USDA United States Department of Agriculture
Natural Resources Conservation Service

Colorado
Water Supply Outlook Report
February 1, 2019

Michael Ardison, NRCS hydrologic technician, near the Horseshoe snow course, which gets its name from the iconic mountain in the background. The snow course at over 11,000 feet in elevation is located near Fairplay, CO in the South Platte Headwaters drainage. Surveyors measured 6.2 inches of snow water equivalent for the snow course this month, which is slightly above normal at 102 percent of median. Overall, the South Platte Headwaters has a snowpack at 126% of normal on February 1st.

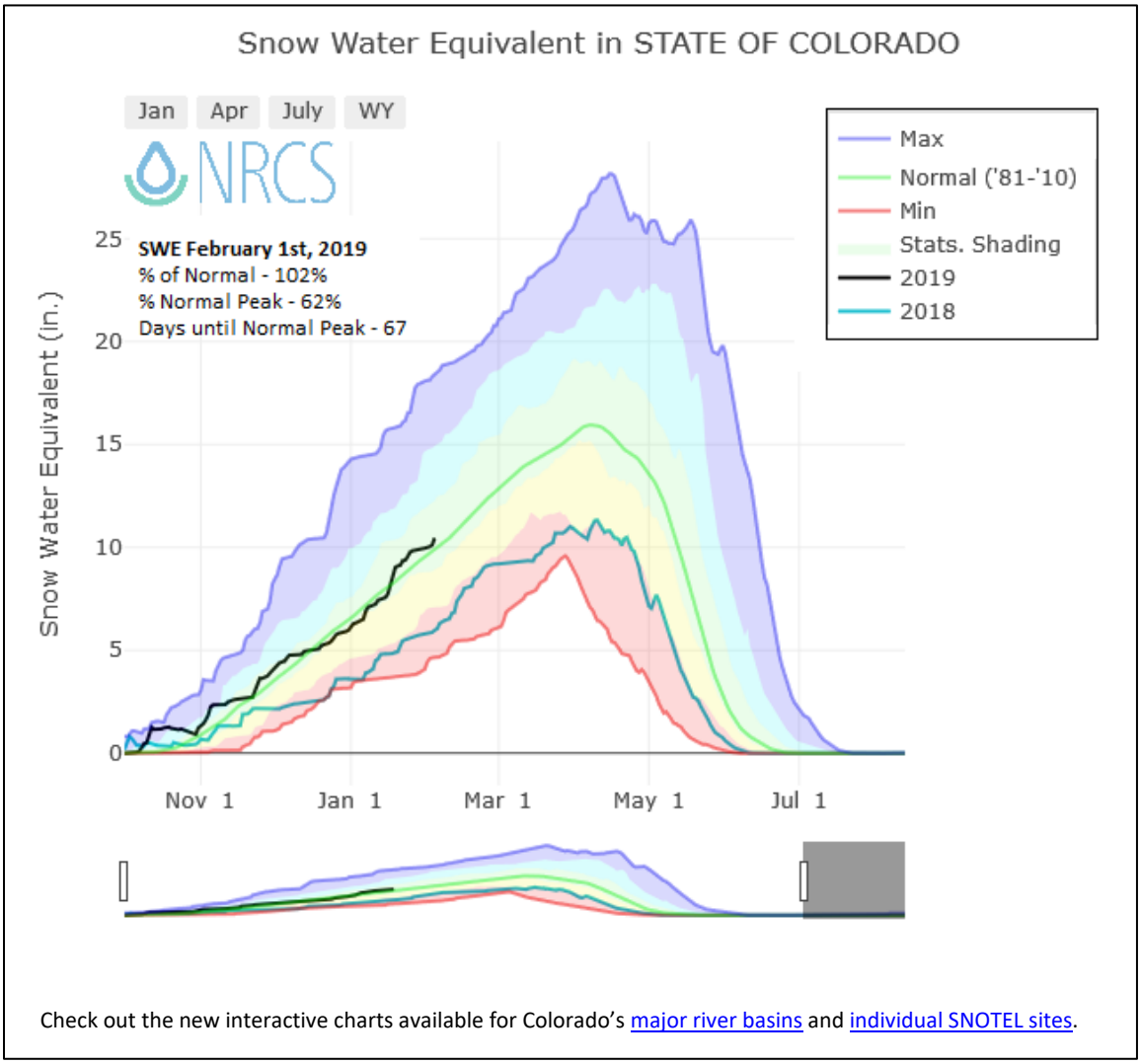
Photo By: Zack Wilson Date: January 25th, 2018

REMINDER: We are soliciting field work photos from the field 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

Colorado Statewide Water Supply Conditions

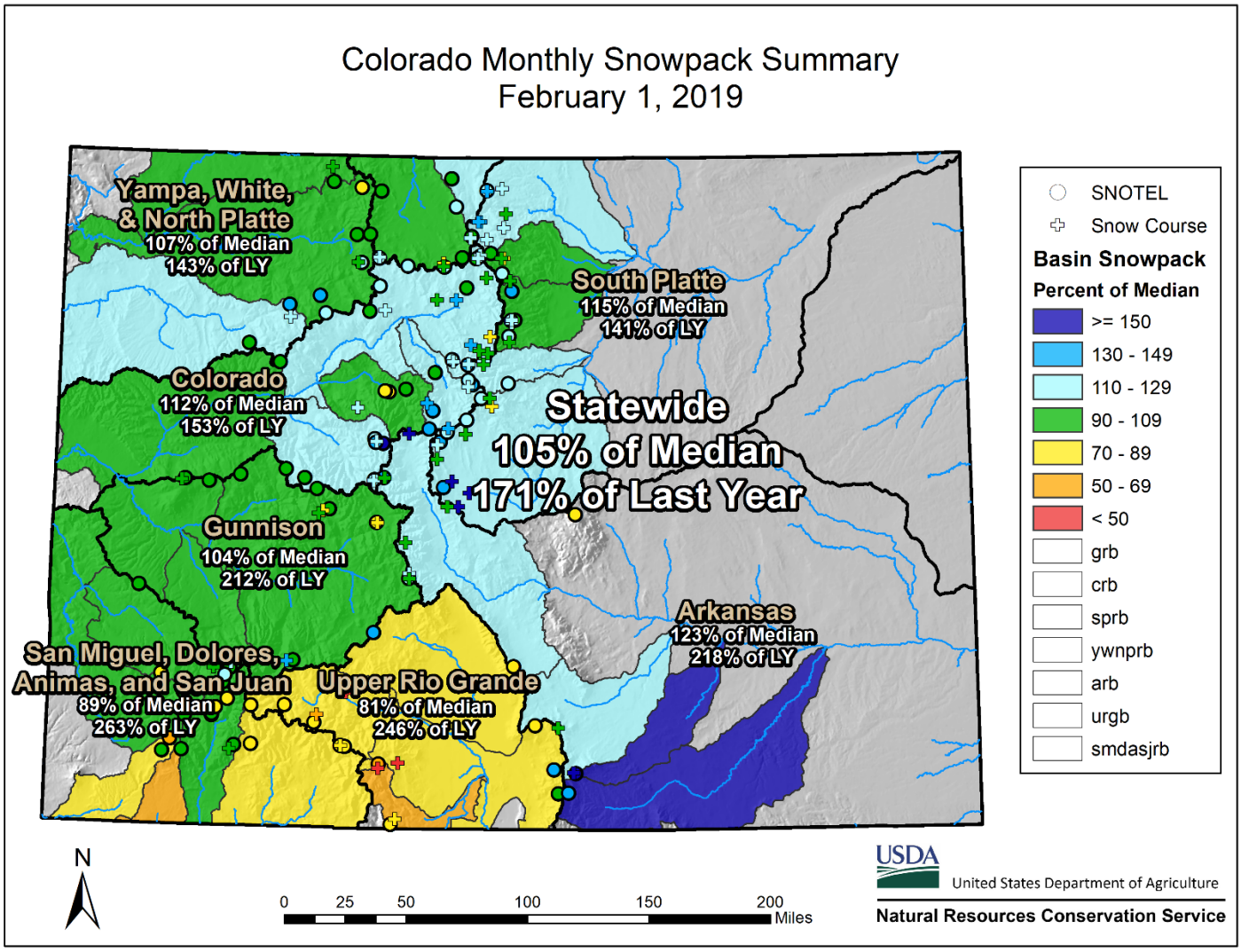
Summary



Check out the new interactive charts available for Colorado's major river basins and individual SNOTEL sites.

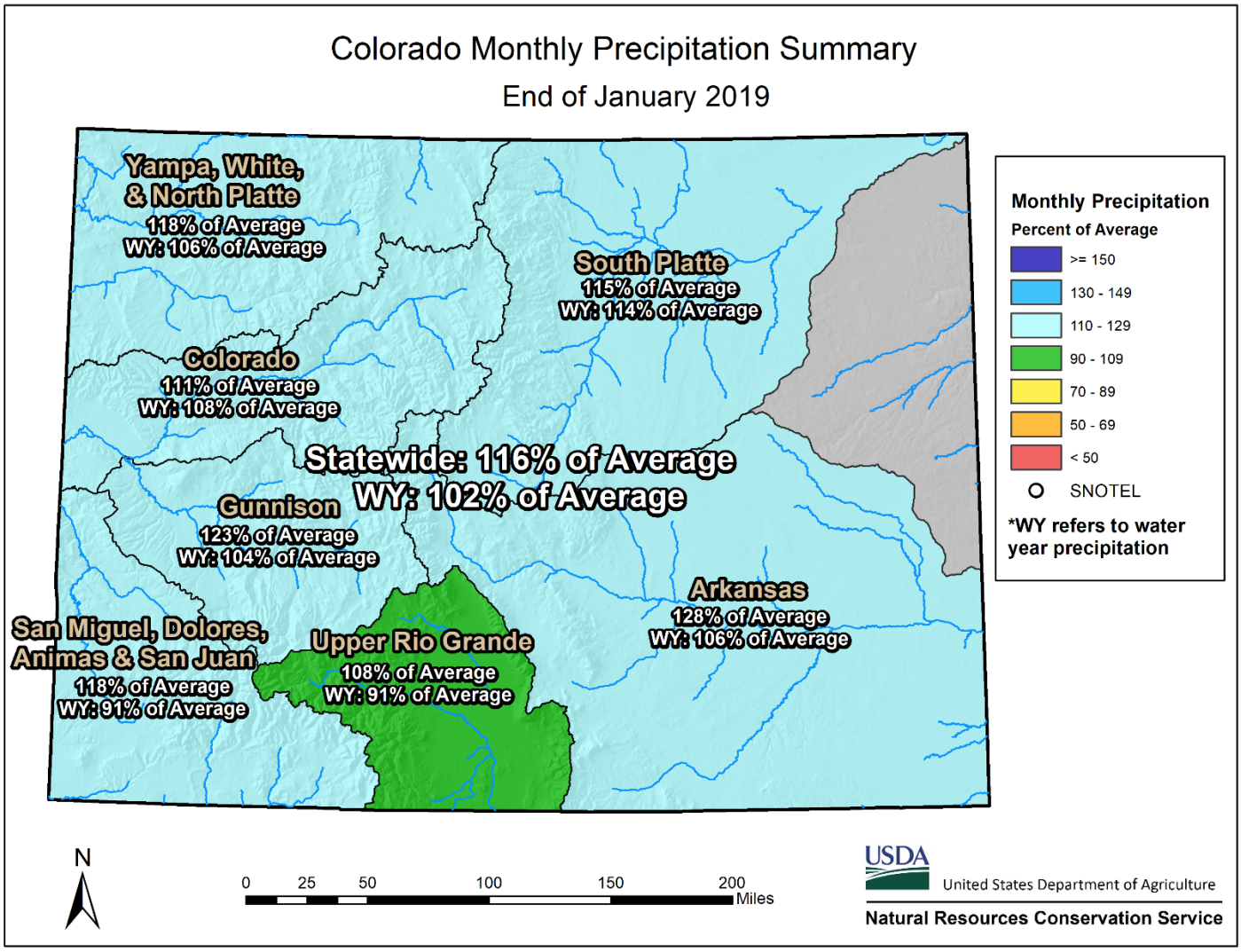
A snowy January, which included a mid-month storm that dropped multiple feet of snow on the southern mountains led to improved water supply conditions across Colorado. January storms brought the snowpack to above normal levels in all but the Rio Grande and combined San Miguel, Dolores, Animas, and San Juan River basins. Even these two basins saw considerable improvements and are in a much better situation than one month ago. These are also the only two watersheds in the state that are not above normal for total water year precipitation after above normal January precipitation across the state served to augment the water year precipitation accumulations in the rest of the river basins. The Arkansas River basin has been favored this water year, with precipitation accumulations above normal for almost each month. This, along with seasonable temperatures has built a snowpack that is 123 percent of the median, the highest in the state. Little change to overall reservoir storage occurred last month, as is often the case during January. Reservoirs in the South Platte River basin remain the best off at 103 percent of average, while the combined southwestern basins are still deficient, at 57 percent of average. Two thirds of the Colorado's streamflow forecasts for April to July runoff volumes are above 90 percent of average at the fifty percent exceedance probability, with one third of these at or above average flows. Many streams in the southwestern basins are forecast to carry lower flows, primarily below 90 percent of average, but forecasts for all but the San Antonio River are for volumes above 75 percent of average, a much better outlook than at this time last year.

Snowpack



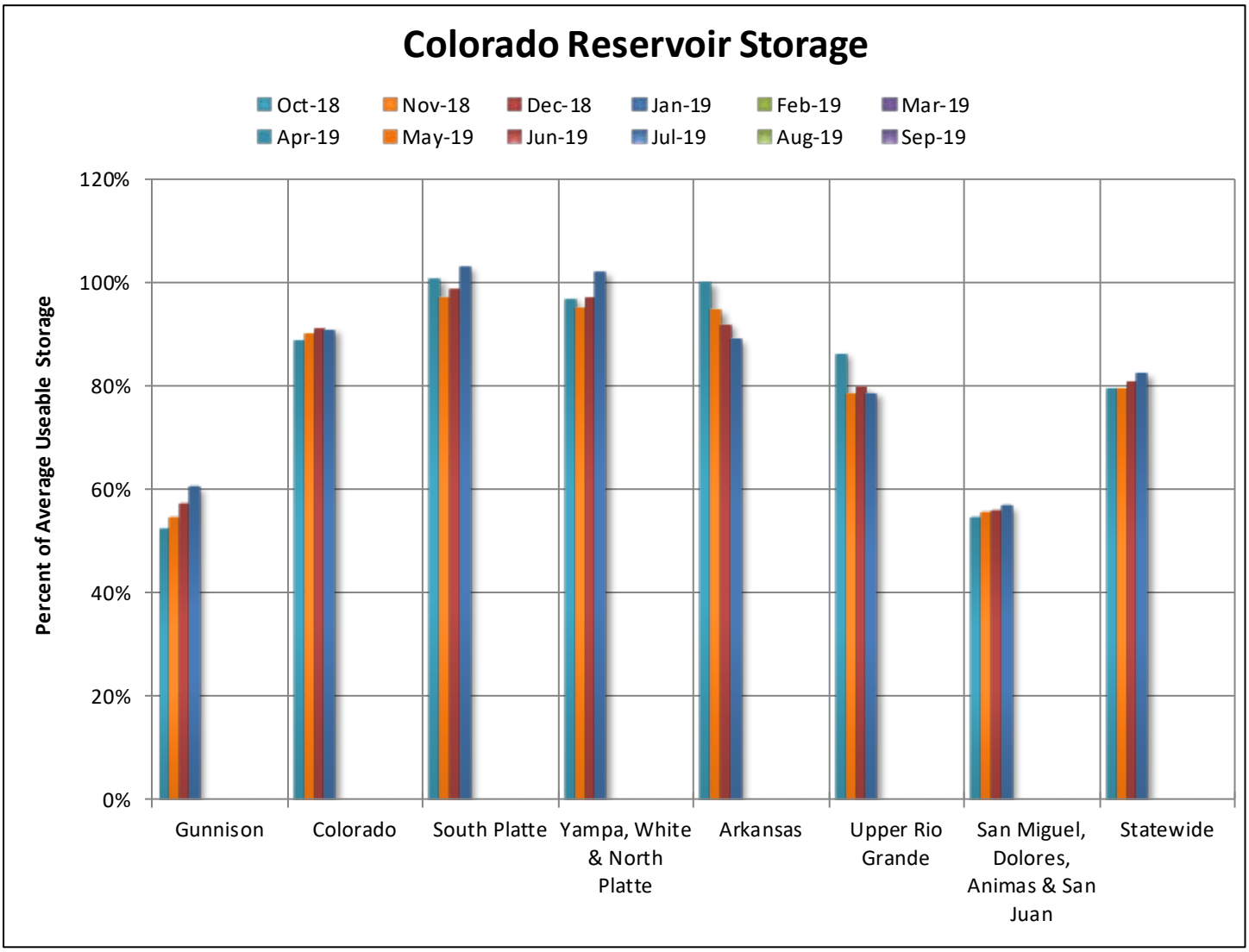
Unsettled weather patterns brought multiple snowfall events to Colorado's mountains last month, ending the scarcity of snow that impacted the southern mountains during December. Every major river basin experienced above normal snowfall during January, which has solidified an above normal snowpack for the northern mountains and ameliorated the poor conditions in the southwestern mountains. The Sangre de Cristo Range has fared particularly well this water year, providing the Arkansas River basin with the highest snowpack in the state, with respect to normal, at 123 percent of the median. The South Platte, Colorado, and combined Yampa, White, and North Platte River basins remain above normal at 115, 112, and 107 percent of normal, respectively. The Gunnison River basin is now also above normal after considerable snowfall boosted the snowpack from 91 percent of median last month to 104 percent on February 1st. The combined San Miguel, Dolores, Animas, and San Juan River basins experienced stellar snowfall in January, which served to greatly improve the mountain snowpack over the last month, from 66 percent to 89 percent of median. Conditions are divided in the Rio Grande River basin, with the drainages on the western slope of the Sangre de Cristos generally holding a better snowpack than the eastern slope of the San Juan Mountains. This brings the overall basin-wide total to 81 percent of median, currently the lowest in the state. The positive growth in Colorado's mountain snowpack last month is starting to provide a more positive outlook for this spring's water supply, but with more than a third of the snow accumulation season remaining, these trends must continue to build the state's snowpack to adequate peak levels. NOAA's Climate Prediction Center Three-Month Outlook is calling for an increased chance in above normal precipitation in the coming months. However, this is paired with the potential for above normal temperatures, hopefully this will not be the case in Colorado's mountains.

Precipitation



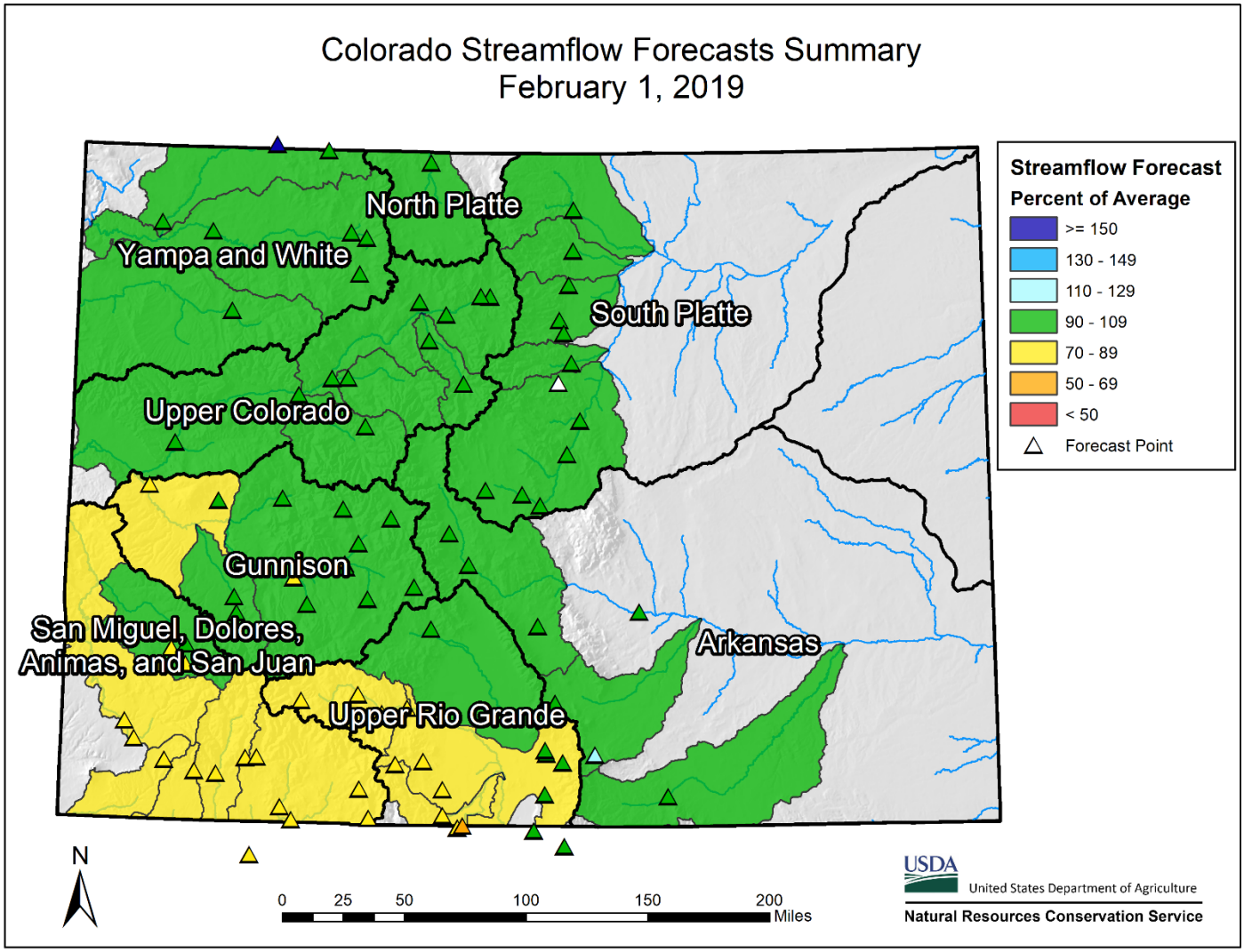
Following a dry December, precipitation conditions improved dramatically across Colorado's mountains in January. Every major river basin received precipitation totals above normal for the month. The Arkansas and Gunnison River basins, which have been at the higher end of the spectrum for the water year, had the most abundant precipitation, at 128 and 123 percent of normal, respectively. The northern and southern mountain ranges fared equally well during January, with the combined Yampa, White, and North Platte as well as the San Miguel, Dolores, Animas, and San Juan River basins each finishing the month with 118 percent of normal precipitation. The South Platte and Colorado River basins received 115 and 111 percent of average precipitation last month, while the Rio Grande River basin had the lowest amounts, but still accumulated 108 percent of average precipitation. This boost in moisture has improved the water year precipitation outlook in most of the river basins. The South Platte River basin, the only watershed to not experience an increase in the percent of normal water year precipitation, remains the highest at 114 percent of average for the water year. The Colorado, Gunnison, Arkansas, and combined Yampa, White, and North Platte River basins are now also experiencing above normal water year precipitation at levels that are between 104 and 108 percent of average. The southern mountains remain the driest but have shown a respectable improvement over the last month, with both the Rio Grande and combined southwest basins now at 91 percent of average for the water year. A continuation of these positive precipitation trends will be necessary to improve the drought conditions that are prevalent across Colorado and particularly severe in the southwest part of the state.

Reservoir Storage



Reservoir storage levels, with respect to normal, remain relatively unchanged over last month. Collective storage in five of Colorado's seven major river basins did see slight improvement in the percent of average numbers and statewide reservoir storage increased from 81 to 83 percent of average, but overall storage across the state continues to be mostly below normal. Reservoirs in the South Platte and Yampa River basins are now holding above normal volumes, at 103 and 102 percent of average, respectively, and systems in the Colorado River basin are still just below normal at 91 percent of average. The percent of average reservoir storage decreased slightly in the Arkansas River basin from 92 to 89 percent of normal, however, the mountains feeding the reservoirs in this basin have a snowpack that is currently well poised to provide ample water supply. Reservoir storage in the Rio Grande River basin also decreased slightly, down to 79 percent of average and unfortunately, the mountain snowpack is not as well off in this basin. Reservoirs of the Gunnison and combined San Miguel, Dolores, Animas, and San Juan River basins continue to be at the lowest levels in the state, at 61 and 57 percent of average, respectively. Improving snowpack conditions in the Gunnison may help bolster current reservoir levels in that basin, but the snowpack remains below normal in the southwestern mountains. Above normal snowfall for the remainder of the winter will be necessary in providing snowmelt runoff at levels adequate to substantially fill reservoirs in the southwest corner of the state.

