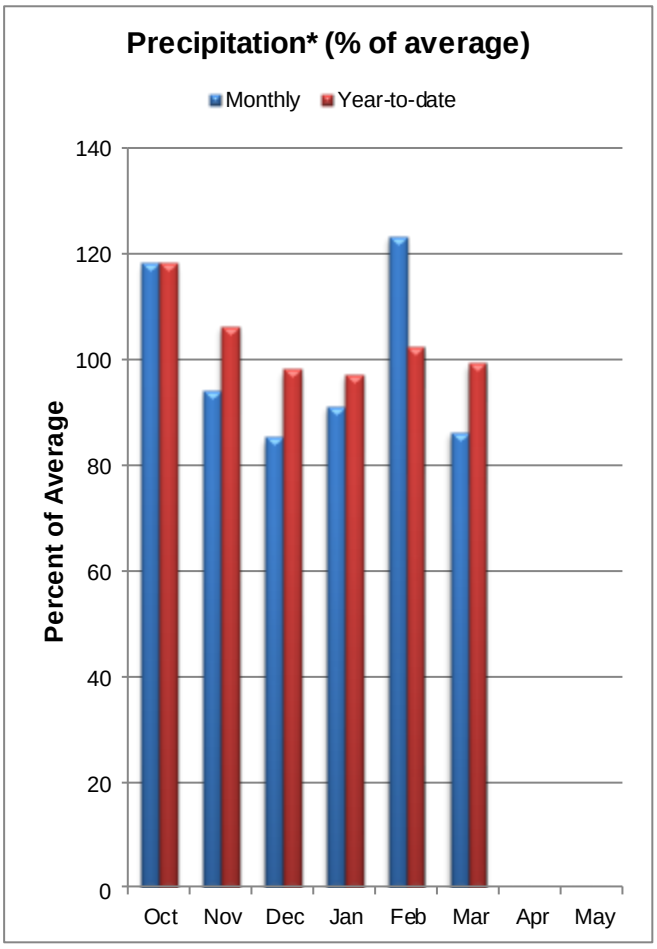
Provisional Data
Subject to Revision



Current as of April 1, 2014

GUNNISON RIVER BASIN
as of April 1, 2014





*Based on selected stations

SUMMARY OF WATER SUPPLY CONDITIONS

SNOWPACK

Storm systems continued to accumulate snow in the Gunnison basin during March, leaving the snowpack at 112 percent of median as of April 1. The headwaters portion of the basin continues to fair the best at 116 percent of median while the Uncompahgre watershed is just 93 percent of median.

PRECIPITATION

Total precipitation during March was just 86 percent of average in the basin which caused year-to-date precipitation to drop slightly to 99 percent of average as of April 1.

RESERVOIR

Reservoir storage volumes improved for the second month in a row, with storage being 94 percent of average in the basin as of the end of March.

STREAMFLOW FORECASTS

Streamflow forecasts remained relatively constant this month. Current predictions for April to July runoff volumes range from 123 percent of average for the Gunnison River near Gunnison to 80 percent of average for Surface Creek at Cedaredge.

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Gunnison River Basin
Streamflow Forecasts - April 1, 2014

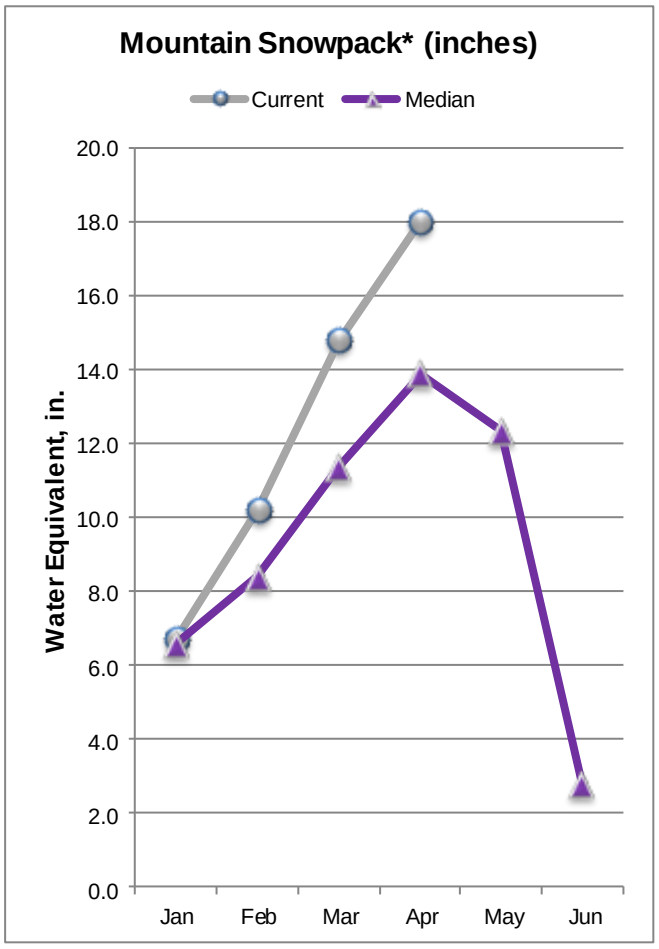
GUNNISON RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
		Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast						
Taylor Park Reservoir Inflow	APR-JUL	93	108	118	119%	129	146	99
Slate R nr Crested Butte	APR-JUL	84	92	99	119%	105	114	83
East R at Almont	APR-JUL	184	205	220	121%	240	265	182
Gunnison R near Gunnison [2]	APR-JUL	360	415	455	123%	495	560	370
Tomichi Ck at Sargents	APR-JUL	22	29	34	113%	40	49	30
Cochetopa Ck bl Rock Ck nr Parlin	APR-JUL	8	12.5	16.1	107%	20	27	15
Tomichi Ck at Gunnison	APR-JUL	49	72	90	122%	111	144	74
Lake Fk at Gateview	APR-JUL	98	117	130	106%	144	167	123
Blue Mesa Reservoir Inflow [2]	APR-JUL	635	735	805	119%	880	995	675
Paonia Reservoir Inflow	MAR-JUN	67	83	94	98%	107	126	96
	APR-JUN	62	78	89	98%	102	121	91
	APR-JUL	65	82	95	98%	110	132	97
NF Gunnison R nr Somerset[2]	APR-JUL	235	270	295	102%	320	360	290
Surface Ck at Cedaredge	APR-JUL	10.5	12.2	13.5	80%	14.8	16.9	16.8
Ridgway Reservoir Inflow	APR-JUL	66	81	92	91%	104	122	101
Uncompahgre R at Colona [2]	APR-JUL	78	102	120	88%	140	171	137
Gunnison R nr Grand Junction [2]	APR-JUL	1190	1400	1560	105%	1720	1970	1480

