USDA United States Department of Agriculture
Natural Resources Conservation Service

Colorado
Water Supply Outlook Report
April 1, 2021

Overlooking the western portion of Turquoise Lake from Hagerman Pass as Snow Survey Supervisor, Brian Domonkos, and Hydrologist, Zack Wilson, leave Hagerman Tunnel Snow Course, which measured at 82 percent of median for the end of March.

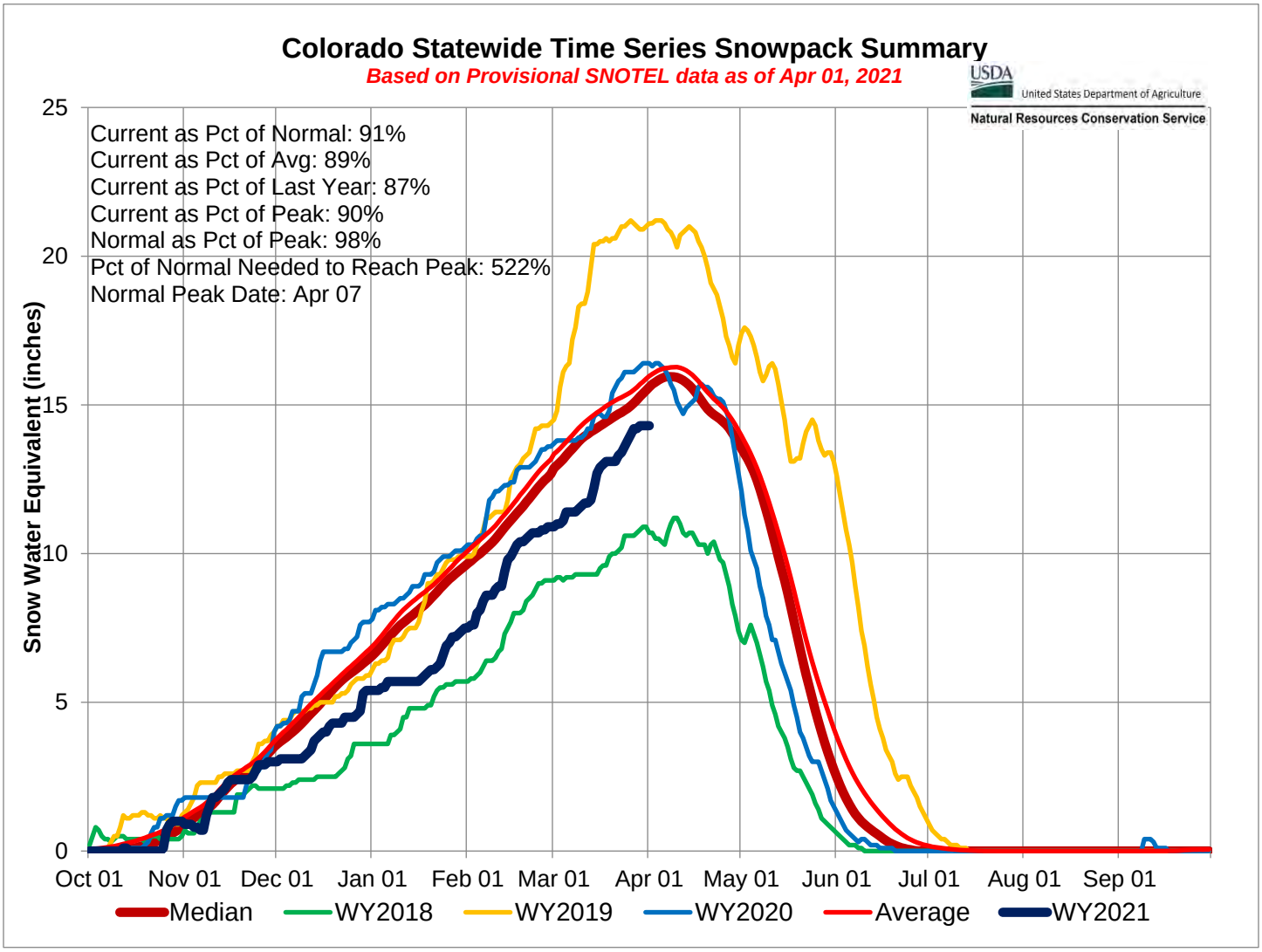
Photo By: Brian Domonkos

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

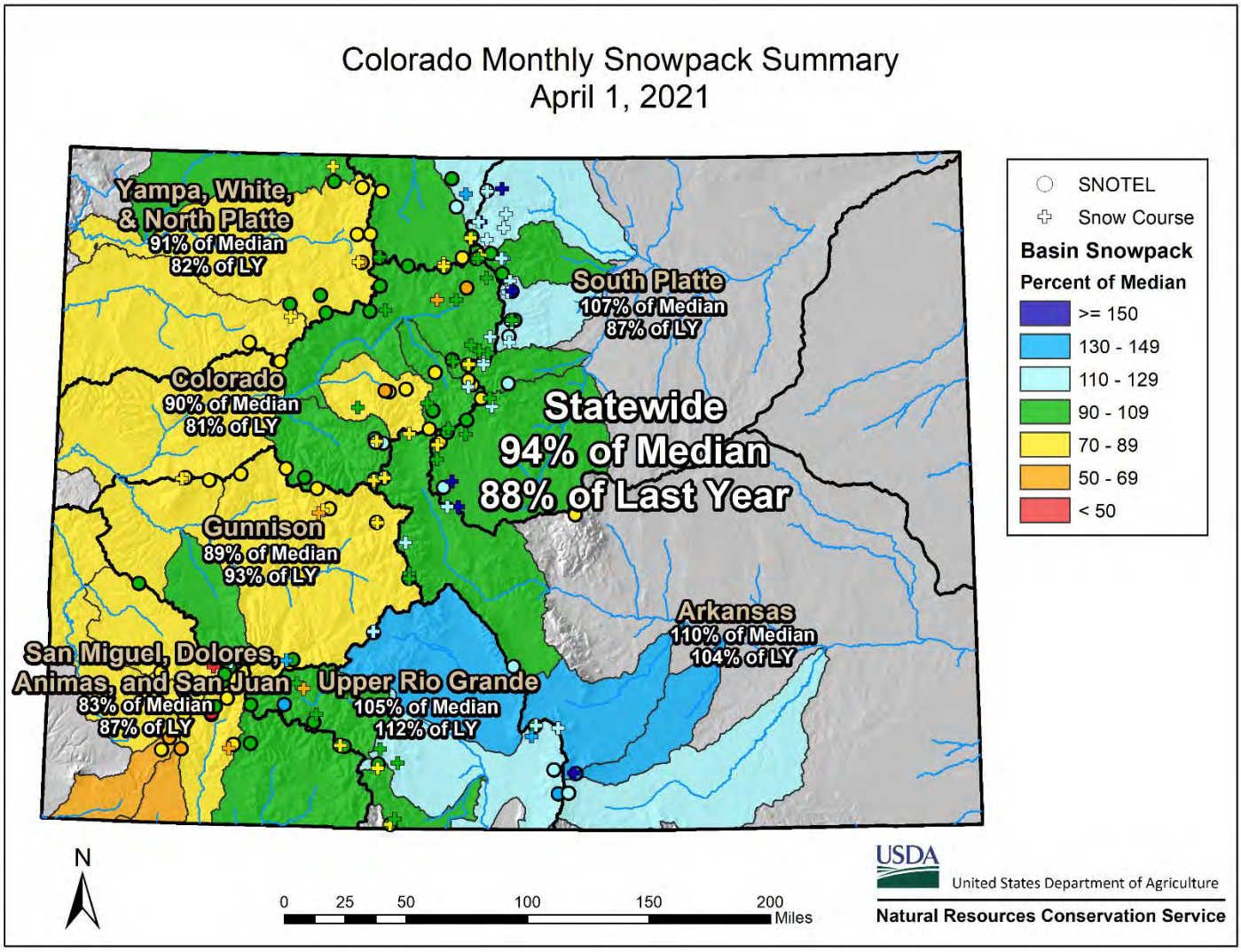
Colorado Statewide Water Supply Conditions