Streamflow

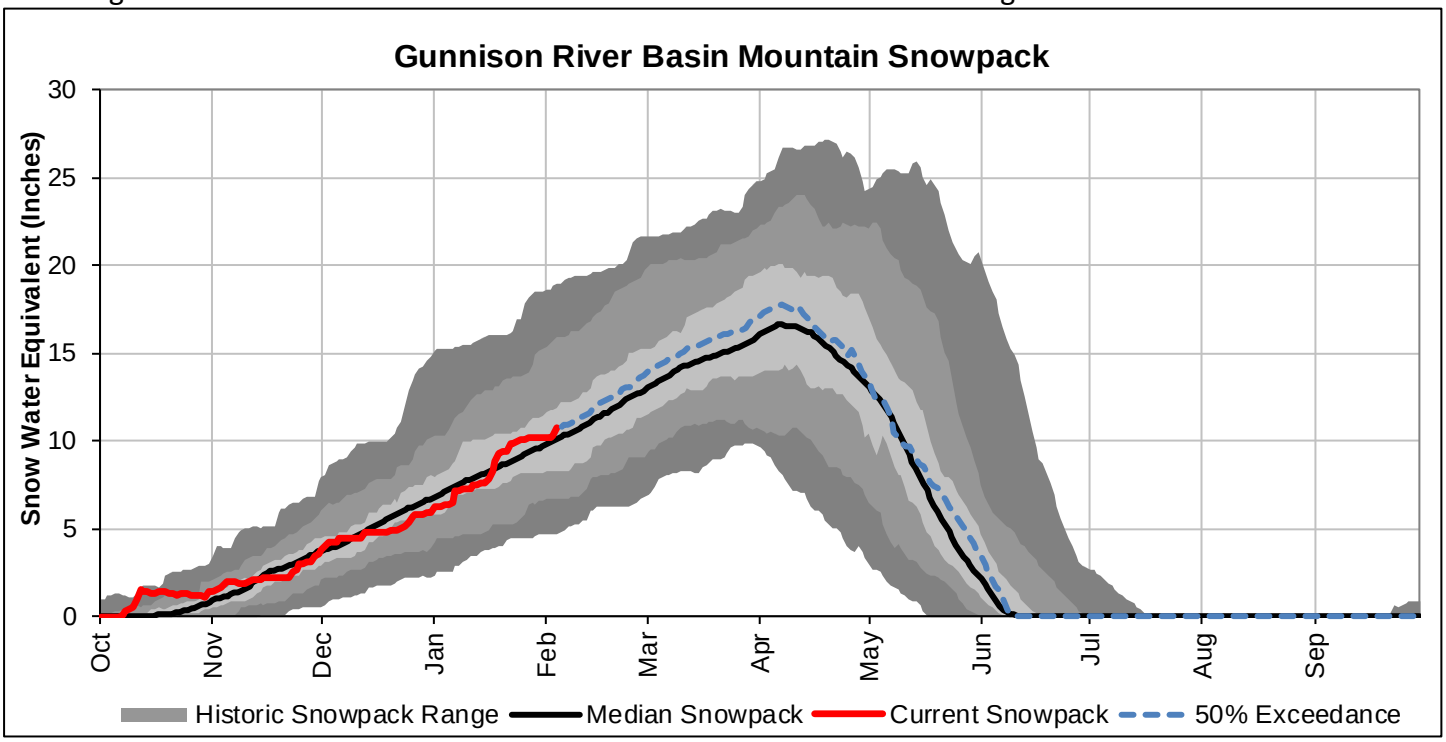


Forecasts issued this month for summer streamflow volumes largely reflect the current snowpack conditions and water year-to-date precipitation accumulations, so it follows that the streams with the highest forecasts, compared to normal, are in the Arkansas River basin and the lowest in the Rio Grande. Each of the major river basins also include streams that have the possibility of reaching normal flows at the fifty percent exceedance probability, as well as streams with the same probability of producing volumes much below normal. Streams throughout the Arkansas, Colorado and South Platte River basins are expected to carry runoff volumes that are near to above normal for the April to July period, but there are a few outlier locations in these basins that are predicted to have below normal flows at the fifty percent exceedance probability. Streamflow forecast points in the Yampa and White basins are also expected to be near normal and are all currently above 90 percent of average at the fifty percent exceedance probability. Many forecasts for the Gunnison River basin are in a similar range, with respect to normal, but some of the more downstream locations are more likely to have flows between 85 and 90 percent of average. Streams in both the Rio Grande and combined San Miguel, Dolores, Animas, and San Juan River basins show a fairly large range of potential outcomes. In these basins, most locations can expect streamflow volumes in the range of 75 to 90 percent of average, but there are streams that are currently forecast to see volumes both above and below these levels. Please refer to the individual basin sections for the full list of forecasts. Throughout this report we often refer to the fifty percent exceedance probability as the metric by which to gage future runoff conditions, however, the full range of exceedance probabilities should be consulted when considering how spring and summer streamflow may impact water supply, especially when there are still a few months remaining before runoff season begins.

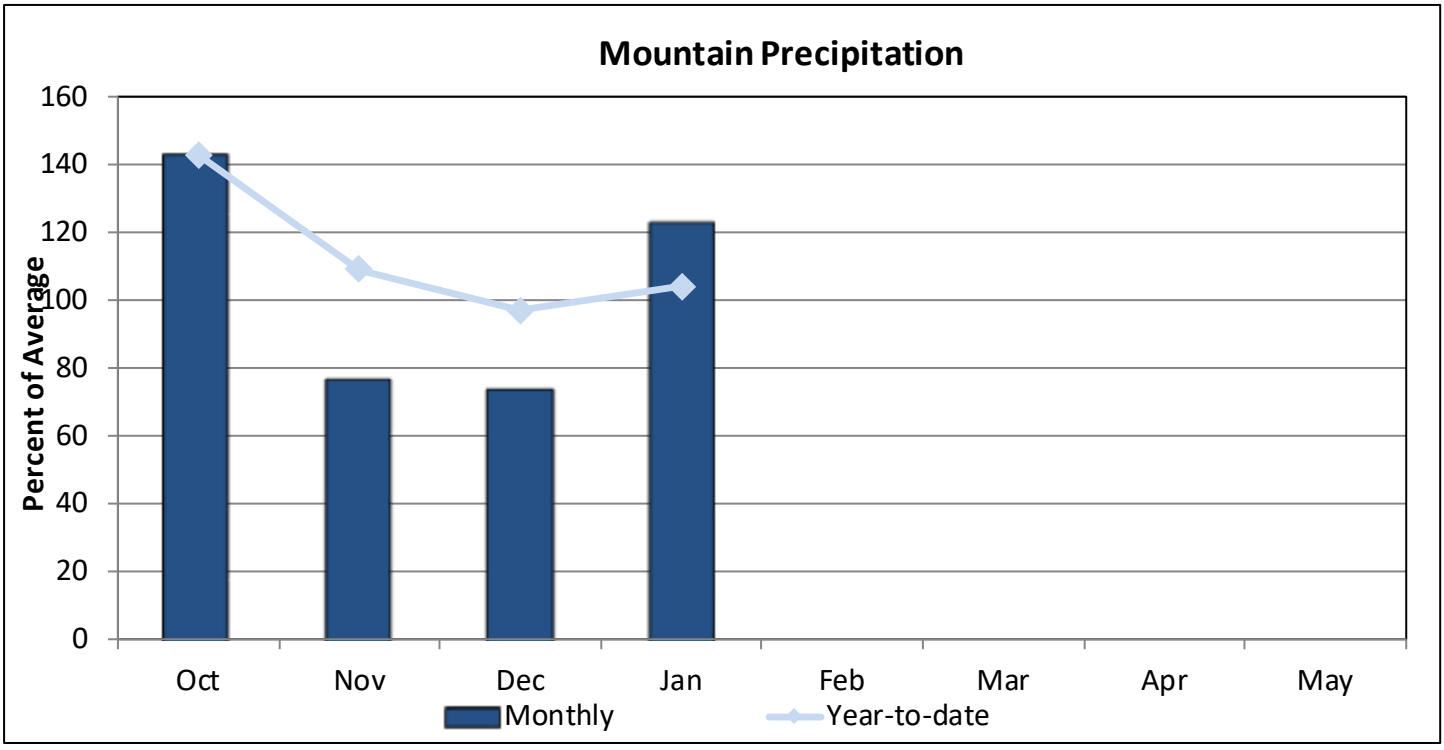
GUNNISON RIVER BASIN

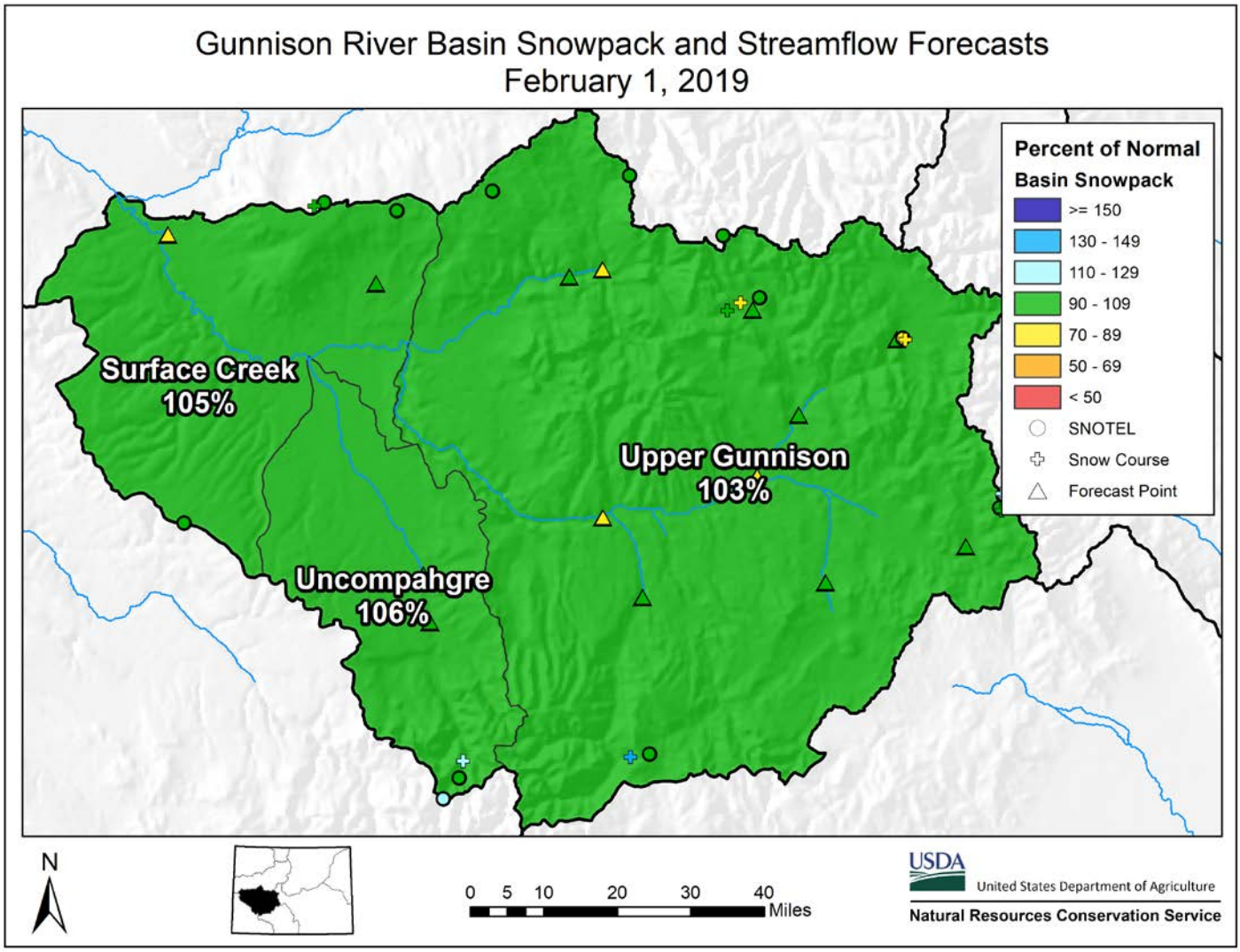
February 1, 2019

Snowpack in the Gunnison River basin is above normal at 104% of the median. Precipitation for January was 123% of average which brings water year-to-date precipitation to 104% of average. Reservoir storage at the end of January was 61% of average compared to 104% last year. Current streamflow forecasts range from 85% of average for the inflow to Paonia Reservoir to 97% for Tomichi Creek at Sargents.



*SWE values calculated using daily SNOTEL data only

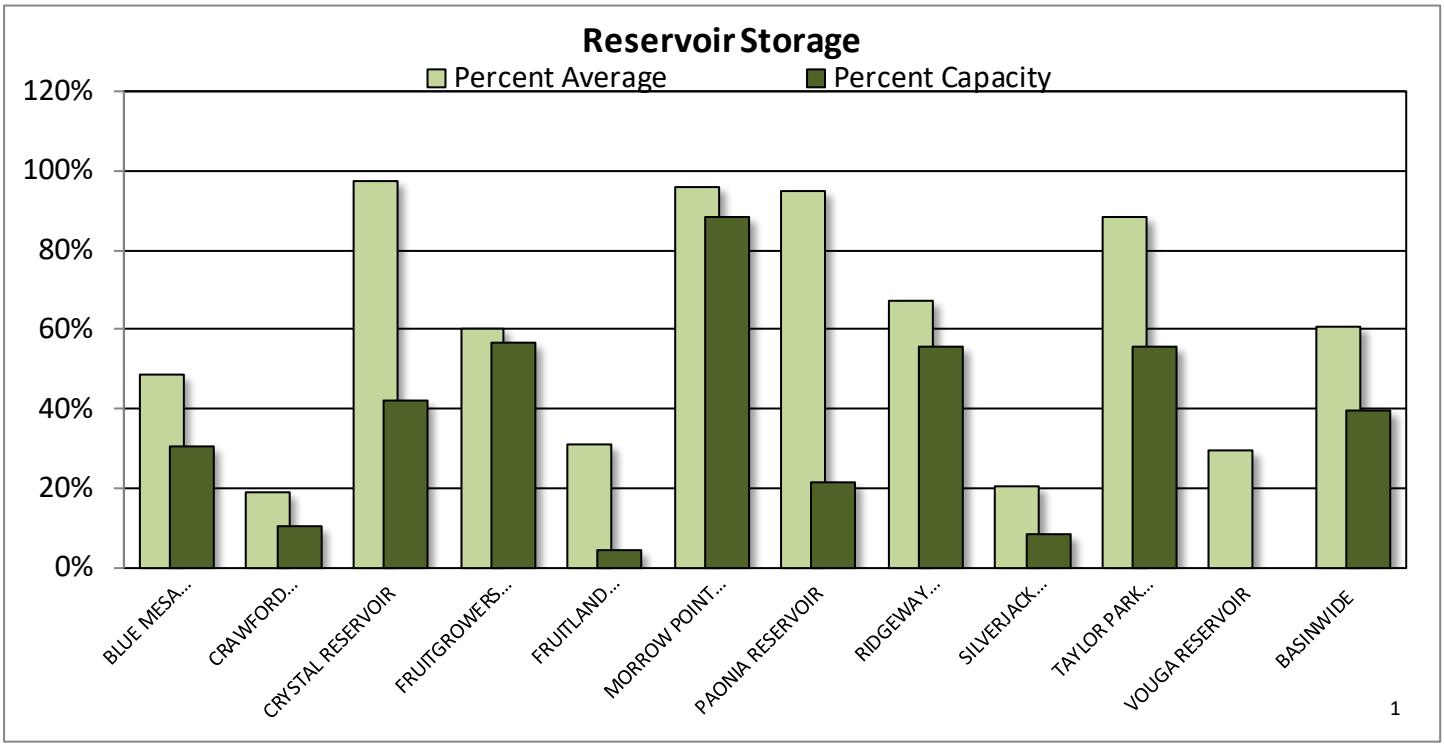




Watershed Snowpack Analysis February 1st, 2019

Sub-Basin	# of Sites	% Median	Last Year % Median
Upper Gunnison	17	103	49
Surface Creek	3	105	30
Uncompahgre	4	106	46
Basin-Wide Total	21	104	48

*SWE values calculated using first of month SNOTEL data and snow course measurements



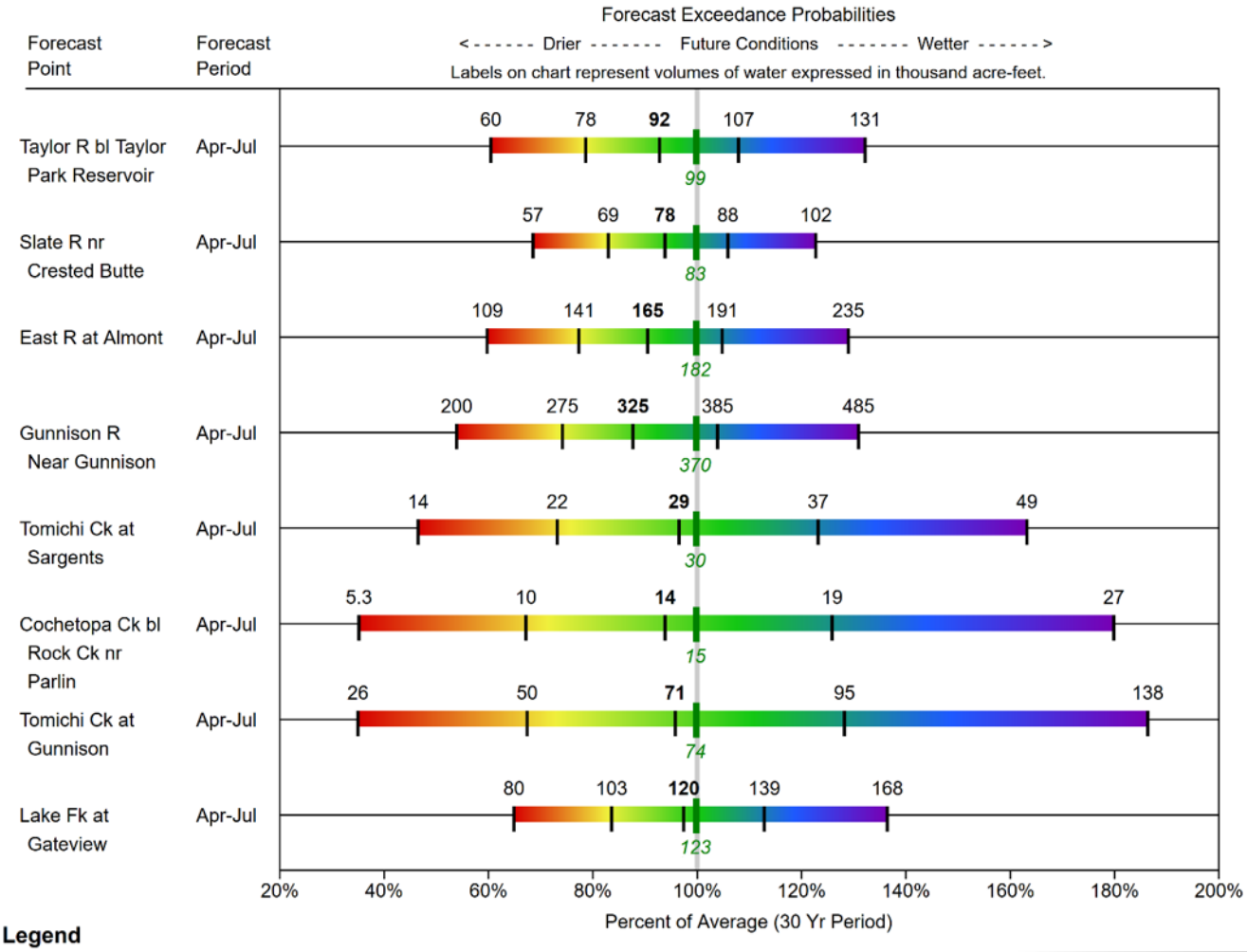
Reservoir Storage End of January 2019

Reservoir	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
BLUE MESA RESERVOIR	251.7	554.5	514.6	830.0
CRAWFORD RESERVOIR	1.5	5.0	7.7	14.0
CRYSTAL RESERVOIR	7.4	7.8	7.6	17.5
FRUITGROWERS RESERVOIR	2.0	2.2	3.4	3.6
FRUITLAND RESERVOIR	0.4	1.1	1.3	9.2
MORROW POINT RESERVOIR	106.8	109.6	111.4	121.0
PAONIA RESERVOIR	3.3	2.7	3.5	15.4
RIDGEWAY RESERVOIR	46.4	60.9	69.2	83.0
SILVERJACK RESERVOIR	1.1	2.3	5.3	12.8
TAYLOR PARK RESERVOIR	59.2	74.2	66.9	106.0
VOUGA RESERVOIR	0.2	0.7	0.7	0.9
BASINWIDE	480.0	820.9	791.6	1213.4
Number of Reservoirs	11	11	11	11

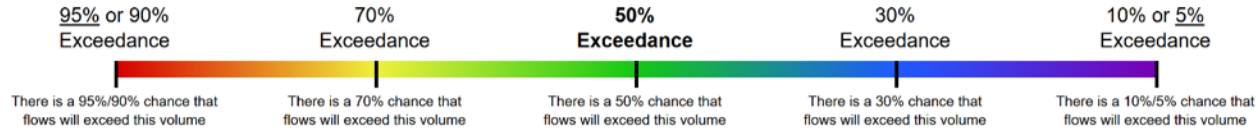
GUNNISON RIVER BASIN

Water Supply Forecasts

February 1, 2019



Legend



When selected, the following historic streamflow values and statistics will be shown.

Period of Record Minimum Streamflow KAF (Year)

1981-2010 Normal Streamflow KAF

Observed Streamflow KAF

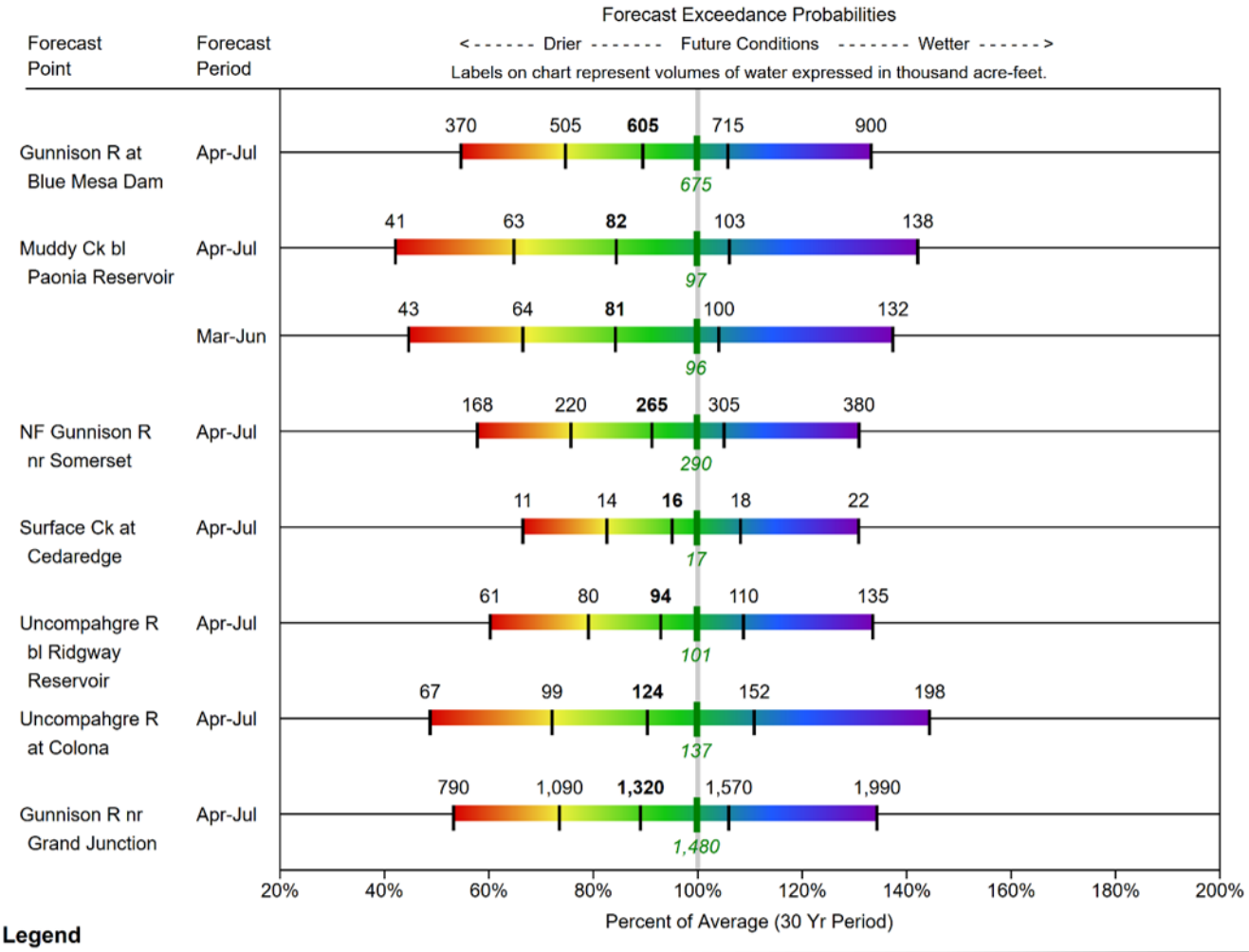
Period of Record Maximum Streamflow KAF (Year)

Some forecasts may be for volumes that are regulated or influenced by diversions and water management.

