

Colorado

Water Supply Outlook Report

January 1, 2016



Looking south towards Mount Sneffels and surrounding peaks in the Northern San Juan Mountains from the Uncompahgre Plateau, which is coated in a well above normal snowpack.

Date: 12/27/2015 Photo By: Karl Wetlaufer

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! Please include information on where, when and of who/what the photo was taken.

Contents

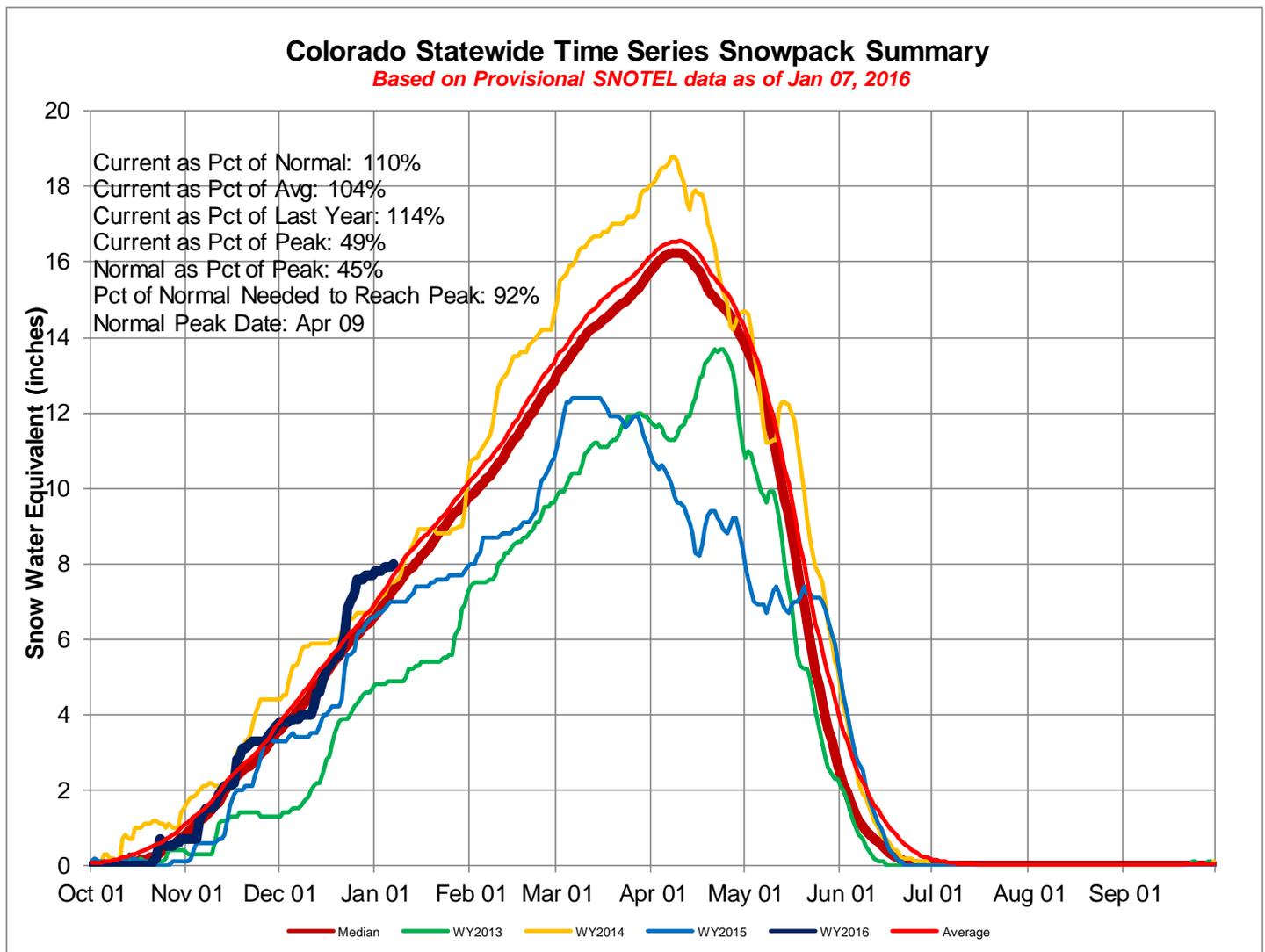
Statewide Water Supply Conditions	3
Summary	3
Snowpack	4
Precipitation	5
Reservoir Storage	6
Streamflow	7
GUNNISON RIVER BASIN	9
UPPER COLORADO RIVER BASIN	13
SOUTH PLATTE RIVER BASIN	17
YAMPA, WHITE, NORTH PLATTE AND LARAMIE RIVER BASINS	21
ARKANSAS RIVER BASIN	25
UPPER RIO GRANDE RIVER BASIN	29
SAN MIGUEL, DOLORES, ANIMAS, AND SAN JUAN RIVER BASINS	33
How to Read Non-Exceedance Projections Graphs	37
Explanation of Flow Comparison Charts	38
How Forecasts Are Made	39

The U.S. Department of Agriculture (USDA) prohibits discrimination against its customers. If you believe you experienced discrimination when obtaining services from USDA, participating in a USDA program, or participating in a program that receives financial assistance from USDA, you may file a complaint with USDA. Information about how to file a discrimination complaint is available from the Office of the Assistant Secretary for Civil Rights. USDA prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex (including genderidentity and expression), marital status, familial status, parental status, religion, sexual orientation, political beliefs, genetic information, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) To file a complaint of discrimination, complete, sign, and mail a program discrimination complaint form, available at any USDA office location or online at www.ascr.usda.gov, or write to: USDA Office of the Assistant Secretary for Civil Rights 1400 Independence Avenue, SW. Washington, DC 20250-9410. Or call toll free at (866) 632-9992 (voice) to obtain additional information, the appropriate office or to request documents. Individuals who are deaf, hard of hearing, or have speech disabilities may contact USDA through the Federal Relay service at (800) 877-8339 or (800) 845-6136 (in Spanish). USDA is an equal opportunity provider, employer, and lender. Persons with disabilities who require alternative means for communication of program information (e.g., Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

Statewide Water Supply Conditions

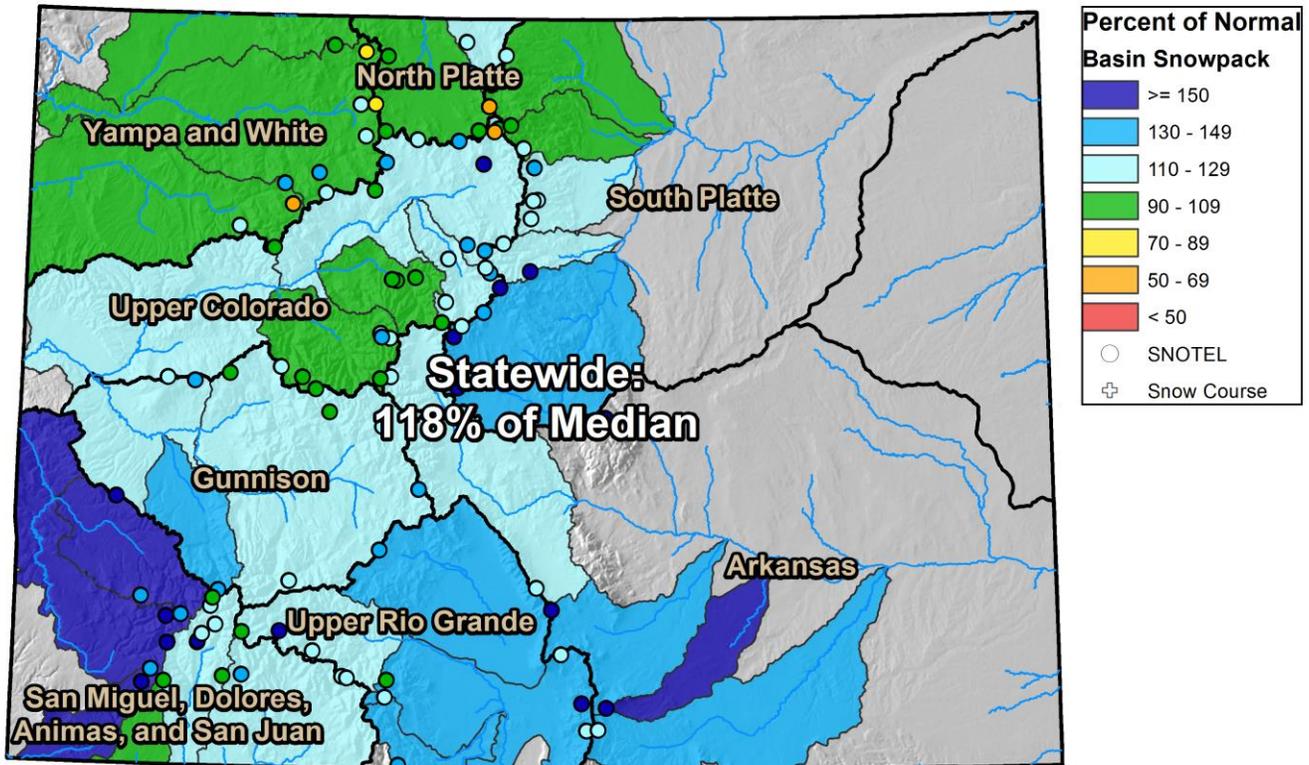
Summary

Colorado statewide snowpack is off to a top ten start in 2016, currently at 118 percent of normal, it is the most plentiful start since 2011. As El Nino has strengthened over the last several months so too has early winter precipitation, particularly in the form of snow during November and December. Colorado's October monthly precipitation totaled 97 percent of normal, relatively low compared to December's, at 129 percent of normal. Every major watershed experienced above average precipitation during December. Reservoir storage is still high from the precipitation of 2015. Currently, statewide storage is 110 percent of normal and has been since October 2015. Looking at all three components - snowpack, precipitation, and reservoir storage - the resulting water availability outlook for 2016 runoff season seems favorable. January 1 streamflow projections range from 80 to 123 percent of normal streamflow, but with most being for near or above normal volumes. It is important to bear in mind that January 1 streamflow forecasts often lack the skill of April and May forecasts, given the uncertainty of future precipitation, which plays a significant role in forecast skill. Will the current El Nino continue to provide adequate snowfall for the entire state of Colorado, just the southern half, or turn off the proverbial faucet all together? The result is yet to be seen.



Snowpack

Colorado Snowpack Summary January 1, 2016



0 25 50 100 150 200 Miles

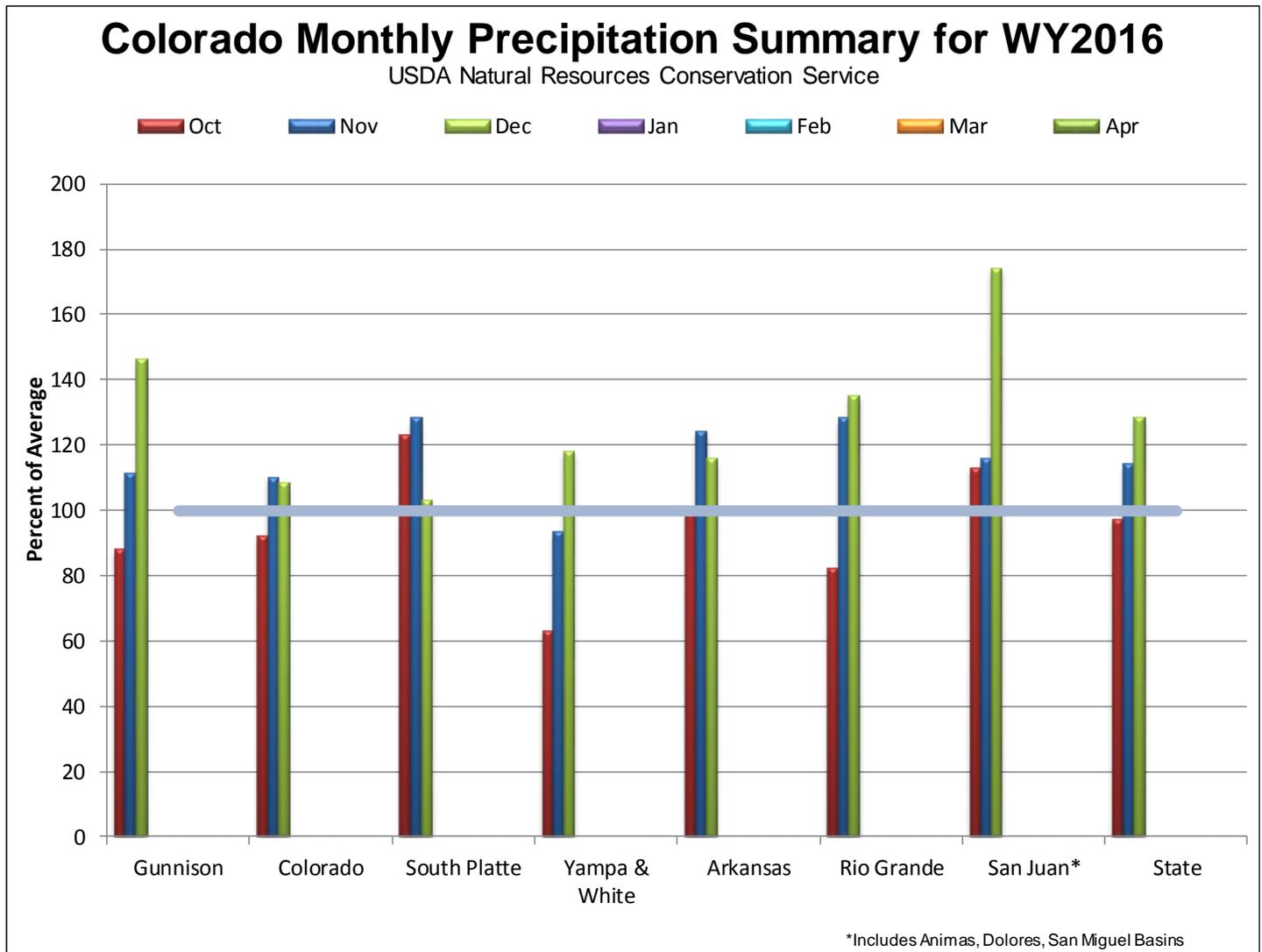


United States Department of Agriculture

Natural Resources Conservation Service

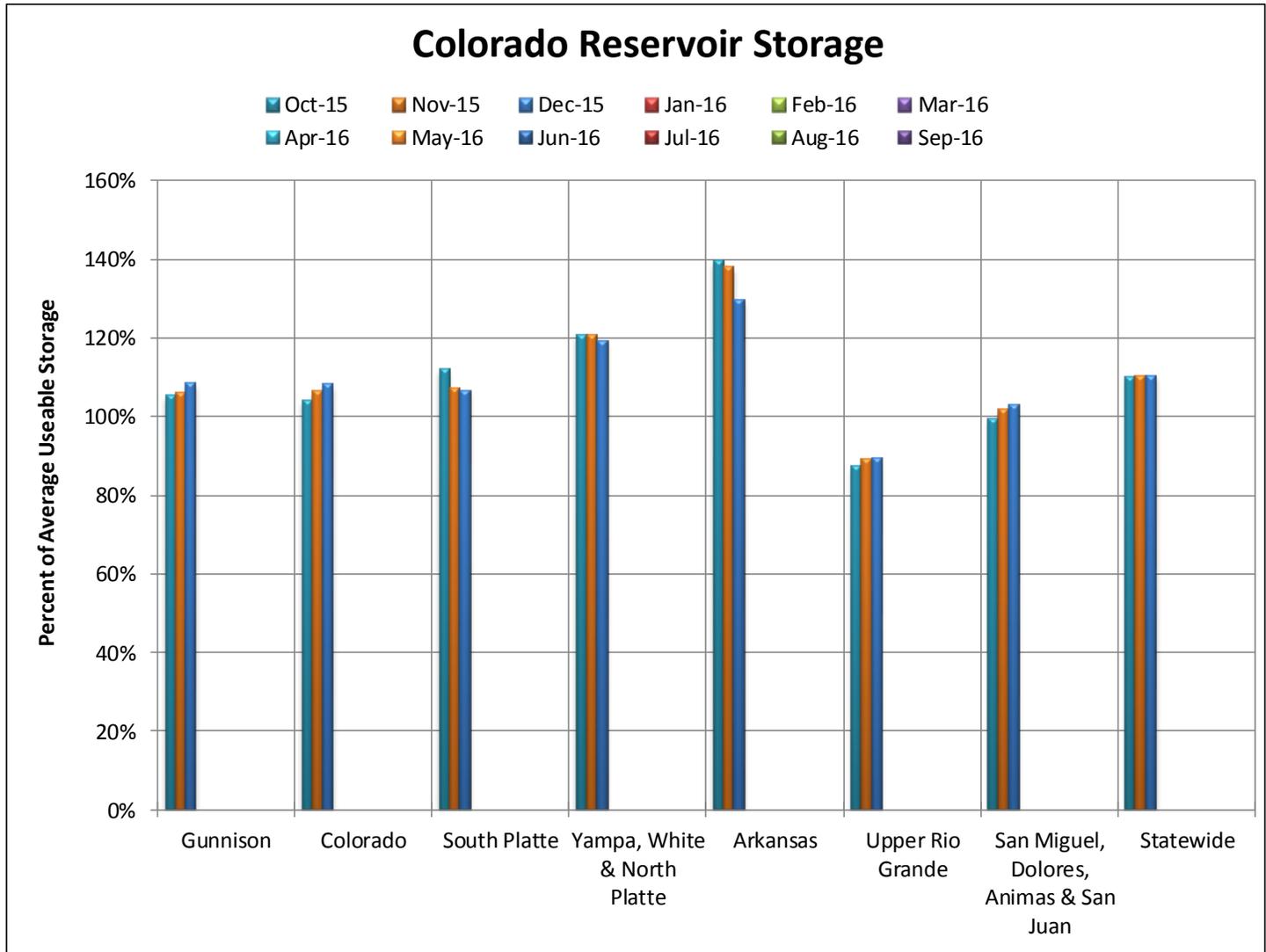
The winter snowpack across the state of Colorado has started off at above normal levels, and is reported at 118 percent of median statewide as of January 1st. While all major river basins in the state have above normal snowpacks they are currently most plentiful in southern Colorado compared to the northern basins of the state. The San Miguel, Dolores, Animas, and San Juan basins of Southwest Colorado collectively have the highest snowpack in the state (relative to normal) at 130 percent of median, followed closely by the Upper Rio Grande at 126 percent. Just to the east, the Arkansas River basin is in a very similar situation at 125 percent of median. The Gunnison basin is slightly lower at 121 percent of median snowpack with the Uncompahgre River basin, coming out of the Northern San Juans, holding the most snow of any tributary. The mountains of central Colorado and the Front Range have less snow, relative to normal, than in the southern basins but are still at well above normal levels. The South Platte has 116 percent of median snowpack and the Upper Colorado basin has 112 percent. In north-central Colorado the combined Yampa, White, and North Platte basins are near normal and have 104 percent of median snowpack, the lowest in the state, but still above normal levels.

Precipitation



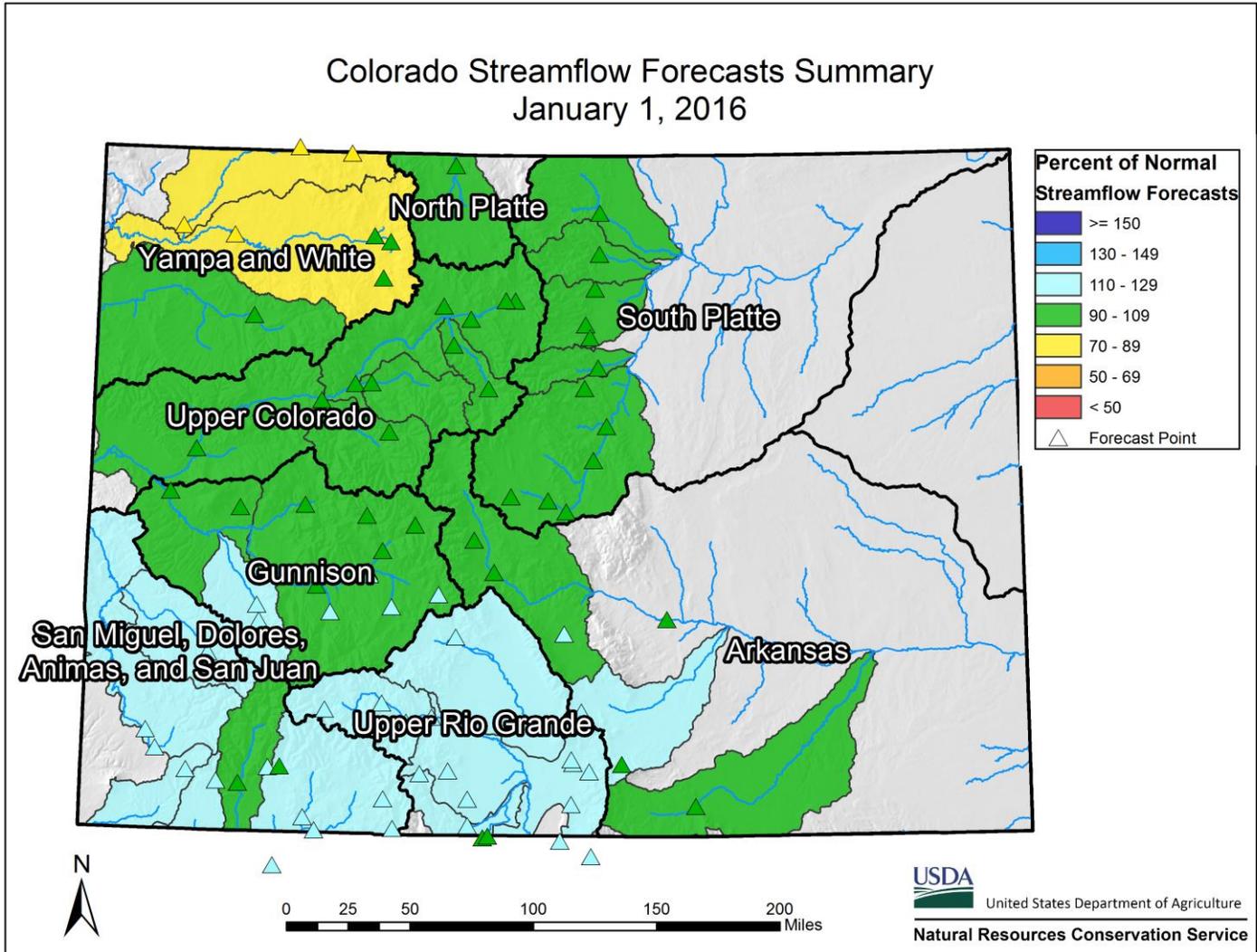
Most of Colorado has experienced appreciable mountain precipitation during the first three months of the 2016 water year, which has brought the statewide water year-to-date (WYTD) precipitation to 113 percent of average. The water year began slightly on the dry side in October, especially for the combined Yampa, White, and North Platte River basin, which received only 63 percent of its average precipitation for October. However, considerable gains in precipitation were achieved in this basin, and across the state, in November and December. All of Colorado's major river basins received precipitation that was well above average during December and the statewide precipitation was 128 percent of average for the month. As of January 1st, all of the state's major river basins have WYTD precipitation accumulations at or near average. The southern region of the state has benefited the most from fall and winter storms with the combined San Miguel, Dolores, Animas, and San Juan River basin sitting at 134 percent of average for water year precipitation after December storms produced accumulations that were 174 percent of average for the month. The 2016 water year is off to a great start with ample precipitation that fell as both rain and snow during the fall months. Early fall rain can aid in replenishing soil moisture levels and allow for more snow to be available for next spring's runoff, while abundant snowfall in December has started building Colorado's valuable mountain snowpacks. With so much of the water year remaining, there remains much uncertainty surrounding whether these positive trends will continue and lead to plentiful water supply for spring and summer 2016.

