USDA
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Natural Resources Conservation Service

Colorado
Water Supply Outlook Report
February 1, 2021

Mike Ardison of the Colorado Snow Survey Program removes a snow mushroom from atop the temperature and depth sensors at the Ripple Creek SNOTEL. These phenomena occur under calm conditions when snow fall collects on an isolated surface. After the storm event ends, the snow settles and deforms into the mushroom-like shape. The viscous nature of snow allows it to sag and change position and, in this case, hang below the depth sensor to impede data readings.

Photo By: Brian Domonkos **Date: January 20th, 2021**

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.

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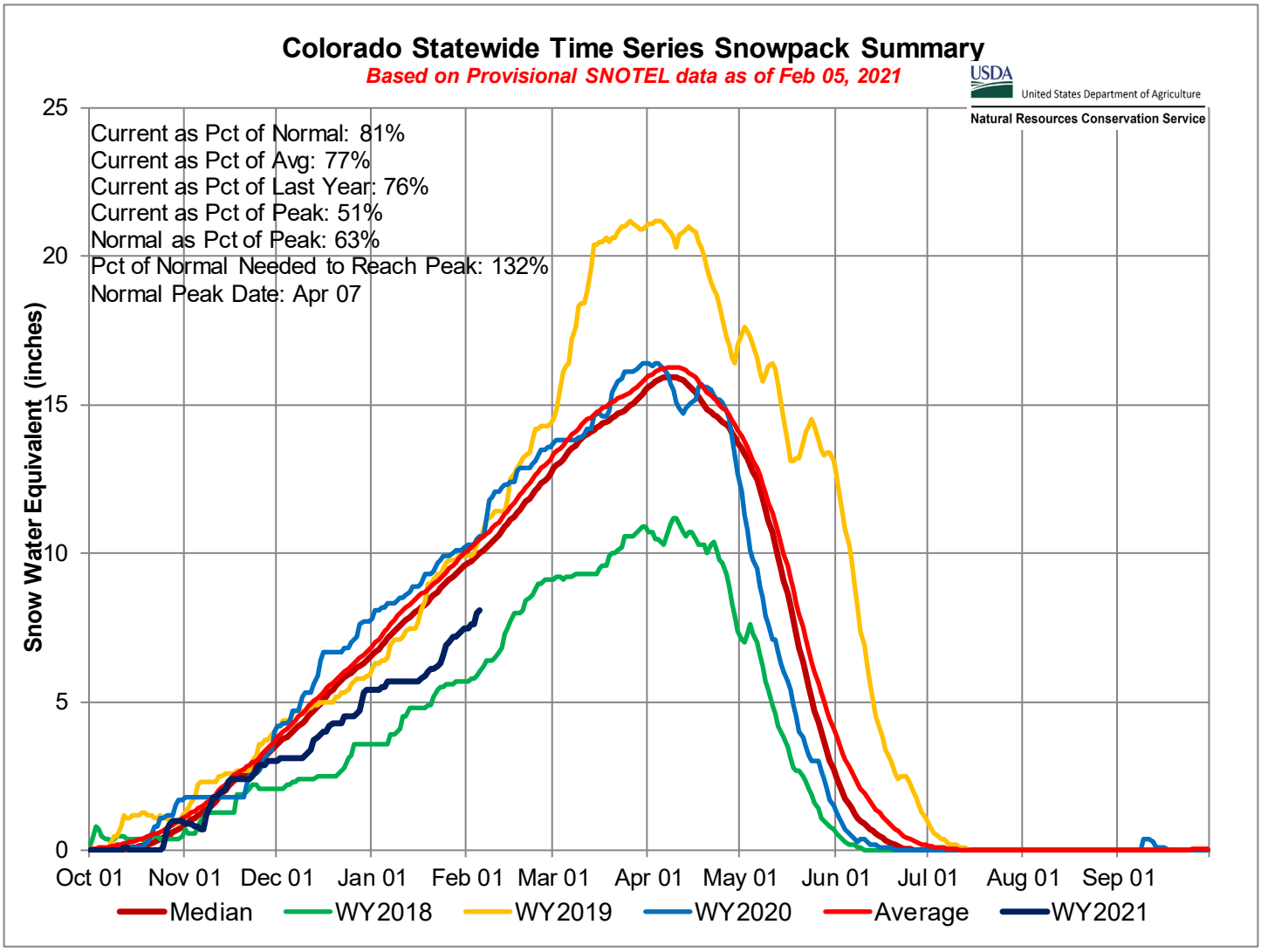
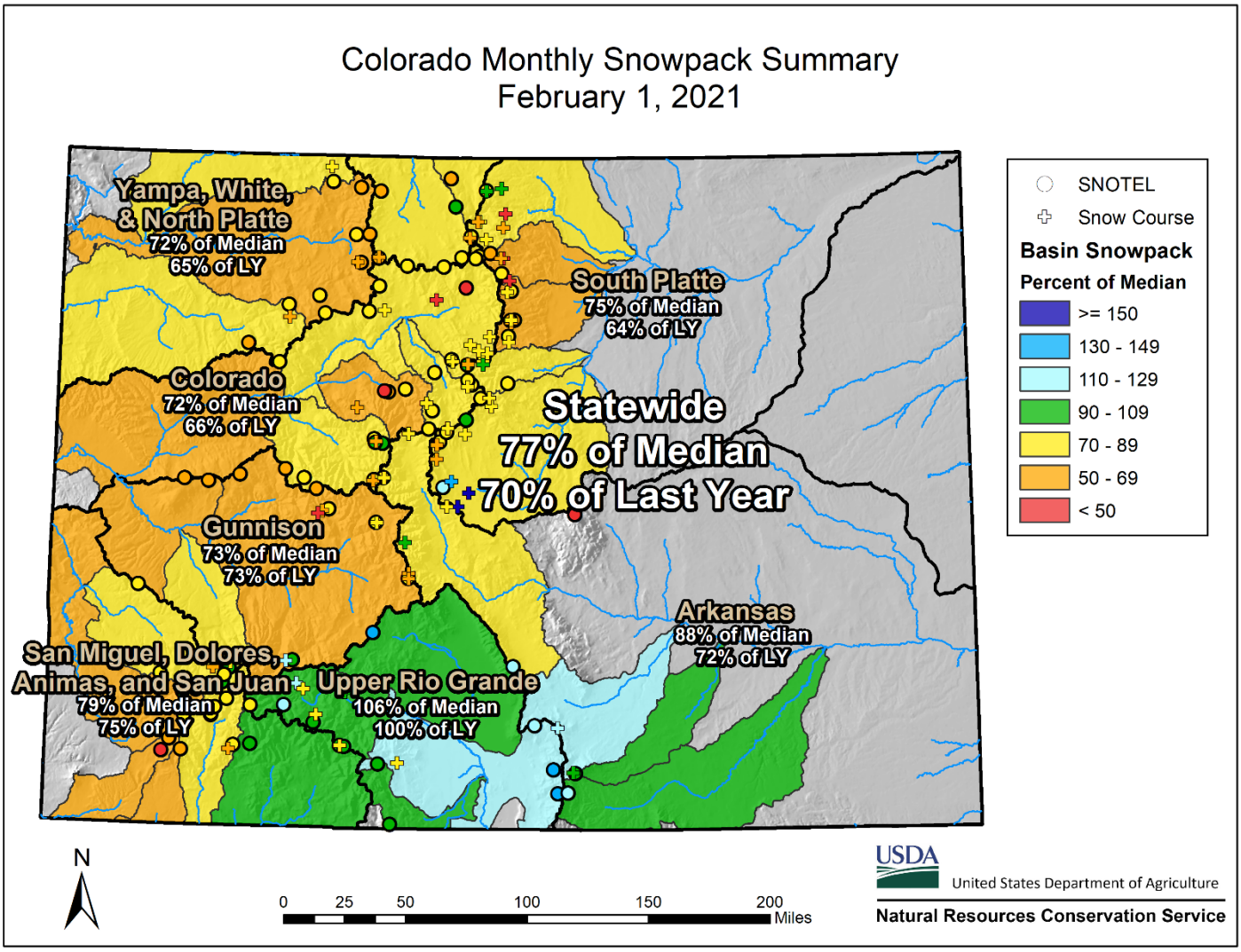
Colorado Statewide Water Supply Conditions

Summary



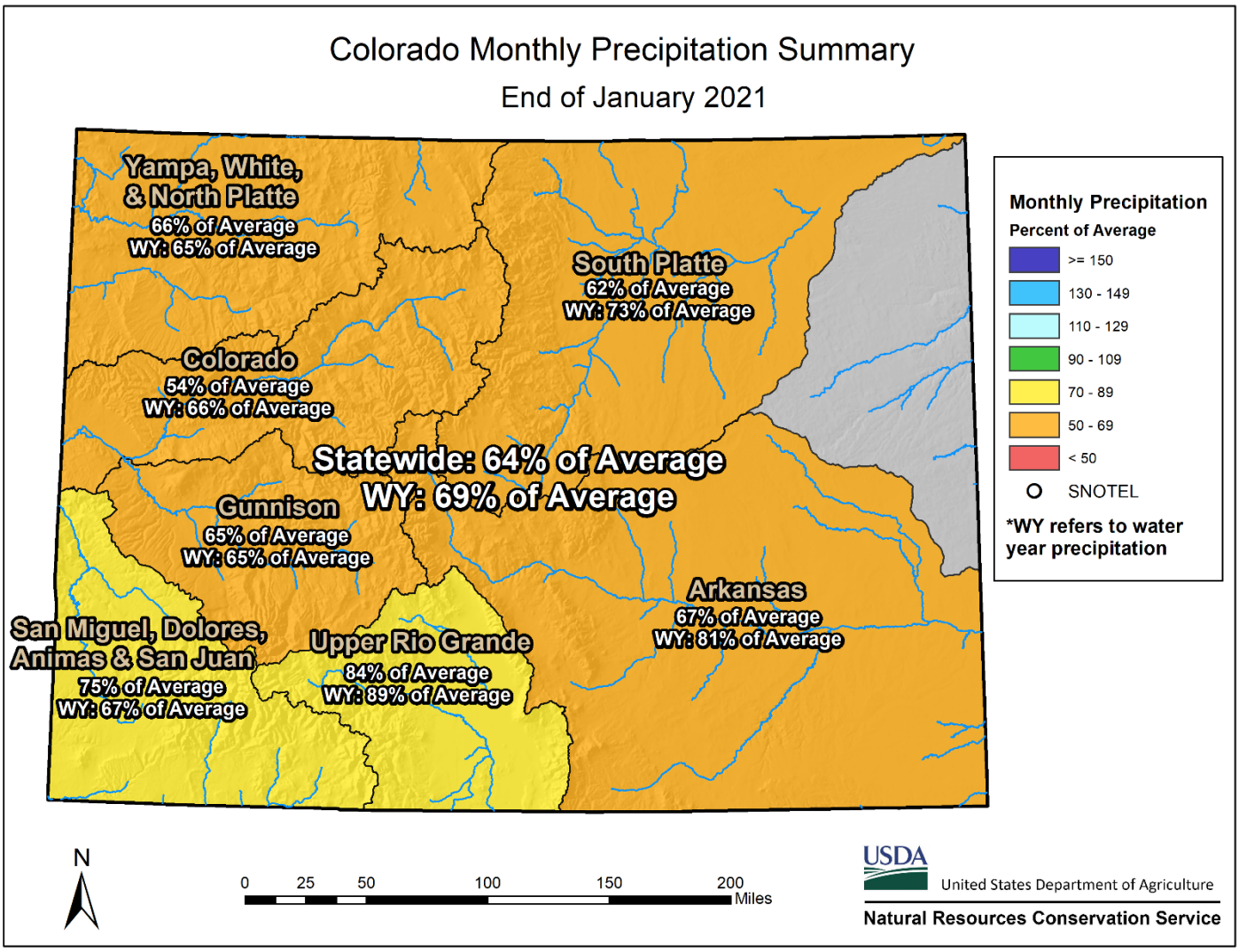
Although a southern storm track at the end of January brought slight improvements in water supplies to southern river basins, much of Colorado remains well below-normal in both precipitation and snowpack. As of February 1st, precipitation for the water year in Colorado was a meager 69 percent of average, and the statewide snowpack was 77 percent of median. Regardless of late January storms, statewide January precipitation was only 64 percent of average, with no major basins in the state exceeding 85 percent of average. Statewide, reservoir storage remains far below average at 83 percent due to persistent drought conditions, which only improved by a percentage point compared to last month. Likewise, streamflow forecasts are predicting below-average runoff volumes for all major basins in the state. In general, models are forecasting lower runoff as a percent of average in western basins than in the eastern basins of Colorado. Extremely dry soil conditions are reducing streamflow forecasts in many river basins in the state. These effects are especially apparent in forecasts for the Upper Rio Grande river basin, where despite above-average mountain snowpack, streamflow forecasts are 80 percent of average. Streamflow runoff is forecasted to be heavily dampened by large soil moisture deficits, brought on by extreme drought conditions during the 2020 spring, summer, and fall. Despite the bleak water supply outlook, there is an increasing chance that the 2020 La Niña may weaken by spring, which could improve prospects for more substantial late winter and springtime storms.

Snowpack



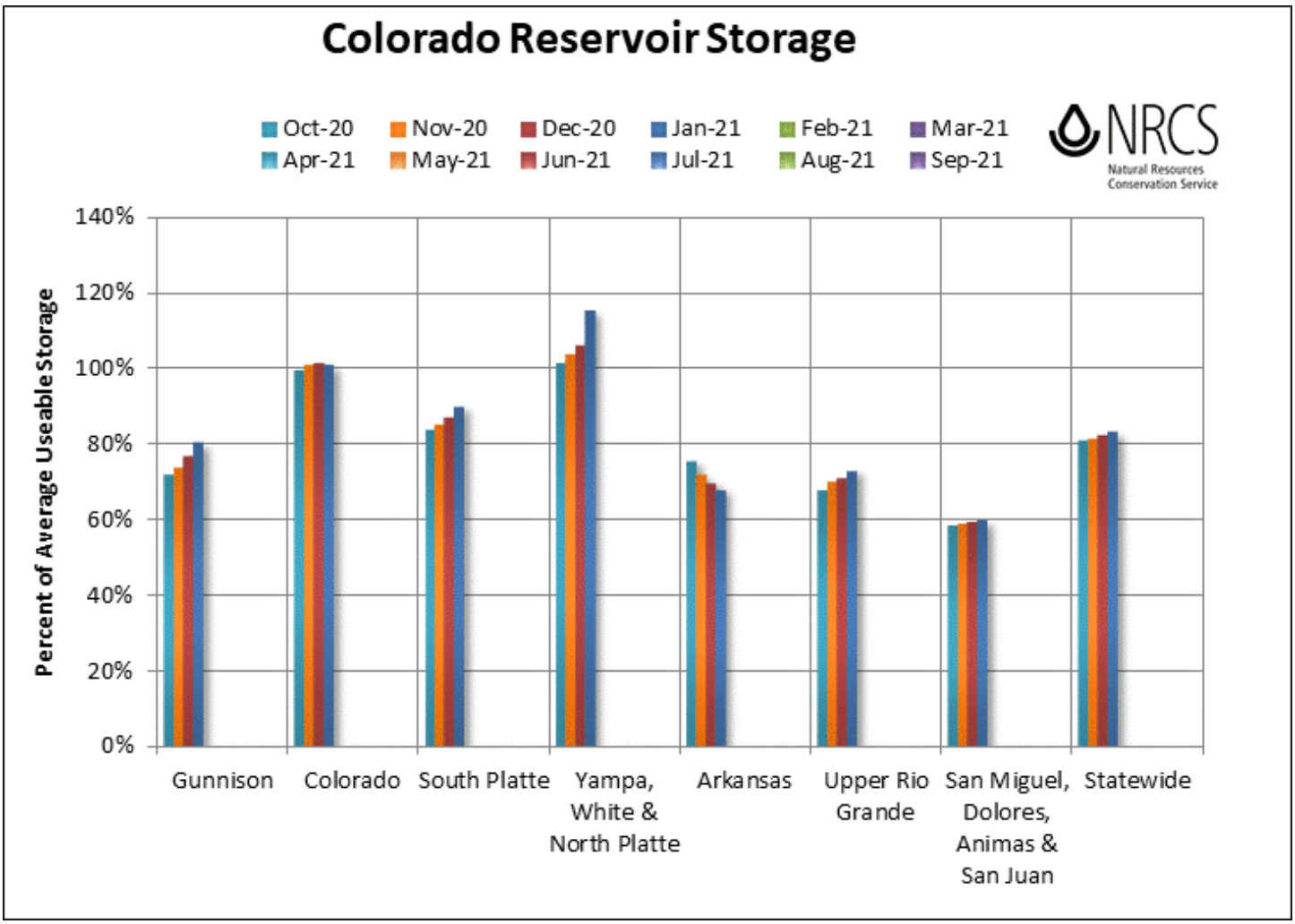
In alignment with drought monitoring for the state, Colorado continues to maintain a snowpack deficit through January. The later part of January brought some snow, which helped many regions in the state, especially the southwest mountains, but not enough to meet typical amounts; overall, the state ended January with 77 percent of median snowpack. When compared to historical SNOTEL data, thus far, the state's basins have consistently low snowpack, similar to 2002 and 2012. Most Colorado river basins have around 75 percent of median snowpack except the Upper Rio Grande and Arkansas basins, which have 106 and 88 percent of median snowpack, respectively. While the below-normal snowpack across the state is likely associated with La Niña, the Upper Rio Grande river basin maintained above-normal snowpack through January. The Colorado, Gunnison, and combined Yampa-White-North Platte basins ended January with around 73 percent of median snowpack. Similarly, the combined San Miguel-Dolores-Animas-San Juan basin and South Platte basin has 79 and 75 percent of median snowpack, respectively. Although a considerable amount of time remains for snowpack accumulation, the state needs well above average snowfall over the next two to three months to reach median snowpack amounts.

Precipitation



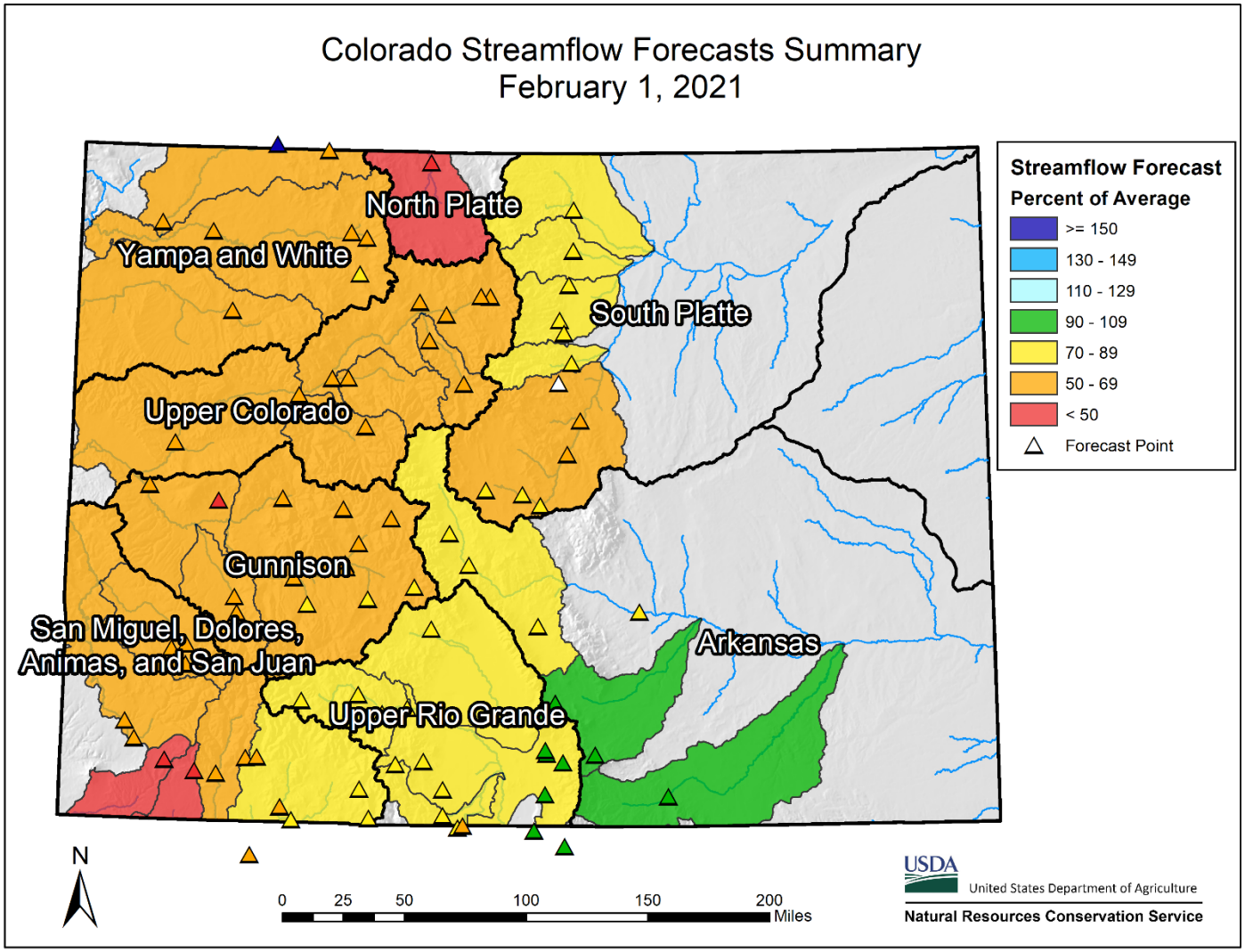
Following a dry December, precipitation conditions remain below average across Colorado through the end of January. Statewide, monthly precipitation decreased from 77 percent of average in the previous month to 64 percent. The water year precipitation also decreased slightly from 70 percent of average to 69 percent. This came as no surprise as every major river basin received below average precipitation totals for the month. The combined Yampa-White-North Platte, South Platte, Arkansas, Colorado and Gunnison river basins ranged between 54 and 67 percent of average precipitation while the combined San Miguel-Dolores-Animas-San Juan and Upper Rio Grande river basins reported 75 and 84 percent of average, respectively. While southwest Colorado has been receiving intermittent storms throughout the water year, the precipitation accumulations in the past several weeks have helped boost the snowpack in the San Juan mountains. However, despite the several storm events that occurred toward the end of January, much of Colorado remains in severe to extreme drought. Unfortunately, The Climate Prediction Center predicts that moderate La Niña conditions are likely to continue throughout this winter season and the most recent precipitation probability outlook shows below-normal precipitation for Colorado for the next three months. By early spring, however, La Niña forces are expected to weaken, which could improve drought conditions across the state.

Reservoir Storage



Although reservoir storage has increased incrementally across the state this water year, statewide storage is still below normal at 83 percent of average. Only the combined Yampa-White-North Platte and Colorado River basins currently have reservoir storage levels above 100 percent of average. For comparison, last year on February 1 all but the Arkansas and Upper Rio Grande River basins had above average reservoir storage levels, with statewide storage at 107 percent. Currently, the combined San Miguel-Dolores-Animas-San Juan river basin storage is the lowest in the state, at 60 percent of average water storage. Encouragingly, the Gunnison, South Platte, Upper Rio Grande, and combined Yampa-White-North Platte river basins have all increased reservoir storage since October 2020, although of these basins only the combined Yampa-White-North Platte is currently storing above average reservoir volumes. Conversely, water storage in the Arkansas river basin reservoirs has steadily declined this water year, from 75 percent of average in October 2020 to 67 percent average by February 1. Regionally, the northern river basins (Colorado, South Platte, and combined Yampa-White-North Platte) are faring much better than the reservoirs in more southern basins despite the above average snowpack in some southern/southeastern basins.