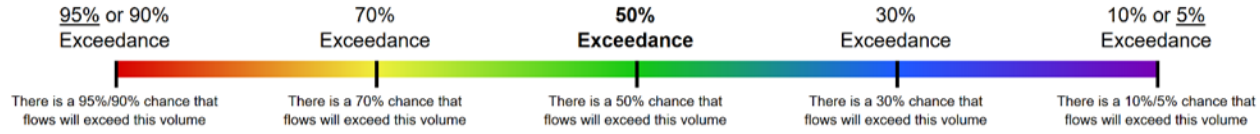
GUNNISON RIVER BASIN

Water Supply Forecasts

February 1, 2019



Legend



When selected, the following historic streamflow values and statistics will be shown.

Period of Record Minimum Streamflow KAF (Year)

1981-2010 Normal Streamflow KAF

Observed Streamflow KAF

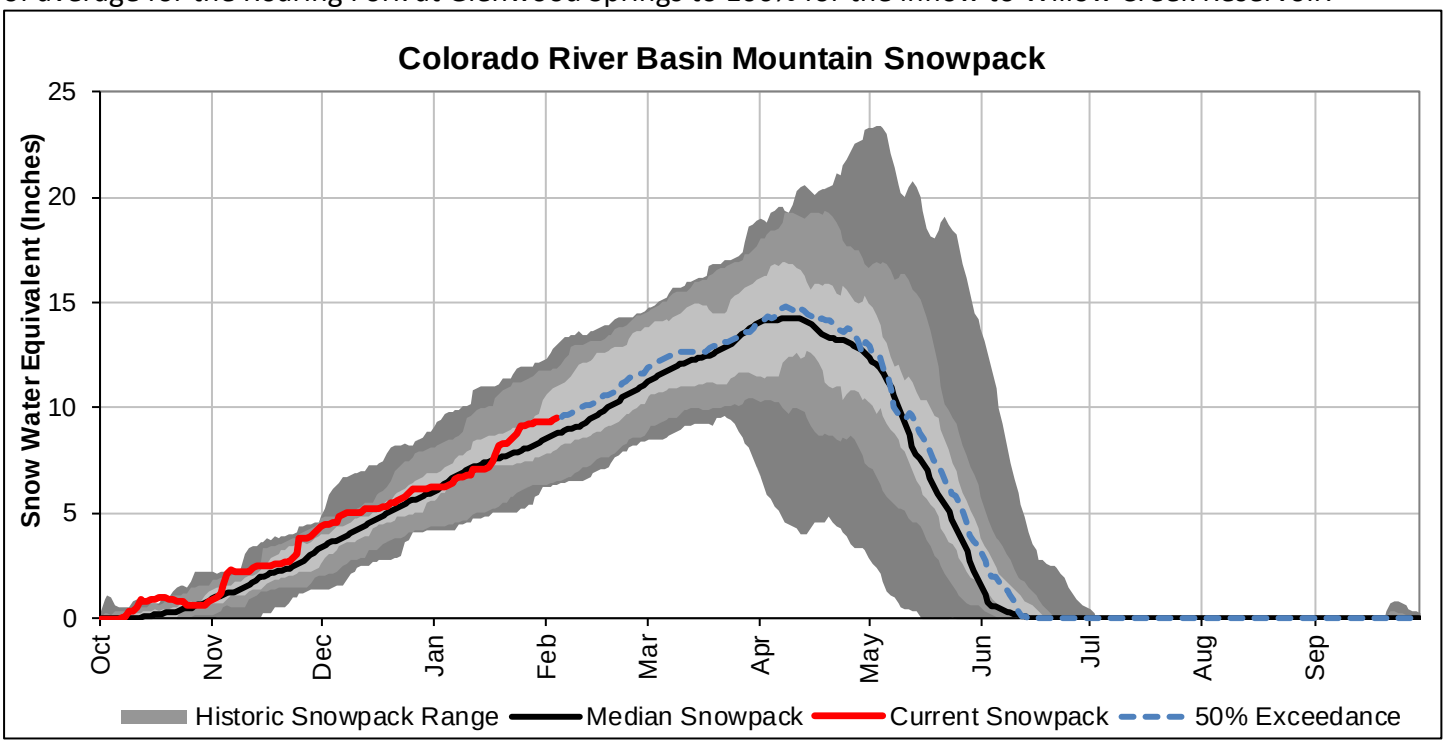
Period of Record Maximum Streamflow KAF (Year)

Some forecasts may be for volumes that are regulated or influenced by diversions and water management.

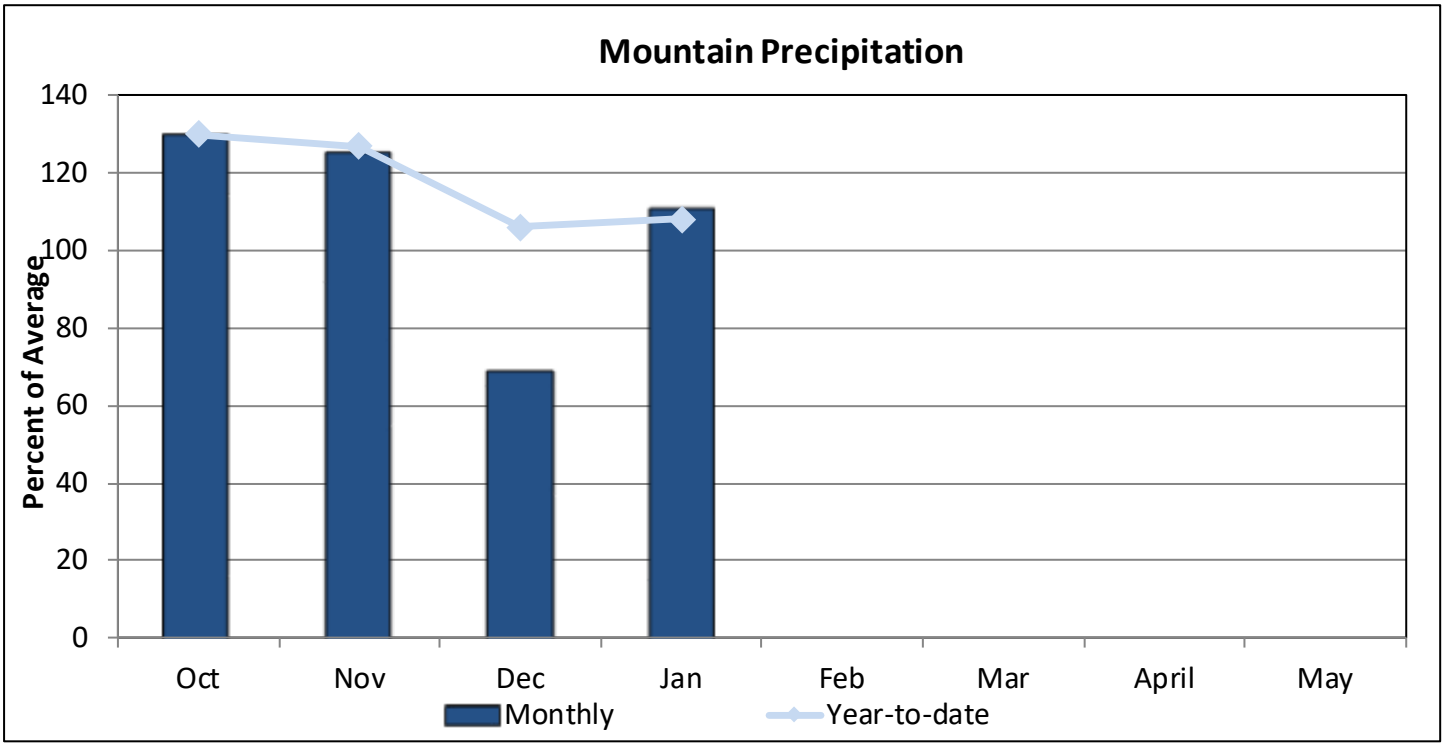
UPPER COLORADO RIVER BASIN

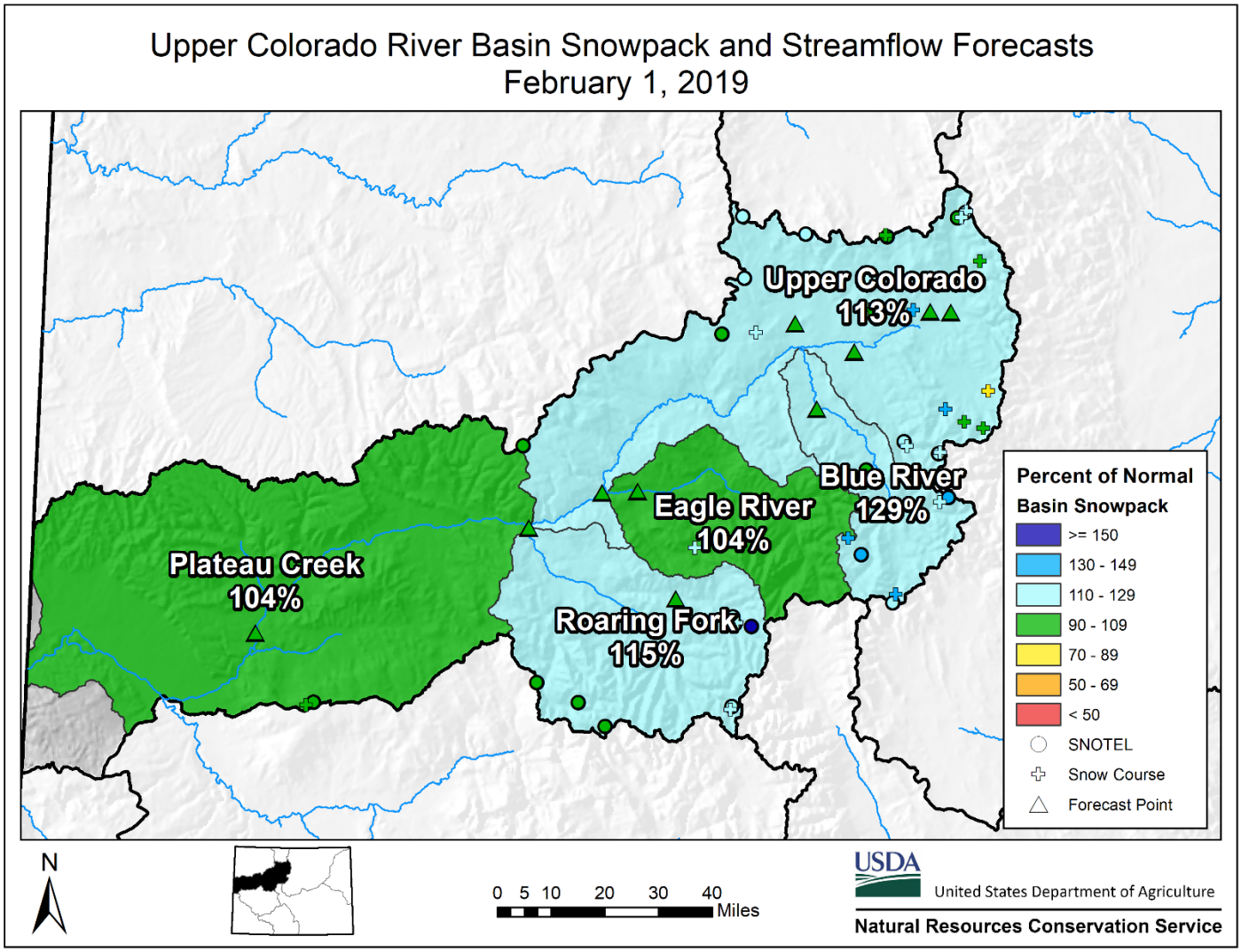
February 1, 2019

Snowpack in the Colorado River basin is above normal at 112% of the median. Precipitation for January was 111% of average which brings water year-to-date precipitation to 108% of average. Reservoir storage at the end of January was 91% of average compared to 116% last year. Current streamflow forecasts range from 96% of average for the Roaring Fork at Glenwood Springs to 106% for the inflow to Willow Creek Reservoir.



*SWE values calculated using daily SNOTEL data only

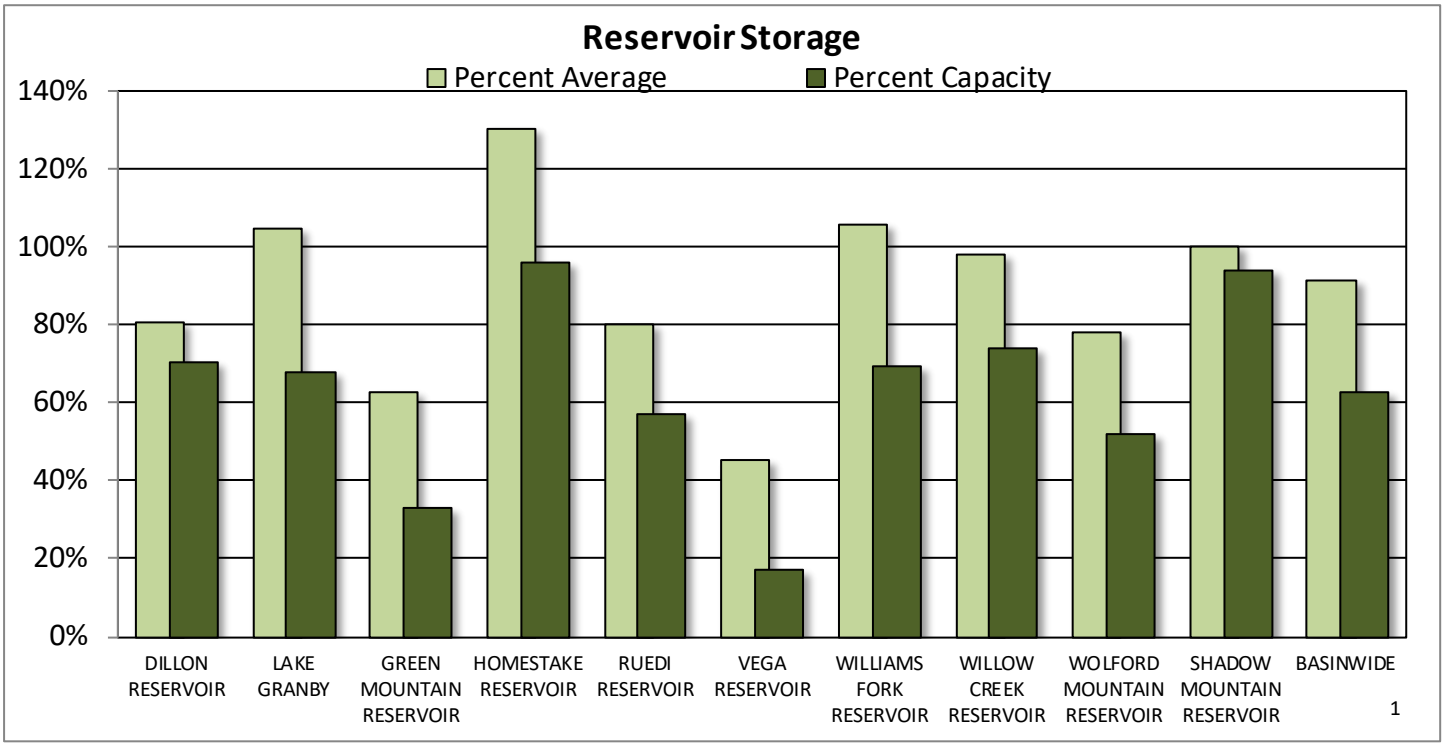




Watershed Snowpack Analysis February 1st, 2019

Sub-Basin	# of Sites	% Median	Last Year % Median
Blue River	8	129	91
Upper Colorado	36	113	79
Muddy Creek	5	113	87
Eagle River	5	104	59
Plateau Creek	6	104	39
Roaring Fork	9	115	66
Williams Fork	5	117	73
Willow Creek	5	110	85
Basin-Wide Total	48	112	73

*SWE values calculated using first of month SNOTEL data and snow course measurements



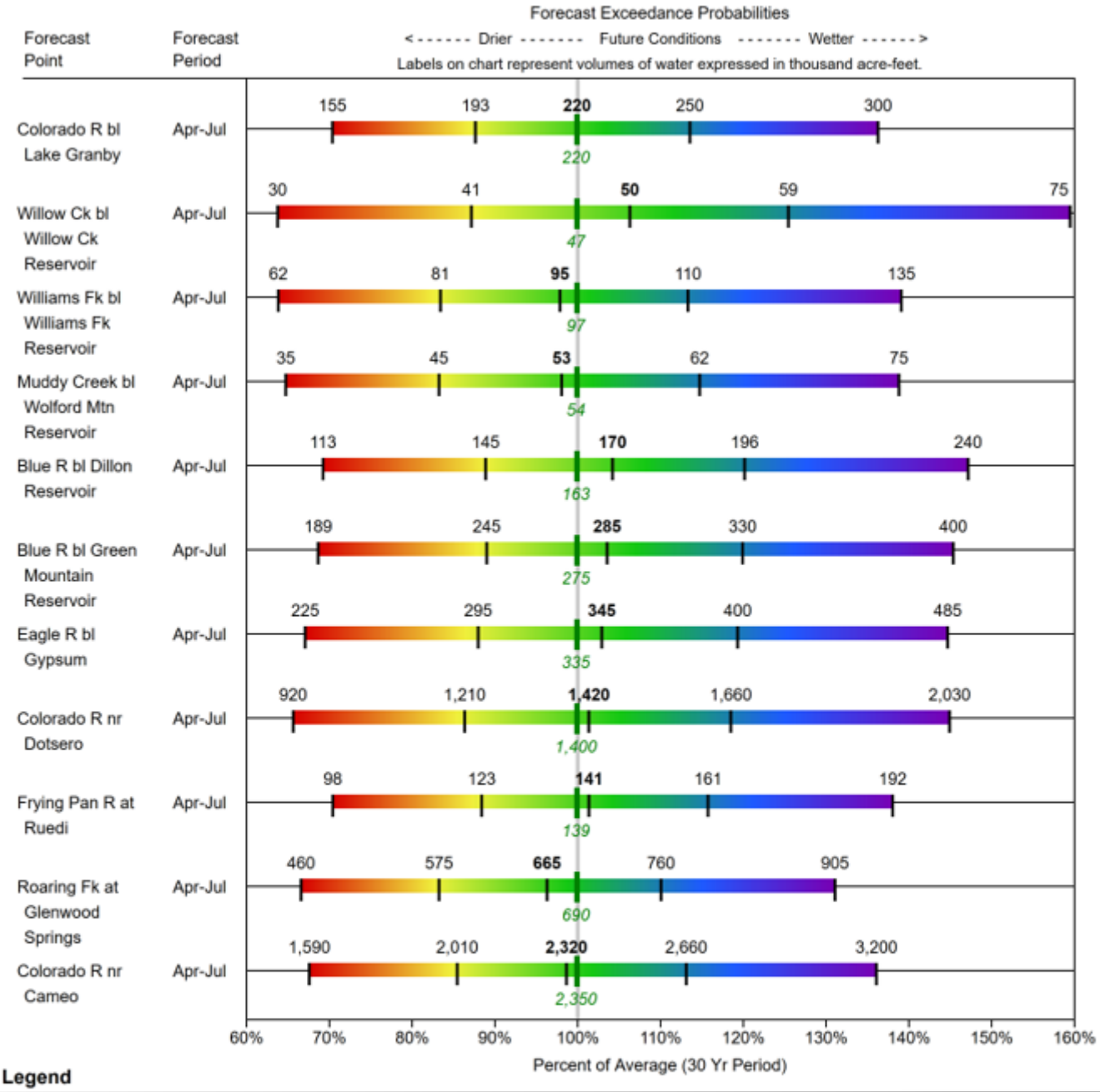
Reservoir Storage End of January 2019

Reservoir	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
DILLON RESERVOIR	175.8	235.1	218.4	249.1
LAKE GRANBY	316.9	417.2	302.9	465.6
GREEN MOUNTAIN RESERVOIR	48.2	63.7	77.1	146.8
HOMESTAKE RESERVOIR	41.3	41.0	31.7	43.0
RUEDI RESERVOIR	58.1	69.4	72.4	102.0
VEGA RESERVOIR	5.6	10.1	12.4	32.9
WILLIAMS FORK RESERVOIR	67.3	66.0	63.8	97.0
WILLOW CREEK RESERVOIR	6.7	6.3	6.9	9.1
WOLFORD MOUNTAIN RESERVOIR	34.1	54.6	43.6	65.9
SHADOW MOUNTAIN RESERVOIR	17.3	17.4	17.3	18.4
BASINWIDE	771.4	980.8	846.5	1229.8
Number of Reservoirs	10	10	10	10

UPPER COLORADO RIVER BASIN

Water Supply Forecasts

February 1, 2019



Legend

When selected, the following historic streamflow values and statistics will be shown.

Period of Record Minimum Streamflow KAF (Year)

1981-2010 Normal Streamflow KAF

Observed Streamflow KAF

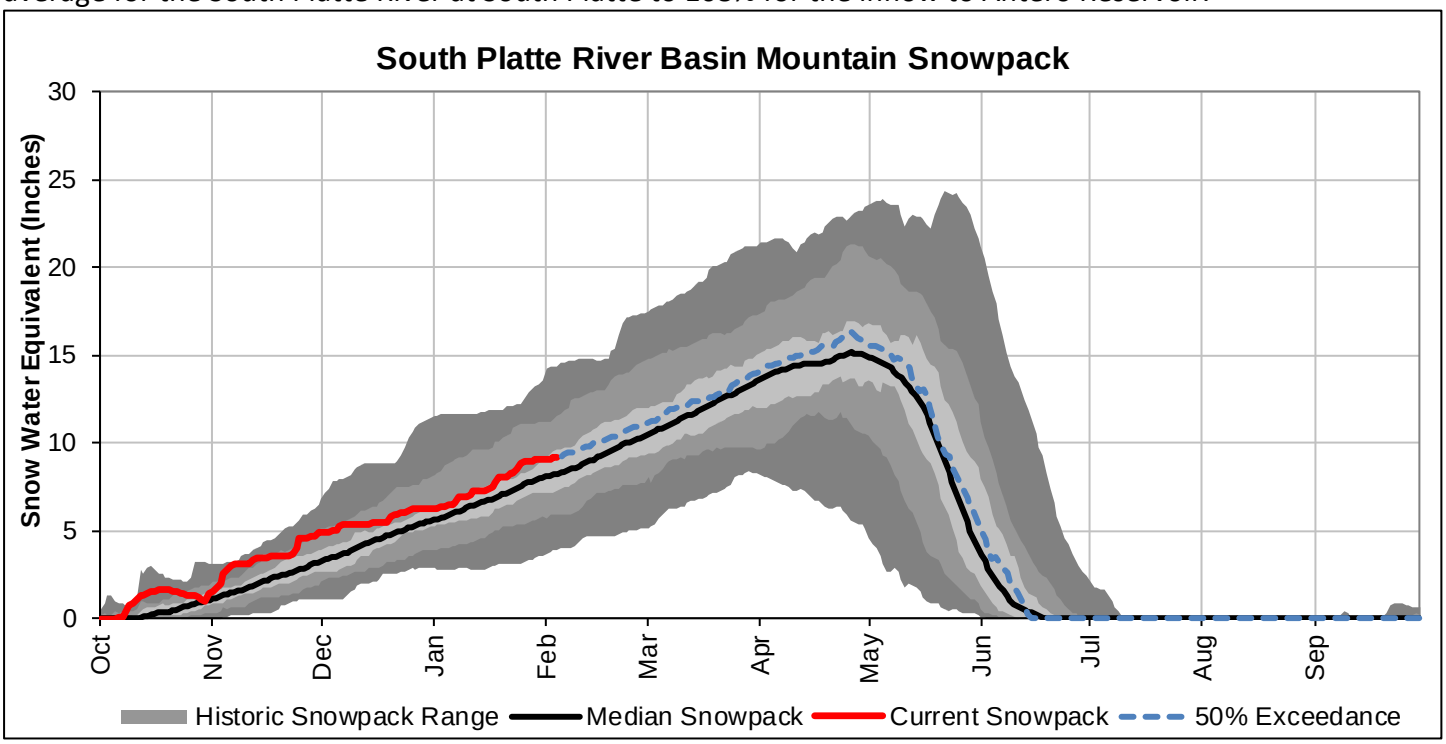
Period of Record Maximum Streamflow KAF (Year)

Some forecasts may be for volumes that are regulated or influenced by diversions and water management.