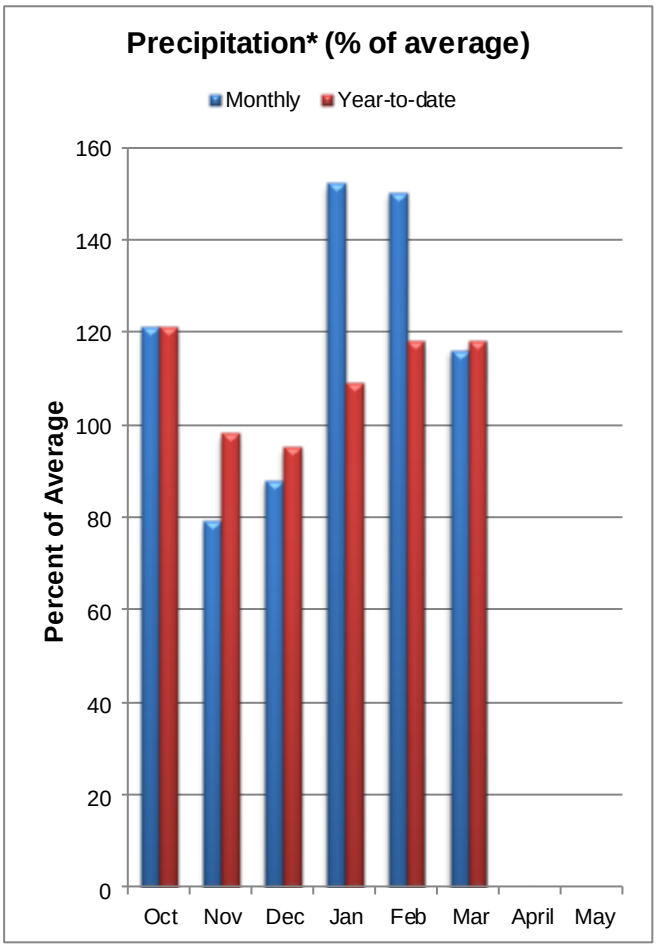
1) 90% and 10% exceedance probabilities are actually 95% and 5%
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
3) Median value used in place of average

Reservoir Storage End of March, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
BLUE MESA RESERVOIR	406.3	335.7	454.9	830.0
CRAWFORD RESERVOIR	7.3	2.5	9.7	14.0
CRYSTAL RESERVOIR	6.9	6.8	8.5	17.5
FRUITGROWERS RESERVOIR	3.6	2.5	4.0	3.6
FRUITLAND RESERVOIR	2.4	1.8	2.3	9.2
MORROW POINT RESERVOIR	106.6	104.8	111.7	121.0
PAONIA RESERVOIR	0.4	1.3	2.6	15.4
RIDGEWAY RESERVOIR	74.3	0.0	70.0	83.0
SILVERJACK RESERVOIR	9.2	2.6	6.0	12.8
TAYLOR PARK RESERVOIR	71.1	56.9	62.4	106.0
VOUGA RESERVOIR	0.4	0.6	0.8	0.0
Basin-wide Total	688.5	515.5	732.9	1212.5
# of reservoirs	11	11	11	11

Watershed Snowpack Analysis April 1, 2014	# of Sites	% Median	Last Year % Median
UPPER GUNNISON BASIN	18	116%	72%
SURFACE CREEK BASIN	3	95%	77%
UNCOMPAHGRE BASIN	4	93%	76%
GUNNISON RIVER BASIN	22	112%	73%

UPPER COLORADO RIVER BASIN
as of April 1, 2014





*Based on selected stations

SUMMARY OF WATER SUPPLY CONDITIONS

SNOWPACK

Snow surveys conducted on April 1 reported the snowpack in the Colorado River basin to be at 130 percent of median. The basin received above normal snow accumulation for the third consecutive month.

PRECIPITATION

March precipitation was 116 percent of average in the basin and total precipitation for the water year remains at 118 percent of average this month.

RESERVOIR

Reservoir storage has greatly improved over the past year in this basin. End of March reports had storage volumes at 93 percent of average compared with 65 percent of average reported last year at this time.

STREAMFLOW FORECASTS

Streamflow forecasts improved again this month thanks to continued snow accumulation in the basin. April to July forecasts currently range from 153 percent of average for the Inflow to Dillon Reservoir to 109 percent of average for the Roaring Fork at Glenwood Springs.

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Upper Colorado River Basin
Streamflow Forecasts - April 1, 2014

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

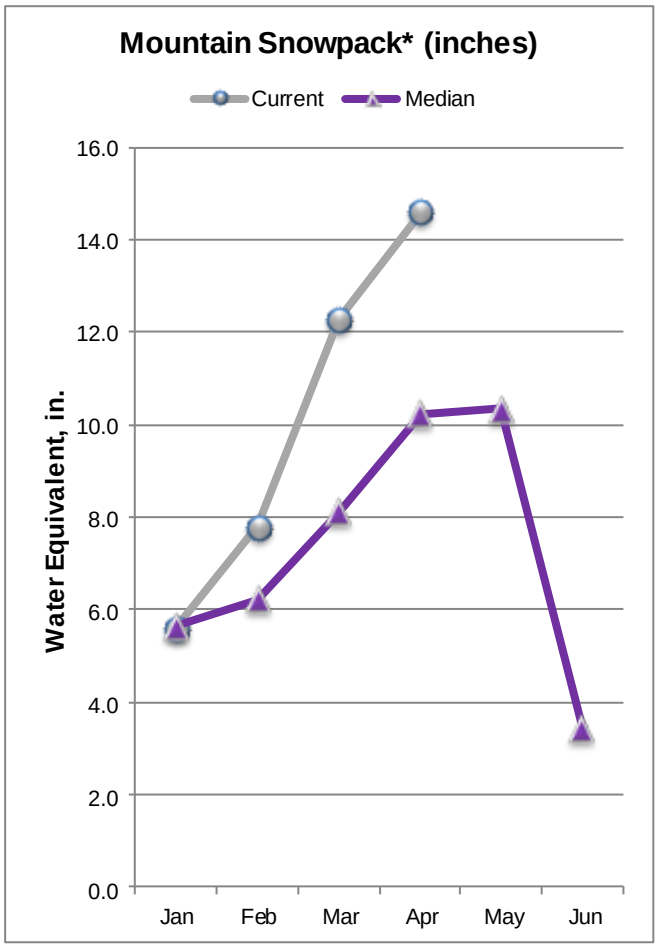
UPPER COLORADO RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Lake Granby Inflow [2]	APR-JUL	230	270	300	136%	330	380	220
Willow Ck Reservoir Inflow	APR-JUL	46	59	69	147%	80	97	47
Williams Fk bl Williams Fk Reservoir[2]	APR-JUL	108	126	138	142%	151	171	97
Wolford Mtn Reservoir Inflow	APR-JUL	60	73	82	152%	92	107	54
Dillon Reservoir Inflow[2]	APR-JUL	198	230	250	153%	275	310	163
Green Mountain Reservoir Inflow[2]	APR-JUL	320	375	410	149%	450	510	275
Eagle R bl Gypsum [2]	APR-JUL	320	380	420	125%	465	535	335
Colorado R nr Dotsero [2]	APR-JUL	1520	1810	2010	144%	2230	2560	1400
Ruedi Reservoir Inflow [2]	APR-JUL	131	150	164	118%	178	200	139
Roaring Fk at Glenwood Springs[2]	APR-JUL	605	690	750	109%	815	915	690
Colorado R nr Cameo [2]	APR-JUL	2390	2750	3010	128%	3280	3700	2350