Summary



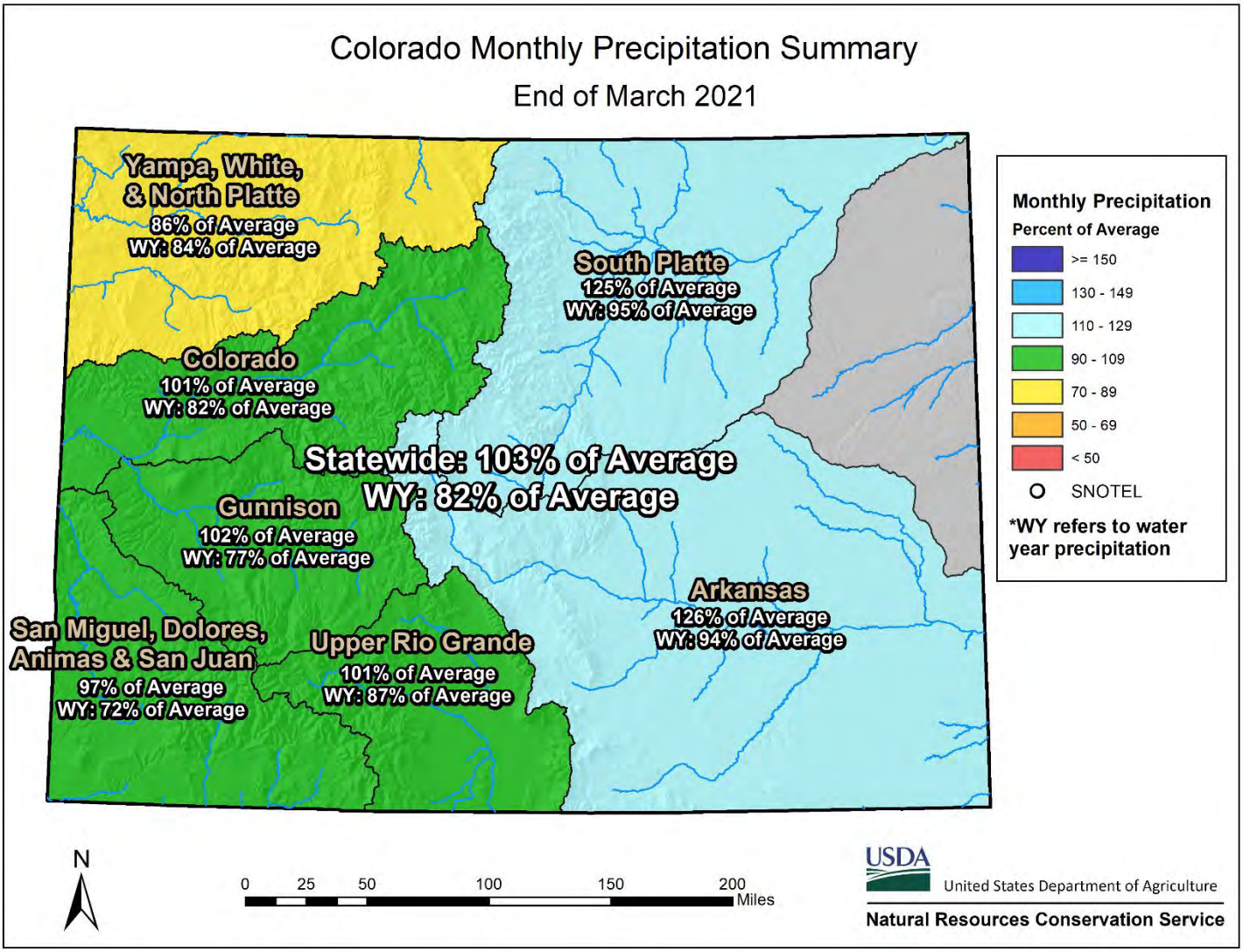
Much of Colorado received substantial precipitation during March, improving the water outlook, especially in eastern river basins. A series of cyclonic, low pressure systems moved through southern Colorado and Northern New Mexico, circulating gulf moisture into Colorado. These upslope style storms brought substantial precipitation and snowpack accumulation to the eastern Rockies. The Arkansas River Basin and South Platte River Basin had the largest gains in precipitation and snowpack in the state, ending March with above-median snowpack. In the northern Front Range, three SNOTEL sites received record precipitation during March. An additional ten SNOTEL sites received the second-highest precipitation on record for the month. Due to these storms, March ended with improved snowpack conditions across the state. Unlike river basins east of the Continental Divide, snowpack and precipitation conditions in western river basins only saw modest gains. Despite statewide improvements in water supply, streamflow runoff forecasts remain conservative, with all river basins in the state projecting below-average runoff. Drought conditions continue to persist statewide due to soil moisture deficits from last summer and below-average water year-to-date precipitation. Due to these persistent dry conditions, statewide reservoir storage levels remain below average in stark contrast from March of last year. In river basins that only had a slight improvement in snowpack and precipitation, streamflow forecasts remain bleak. In river basins west of the Continental Divide, forecasted streamflow volumes are less than 75 percent of average. As the snowpack peaks and begins to melt, several more months of above-average precipitation are needed to reduce drought conditions in much of the state, especially in western river basins.

Snowpack



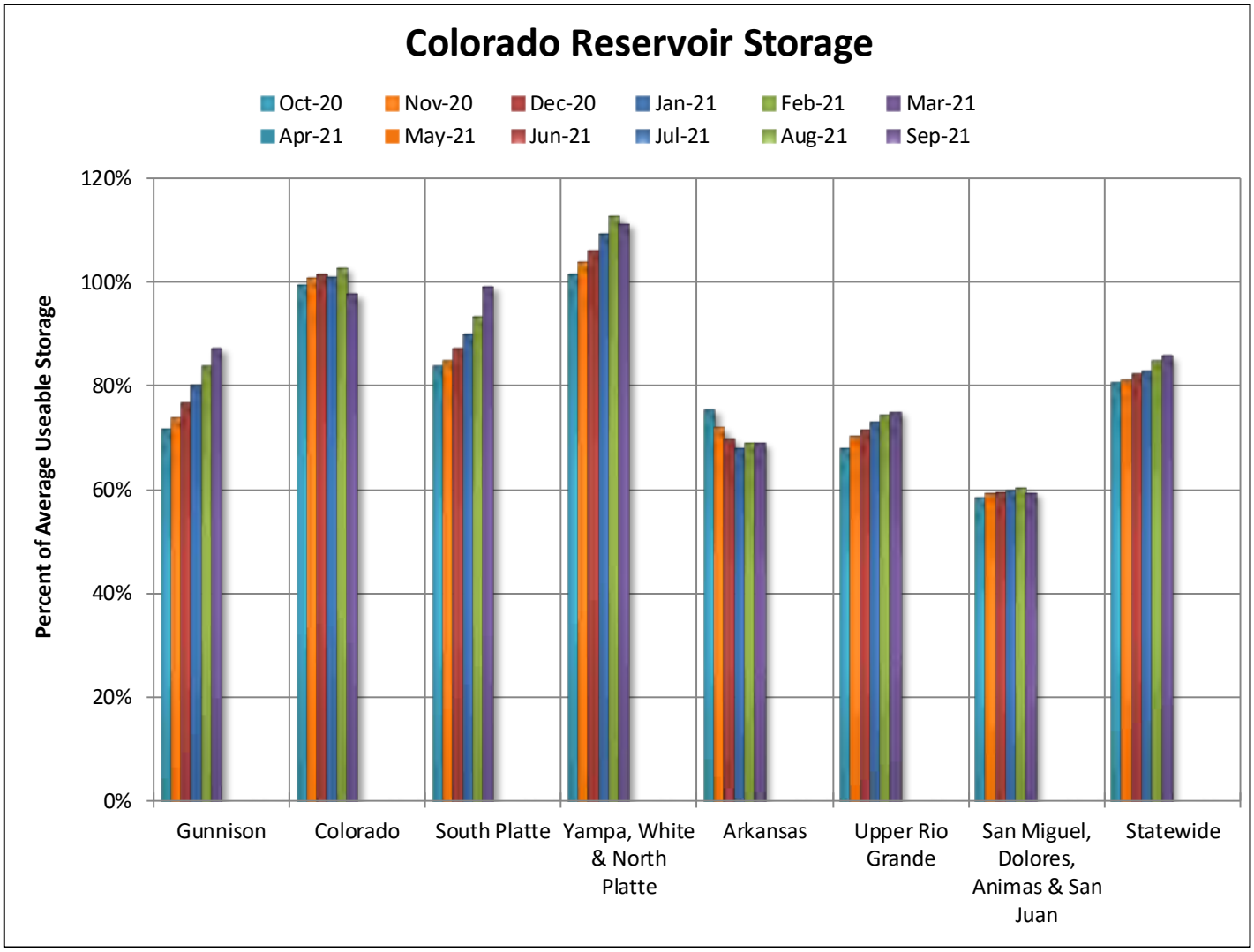
Following a series of March storms that brought abundant snowfall to almost all parts of the state, Colorado enters April with statewide snowpack a mere 6 percent below the 30-year median. The eastern river basins fared especially well during March owing to a record-setting upslope storm that descended upon the Front Range around the middle of the month. The Arkansas River basin snowpack is currently the highest in the state after increasing from 90 percent to 110 percent of median during March. Similarly, the South Platte River basin snowpack increased substantially from 90 percent to 107 percent of median during March. The Upper Rio Grande River basin snowpack also ended March above median snowpack levels at 105 percent; an increase of 7 percent compared to last month. None of the western river basins are above median, although the combined Yampa-North Platte-White, the Colorado, and the Gunnison River basins are all relatively close at 91 percent, 90 percent, and 89 percent of median, respectively. The combined San Miguel-Dolores-Animas-San Juan River basin snowpack increased modestly from February but remains the lowest in the state at 83 percent of median. Statewide, snowpack levels have steadily increased from a low of 77 percent of median on February 1 to a winter-high of 94 percent of median on April 1.