Reservoir Storage



Over the past year total reservoir storage in Colorado has consistently been at its highest levels since 2012 and for a few months was at the highest levels since 2000. As of January 1st statewide reservoir storage was 110 percent of average. The substantial (and record in some basins) precipitation of May 2015 largely helped to boost storage across the state but particularly in the Arkansas basin which currently has by far the most water in reservoir storage since 2001. The Arkansas basin currently has the highest percent of average storage in the state at 128 percent. The Colorado, Gunnison, South Platte, and the collective San Miguel, Dolores, Animas, and San Juan basins all reside at above normal storage levels in the 100-150 percent of average range. The Upper Rio Grande is currently the only major river basin in the state that has below normal reservoir storage, at 89 percent of average.

Streamflow



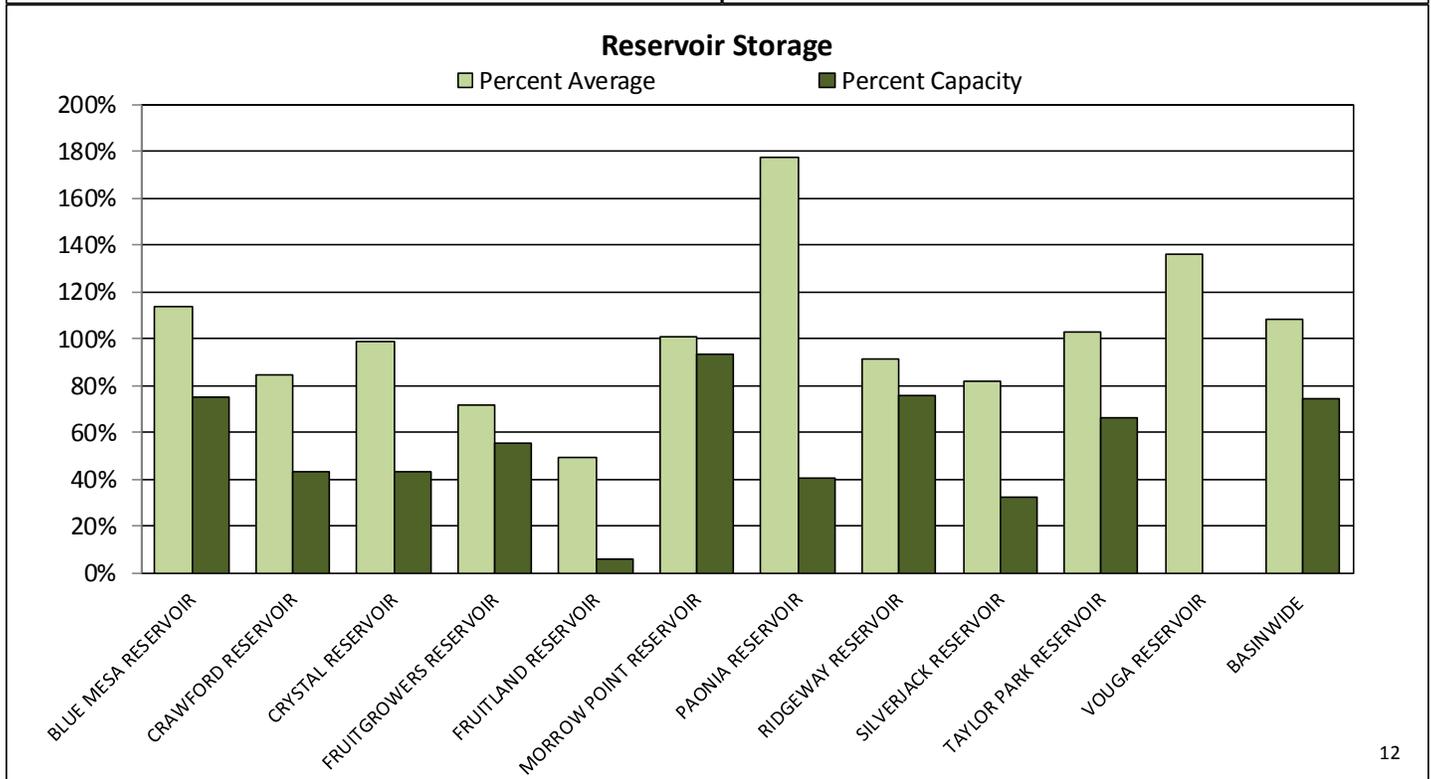
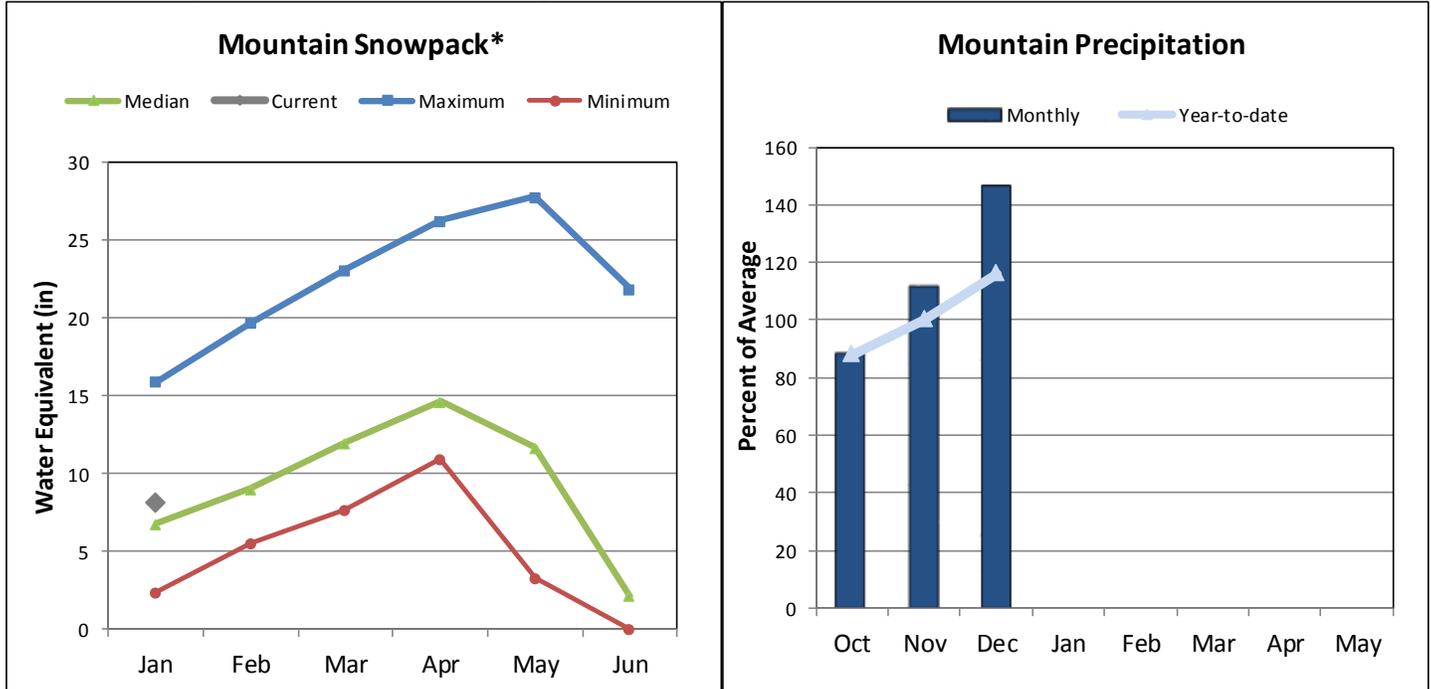
With much of the snowpack accumulation season remaining, streamflow forecasts exhibit a large range between the exceedance forecasts for a single station illustrating the uncertainty this early in the water year. But early predictions across the state follow the trends seen in the mountain snowpack and precipitation accumulations with the highest streamflow forecasts (with respect to average) occurring in southwestern Colorado. The highest forecasts occur for tributaries in the Upper Rio Grande River basin, where due to the abundant precipitation and substitutional snowpack accumulations experienced this fall, streamflow volumes are forecast to be between 108 and 123 percent of average. April through July streamflow volumes for the Arkansas and combined San Miguel, Dolores, Animas, and San Juan River basins are also predicted to be well above average. Most other major basins are also expected to have near average to above average streamflow conditions. The one exception is the combined Yampa, White, North Platte River basin, which experienced below average October and November precipitation. Streamflow volumes in this basin are mostly predicted to be slightly lower than average, ranging from 80 to 100 percent of average. Streamflow forecasts are likely to change in the coming months as it becomes more clear how El Nino conditions will impact weather patterns across the West.

PAGE INTENTIONALLY LEFT BLANK

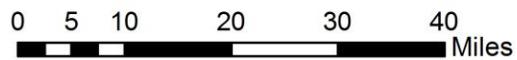
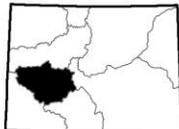
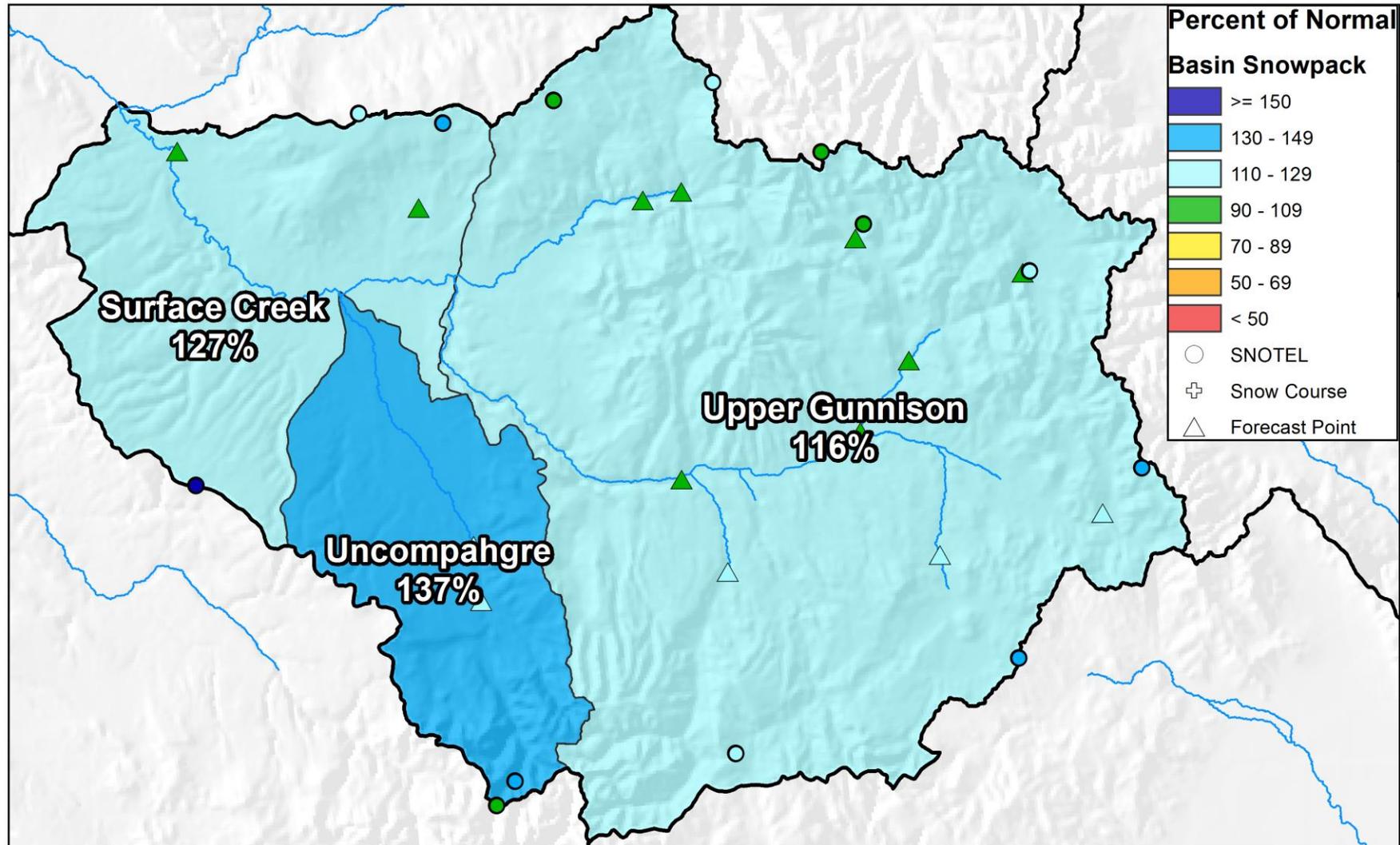
GUNNISON RIVER BASIN

January 1, 2016

Snowpack in the Gunnison River basin is above normal at 121% of the median. Precipitation for December was 146% of average which brings water year-to-date precipitation to 116% of average. Reservoir storage at the end of December was 109% of average compared to 105% last year. Current streamflow forecasts range from 117% of average for Tomichi Creek at Sargents to 92% for the Gunnison River near Gunnison.



Gunnison River Basin Snowpack and Streamflow Forecasts January 1, 2016



United States Department of Agriculture
Natural Resources Conservation Service

Gunnison River Basin Streamflow Forecasts - January 1, 2016

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

GUNNISON RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Taylor Park Reservoir Inflow	APR-JUL	59	79	94	95%	110	137	99
Slate R nr Crested Butte	APR-JUL	55	69	80	96%	91	109	83
East R at Almont	APR-JUL	104	142	172	95%	205	255	182
Gunnison R near Gunnison ²	APR-JUL	192	275	340	92%	415	535	370
Tomichi Ck at Sargents	APR-JUL	17.3	27	35	117%	43	58	30
Cochetopa Ck bl Rock Ck nr Parlin	APR-JUL	7.8	12.8	17	113%	22	30	15
Tomichi Ck at Gunnison	APR-JUL	39	64	85	115%	109	149	74
Lake Fk at Gateview	APR-JUL	93	117	135	110%	154	185	123
Blue Mesa Reservoir Inflow ²	APR-JUL	375	530	650	96%	785	1000	675
Paonia Reservoir Inflow	MAR-JUN	46	71	92	96%	115	154	96
	APR-JUL	43	71	93	96%	119	162	97
NF Gunnison R nr Somerset ²	APR-JUL	164	225	275	95%	330	415	290
Surface Ck at Cedaredge	APR-JUL	9.5	13.7	17	101%	21	27	16.8
Ridgway Reservoir Inflow	APR-JUL	75	96	112	111%	129	156	101
Uncompahgre R at Colona ²	APR-JUL	92	128	155	113%	185	235	137
Gunnison R nr Grand Junction ²	APR-JUL	845	1210	1500	101%	1820	2340	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

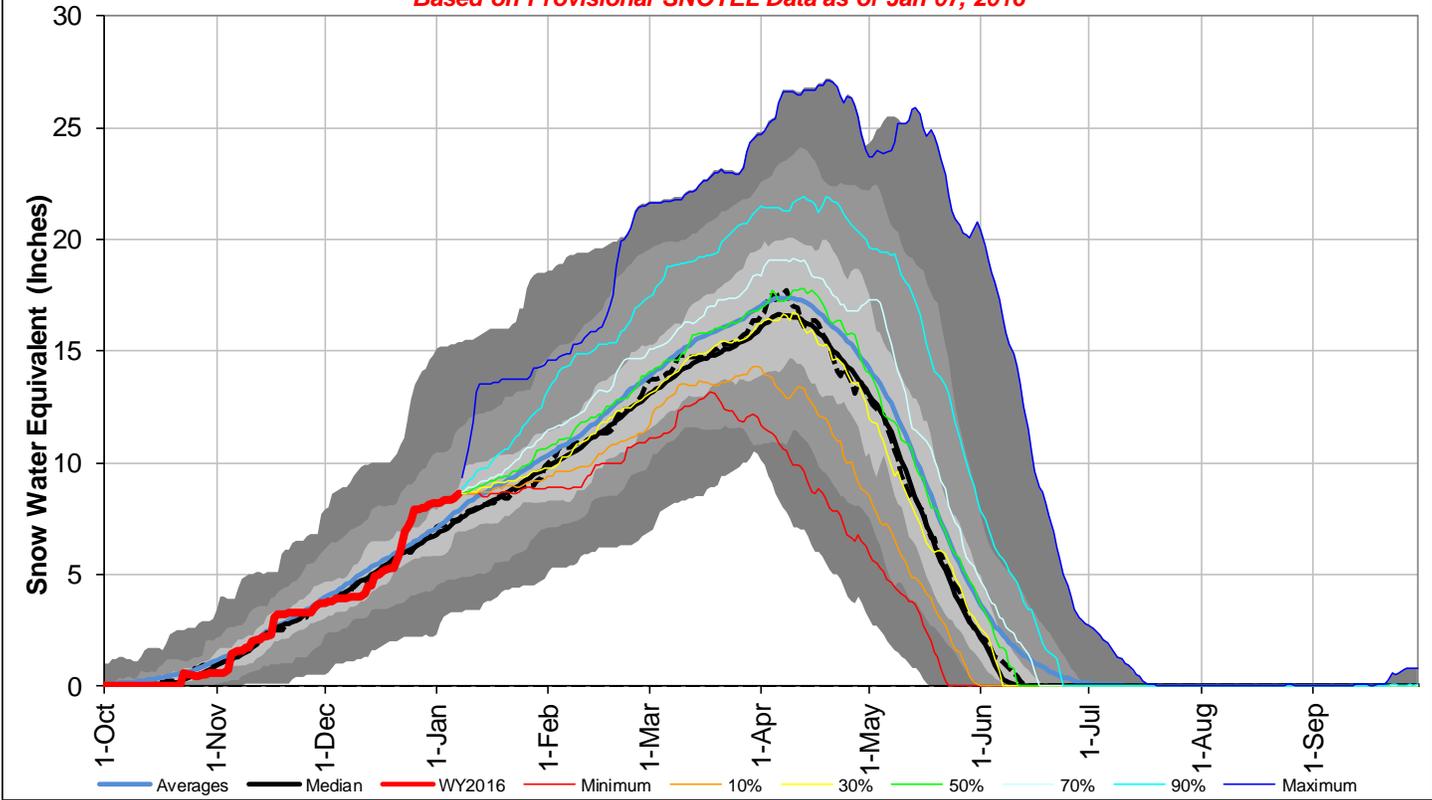
3) Median value used in place of average

Reservoir Storage End of December, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Blue Mesa Reservoir	624.5	574.4	549.9	830.0
Crawford Reservoir	6.0	6.6	7.1	14.0
Crystal Reservoir	7.6	7.4	7.7	17.5
Fruitgrowers Reservoir	2.0	3.1	2.8	3.6
Fruitland Reservoir	0.5	0.9	1.0	9.2
Morrow Point Reservoir	112.8	112.0	111.6	121.0
Paonia Reservoir	6.2	0.6	3.5	15.4
Ridgway Reservoir	62.6	76.4	68.8	83.0
Silverjack Reservoir	4.1	7.4	5.0	12.8
Taylor Park Reservoir	69.8	79.4	68.1	106.0
Vouga Reservoir	0.9	0.9	0.7	0.9
Basin-wide Total	897.0	869.1	826.2	1213.4
# of reservoirs	11	11	11	11

Watershed Snowpack Analysis January 1, 2016	# of Sites	% Median	Last Year % Median
UPPER GUNNISON BASIN	10	116%	98%
SURFACE CREEK BASIN	2	127%	74%
UNCOMPAHGRE BASIN	3	137%	100%
GUNNISON RIVER BASIN	13	121%	99%

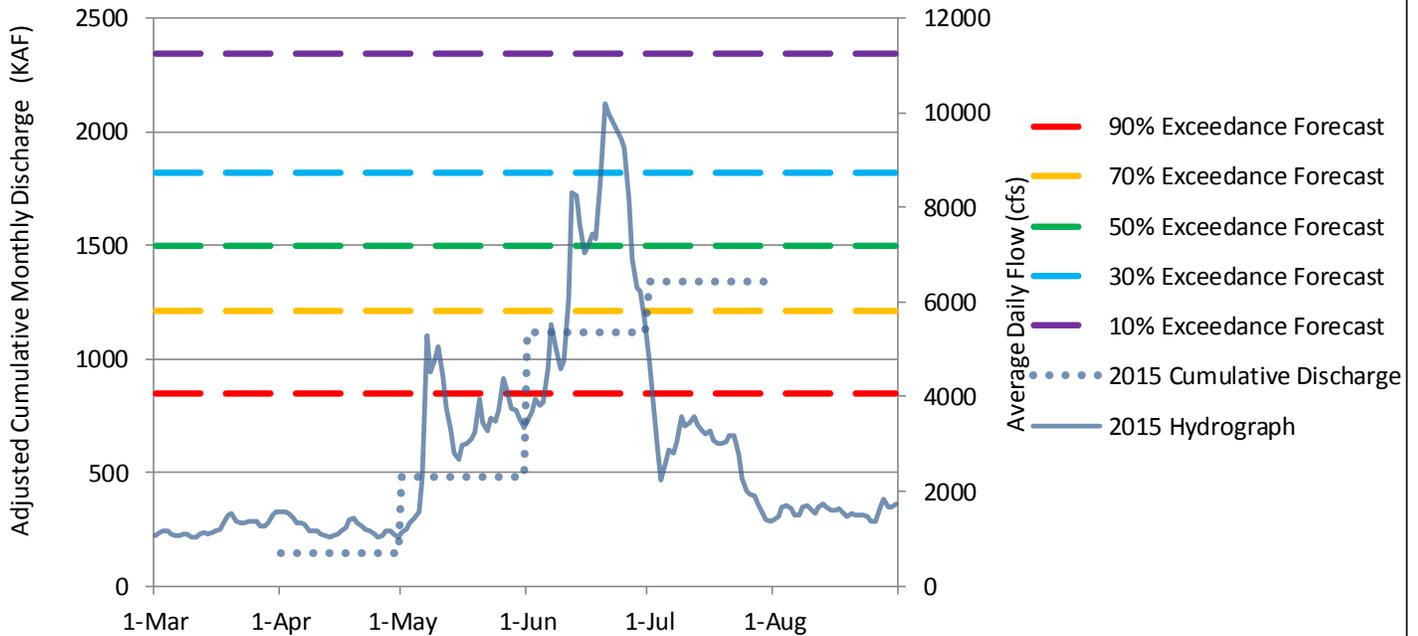
Gunnison River Basin with Non-Exceedence Projections