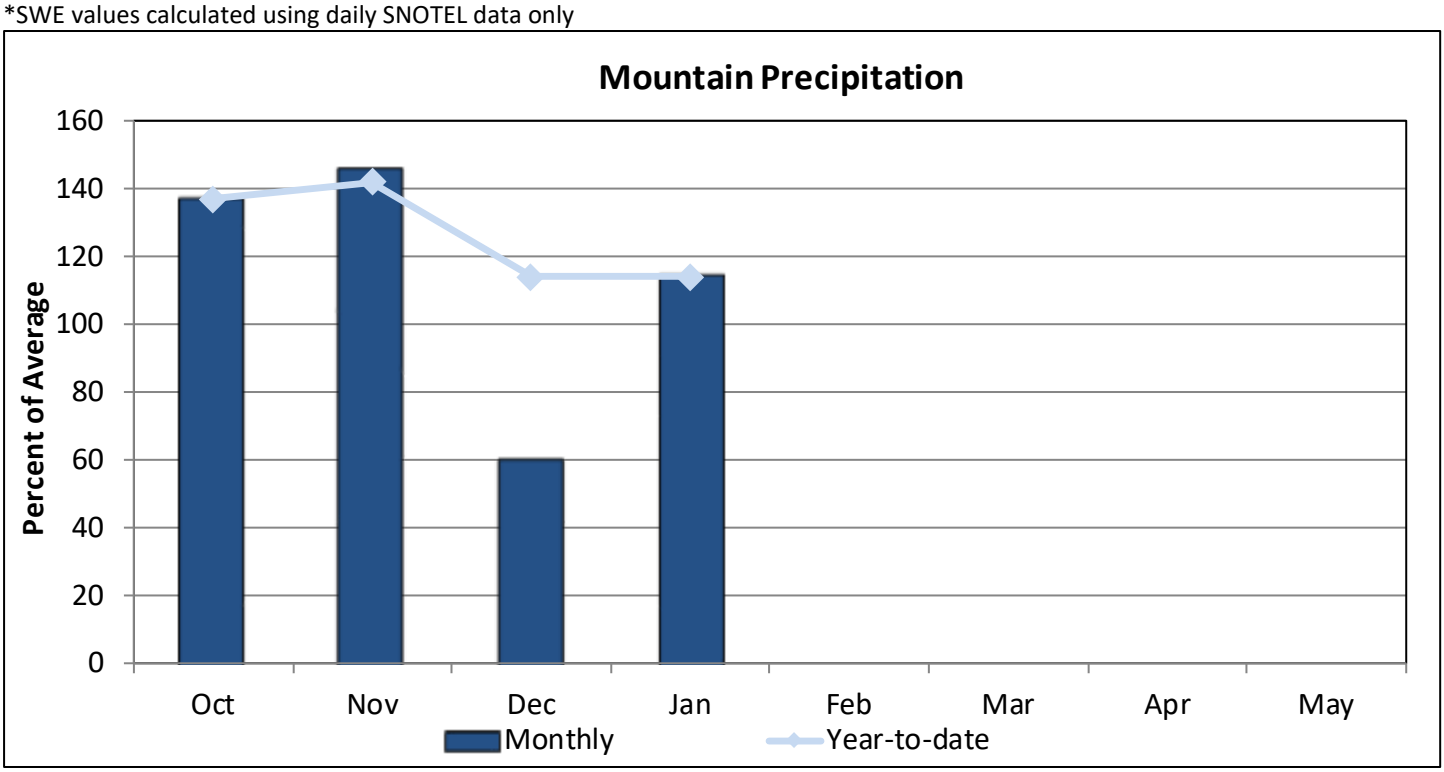
SOUTH PLATTE RIVER BASIN

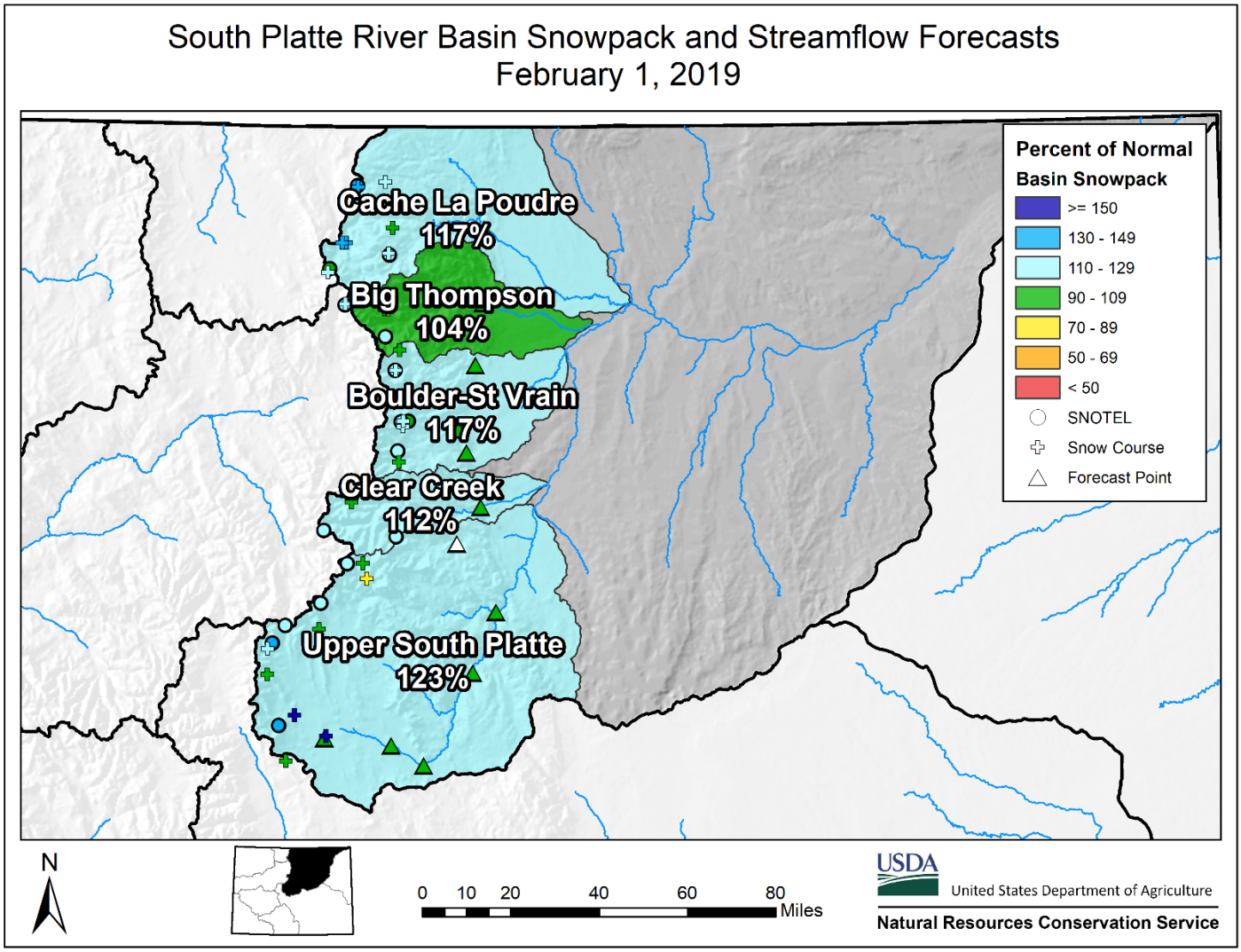
February 1, 2019

Snowpack in the South Platte River basin is above normal at 115% of the median. Precipitation for January was 115% of average which brings water year-to-date precipitation to 114%. Reservoir storage at the end of January was 103% of average compared to 110% last year. Current streamflow forecasts range from 95% of average for the South Platte River at South Platte to 108% for the inflow to Antero Reservoir.



*SWE values calculated using daily SNOTEL data only

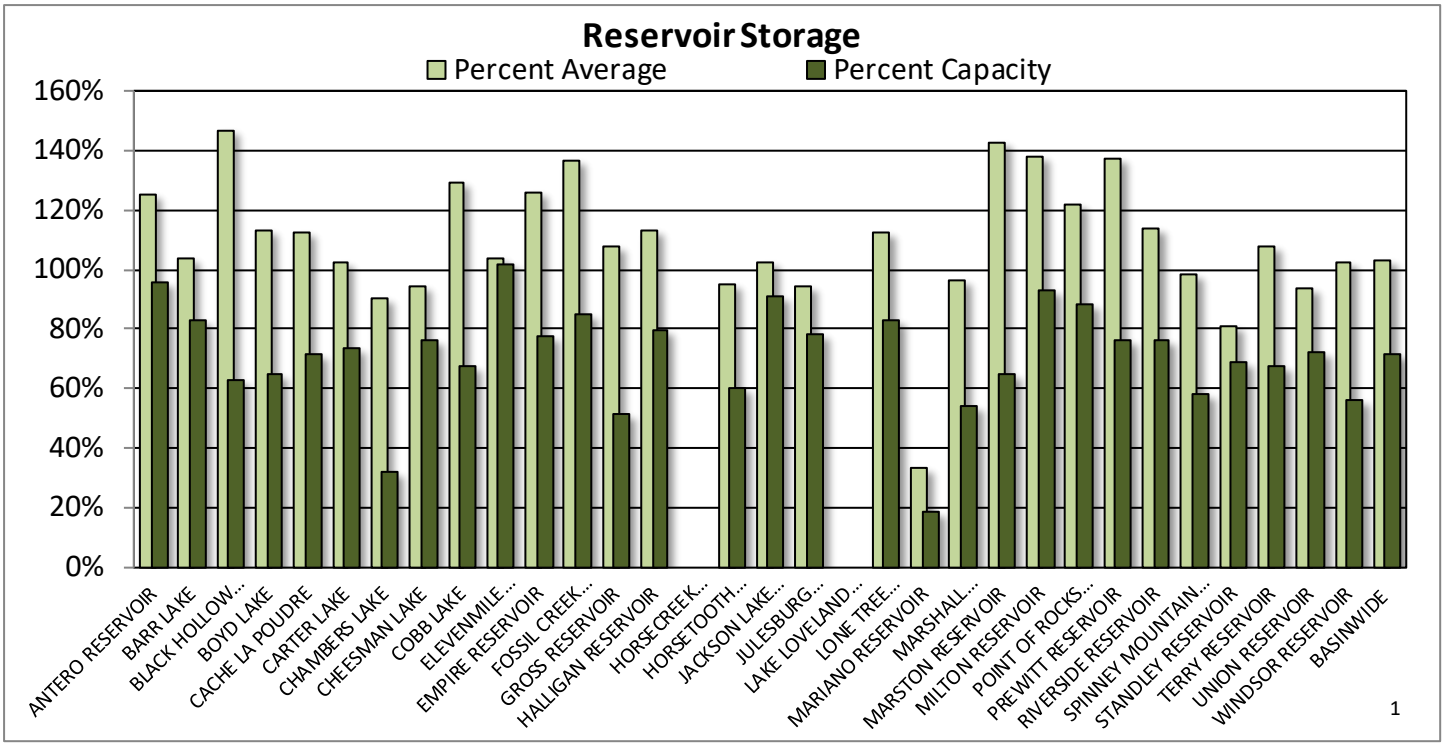




Watershed Snowpack Analysis February 1st, 2019

Sub-Basin	# of Sites	% Median	Last Year % Median
Big Thompson	7	104	78
Boulder Creek	6	114	79
Cache La Poudre	10	117	90
Clear Creek	4	112	87
Saint Vrain	2	127	60
Upper South Platte	16	123	71
Basin-Wide Total	45	115	80

*SWE values calculated using first of month SNOTEL data and snow course measurements



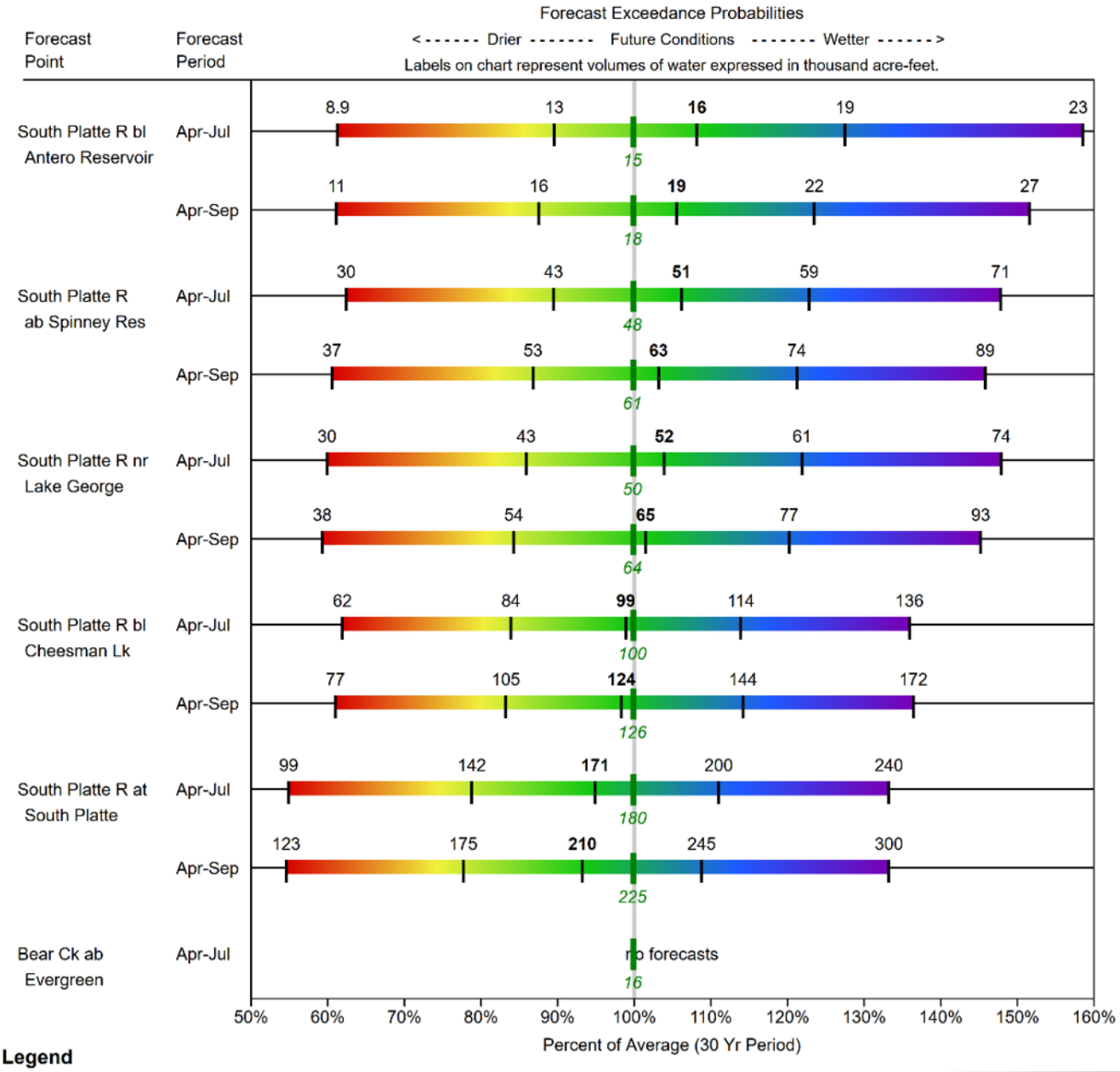
Reservoir Storage End of January 2019

Reservoir	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
ANTERO RESERVOIR	19.1	20.3	15.3	19.9
BARR LAKE	24.9	26.8	24.0	30.1
BLACK HOLLOW RESERVOIR	4.1	3.4	2.8	6.5
BOYD LAKE	31.5	34.6	27.8	48.4
CACHE LA POUDRE	7.2	8.9	6.4	10.1
CARTER LAKE	80.3	55.4	78.3	108.9
CHAMBERS LAKE	2.8	5.8	3.1	8.8
CHEESMAN LAKE	60.1	71.0	63.7	79.0
COBB LAKE	15.1	19.1	11.7	22.3
ELEVENMILE CANYON RESERVOIR	99.6	99.8	95.9	98.0
EMPIRE RESERVOIR	28.4	25.8	22.6	36.5
FOSSIL CREEK RESERVOIR	9.4	9.3	6.9	11.1
GROSS RESERVOIR	15.4	16.3	14.3	29.8
HALLIGAN RESERVOIR	5.1	6.4	4.5	6.4
HORSECREEK RESERVOIR	0.0	11.8	10.4	14.7
HORSETOOTH RESERVOIR	89.9	85.8	94.7	149.7
JACKSON LAKE RESERVOIR	23.7	24.2	23.1	26.1
JULESBURG RESERVOIR	16.0	16.5	16.9	20.5
LAKE LOVELAND RESERVOIR	0.0	5.8	6.8	10.3
LONE TREE RESERVOIR	7.2	6.8	6.4	8.7
MARIANO RESERVOIR	1.0	4.0	3.0	5.4
MARSHALL RESERVOIR	5.4	7.1	5.6	10.0
MARSTON RESERVOIR	8.4	6.4	5.9	13.0
MILTON RESERVOIR	21.8	19.3	15.8	23.5
POINT OF ROCKS RESERVOIR	62.4	59.2	51.1	70.6
PREWITT RESERVOIR	21.5	18.9	15.7	28.2
RIVERSIDE RESERVOIR	42.5	41.8	37.3	55.8
SPINNEY MOUNTAIN RESERVOIR	28.6	35.8	29.0	49.0
STANDLEY RESERVOIR	29.0	42.0	35.7	42.0
TERRY RESERVOIR	5.4	6.0	5.0	8.0
UNION RESERVOIR	9.4	12.0	10.0	13.0
WINDSOR RESERVOIR	8.5	8.8	8.3	15.2
BASINWIDE	783.6	815.0	758.0	1079.5
Number of Reservoirs	32	32	32	32

SOUTH PLATTE RIVER BASIN

Water Supply Forecasts

February 1, 2019



Legend

95% or 90% Exceedance	70% Exceedance	**50% Exceedance**	30% Exceedance	10% or 5% Exceedance
There is a 95%/90% chance that flows will exceed this volume	There is a 70% chance that flows will exceed this volume	There is a 50% chance that flows will exceed this volume	There is a 30% chance that flows will exceed this volume	There is a 10%/5% chance that flows will exceed this volume

When selected, the following historic streamflow values and statistics will be shown.

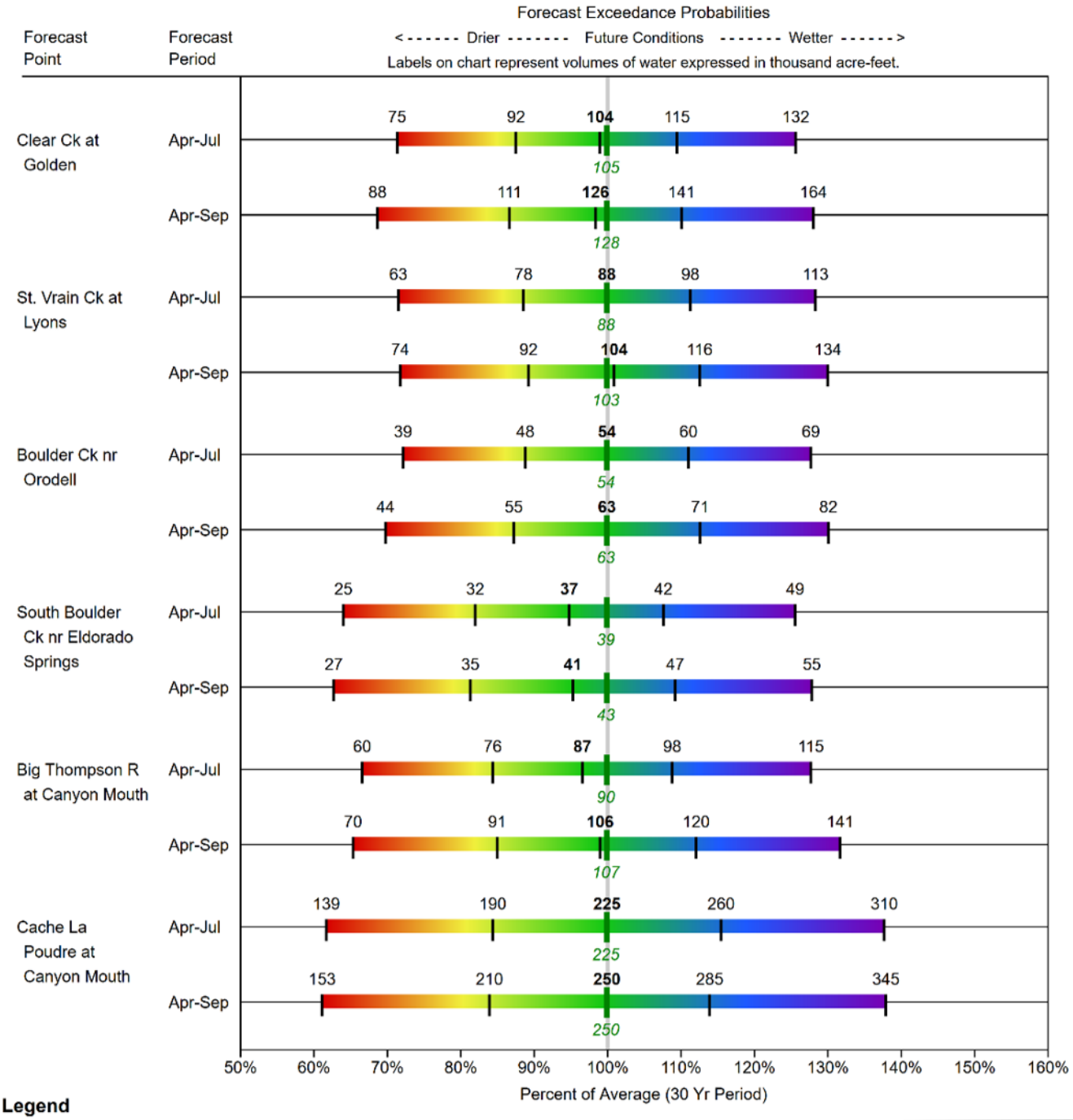
Period of Record Minimum Streamflow KAF (Year)	*1981-2010 Normal Streamflow KAF*	*Observed Streamflow KAF*	*Period of Record Maximum Streamflow KAF (Year)*

Some forecasts may be for volumes that are regulated or influenced by diversions and water management.

SOUTH PLATTE RIVER BASIN

Water Supply Forecasts

February 1, 2019



Legend

95% or 90% Exceedance	70% Exceedance	**50% Exceedance**	30% Exceedance	10% or 5% Exceedance
There is a 95%/90% chance that flows will exceed this volume	There is a 70% chance that flows will exceed this volume	There is a 50% chance that flows will exceed this volume	There is a 30% chance that flows will exceed this volume	There is a 10%/5% chance that flows will exceed this volume

When selected, the following historic streamflow values and statistics will be shown.