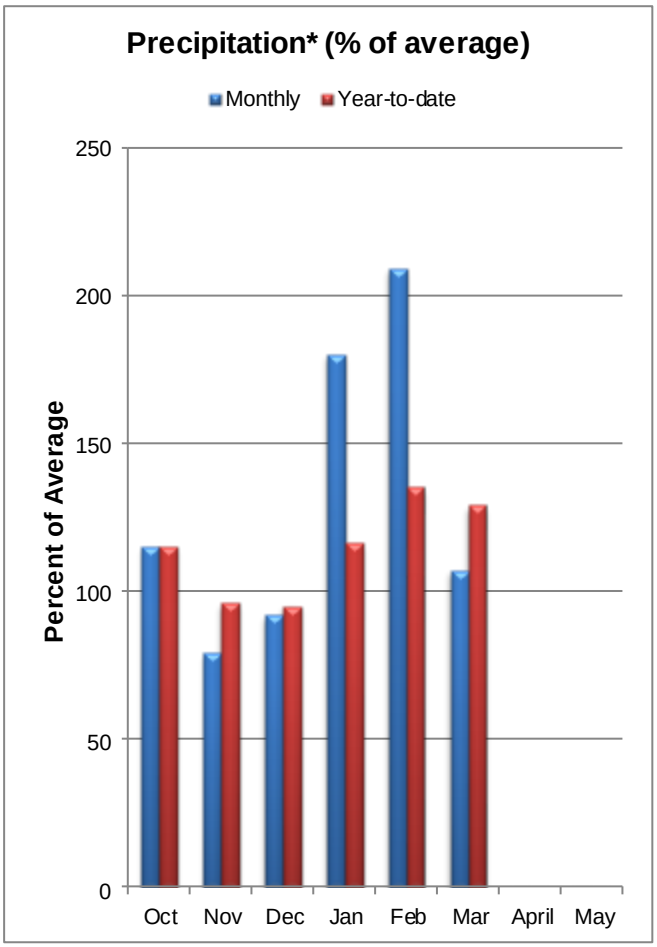
1) 90% and 10% exceedance probabilities are actually 95% and 5%
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
3) Median value used in place of average

Reservoir Storage End of March, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
DILLON RESERVOIR	222.6	163.3	215.6	254.0
GREEN MOUNTAIN RESERVOIR	54.0	53.0	61.2	146.8
HOMESTAKE RESERVOIR	0.3	0.3	26.1	43.0
LAKE GRANBY	220.6	123.4	265.0	465.6
RUEDI RESERVOIR	66.5	61.3	63.2	102.0
SHADOW MOUNTAIN RESERVOIR	17.4	17.4	17.3	18.4
VEGA RESERVOIR	8.8	8.8	14.0	32.9
WILLIAMS FORK RESERVOIR	77.4	41.9	60.8	97.0
WILLOW CREEK RESERVOIR	8.3	7.1	7.2	9.1
WOLFORD MOUNTAIN RESERVOIR	43.0	24.2	43.7	65.9
Basin-wide Total	718.9	500.7	774.1	1234.7
# of reservoirs	10	10	10	10

Watershed Snowpack Analysis April 1, 2014	# of Sites	% Median	Last Year % Median
BLUE RIVER BASIN	8	143%	79%
HEADWATERS COLORADO RIVER	30	140%	80%
MUDDY CREEK BASIN	4	160%	95%
EAGLE RIVER BASIN	4	119%	71%
PLATEAU CREEK BASIN	3	95%	77%
ROARING FORK BASIN	10	121%	75%
WILLIAMS FORK BASIN	4	134%	86%
WILLOW CREEK BASIN	4	149%	86%
UPPER COLORADO RIVER BASIN	43	131%	79%

SOUTH PLATTE RIVER BASIN
as of April 1, 2014





*Based on selected stations

SUMMARY OF WATER SUPPLY CONDITIONS

SNOWPACK

The South Platte basin continues to boast the highest snowpack percentage in the state. The basin's snowpack was 143 percent of median as of April 1. Within the larger basin, the Saint Vrain watershed surpassed Boulder Creek this month as having the highest percentage; it was at 172 percent of median on April 1.

PRECIPITATION

Precipitation in the basin was above normal for the third consecutive month. March precipitation was 107 percent of average putting year-to-date precipitation in the basin at 129 percent of average.

RESERVOIR

Reservoir storage was 108 percent of average as of the end of March compared to 89 percent of average reported last year at this same time.

STREAMFLOW FORECASTS

April to July forecasts in the basin currently range from 118 percent of average for Bear Creek at Morrison to 130 percent of average at Clear Creek at Golden.

Data Current as of: 4/4/2014 4:57:19 PM

South Platte River Basin
Streamflow Forecasts - April 1, 2014

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

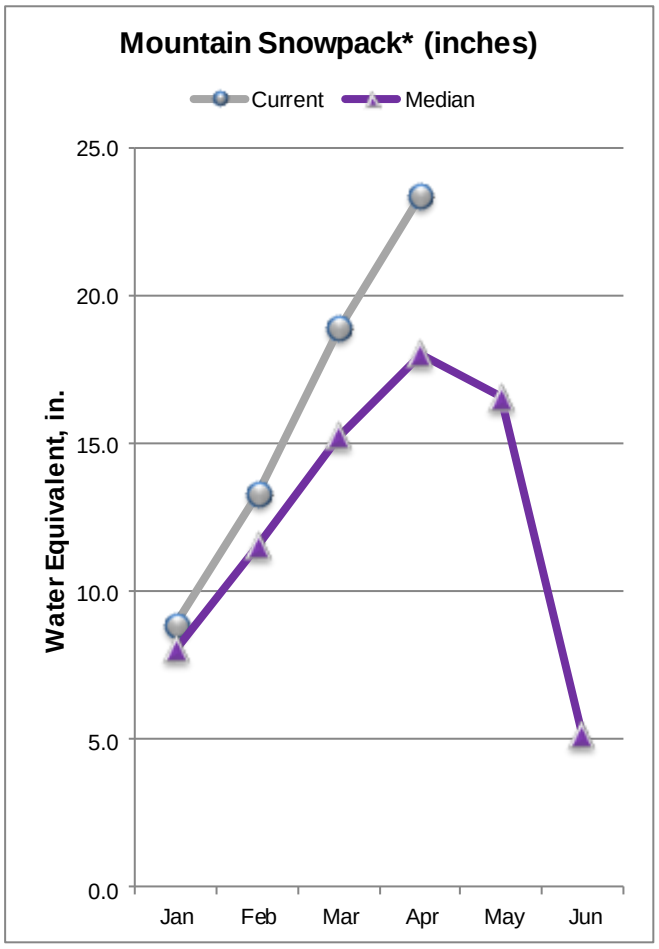
SOUTH PLATTE RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Antero Reservoir Inflow[2]								
	APR-JUL	12.2	15.3	17.4	120%	19.6	23	14.5
	APR-SEP	15.2	18.9	21	118%	24	28	17.8
Spinney Mountain Reservoir Inflow[2]								
	APR-JUL	33	47	60	125%	77	111	48
	APR-SEP	39	57	75	123%	98	146	61
Elevenmile Canyon Reservoir Inflow[2]								
	APR-JUL	33	48	62	124%	80	118	50
	APR-SEP	38	58	78	122%	104	159	64
Cheesman Lake Inflow[2]								
	APR-JUL	64	96	126	126%	166	250	100
	APR-SEP	79	120	160	127%	215	325	126
South Platte R at South Platte[2]								
	APR-JUL	104	164	225	125%	305	485	180
	APR-SEP	130	205	285	127%	390	620	225
Bear Ck ab Evergreen								
	APR-JUL	9	14.3	19.5	119%	27	42	16.4
	APR-SEP	11.8	18.4	25	119%	34	53	21
Bear Ck at Morrison								
	APR-JUL	10.3	17.9	26	118%	38	65	22
	APR-SEP	12.9	22	32	114%	46	80	28
Clear Ck at Golden								
	APR-JUL	106	124	137	130%	150	168	105
	APR-SEP	124	149	166	130%	183	210	128
St. Vrain Ck at Lyons[2]								
	APR-JUL	93	103	110	125%	117	127	88
	APR-SEP	110	122	130	126%	138	150	103
Boulder Ck nr Orodell[2]								
	APR-JUL	58	64	69	128%	74	80	54
	APR-SEP	64	73	79	125%	85	94	63
South Boulder Ck nr Eldorado Springs[2]								
	APR-JUL	40	46	49	126%	52	58	39
	APR-SEP	42	48	53	123%	58	64	43
Big Thompson R at Canyon Mouth[2]								
	APR-JUL	93	106	115	128%	124	137	90
	APR-SEP	109	125	136	127%	146	162	107
Cache La Poudre at Canyon Mouth[2]								
	APR-JUL	194	245	290	129%	340	435	225
	APR-SEP	205	265	310	124%	365	465	250