Precipitation



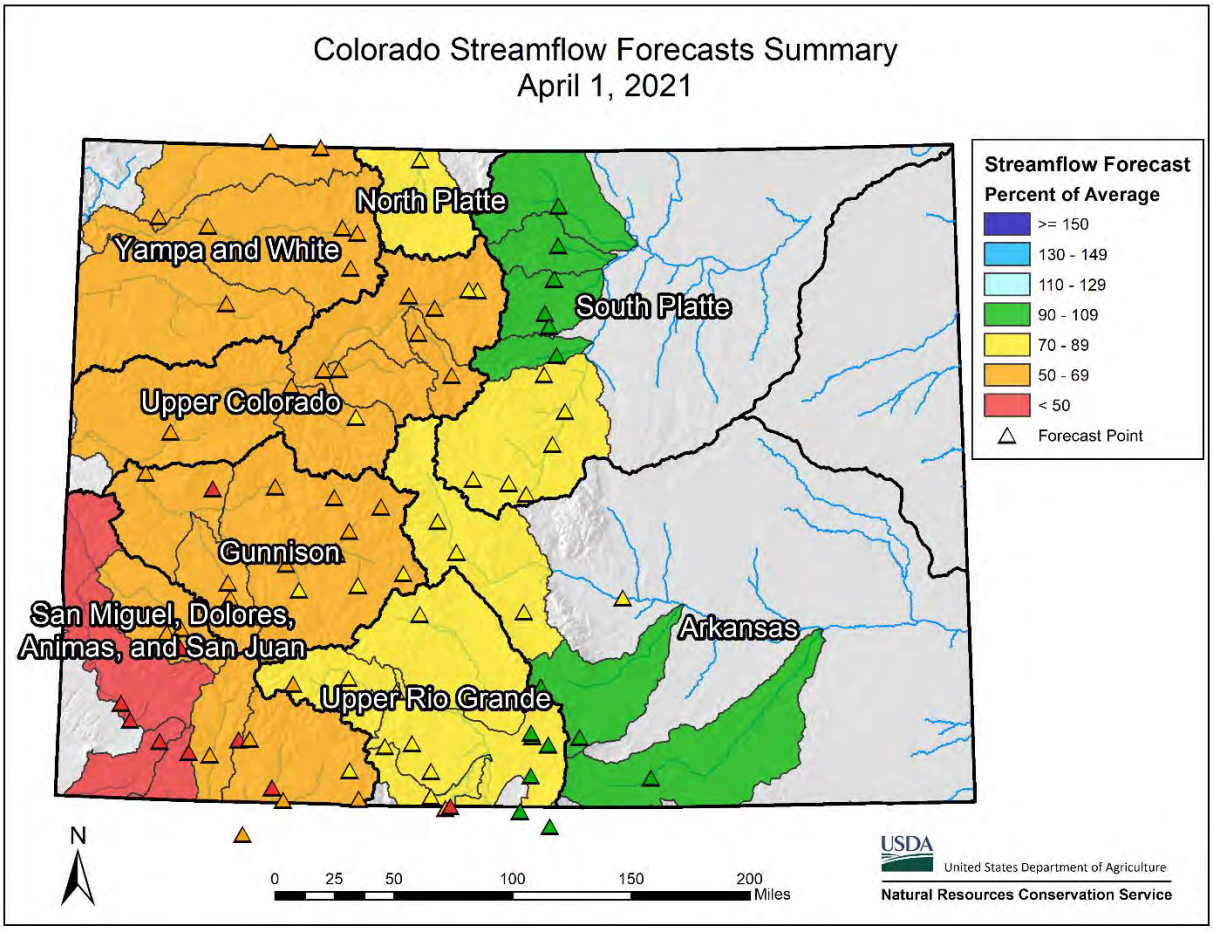
Although water year-to-date precipitation in each major river basin across Colorado is still below average, all major river basins saw increases in water year-to-date precipitation during March. Similar to February, March 2021 brought needed precipitation to most of Colorado, including a large storm that delivered up to three feet of snow near parts of the Front Range. Statewide, precipitation for the month of March was 103 percent of average, but statewide precipitation remains 82 percent of average for the 2021 water year. The Front Range river basins of Colorado saw the most precipitation increase and are almost average for the water year after March; the South Platte and Arkansas river basins had 125 and 126 percent of average precipitation for the month of March, respectively, and now are at 95 and 94 percent of average water year precipitation. The combined Yampa-White-North Platte had the lowest precipitation compared to average for March, receiving 86 percent of average, and water year precipitation is near the same mark at 84 percent of average. The Colorado river basin had 101 percent of average March precipitation leaving the basin at 82 percent of average for the water year. The Gunnison and Upper Rio Grande received 102 and 101 percent of average precipitation in March, respectively, but the Gunnison remains at 77 percent of average precipitation for the water year and the Upper Rio Grande is at 87 percent of average water year precipitation. The combined San Miguel-Dolores-Animas-San Juan basin saw a welcomed increase in March precipitation, compared to previous months, and received 97 percent of average precipitation for March, however, the basin is still at 72 percent of average water year precipitation due to consistent lower precipitation earlier in the year.

Reservoir Storage



Although Colorado reservoir levels are at 86 percent of average, statewide, they have slowly increased since October, 2020. This time last year, the statewide reservoir storage was 107 percent of average. The combined Yampa-White-North Platte basin remains above average, at 111 percent of average. The South Platte and Colorado river basins are up from last month and now show 99 and 98 percent of average reservoir storage respectively; however, both basins were at least ten percent above average reservoir storage this time last year. The southern area of the state displays lower overall reservoir storage. The combined San Miguel-Dolores-Animas-San Juan basin shows the lowest percent of average reservoir storage and is currently at 59 percent of average. At the beginning of April last year, the combined San-Miguel-Dolores-Animas-San Juan basin had 107 percent of average reservoir storage. The Arkansas river basin has 69 percent of average storage, but this time last year had 92 of average storage. The Gunnison and Upper Rio Grande basins are currently at 87 and 75 percent of average reservoir storage, respectively. Like other basins in Colorado, the reservoir storage was higher this time last year for the Gunnison and Upper Rio Grande, at 111 and 83 percent of average, respectively. Additional spring precipitation may supplement runoff and offer increased reservoir storage, but for now, the reservoir storage for southern Colorado remains below average. The northern basins in the state have near average reservoir storage.

Streamflow

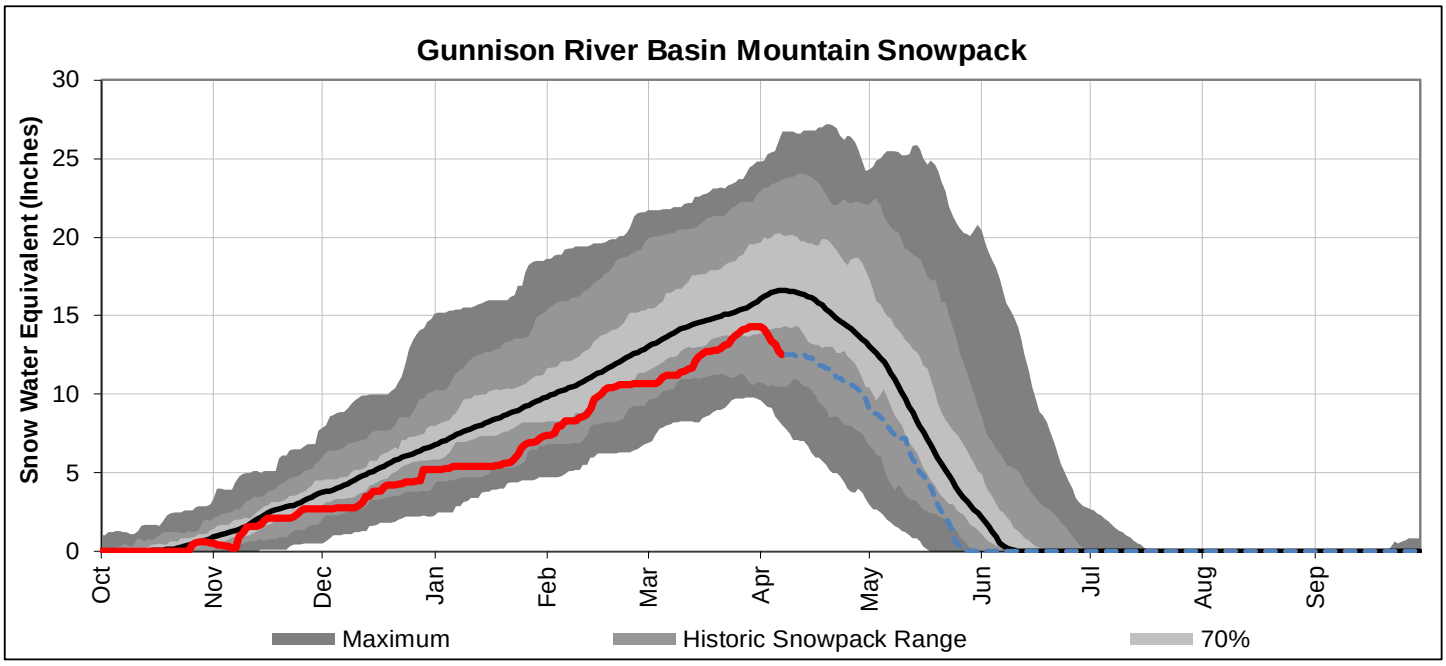


Streamflow forecasts have improved for much of the state with the biggest gains in the eastern basins. Despite these gains, all major basins are still forecast to have below average streamflow. A strong, upslope storm in mid-March made the Front Range mountains the winner in terms of gains for streamflow with record precipitation amounts. Streamflow volume forecasts from April through July range from a high of 109 percent of average for Cucharas River near La Veta, to a low of 36 percent of average for the Mancos River near Mancos. The streamflow forecast mirrors the east-west distribution of precipitation and snowpack, with the South Platte, Arkansas, and Upper Rio Grande river basins having the highest streamflow forecasts at 88, 86, and 73 percent of average, respectively. West of the Divide, the combined Yampa-White-North Platte river basins have a streamflow forecast of 60 percent of average. The Upper Colorado river basin forecasts range from 57 to 77 percent of average for total streamflow volume from April through July of 67 percent. The Gunnison river basin is currently forecasted to produce streamflow volumes at 57 percent of average during this same time frame. In the southwest corner of the state, the combined San Miguel-Dolores-Animas-San Juan river basins have the lowest streamflow forecasts that range from 36 to 74 percent of average for a forecast volume of 53 percent. As we round the corner from peak accumulation to the ablation season, we will start to see the impacts of the near record (very dry) antecedent soil moisture conditions on snowmelt runoff and streamflow volumes. SNOTEL soil moisture values (2 in deep) have increased over the past two weeks indicating that melt is upon us. The Climate Prediction Center monthly outlook for the state is for warmer and drier conditions over the next month. The March 22 Colorado Dust on Snow update reports a dust event that impacted the state to varying degrees. The large upslope storm that hit the Front Range also contained a red dust layer lofted all the way from Mexico. Dust was detected at Willow Creek and Rabbit Ears Pass as well as by the NWS office in Cheyenne, WY. It will be interesting to see how the combination of these factors play out over the next month. Please refer to individual basin sections in this report to get more details.