Streamflow

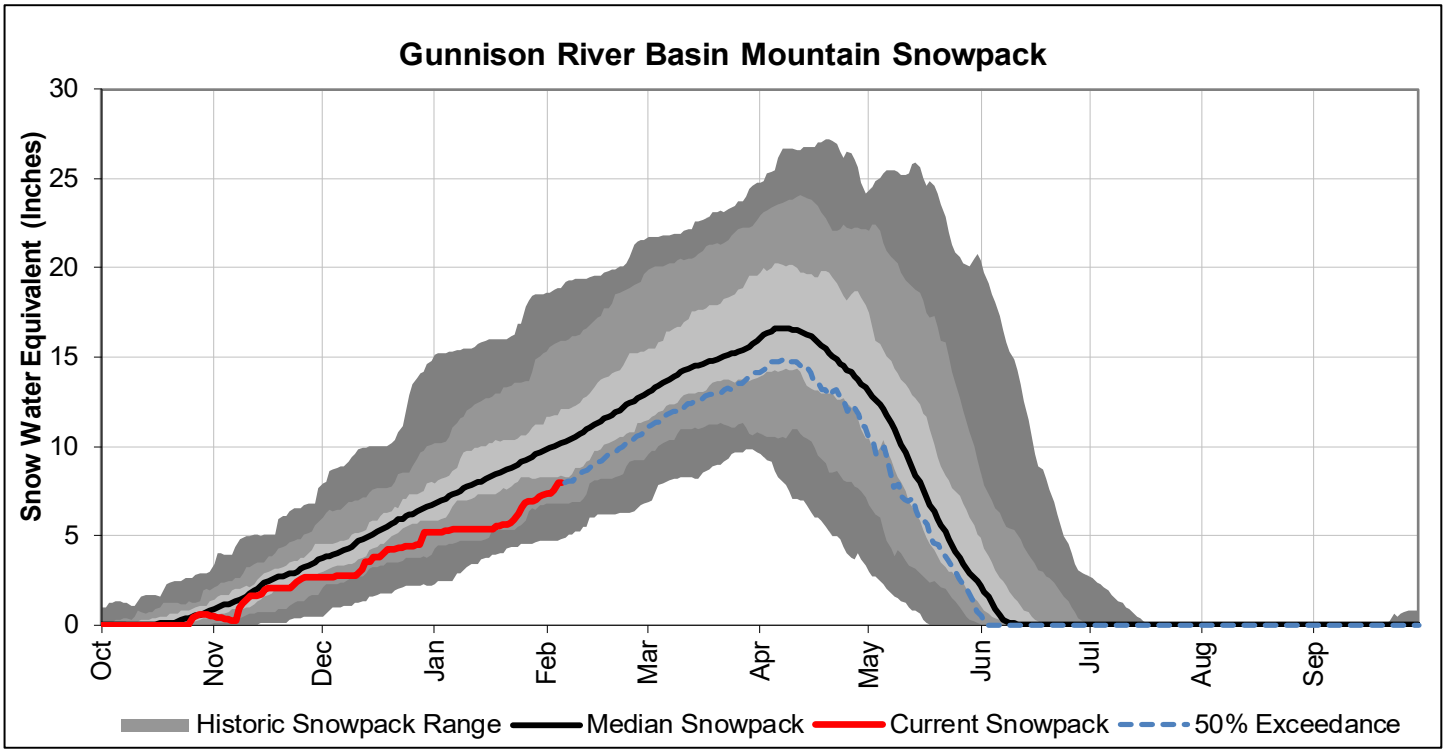


Streamflow forecasts are little changed from last month. Despite the recent snowfall across much of the state, all major basins are still forecasted to have a below average runoff season. The combination of dry soil conditions, persistent drought since last summer, and below average snowfall in January has contributed to these below average forecasts. Streamflow volume forecasts from April through July range from a high of 100 percent of average for the Cucharas River near La Veta, to a low of 37 percent of average for the Mancos River near Mancos. The fifty percent exceedance forecasts reflect similar spatial trends as water year-to-date precipitation and snowpack, with the Arkansas and Upper Rio Grande river basins having the highest streamflow forecasts at 83 and 81 percent of average, respectively. Further to the north, the South Platte river basin is currently forecasted to have streamflow volumes at 77 percent of average. On the west side of the Divide, the combined Yampa-White-North Platte river basins have the lowest streamflow forecasts at 57 percent of average. Forecasts in the Upper Colorado river basin range from 52 to 68 percent of average for total streamflow volume from April through July. Similarly, the Gunnison river basin is currently forecasted to produce streamflow volumes at 67 percent of average during this same timeframe. Lastly, the combined San Miguel-Dolores-Animas-San Juan river basins have streamflow forecasts that range from 37 to 80 percent of average. Although a few locations in the state are forecasted to have near-average streamflow this year, much of the state is forecasted to have well-below average streamflow volumes. There are still a few months before runoff season begins, so these forecasts can change, depending on future snowfall events. Please refer to individual basin sections in this report to get more details on individual forecast points.

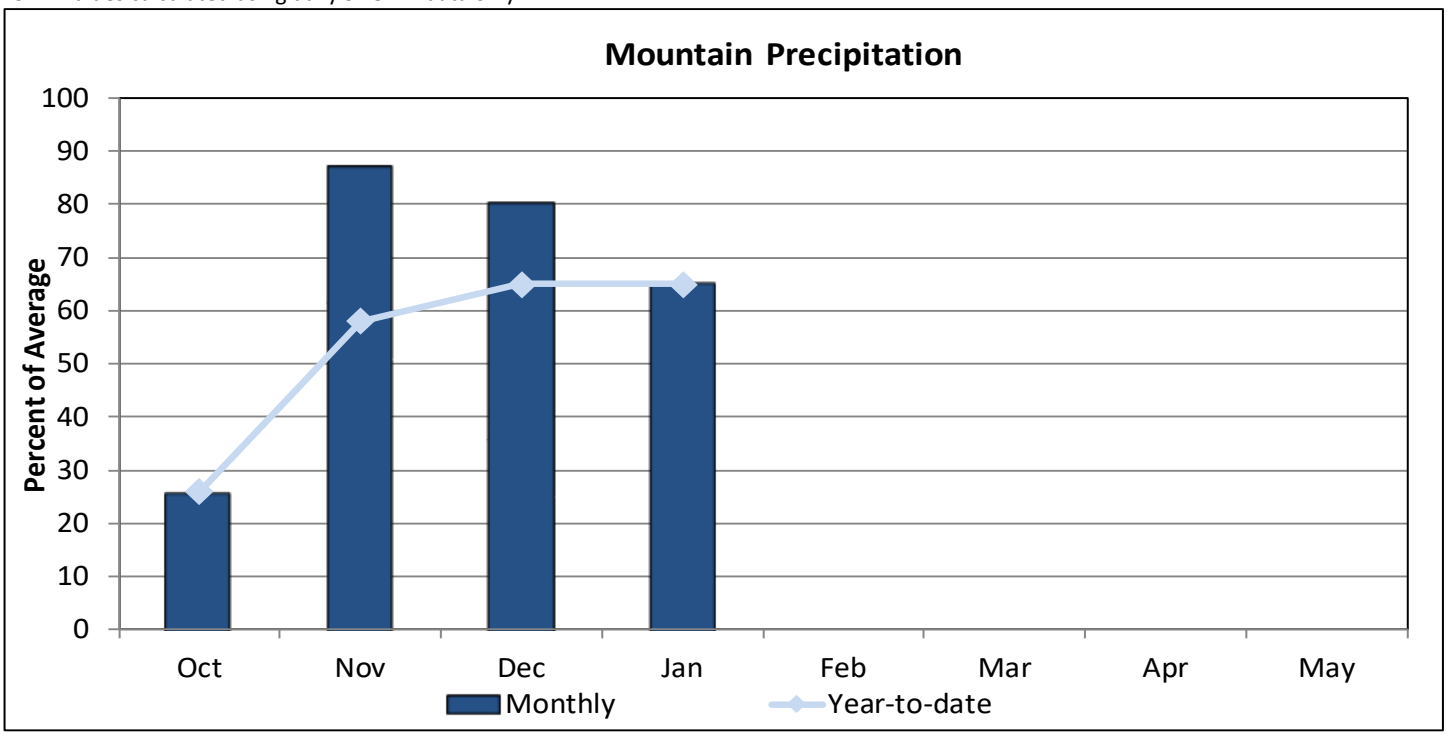
GUNNISON RIVER BASIN

February 1, 2021

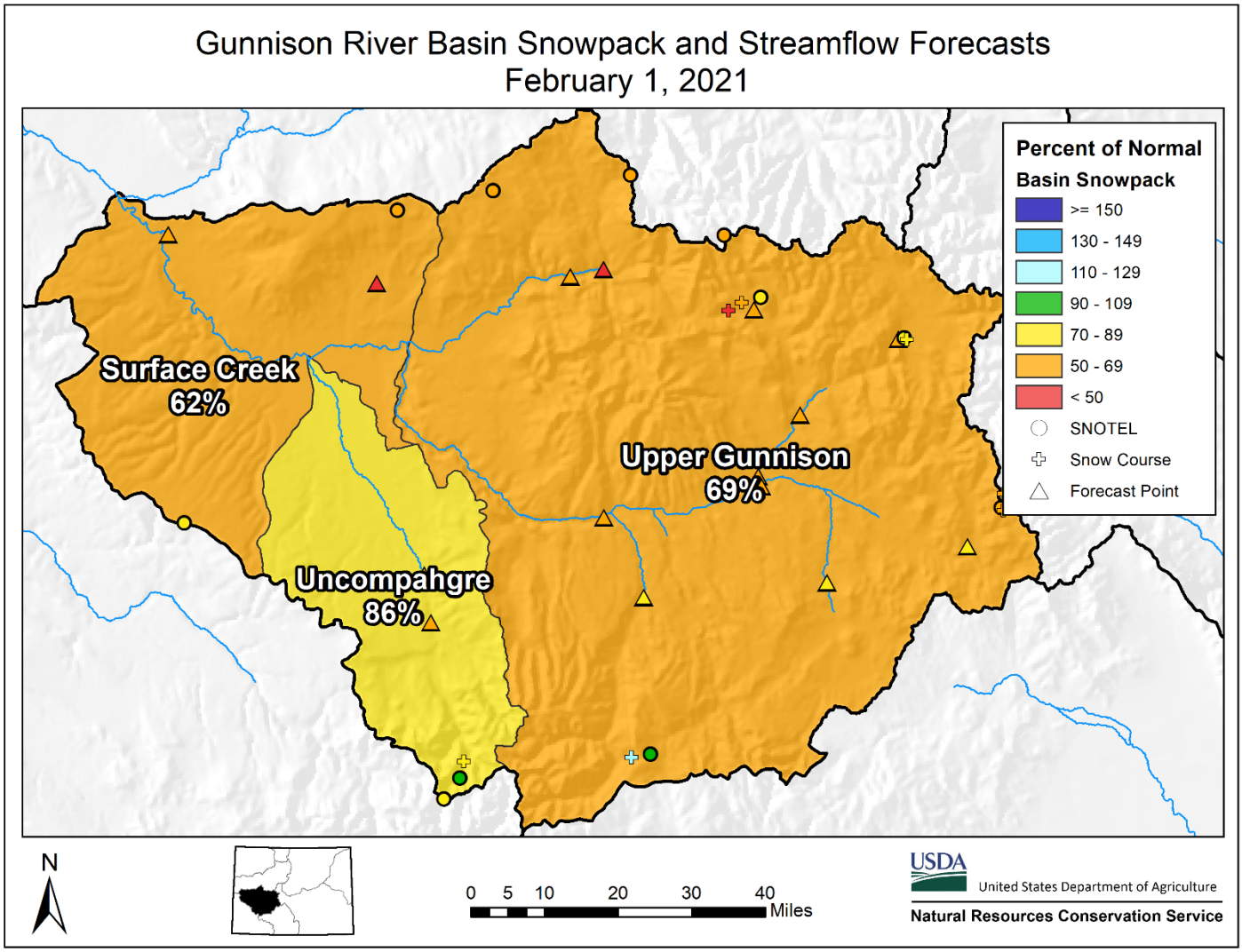
Snowpack in the Gunnison river basin is below normal at 73% of the median. Precipitation for January was 65% of average which brings water year-to-date precipitation to 66% of average. Reservoir storage at the end of January was 80% of average compared to 104% last year. Current streamflow forecasts range from 39% of average for Surface Creek at Cedaredge to 76% of average for Cochetopa Creek below Rock Creek near Parlin.

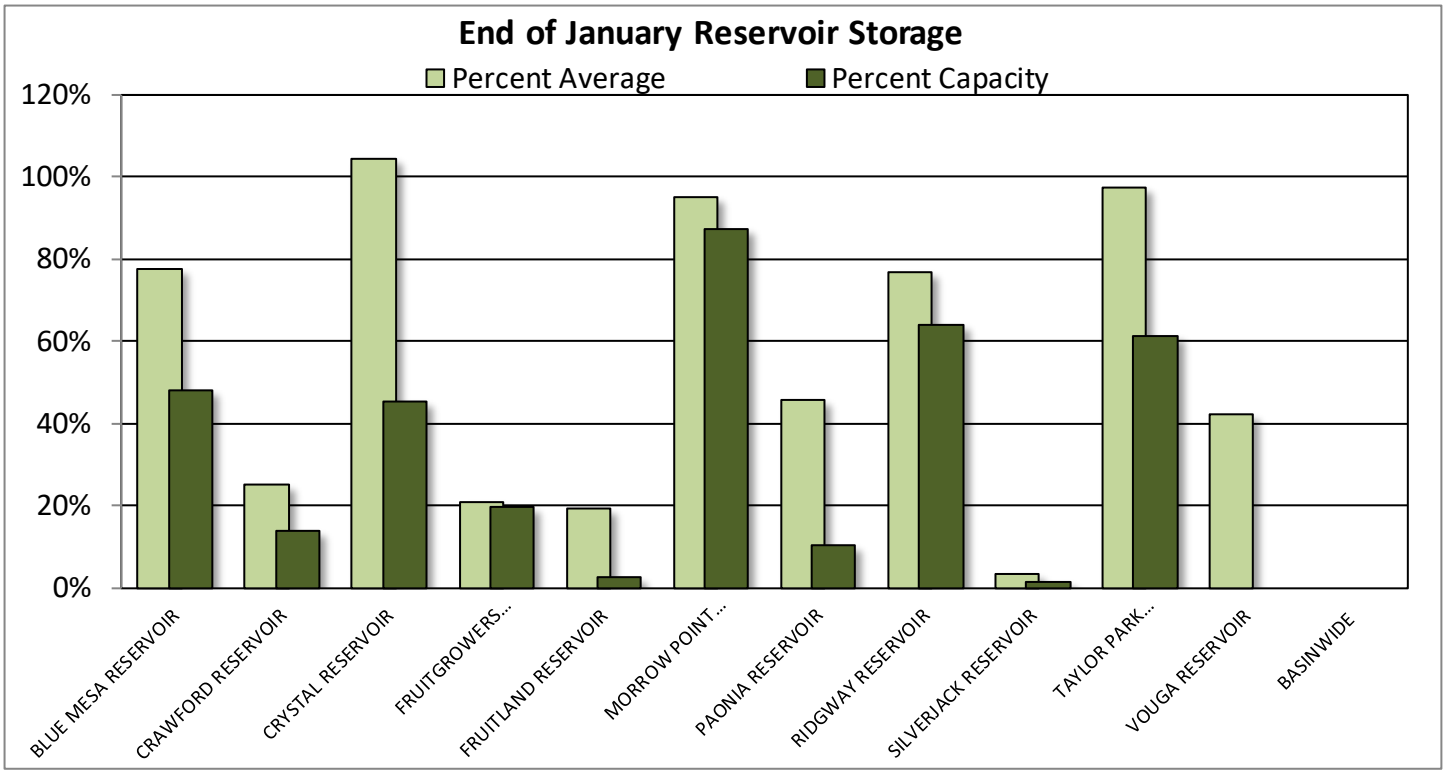


*SWE values calculated using daily SNOTEL data only



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


Gunnison River Basin Snowpack and Streamflow Forecasts
February 1, 2021
Percent of Normal
Basin Snowpack
>= 150
130 - 149
110 - 129
90 - 109
70 - 89
50 - 69
< 50
SNOTEL
Snow Course
Forecast Point
Surface Creek
62%
Uncompahgre
86%
Upper Gunnison
69%
N
0 5 10 20 30 40
Miles
USDA
United States Department of Agriculture
Natural Resources Conservation Service


End of January Reservoir Storage
Percent Average
Percent Capacity
120%
100%
80%
60%
40%
20%
0%
BLUE MESA RESERVOIR
CRAWFORD RESERVOIR
CRYSTAL RESERVOIR
FRUITGROWERS...
FRUITLAND RESERVOIR
MORROW POINT...
PAONIA RESERVOIR
RIDGWAY RESERVOIR
SILVERJACK RESERVOIR
TAYLOR PARK...
VOUGA RESERVOIR
BASINWIDE

Watershed Snowpack Analysis February 1st, 2021

Sub-Basin	# of Sites	% Median	Last Year % Median
Upper Gunnison	16	69	102
Surface Creek	2	62	84
Uncompahgre	4	86	109
Basin-Wide Total	20	73	103

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

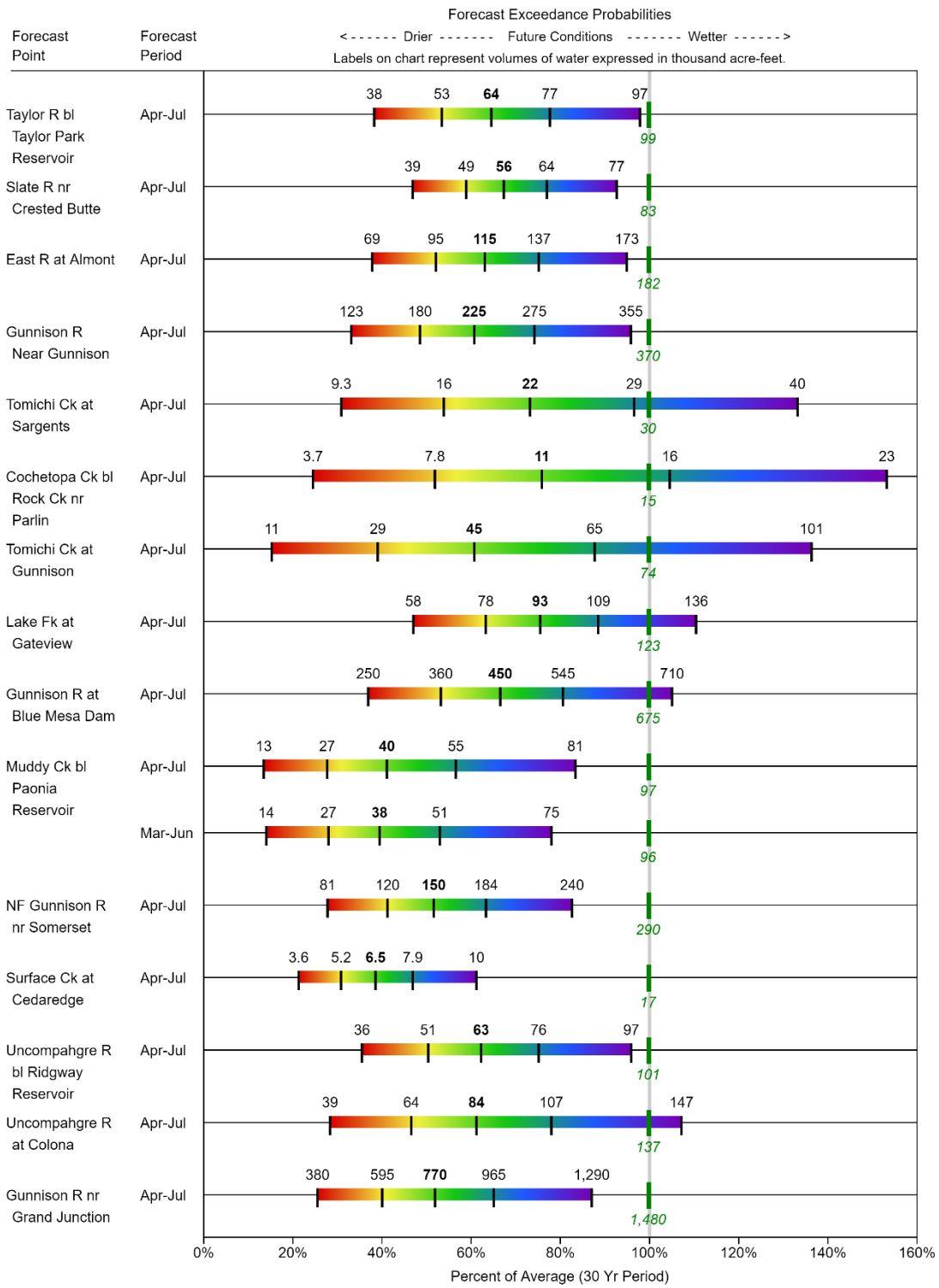
Reservoir Storage End of January 2021

Reservoir	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
BLUE MESA RESERVOIR	400.1	554.0	514.6	830.0
CRAWFORD RESERVOIR	1.9	7.0	7.7	14.0
CRYSTAL RESERVOIR	7.9	7.1	7.6	17.5
FRUITGROWERS RESERVOIR	0.7	2.8	3.4	3.6
FRUITLAND RESERVOIR	0.3	1.0	1.3	9.2
MORROW POINT RESERVOIR	105.8	107.1	111.4	121.0
PAONIA RESERVOIR	1.6	3.7	3.5	15.4
RIDGWAY RESERVOIR	53.2	65.3	69.2	83.0
SILVERJACK RESERVOIR	0.2	0.7	5.3	12.8
TAYLOR PARK RESERVOIR	65.1	74.0	66.9	106.0
VOUGA RESERVOIR	0.3		0.7	0.9
BASINWIDE	637.0	822.7	791.6	1213.4
Number of Reservoirs	11	10	11	11

GUNNISON RIVER BASIN

Water Supply Forecasts

February 1, 2021



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.