Based on Provisional SNOTEL Data as of Jan 07, 2016



Gunnison River near Grand Junction, CO

Daily and Cumulative Discharge Compared to Current Streamflow Forecasts (Apr - Jul)

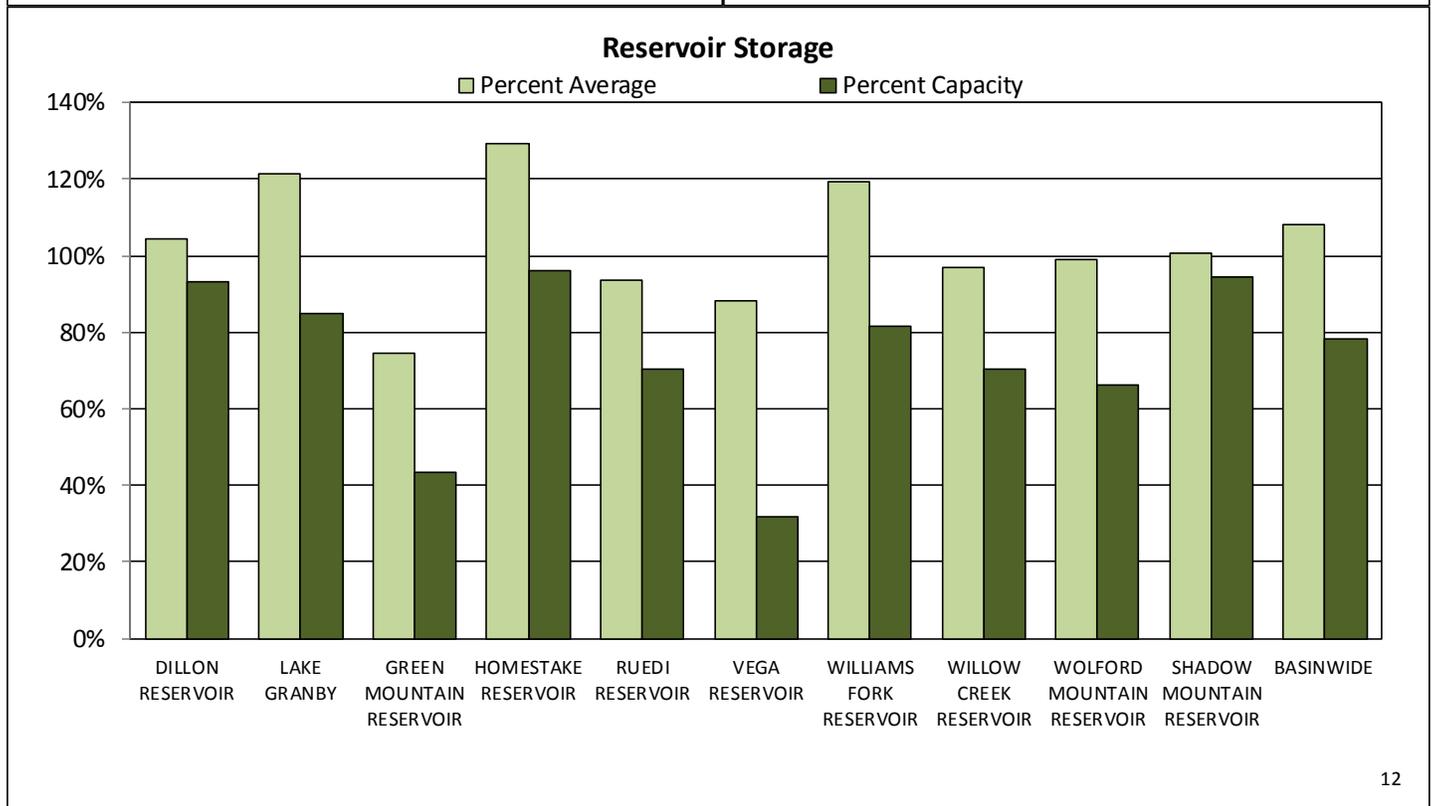
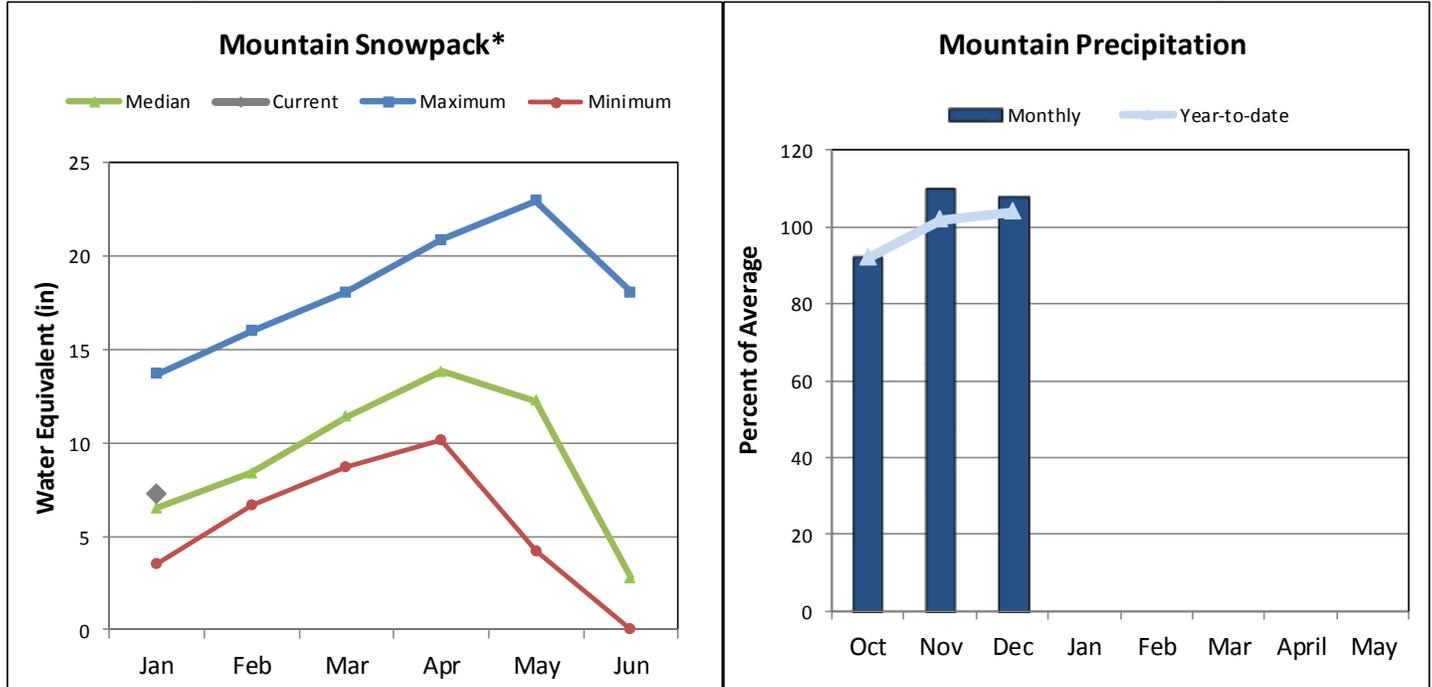


Please refer to the sections at the end of this report for further explanation concerning these graphs.

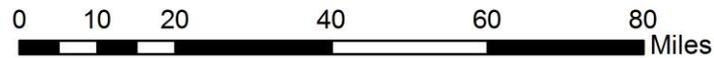
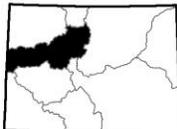
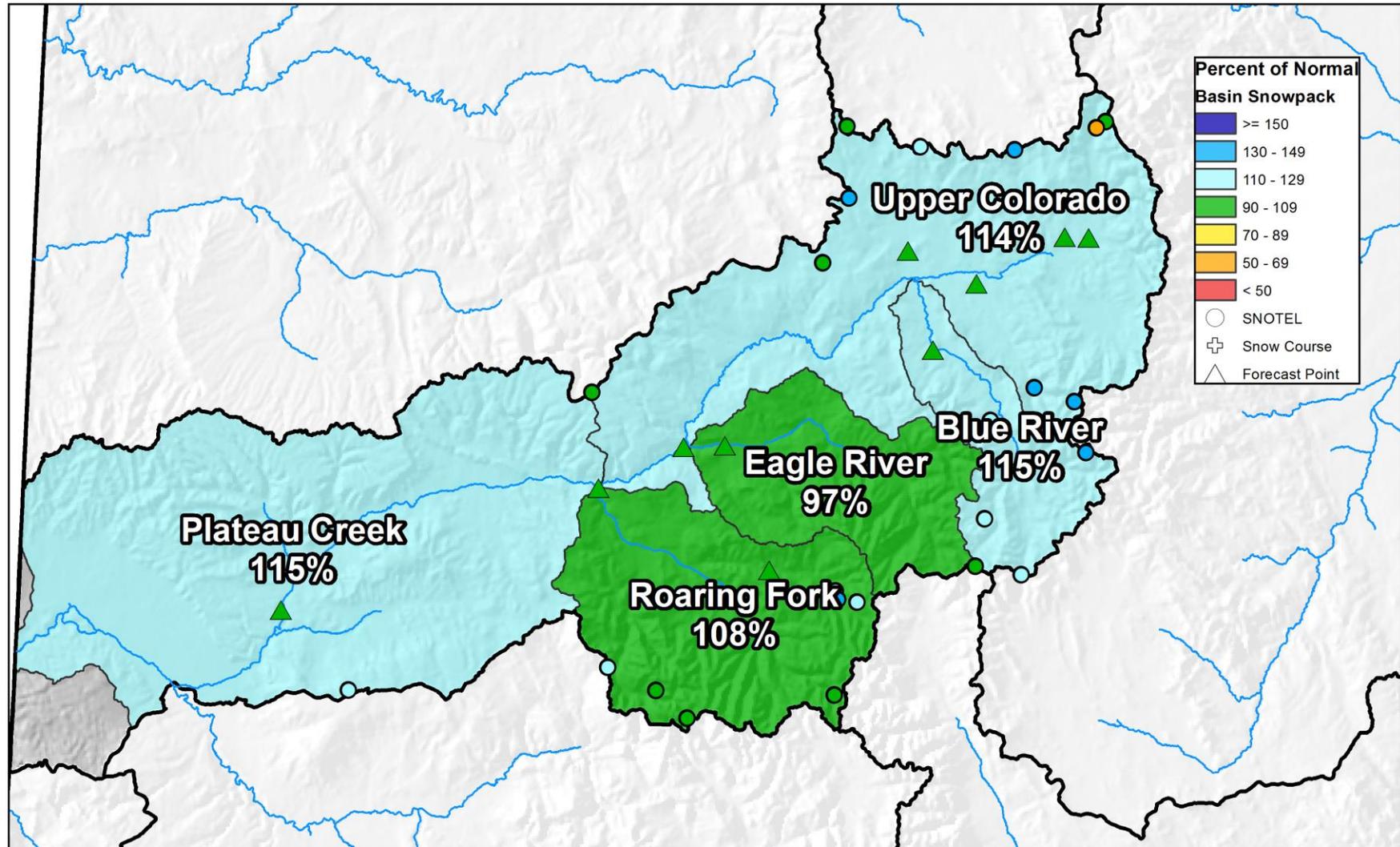
UPPER COLORADO RIVER BASIN

January 1, 2016

Snowpack in the Colorado River basin is above normal at 112% of the median. Precipitation for December was 109% of average which brings water year-to-date precipitation to 104% of average. Reservoir storage at the end of December was 108% of average compared to 116% last year. Current streamflow forecasts range from 106% of average for the inflow to Willow Creek Reservoir to 90% for the inflow to Lake Granby.



Upper Colorado River Basin Snowpack and Streamflow Forecasts January 1, 2016



United States Department of Agriculture

Natural Resources Conservation Service

Upper Colorado River Basin Streamflow Forecasts - January 1, 2016

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	132	169	197	90%	225	275	220
Willow Ck Reservoir Inflow	APR-JUL	29	41	50	106%	60	76	47
Williams Fk bl Williams Fk Reservoir ²	APR-JUL	67	86	101	104%	117	142	97
Wolford Mtn Reservoir Inflow	APR-JUL	27	40	50	93%	61	81	54
Dillon Reservoir Inflow ²	APR-JUL	107	141	166	102%	194	240	163
Green Mountain Reservoir Inflow ²	APR-JUL	182	235	280	102%	325	395	275
Eagle R bl Gypsum ²	APR-JUL	200	265	315	94%	370	455	335
Colorado R nr Dotsero ²	APR-JUL	850	1130	1350	96%	1590	1970	1400
Ruedi Reservoir Inflow ²	APR-JUL	87	111	129	93%	149	180	139
Roaring Fk at Glenwood Springs ²	APR-JUL	415	550	650	94%	760	935	690
Colorado R nr Cameo ²	APR-JUL	1420	1880	2230	95%	2620	3240	2350

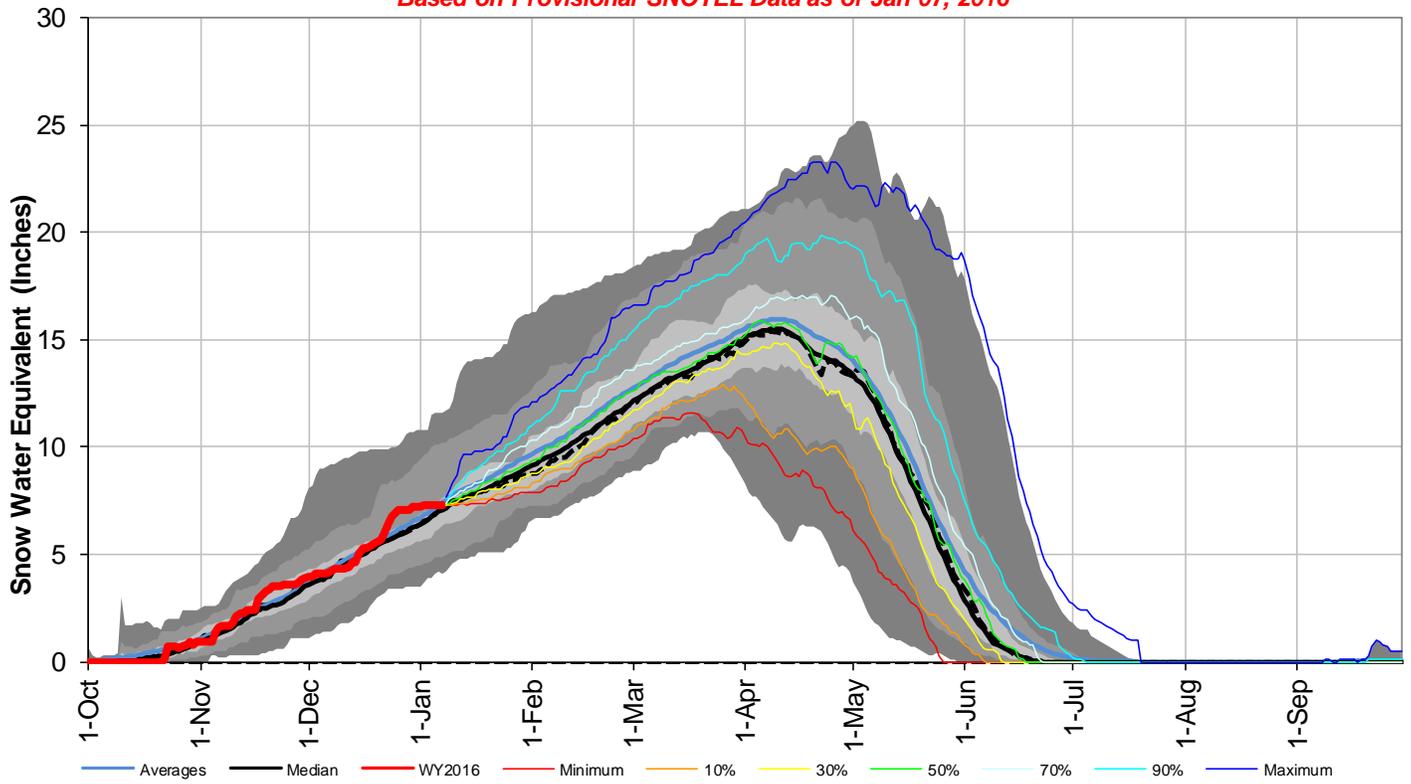
- 1) 90% and 10% exceedance probabilities are actually 95% and 5%
- 2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
- 3) Median value used in place of average

Reservoir Storage End of December, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Dillon Reservoir	236.5	250.9	227.0	254.0
Green Mountain Reservoir	63.6	72.8	85.2	146.8
Homestake Reservoir	41.3	20.5	31.9	43.0
Lake Granby	395.1	445.1	325.7	465.6
Ruedi Reservoir	71.8	85.0	76.8	102.0
Shadow Mountain Reservoir	17.4	17.3	17.3	18.4
Vega Reservoir	10.4	13.4	11.8	32.9
Williams Fork Reservoir	79.3	79.8	66.5	97.0
Willow Creek Reservoir	6.4	6.8	6.6	9.1
Wolford Mountain Reservoir	43.6	46.2	44.0	65.9
Basin-wide Total	965.4	1037.8	892.8	1234.7
# of reservoirs	10	10	10	10

Watershed Snowpack Analysis January 1, 2016	# of Sites	% Median	Last Year % Median
BLUE RIVER BASIN	5	116%	135%
HEADWATERS COLORADO RIVER	19	115%	120%
MUDDY CREEK BASIN	3	121%	117%
EAGLE RIVER BASIN	4	97%	124%
PLATEAU CREEK BASIN	2	127%	74%
ROARING FORK BASIN	7	108%	110%
WILLIAMS FORK BASIN	3	130%	118%
WILLOW CREEK BASIN	2	143%	111%
UPPER COLORADO RIVER BASIN	28	112%	114%

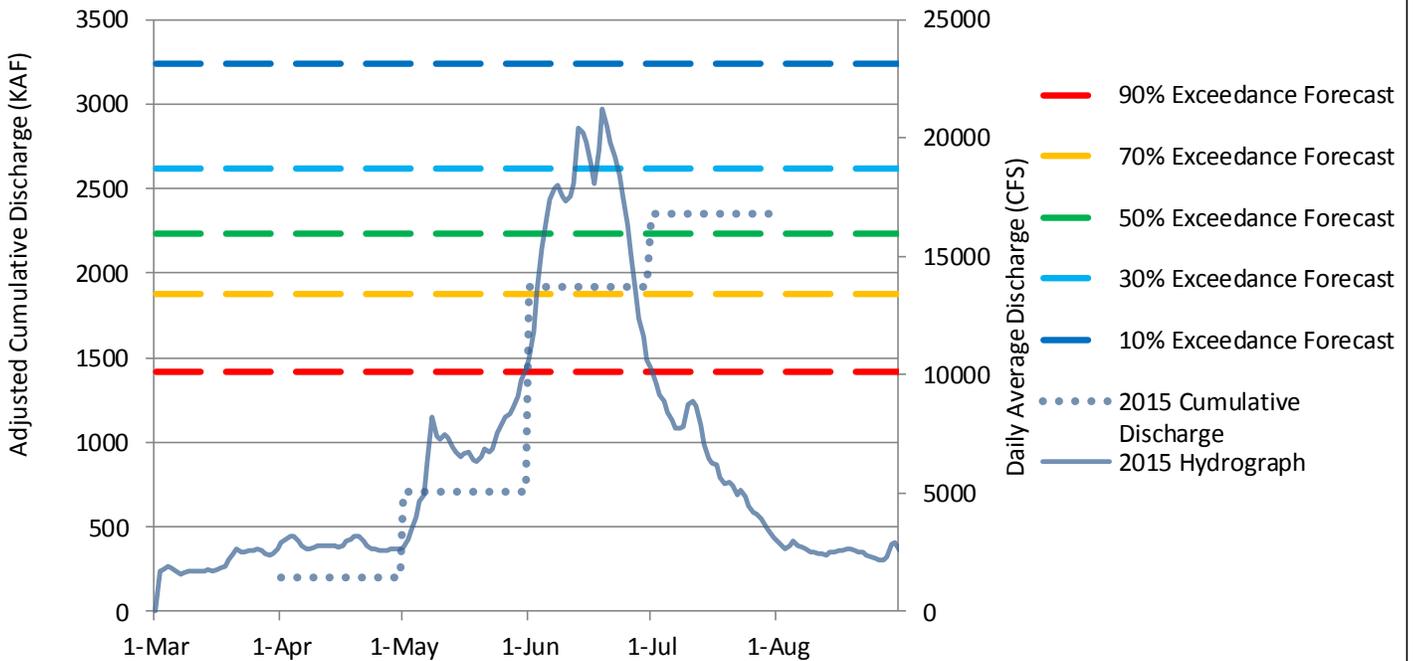
Upper Colorado River Basin with Non-Exceedance Projections

Based on Provisional SNOTEL Data as of Jan 07, 2016



Colorado River near Cameo, CO

Daily and Cumulative Discharge Compared to Current Streamflow Forecasts (Apr - Jul)