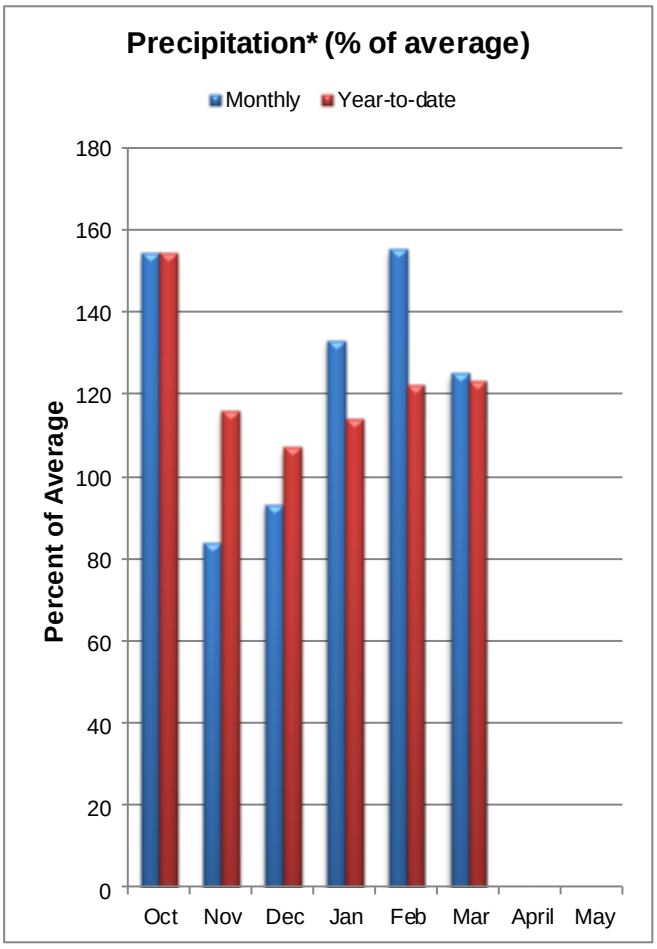
1) 90% and 10% exceedance probabilities are actually 95% and 5%
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
3) Median value used in place of average

Reservoir Storage End of March, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
ANTERO RESERVOIR	15.9	15.3	14.9	19.9
BARR LAKE	29.1	19.0	27.8	30.1
BLACK HOLLOW RESERVOIR	3.5	2.3	2.8	6.5
BOYD LAKE	32.3	16.0	28.7	48.4
CACHE LA POUDRE		5.2	8.1	10.1
CARTER LAKE	93.0	87.4	94.9	108.9
CHAMBERS LAKE	6.7		3.2	8.8
CHEESMAN LAKE	77.2	46.4	65.1	79.0
COBB LAKE	19.6	11.7	11.6	22.3
ELEVENMILE CANYON RESERVOIR	99.6	98.4	96.4	98.0
EMPIRE RESERVOIR	35.1	21.0	31.2	36.5
FOSSIL CREEK RESERVOIR	9.5	10.8	8.0	11.1
GROSS RESERVOIR	30.2	26.0	22.4	41.8
HALLIGAN RESERVOIR	6.4	5.3	4.1	6.4
HORSECREEK RESERVOIR	12.3	3.1	12.7	14.7
HORSETOOTH RESERVOIR	115.3	103.0	113.7	149.7
JACKSON LAKE RESERVOIR	25.7	26.0	26.9	26.1
JULESBURG RESERVOIR	20.6	19.9	19.4	20.5
LAKE LOVELAND RESERVOIR	8.4	3.3	6.8	10.3
LONE TREE RESERVOIR	7.5	7.6	7.4	8.7
MARIANO RESERVOIR	4.4	2.5	3.6	5.4
MARSHALL RESERVOIR	9.5	6.3	6.6	10.0
MARSTON RESERVOIR	1.9	9.4	6.7	13.0
MILTON RESERVOIR	22.5	22.7	19.1	23.5
POINT OF ROCKS RESERVOIR	68.9	62.2	64.4	70.6
PREWITT RESERVOIR	21.6	18.1	21.4	28.2
RALPH PRICE RESERVOIR	13.6	12.8		16.2
RIVERSIDE RESERVOIR	54.5	53.9	53.1	55.8
SPINNEY MOUNTAIN RESERVOIR	33.8	19.9	28.2	49.0
STANDLEY RESERVOIR	41.2	29.0	36.2	42.0
TERRY RESERVOIR	6.0	4.8	4.8	8.0
UNION RESERVOIR	11.9	5.6	10.6	13.0
WINDSOR RESERVOIR	13.2	11.1	9.7	15.2
Basin-wide Total	950.9	786.0	870.5	1107.7
# of reservoirs	32	32	32	33

Watershed Snowpack Analysis April 1, 2014	# of Sites	% Median	Last Year % Median
BIG THOMPSON BASIN	7	140%	67%
BOULDER CREEK BASIN	6	154%	68%
CACHE LA POUDRE BASIN	10	145%	78%
CLEAR CREEK BASIN	4	136%	80%
SAINT VRAIN BASIN	4	172%	66%
UPPER SOUTH PLATTE BASIN	16	131%	67%
SOUTH PLATTE RIVER BASIN	47	143%	71%

YAMPA, WHITE, NORTH PLATTE AND LARAMIE RIVER BASINS
as of April 1, 2014





*Based on selected stations

SUMMARY OF WATER SUPPLY CONDITIONS

SNOWPACK

Beneficial weather patterns persisted in these basins throughout March, resulting in above normal snow accumulation for the month. April 1 snowpack totals were up to 130 percent of median and current SNOTEL data shows that the snowpack is 126 percent of the typical peak snowpack.