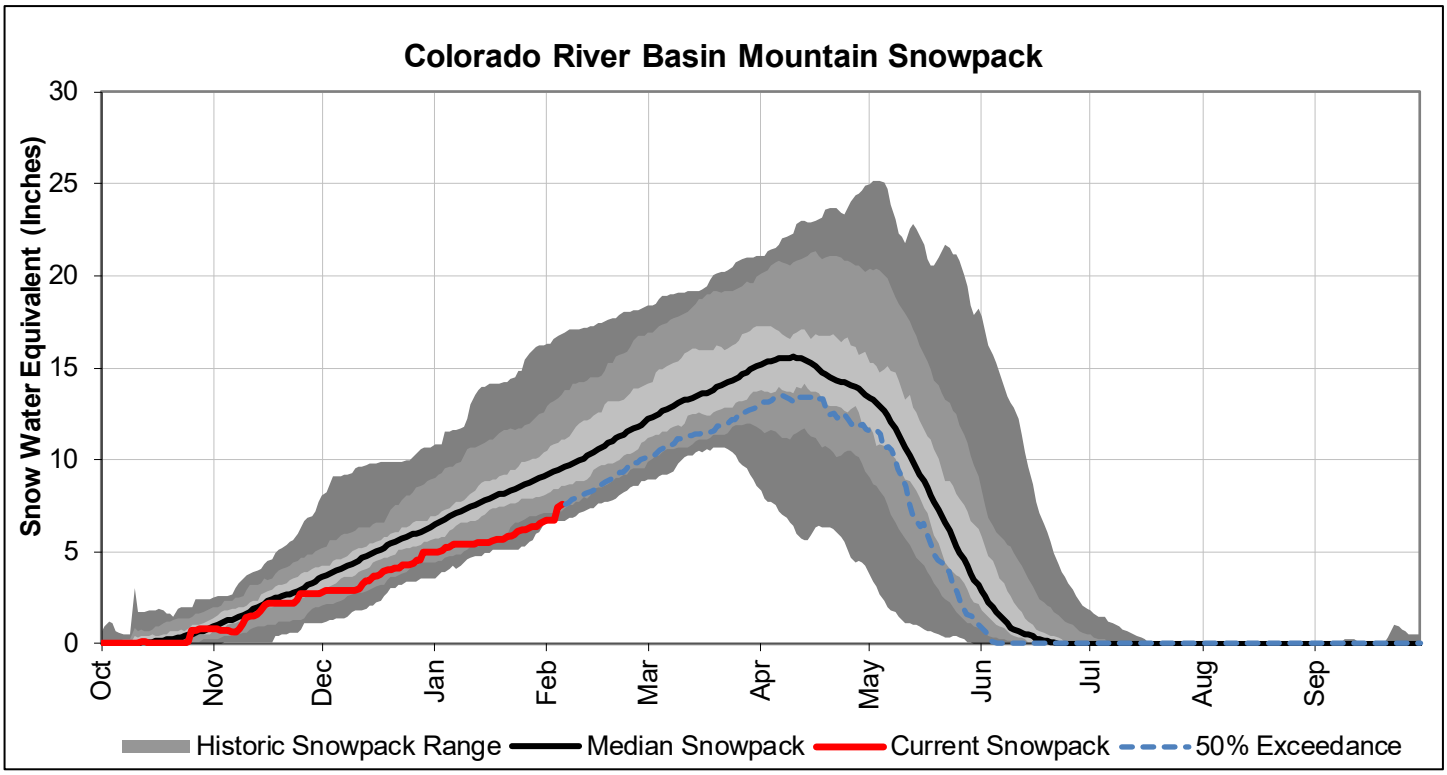
Period of Record Minimum Streamflow KAF (Year)	*1981-2010 Normal Streamflow KAF*	*Observed Streamflow KAF*	*Period of Record Maximum Streamflow KAF (Year)*

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

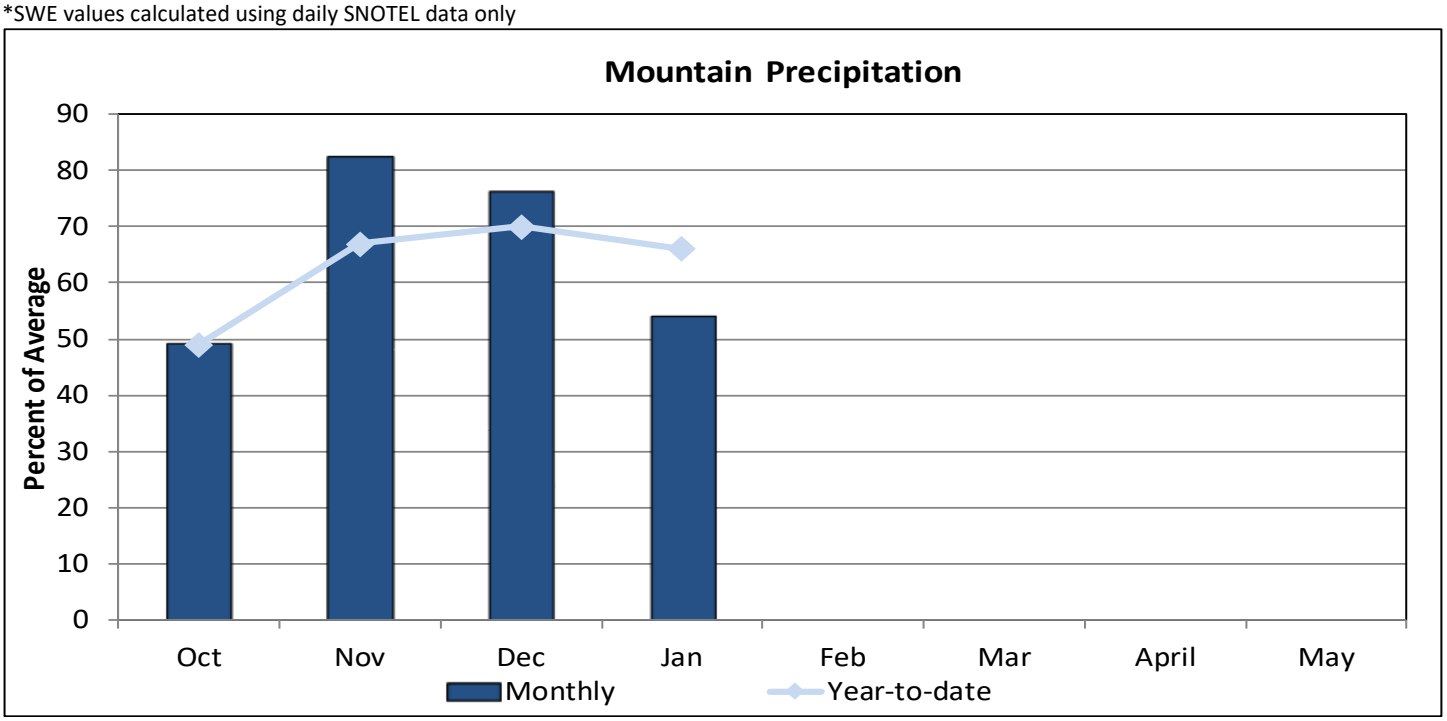
COLORADO RIVER BASIN

February 1, 2021

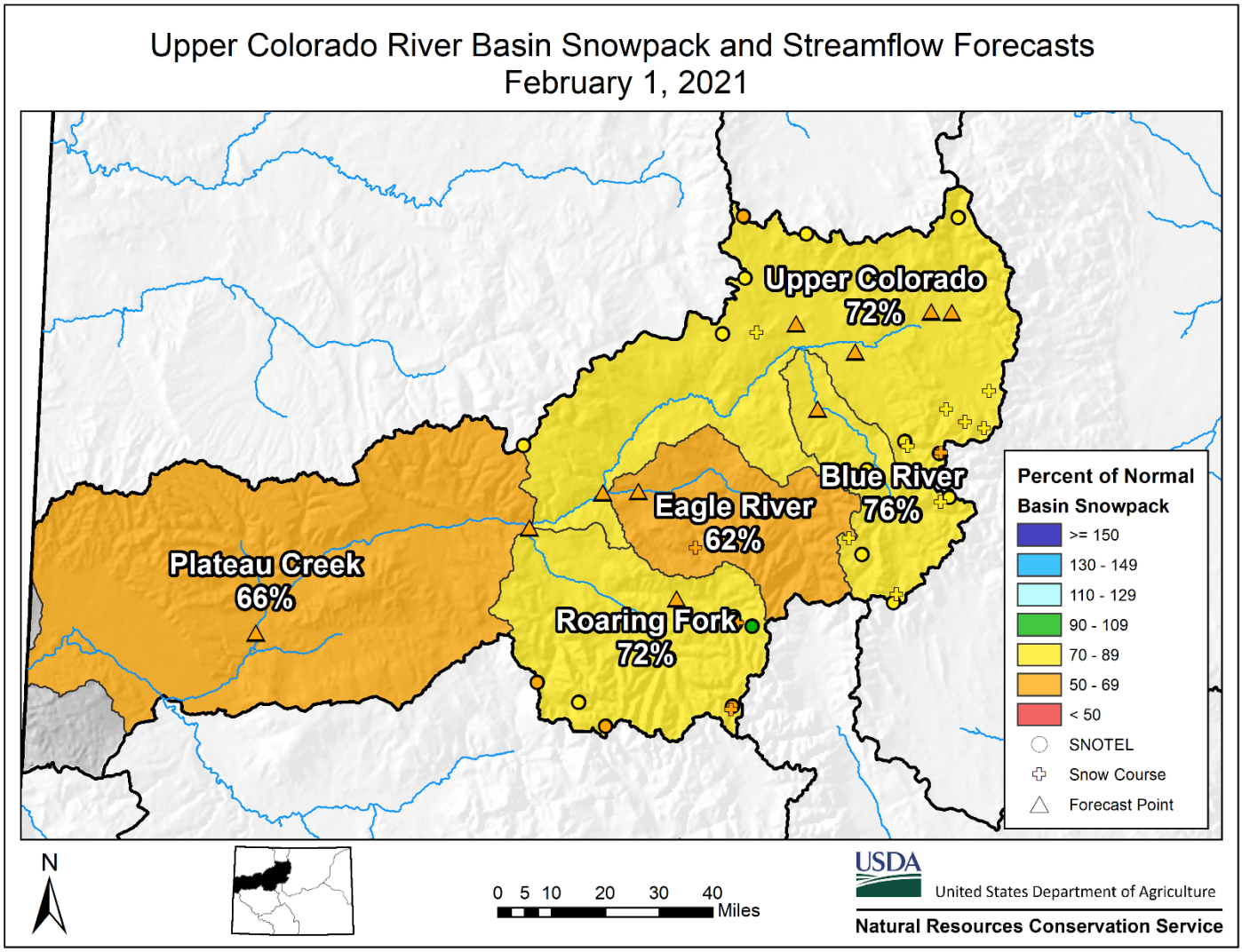
Snowpack in the Colorado river basin is below normal at 72% of the median. Precipitation for January was 54% of average which brings water year-to-date precipitation to 66% of average. Reservoir storage at the end of January was 101% of average compared to 110% last year. Current streamflow forecasts range from 52% of average for Muddy Creek below the Wolford Mountain Reservoir to 68% of average for the Colorado River below Lake Granby.

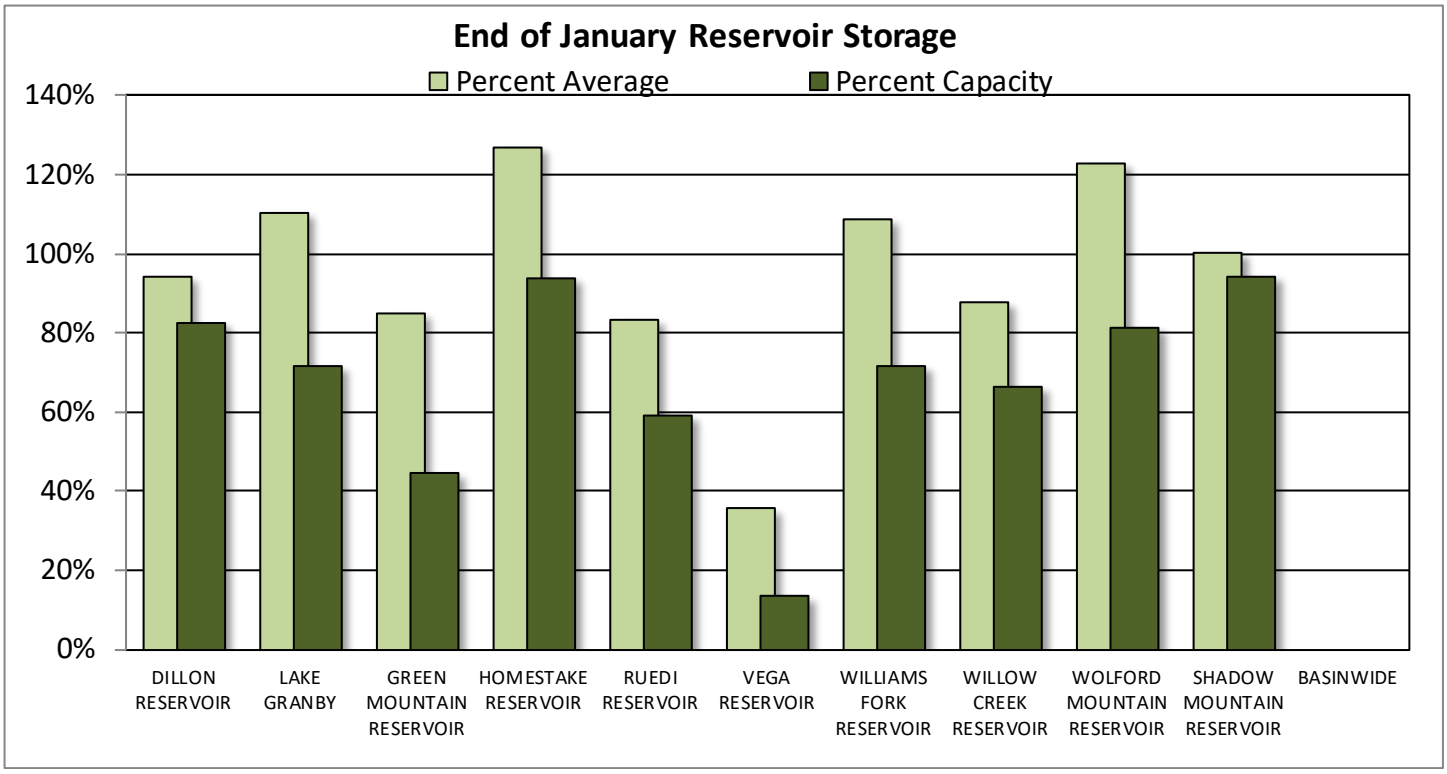


*SWE values calculated using daily SNOTEL data only



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


Upper Colorado River Basin Snowpack and Streamflow Forecasts
February 1, 2021
Upper Colorado
72%
Blue River
76%
Eagle River
62%
Plateau Creek
66%
Roaring Fork
72%
Percent of Normal
Basin Snowpack
>= 150
130 - 149
110 - 129
90 - 109
70 - 89
50 - 69
< 50
SNOTEL
Snow Course
Forecast Point
N
0 5 10 20 30 40
Miles
USDA
United States Department of Agriculture
Natural Resources Conservation Service


End of January Reservoir Storage
Percent Average
Percent Capacity
140%
120%
100%
80%
60%
40%
20%
0%
DILLON RESERVOIR
LAKE GRANBY
GREEN MOUNTAIN RESERVOIR
HOMESTAKE RESERVOIR
RUEDI RESERVOIR
VEGA RESERVOIR
WILLIAMS FORK RESERVOIR
WILLOW CREEK RESERVOIR
WOLFORD MOUNTAIN RESERVOIR
SHADOW MOUNTAIN RESERVOIR
BASINWIDE

Watershed Snowpack Analysis February 1st, 2021

Sub-Basin	# of Sites	% Median	Last Year % Median
Blue River	8	76	112
Upper Colorado	35	72	114
Muddy Creek	5	68	118
Eagle River	5	62	100
Plateau Creek	5	66	84
Roaring Fork	9	72	112
Williams Fork	5	78	113
Willow Creek	5	56	106
Basin-Wide Total	46	71	111

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

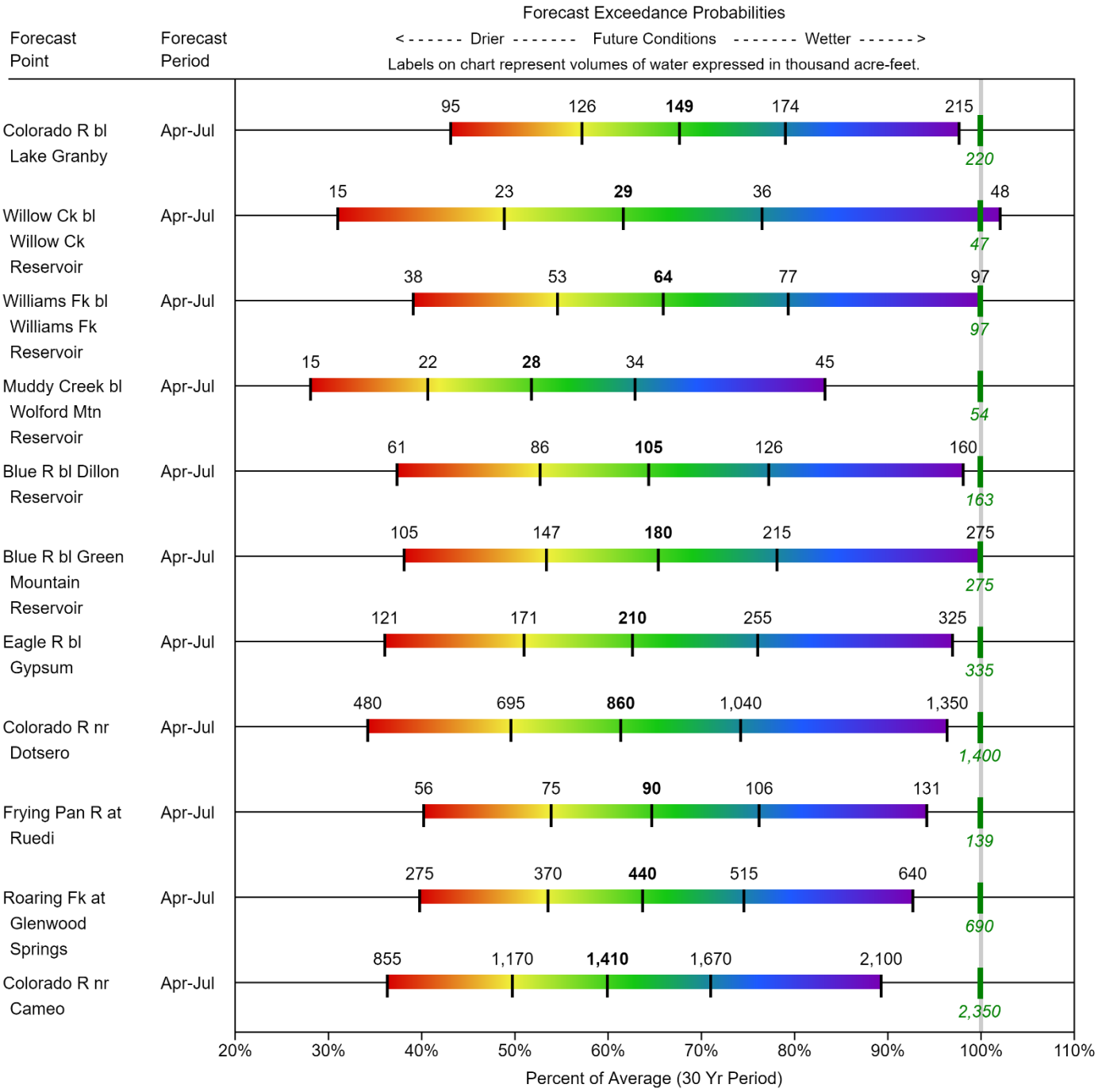
Reservoir Storage End of January 2021

Reservoir	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
DILLON RESERVOIR	205.2	222.9	218.4	249.1
LAKE GRANBY	334.1	363.1	302.9	465.6
GREEN MOUNTAIN RESERVOIR	65.4	65.1	77.1	146.8
HOMESTAKE RESERVOIR	40.3	41.2	31.7	43.0
RUEDI RESERVOIR	60.2	73.2	72.4	102.0
VEGA RESERVOIR	4.5	14.3	12.4	32.9
WILLIAMS FORK RESERVOIR	69.3	76.3	63.8	97.0
WILLOW CREEK RESERVOIR	6.0	7.1	6.9	9.1
WOLFORD MOUNTAIN RESERVOIR	53.6	50.9	43.6	65.9
SHADOW MOUNTAIN RESERVOIR	17.3	17.3	17.3	18.4
BASINWIDE	856.0	931.2	846.5	1229.8
Number of Reservoirs	10	10	10	10

UPPER COLORADO RIVER BASIN

Water Supply Forecasts

February 1, 2021



Legend

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

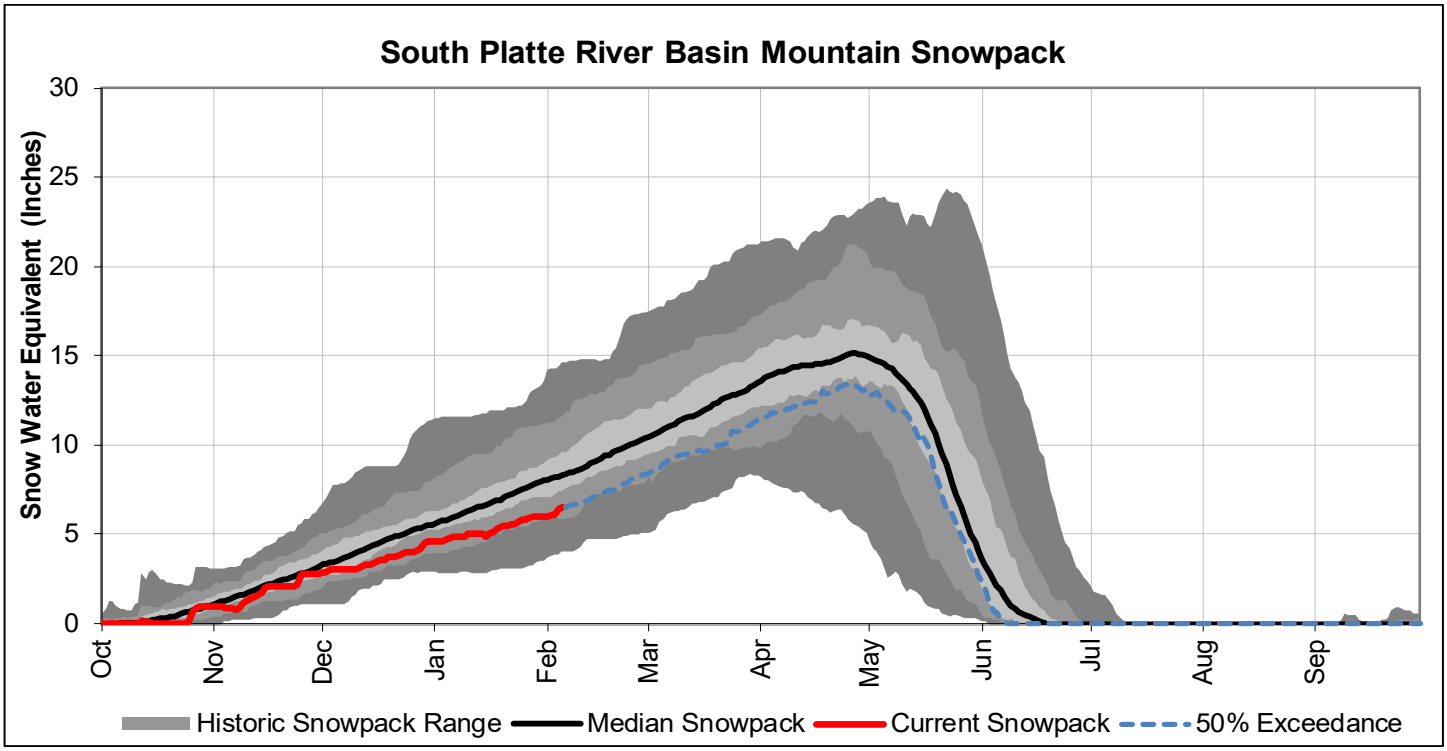
Period of Record Minimum Streamflow KAF (Year)	*1981-2010 Normal Streamflow KAF*	*Observed Streamflow KAF*	*Period of Record Maximum Streamflow KAF (Year)*