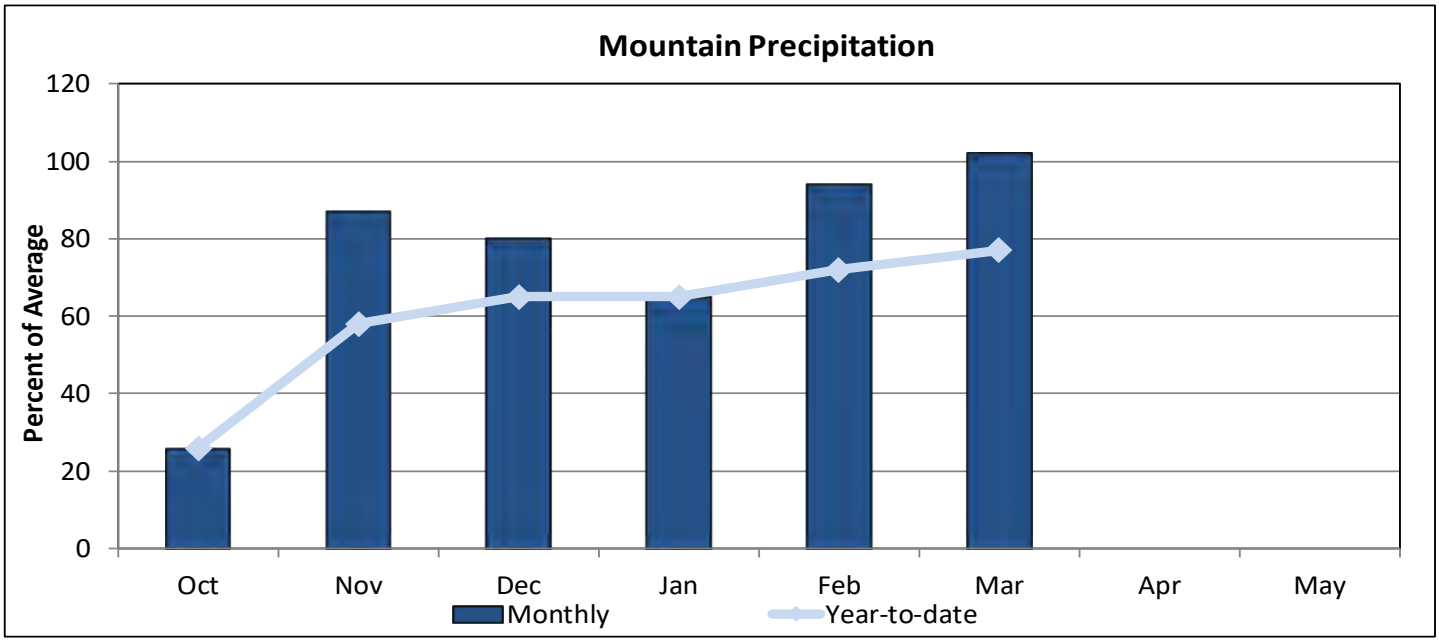
GUNNISON RIVER BASIN

April 1, 2021

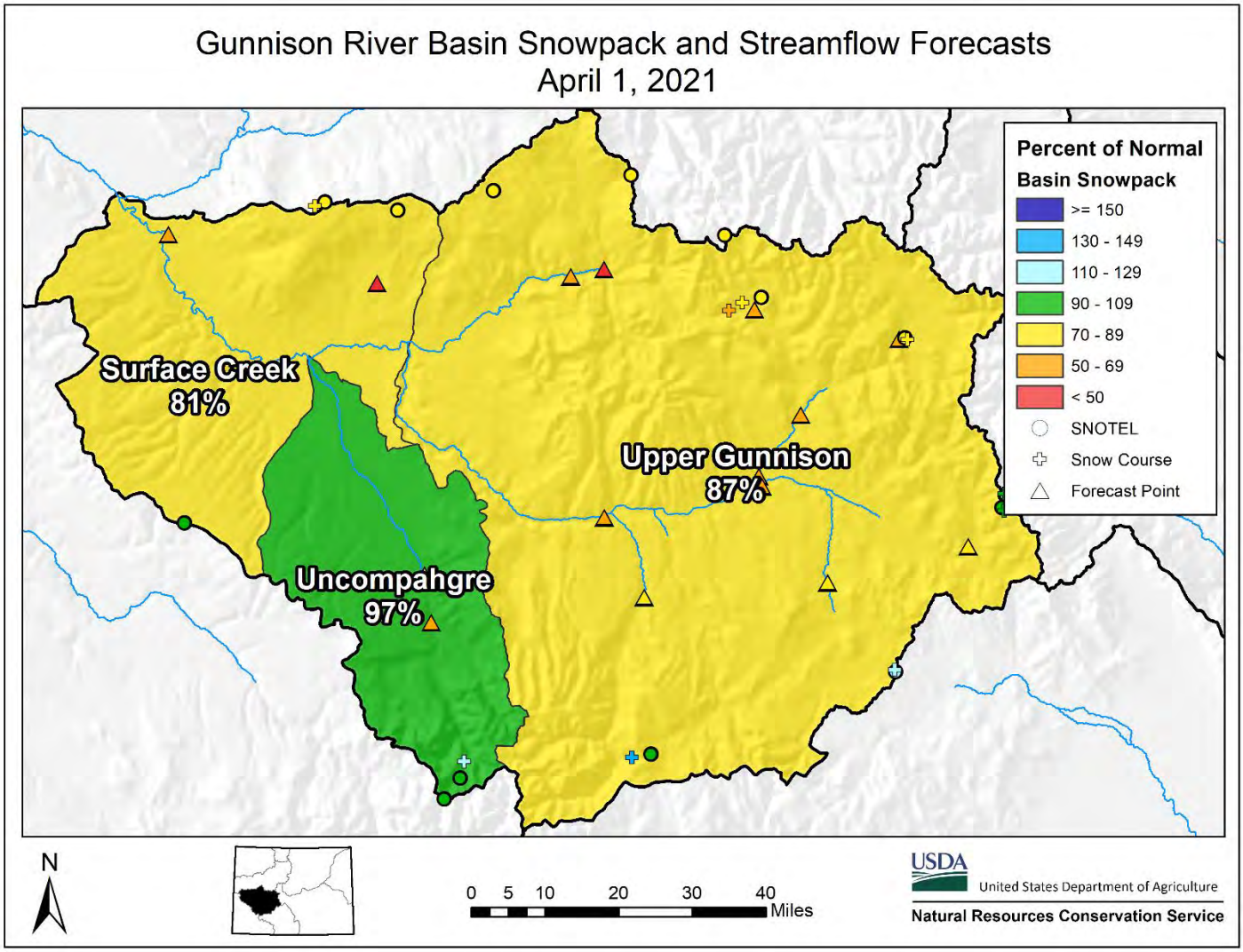
Snowpack in the Gunnison river basin is below normal at 89% of the median. Precipitation for March was 102% of average which brings water year-to-date precipitation to 77% of average. Reservoir storage at the end of March was 87% of average compared to 111% last year. Current streamflow forecasts range from 77% of average on Tomichi Creek at Sargents to 41% of average on the Paonia Reservoir Inflow for April - July.

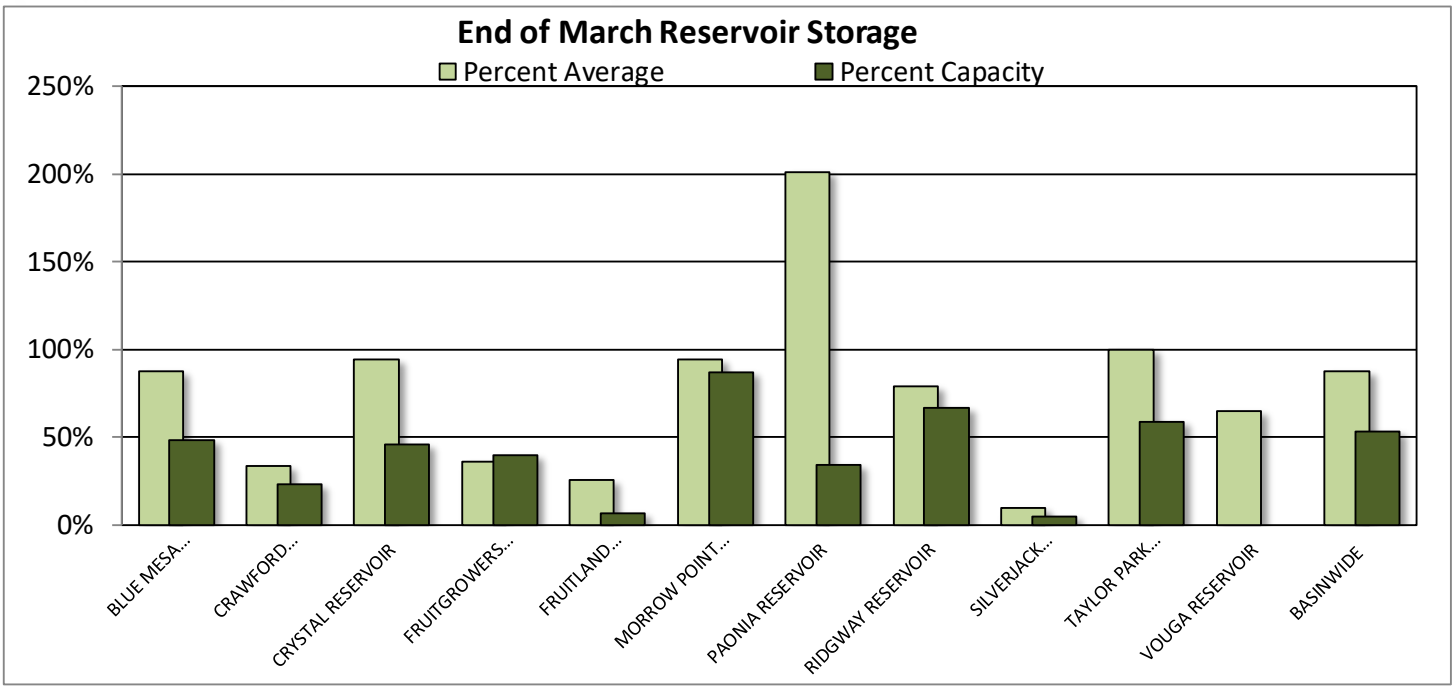


*SWE values calculated using daily SNOTEL data only



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


Gunnison River Basin Snowpack and Streamflow Forecasts
April 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
81%
Upper Gunnison
87%
Uncompahgre
97%
N
0 5 10 20 30 40
Miles
USDA
United States Department of Agriculture
Natural Resources Conservation Service