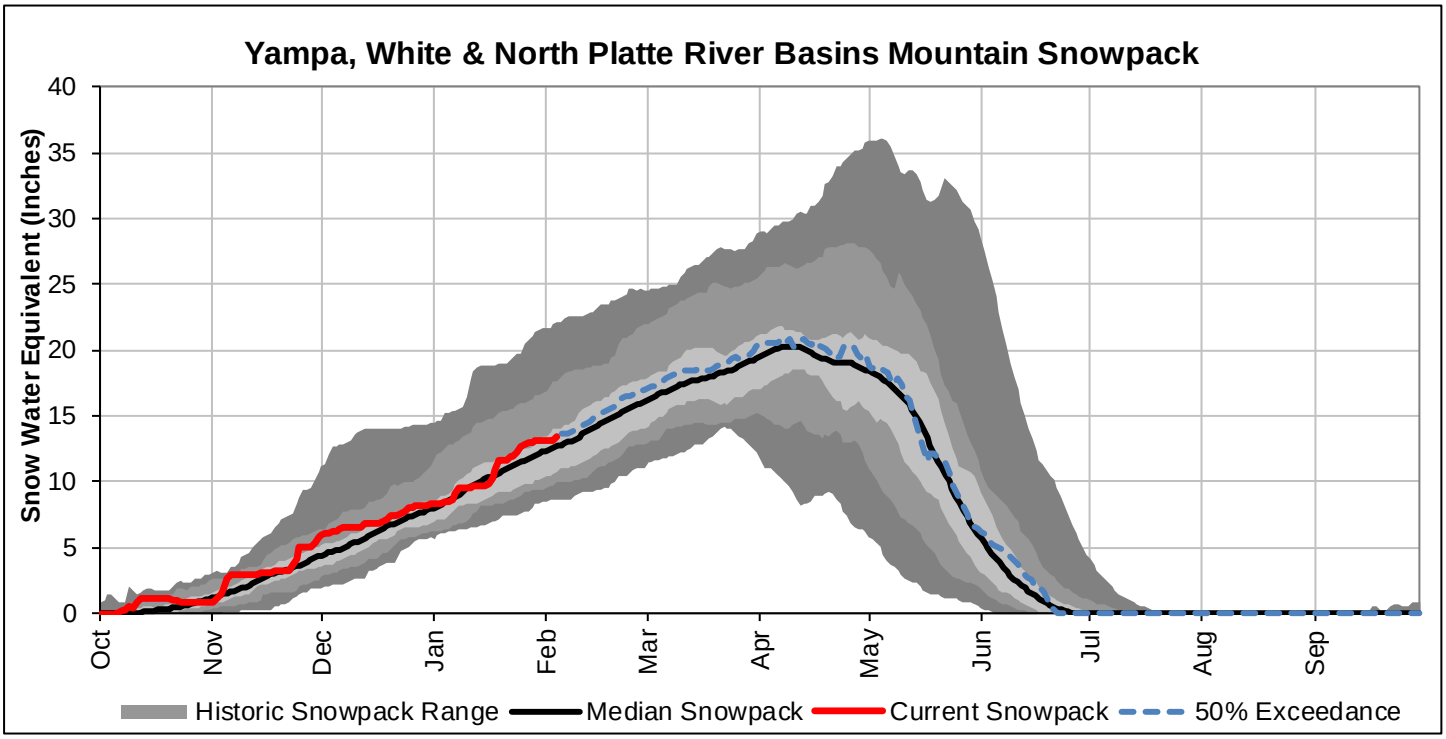
Period of Record Minimum Streamflow KAF (Year)	*1981-2010 Normal Streamflow KAF*	*Observed Streamflow KAF*	*Period of Record Maximum Streamflow KAF (Year)*

Some forecasts may be for volumes that are regulated or influenced by diversions and water management.

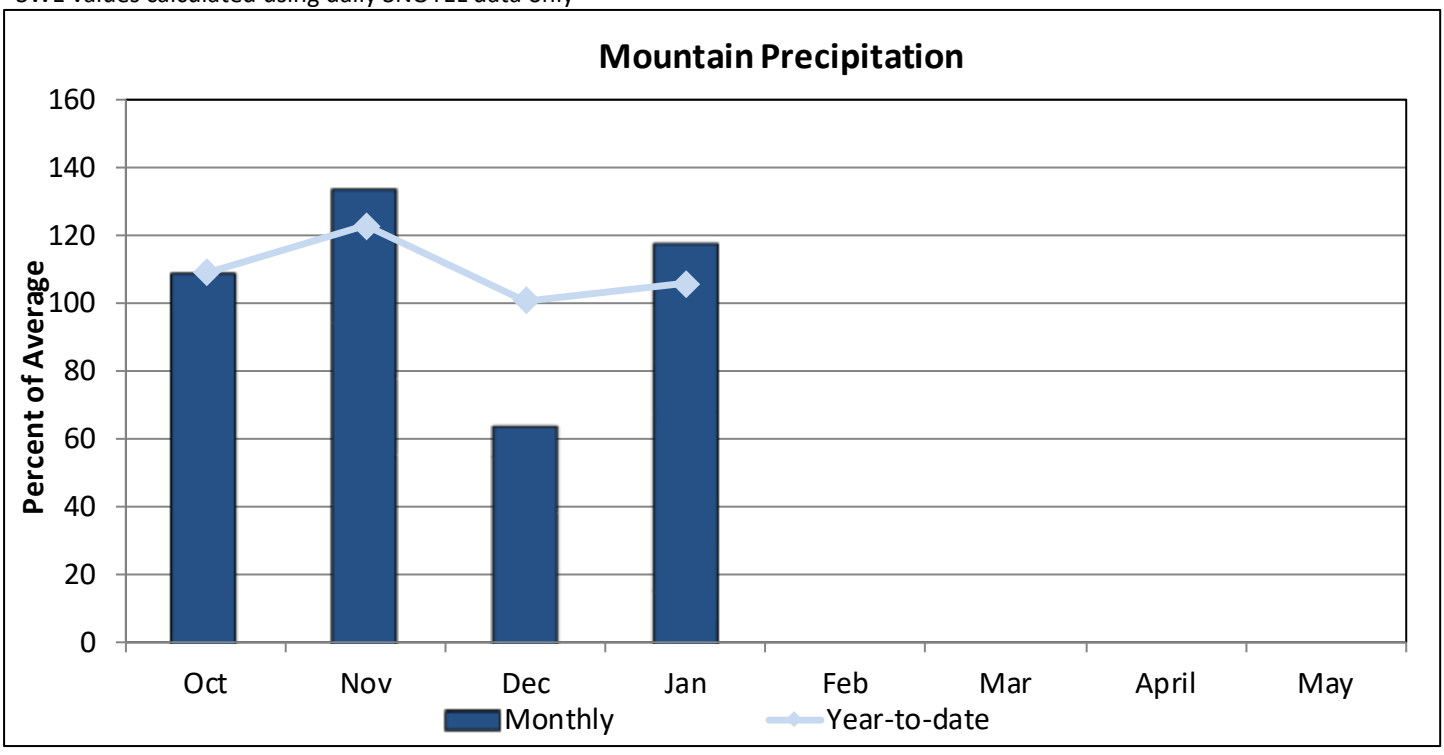
YAMPA, WHITE, NORTH PLATTE, AND LARAMIE RIVER BASINS

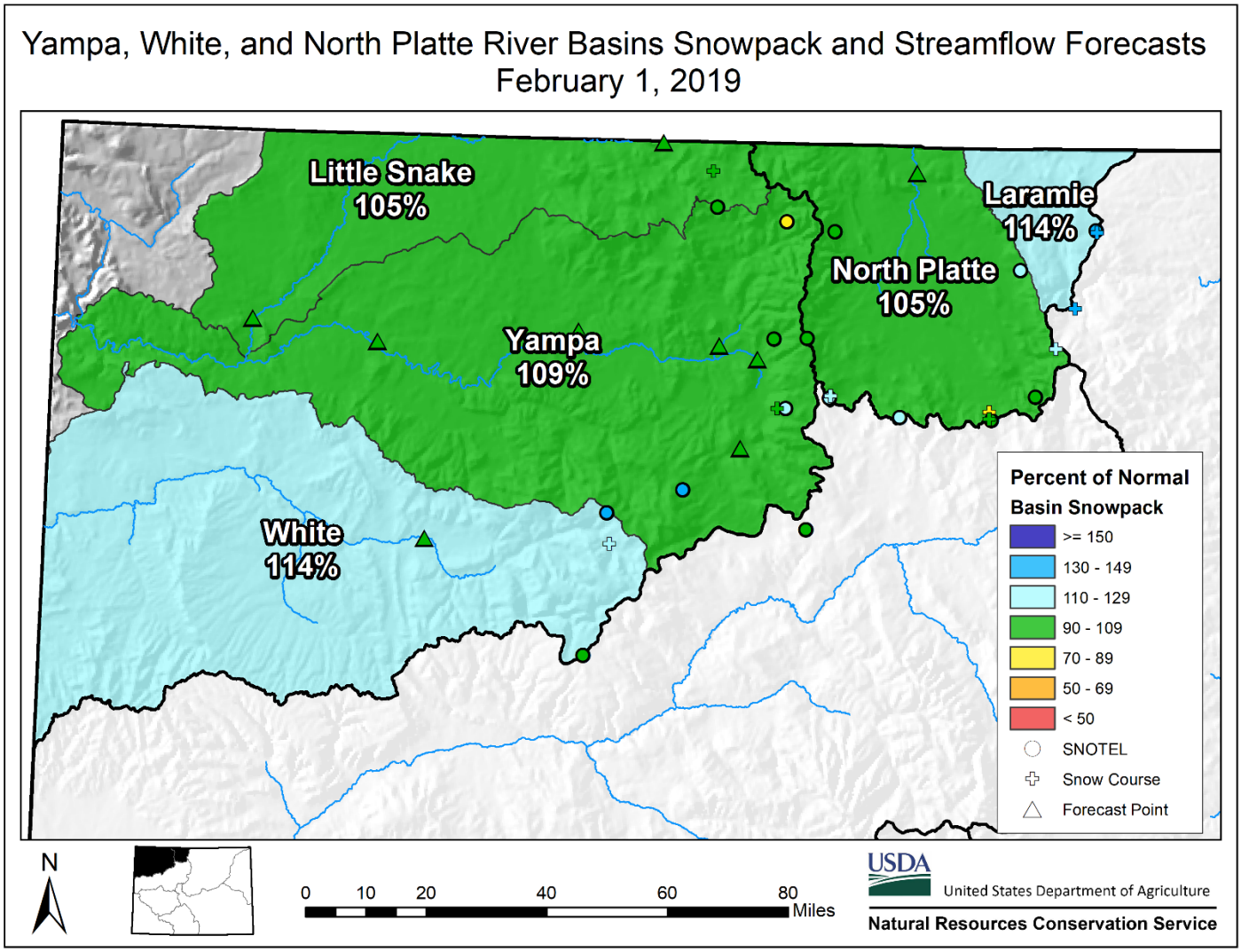
February 1, 2019

Snowpack in the Yampa, White & North Platte basins is above normal at 107% of the median. Precipitation for January was 118% of average and water year-to-date precipitation is 106% of average. Reservoir storage at the end of January was 102% of average compared to 120% last year. Current streamflow forecasts range from 90% of average for the Little Snake River near Dixon to 104% for the Yampa River above Stagecoach Reservoir.



*SWE values calculated using daily SNOTEL data only

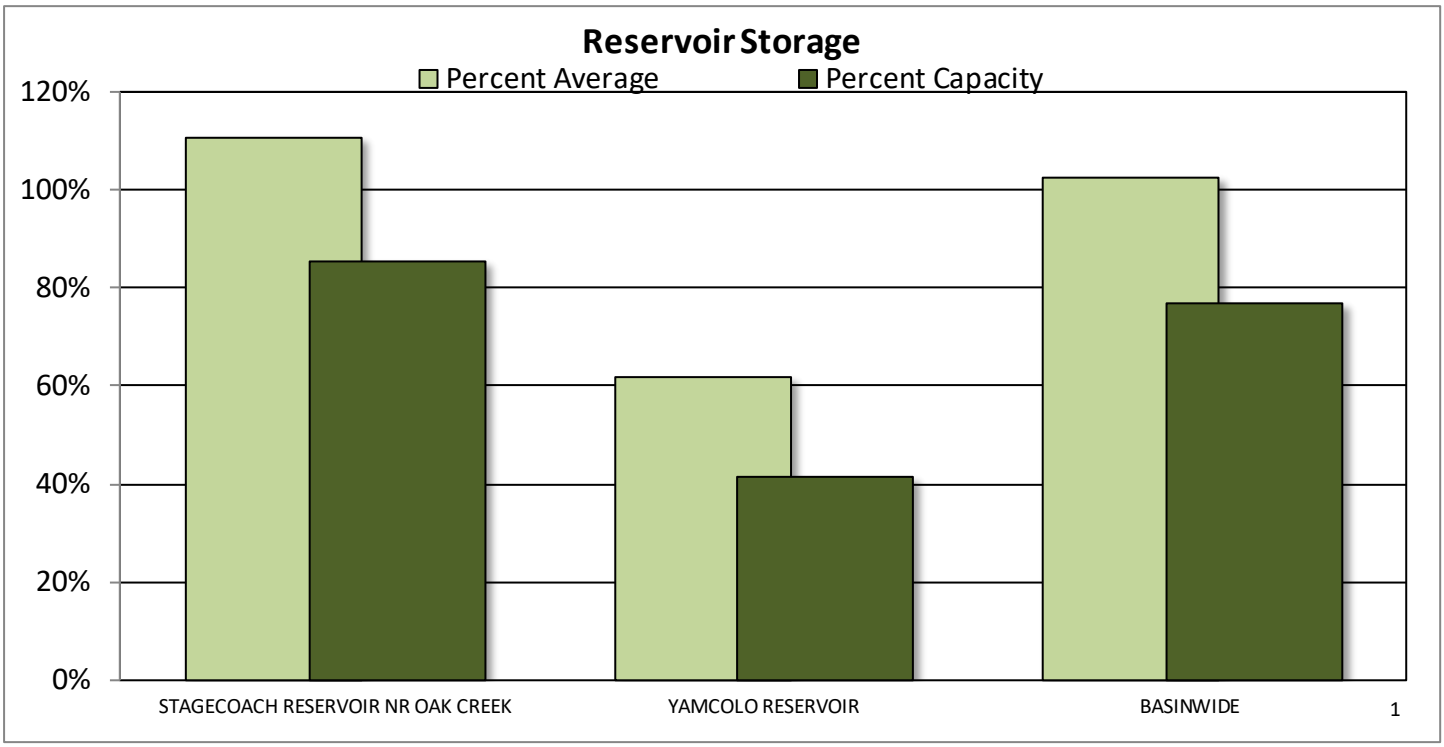




Watershed Snowpack Analysis February 1st, 2019

Sub-Basin	# of Sites	% Median	Last Year % Median
Laramie	4	114	95
North Platte	12	105	79
Total Laramie & North Platte	16	107	82
Elk	2	90	68
Yampa	11	109	73
White	4	114	66
Total Yampa & White	14	109	70
Little Snake	9	105	72
Basin-Wide Total	35	107	75

*SWE values calculated using first of month SNOTEL data and snow course measurements



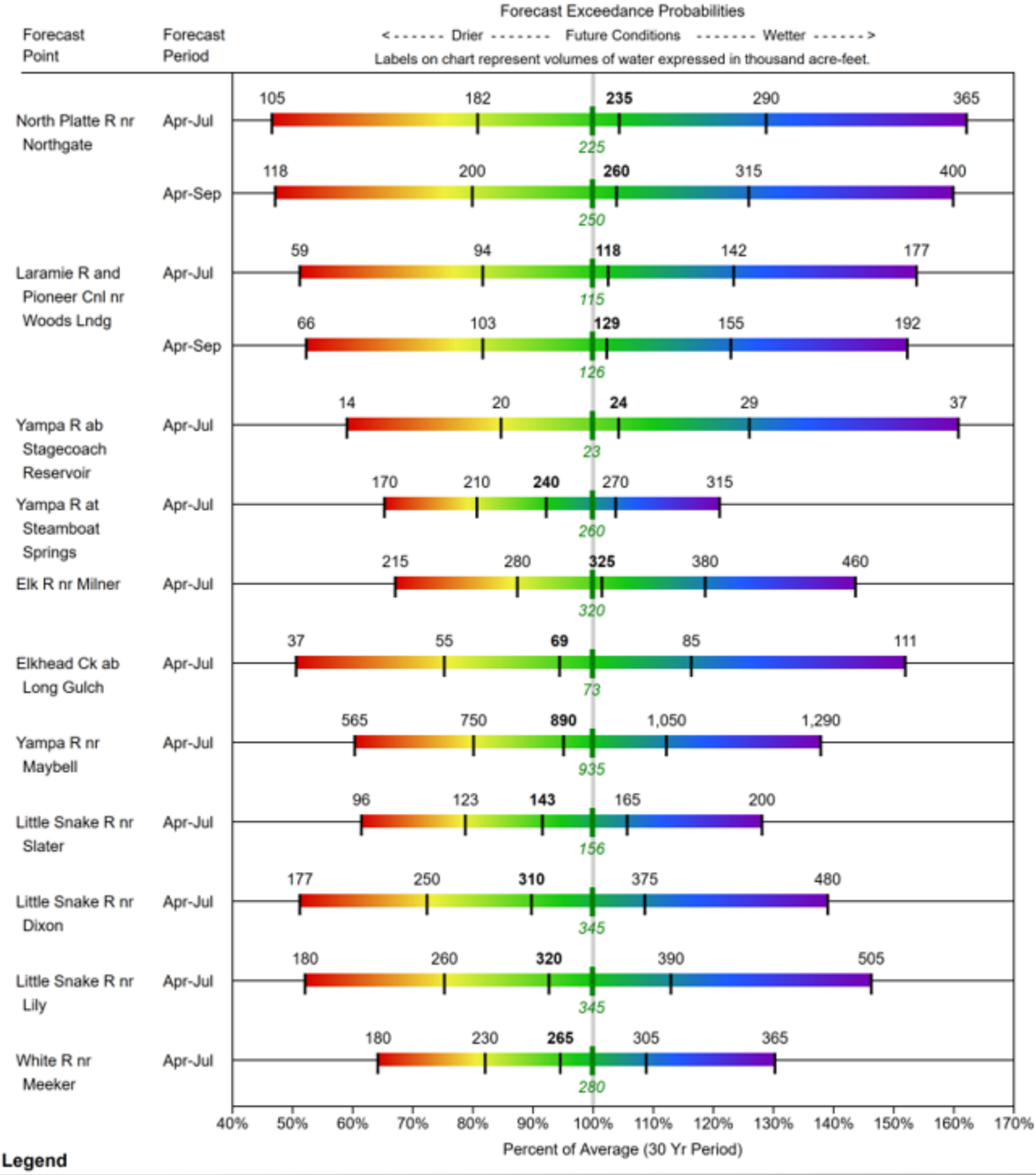
Reservoir Storage End of January 2019

Reservoir	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
STAGECOACH RESERVOIR NR OAK C	31.2	33.4	28.2	36.5
YAMCOLO RESERVOIR	3.6	7.6	5.8	8.7
BASINWIDE	34.8	41.0	34.0	45.2
Number of Reservoirs	2	2	2	2

YAMPA-WHITE-NORTH PLATTE RIVER BASINS

Water Supply Forecasts

February 1, 2019



Legend

95% or 90% Exceedance — There is a 95%/90% chance that flows will exceed this volume

70% Exceedance — There is a 70% chance that flows will exceed this volume

50% Exceedance — There is a 50% chance that flows will exceed this volume

30% Exceedance — There is a 30% chance that flows will exceed this volume

10% or 5% Exceedance — There is a 10%/5% chance that flows will exceed this volume

When selected, the following historic streamflow values and statistics will be shown.

Period of Record Minimum Streamflow KAF (Year)

1981-2010 Normal Streamflow KAF

Observed Streamflow KAF

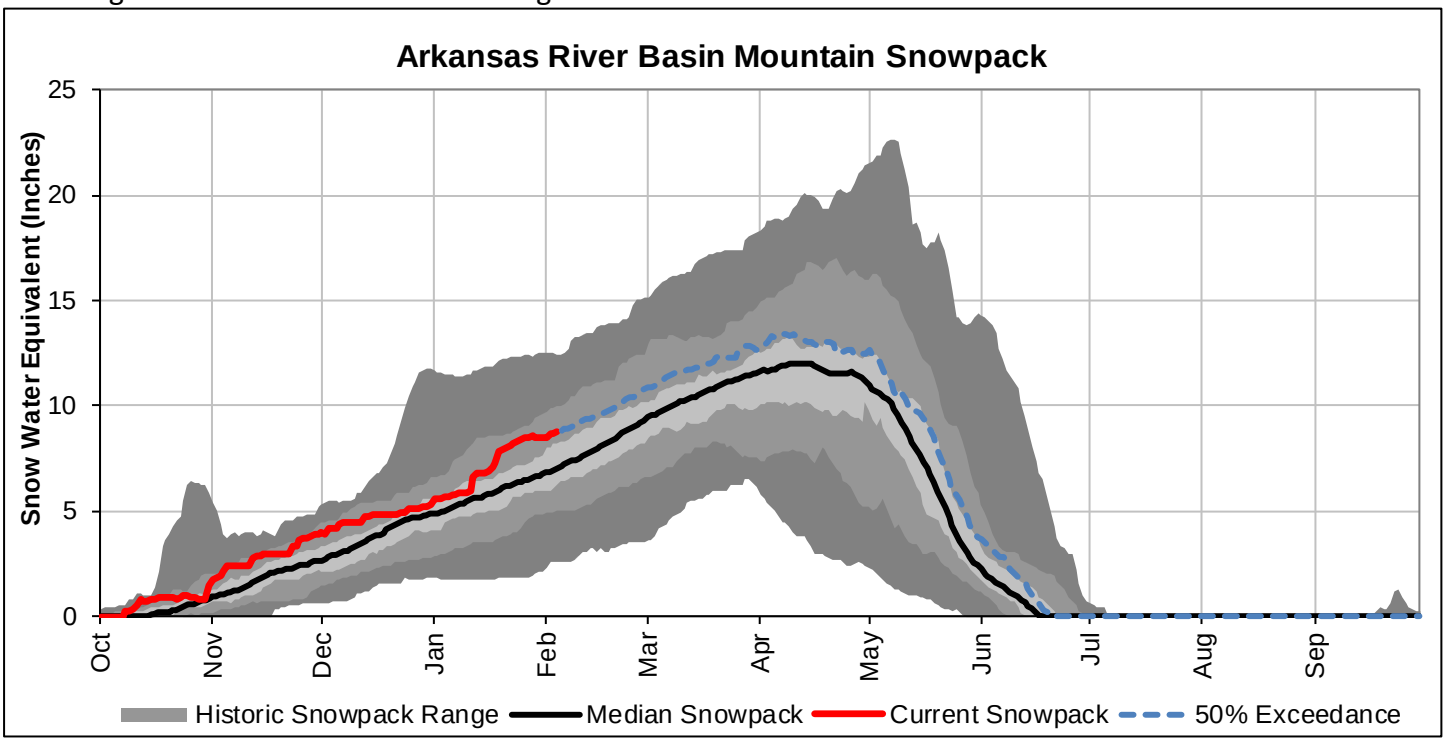
Period of Record Maximum Streamflow KAF (Year)

Some forecasts may be for volumes that are regulated or influenced by diversions and water management.