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

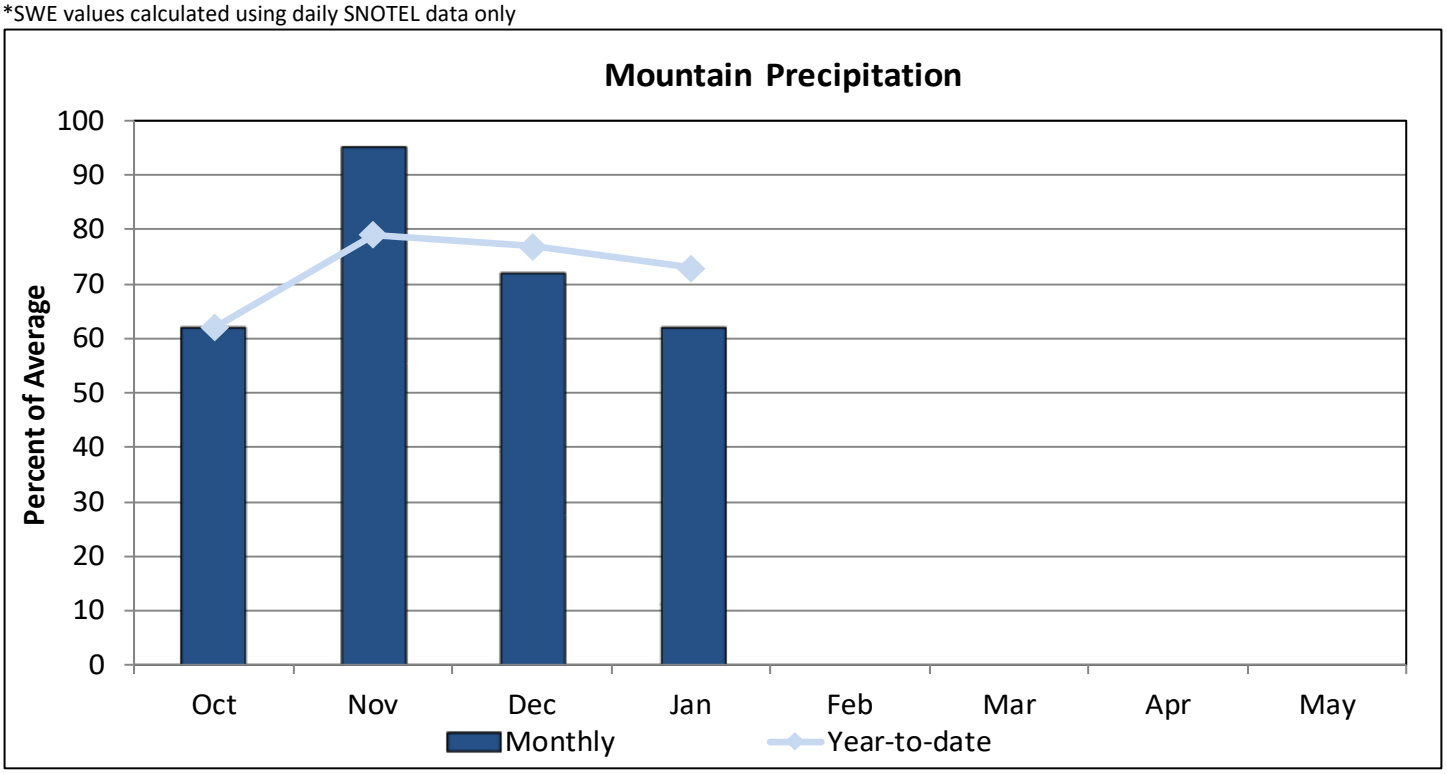
SOUTH PLATTE RIVER BASIN

February 1, 2021

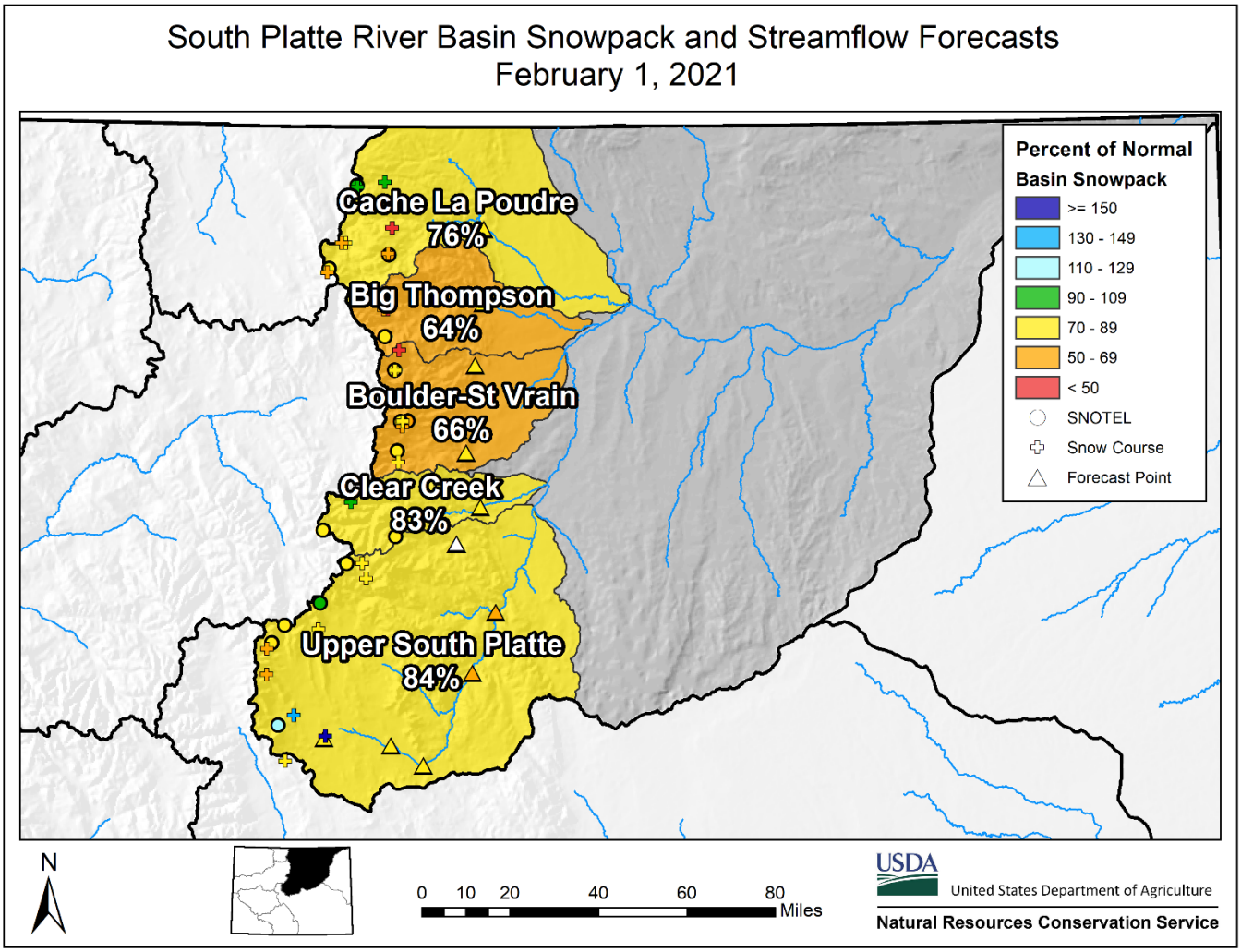
Snowpack in the South Platte river basin is below normal at 75% of the median. Precipitation for January was 62% of average which brings water year-to-date precipitation to 73%. Reservoir storage at the end of January was 90% of average compared to 115% last year. Current streamflow forecasts range from 65% of average for the South Platte River at South Platte to 82% of average for the South Platte River below the Antero Reservoir.

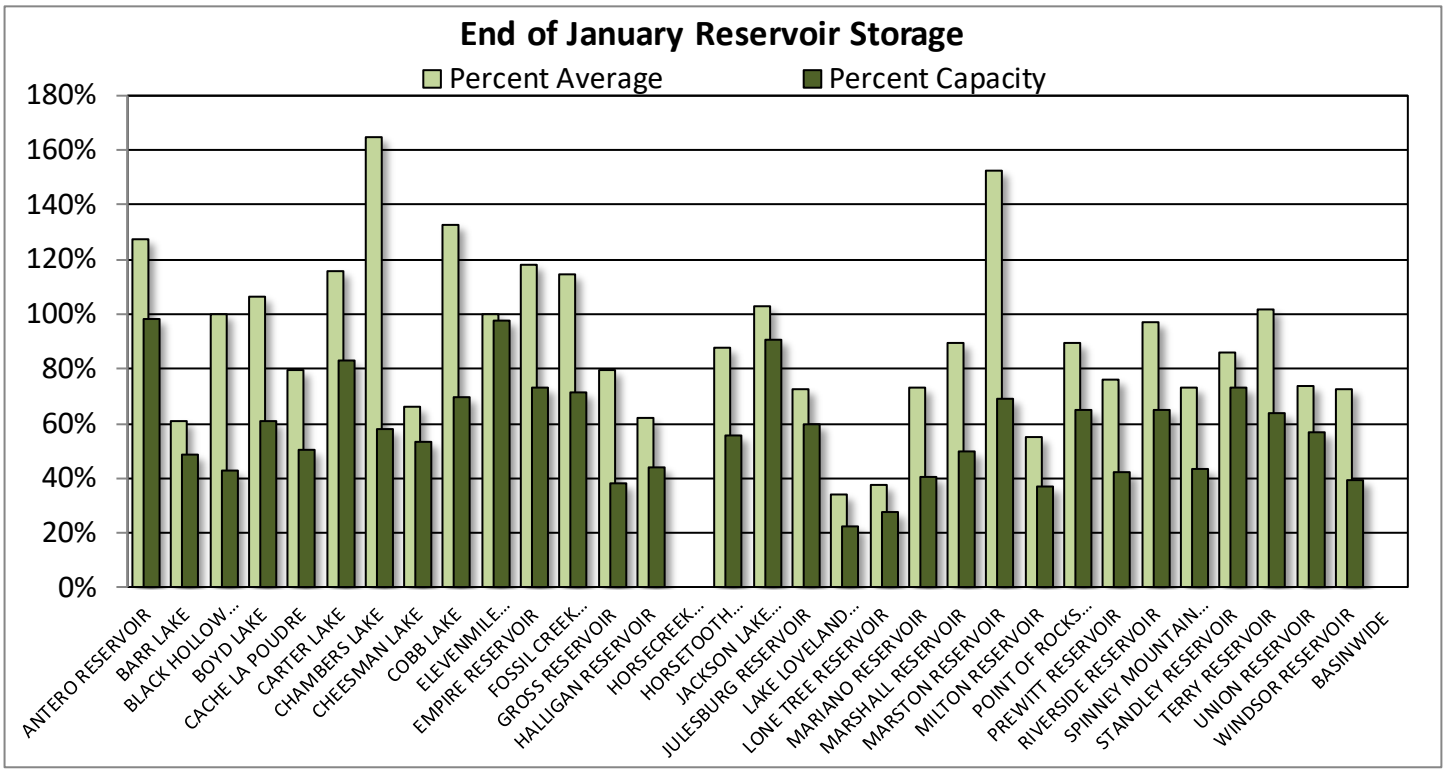


*SWE values calculated using daily SNOTEL data only



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


South Platte River Basin Snowpack and Streamflow Forecasts
February 1, 2021
Cache La Poudre
76%
Big Thompson
64%
Boulder-St Vrain
66%
Clear Creek
83%
Upper South Platte
84%
Percent of Normal
Basin Snowpack
>= 150
130 - 149
110 - 129
90 - 109
70 - 89
50 - 69
< 50
SNOTEL
Snow Course
Forecast Point
N
0 10 20 40 60 80
Miles
USDA
United States Department of Agriculture
Natural Resources Conservation Service


End of January Reservoir Storage
Percent Average
Percent Capacity
180%
160%
140%
120%
100%
80%
60%
40%
20%
0%
ANTERO RESERVOIR
BARR LAKE
BLACK HOLLOW...
BOYD LAKE
CACHE LA POUDRE
CARTER LAKE
CHAMBERS LAKE
CHEESMAN LAKE
COBB LAKE
ELEVENMILE...
EMPIRE RESERVOIR
FOSSIL CREEK...
GROSS RESERVOIR
HALLIGAN RESERVOIR
HORSECREEK...
HORSETOOTH...
JACKSON LAKE...
JULESBURG RESERVOIR
LAKE LOVELAND...
LONE TREE RESERVOIR
MARIANO RESERVOIR
MARSHALL RESERVOIR
MARSTON RESERVOIR
MILTON RESERVOIR
POINT OF ROCKS...
PREWITT RESERVOIR
RIVERSIDE RESERVOIR
SPINNEY MOUNTAIN...
STANDLEY RESERVOIR
TERRY RESERVOIR
UNION RESERVOIR
WINDSOR RESERVOIR
BASINWIDE

Watershed Snowpack Analysis February 1st, 2021

Sub-Basin	# of Sites	% Median	Last Year % Median
Big Thompson	7	64	122
Boulder Creek	6	69	112
Cache La Poudre	10	76	115
Clear Creek	4	83	110
Saint Vrain	3	62	120
Upper South Platte	16	84	125
Basin-Wide Total	45	75	118

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

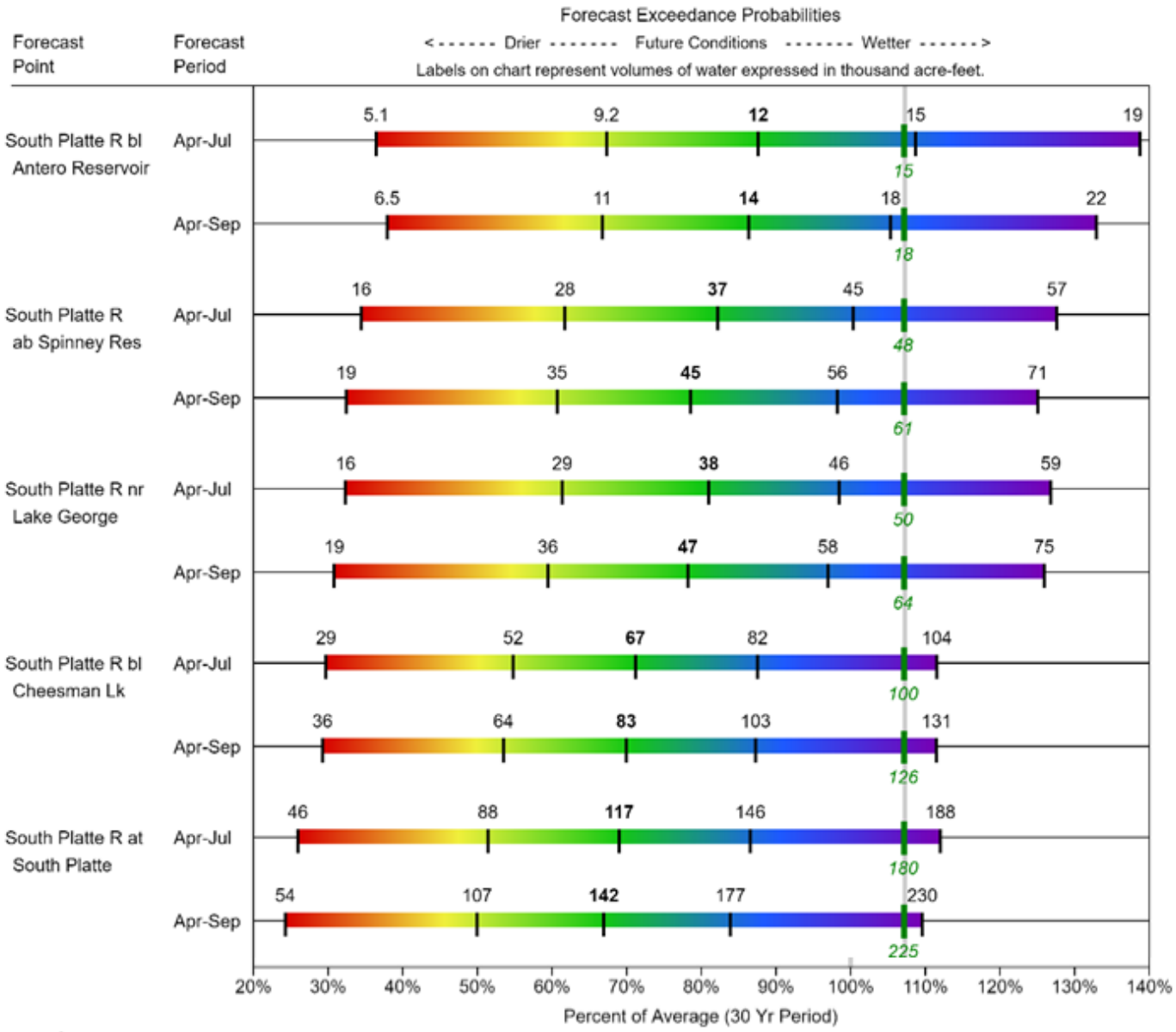
Reservoir Storage End of January 2021

Reservoir	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
ANTERO RESERVOIR	19.5	20.0	15.3	19.9
BARR LAKE	14.6	22.6	24.0	30.1
BLACK HOLLOW RESERVOIR	2.8	3.9	2.8	6.5
BOYD LAKE	29.5	34.1	27.8	48.4
CACHE LA POUDRE	5.1	8.0	6.4	10.1
CARTER LAKE	90.5	75.9	78.3	108.9
CHAMBERS LAKE	5.1	4.6	3.1	8.8
CHEESMAN LAKE	42.3	56.2	63.7	79.0
COBB LAKE	15.5	18.2	11.7	22.3
ELEVENMILE CANYON RESERVOIR	95.7	100.3	95.9	98.0
EMPIRE RESERVOIR	26.7	21.1	22.6	36.5
FOSSIL CREEK RESERVOIR	7.9	9.3	6.9	11.1
GROSS RESERVOIR	11.4	18.7	14.3	29.8
HALLIGAN RESERVOIR	2.8	4.7	4.5	6.4
HORSECREEK RESERVOIR	0.0	0.9	10.4	14.7
HORSETOOTH RESERVOIR	83.1	140.3	94.7	149.7
JACKSON LAKE RESERVOIR	23.7	22.6	23.1	26.1
JULESBURG RESERVOIR	12.3	17.4	16.9	20.5
LAKE LOVELAND RESERVOIR	2.3	2.8	6.8	10.3
LONE TREE RESERVOIR	2.4	6.4	6.4	8.7
MARIANO RESERVOIR	2.2	0.2	3.0	5.4
MARSHALL RESERVOIR	5.0	5.8	5.6	10.0
MARSTON RESERVOIR	9.0	9.4	5.9	13.0
MILTON RESERVOIR	8.7	17.7	15.8	23.5
POINT OF ROCKS RESERVOIR	45.8	69.7	51.1	70.6
PREWITT RESERVOIR	11.9	22.4	15.7	28.2
RIVERSIDE RESERVOIR	36.2	41.5	37.3	55.8
SPINNEY MOUNTAIN RESERVOIR	21.2	38.2	29.0	49.0
STANDLEY RESERVOIR	30.7	38.6	35.7	42.0
TERRY RESERVOIR	5.1	5.2	5.0	8.0
UNION RESERVOIR	7.4	9.1	10.0	13.0
WINDSOR RESERVOIR	6.0	10.2	8.3	15.2
BASINWIDE	682.4	856.0	758.0	1079.5
Number of Reservoirs	32	32	32	32

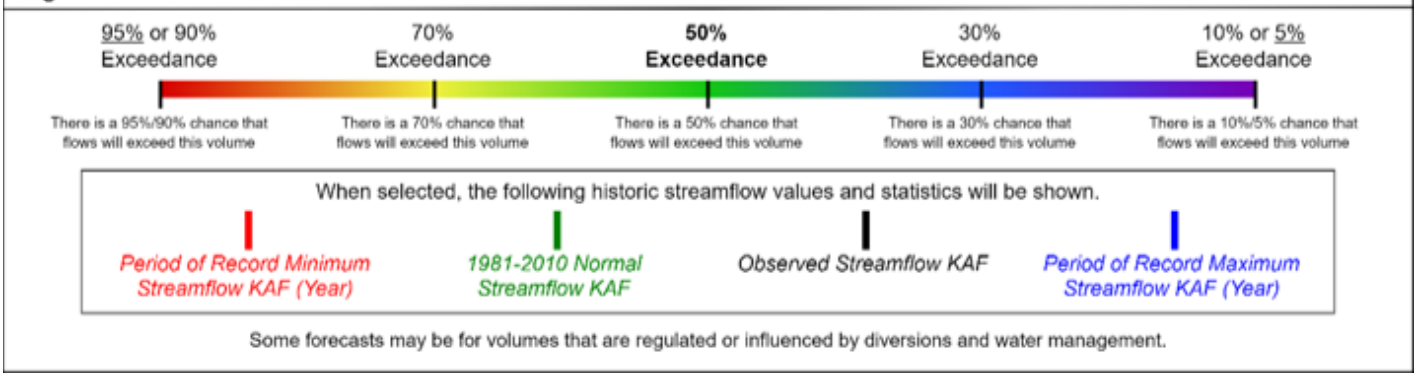
SOUTH PLATTE RIVER BASIN

Water Supply Forecasts

February 1, 2021



Legend

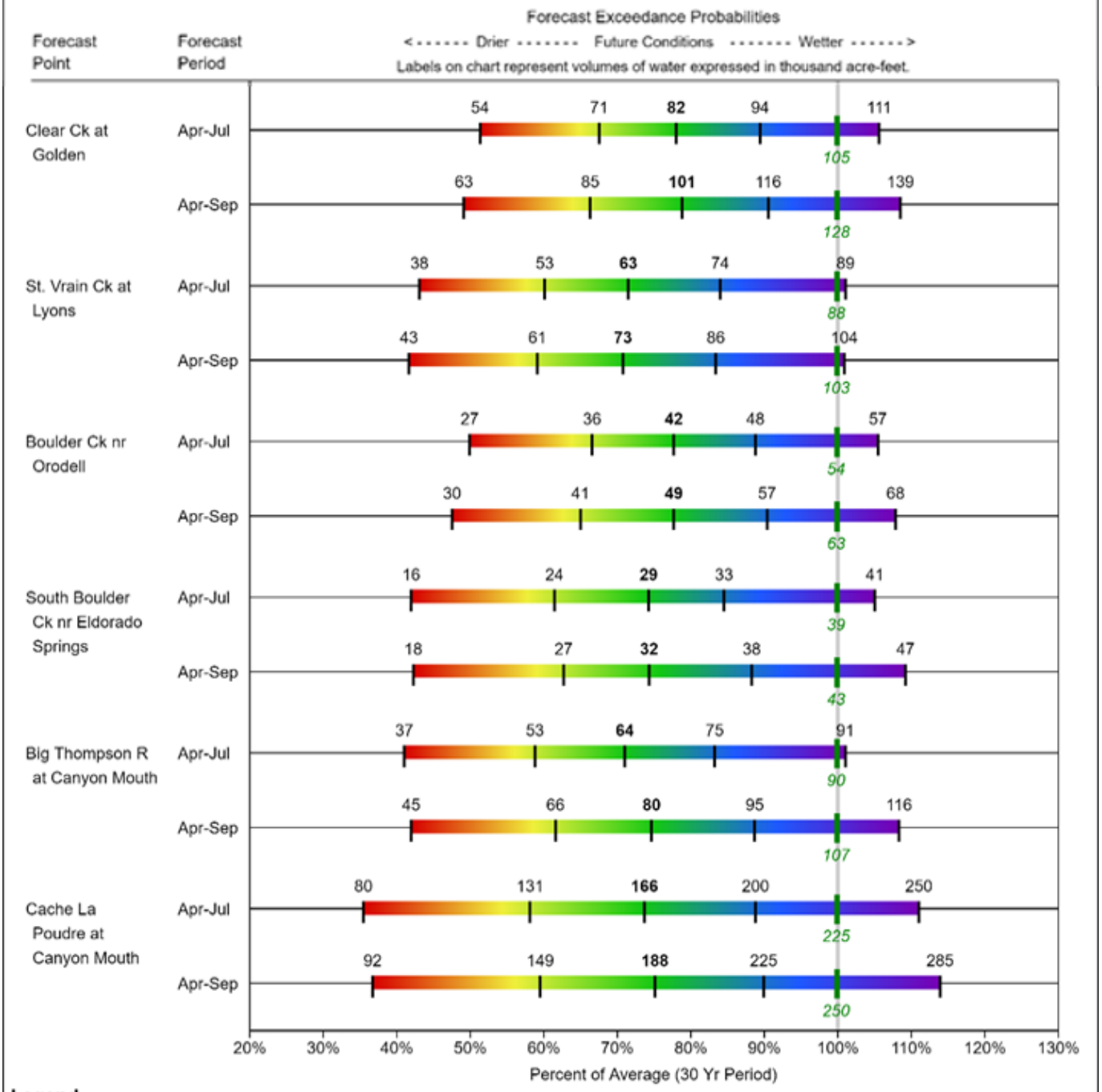


Some forecasts may be for volumes that are regulated or influenced by diversions and water management.