PRECIPITATION

March precipitation was 125 percent of average in these basins which put year-to-date precipitation at 123 percent of average as of April 1.

RESERVOIR

Reservoir storage volumes remain above normal for this time of year at 105 percent of average and 85 percent of capacity as of the end of March.

STREAMFLOW FORECASTS

Forecasts for April to July streamflows are quite variable within these basins. They currently range from a low of 89 percent of average for the White River near Meeker to 156 percent of average for the North Platte near Northgate. The Yampa River near Steamboat Springs is forecast to be 129 percent of average this spring and summer.

Data Current as of: 4/4/2014 4:57:22 PM

Yampa-White-North Platte River Basins
Streamflow Forecasts - April 1, 2014

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

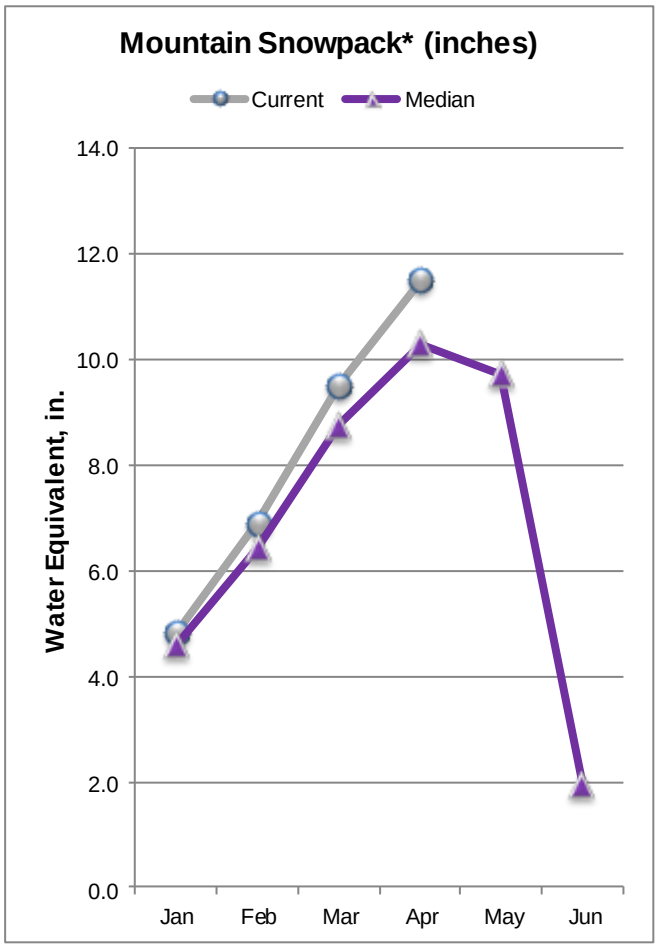
YAMPA-WHITE-NORTH PLATTE RIVER BASINS	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
North Platte R nr Northgate								
	APR-JUL	255	310	350	156%	390	445	225
	APR-SEP	285	345	390	156%	435	495	250
Laramie R nr Woods[2]								
	APR-JUL	135	158	174	151%	190	215	115
	APR-SEP	146	172	190	151%	210	235	126
Yampa R ab Stagecoach Reservoir [2]								
	APR-JUL	16.9	23	28	122%	33	42	23
Yampa R at Steamboat Springs[2]								
	APR-JUL	255	300	335	129%	370	425	260
Elk R nr Milner								
	APR-JUL	355	430	485	152%	540	630	320
Elkhead Ck ab Long Gulch								
	APR-JUL	58	76	89	122%	103	127	73
Yampa R nr Maybell[2]								
	APR-JUL	980	1190	1340	143%	1500	1760	935
Little Snake R nr Slater[2]								
	APR-JUL	158	185	205	131%	225	260	156
Little Snake R nr Dixon[2]								
	APR-JUL	250	335	400	116%	470	585	345
Little Snake R nr Lily[2]								
	APR-JUL	265	355	420	122%	490	610	345
White R nr Meeker								
	APR-JUL	175	220	250	89%	285	340	280

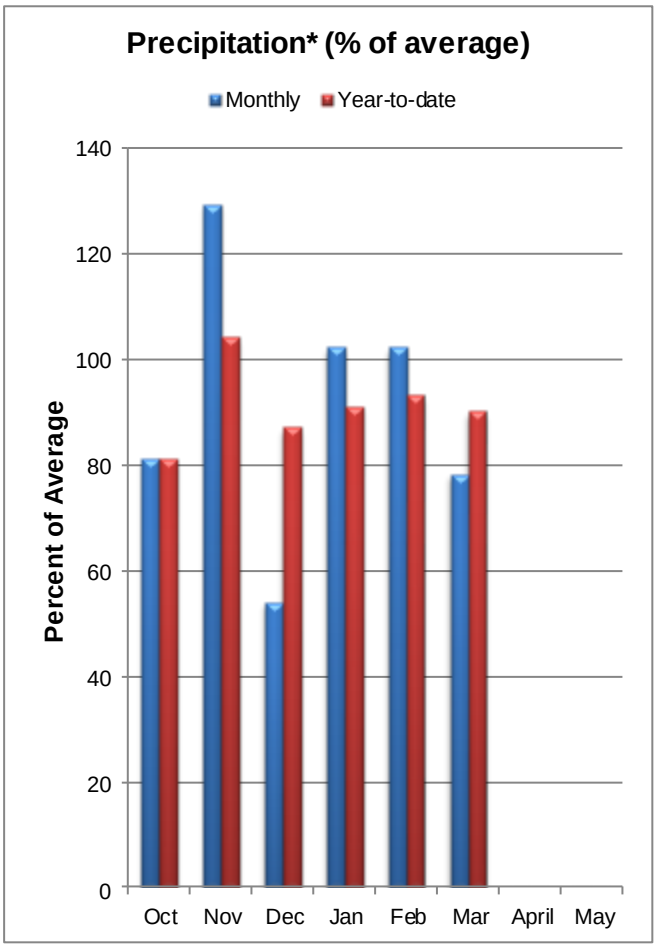
1) 90% and 10% exceedance probabilities are actually 95% and 5%
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
3) Median value used in place of average

Reservoir Storage End of March, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
STAGECOACH RESERVOIR NR OAK CREEK	30.3	29.4	27.2	33.3
YAMCOLO RESERVOIR	5.3	3.6	6.6	8.7
Basin-wide Total	35.6	33.0	33.8	42.0
# of reservoirs	2	2	2	2

Watershed Snowpack Analysis April 1, 2014	# of Sites	% Median	Last Year % Median
LARAMIE RIVER BASIN	5	156%	83%
NORTH PLATTE RIVER BASIN	38	130%	80%
LARAMIE & NORTH PLATTE RIVER BASINS	17	141%	82%
ELK RIVER BASIN	2	123%	71%
YAMPA RIVER BASIN	12	133%	82%
WHITE RIVER BASIN	5	107%	75%
YAMPA & WHITE RIVER BASINS	16	125%	79%
LITTLE SNAKE RIVER BASIN	9	124%	76%
YAMPA-WHITE-NORTH PLATTE RIVER BASINS	38	130%	80%

ARKANSAS RIVER BASIN
as of April 1, 2014





*Based on selected stations

SUMMARY OF WATER SUPPLY CONDITIONS

SNOWPACK

The Arkansas basin benefited from relatively constant snow accumulation during March. The snowpack as of April 1 was at 112 percent of median. There continues to be a large discrepancy between the Upper Arkansas sub-basin (at 134 percent) and the Purgatoire sub-basin (at 58 percent).