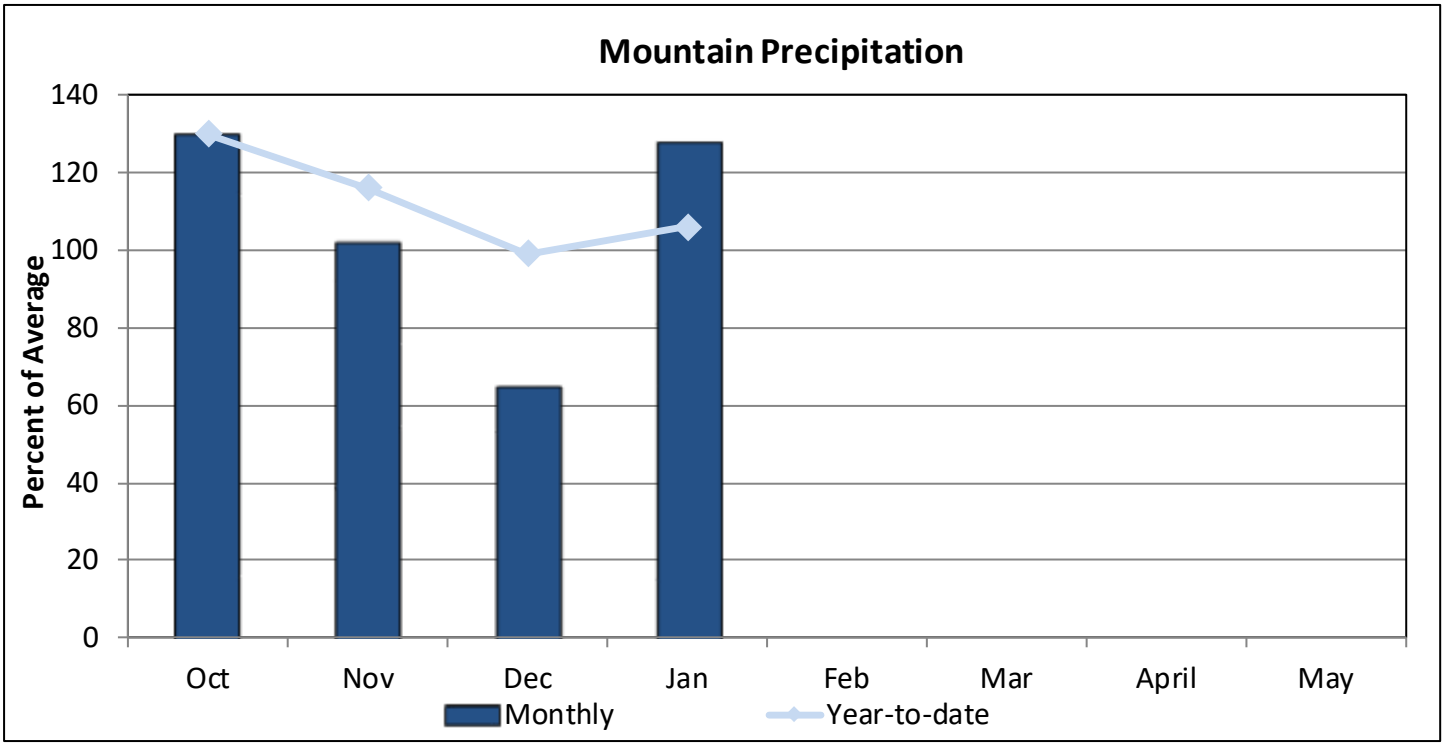
ARKANSAS RIVER BASIN

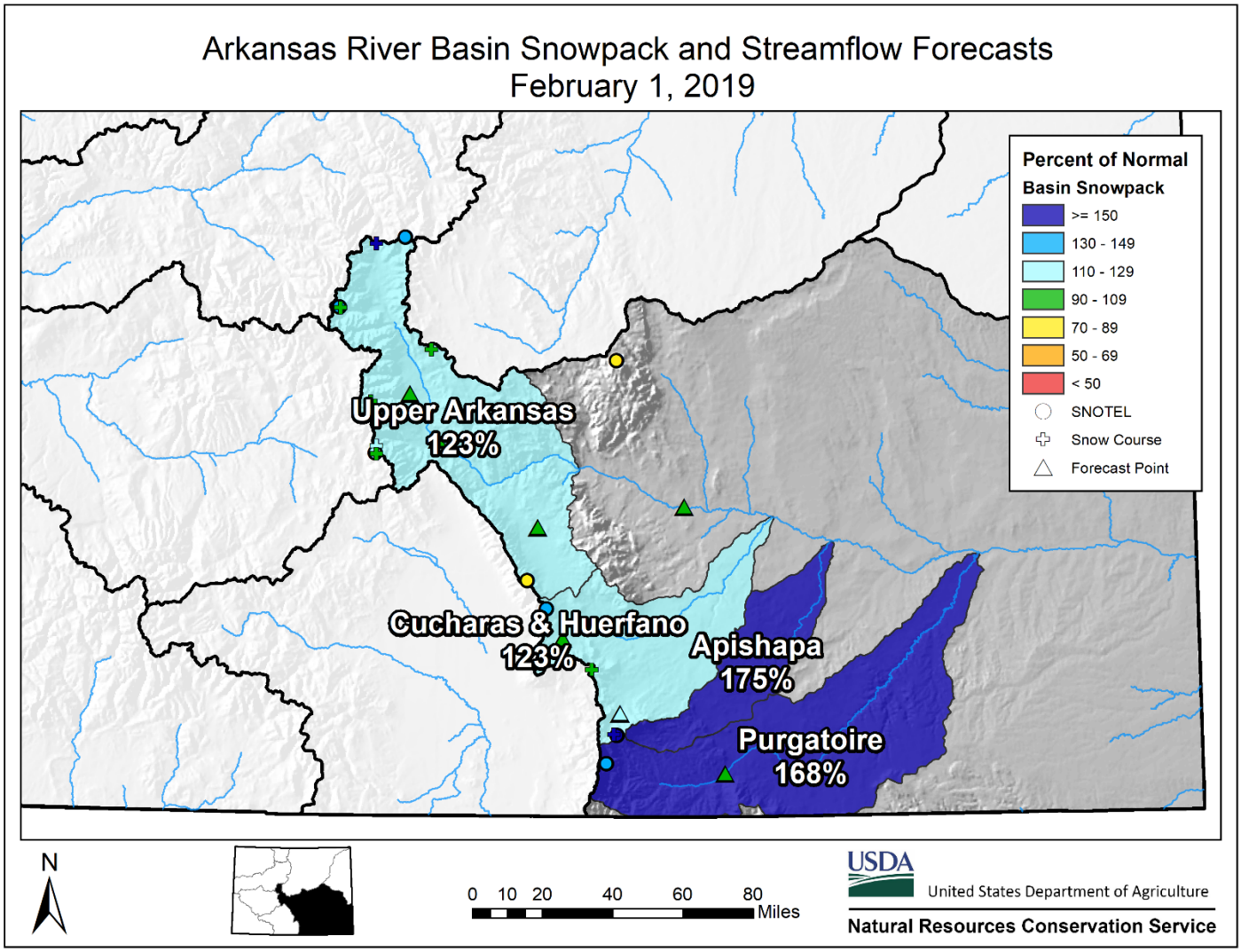
February 1, 2019

Snowpack in the Arkansas River basin is above normal at 123% of the median. Precipitation for January was 128% of average which brings water year-to-date precipitation to 106% of average. Reservoir storage at the end of January was 89% of average compared to 140% last year. Current streamflow forecasts range from 89% of average for the Huerfano near Redwing to 114% for the Cucharas River near La Veta.



*SWE values calculated using daily SNOTEL data only

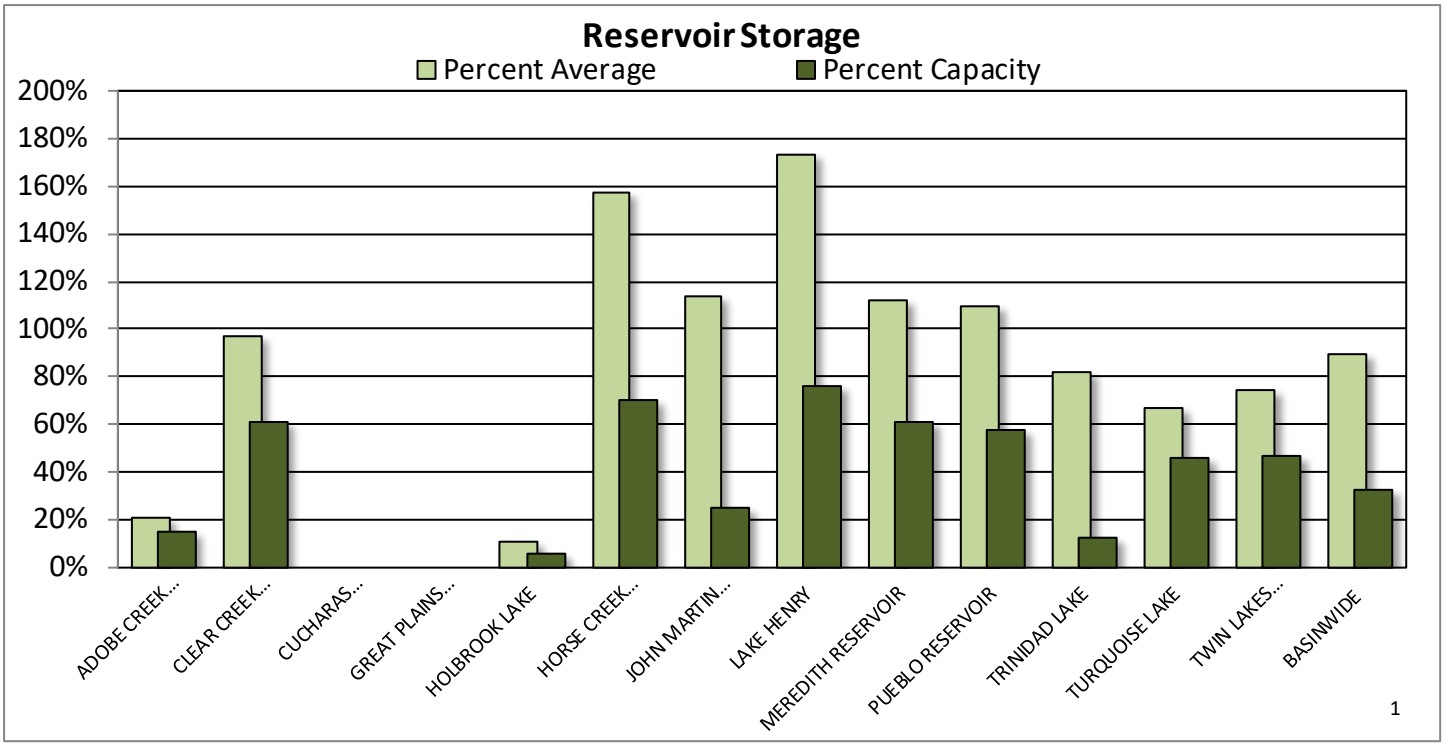




Watershed Snowpack Analysis February 1st, 2019

Sub-Basin	# of Sites	% Median	Last Year % Median
Upper Arkansas	9	123	75
Cucharas & Huerfano	5	123	20
Purgatoire	2	168	24
Basin-Wide Total	16	123	55

*SWE values calculated using first of month SNOTEL data and snow course measurements



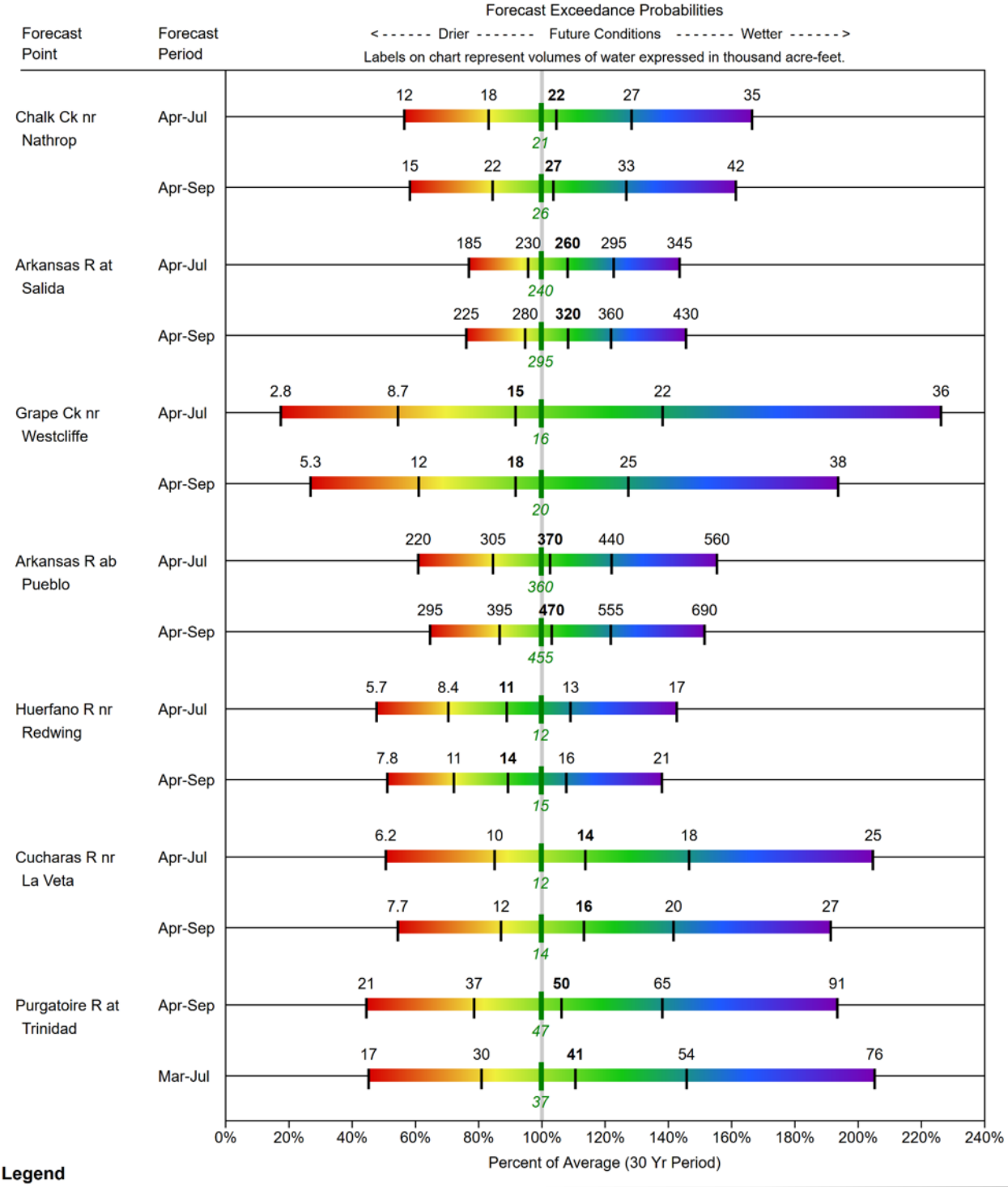
Reservoir Storage End of January 2019

Reservoir	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
ADOBE CREEK RESERVOIR	9.1	49.4	42.9	62.0
CLEAR CREEK RESERVOIR	7.0	7.7	7.2	11.4
CUCHARAS RESERVOIR				40.0
GREAT PLAINS RESERVOIR				150.0
HOLBROOK LAKE	0.4	6.2	3.6	7.0
HORSE CREEK RESERVOIR	18.9	27.0	12.0	27.0
JOHN MARTIN RESERVOIR	155.0	291.6	135.9	616.0
LAKE HENRY	7.1	8.9	4.1	9.4
MEREDITH RESERVOIR	25.6	37.2	22.9	42.0
PUEBLO RESERVOIR	204.8	262.8	187.5	354.0
TRINIDAD LAKE	20.9	39.3	25.6	167.0
TURQUOISE LAKE	58.0	92.7	86.3	127.0
TWIN LAKES RESERVOIR	40.4	34.9	54.3	86.0
BASINWIDE	547.2	857.8	582.3	1698.8
Number of Reservoirs	11	11	11	13

ARKANSAS RIVER BASIN

Water Supply Forecasts

February 1, 2019



Legend

95% or 90% Exceedance — There is a 95%/90% chance that flows will exceed this volume

70% Exceedance — There is a 70% chance that flows will exceed this volume

50% Exceedance — There is a 50% chance that flows will exceed this volume

30% Exceedance — There is a 30% chance that flows will exceed this volume

10% or 5% Exceedance — There is a 10%/5% chance that flows will exceed this volume

When selected, the following historic streamflow values and statistics will be shown.

Period of Record Minimum Streamflow KAF (Year)

1981-2010 Normal Streamflow KAF

Observed Streamflow KAF

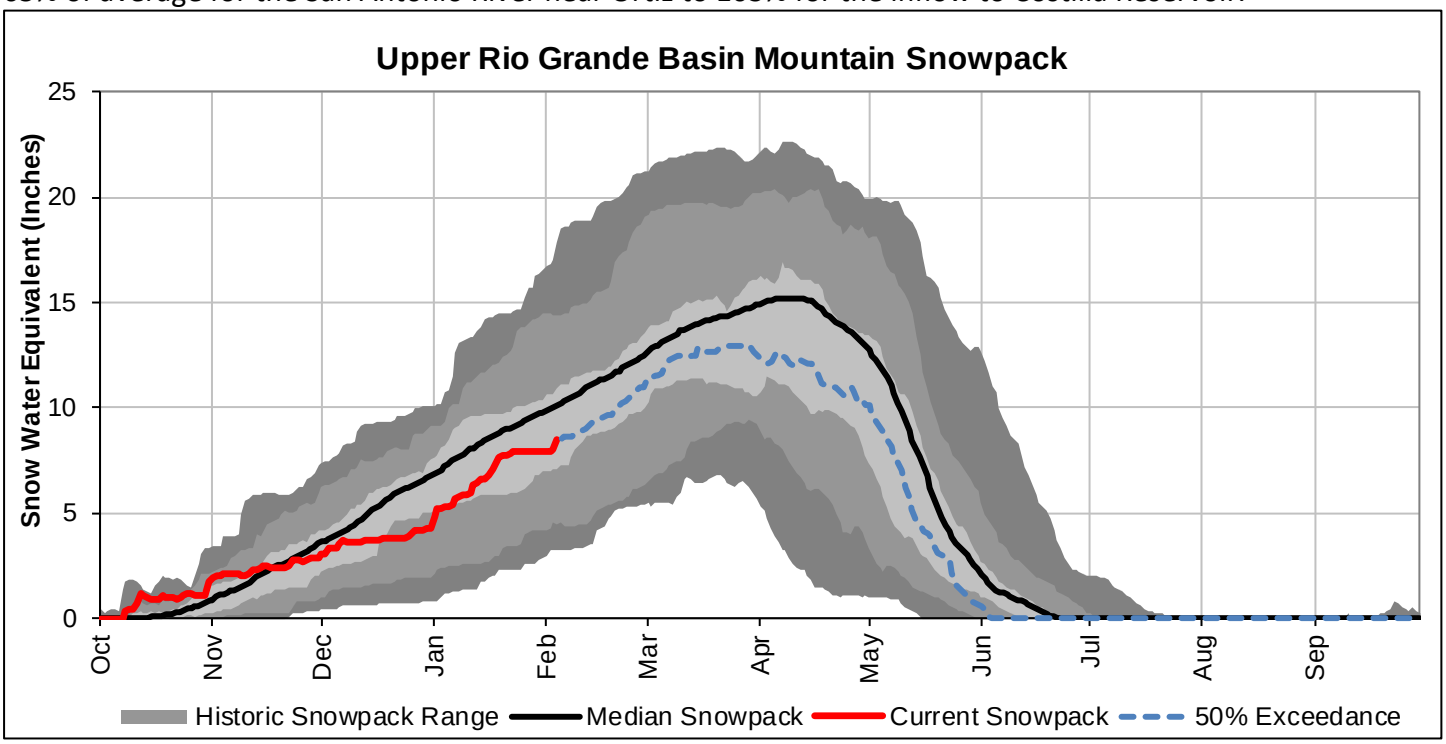
Period of Record Maximum Streamflow KAF (Year)

Some forecasts may be for volumes that are regulated or influenced by diversions and water management.

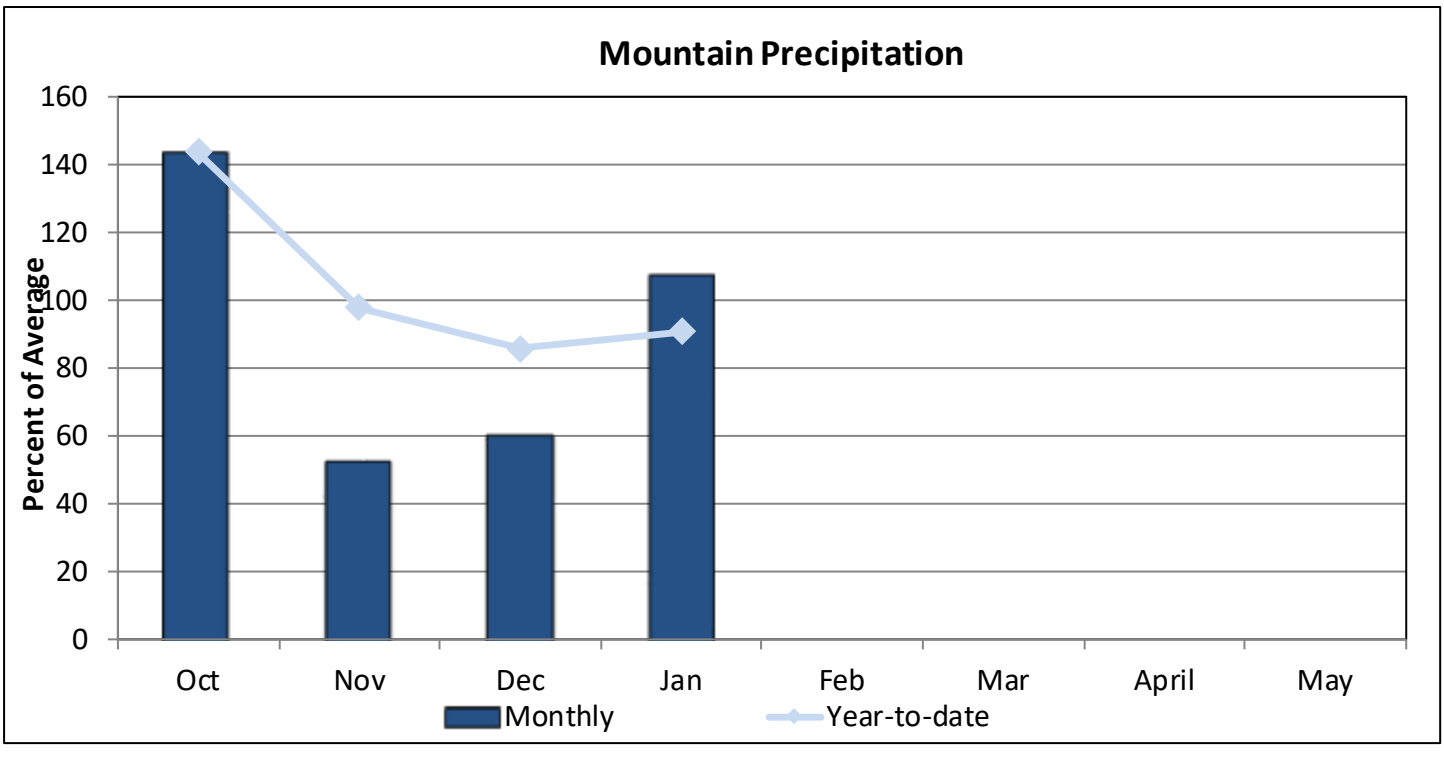
UPPER RIO GRANDE RIVER BASIN

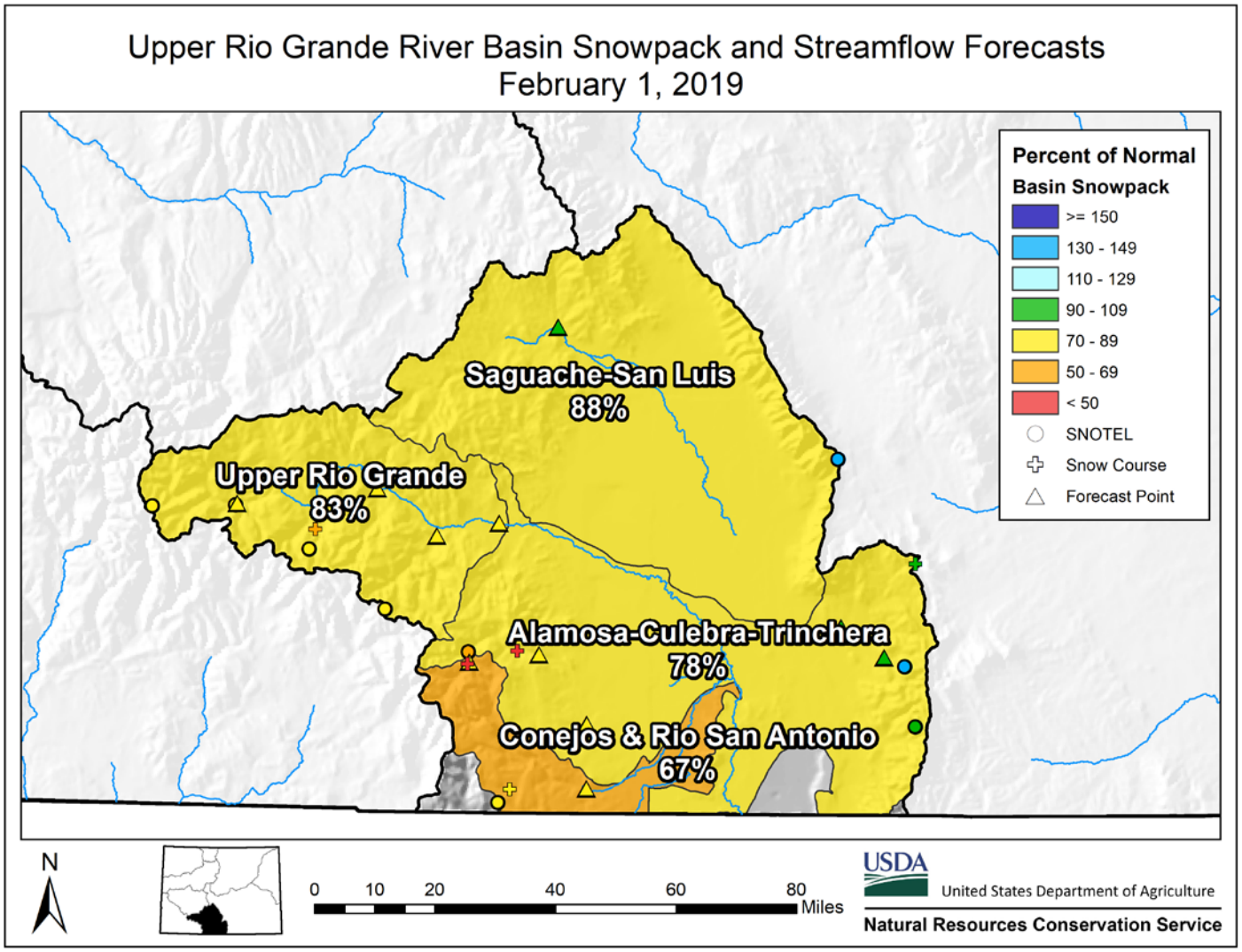
February 1, 2019

Snowpack in the Upper Rio Grande River basin is below normal at 81% of median. Precipitation for January was 108% of average which brings water year-to-date precipitation to 91% of average. Reservoir storage at the end of January was 79% of average compared to 122% last year. Current streamflow forecasts range from 65% of average for the San Antonio River near Ortiz to 103% for the inflow to Costilla Reservoir.