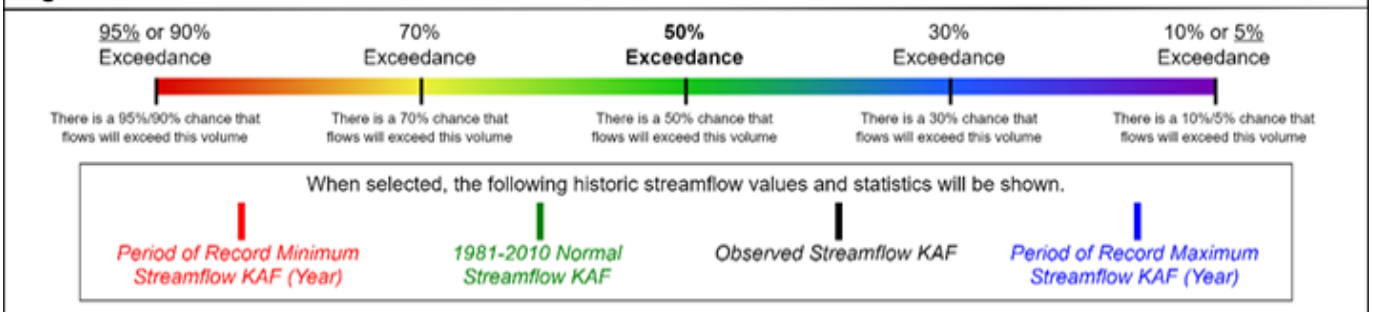
SOUTH PLATTE RIVER BASIN

Water Supply Forecasts

February 1, 2021



Legend

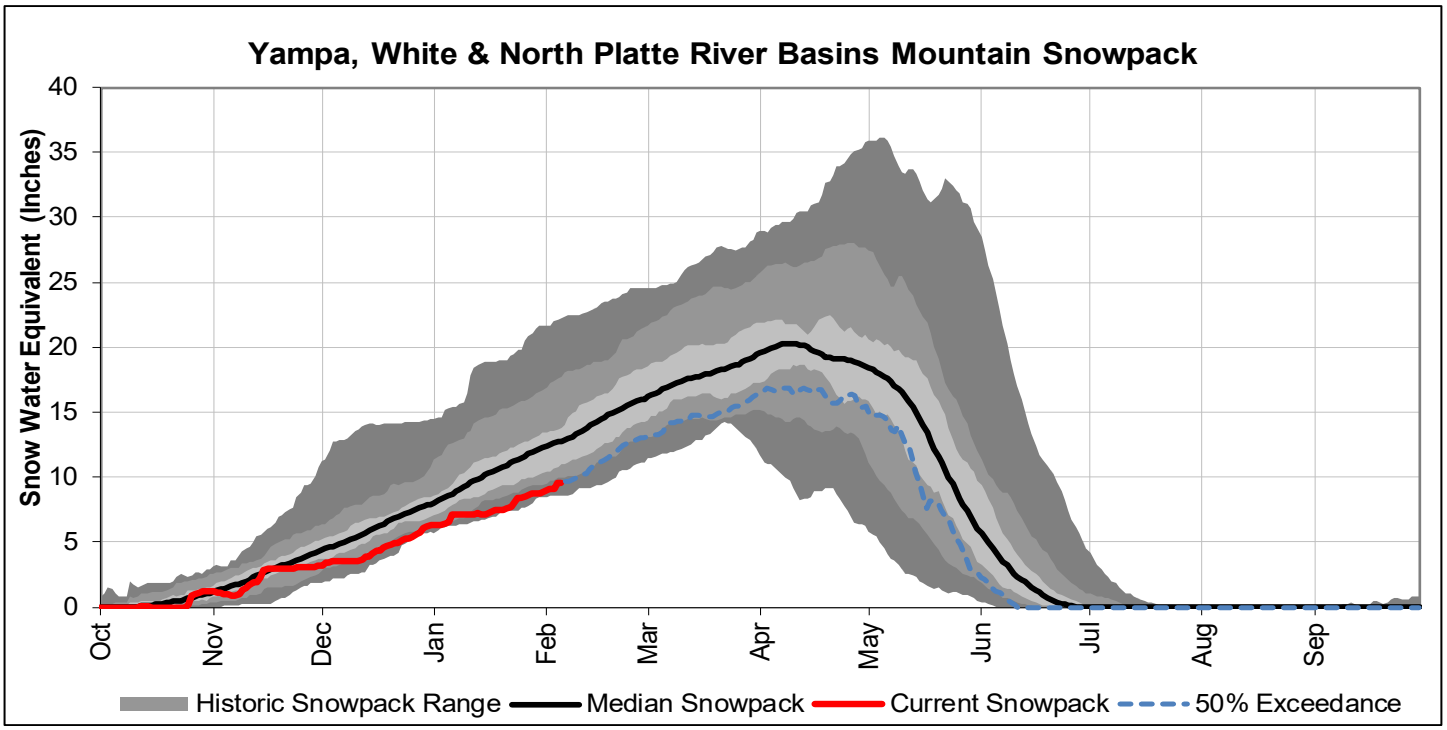


Some forecasts may be for volumes that are regulated or influenced by diversions and water management.

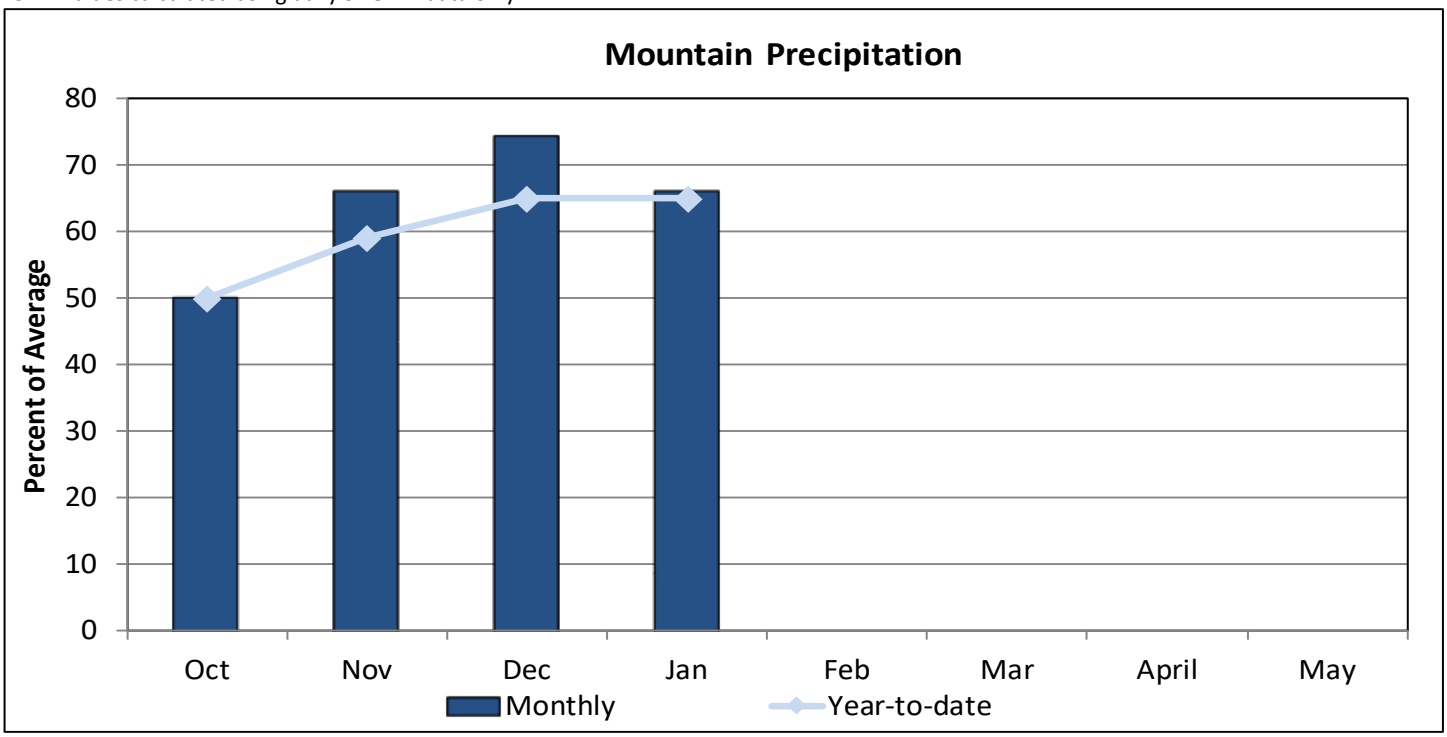
YAMPA, WHITE, NORTH PLATTE, AND LARAMIE RIVER BASINS

February 1, 2021

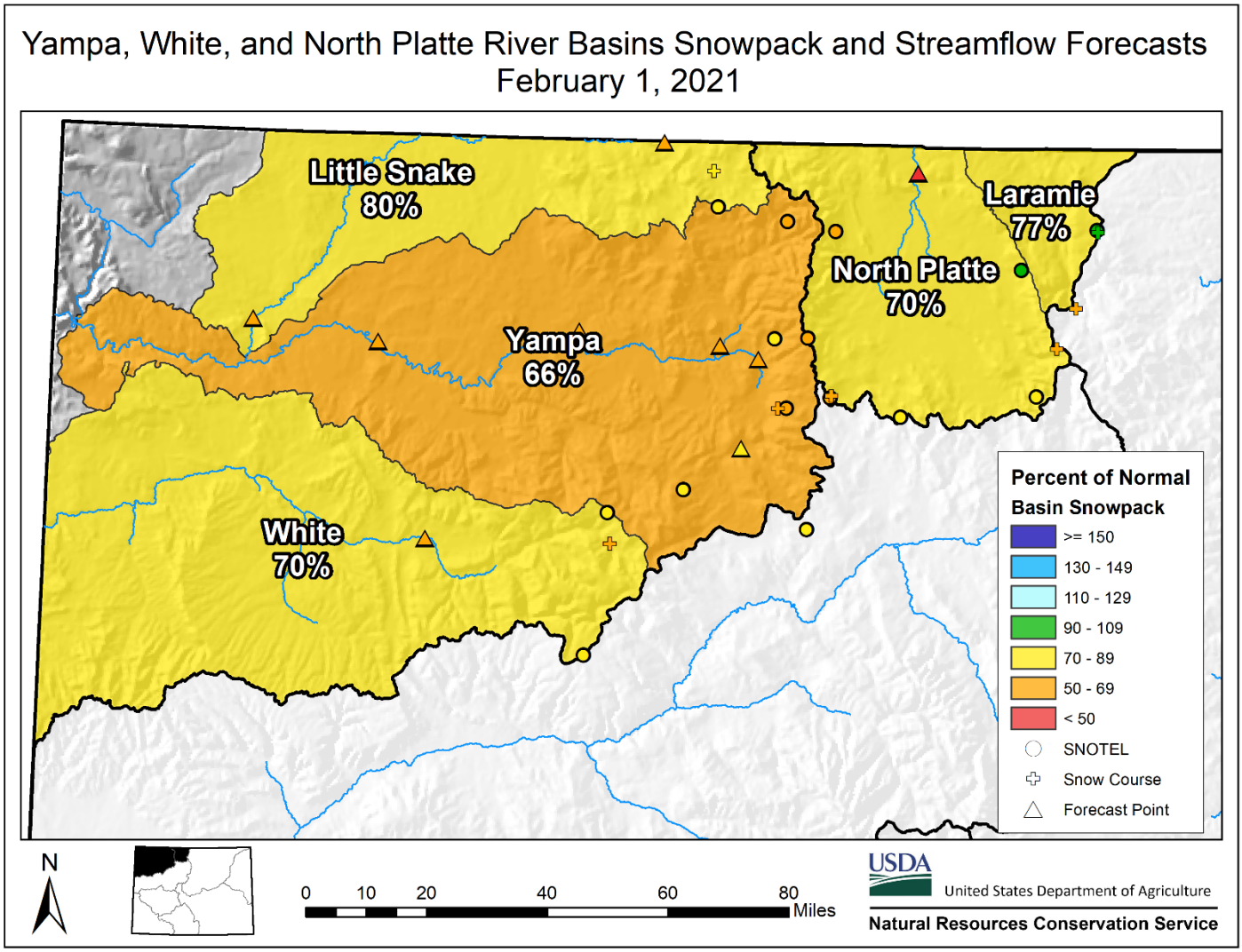
Snowpack in the Yampa, White & North Platte basins is below normal at 72% of the median. Precipitation for January was 66% of average and water year-to-date precipitation is 65% of average. Reservoir storage at the end of January was 116% of average compared to 127% last year**.** Current streamflow forecasts range from 42% of average for North Platte River near Northgate to 70% of average for Yampa River above the Stagecoach Reservoir.

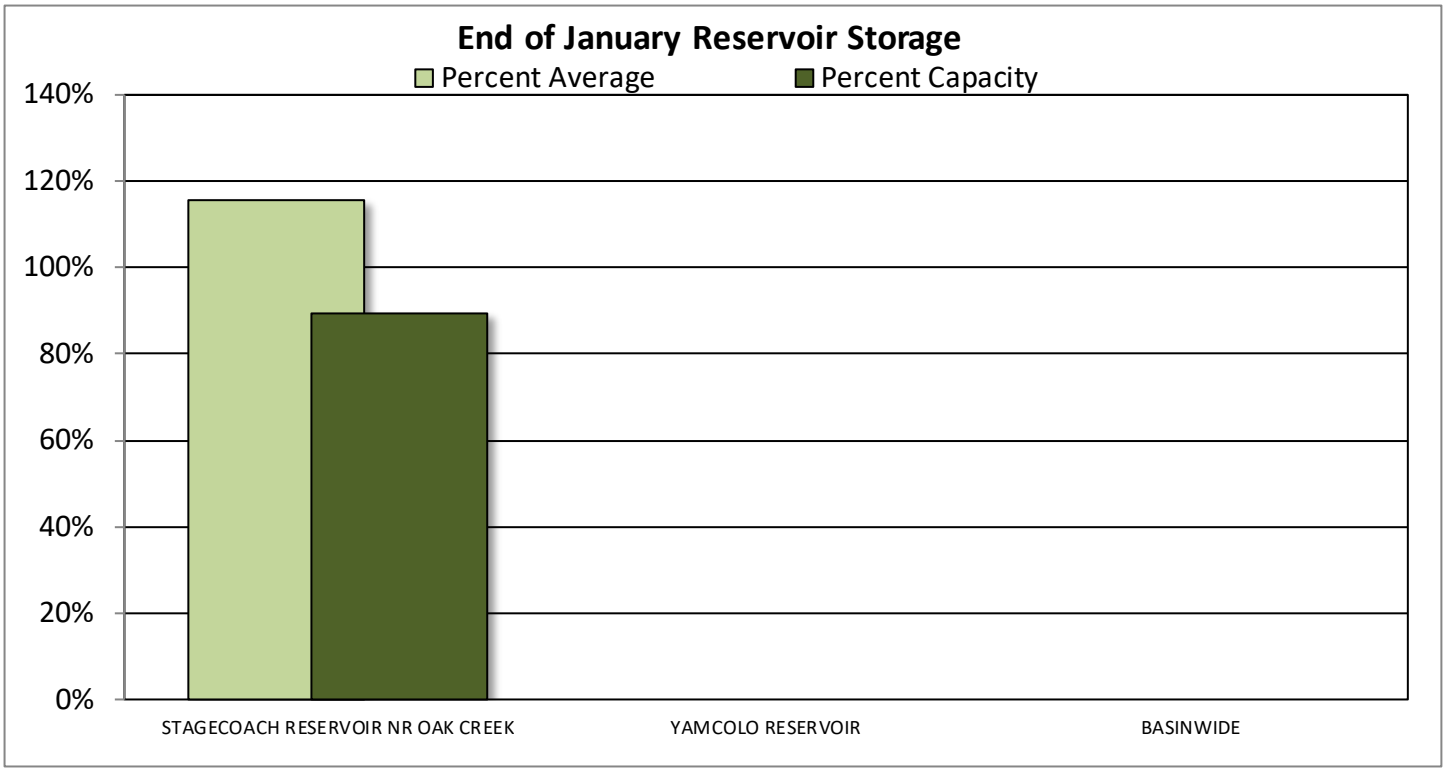


*SWE values calculated using daily SNOTEL data only



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


Yampa, White, and North Platte River Basins Snowpack and Streamflow Forecasts
February 1, 2021
Little Snake
80%
Laramie
77%
North Platte
70%
Yampa
66%
White
70%
Percent of Normal
Basin Snowpack
>= 150
130 - 149
110 - 129
90 - 109
70 - 89
50 - 69
< 50
SNOTEL
Snow Course
Forecast Point
N
0
10
20
40
60
80
Miles
USDA
United States Department of Agriculture
Natural Resources Conservation Service


End of January Reservoir Storage
Percent Average
Percent Capacity
140%
120%
100%
80%
60%
40%
20%
0%
STAGECOACH RESERVOIR NR OAK CREEK
YAMCOLO RESERVOIR
BASINWIDE

Watershed Snowpack Analysis February 1st, 2021

Sub-Basin	# of Sites	% Median	Last Year % Median
Laramie	4	77	113
North Platte	12	71	106
Total Laramie & North Platte	16	72	107
Elk	2	66	108
Yampa	11	66	113
White	4	70	93
Total Yampa & White	14	66	108
Little Snake	9	80	123
Basin-Wide Total	35	72	110

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

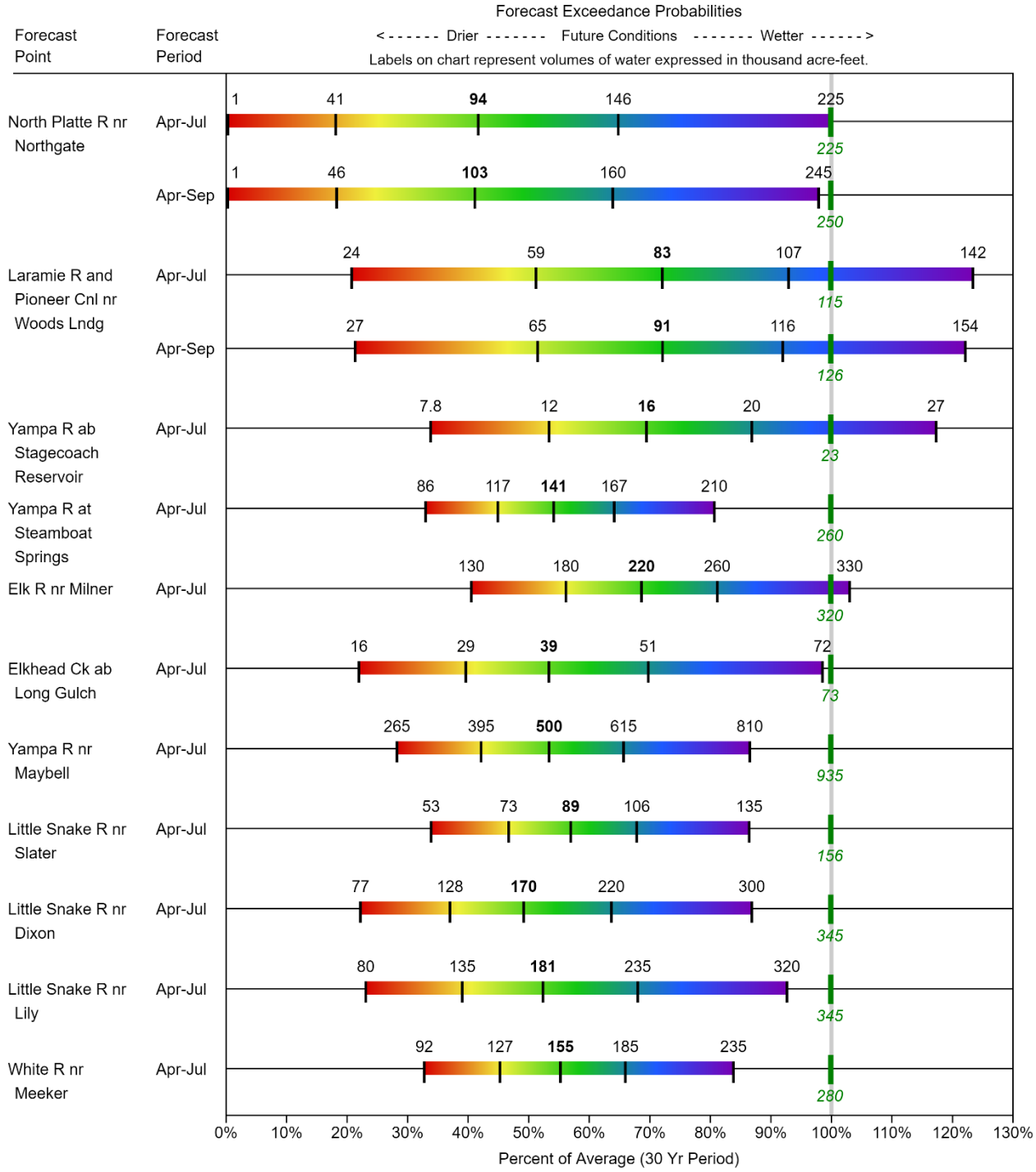
Reservoir Storage End of January 2021

Reservoir	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
STAGECOACH RESERVOIR NR OAK CREEK	32.6	35.2	28.2	36.5
YAMCOLO RESERVOIR		8.0		8.7
BASINWIDE	32.6	43.2	28.2	45.2
Number of Reservoirs	1	2	1	2

YAMPA-WHITE-NORTH PLATTE RIVER BASINS

Water Supply Forecasts

February 1, 2021



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.