PRECIPITATION

For the first month since December the basin reported below normal precipitation with precipitation in March at just 78 percent of average. Thanks to the two months prior being above normal, year-to-date precipitation is at 90 percent of average as of April 1.

RESERVOIR

The Arkansas basin continues to have the lowest reservoir storage as a percent of average statewide; current volumes are just 60 percent of average.

STREAMFLOW FORECASTS

April to July forecasts range from 124 percent of average for Chalk Creek near Nathrop to 40 percent of average for the Cucharas River near La Veta.

Data Current as of: 4/4/2014 4:57:25 PM

Arkansas River Basin
Streamflow Forecasts - April 1, 2014

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

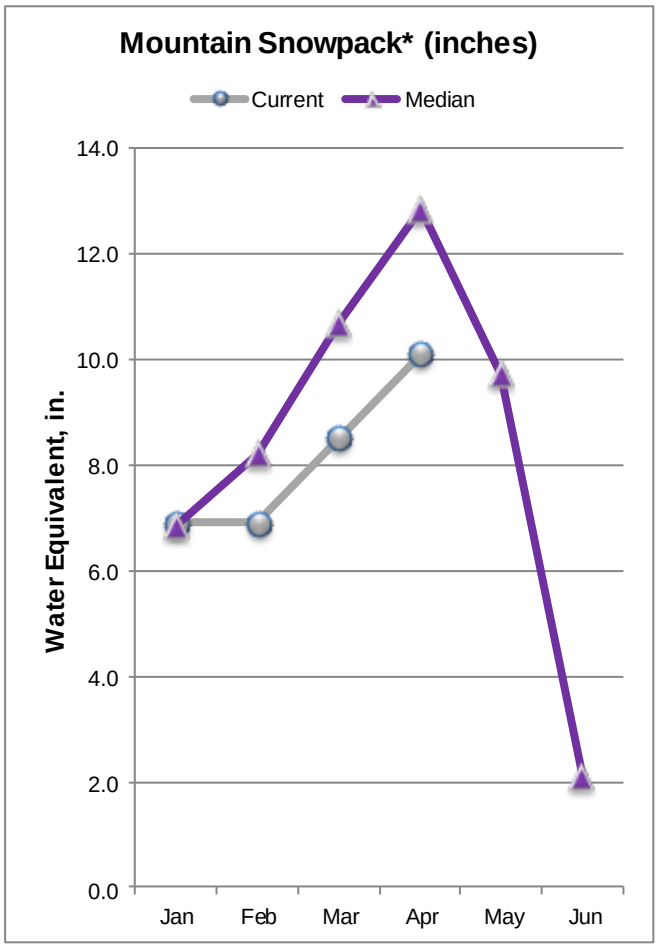
ARKANSAS RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Chalk Ck nr Nathrop								
	APR-JUL	16.4	22	26	124%	31	38	21
	APR-SEP	19.5	26	31	119%	36	45	26
Arkansas R at Salida[2]								
	APR-JUL	195	245	275	115%	305	350	240
	APR-SEP	235	300	340	115%	385	450	295
Grape Ck nr Westcliffe								
	APR-JUL	6.5	10	13.1	82%	15.6	19.9	15.9
	APR-SEP	6.7	11.9	15.5	79%	18.8	24	19.6
Pueblo Reservoir Inflow[2]								
	APR-JUL	230	315	380	106%	450	565	360
	APR-SEP	290	400	480	105%	570	715	455
Huerfano R nr Redwing								
	APR-JUL	4.9	7.3	9.1	76%	11.1	14.5	11.9
	APR-SEP	6.7	9.6	11.8	78%	14.3	18.4	15.2
Cucharas R nr La Veta								
	APR-JUL	1.53	3.3	4.9	40%	6.8	10.2	12.2
	APR-SEP	2.8	4.9	6.7	48%	8.8	12.3	14.1
Trinidad Lake Inflow[2]								
	MAR-JUL	5	11.6	18	49%	26	40	37
	APR-JUL	3.8	10.4	16.8	48%	25	39	35
	APR-SEP	4.7	14	23	49%	34	55	47

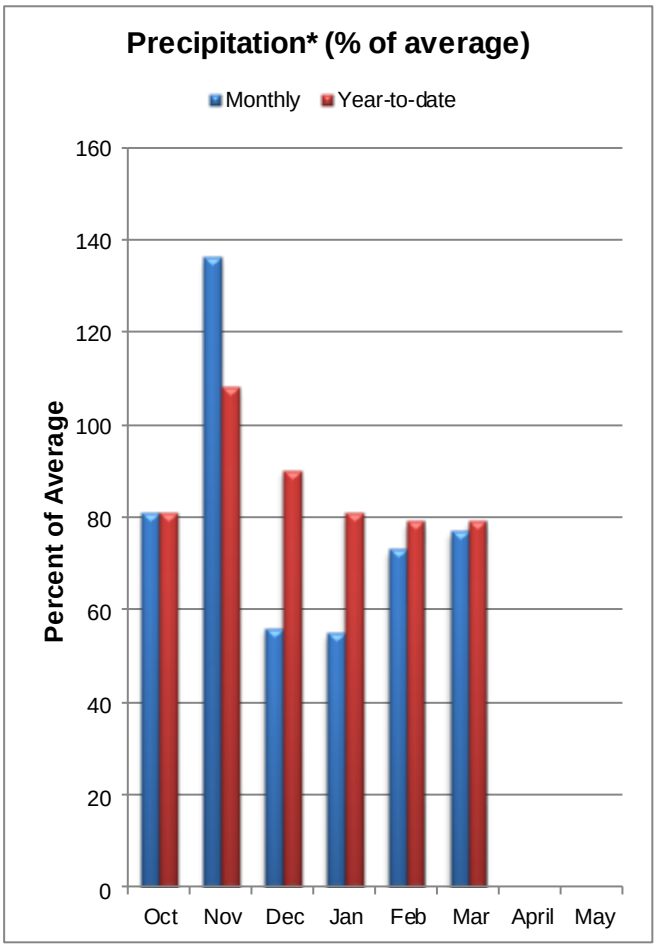
1) 90% and 10% exceedance probabilities are actually 95% and 5%
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
3) Median value used in place of average