*SWE values calculated using daily SNOTEL data only

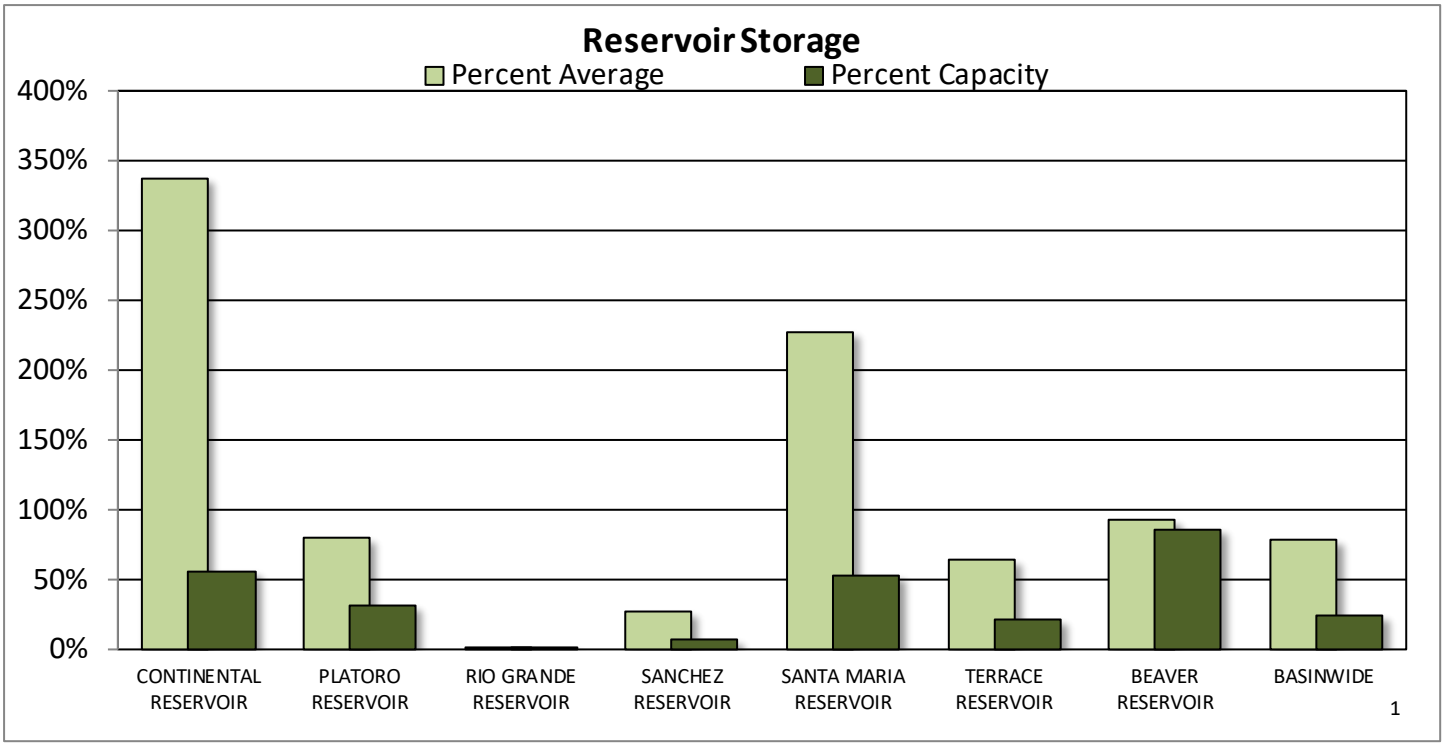




Watershed Snowpack Analysis February 1st, 2019

Sub-Basin	# of Sites	% Median	Last Year % Median
Alamosa Creek	3	51	32
Conejos & Rio San Antonio	4	67	39
Culebra & Trinchera Creek	4	101	38
Upper Rio Grande	7	83	33
Basin-Wide Total	17	81	34

*SWE values calculated using first of month SNOTEL data and snow course measurements



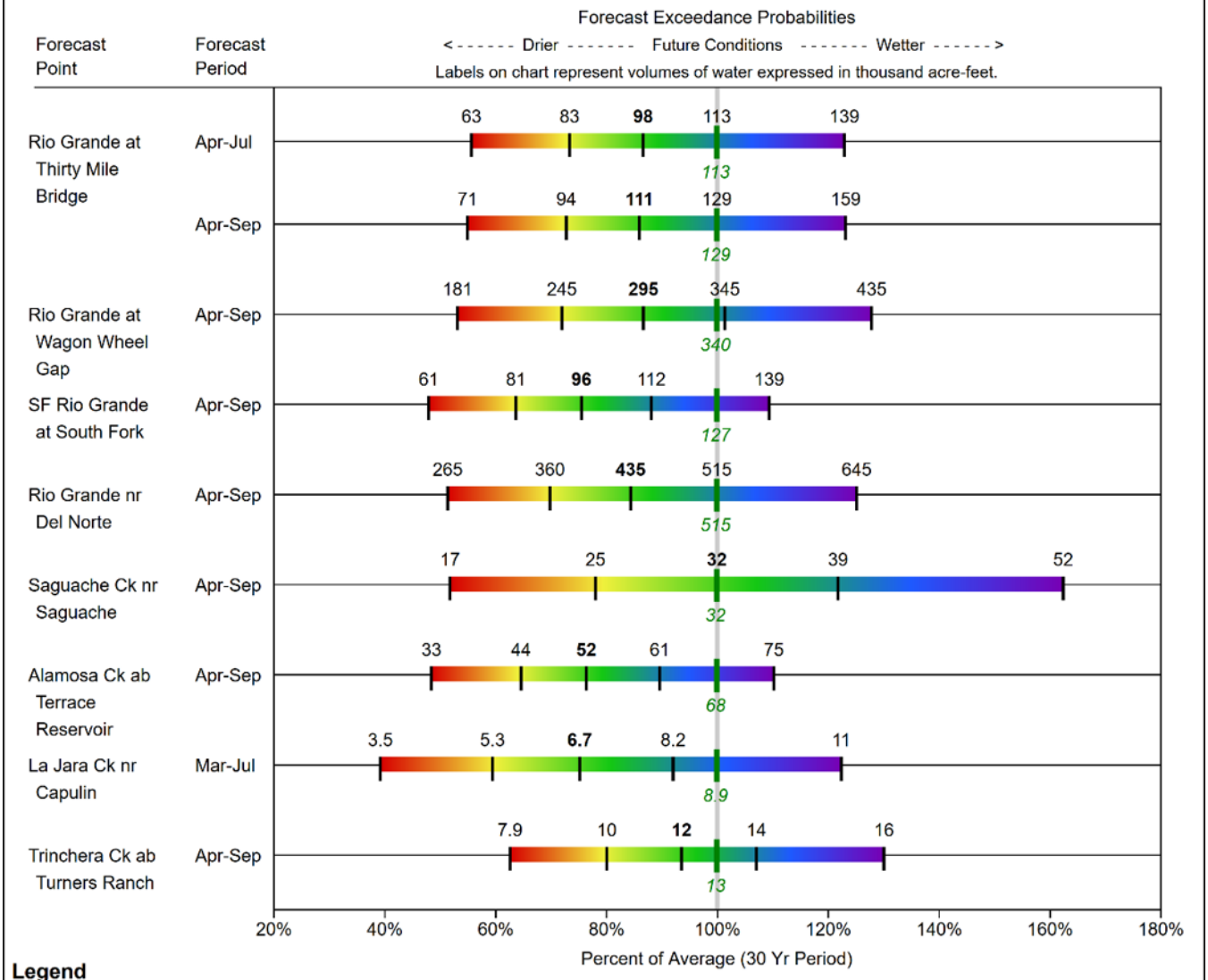
Reservoir Storage End of January 2019

Reservoir	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
CONTINENTAL RESERVOIR	15.2	11.4	4.5	27.0
PLATORO RESERVOIR	19.1	23.2	24.0	60.0
RIO GRANDE RESERVOIR	0.0	27.0	16.3	51.0
SANCHEZ RESERVOIR	7.5	21.1	27.6	103.0
SANTA MARIA RESERVOIR	23.8	18.9	10.5	45.0
TERRACE RESERVOIR	4.0	8.3	6.2	18.0
BEAVER RESERVOIR	3.9	3.8	4.2	4.5
BASINWIDE	73.5	113.6	93.3	308.5
Number of Reservoirs	7	7	7	7

UPPER RIO GRANDE BASIN

Water Supply Forecasts

February 1, 2019



Legend

95% or 90% Exceedance	70% Exceedance	**50% Exceedance**	30% Exceedance	10% or 5% Exceedance
There is a 95%/90% chance that flows will exceed this volume	There is a 70% chance that flows will exceed this volume	There is a 50% chance that flows will exceed this volume	There is a 30% chance that flows will exceed this volume	There is a 10%/5% chance that flows will exceed this volume

When selected, the following historic streamflow values and statistics will be shown.

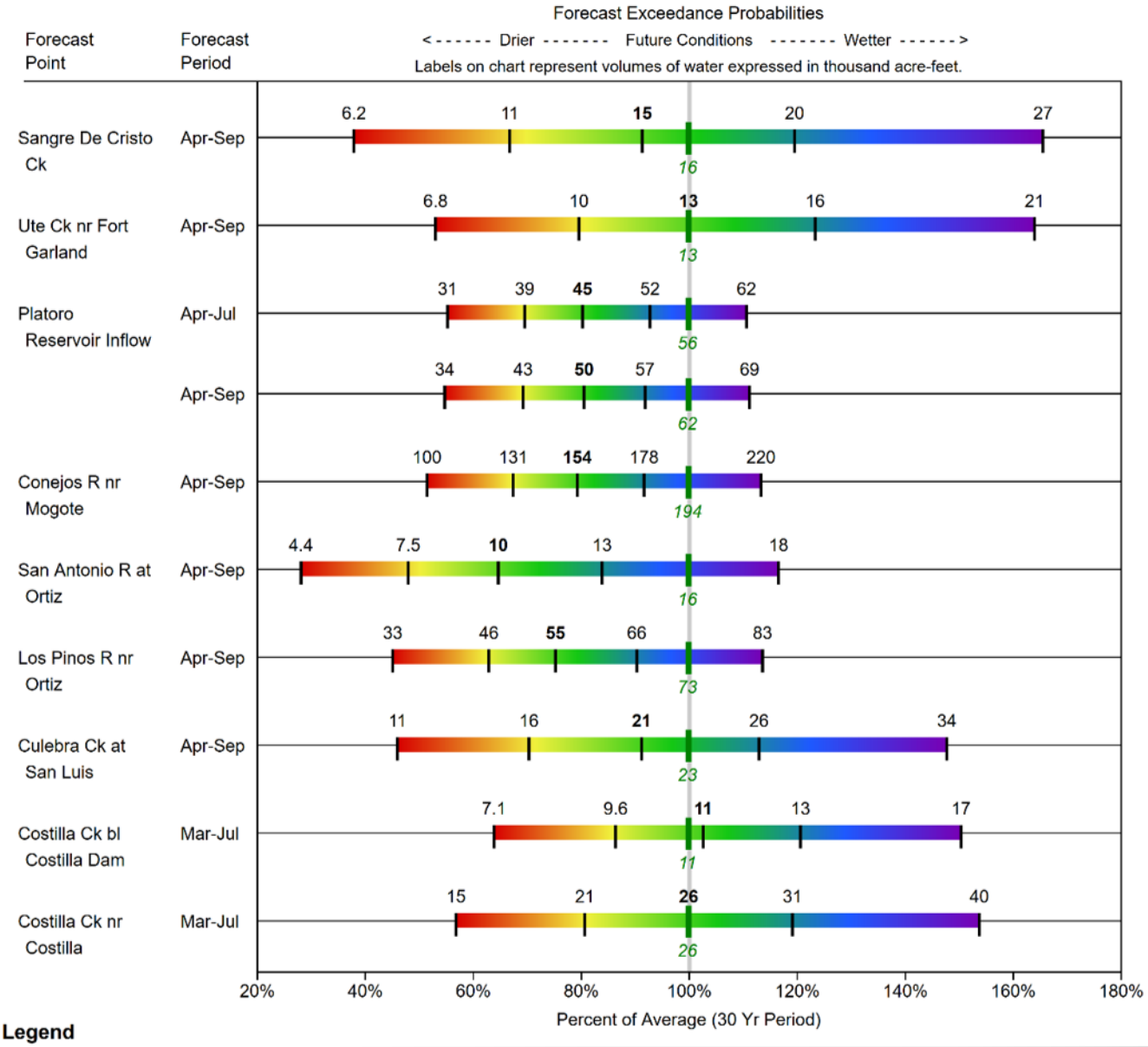
Period of Record Minimum Streamflow KAF (Year) | *1981-2010 Normal Streamflow KAF* | *Observed Streamflow KAF* | *Period of Record Maximum Streamflow KAF (Year)*

Some forecasts may be for volumes that are regulated or influenced by diversions and water management.

UPPER RIO GRANDE BASIN

Water Supply Forecasts

February 1, 2019



Legend

95% or 90% Exceedance	70% Exceedance	**50% Exceedance**	30% Exceedance	10% or 5% Exceedance
There is a 95%/90% chance that flows will exceed this volume	There is a 70% chance that flows will exceed this volume	There is a 50% chance that flows will exceed this volume	There is a 30% chance that flows will exceed this volume	There is a 10%/5% chance that flows will exceed this volume

When selected, the following historic streamflow values and statistics will be shown.

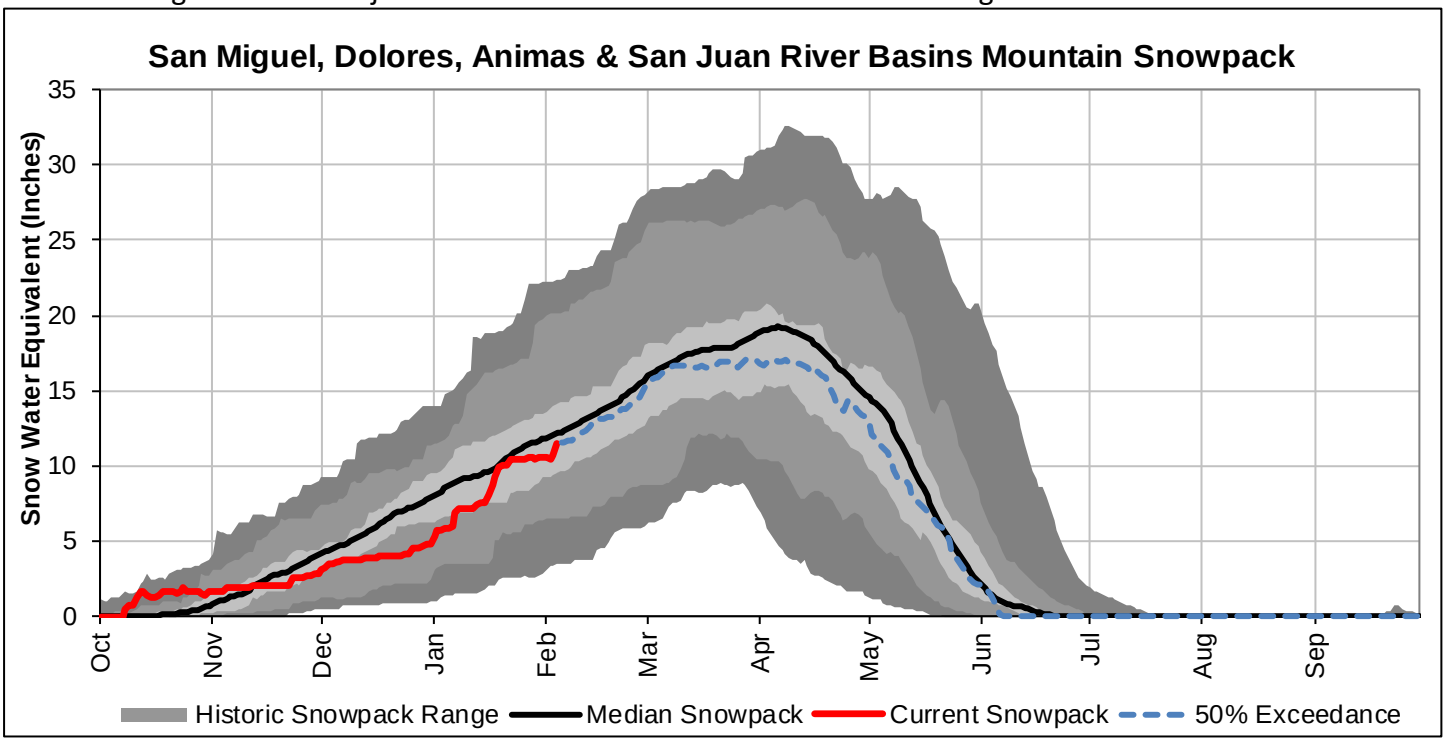
Period of Record Minimum Streamflow KAF (Year) | *1981-2010 Normal Streamflow KAF* | *Observed Streamflow KAF* | *Period of Record Maximum Streamflow KAF (Year)*

Some forecasts may be for volumes that are regulated or influenced by diversions and water management.

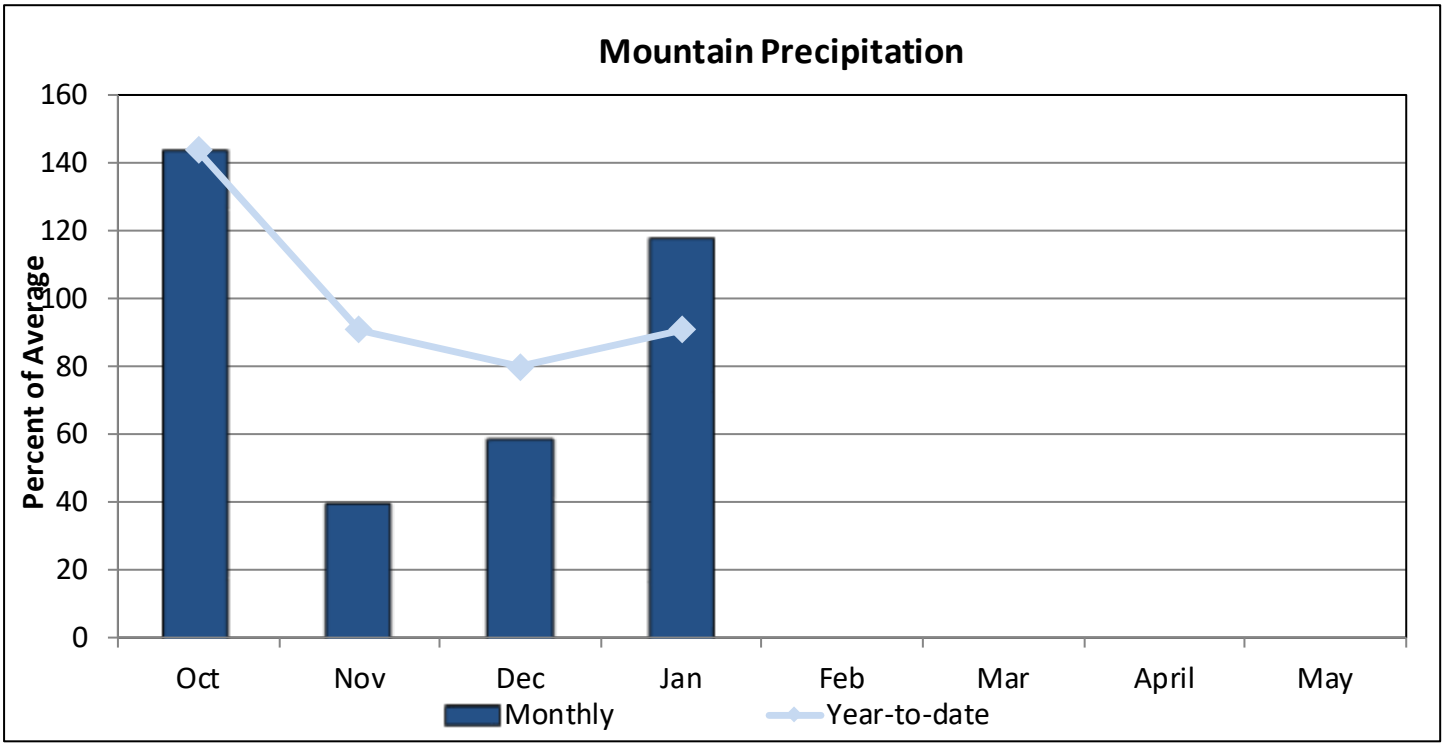
SAN MIGUEL, DOLORES, ANIMAS, AND SAN JUAN RIVER BASINS

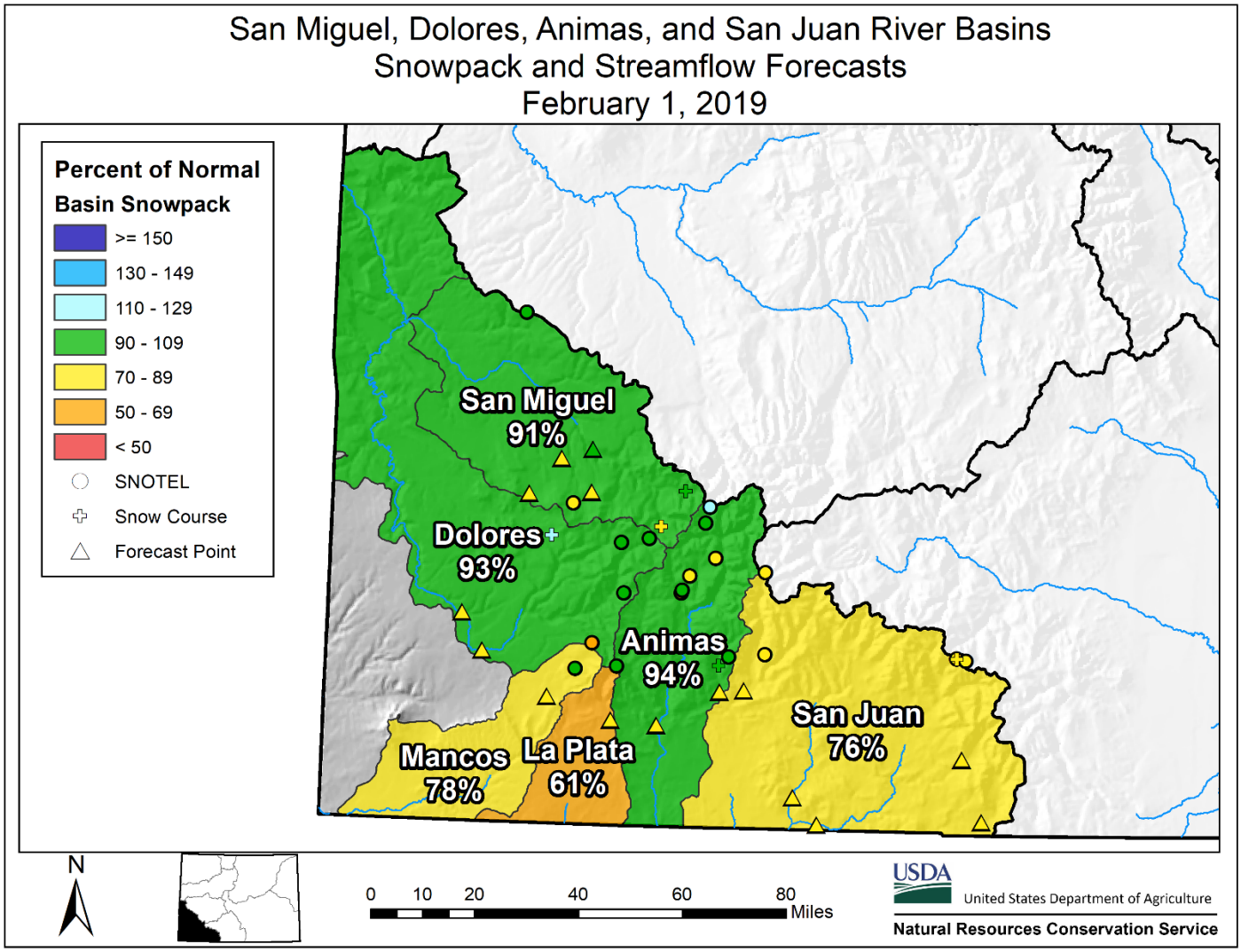
February 1, 2019

Snowpack in the combined southwest river basins is below normal at 89% of median. Precipitation for January was 118% of average which brings water year-to-date precipitation to 91% of average. Reservoir storage at the end of January was 57% of average compared to 105% last year. Current streamflow forecasts range from 76% of average for the Navajo River at Oso Diversion to 92% for the San Miguel River near Placerville.