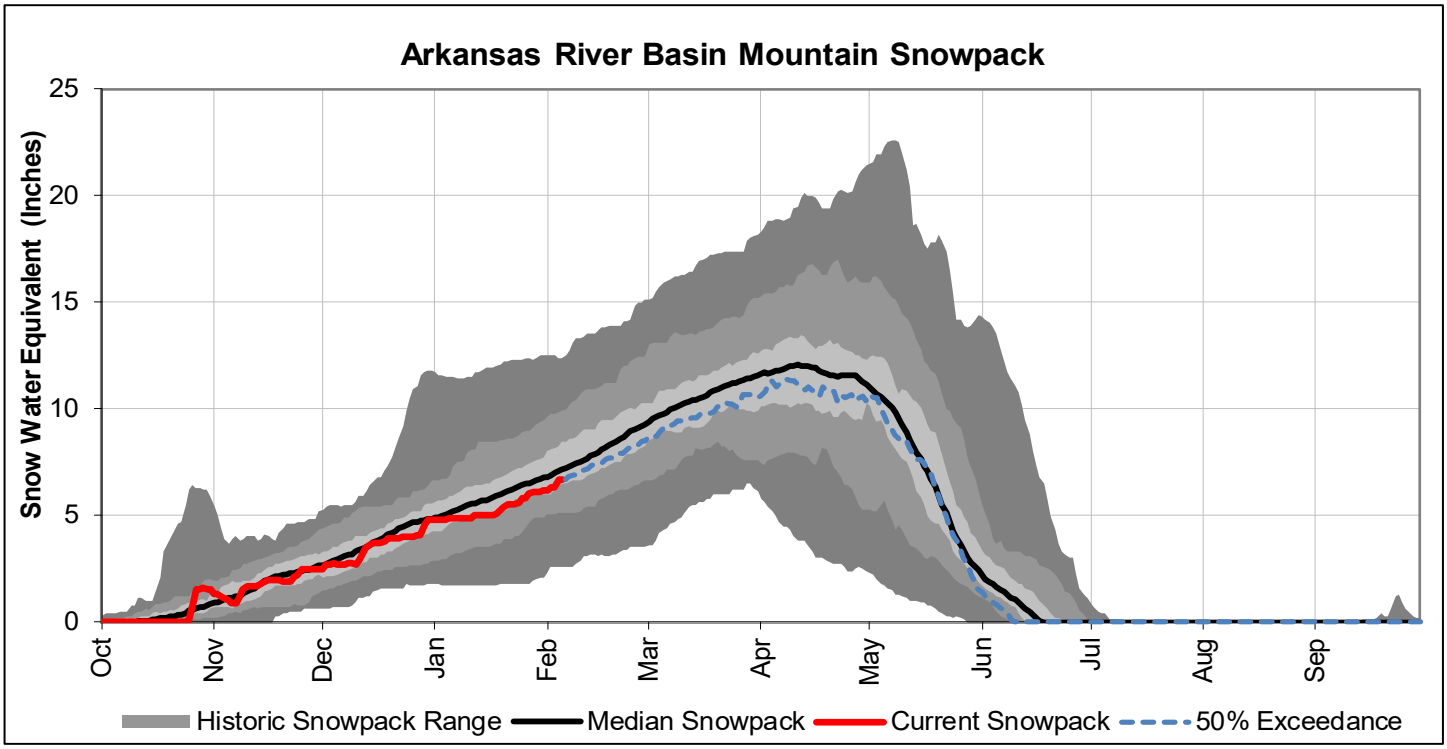
Period of Record Minimum Streamflow KAF (Year)	*1981-2010 Normal Streamflow KAF*	*Observed Streamflow KAF*	*Period of Record Maximum Streamflow KAF (Year)*

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

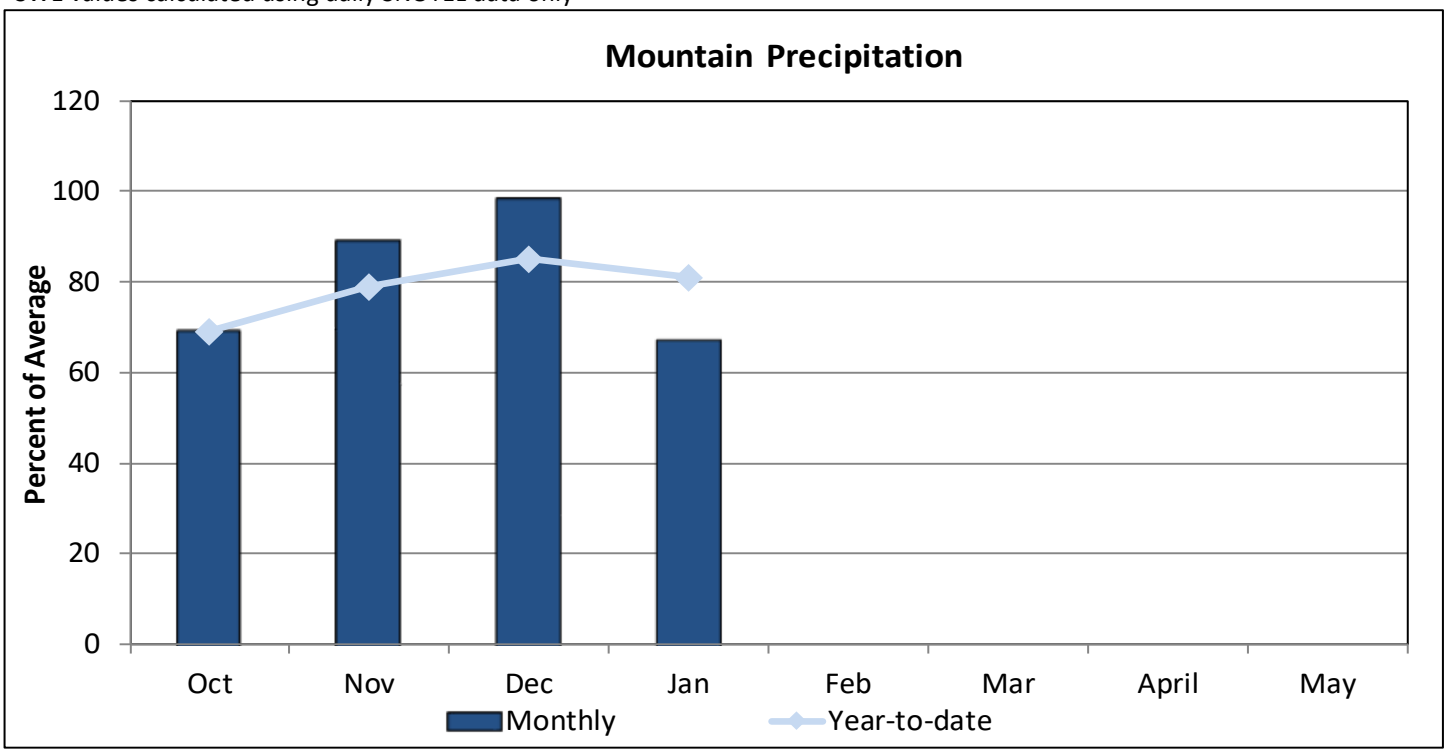
ARKANSAS RIVER BASIN

February 1, 2021

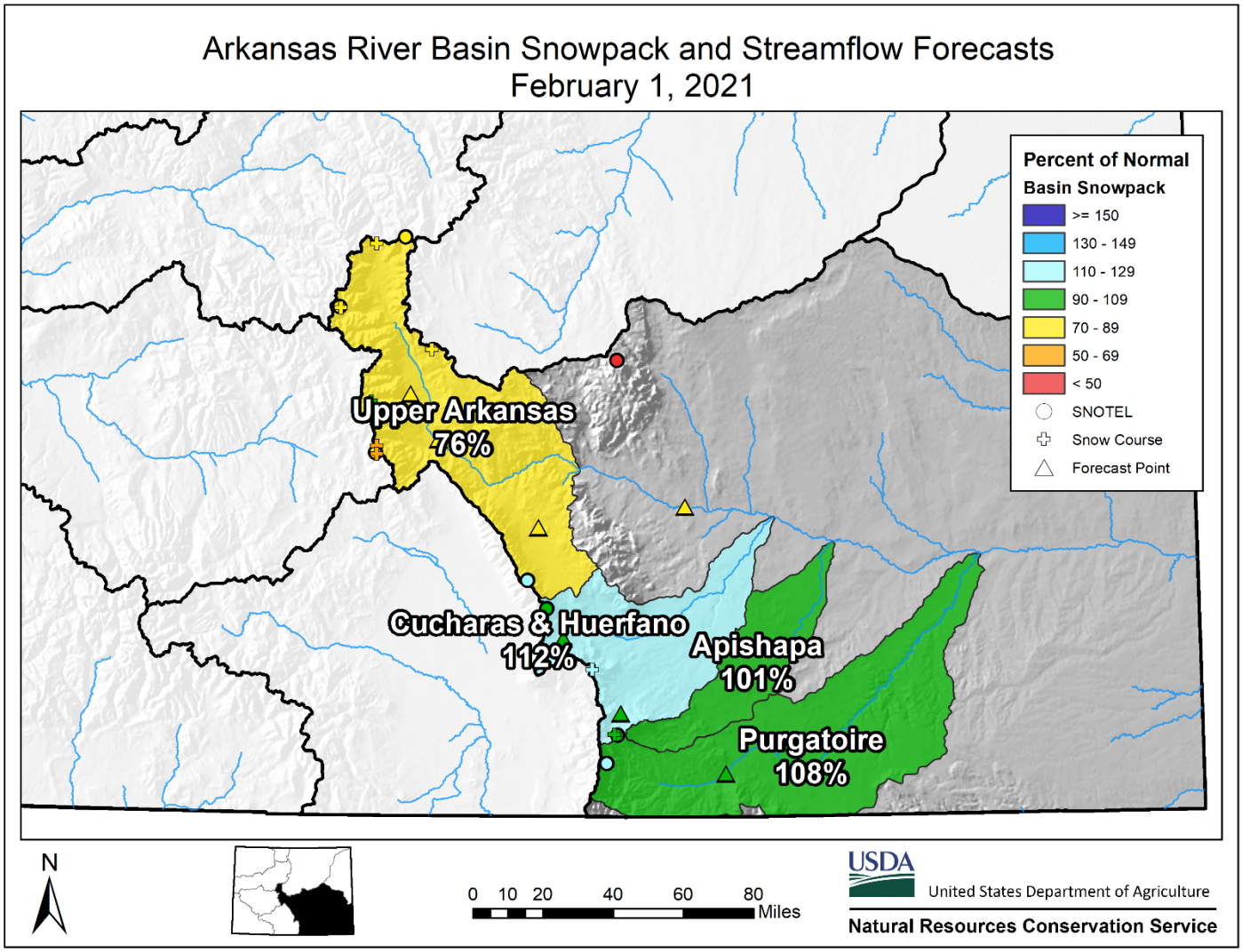
Snowpack in the Arkansas river basin is below normal at 88% of the median. Precipitation for January was 67% of average which brings water year-to-date precipitation to 81% of average. Reservoir storage at the end of January was 68% of average compared to 96% last year. Current streamflow forecasts range from 72% of average for Grape Creek near Westcliffe to 92% of average for the Huerfano River near Redwing.

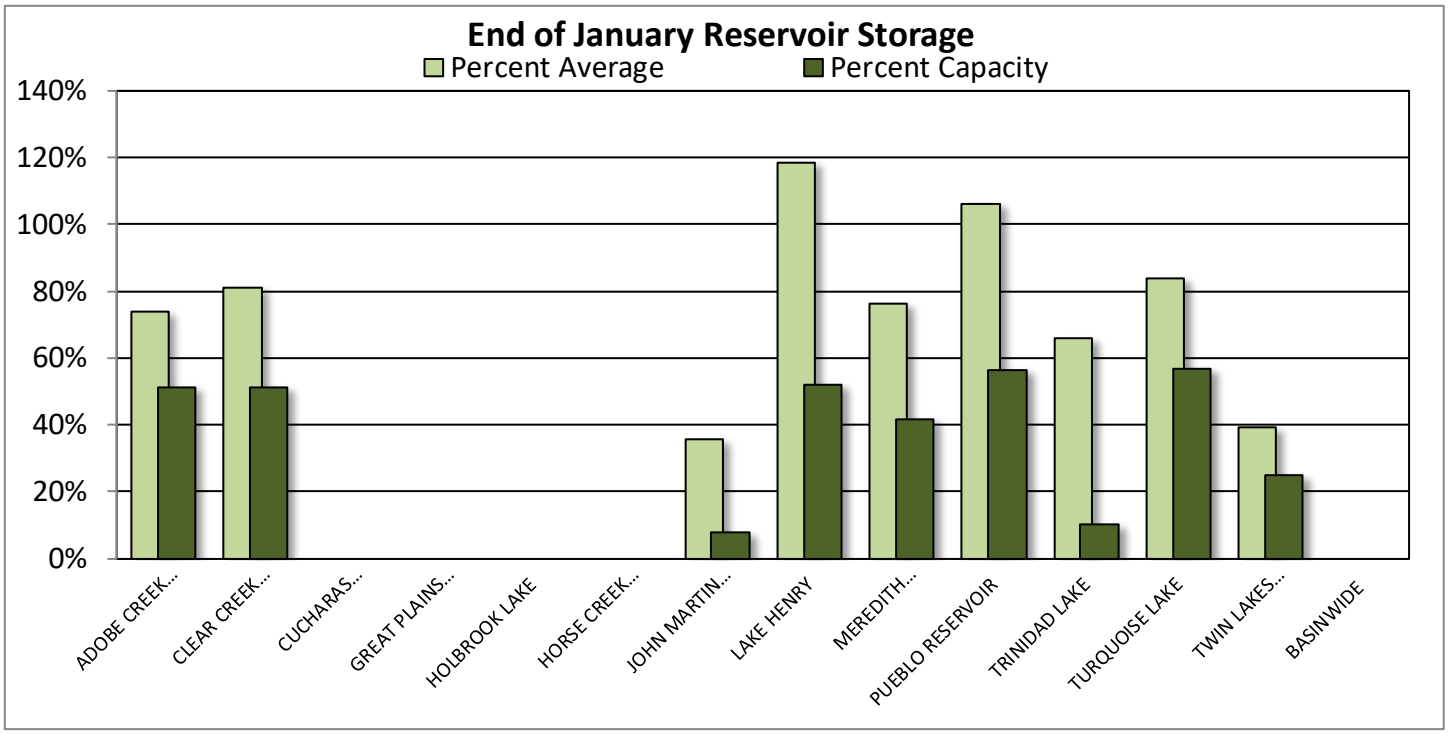


*SWE values calculated using daily SNOTEL data only



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


Arkansas River Basin Snowpack and Streamflow Forecasts
February 1, 2021
Percent of Normal
Basin Snowpack
>= 150
130 - 149
110 - 129
90 - 109
70 - 89
50 - 69
< 50
SNOTEL
Snow Course
Forecast Point
Upper Arkansas
76%
Cucharas & Huerfano
112%
Apishapa
101%
Purgatoire
108%
N
0 10 20 40 60 80
Miles
USDA
United States Department of Agriculture
Natural Resources Conservation Service


End of January Reservoir Storage
Percent Average
Percent Capacity
140%
120%
100%
80%
60%
40%
20%
0%
ADOBE CREEK...
CLEAR CREEK...
CUCHARAS...
GREAT PLAINS...
HOLBROOK LAKE
HORSE CREEK...
JOHN MARTIN...
LAKE HENRY
MEREDITH...
PUEBLO RESERVOIR
TRINIDAD LAKE
TURQUOISE LAKE
TWIN LAKES...
BASINWIDE

Watershed Snowpack Analysis February 1st, 2021

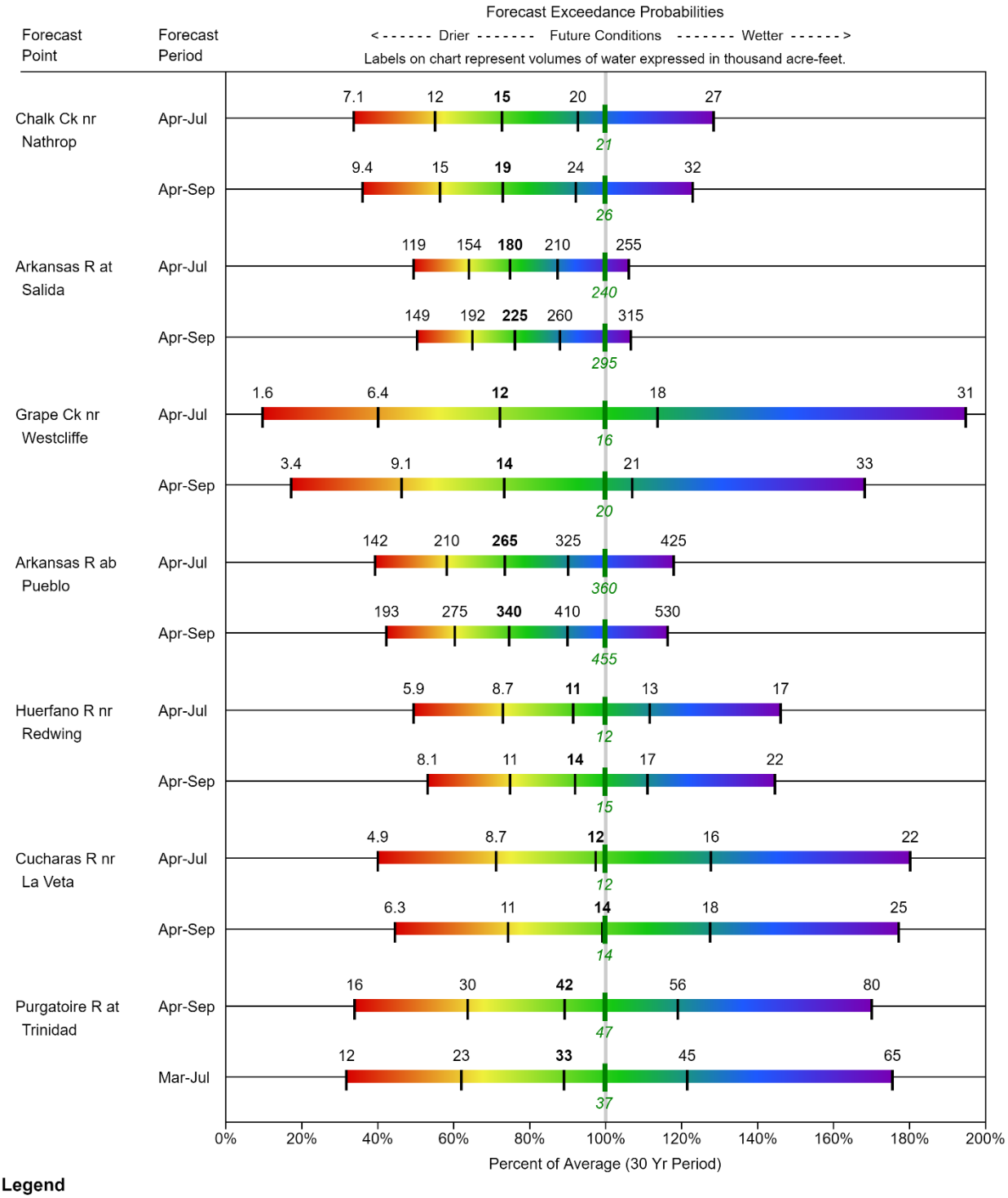
Sub-Basin	# of Sites	% Median	Last Year % Median
Upper Arkansas	9	76	130
Cucharas & Huerfano	5	112	79
Purgatoire	2	108	105
Basin-Wide Total	16	88	112

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

Reservoir Storage End of January 2021

Reservoir	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
ADOBE CREEK RESERVOIR	31.7	39.0	42.9	62.0
CLEAR CREEK RESERVOIR	5.8	7.7	7.2	11.4
CUCHARAS RESERVOIR				40.0
GREAT PLAINS RESERVOIR				150.0
HOLBROOK LAKE	0.0	4.1	3.6	7.0
HORSE CREEK RESERVOIR	0.0	3.6	12.0	27.0
JOHN MARTIN RESERVOIR	48.5	98.0	135.9	616.0
LAKE HENRY	4.9	4.0	4.1	9.4
MEREDITH RESERVOIR	17.4	41.9	22.9	42.0
PUEBLO RESERVOIR	198.8	243.8	187.5	354.0
TRINIDAD LAKE	16.9	22.8	25.6	167.0
TURQUOISE LAKE	72.2	75.2	86.3	127.0
TWIN LAKES RESERVOIR	21.3	47.5	54.3	86.0
BASINWIDE	417.5	587.5	582.3	1698.8
Number of Reservoirs	11	11	11	13

ARKANSAS RIVER BASIN
Water Supply Forecasts
February 1, 2021



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.

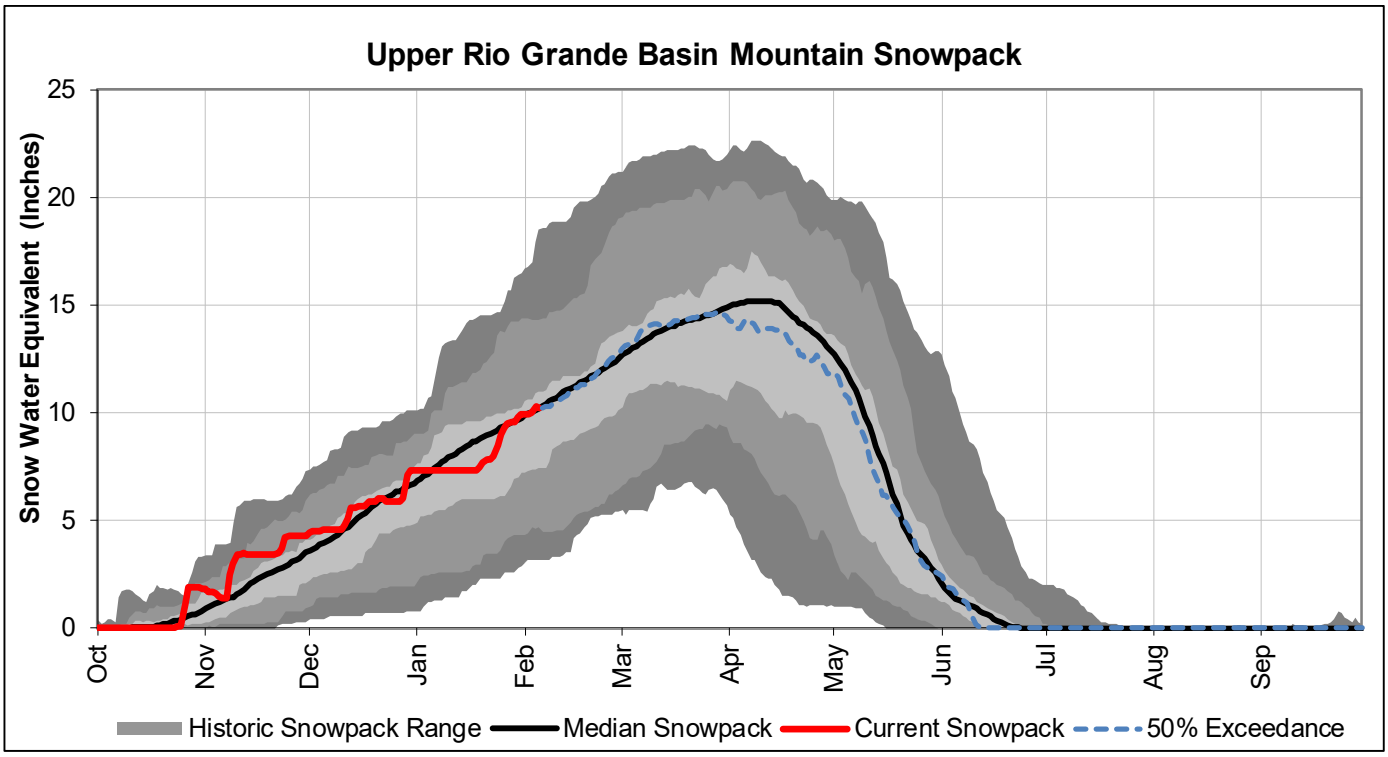
Period of Record Minimum Streamflow KAF (Year)	*1981-2010 Normal Streamflow KAF*	*Observed Streamflow KAF*	*Period of Record Maximum Streamflow KAF (Year)*