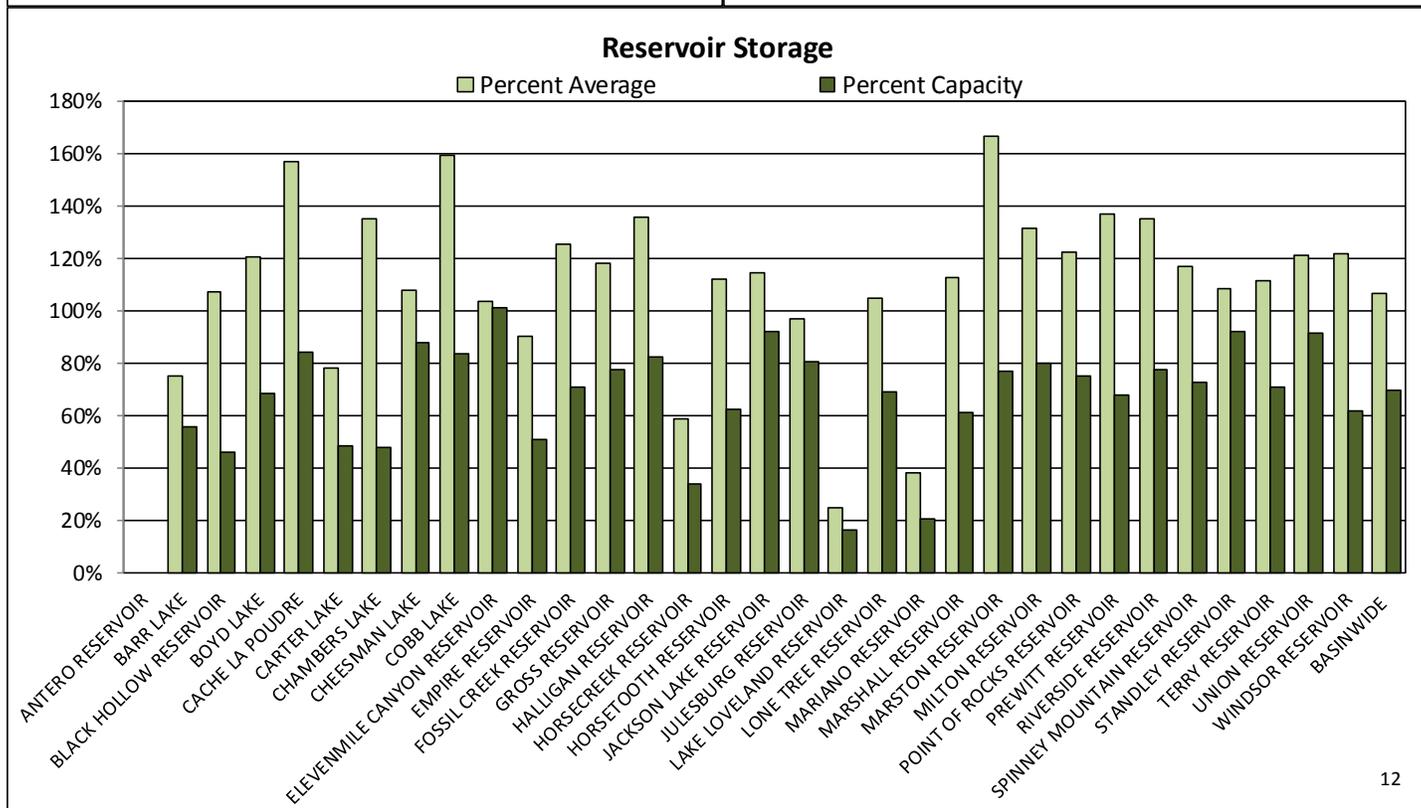
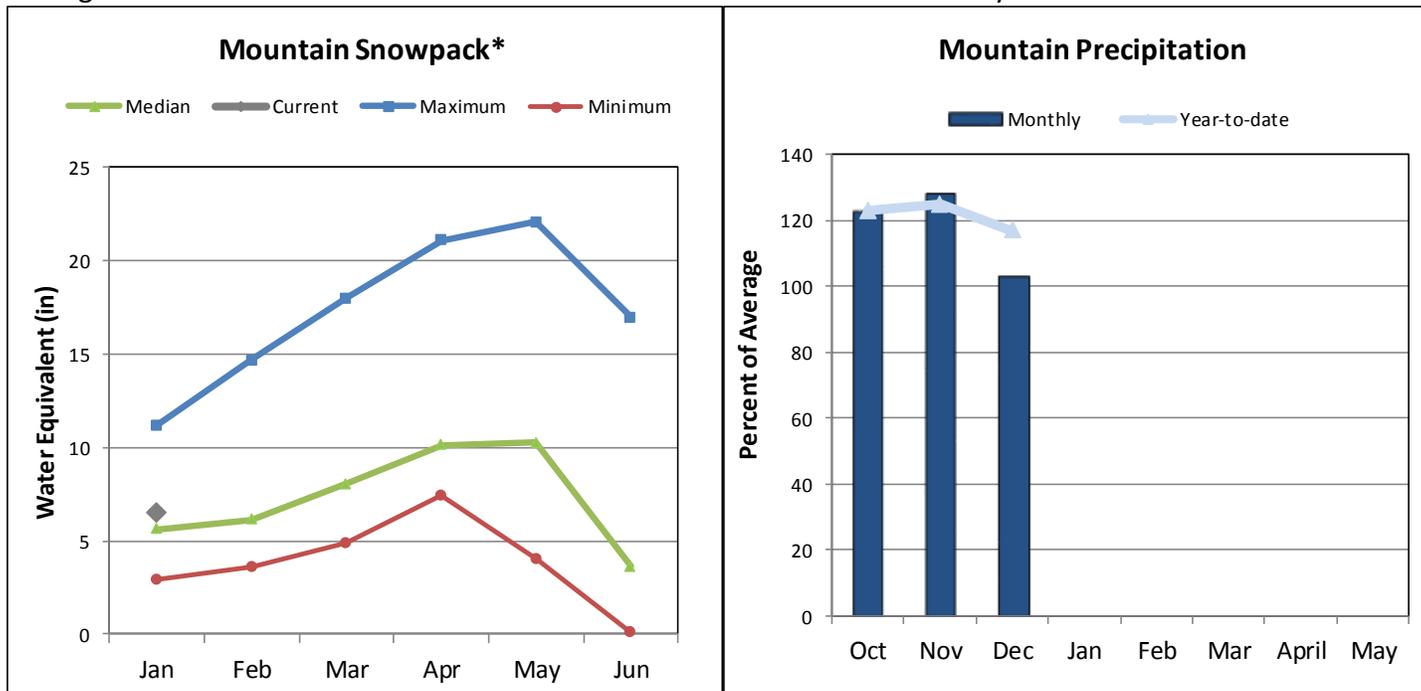


Please refer to the sections at the end of this report for further explanation concerning these graphs.

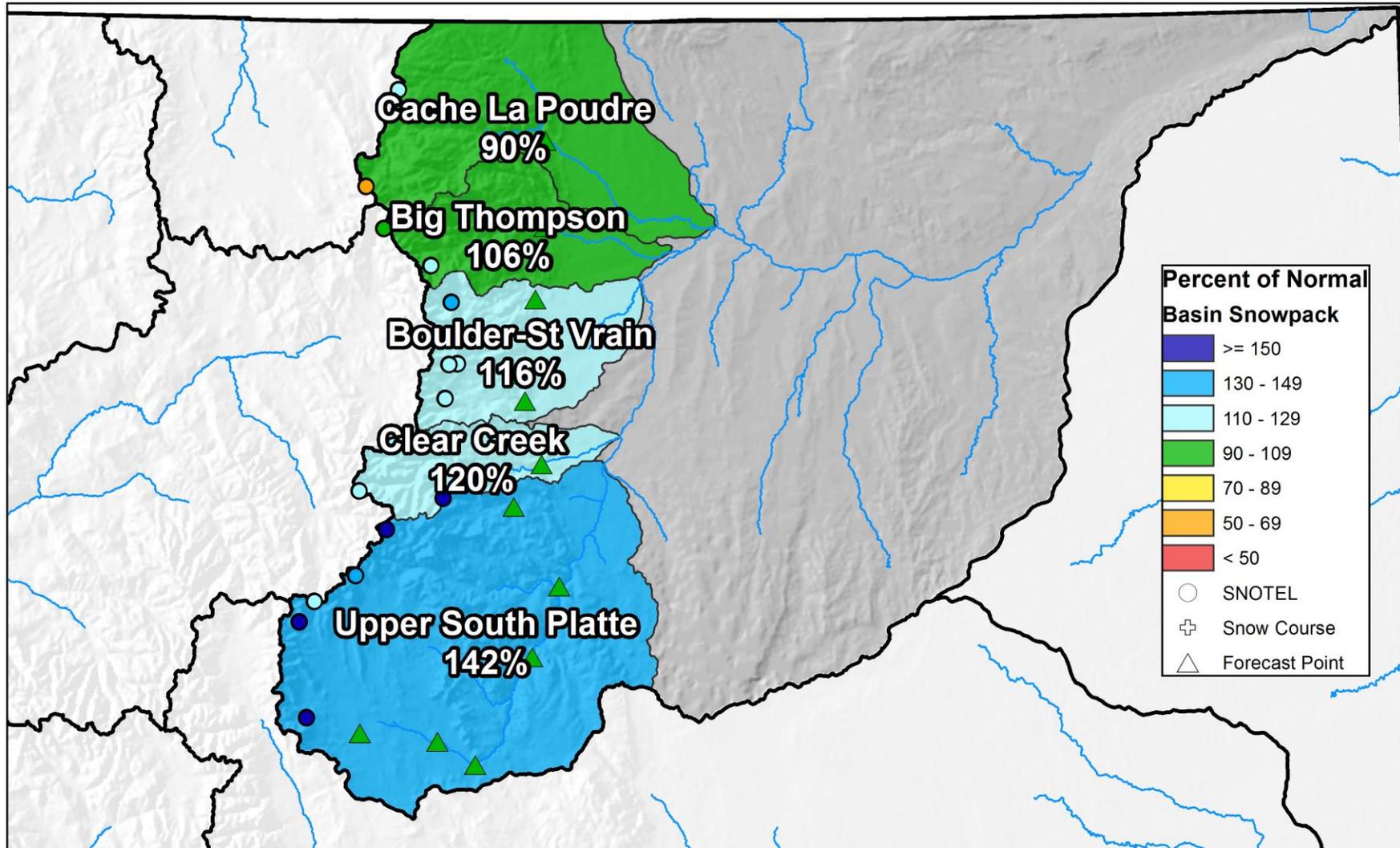
SOUTH PLATTE RIVER BASIN

January 1, 2016

Snowpack in the South Platte River basin is above normal at 116% of the median. Precipitation for December was 104% of average which brings water year-to-date precipitation to 116%. Reservoir storage at the end of December was 107% of average compared to 124% last year. Streamflow forecasts range from 109% of average for Clear Creek at Golden to 93% for the Cache La Poudre at the canyon mouth.



South Platte River Basin Snowpack and Streamflow Forecasts January 1, 2016



0 10 20 40 60 80 Miles



United States Department of Agriculture

Natural Resources Conservation Service

South Platte River Basin Streamflow Forecasts - January 1, 2016

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	6.9	11.2	14.2	98%	17.2	22	14.5
	APR-SEP	9.3	14.4	17.8	100%	21	26	17.8
Spinney Mountain Reservoir Inflow ²	APR-JUL	25	38	49	102%	64	94	48
	APR-SEP	30	46	61	100%	82	125	61
Elevenmile Canyon Reservoir Inflow ²	APR-JUL	26	39	52	104%	69	105	50
	APR-SEP	30	47	65	102%	89	142	64
Cheesman Lake Inflow ²	APR-JUL	50	75	98	98%	129	193	100
	APR-SEP	62	94	125	99%	166	250	126
South Platte R at South Platte ²	APR-JUL	85	132	177	98%	240	365	180
	APR-SEP	108	167	225	100%	305	470	225
Bear Ck ab Evergreen	APR-JUL	7.6	12.4	17.2	105%	24	39	16.4
	APR-SEP	10.3	16.2	22	105%	30	47	21
Clear Ck at Golden	APR-JUL	80	100	114	109%	128	148	105
	APR-SEP	99	122	138	108%	153	176	128
St. Vrain Ck at Lyons ²	APR-JUL	69	81	88	100%	96	108	88
	APR-SEP	82	95	104	101%	113	126	103
Boulder Ck nr Orodell ²	APR-JUL	46	52	57	106%	62	68	54
	APR-SEP	51	59	65	103%	71	79	63
South Boulder Ck nr Eldorado Springs ²	APR-JUL	31	36	40	103%	43	49	39
	APR-SEP	33	40	44	102%	49	56	43
Big Thompson R at Canyon Mouth ²	APR-JUL	66	78	87	97%	96	108	90
	APR-SEP	77	93	103	96%	113	129	107
Cache La Poudre at Canyon Mouth ²	APR-JUL	134	179	210	93%	240	285	225
	APR-SEP	145	196	230	92%	265	315	250

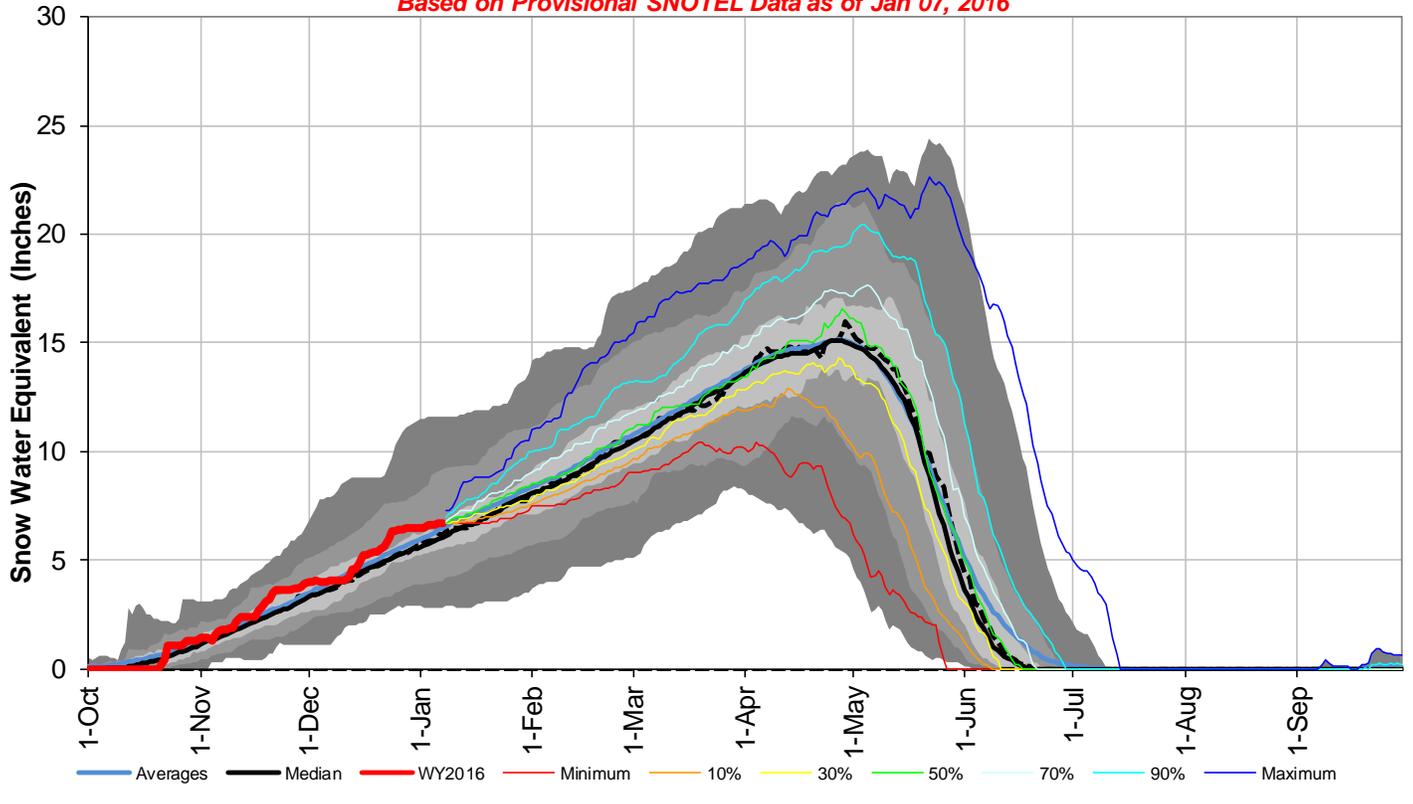
- 1) 90% and 10% exceedance probabilities are actually 95% and 5%
- 2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
- 3) Median value used in place of average

Reservoir Storage End of December, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Antero Reservoir	0.0	16.1	15.5	19.9
Barr Lake	16.8	15.4	22.3	30.1
Black Hollow Reservoir	3.0	4.4	2.8	6.5
Boyd Lake	33.1	30.2	27.4	48.4
Cache La Poudre	8.5	9.2	5.4	10.1
Carter Lake	52.9	85.6	67.5	108.9
Chambers Lake	4.2	7.8	3.1	8.8
Cheesman Lake	69.5	73.8	64.3	79.0
Cobb Lake	18.7	19.7	11.7	22.3
Elevenmile Canyon Reservoir	99.4	99.1	95.9	98.0
Empire Reservoir	18.6	22.4	20.6	36.5
Fossil Creek Reservoir	7.9	9.3	6.3	11.1
Gross Reservoir	32.5	32.2	27.4	41.8
Halligan Reservoir	5.3	6.4	3.9	6.4
Horseshoe Reservoir	5.0	9.5	8.5	14.7
Horsetooth Reservoir	93.7	126.3	83.5	149.7
Jackson Lake Reservoir	24.0	23.2	20.9	26.1
Julesburg Reservoir	16.5	16.2	17.0	20.5
Lake Loveland Reservoir	1.7	9.1	6.8	10.3
Lone Tree Reservoir	6.0	6.9	5.7	8.7
Mariano Reservoir	1.1	3.9	2.9	5.4
Marshall Reservoir	6.1	8.9	5.4	10.0
Marston Reservoir	10.0	0.0	6.0	13.0
Milton Reservoir	18.8	18.3	14.3	23.5
Point Of Rocks Reservoir	53.0	67.7	43.3	70.6
Prewitt Reservoir	19.1	17.1	13.9	28.2
Ralph Price Reservoir	6.4	12.9		16.2
Riverside Reservoir	43.5	49.0	32.1	55.8
Spinney Mountain Reservoir	35.7	43.2	30.5	49.0
Standley Reservoir	38.8	40.0	35.8	42.0
Terry Reservoir	5.7	6.2	5.1	8.0
Union Reservoir	11.9	11.8	9.8	13.0
Windsor Reservoir	9.4	10.2	7.7	15.2
Basin-wide Total	770.4	899.1	723.3	1091.5
# of reservoirs	32	32	32	32

Watershed Snowpack Analysis January 1, 2016	# of Sites	% Median	Last Year % Median
BIG THOMPSON BASIN	3	106%	114%
BOULDER CREEK BASIN	3	114%	103%
CACHE LA POUFRE BASIN	2	90%	95%
CLEAR CREEK BASIN	2	120%	121%
SAIN T VRAIN BASIN	1	133%	167%
UPPER SOUTH PLATTE BASIN	6	142%	122%
SOUTH PLATTE RIVER BASIN	17	116%	113%

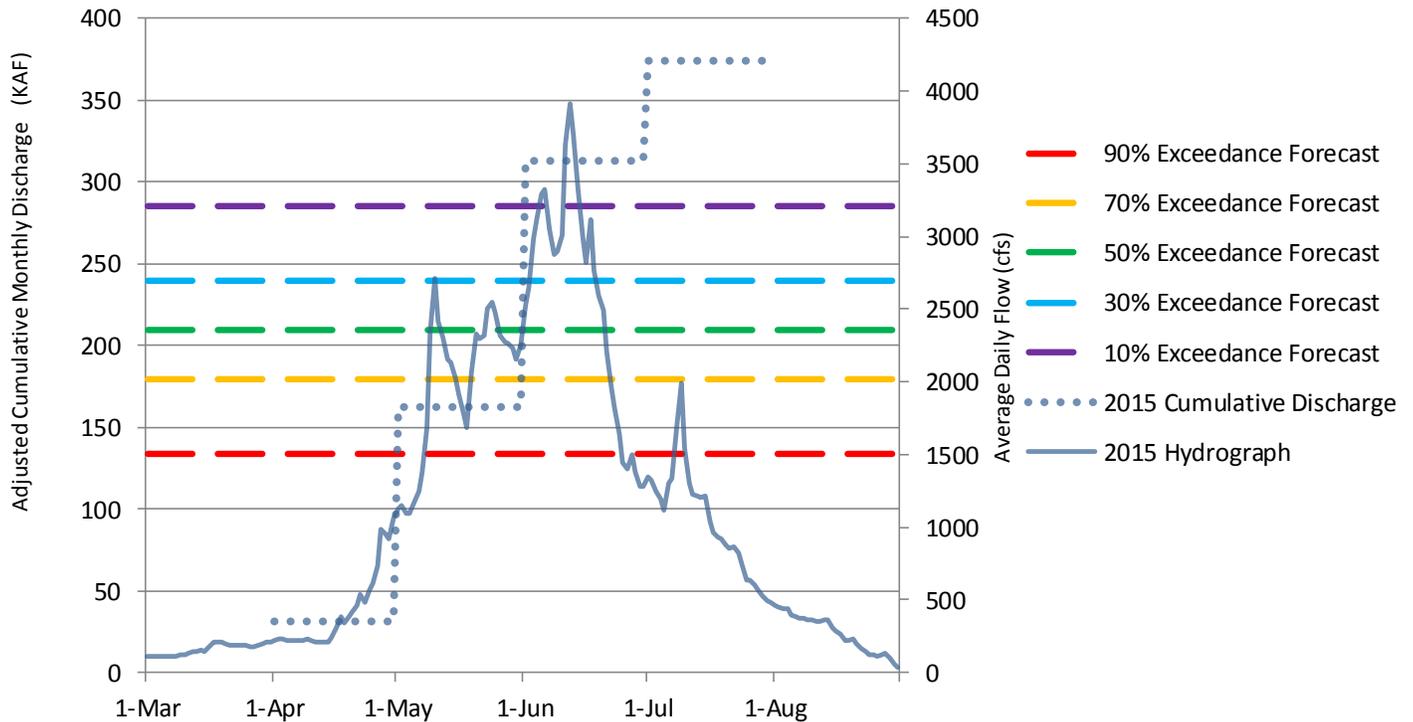
South Platte River Basin with Non-Exceedance Projections

Based on Provisional SNOTEL Data as of Jan 07, 2016



Cache La Poudre River at Canyon Mouth

Daily and Cumulative Discharge Compared to Current Streamflow Forecasts (Apr - Jul)