End of March Reservoir Storage
Percent Average
Percent Capacity
250%
200%
150%
100%
50%
0%
BLUE MESA...
CRAWFORD...
CRYSTAL RESERVOIR
FRUITGROWERS...
FRUITLAND...
MORROW POINT...
PAONIA RESERVOIR
RIDGWAY RESERVOIR
SILVERJACK...
TAYLOR PARK...
VOUGA RESERVOIR
BASINWIDE

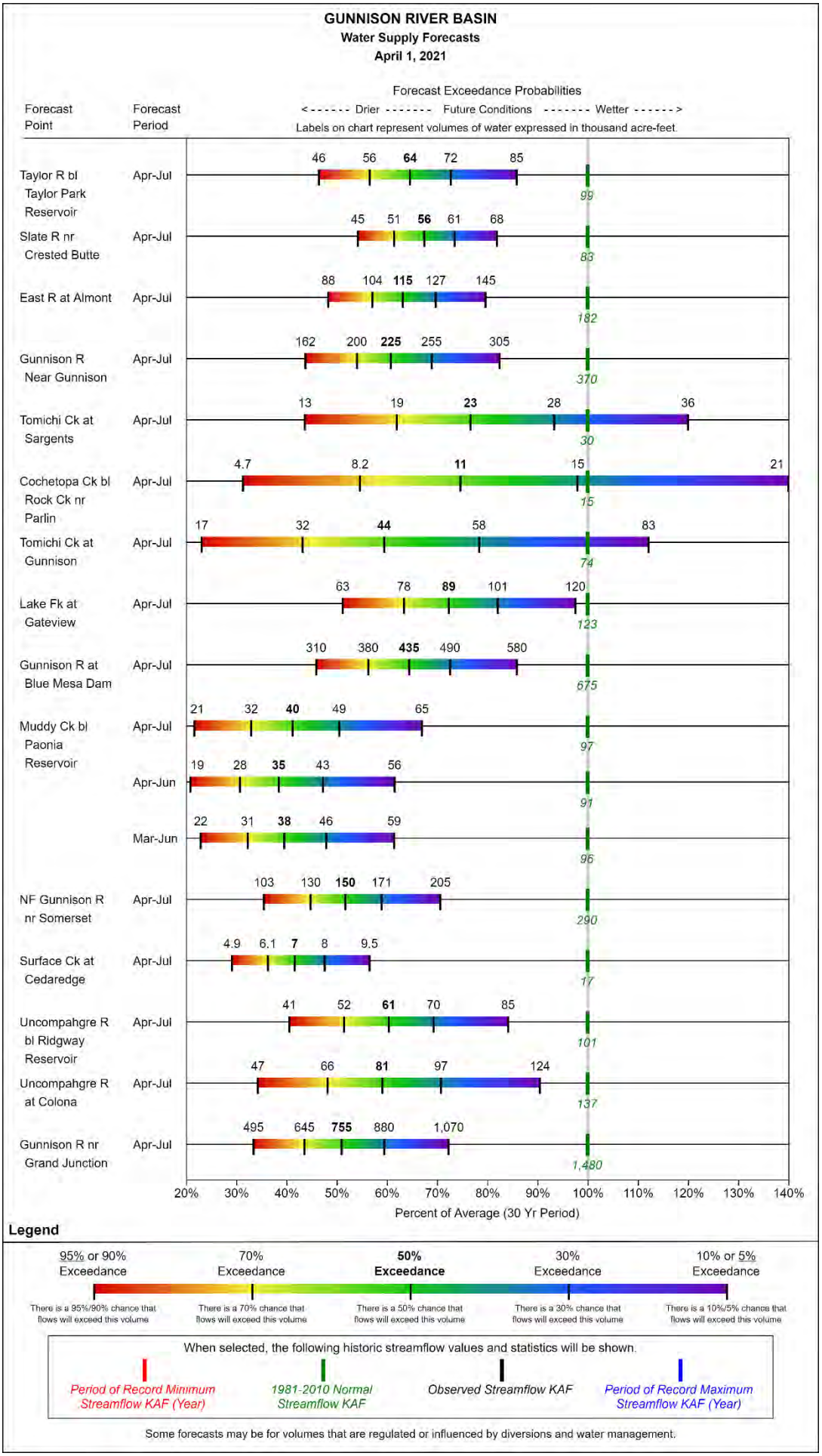
Watershed Snowpack Analysis April 1st, 2021

Sub-Basin	# of Sites	% Median	Last Year % Median
Upper Gunnison	18	87	59
Surface Creek	3	81	54
Uncompahgre	4	97	79
Basin-Wide Total	22	89	63

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

Reservoir Storage End of March 2021

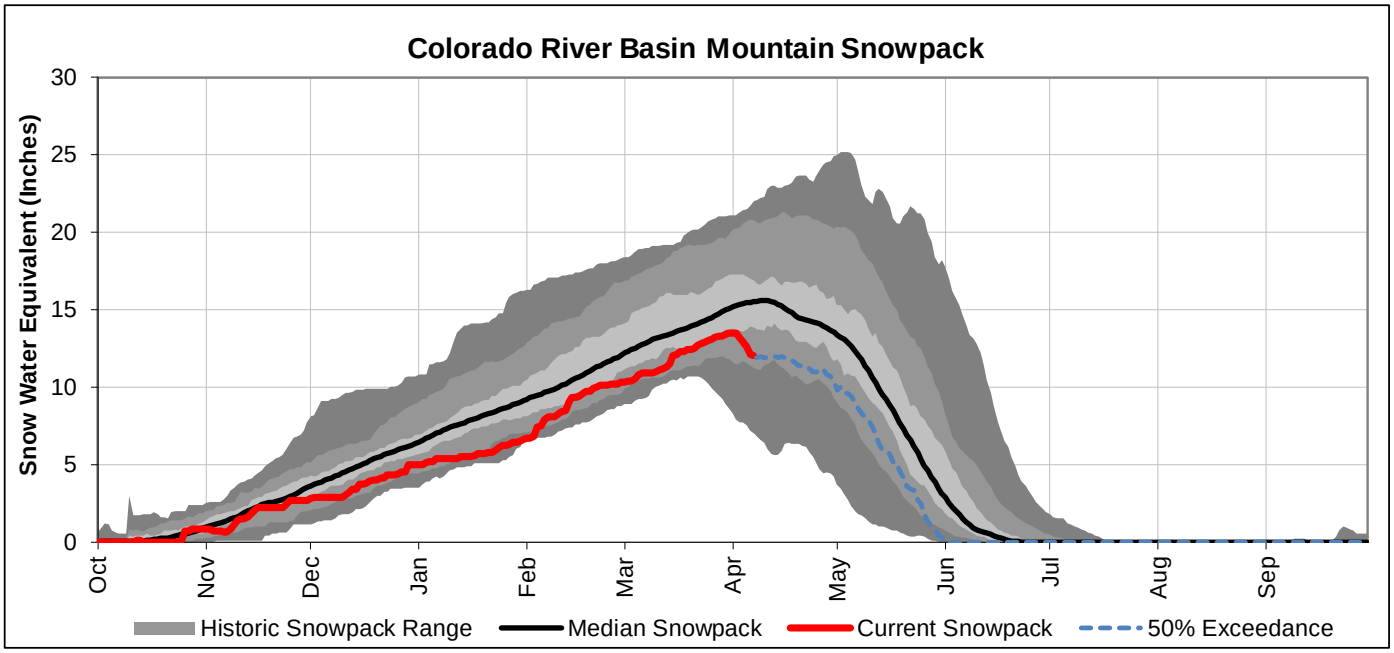
Reservoir	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
BLUE MESA RESERVOIR	399.0	534.4	454.9	830.0
CRAWFORD RESERVOIR	3.2	9.2	9.7	14.0
CRYSTAL RESERVOIR	8.0	9.7	8.5	17.5
FRUITGROWERS RESERVOIR	1.4	3.6	4.0	3.6
FRUITLAND RESERVOIR	0.6	1.4	2.3	9.2
MORROW POINT RESERVOIR	104.9	105.7	111.7	121.0
PAONIA RESERVOIR	5.2	7.6	2.6	15.4
RIDGWAY RESERVOIR	55.2	67.0	70.0	83.0
SILVERJACK RESERVOIR	0.6	1.0	6.0	12.8
TAYLOR PARK RESERVOIR	62.1	71.2	62.4	106.0
VOUGA RESERVOIR	0.5		0.8	0.9
BASINWIDE	640.8	810.8	732.9	1213.4
Number of Reservoirs	11	10	11	11