*SWE values calculated using daily SNOTEL data only

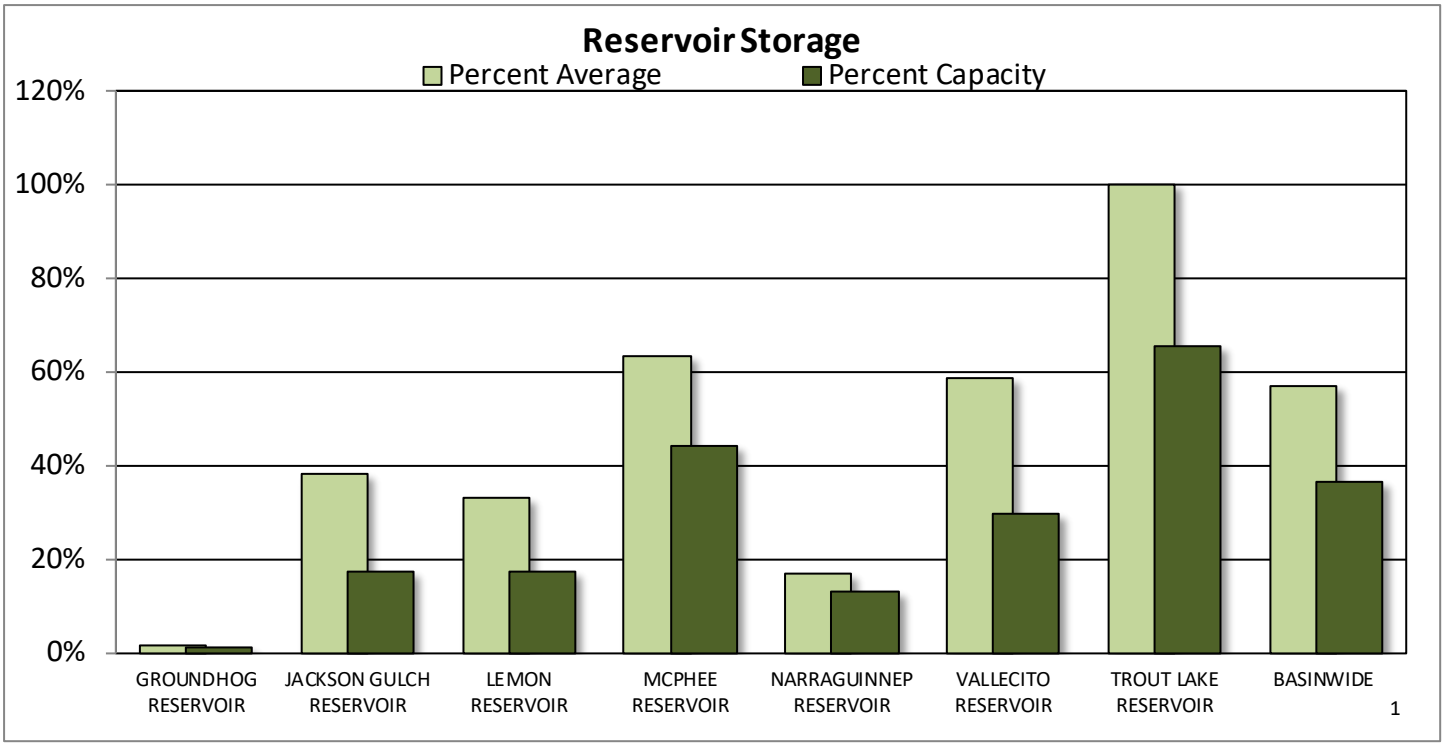




Watershed Snowpack Analysis February 1st, 2019

Sub-Basin	# of Sites	% Median	Last Year % Median
Animas	10	94	36
Dolores	6	93	38
San Miguel	5	91	35
San Juan	4	76	30
Basin-Wide Total	24	89	34

*SWE values calculated using first of month SNOTEL data and snow course measurements



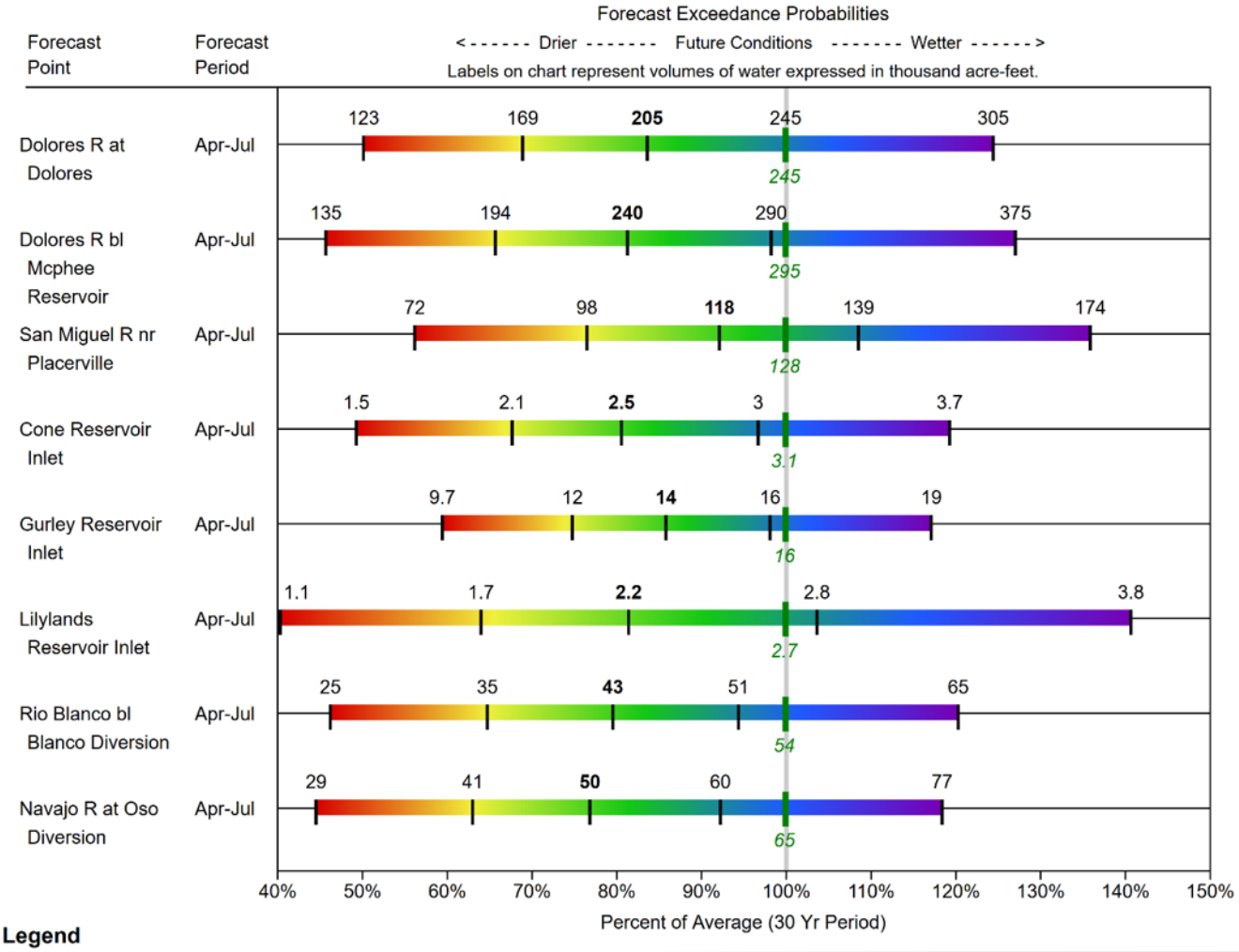
Reservoir Storage End of January 2019

Reservoir	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
GROUNDHOG RESERVOIR	0.2	12.2	12.4	22.0
JACKSON GULCH RESERVOIR	1.7	5.2	4.5	10.0
LEMON RESERVOIR	6.9	18.6	20.9	40.0
MCPHEE RESERVOIR	168.6	284.5	266.4	381.0
NARRAGUINNEP RESERVOIR	2.5	11.7	14.7	19.0
VALLECITO RESERVOIR	37.2	67.3	63.3	126.0
TROUT LAKE RESERVOIR	2.1	2.6	2.1	3.2
BASINWIDE	219.2	402.2	384.3	601.2
Number of Reservoirs	7	7	7	7

SAN MIGUEL-DOLORES-ANIMAS-SAN JUAN RIVER BASINS

Water Supply Forecasts

February 1, 2019



Legend

95% or 90% Exceedance	70% Exceedance	**50% Exceedance**	30% Exceedance	10% or 5% Exceedance
There is a 95%/90% chance that flows will exceed this volume	There is a 70% chance that flows will exceed this volume	There is a 50% chance that flows will exceed this volume	There is a 30% chance that flows will exceed this volume	There is a 10%/5% chance that flows will exceed this volume

When selected, the following historic streamflow values and statistics will be shown.

Period of Record Minimum Streamflow KAF (Year)

1981-2010 Normal Streamflow KAF

Observed Streamflow KAF

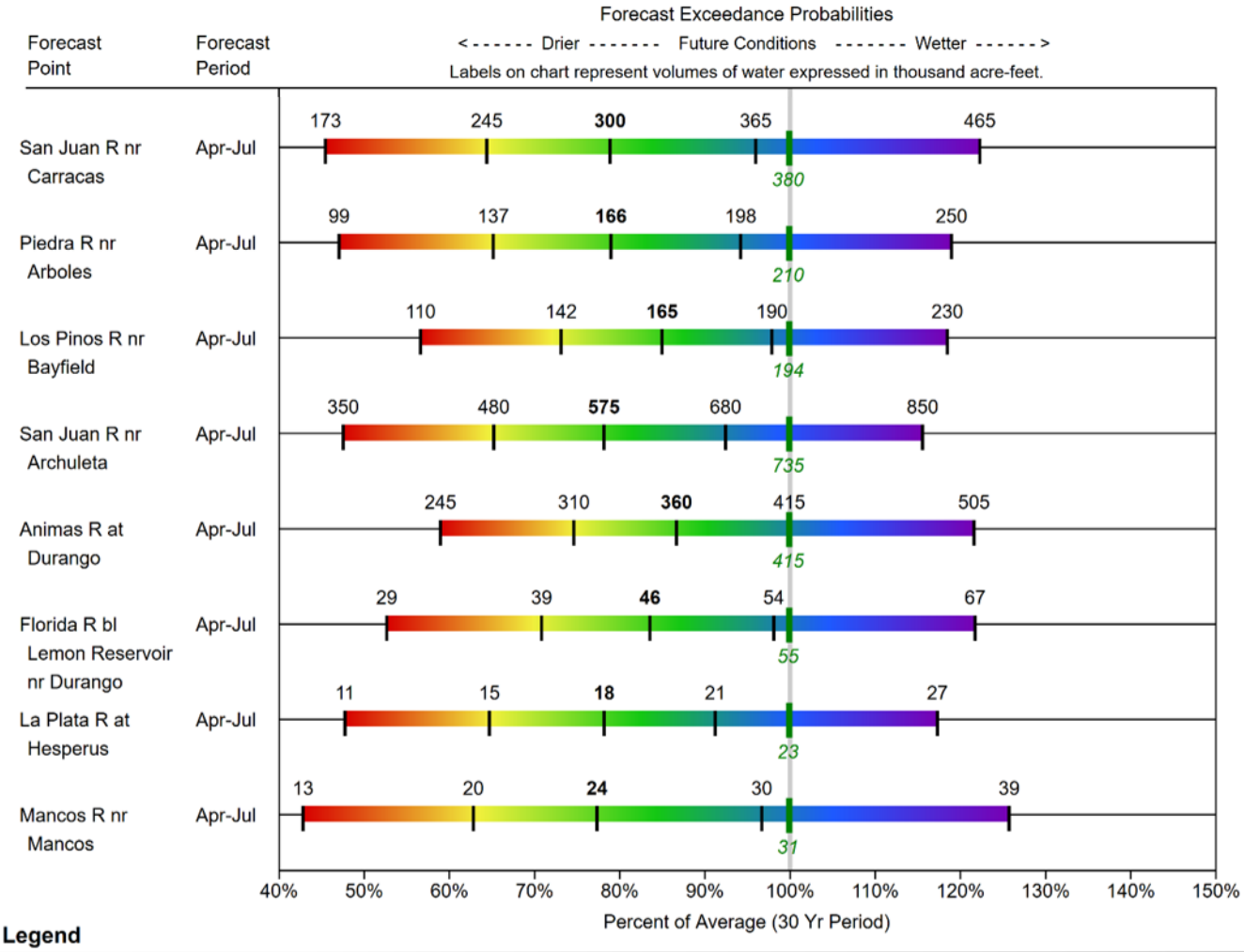
Period of Record Maximum Streamflow KAF (Year)

Some forecasts may be for volumes that are regulated or influenced by diversions and water management.

SAN MIGUEL-DOLORES-ANIMAS-SAN JUAN RIVER BASINS

Water Supply Forecasts

February 1, 2019



Legend

95% or 90% Exceedance	70% Exceedance	**50% Exceedance**	30% Exceedance	10% or 5% Exceedance
There is a 95%/90% chance that flows will exceed this volume	There is a 70% chance that flows will exceed this volume	There is a 50% chance that flows will exceed this volume	There is a 30% chance that flows will exceed this volume	There is a 10%/5% chance that flows will exceed this volume

When selected, the following historic streamflow values and statistics will be shown.

Period of Record Minimum Streamflow KAF (Year)	*1981-2010 Normal Streamflow KAF*	*Observed Streamflow KAF*	*Period of Record Maximum Streamflow KAF (Year)*

Some forecasts may be for volumes that are regulated or influenced by diversions and water management.

How to Read Snowpack Graphs

The graphs show snow water equivalent (SWE) (in inches), using daily SNOTEL data. 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.

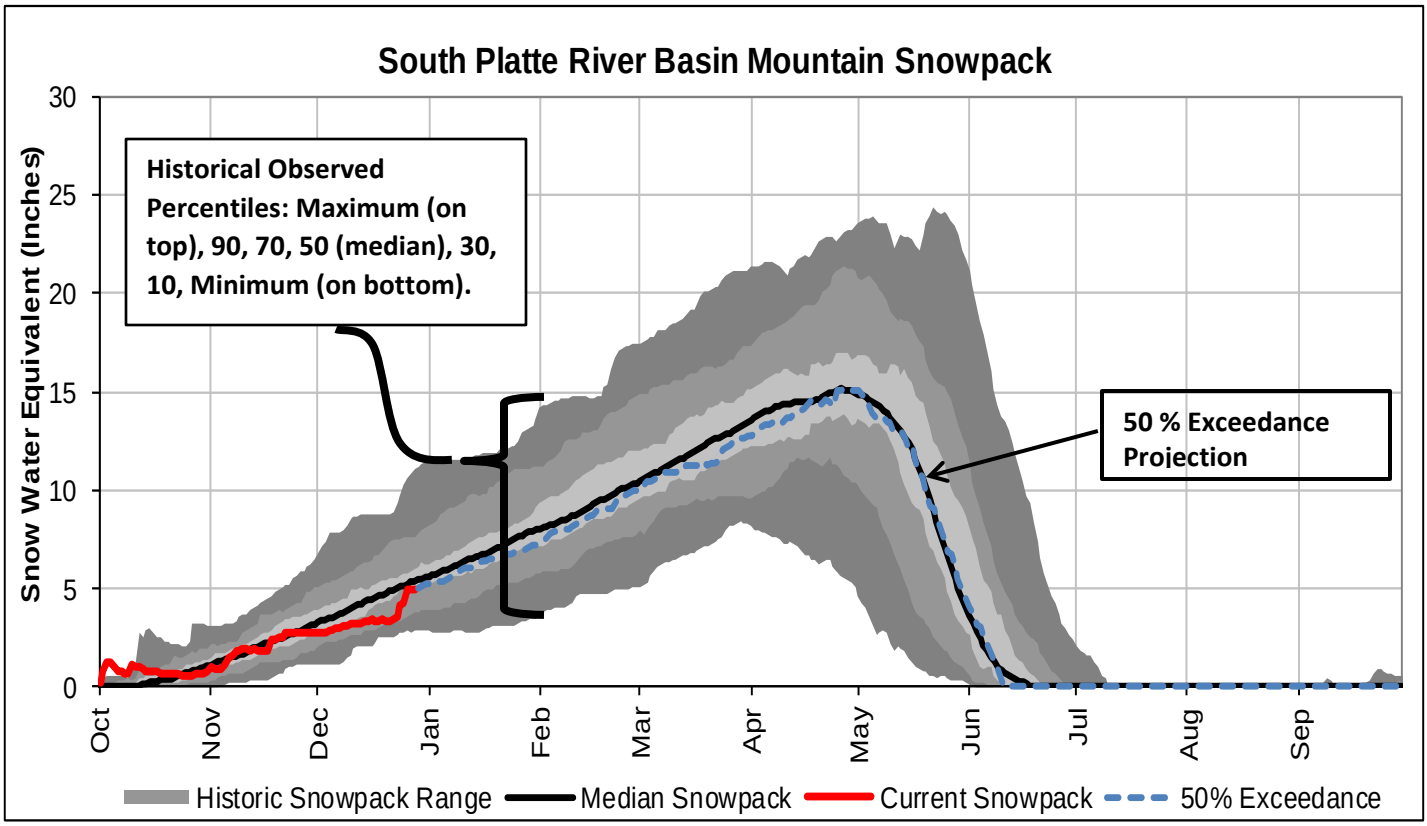
Current water year is represented by the heavy red line terminating on the last day the graphic was updated.

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.

50 % Excedance Projection: The most probabilistic snowpack projection, based on the median snowpack is projected forward from the end of the current period to the end of the current water year.

For more detailed information on these graphs visit:

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



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.

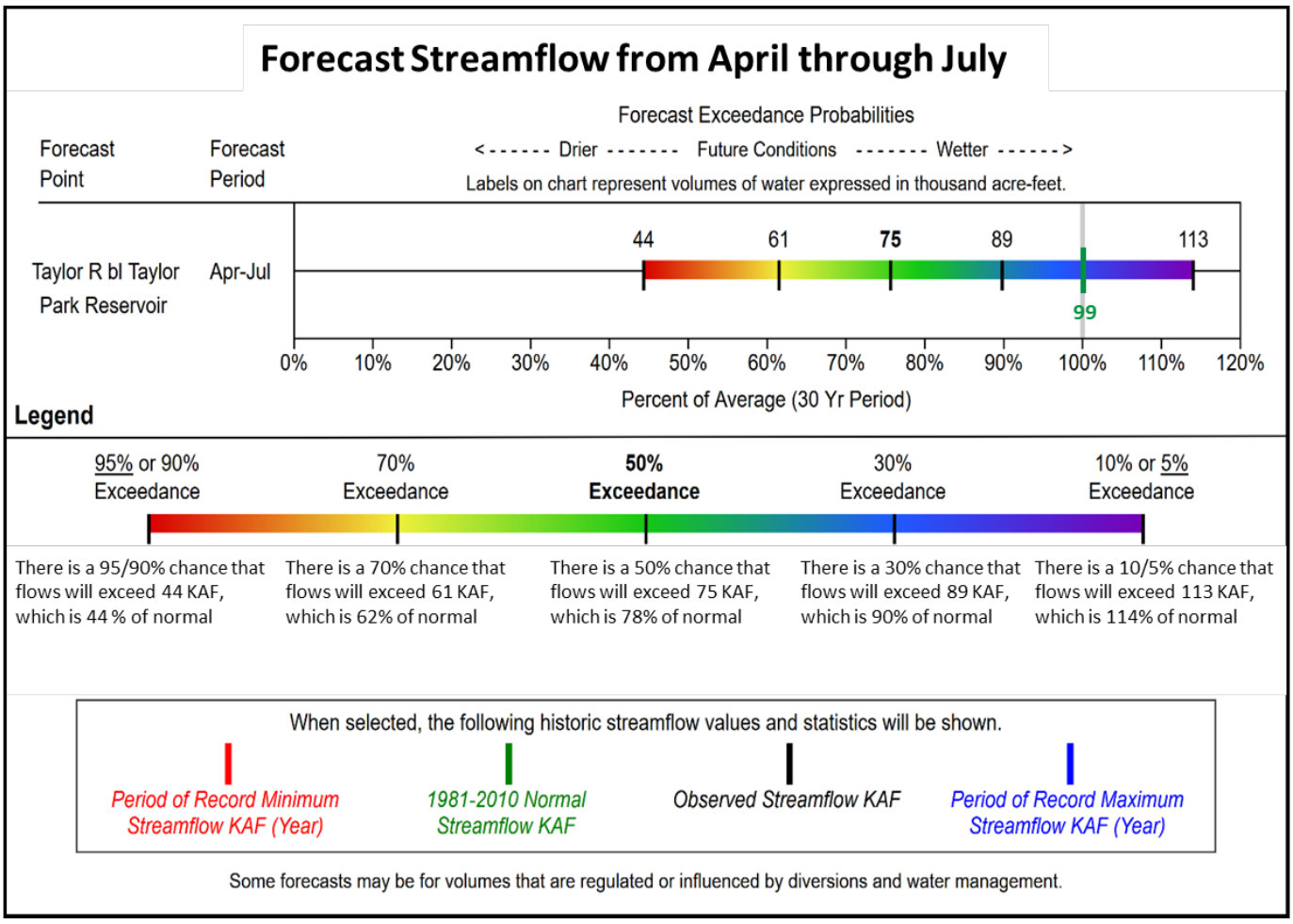
Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single 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 wate

---

Interpreting the Forecast Graphics

These graphics provide a new way to visualize the range of streamflows represented by the forecast exceedance probabilities for each forecast period. The colors in the bar for each forecast point indicate the exceedance probability of the forecasts and the vertical lines on the bar signify the five published forecast exceedance probabilities. The numbers displayed above the color scale represent the actual forecasted streamflow volume (in KAF) for the given exceedance probability. The horizontal axis provides the percent of average represented by each forecast and the gray line centered above 100% represents the 1981-2010 historical average streamflow. The position of the gray line relative to the color scale provides a benchmark for considering future streamflows. If the majority of the forecast range is to the right of the gray line, there is a higher likelihood of above average streamflow volumes during the provided forecast period. Conversely, if the majority of the color bar is to the left of the average mark, below average volumes are more likely. The horizontal span of the forecasts offers an indication of the uncertainty in a given forecast: when the bar spans a large horizontal range, the forecast skill is low and uncertainty is high; when the bar is narrow in width, the forecast skill is higher and uncertainty lower. These charts are available online here: https://www.nrcs.usda.gov/wps/portal/wcc/home/quickLinks/ForecastCharts/#state=CO&basin=GUNNISON%20RIVER%20BASIN&year=2019&pubDate=1-1&period=all



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.wcc.nrcs.usda.gov/wsf/westwide.html

Issued by

Matthew J. Lohr
Chief, Natural Resources Conservation Service
Farm Production and Conservation Mission Area
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