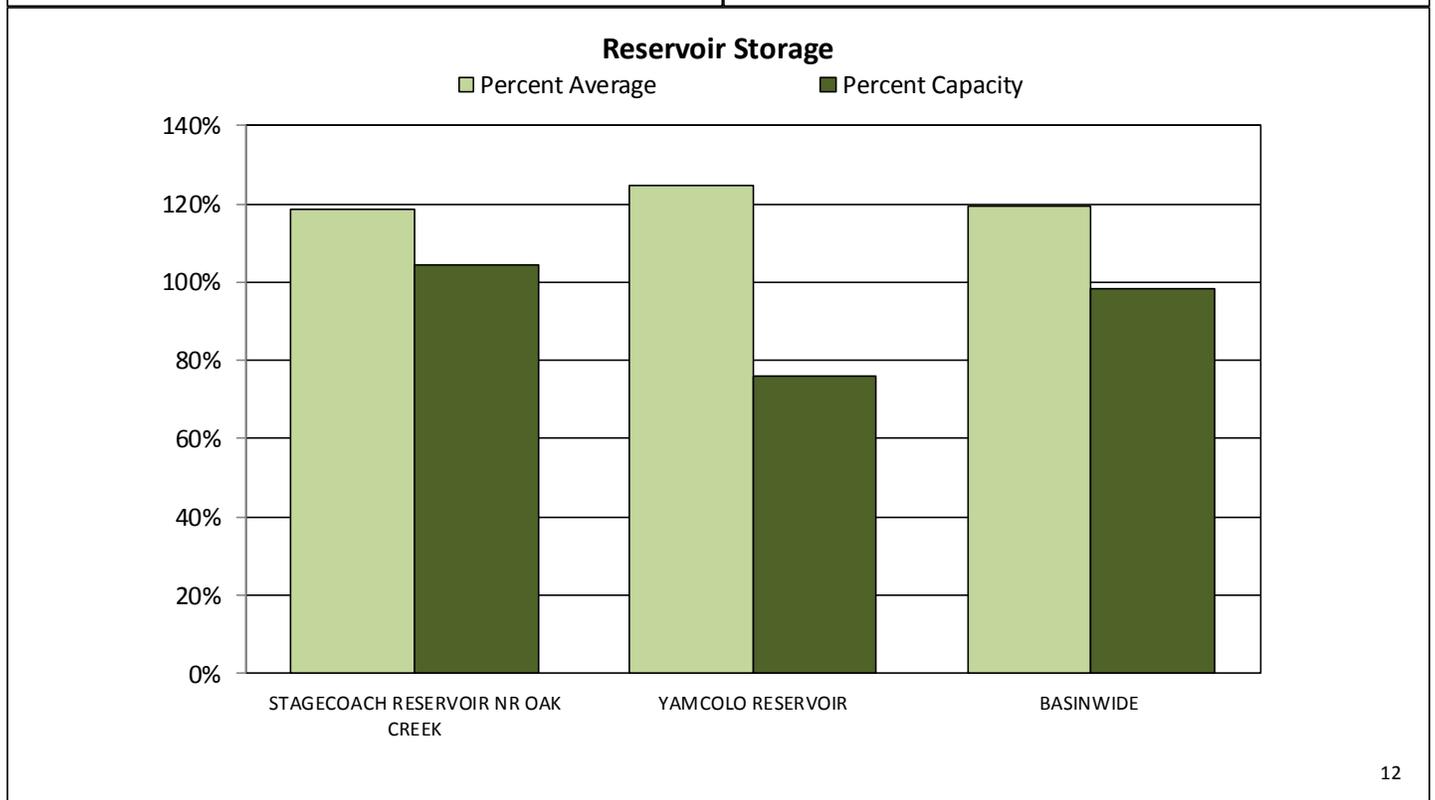
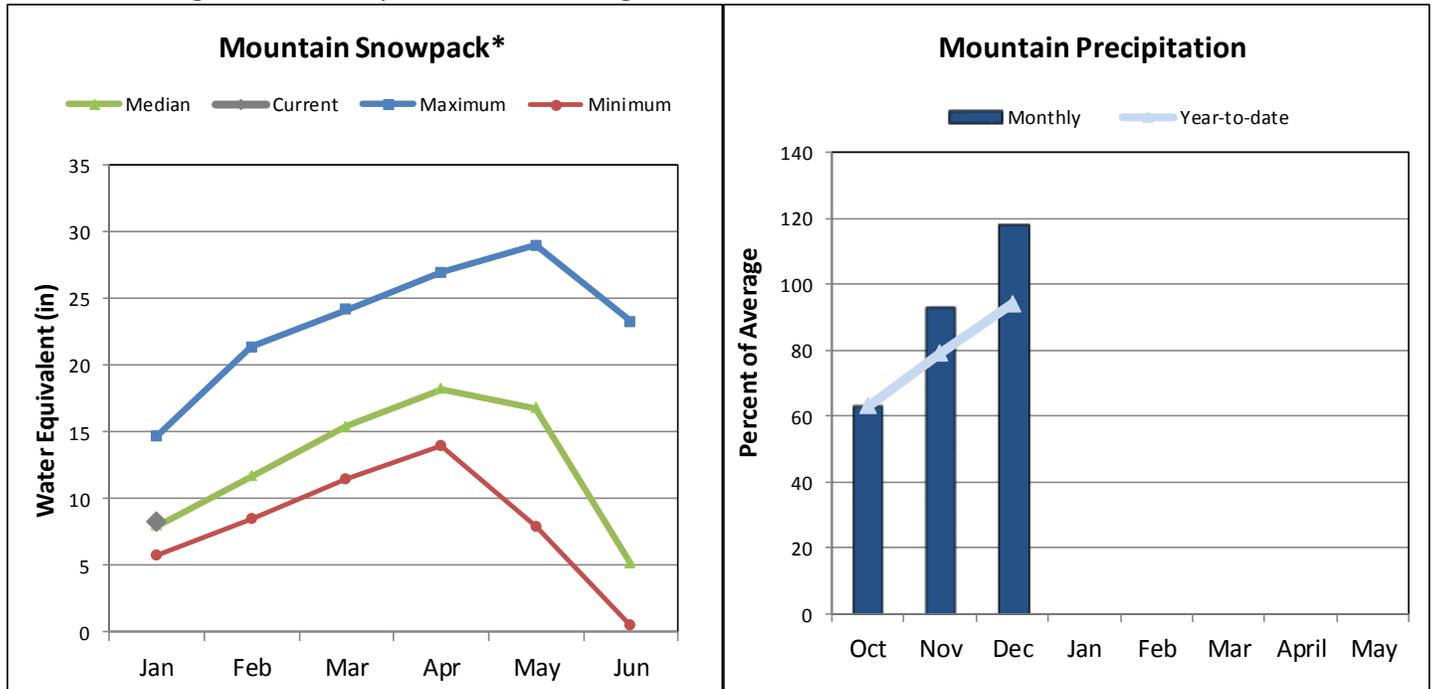


Please refer to the sections at the end of this report for further explanation concerning these graphs.

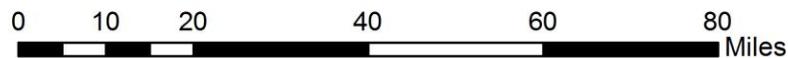
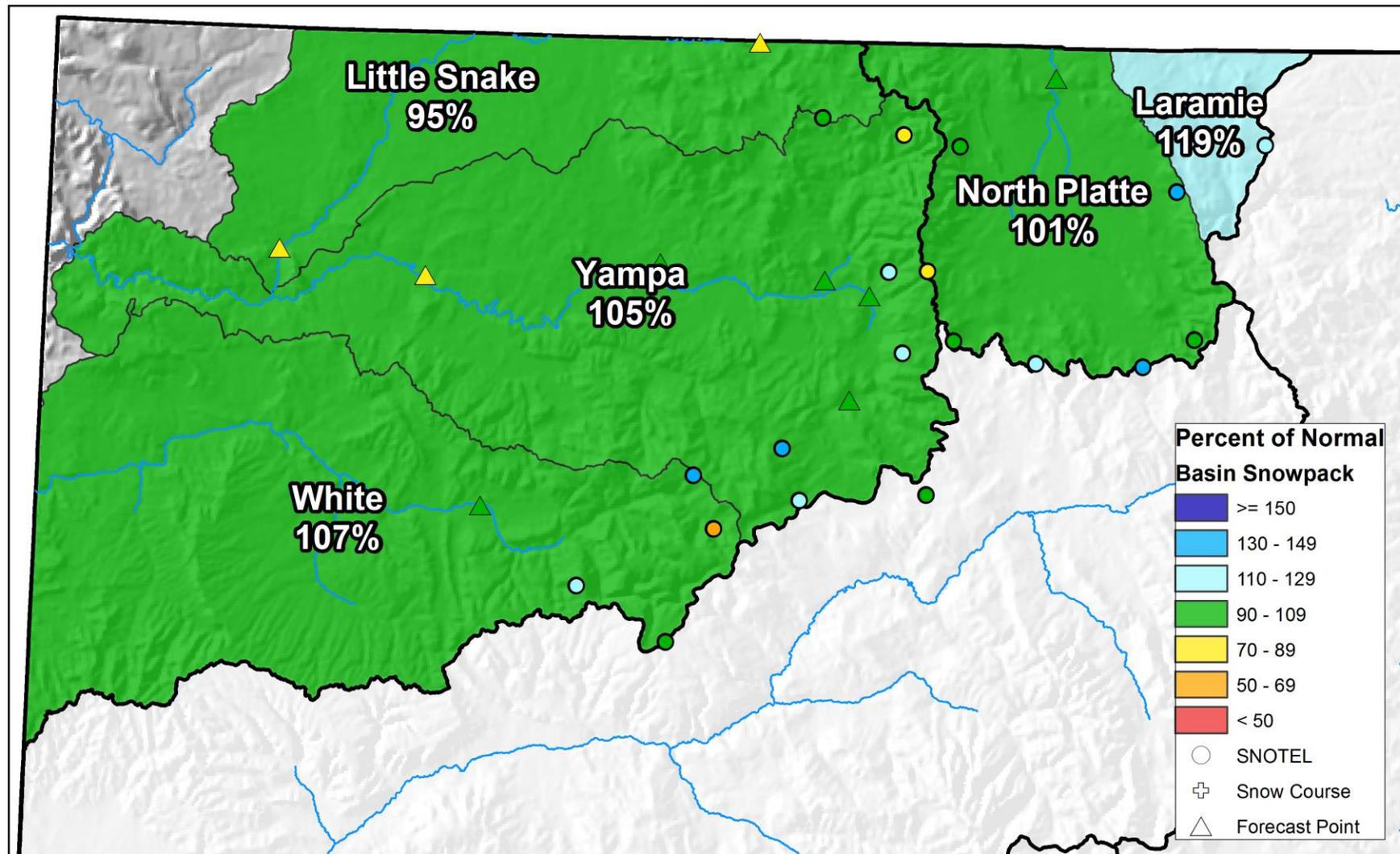
YAMPA, WHITE, NORTH PLATTE AND LARAMIE RIVER BASINS

January 1, 2016

Snowpack in the Yampa, White & North Platte basins is above normal at 104% of the median. Precipitation for December was 118% of average and water year-to-date precipitation is also 94% of average. Reservoir storage at the end of December was 119% of average compared to 114% last year. Streamflow forecasts range from 100% of average for the Yampa River above Stagecoach Reservoir to 80% for the Little Snake River near Dixon.



Yampa, White, and North Platte River Basins Snowpack and Streamflow Forecasts January 1, 2016



United States Department of Agriculture
Natural Resources Conservation Service

Yampa-White-North Platte River Basins Streamflow Forecasts - January 1, 2016

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	105	176	225	100%	275	345	225
	APR-SEP	118	197	250	100%	305	380	250
Laramie R nr Woods ²	APR-JUL	81	104	119	103%	134	156	115
	APR-SEP	91	115	131	104%	147	171	126
Yampa R ab Stagecoach Reservoir ²	APR-JUL	8.9	16.4	23	100%	30	43	23
Yampa R at Steamboat Springs ²	APR-JUL	144	198	240	92%	285	360	260
Elk R nr Milner	APR-JUL	178	245	300	94%	360	455	320
Elkhead Ck ab Long Gulch	APR-JUL	31	52	70	96%	90	124	73
Yampa R nr Maybell ²	APR-JUL	470	675	830	89%	1000	1290	935
Little Snake R nr Slater ²	APR-JUL	75	109	135	87%	164	210	156
Little Snake R nr Dixon ²	APR-JUL	103	195	275	80%	370	530	345
Little Snake R nr Lily ²	APR-JUL	135	215	285	83%	360	490	345
White R nr Meeker	APR-JUL	167	225	270	96%	315	395	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

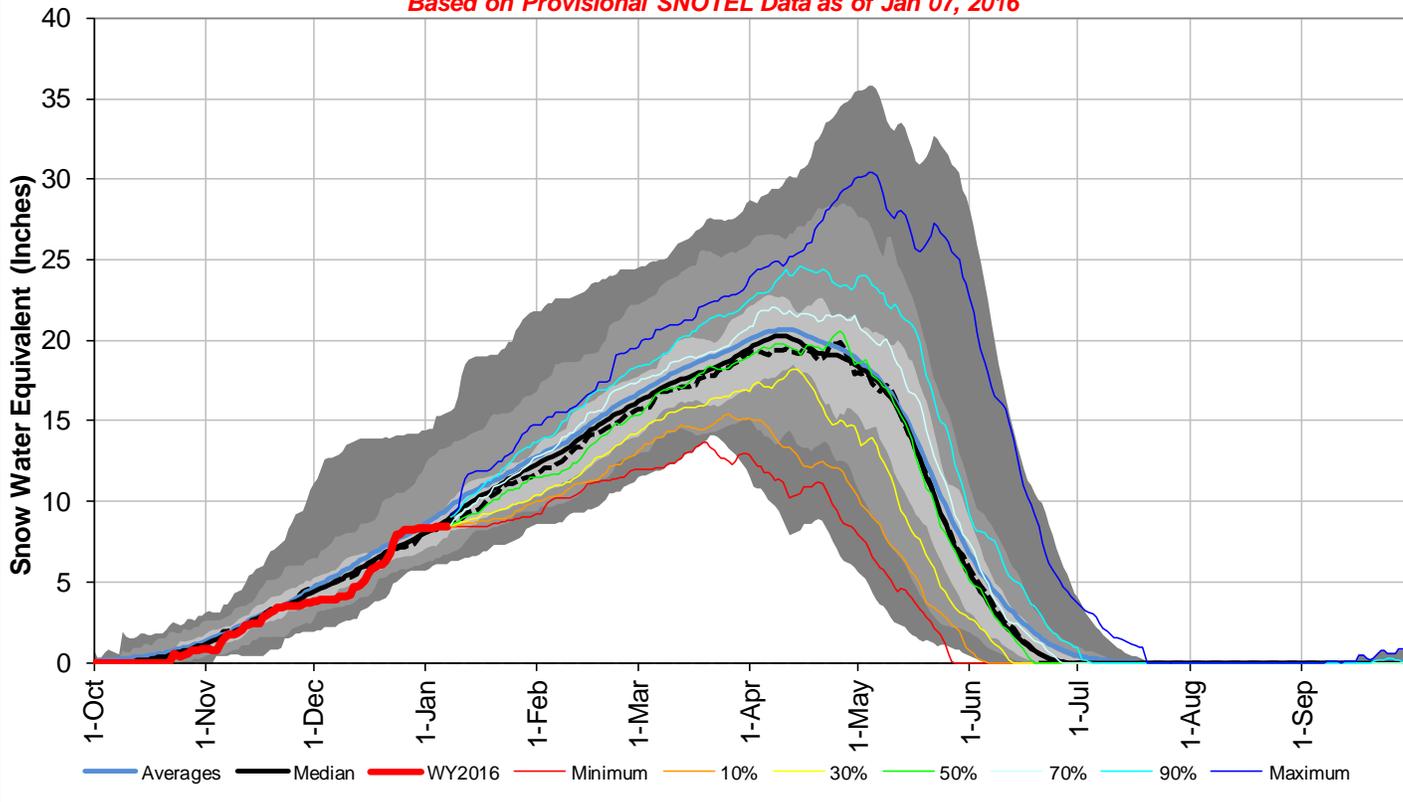
3) Median value used in place of average

Reservoir Storage End of December, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Stagecoach Reservoir nr Oak Creek	34.7	33.5	29.3	33.3
Yamcolo Reservoir	6.6	5.9	5.3	8.7
Basin-wide Total	41.3	39.4	34.6	42.0
# of reservoirs	2	2	2	2

Watershed Snowpack Analysis January 1, 2016	# of Sites	% Median	Last Year % Median
LARAMIE RIVER BASIN	2	119%	88%
NORTH PLATTE RIVER BASIN	8	101%	107%
LARAMIE & NORTH PLATTE RIVER BASINS	10	104%	104%
ELK RIVER BASIN	2	93%	98%
YAMPA RIVER BASIN	9	105%	110%
WHITE RIVER BASIN	4	107%	99%
YAMPA & WHITE RIVER BASINS	12	103%	105%
LITTLE SNAKE RIVER BASIN	7	95%	101%
YAMPA-WHITE-NORTH PLATTE RIVER BASINS	26	104%	104%

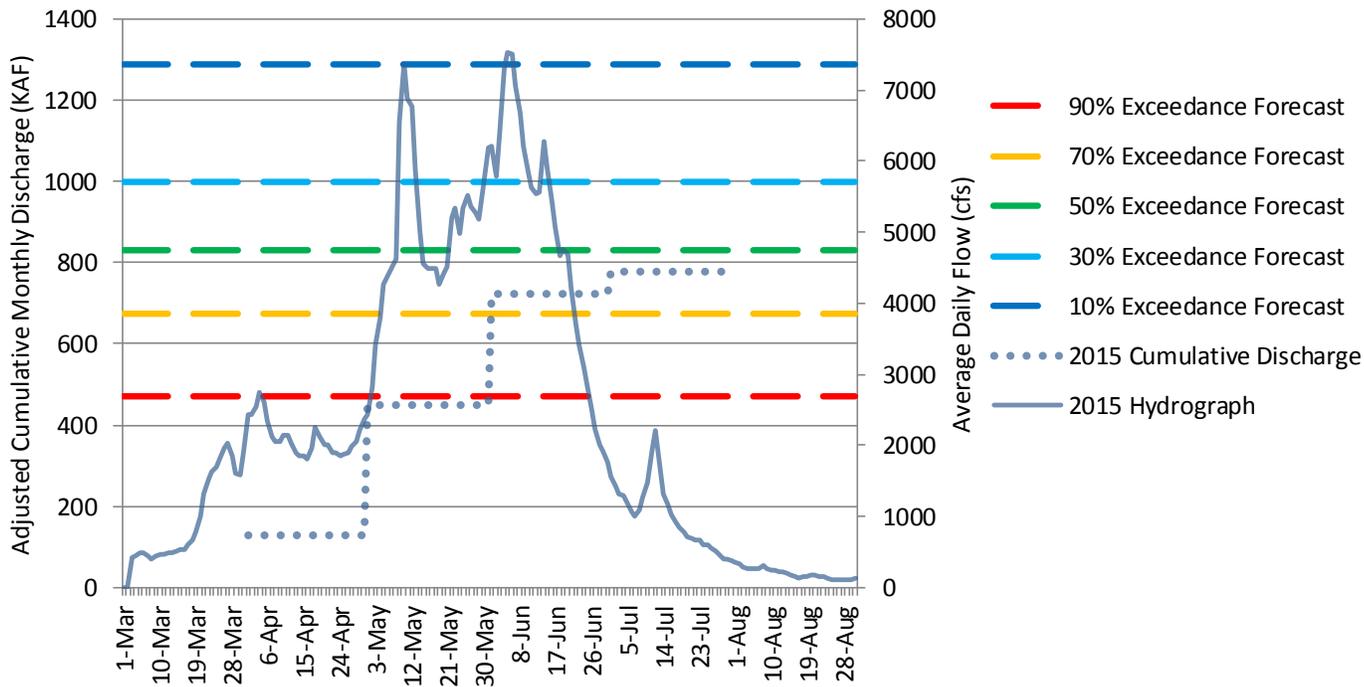
Yampa, White & North Platte River Basins with Non-Exceedence Projections

Based on Provisional SNOTEL Data as of Jan 07, 2016



Yampa River near Maybell

Daily and Cumulative Discharge Compared to Current Streamflow Forecasts (Apr - Jul)

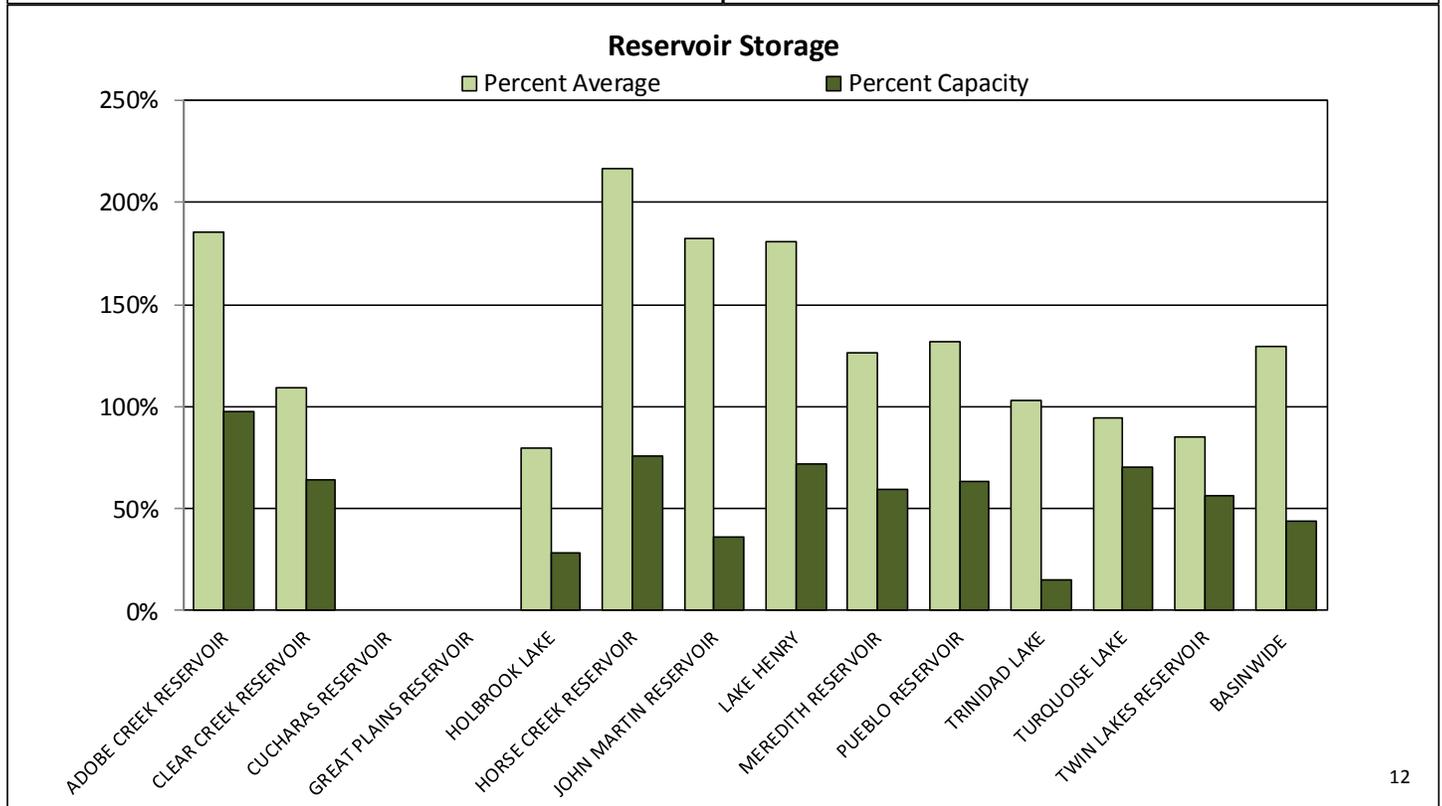
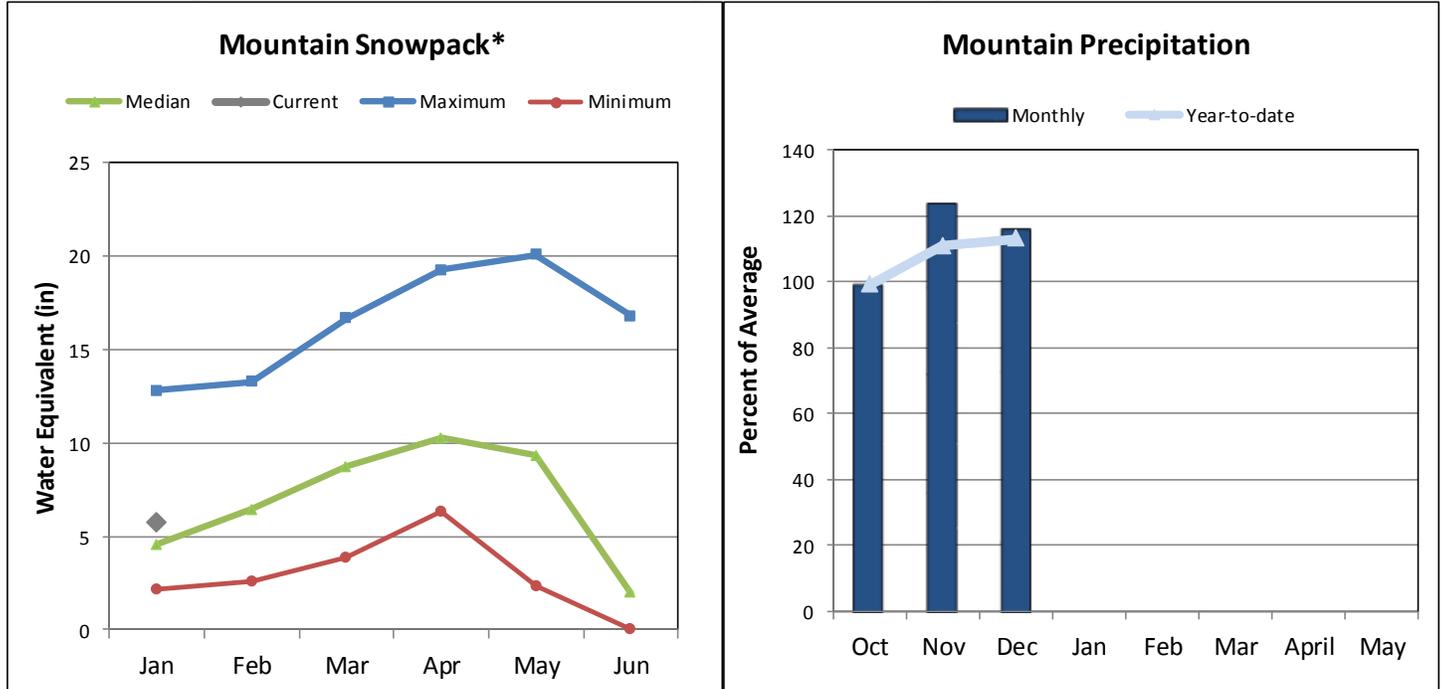


Please refer to the sections at the end of this report for further explanation concerning these graphs.