GUNNISON RIVER BASIN
Water Supply Forecasts
April 1, 2021
Forecast Exceedance Probabilities
< ------- Drier -------- Future Conditions -------- Wetter ------- >
Labels on chart represent volumes of water expressed in thousand acre-feet.
Forecast Point
Forecast Period
Taylor R bl Taylor Park Reservoir Apr-Jul 46 56 64 72 85 99
Slate R nr Crested Butte Apr-Jul 45 51 56 61 68 83
East R at Almont Apr-Jul 88 104 115 127 145 182
Gunnison R Near Gunnison Apr-Jul 162 200 225 255 305 370
Tomichi Ck at Sargents Apr-Jul 13 19 23 28 36 30
Cochetopa Ck bl Rock Ck nr Parlin Apr-Jul 4.7 8.2 11 15 21 15
Tomichi Ck at Gunnison Apr-Jul 17 32 44 58 83 74
Lake Fk at Gateview Apr-Jul 63 78 89 101 120 123
Gunnison R at Blue Mesa Dam Apr-Jul 310 380 435 490 580 675
Muddy Ck bl Paonia Reservoir Apr-Jul 21 32 40 49 65 97
Apr-Jun 19 28 35 43 56 91
Mar-Jun 22 31 38 46 59 96
NF Gunnison R nr Somerset Apr-Jul 103 130 150 171 205 290
Surface Ck at Cedaredge Apr-Jul 4.9 6.1 7 8 9.5 17
Uncompahgre R bl Ridgway Reservoir Apr-Jul 41 52 61 70 85 101
Uncompahgre R at Colona Apr-Jul 47 66 81 97 124 137
Gunnison R nr Grand Junction Apr-Jul 495 645 755 880 1,070 1,480
20% 30% 40% 50% 60% 70% 80% 90% 100% 110% 120% 130% 140%
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.

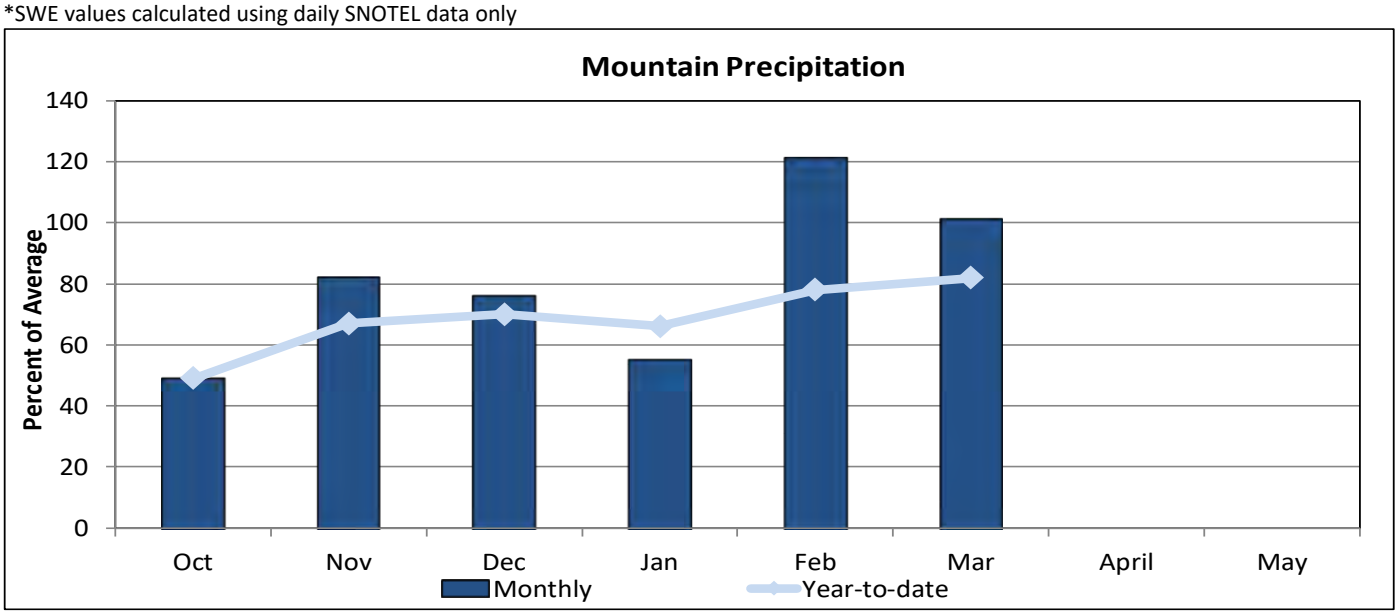
COLORADO RIVER BASIN

April 1, 2021

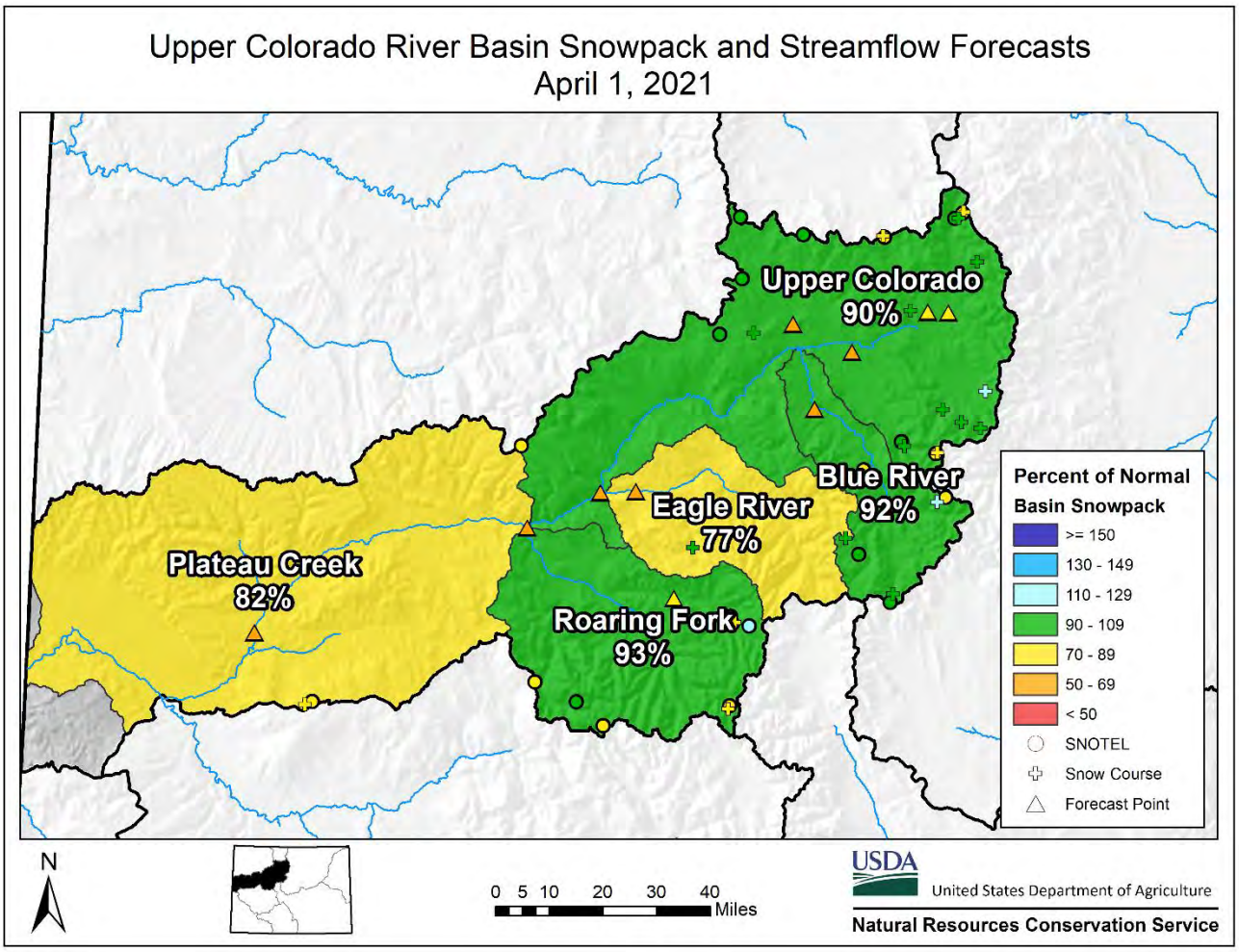
Snowpack in the Colorado river basin is below normal at 90% of the median. Precipitation for March was 102% of average which brings water year-to-date precipitation to 77% of average. Reservoir storage at the end of March was 98% of average compared to 115% last year. Current streamflow forecasts range from 77% of average on the Lake Granby Inflow to 57% of average on the Wolford Mountain Reservoir Inflow for April - July.