Reservoir Storage End of March, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
ADOBE CREEK RESERVOIR	20.4	6.8	50.4	62.0
CLEAR CREEK RESERVOIR	8.7	7.2	7.6	11.4
CUCHARAS RESERVOIR		0.1	5.9	40.0
GREAT PLAINS RESERVOIR	0.0	0.0	37.0	150.0
HOLBROOK LAKE	0.2	5.2	4.7	7.0
HORSE CREEK RESERVOIR	0.0	0.0	12.8	27.0
JOHN MARTIN RESERVOIR	45.1	31.2	155.0	616.0
LAKE HENRY	8.6	6.1	7.3	8.0
MEREDITH RESERVOIR	23.6	29.3	29.2	42.0
PUEBLO RESERVOIR	183.7	173.1	205.8	354.0
TRINIDAD LAKE	18.1	13.0	28.5	167.0
TURQUOISE LAKE	64.4	31.0	73.5	127.0
TWIN LAKES RESERVOIR	24.1	18.8	49.6	86.0
Basin-wide Total	396.9	321.8	667.3	1697.4
# of reservoirs	12	13	13	13

Watershed Snowpack Analysis April 1, 2014	# of Sites	% Median	Last Year % Median
UPPER ARKANSAS BASIN	9	134%	78%
CUCHARAS & HUERFANO BASINS	5	72%	68%
PURGATOIRE RIVER BASIN	2	58%	50%
ARKANSAS RIVER BASIN	16	112%	73%

UPPER RIO GRANDE RIVER BASIN
as of April 1, 2014





*Based on selected stations

SUMMARY OF WATER SUPPLY CONDITIONS

SNOWPACK

The Upper Rio Grande basin has received very little snow since a large system moved through in early March. The April 1 snowpack report was just 79 percent of median. The snowpack looks like it may have peaked on April 4th at just 84 percent of the normal peak.

PRECIPITATION

The basin continued to record below normal monthly precipitation totals this month. March precipitation was 77 percent of average and year-to-date precipitation remained constant at 79 percent of average as of April 1.

RESERVOIR

Reservoir storage volumes remain below normal at 70 percent of average and 23 percent of capacity as of the end of March.

STREAMFLOW FORECASTS

Across the basin streamflow forecasts have declined compared to those issued last month. April to September forecasts range from 103 percent of average for Saguache Creek near Saguache to 35 percent of average for the San Antonio River near Ortiz.

Data Current as of: 4/4/2014 4:57:27 PM

Upper Rio Grande Basin
Streamflow Forecasts - April 1, 2014

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

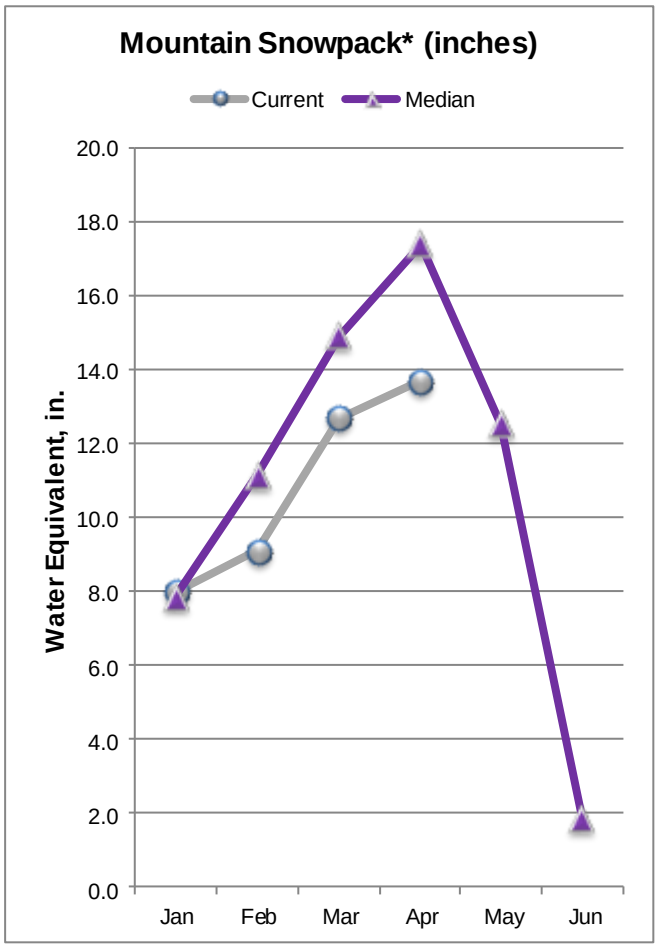
UPPER RIO GRANDE BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Rio Grande at Thirty Mile Bridge[2]								
	APR-JUL	65	82	94	83%	107	128	113
	APR-SEP	70	91	107	83%	124	151	129
Rio Grande at Wagon Wheel Gap[2]								
	APR-SEP	186	240	285	84%	330	405	340
SF Rio Grande at South Fork[2]								
	APR-SEP	61	76	87	69%	99	117	127
Rio Grande nr Del Norte [2]								
	APR-SEP	275	350	410	80%	470	570	515
Saguache Ck nr Saguache								
	APR-SEP	19.1	27	33	103%	40	51	32
Alamosa Ck ab Terrace Reservoir								
	APR-SEP	32	41	47	69%	54	65	68
La Jara Ck nr Capulin								
	MAR-JUL	2.7	4.3	5.5	62%	6.9	9.3	8.9
	APR-JUL	2.2	3.8	5	61%	6.4	8.8	8.2
Trinchera Ck ab Turners Ranch								
	APR-SEP	4.2	5.6	6.6	52%	7.7	9.5	12.6
Sangre de Cristo Ck [2]								
	APR-SEP	1.79	4.2	6.4	39%	9.1	13.8	16.3
Ute Ck nr Fort Garland								
	APR-SEP	3.4	5.4	7.1	55%	9	12.2	12.8
Platoro Reservoir Inflow								
	APR-JUL	30	36	41	73%	46	53	56
	APR-SEP	32	40	45	73%	51	60	62
Conejos R nr Mogote [2]								
	APR-SEP	91	115	132	68%	151	180	194
San Antonio R at Ortiz								
	APR-SEP	2.7	4.2	5.4	35%	6.8	9.1	15.6
Los Pinos R nr Ortiz								
	APR-SEP	25	32	37	51%	43	52	73
Culebra Ck at San Luis								
	APR-SEP	5.6	9.1	12	52%	15.2	21	23
Costilla Reservoir Inflow								
	MAR-JUL	3.2	5	6.5	59%	8.2	11	11.1
	APR-JUL	2.8	4.6	6.1	59%	7.8	10.6	10.3
Costilla Ck nr Costilla [2]								
	MAR-JUL	5	9	12.5	48%	16.7	24	26
	APR-JUL	4	8	11.5	48%	15.7	23	24