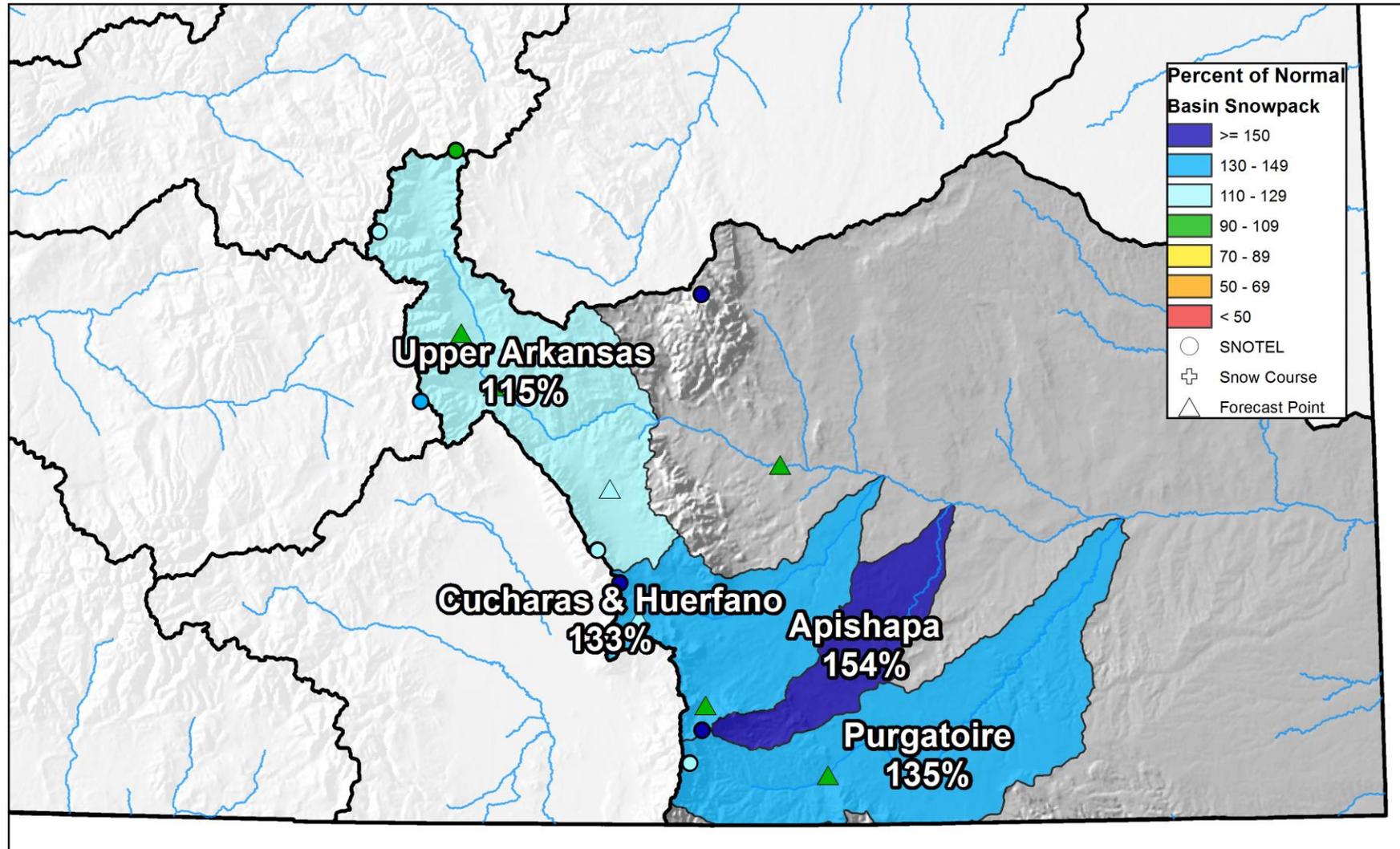
ARKANSAS RIVER BASIN

January 1, 2016

Snowpack in the Arkansas River basin is above normal at 125% of the median. Precipitation for December was 117% of average which brings water year-to-date precipitation to 113% of average. Reservoir storage at the end of December was 128% of average compared to 79% last year. Current streamflow forecasts range from 116% of average for the Huerfano River near Redwing to 104% of average for the Arkansas River near Salida.



Arkansas River Basin Snowpack and Streamflow Forecasts January 1, 2016



0 10 20 40 60 80 Miles



United States Department of Agriculture

Natural Resources Conservation Service

Arkansas River Basin Streamflow Forecasts - January 1, 2016

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	11.3	17.3	22	105%	27	36	21
	APR-SEP	14.6	21	27	104%	33	43	26
Arkansas R at Salida ²	APR-JUL	171	215	250	104%	285	340	240
	APR-SEP	215	265	305	103%	345	415	295
Grape Ck nr Westcliffe	APR-JUL	4.2	11.3	18	113%	26	41	15.9
	APR-SEP	8.8	15.8	22	112%	28	40	19.6
Pueblo Reservoir Inflow ²	APR-JUL	220	305	375	104%	450	570	360
	APR-SEP	295	400	475	104%	560	700	455
Huerfano R nr Redwing	APR-JUL	8.4	11.5	13.8	116%	16.4	21	11.9
	APR-SEP	11.3	14.9	17.7	116%	21	25	15.2
Cucharas R nr La Veta	APR-JUL	5	9.4	13.2	108%	17.6	25	12.2
	APR-SEP	6.5	11.3	15.3	109%	19.9	28	14.1
Trinidad Lake Inflow ²	MAR-JUL	14.6	28	39	105%	52	75	37
	APR-SEP	22	37	50	106%	65	89	47

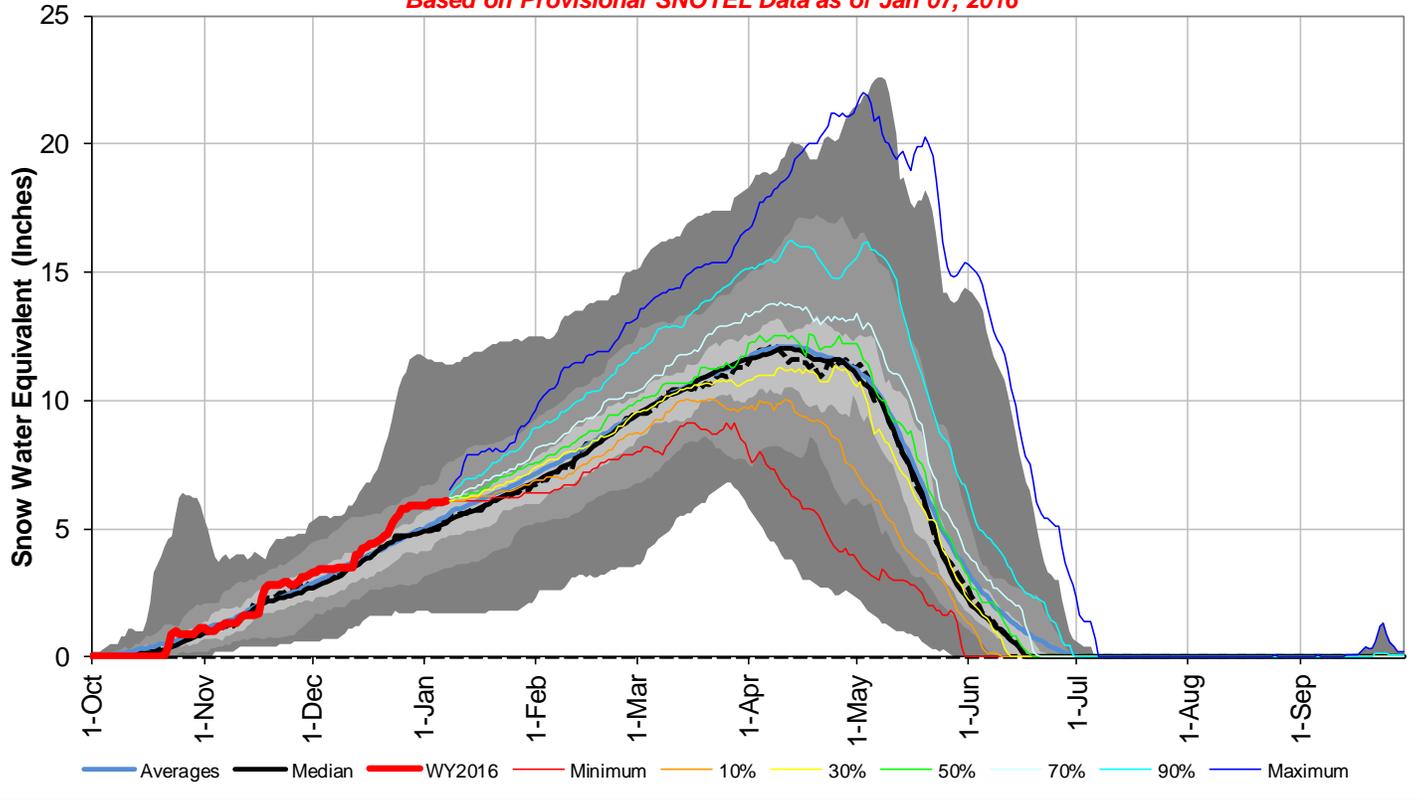
- 1) 90% and 10% exceedance probabilities are actually 95% and 5%
- 2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
- 3) Median value used in place of average

Reservoir Storage End of December, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Adobe Creek Reservoir	60.7	19.3	32.7	62.0
Clear Creek Reservoir	7.3	7.9	6.7	11.4
Cucharas Reservoir			5.3	40.0
Great Plains Reservoir	0.0	0.0	30.0	150.0
Holbrook Lake	2.0	3.0	2.5	7.0
Horse Creek Reservoir	20.4	0.0	9.4	27.0
John Martin Reservoir	224.1	22.3	122.8	616.0
Lake Henry	6.7	6.4	3.7	9.4
Meredith Reservoir	24.9	28.3	19.7	42.0
Pueblo Reservoir	224.7	209.1	170.8	354.0
Trinidad Lake	25.2	14.9	24.4	167.0
Turquoise Lake	88.9	87.7	94.1	127.0
Twin Lakes Reservoir	48.7	54.1	57.0	86.0
Basin-wide Total	733.6	453.0	573.8	1658.8
# of reservoirs	12	12	12	12

Watershed Snowpack Analysis January 1, 2016	# of Sites	% Median	Last Year % Median
UPPER ARKANSAS BASIN	3	115%	146%
CUCHARAS & HUERFANO BASINS	3	133%	76%
PURGATOIRE RIVER BASIN	2	135%	86%
ARKANSAS RIVER BASIN	8	125%	114%

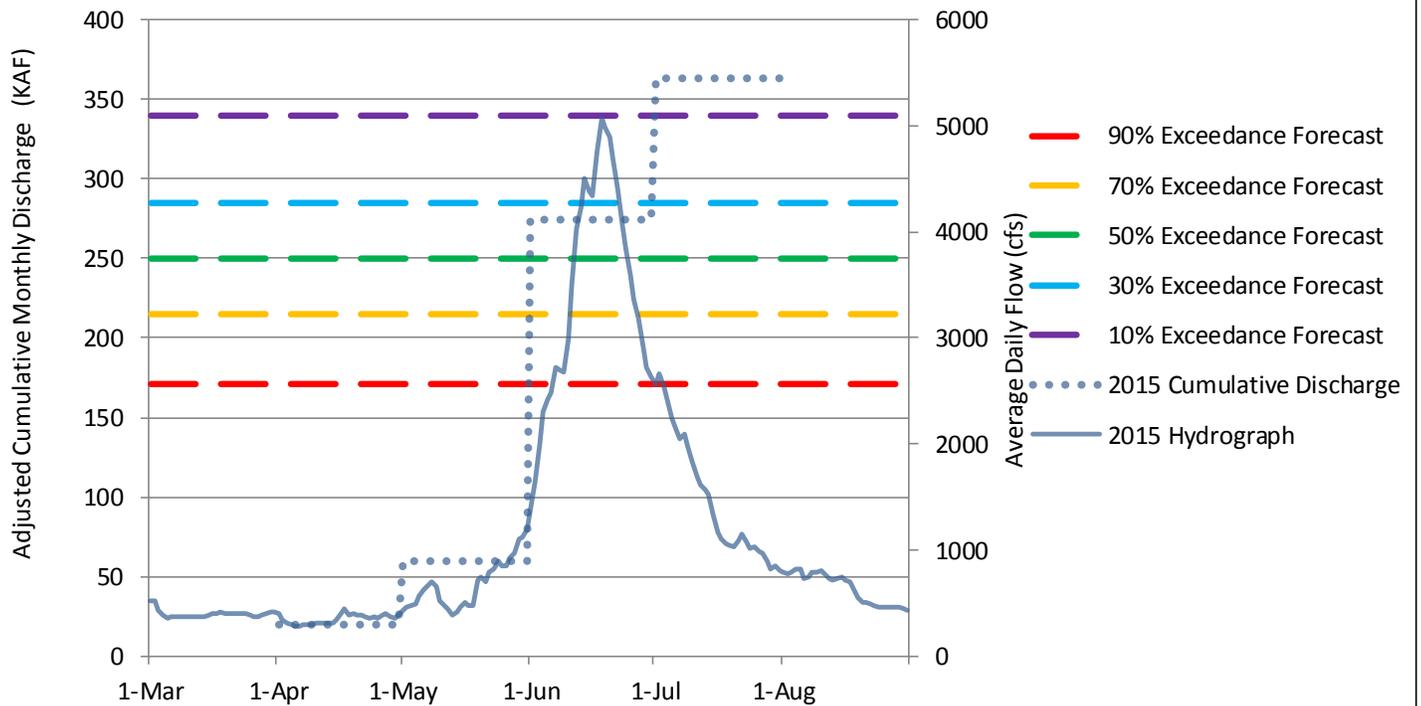
Arkansas River Basin with Non-Exceedence Projections

Based on Provisional SNOTEL Data as of Jan 07, 2016



Arkansas River at Salida, CO

Daily and Cumulative Discharge Compared to Current Streamflow Forecasts (Apr - Jul)

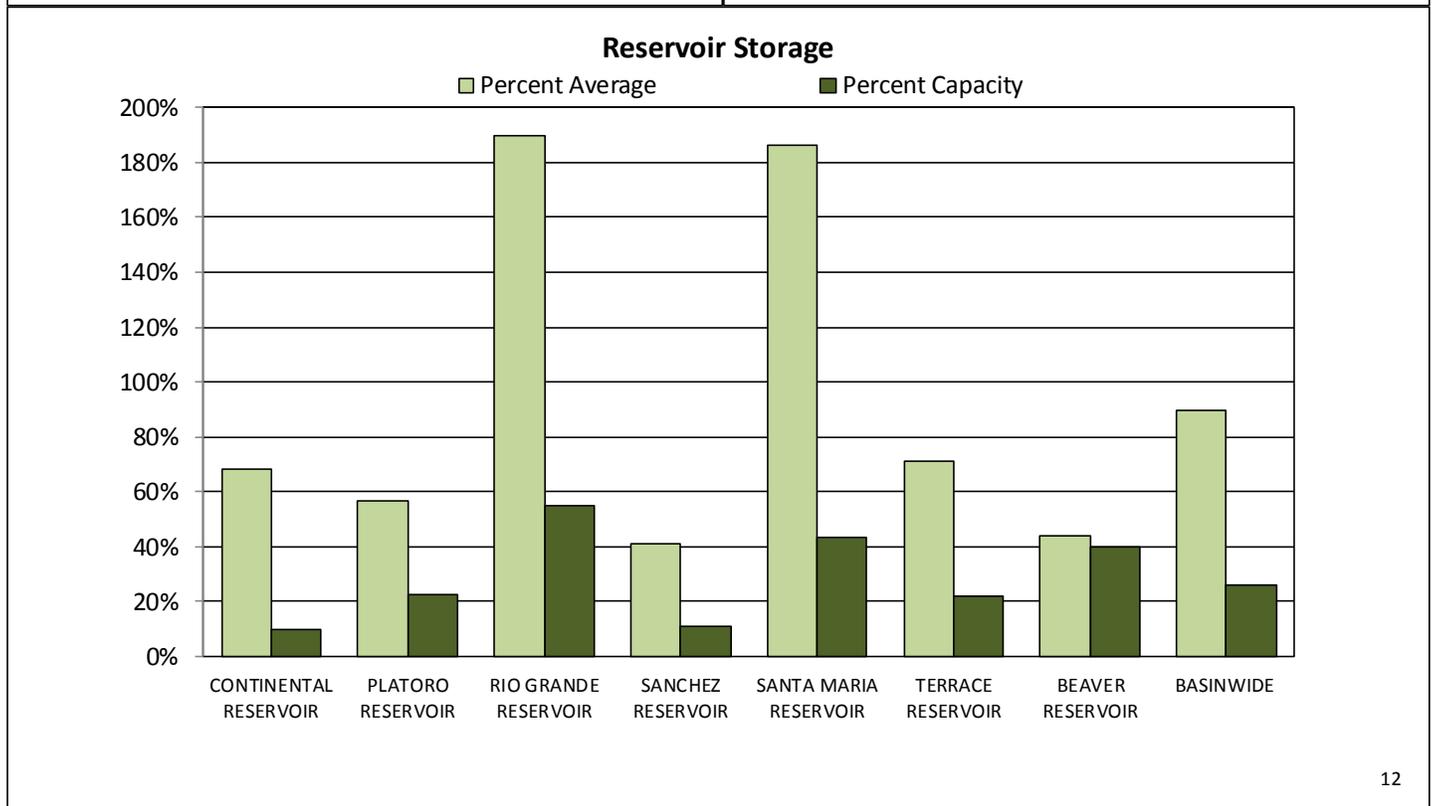
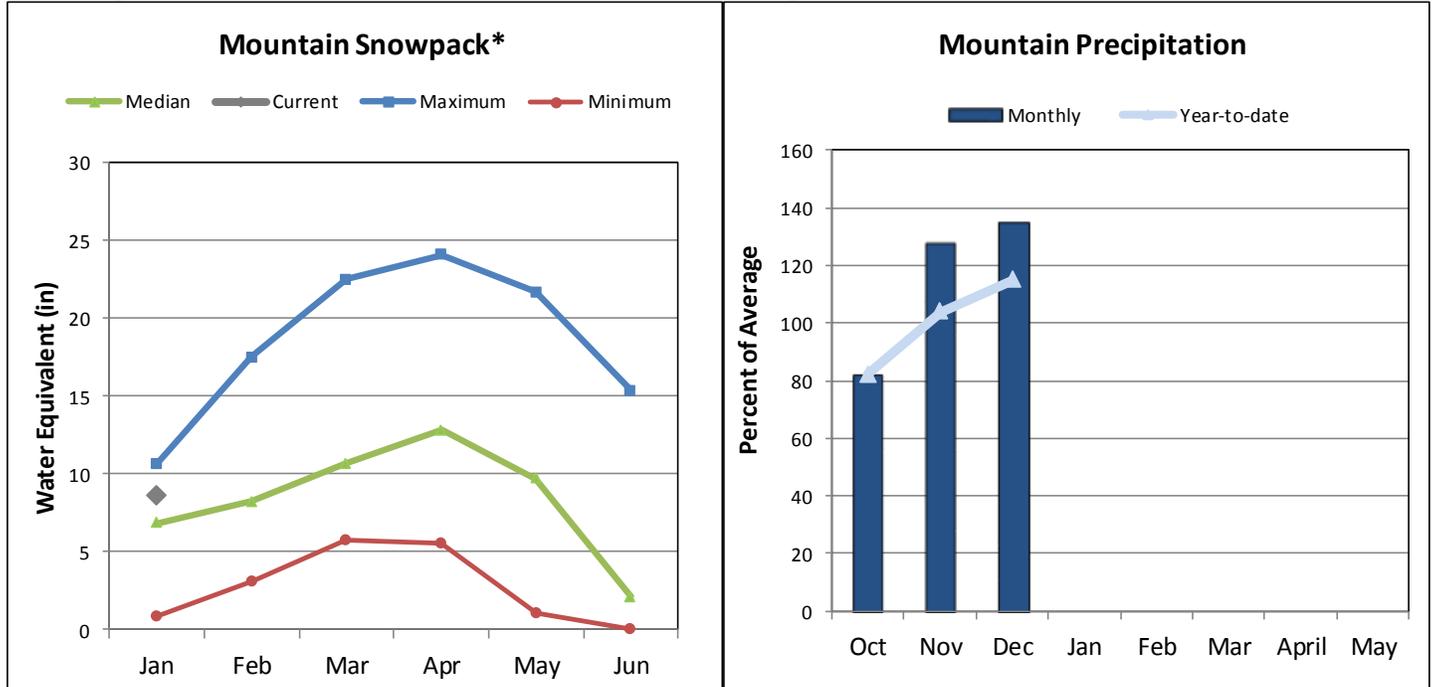


Please refer to the sections at the end of this report for further explanation concerning these graphs.