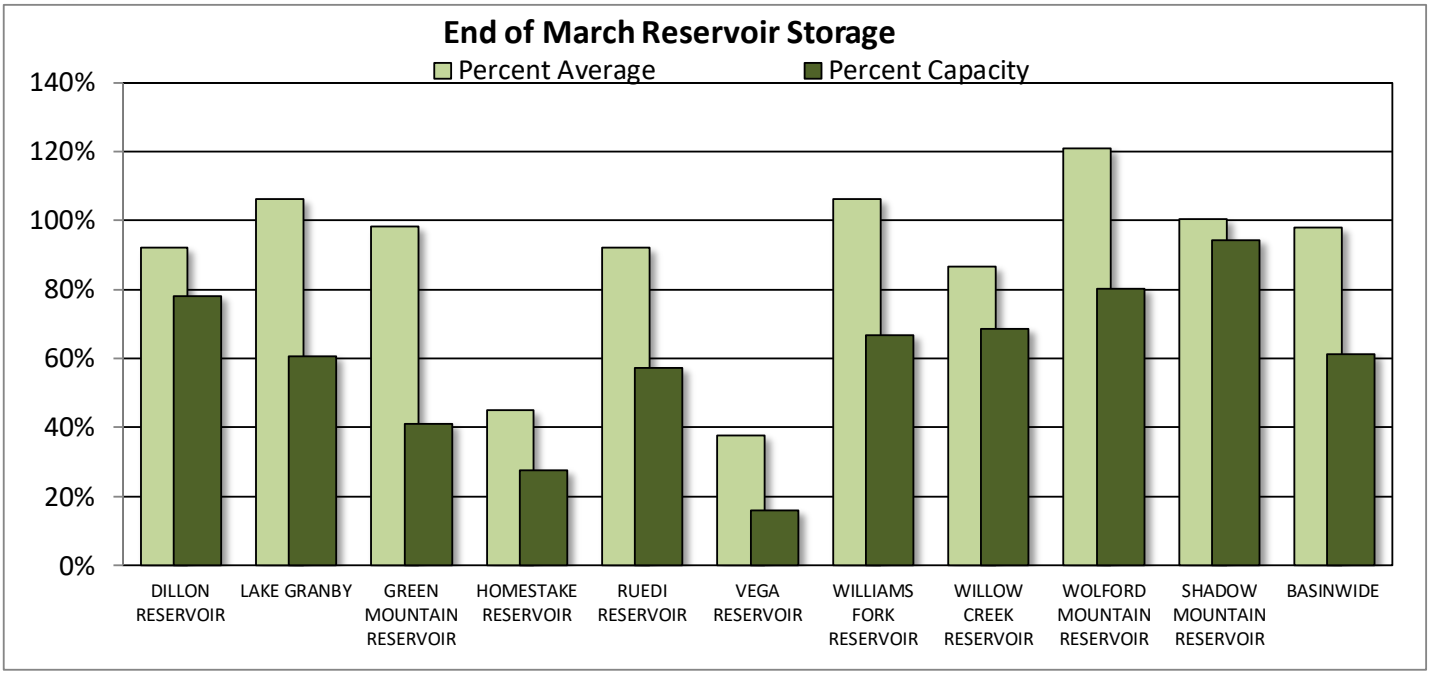


*SWE values calculated using daily SNOTEL data only



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


Upper Colorado River Basin Snowpack and Streamflow Forecasts
April 1, 2021
Upper Colorado
90%
Blue River
92%
Eagle River
77%
Plateau Creek
82%
Roaring Fork
93%
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 March 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 April 1st, 2021

Sub-Basin	# of Sites	% Median	Last Year % Median
Blue River	8	92	80
Upper Colorado	36	90	88
Muddy Creek	5	92	93
Eagle River	5	77	91
Plateau Creek	6	82	69
Roaring Fork	9	93	106
Williams Fork	5	97	112
Willow Creek	5	79	45
Basin-Wide Total	48	90	88

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

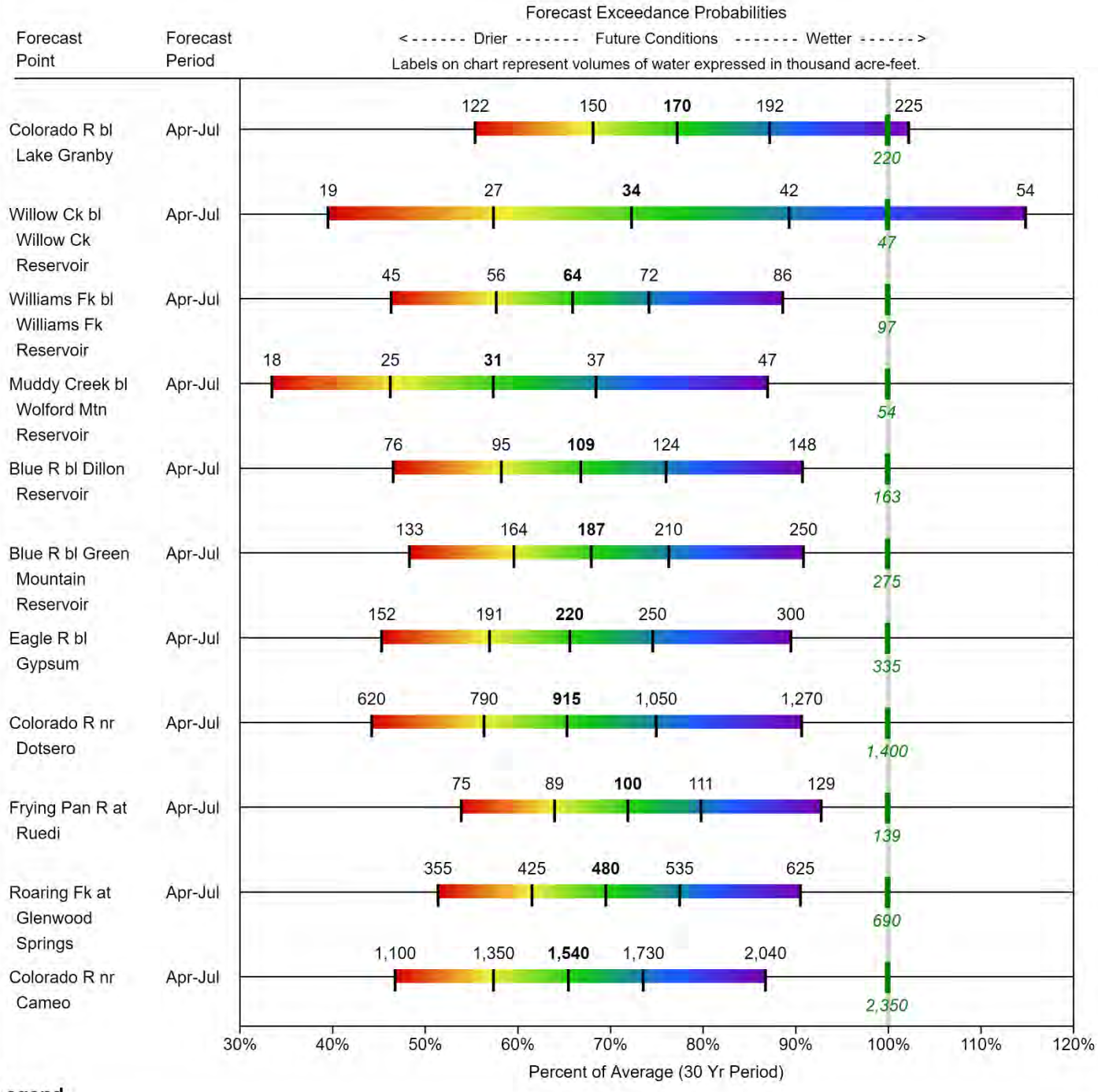
Reservoir Storage End of March 2021

Reservoir	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
DILLON RESERVOIR	194.4	223.1	210.7	249.1
LAKE GRANBY	281.9	323.8	265.0	465.6
GREEN MOUNTAIN RESERVOIR	60.2	62.4	61.2	146.8
HOMESTAKE RESERVOIR	11.8	41.2	26.1	43.0
RUEDI RESERVOIR	58.3	68.3	63.2	102.0
VEGA RESERVOIR	5.3	15.3	14.0	32.9
WILLIAMS FORK RESERVOIR	64.6	74.4	60.8	97.0
WILLOW CREEK RESERVOIR	6.2	8.1	7.2	9.1
WOLFORD MOUNTAIN RESERVOIR	52.9	50.8	43.7	65.9
SHADOW MOUNTAIN RESERVOIR	17.4	17.2	17.3	18.4
BASINWIDE	752.9	884.6	769.2	1229.8
Number of Reservoirs	10	10	10	10