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

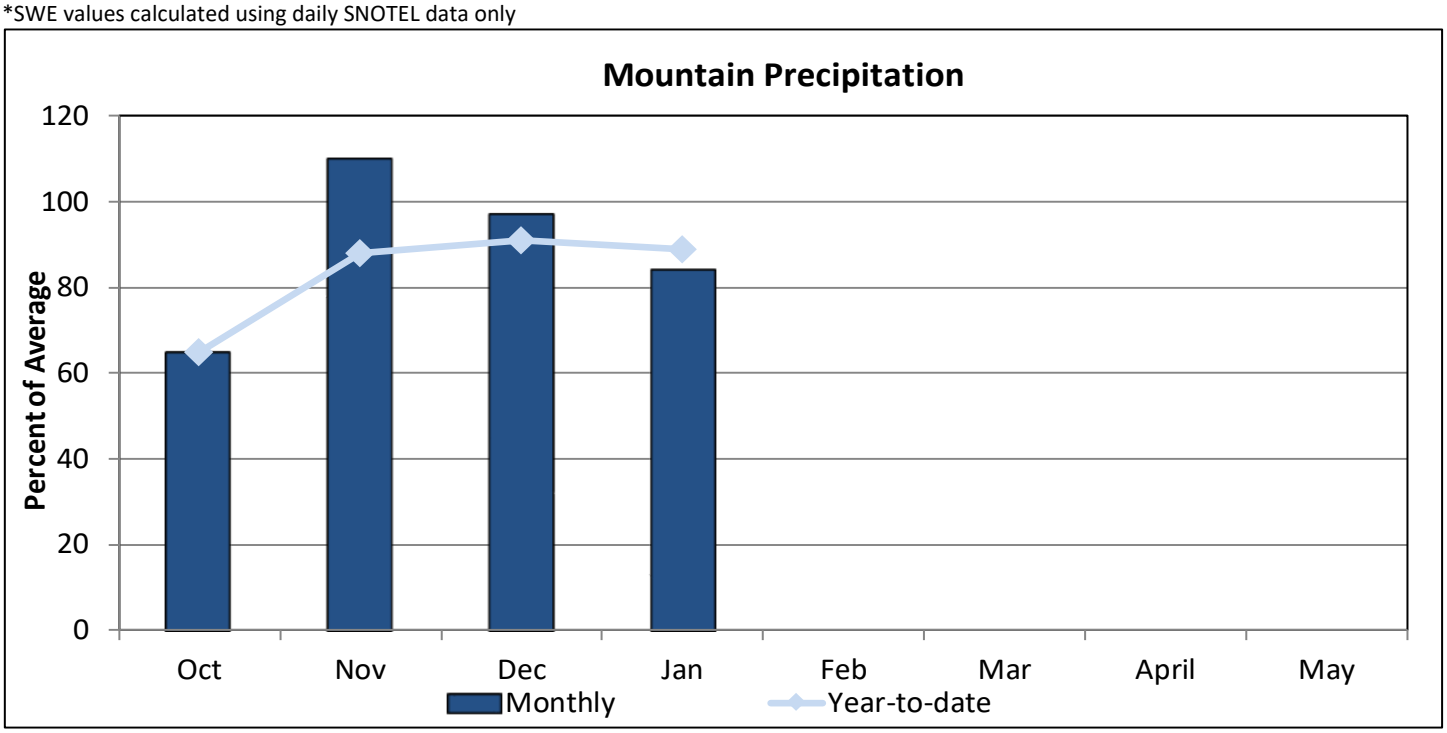
UPPER RIO GRANDE RIVER BASIN

February 1, 2021

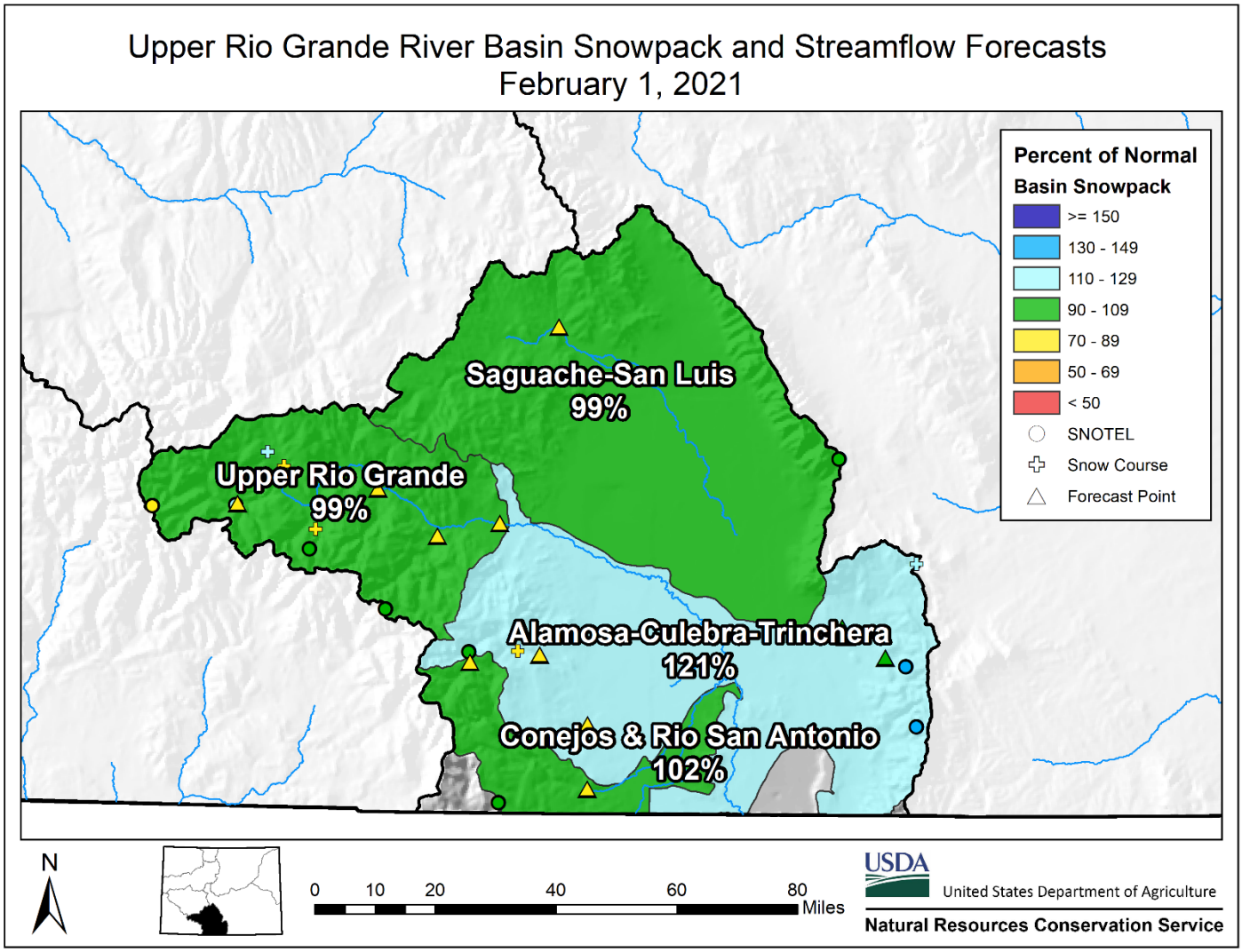
Snowpack in the Upper Rio Grande river basin is above normal at 106% of median. Precipitation for January was 84% of average which brings water year-to-date precipitation to 89% of average. Reservoir storage at the end of January was 73% of average compared to 81% last year. Current streamflow forecasts range from 75% of average for the Rio Grande River at Thirty Mile Bridge to 98% of average for Trinchera Creek above Turners Ranch.

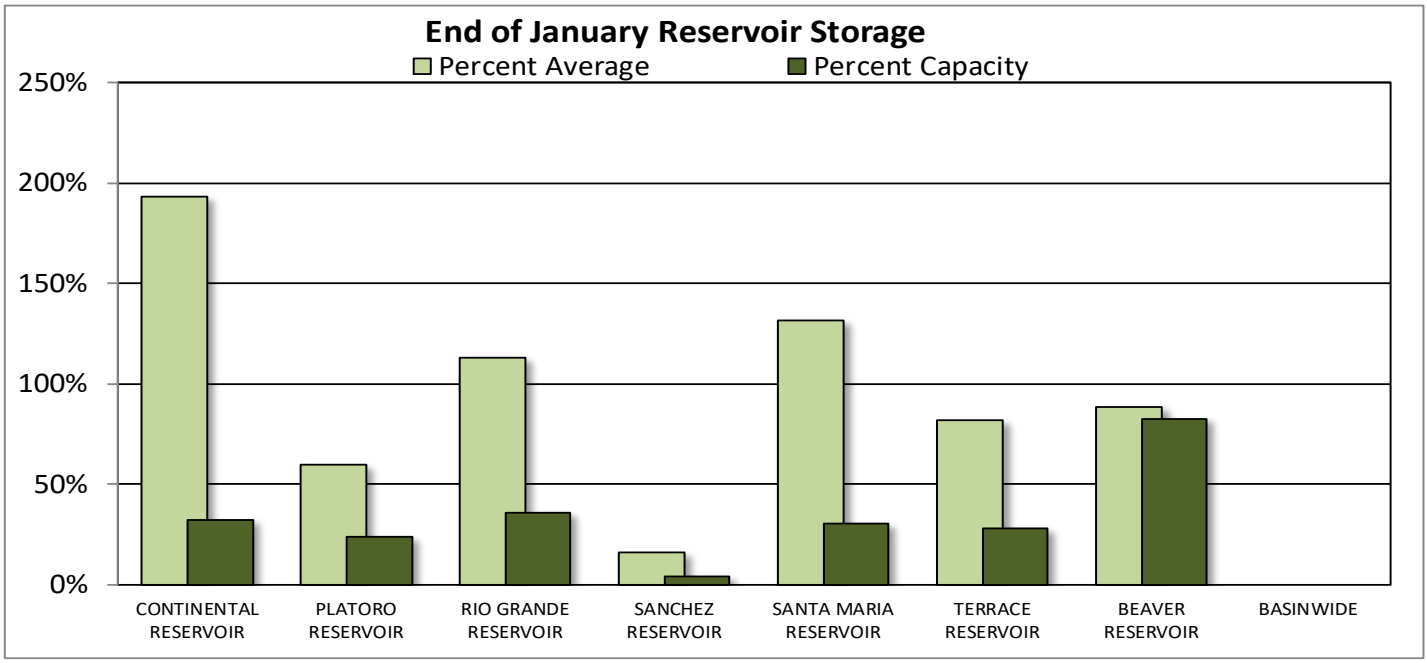


*SWE values calculated using daily SNOTEL data only



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


Upper Rio Grande River Basin Snowpack and Streamflow Forecasts
February 1, 2021
Percent of Normal
Basin Snowpack
>= 150
130 - 149
110 - 129
90 - 109
70 - 89
50 - 69
< 50
SNOTEL
Snow Course
Forecast Point
Saguache-San Luis
99%
Upper Rio Grande
99%
Alamosa-Culebra-Trinchera
121%
Conejos & Rio San Antonio
102%
N
0 10 20 40 60 80
Miles
USDA
United States Department of Agriculture
Natural Resources Conservation Service


End of January Reservoir Storage
Percent Average
Percent Capacity
250%
200%
150%
100%
50%
0%
CONTINENTAL RESERVOIR
PLATORO RESERVOIR
RIO GRANDE RESERVOIR
SANCHEZ RESERVOIR
SANTA MARIA RESERVOIR
TERRACE RESERVOIR
BEAVER RESERVOIR
BASINWIDE

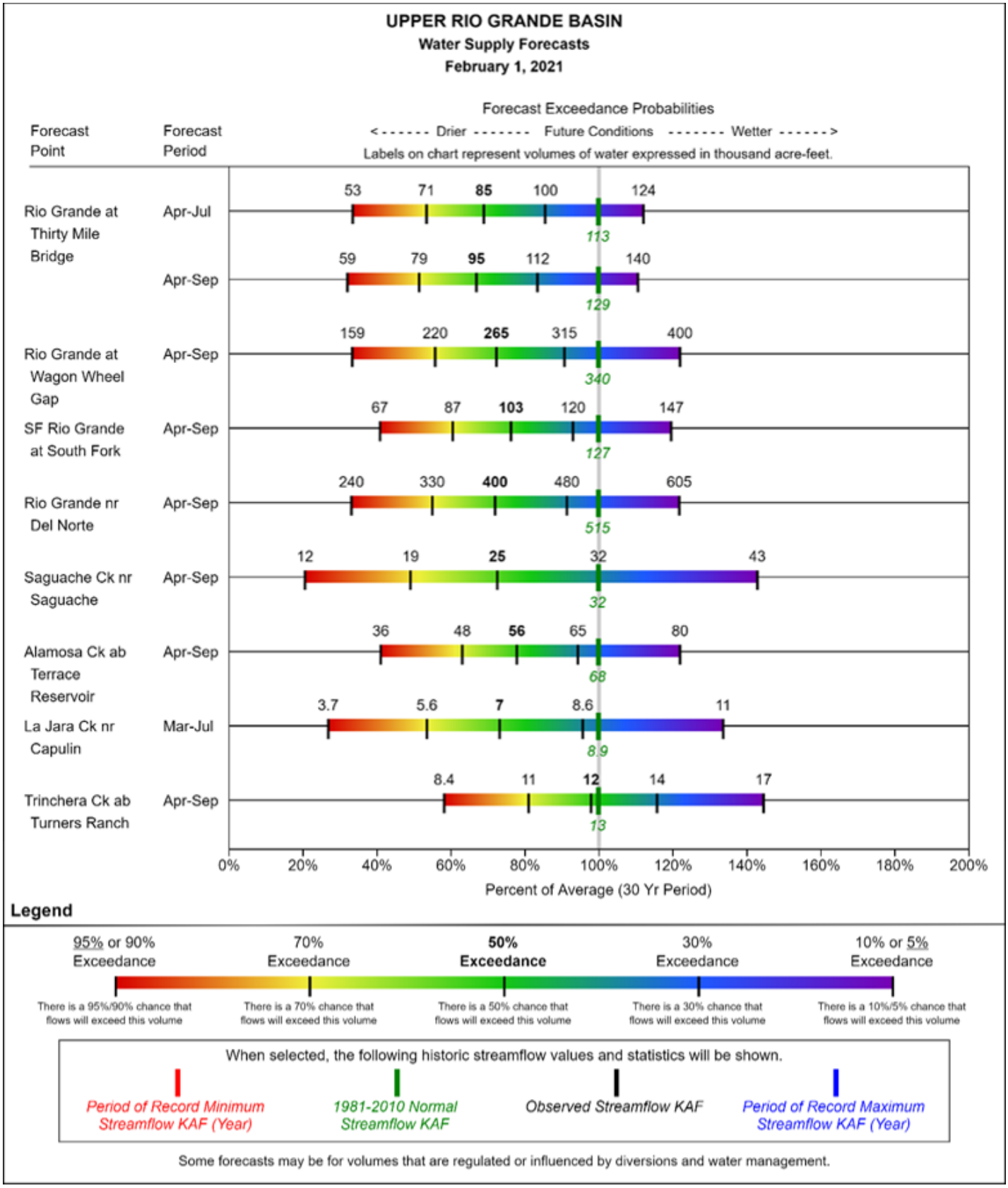
Watershed Snowpack Analysis February 1st, 2021

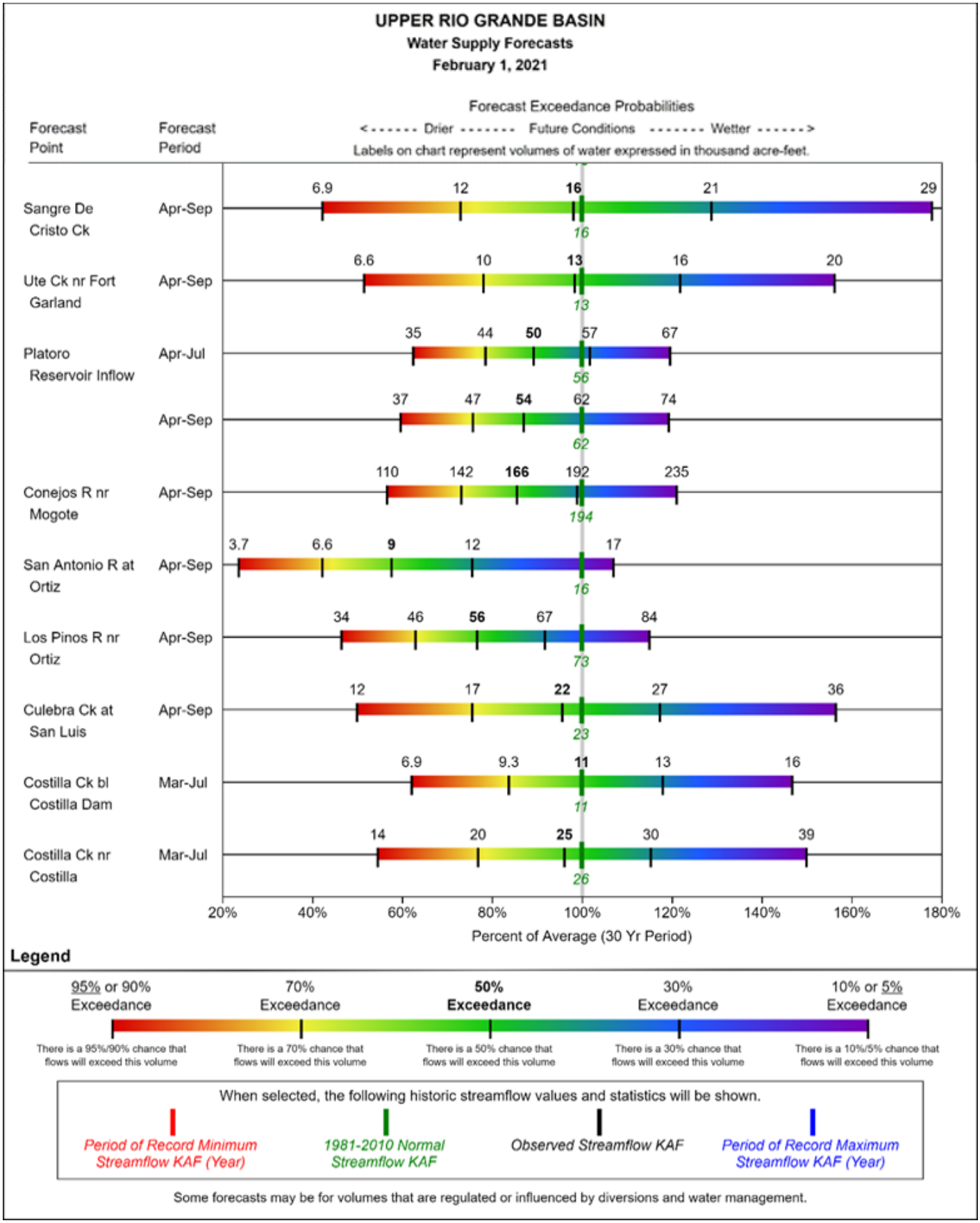
Sub-Basin	# of Sites	% Median	Last Year % Median
Alamosa Creek	3	98	83
Conejos & Rio San Antonio	4	97	94
Culebra & Trinchera Creek	4	132	93
Upper Rio Grande	9	99	82
Basin-Wide Total	19	104	89

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

Reservoir Storage End of January 2021

Reservoir	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
CONTINENTAL RESERVOIR	8.7	15.6	4.5	27.0
PLATORO RESERVOIR	14.3	18.4	24.0	60.0
RIO GRANDE RESERVOIR	18.4	0.0	16.3	51.0
SANCHEZ RESERVOIR	4.5	8.3	27.6	103.0
SANTA MARIA RESERVOIR	13.8	21.6	10.5	45.0
TERRACE RESERVOIR	5.1	7.7	6.2	18.0
BEAVER RESERVOIR	3.7	4.0	4.2	4.5
BASINWIDE	68.3	75.6	93.3	308.5
Number of Reservoirs	7	7	7	7

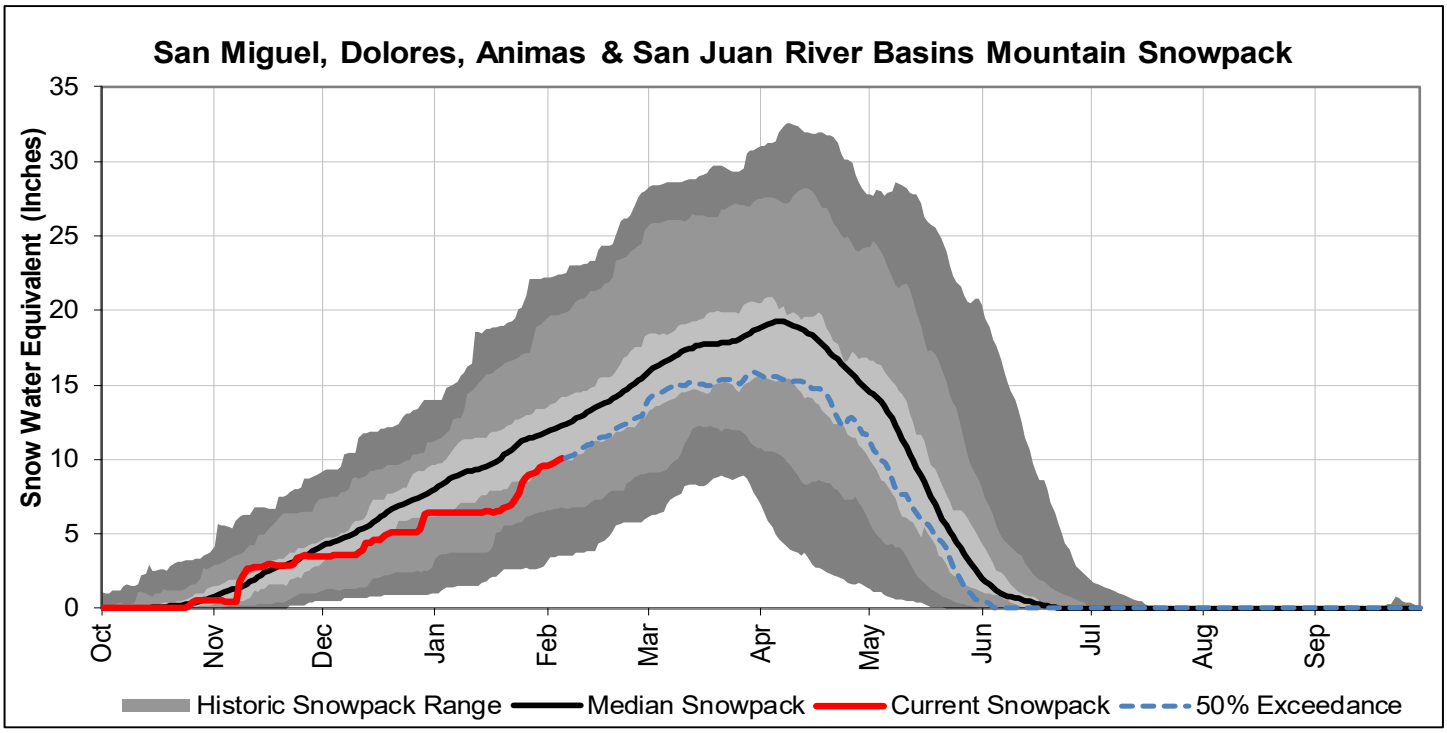

UPPER RIO GRANDE BASIN
Water Supply Forecasts
February 1, 2021
Forecast Exceedance Probabilities
Forecast Point
Forecast Period
<------- Drier ------- Future Conditions ------- Wetter ------->
Labels on chart represent volumes of water expressed in thousand acre-feet.
Rio Grande at Thirty Mile Bridge
Apr-Jul
53 71 85 100 124
113
Apr-Sep
59 79 95 112 140
129
Rio Grande at Wagon Wheel Gap
Apr-Sep
159 220 265 315 400
340
SF Rio Grande at South Fork
Apr-Sep
67 87 103 120 147
127
Rio Grande nr Del Norte
Apr-Sep
240 330 400 480 605
515
Saguache Ck nr Saguache
Apr-Sep
12 19 25 32 43
32
Alamosa Ck ab Terrace Reservoir
Apr-Sep
36 48 56 65 80
68
La Jara Ck nr Capulin
Mar-Jul
3.7 5.6 7 8.6 11
8.9
Trinchera Ck ab Turners Ranch
Apr-Sep
8.4 11 12 14 17
13
0% 20% 40% 60% 80% 100% 120% 140% 160% 180% 200%
Percent of Average (30 Yr Period)
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, 2021
Forecast Exceedance Probabilities
Forecast Point
Forecast Period
<------- Drier ------- Future Conditions ------- Wetter ------->
Labels on chart represent volumes of water expressed in thousand acre-feet.
Sangre De Cristo Ck Apr-Sep 6.9 12 16 21 29 16
Ute Ck nr Fort Garland Apr-Sep 6.6 10 13 16 20 13
Platoro Reservoir Inflow Apr-Jul 35 44 50 57 67 56
Apr-Sep 37 47 54 62 74 62
Conejos R nr Mogote Apr-Sep 110 142 166 192 235 194
San Antonio R at Ortiz Apr-Sep 3.7 6.6 9 12 17 16
Los Pinos R nr Ortiz Apr-Sep 34 46 56 67 84 73
Culebra Ck at San Luis Apr-Sep 12 17 22 27 36 23
Costilla Ck bl Costilla Dam Mar-Jul 6.9 9.3 11 13 16 11
Costilla Ck nr Costilla Mar-Jul 14 20 25 30 39 26
20% 40% 60% 80% 100% 120% 140% 160% 180%
Percent of Average (30 Yr Period)
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.