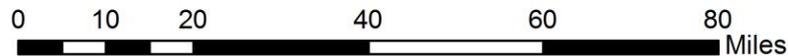
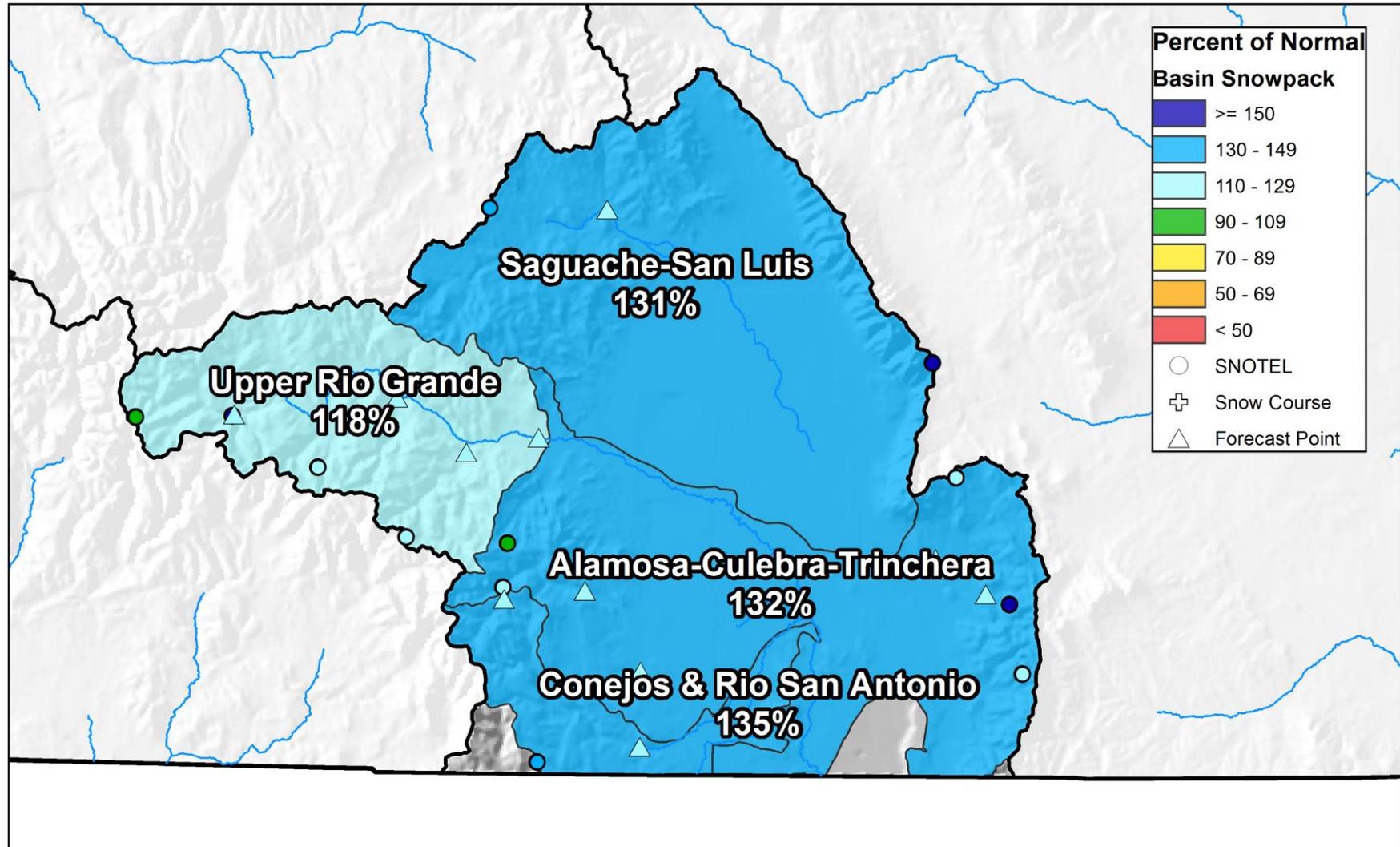
UPPER RIO GRANDE RIVER BASIN

January 1, 2016

Snowpack in the Upper Rio Grande River basin is above normal at 126% of median. Precipitation for December was 135% of average which brings water year-to-date precipitation to 115% of average. Reservoir storage at the end of December was 89% of average compared to 67% last year. Streamflow forecasts range from 123% of average for Ute Creek near Fort Garland to 103% of average for the Rio Grande River near Lobatos.



Upper Rio Grande River Basin Snowpack and Streamflow Forecasts January 1, 2016



United States Department of Agriculture

Natural Resources Conservation Service

Upper Rio Grande Basin Streamflow Forecasts - January 1, 2016

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	86	109	127	112%	145	175	113
	APR-SEP	98	125	144	112%	166	200	129
Rio Grande at Wagon Wheel Gap ²	APR-SEP	250	325	380	112%	440	540	340
SF Rio Grande at South Fork ²	APR-SEP	96	123	143	113%	165	199	127
Rio Grande nr Del Norte ²	APR-SEP	385	495	580	113%	670	815	515
Saguache Ck nr Saguache	APR-SEP	21	30	37	116%	44	56	32
Alamosa Ck ab Terrace Reservoir	APR-SEP	52	66	76	112%	87	104	68
La Jara Ck nr Capulin	MAR-JUL	6.1	8.4	10.1	113%	12	15.2	8.9
Trinchera Ck ab Turners Ranch	APR-SEP	9.5	12.3	14.5	115%	16.8	21	12.6
Sangre de Cristo Ck ²	APR-SEP	8.4	14.5	19.5	120%	25	35	16.3
Ute Ck nr Fort Garland	APR-SEP	8.4	12.5	15.8	123%	19.4	25	12.8
Platoro Reservoir Inflow	APR-JUL	44	54	62	111%	70	82	56
	APR-SEP	48	60	68	110%	77	92	62
Conejos R nr Mogote ²	APR-SEP	146	185	215	111%	245	295	194
San Antonio R at Ortiz	APR-SEP	8.3	13.1	16.9	108%	21	29	15.6
Los Pinos R nr Ortiz	APR-SEP	49	66	79	108%	94	117	73
Culebra Ck at San Luis	APR-SEP	15.2	22	27	117%	32	42	23
Costilla Reservoir Inflow	MAR-JUL	8.1	10.7	12.7	114%	14.9	18.4	11.1
Costilla Ck nr Costilla ²	MAR-JUL	18.3	25	31	119%	37	47	26

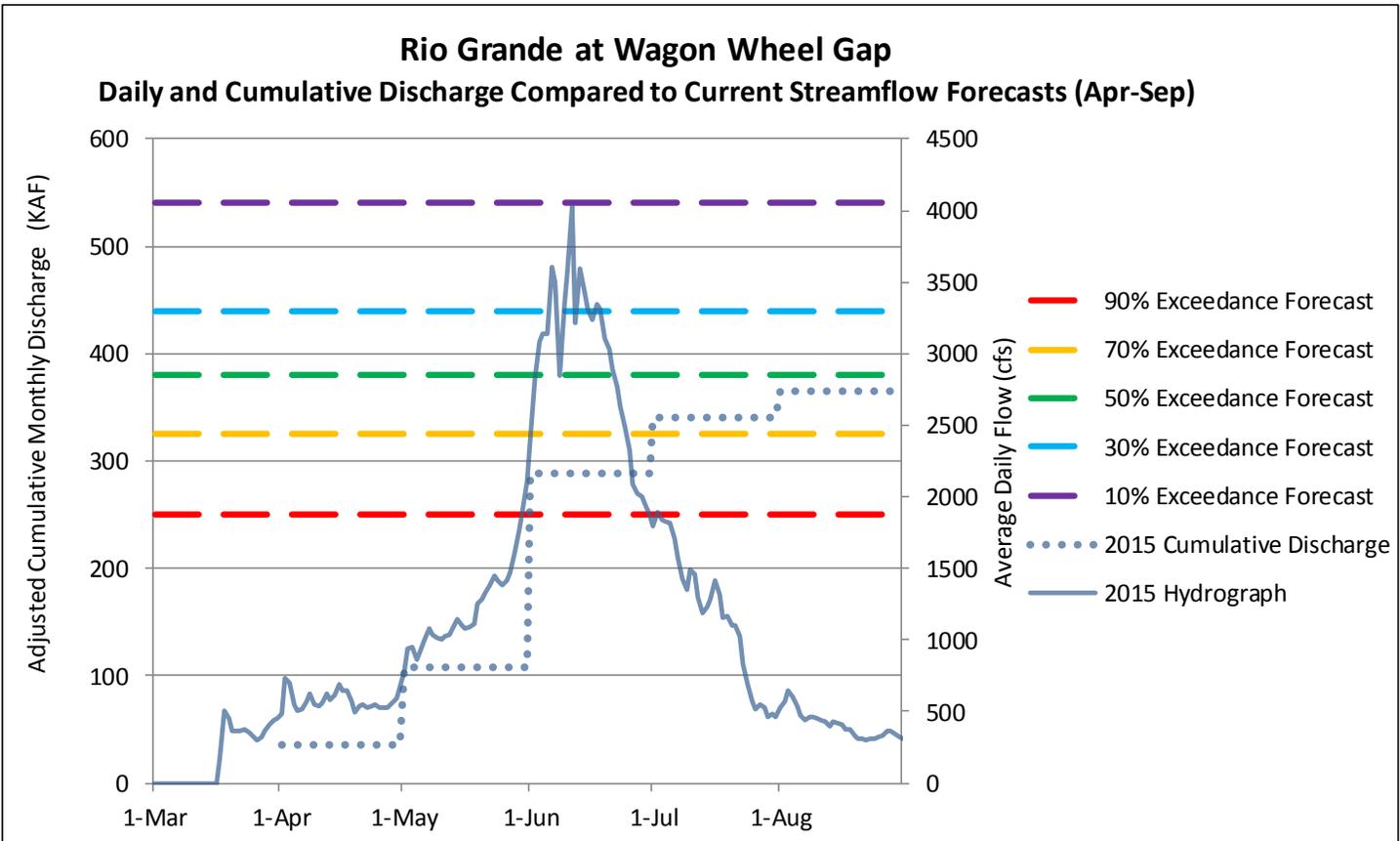
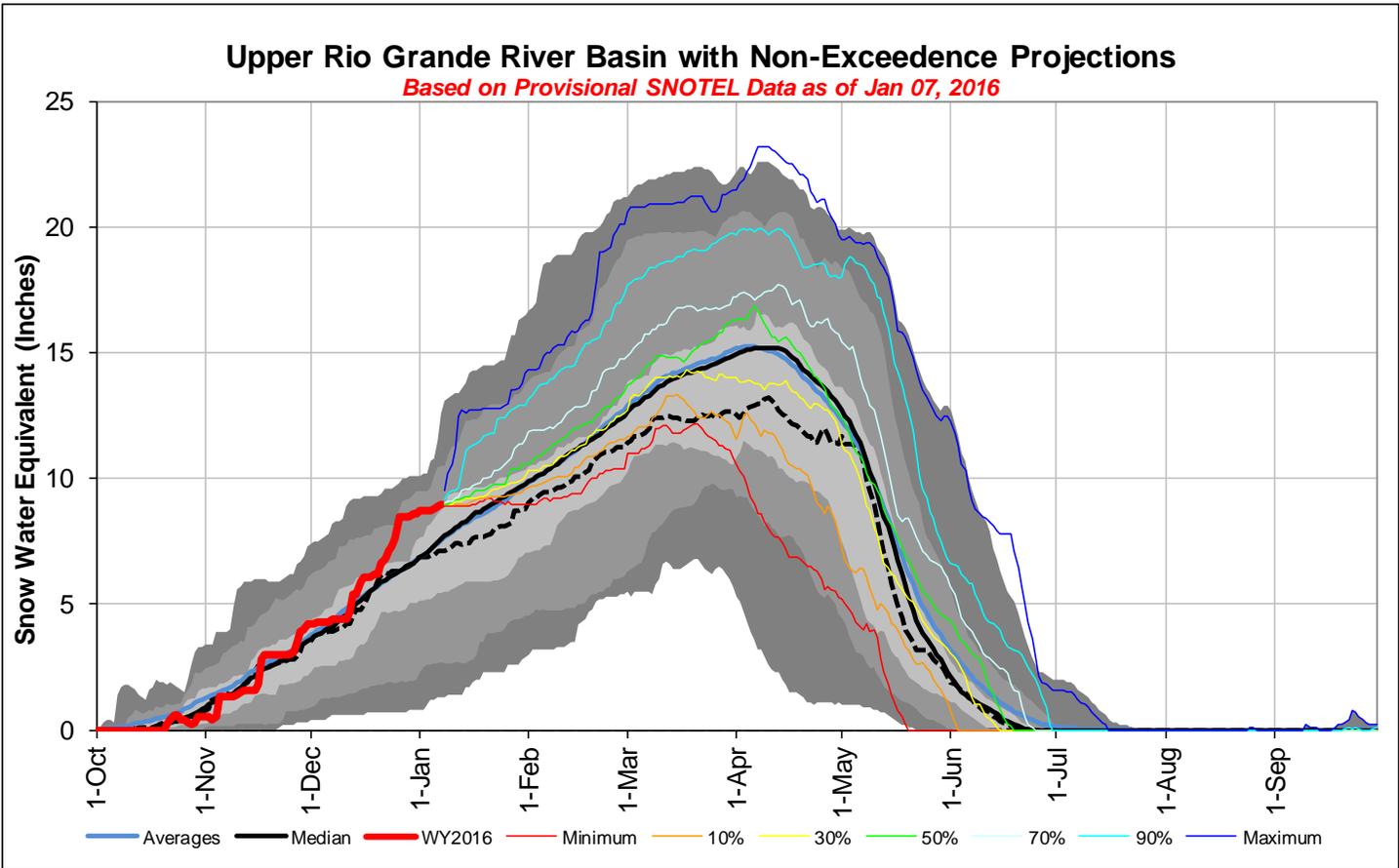
1) 90% and 10% exceedance probabilities are actually 95% and 5%

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 December, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Beaver Reservoir	1.8	0.0	4.1	4.5
Continental Reservoir	2.6	6.1	3.8	27.0
Platoro Reservoir	13.6	10.6	24.0	60.0
Rio Grande Reservoir	28.1	21.5	14.8	51.0
Sanchez Reservoir	11.2	3.7	27.5	103.0
Santa Maria Reservoir	19.4	14.3	10.4	45.0
Terrace Reservoir	3.9	3.8	5.5	18.0
Basin-wide Total	80.6	60.0	90.1	308.5
# of reservoirs	7	7	7	7

Watershed Snowpack Analysis January 1, 2016	# of Sites	% Median	Last Year % Median
ALAMOSA CREEK BASIN	1	123%	47%
CONEJOS & RIO SAN ANTONIO BASINS	2	135%	67%
CULEBRA & TRINCHERA BASINS	3	136%	85%
HEADWATERS RIO GRANDE RIVER BASIN	6	118%	65%
UPPER RIO GRANDE BASIN	12	126%	70%

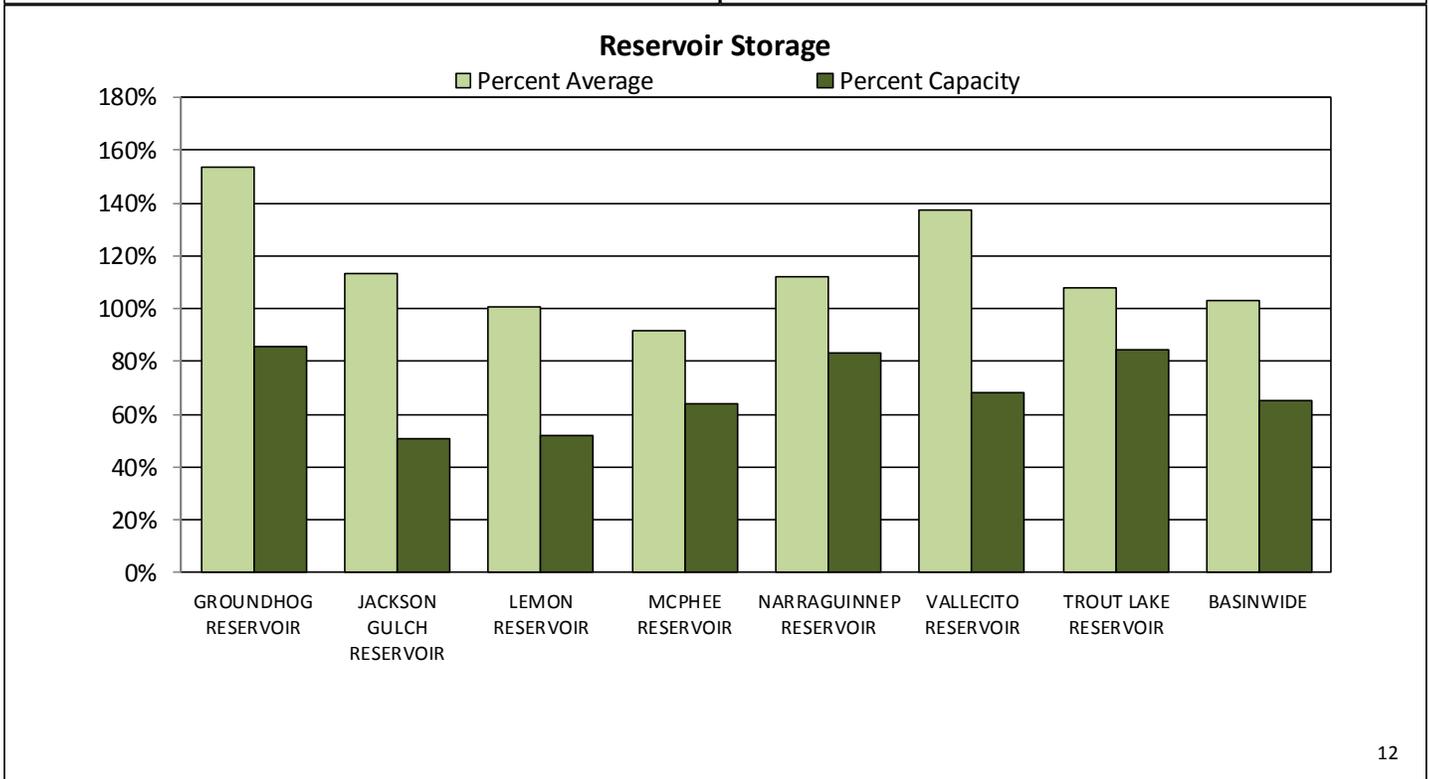
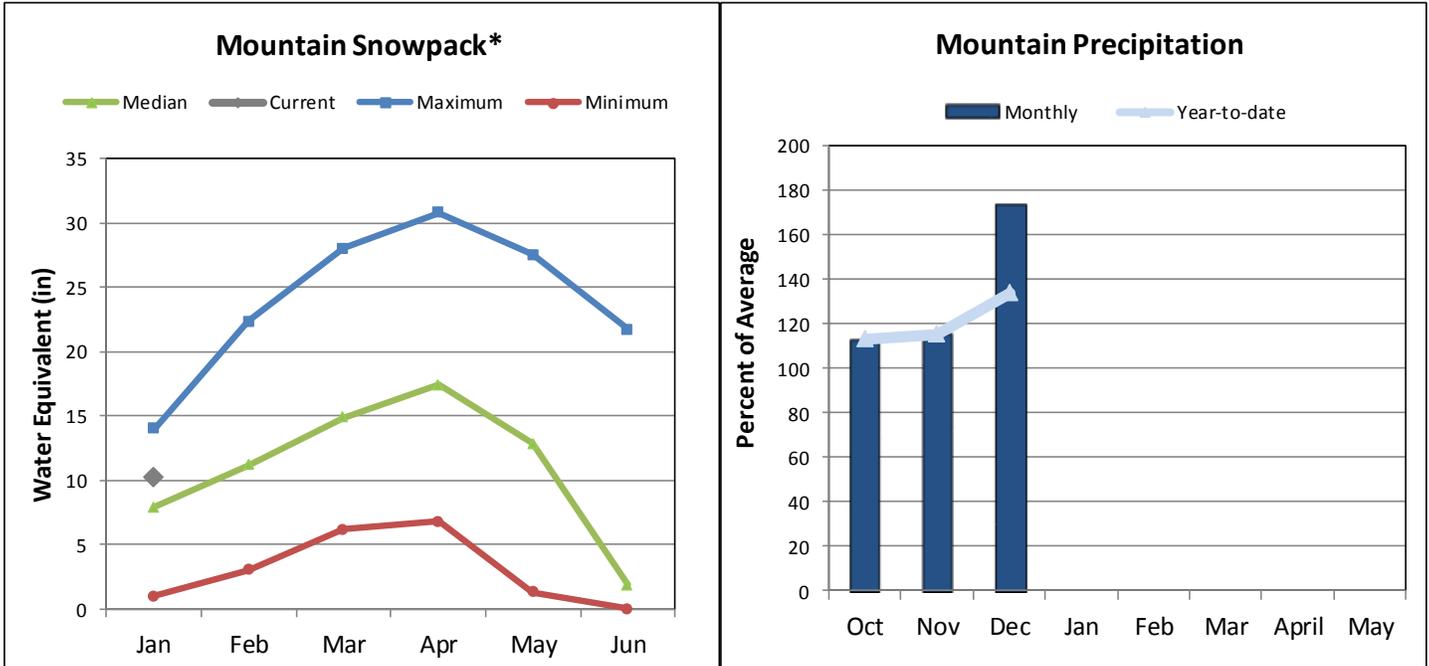


Please refer to the sections at the end of this report for further explanation concerning these graphs.