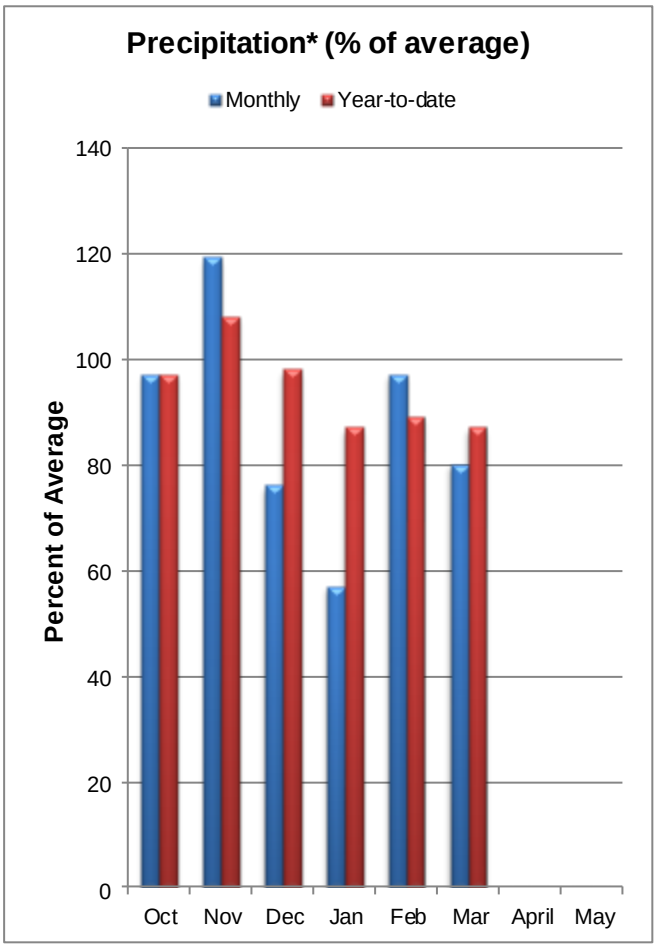
1) 90% and 10% exceedance probabilities are actually 95% and 5%
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
3) Median value used in place of average

Reservoir Storage End of March, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
BEAVER RESERVOIR	2.5	2.3	4.3	4.5
CONTINENTAL RESERVOIR	10.9	8.3	5.8	27.0
PLATORO RESERVOIR	10.0	8.8	24.2	60.0
RIO GRANDE RESERVOIR	24.2	14.2	19.1	51.0
SANCHEZ RESERVOIR	6.8	7.1	28.1	103.0
SANTA MARIA RESERVOIR	9.2	7.7	10.9	45.0
TERRACE RESERVOIR	6.6	4.1	8.2	18.0
Basin-wide Total	70.3	52.5	100.6	308.5
# of reservoirs	7	7	7	7

Watershed Snowpack Analysis April 1, 2014	# of Sites	% Median	Last Year % Median
ALAMOSA CREEK BASIN	3	85%	43%
CONEJOS & RIO SAN ANTONIO BASINS	4	75%	60%
CULEBRA & TRINCHERA BASINS	6	79%	81%
HEADWATERS RIO GRANDE RIVER BASIN	13	81%	68%
UPPER RIO GRANDE BASIN	25	79%	69%

SAN MIGUEL, DOLORES, ANIMAS, AND SAN JUAN RIVER BASINS as of April 1, 2014





*Based on selected stations

SUMMARY OF WATER SUPPLY CONDITIONS

SNOWPACK

After a month of below normal snow accumulation in these basins the April 1 snowpack report was just 79 percent of the median. The snowpack looks like it may have reached its peak on March 31st at just 85 percent of the normal peak.

PRECIPITATION

Precipitation for the month of March was 80 percent of average and year-to-date precipitation dropped to 87 percent of average as of April 1.

RESERVOIR

Reservoir storage in these basins was 82 percent of average at the end of March. This is a significant improvement compared to 66 percent of average reported last year at this time.

STREAMFLOW FORECASTS

Streamflow forecasts across these basins have declined compared to those issued last month. Recent forecasts for April to July volumes range from 61 percent of average for the Mancos River near Mancos to 105 percent of average for the San Miguel River near Placerville.

Data Current as of: 4/4/2014 4:57:30 PM

San Miguel-Dolores-Animas-San Juan River Basins
Streamflow Forecasts - April 1, 2014

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

SAN MIGUEL-DOLORES-ANIMAS-SAN JUAN RIVER BASINS	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Dolores R at Dolores	APR-JUL	152	185	210	86%	235	280	245
McPhee Reservoir Inflow	APR-JUL	173	215	245	83%	280	330	295
San Miguel R nr Placerville	APR-JUL	95	117	134	105%	152	180	128
Cone Reservoir Inlet	APR-JUL	1.11	2.1	3	100%	4.1	6.3	3
Gurley Reservoir Inlet	APR-JUL	12.1	14.9	17	104%	19.3	23	16.4
Lilylands Reservoir Inlet	APR-JUL	1.21	1.65	2	104%	2.4	3.1	1.92
Rio Blanco at Blanco Diversion [2]	APR-JUL	24	31	36	67%	41	50	54
Navajo R at Oso Diversion [2]	APR-JUL	29	36	42	65%	48	58	65
San Juan R nr Carracas [2]	APR-JUL	160	210	245	64%	285	350	380
Piedra R nr Arboles	APR-JUL	122	150	170	81%	191	225	210
Vallecito Reservoir Inflow	APR-JUL	114	138	155	80%	173	200	194
Navajo Reservoir Inflow [2]	APR-JUL	350	445	515	70%	590	710	735
Animas R at Durango	APR-JUL	295	350	390	94%	435	500	415
Lemon Reservoir Inflow	APR-JUL	33	40	45	82%	50	59	55
La Plata R at Hesperus	APR-JUL	10.7	13.2	15	65%	17	20	23
Mancos R nr Mancos [2]	APR-JUL	11.6	15.8	19	61%	23	28	31

1) 90% and 10% exceedance probabilities are actually 95% and 5%
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
3) Median value used in place of average

Reservoir Storage End of March, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
GROUNDHOG RESERVOIR	7.3	5.8	12.5	22.0
JACKSON GULCH RESERVOIR	3.5	1.4	5.0	10.0
LEMON RESERVOIR	18.2	8.4	21.7	40.0
MCPHEE RESERVOIR	193.3	188.4	282.2	381.0
NARRAGUINNEP RESERVOIR	13.6	9.9	16.1	19.0
TROUT LAKE RESERVOIR	1.2	1.1	1.4	3.2
VALLECITO RESERVOIR	94.4	49.7	63.3	126.0
Basin-wide Total	331.5	264.7	402.2	601.2
# of reservoirs	7	7	7	7

Watershed Snowpack Analysis April 1, 2014	# of Sites	% Median	Last Year % Median
ANIMAS RIVER BASIN	11	85%	67%
DOLORES RIVER BASIN	7	75%	77%
SAN MIGUEL RIVER BASIN	6	86%	72%
SAN JUAN RIVER BASIN	26	80%	72%
SAN MIGUEL-DOLORES-ANIMAS-SAN JUAN RIVER BASINS	26	80%	72%

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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

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Natural Resources Conservation Service
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