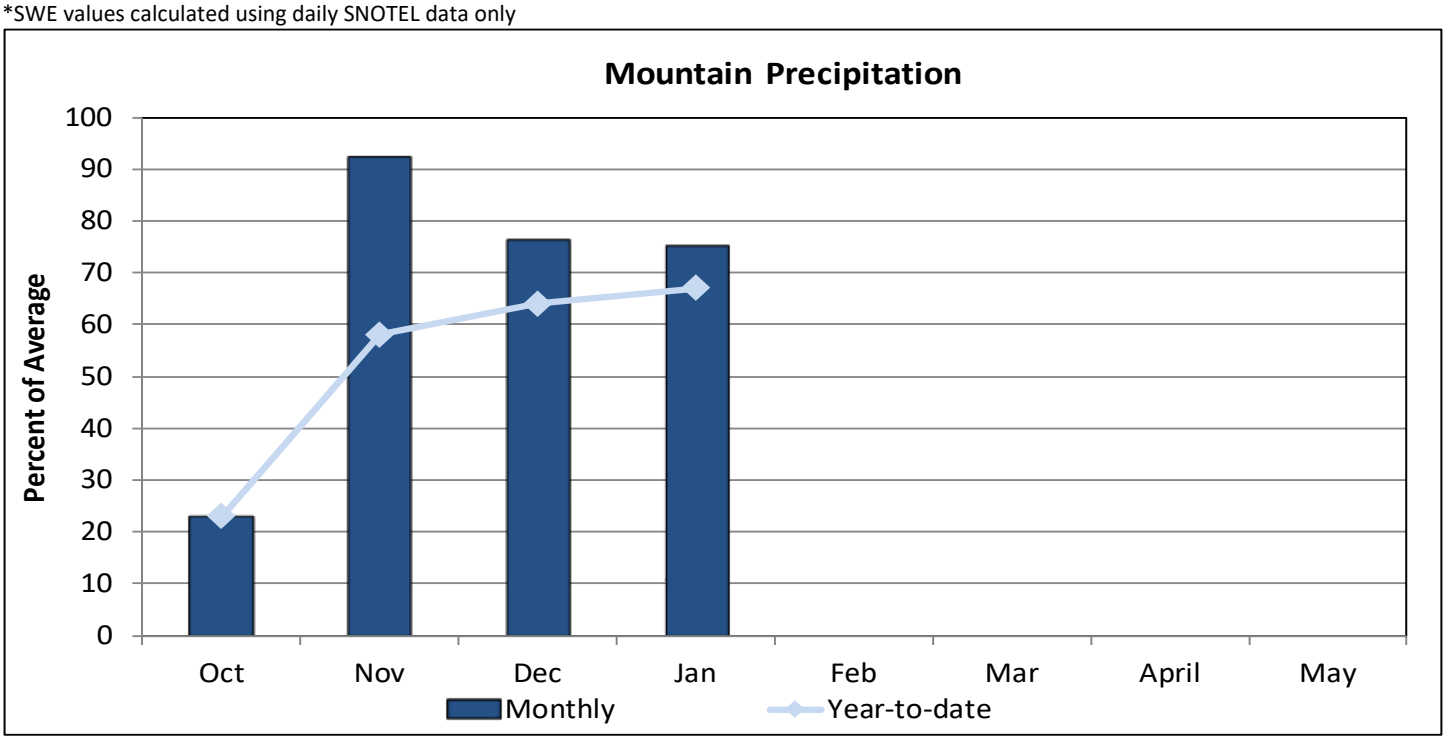
SAN MIGUEL, DOLORES, ANIMAS, AND SAN JUAN RIVER BASINS

February 1, 2020

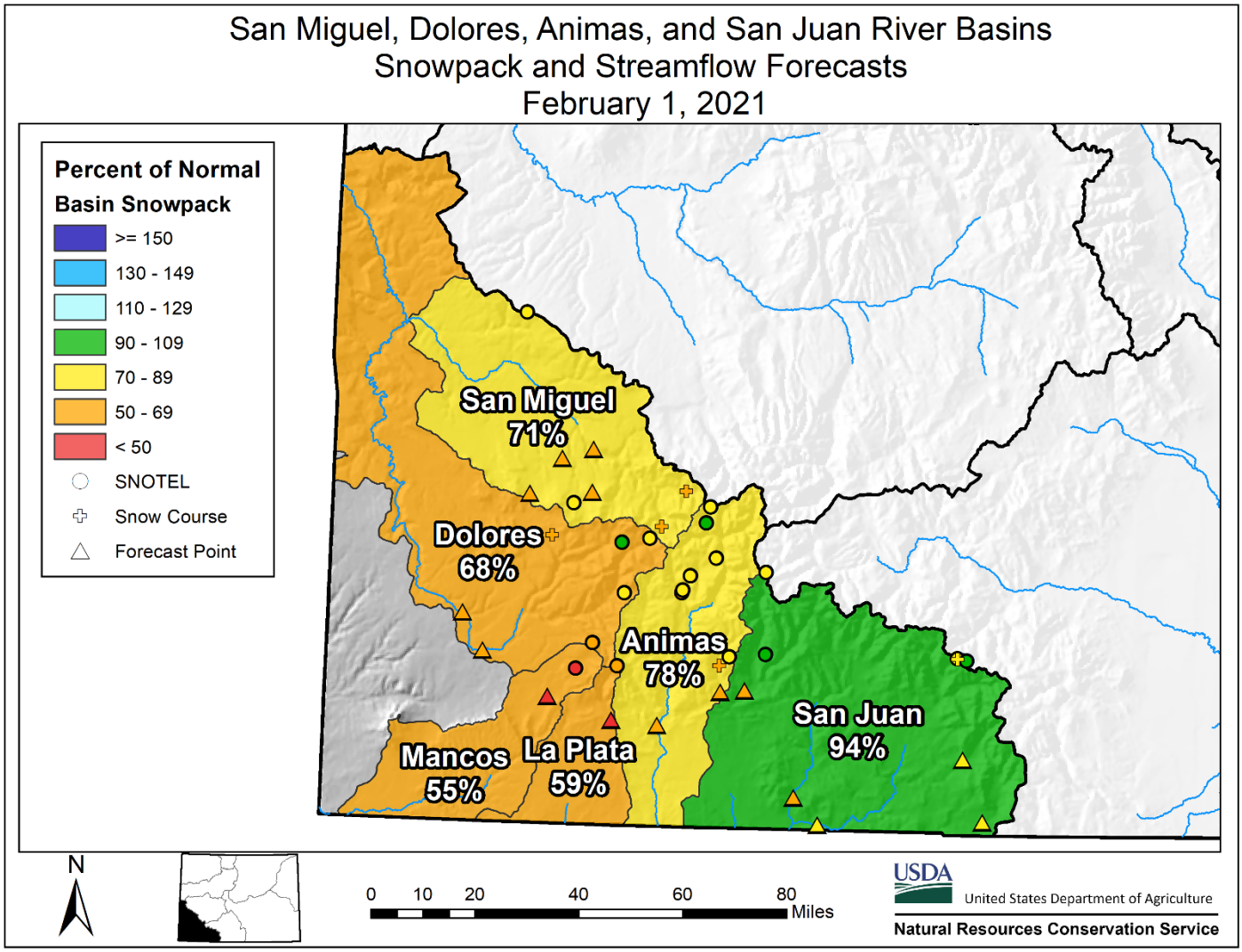
Snowpack in the combined southwest river basins is below normal at 79% of median. Precipitation for January was 75% of average which brings water year-to-date precipitation to 67% of average. Reservoir storage at the end of January was 60% of average compared to 107% last year. Current streamflow forecasts range from 37% of average for the Mancos River near Mancos to 80% of average for the Rio Blanco River below the Blanco Diversion.

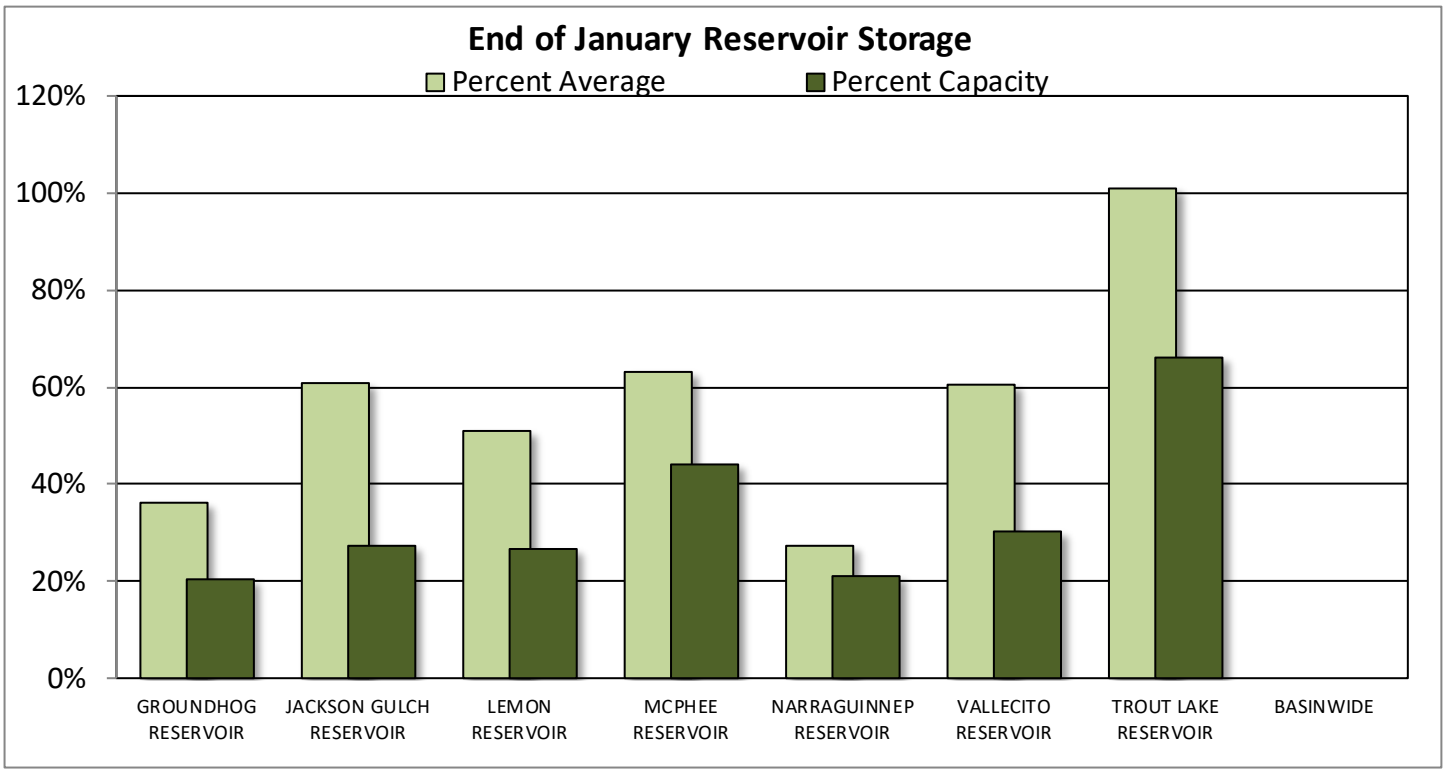


*SWE values calculated using daily SNOTEL data only



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


San Miguel, Dolores, Animas, and San Juan River Basins
Snowpack and Streamflow Forecasts
February 1, 2021
Percent of Normal
Basin Snowpack
>= 150
130 - 149
110 - 129
90 - 109
70 - 89
50 - 69
< 50
SNOTEL
Snow Course
Forecast Point
San Miguel
71%
Dolores
68%
Animas
78%
San Juan
94%
Mancos
55%
La Plata
59%
N
0 10 20 40 60 80
Miles
USDA
United States Department of Agriculture
Natural Resources Conservation Service


End of January Reservoir Storage
Percent Average
Percent Capacity
120%
100%
80%
60%
40%
20%
0%
GROUNDHOG RESERVOIR
JACKSON GULCH RESERVOIR
LEMON RESERVOIR
MCPHEE RESERVOIR
NARRAGUINNEP RESERVOIR
VALLECITO RESERVOIR
TROUT LAKE RESERVOIR
BASINWIDE

Watershed Snowpack Analysis February 1st, 2021

Sub-Basin	# of Sites	% Median	Last Year % Median
Animas	10	78	107
Dolores	6	68	114
San Miguel	5	71	107
San Juan	4	94	101
Basin-Wide Total	24	79	106

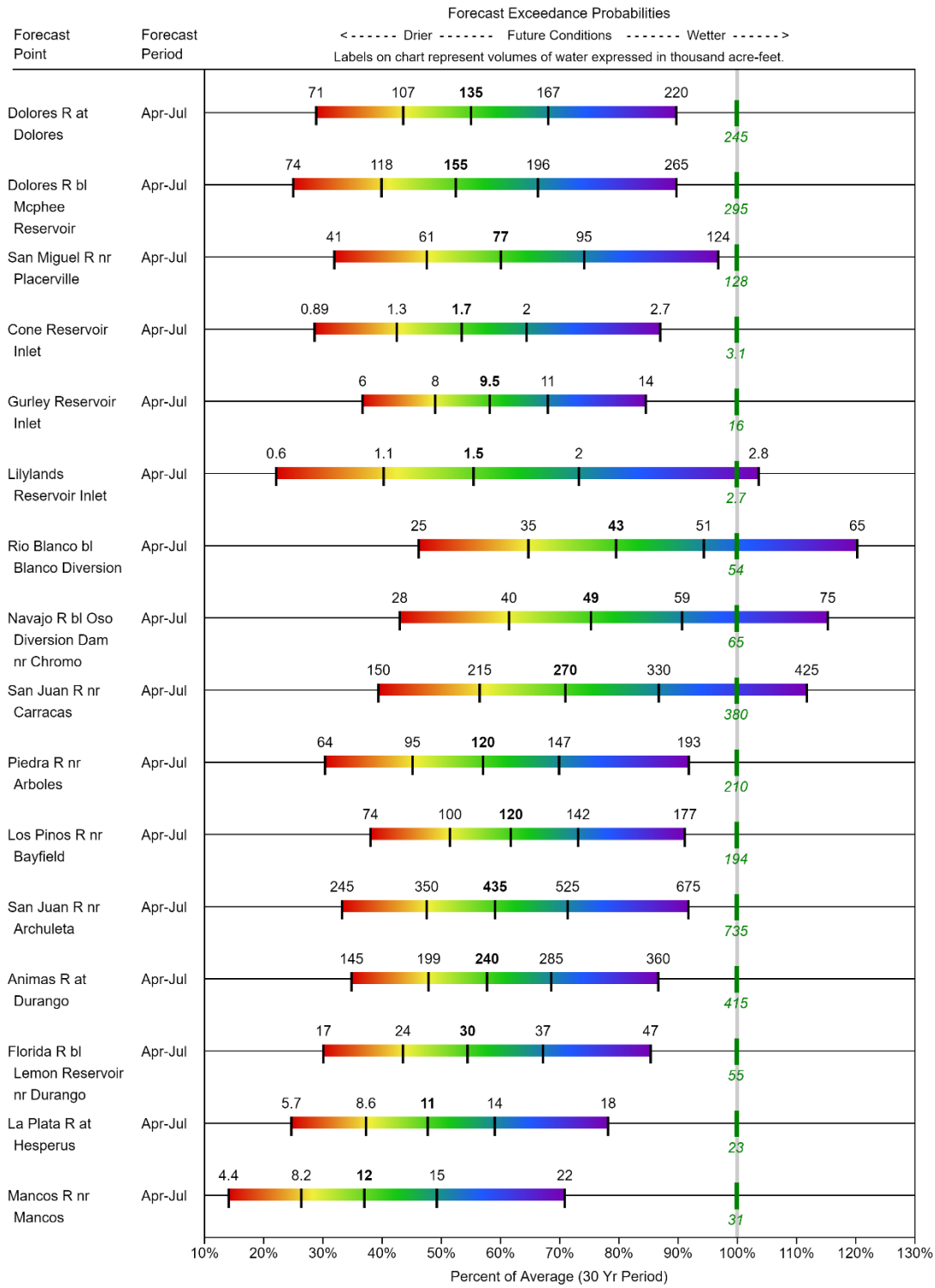
Reservoir Storage End of January 2021

Reservoir	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
GROUNDHOG RESERVOIR	4.5	16.0	12.4	22.0
JACKSON GULCH RESERVOIR	2.7	3.7	4.5	10.0
LEMON RESERVOIR	10.7	17.5	20.9	40.0
MCPHEE RESERVOIR	167.9	288.3	266.4	381.0
NARRAGUINNEP RESERVOIR	4.0	5.0	14.7	19.0
VALLECITO RESERVOIR	38.4	78.2	63.3	126.0
TROUT LAKE RESERVOIR	2.1	2.8	2.1	3.2
BASINWIDE	230.3	411.4	384.3	601.2
Number of Reservoirs	7	7	7	7

SAN MIGUEL-DOLORES-ANIMAS-SAN JUAN RIVER BASINS

Water Supply Forecasts

February 1, 2021



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.

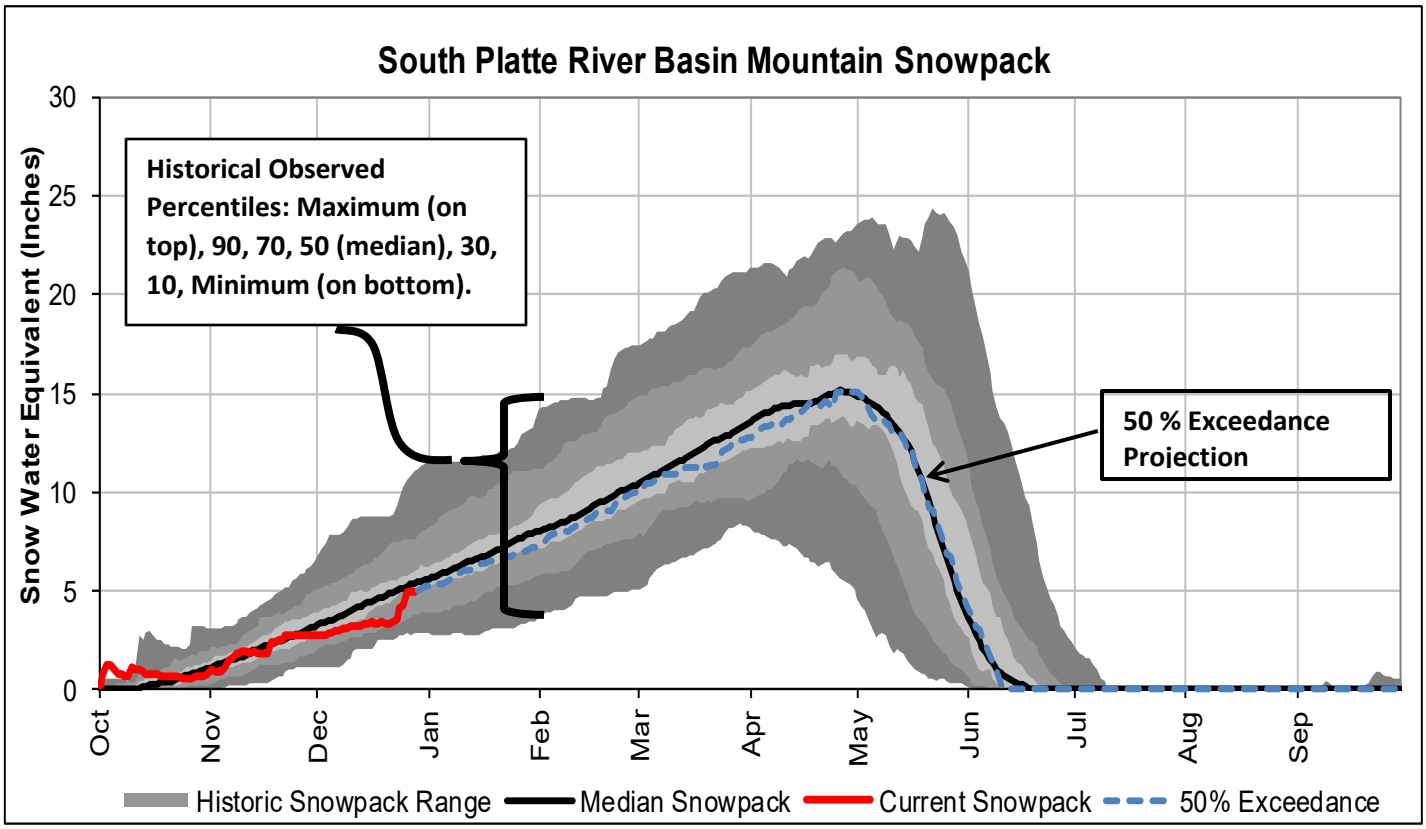
Current water year is represented by the heavy red line terminating on the last day the graphic was updated.

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 % Exceedance 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:

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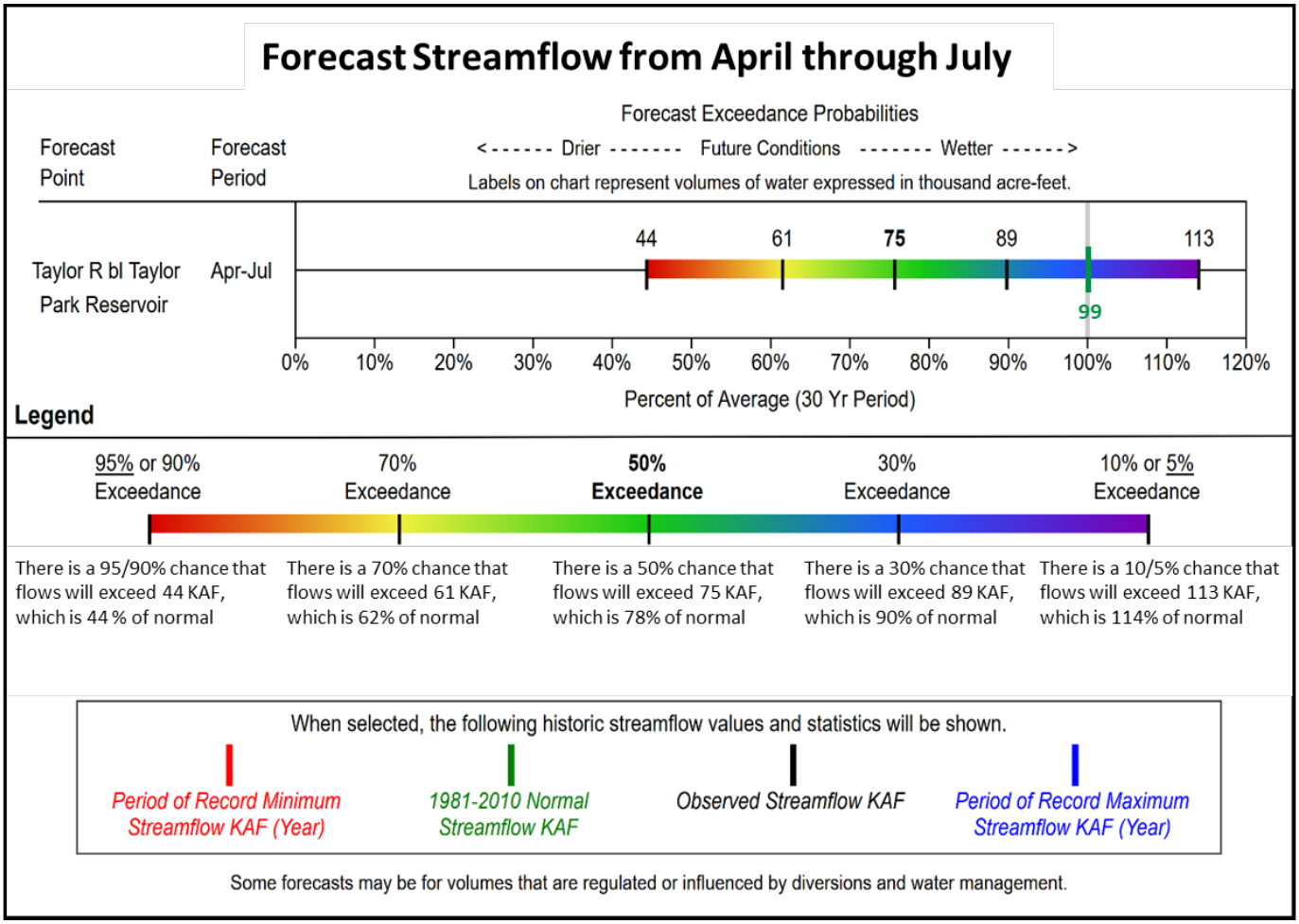
Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual 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.

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.



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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

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Clint Evans
State Conservationist
Natural Resources Conservation Service
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Water Supply Outlook Report
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