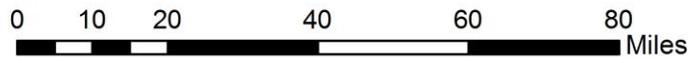
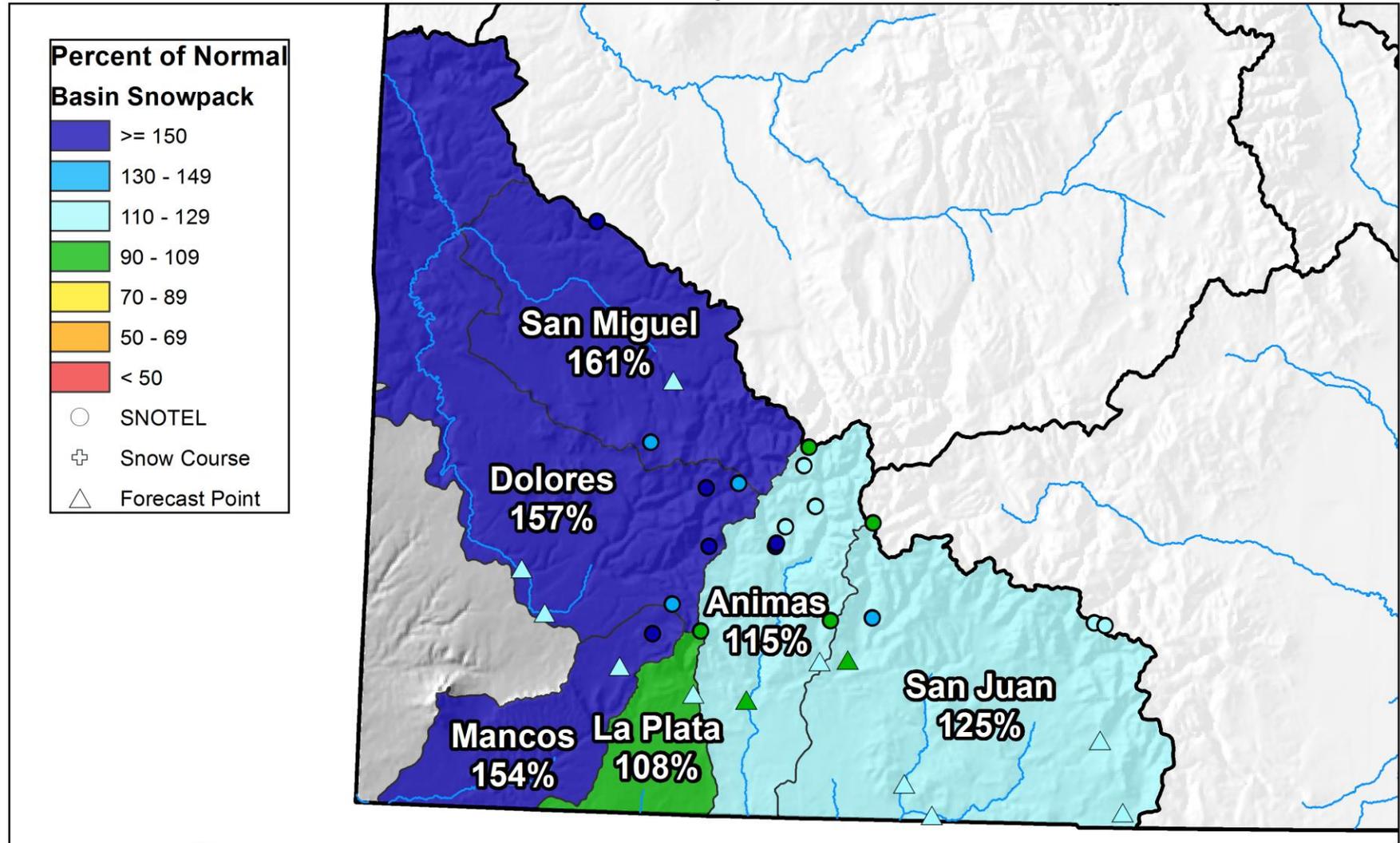
SAN MIGUEL, DOLORES, ANIMAS, AND SAN JUAN RIVER BASINS

January 1, 2016

Snowpack in the combined southwest river basins is above normal at 130% of median. Precipitation for December was 174% of average which brings water year-to-date precipitation to 134% of average. Reservoir storage at the end of December was 103% of average compared to 88% last year. Current streamflow forecasts range from 116% of average for the Dolores River at Dolores to 108% for the inflow to Vallecito Reservoir.



San Miguel, Dolores, Animas, and San Juan River Basins Snowpack and Streamflow Forecasts January 1, 2016



United States Department of Agriculture

Natural Resources Conservation Service

San Miguel-Dolores-Animas-San Juan River Basins Streamflow Forecasts - January 1, 2016

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	173	235	285	116%	340	425	245
McPhee Reservoir Inflow	APR-JUL	192	275	340	115%	410	525	295
San Miguel R nr Placerville	APR-JUL	94	123	145	113%	169	205	128
Cone Reservoir Inlet	APR-JUL	2.1	2.9	3.5	117%	4.2	5.3	3
Gurley Reservoir Inlet	APR-JUL	14.7	17.7	20	122%	22	26	16.4
Lilylands Reservoir Inlet	APR-JUL	1.11	1.77	2.3	120%	2.9	3.9	1.92
Rio Blanco at Blanco Diversion ²	APR-JUL	40	52	61	113%	71	87	54
Navajo R at Oso Diversion ²	APR-JUL	47	62	74	114%	87	107	65
San Juan R nr Carracas ²	APR-JUL	265	360	430	113%	505	630	380
Piedra R nr Arboles	APR-JUL	143	198	240	114%	285	360	210
Vallecito Reservoir Inflow	APR-JUL	140	181	210	108%	245	295	194
Navajo Reservoir Inflow ²	APR-JUL	535	710	840	114%	985	1220	735
Animas R at Durango	APR-JUL	295	385	455	110%	530	655	415
Lemon Reservoir Inflow	APR-JUL	38	51	60	109%	71	88	55
La Plata R at Hesperus	APR-JUL	14.1	21	26	113%	32	41	23
Mancos R nr Mancos ²	APR-JUL	18.1	27	35	113%	43	57	31

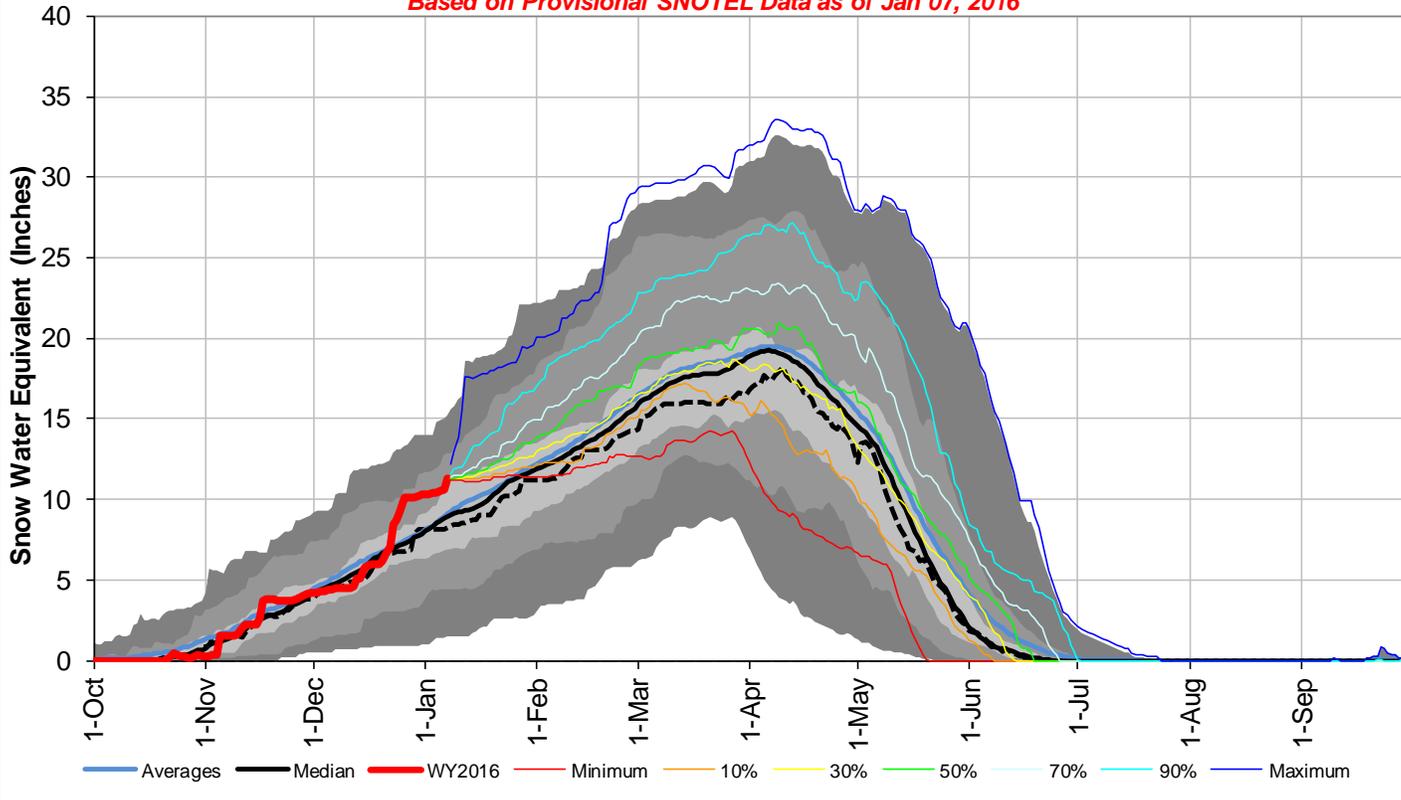
- 1) 90% and 10% exceedance probabilities are actually 95% and 5%
- 2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
- 3) Median value used in place of average

Reservoir Storage End of December, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Groundhog Reservoir	18.9	16.0	12.3	22.0
Jackson Gulch Reservoir	5.1	3.7	4.5	10.0
Lemon Reservoir	20.8	21.9	20.7	40.0
Mcphee Reservoir	243.8	181.3	265.6	381.0
Narraguinnep Reservoir	15.8	16.0	14.1	19.0
Trout Lake Reservoir	2.7	0.0	2.5	3.2
Vallecito Reservoir	85.9	96.4	62.4	126.0
Basin-wide Total	393.0	335.3	382.1	601.2
# of reservoirs	7	7	7	7

Watershed Snowpack Analysis January 1, 2016	# of Sites	% Median	Last Year % Median
ANIMAS RIVER BASIN	9	115%	81%
DOLORES RIVER BASIN	5	157%	83%
SAN MIGUEL RIVER BASIN	3	161%	84%
SAN JUAN RIVER BASIN	3	125%	55%
SAN MIGUEL-DOLORES-ANIMAS-SAN JUAN RIVER BASINS	19	130%	75%

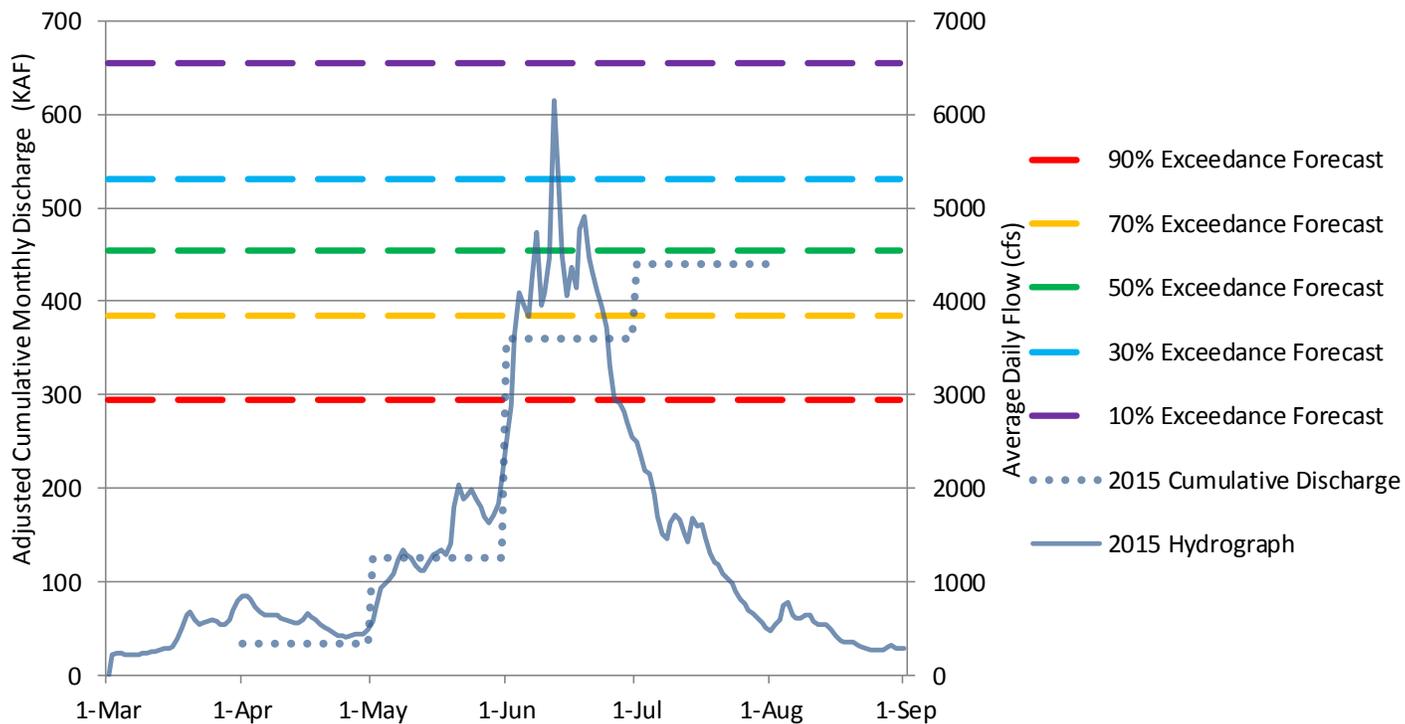
San Miguel, Dolores, Animas and San Juan River Basin with Non-Exceedence Projections

Based on Provisional SNOTEL Data as of Jan 07, 2016



Animas River at Durango, CO

Daily and Cumulative Discharge Compared to Current Streamflow Forecasts (Apr - Jul)



Please refer to the sections at the end of this report for further explanation concerning these graphs.

How to Read Non-Exceedance Projections Graphs

The graphs show snow water equivalent (SWE) projections (in inches) for the October 1 through September 30 water year. Basin “observed” SWE values are computed using SNOTEL sites which are characteristic of the snowpack of the particular basin. The SWE observations at these sites are averaged and normalized to produce these basin snowpack graphs. This new graph format uses non-exceedance projections.

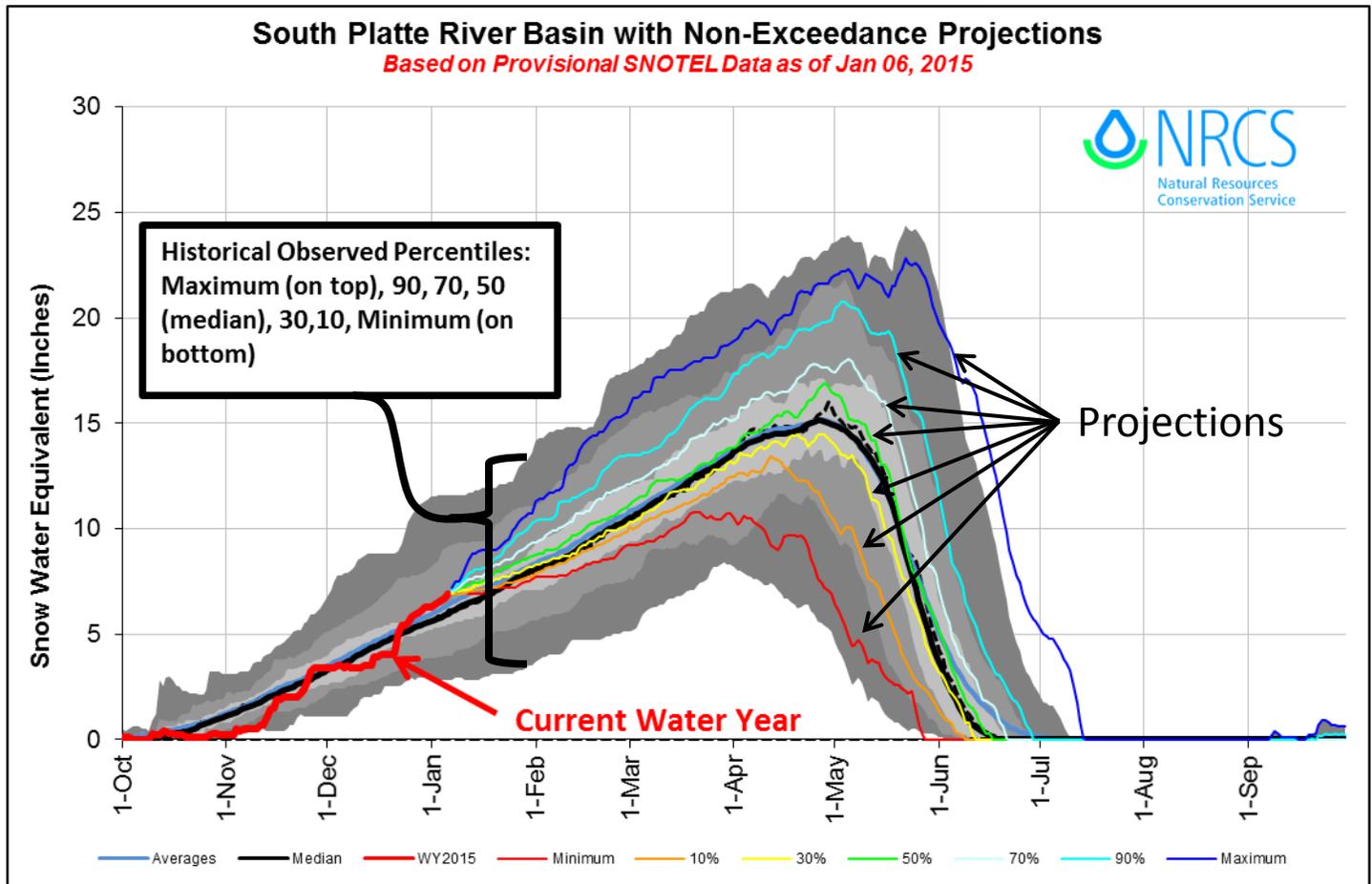
Current water year is represented by the heavy red line terminating on the last day the graphic was updated.

Historical observed percentile range is shown as a gray background area on the graph. Shades of gray indicate maximum, 90 percentile, 70 percentile, 50 percentile (solid black line), 30 percentile, 10 percentile, and minimum for the period of record.

Projections for maximum, 90 percent, 70 percent, 50 percent (most probabilistic snowpack projection, based on median), 30 percent, 10 percent, and minimum exceedances are projected forward from the end of the current line as different colored lines.

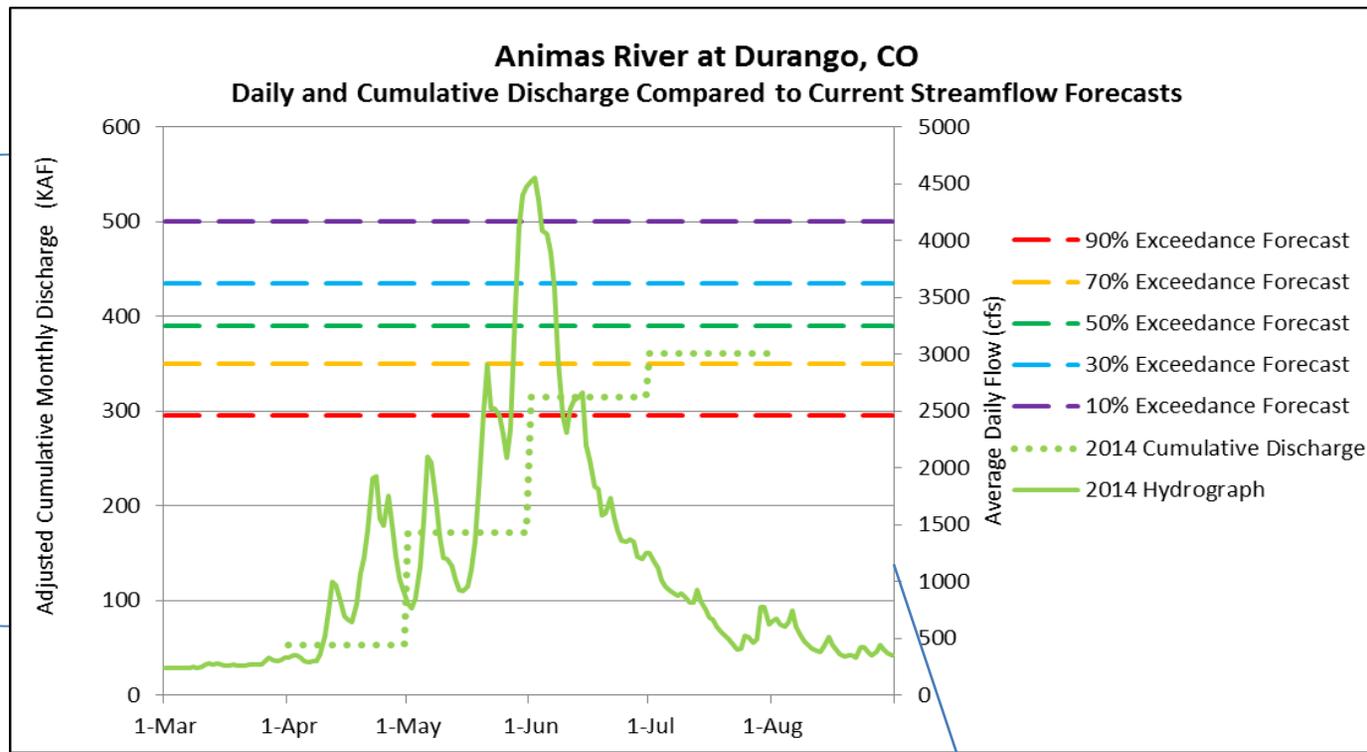
For more detailed information on these graphs visit:

http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs144p2_062291.pdf



Explanation of Flow Comparison Charts

The flow comparison charts were developed to provide a quick comparison between the previous years' observed hydrograph, cumulative seasonal discharge, the current streamflow forecasts, and the current years' observed discharge (both hydrograph and cumulative discharge, as the season progresses). Forecast points for these products were generally chosen to be lower in the basin to best represent the basin-wide streamflow response for the season; the true degree of representativeness will vary between basins. When making comparisons of how the shape of the hydrograph relates to the monthly (and seasonal) cumulative discharges it is important to note that the hydrograph represents observed daily flows at the forecast point while the cumulative values may be adjusted for changes in reservoir storage and diversions to best represent what would be "natural flows" if these impoundments and diversions did not exist. This product can provide additional guidance regarding how to most wisely utilize the five exceedance forecasts based on past observations, current trends, and future uncertainty for a wide variety of purposes and water users.



The left y-axis represents values of adjusted cumulative discharge (KAF). This axis is to be used for comparing the current and previous years to the current five volumetric seasonal exceedance forecasts. This graphic only displays the previous years data but data for the current water year will be added as the season progresses.

The legend displays the symbology and color schemes for the various parameters represented. Exceedance forecasts represent total cumulative discharge for the April through July time period with the exception of the Rio Grande at Wagon Wheel Gap (Apr-Sep).

The right y-axis represents observed daily average discharge at the forecast point of interest. This graphic only displays the previous years data but data for the current water year will be added as the Season progresses.

How Forecasts Are Made

For more water supply and resource management information, contact:

Brian Domonkos

Snow Survey Supervisor

USDA, Natural Resources Conservation Service

Denver Federal Center, Bldg 56, Rm 2604

PO Box 25426

Denver, CO 80225-0426

Phone (720) 544-2852

Website: <http://www.nrcs.usda.gov/wps/portal/nrcs/main/co/snow/>

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.



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

In addition to the water supply 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 June. The information may be obtained from the Natural Resources Conservation Service web page at <http://www.nrcs.usda.gov/wsf/westwide.html>

Issued by

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

Released by

Clint Evans
State Conservationist
Natural Resources Conservation Service
Lakewood, Colorado

Colorado
Water Supply Outlook Report
Natural Resources Conservation Service
Lakewood, CO