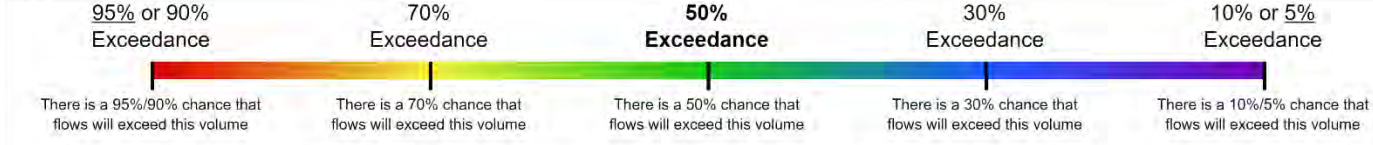
UPPER COLORADO RIVER BASIN

Water Supply Forecasts

April 1, 2021



Legend



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

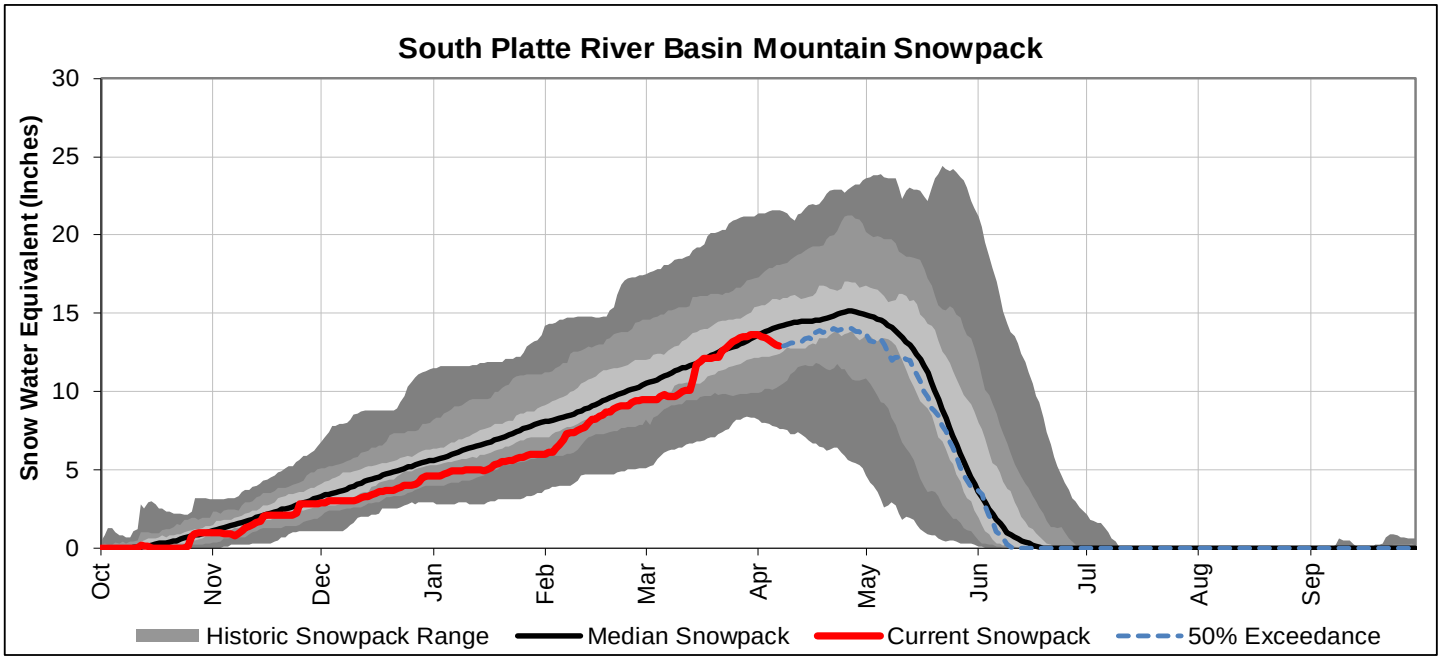
Period of Record Minimum Streamflow KAF (Year) | *1981-2010 Normal Streamflow KAF* | *Observed Streamflow KAF* | *Period of Record Maximum Streamflow KAF (Year)*

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

SOUTH PLATTE RIVER BASIN

April 1, 2021

Snowpack in the South Platte river basin is above normal at 107% of the median. Precipitation for March was 125% of average which brings water year-to-date precipitation to 95%. Reservoir storage at the end of February was 99% of average compared to 111% last year. Current streamflow forecasts range from 96% of average on the Cache La Poudre at Canyon Mouth to 77% of average on the South Platte River at South Platte for April - July.



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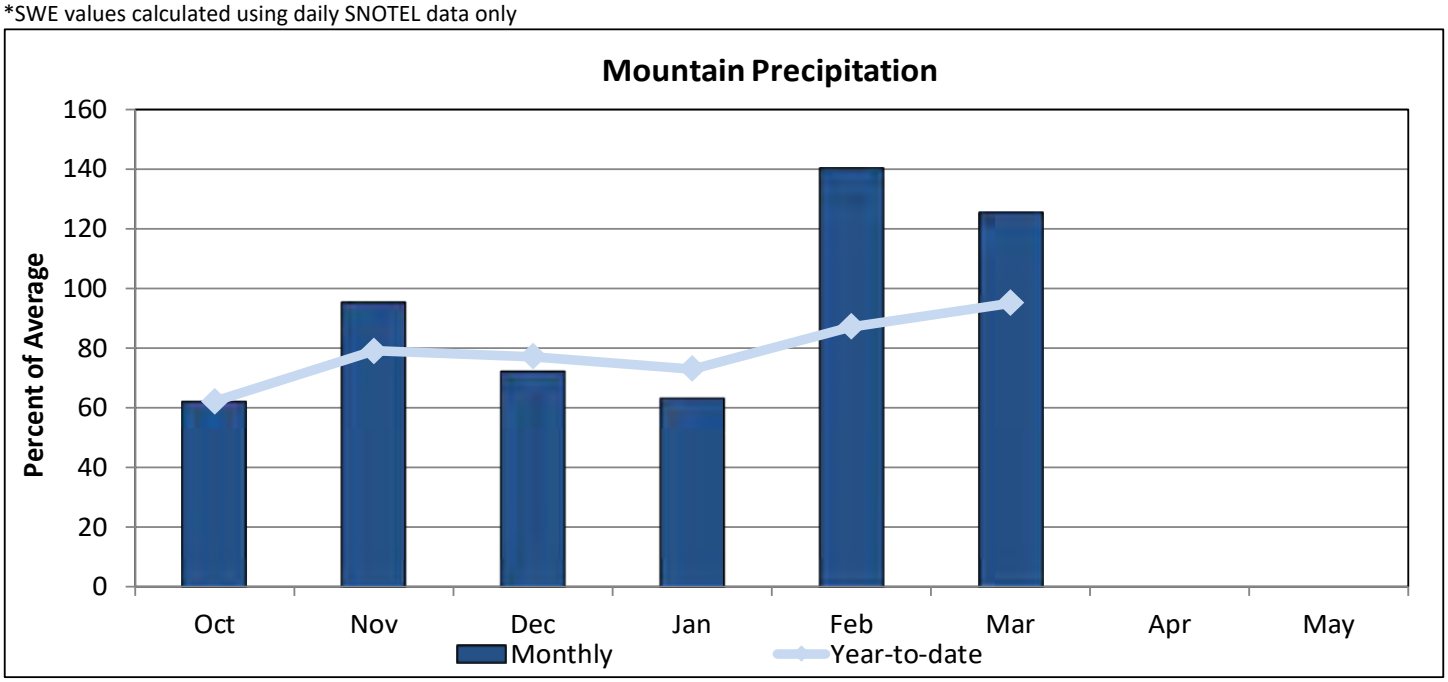

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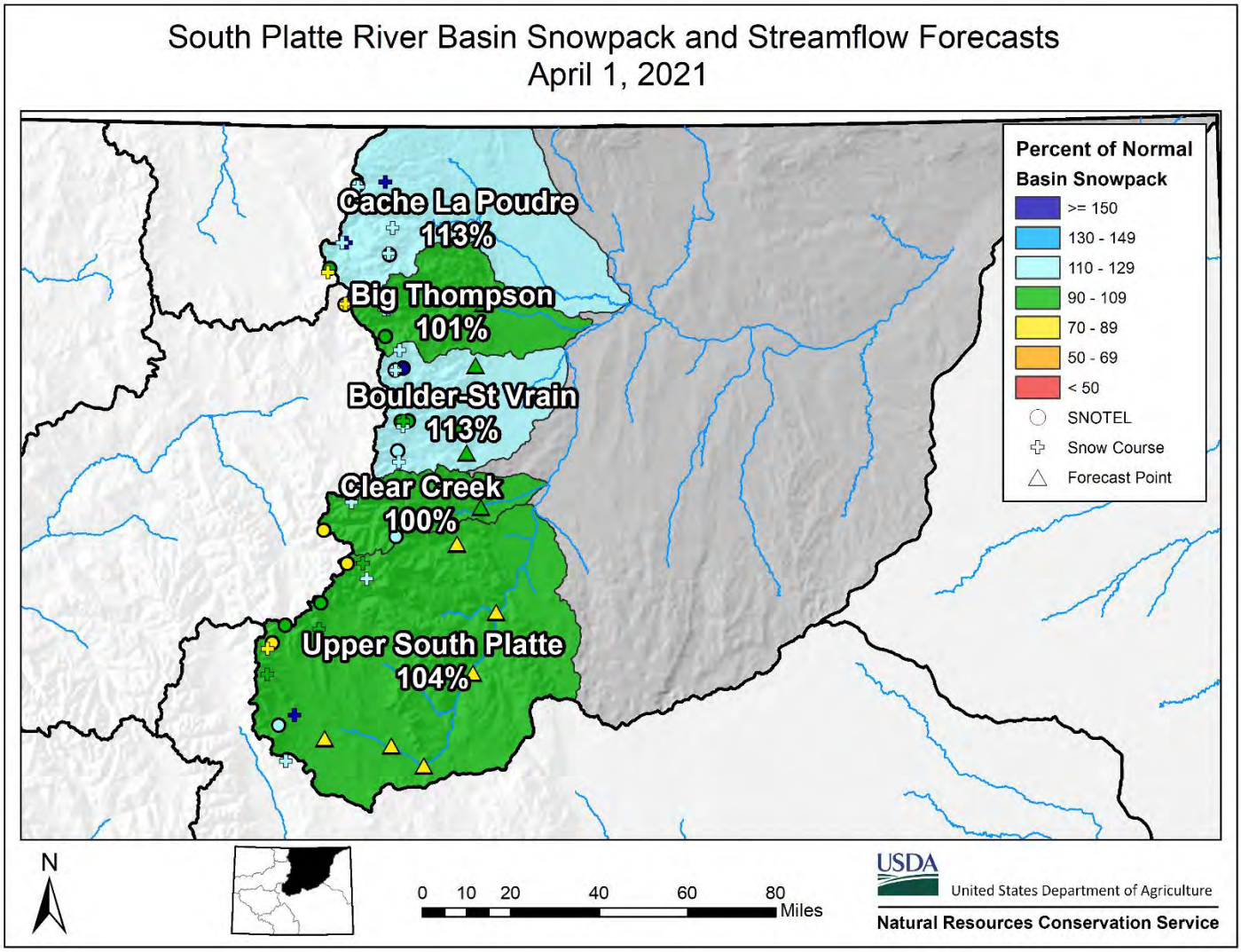
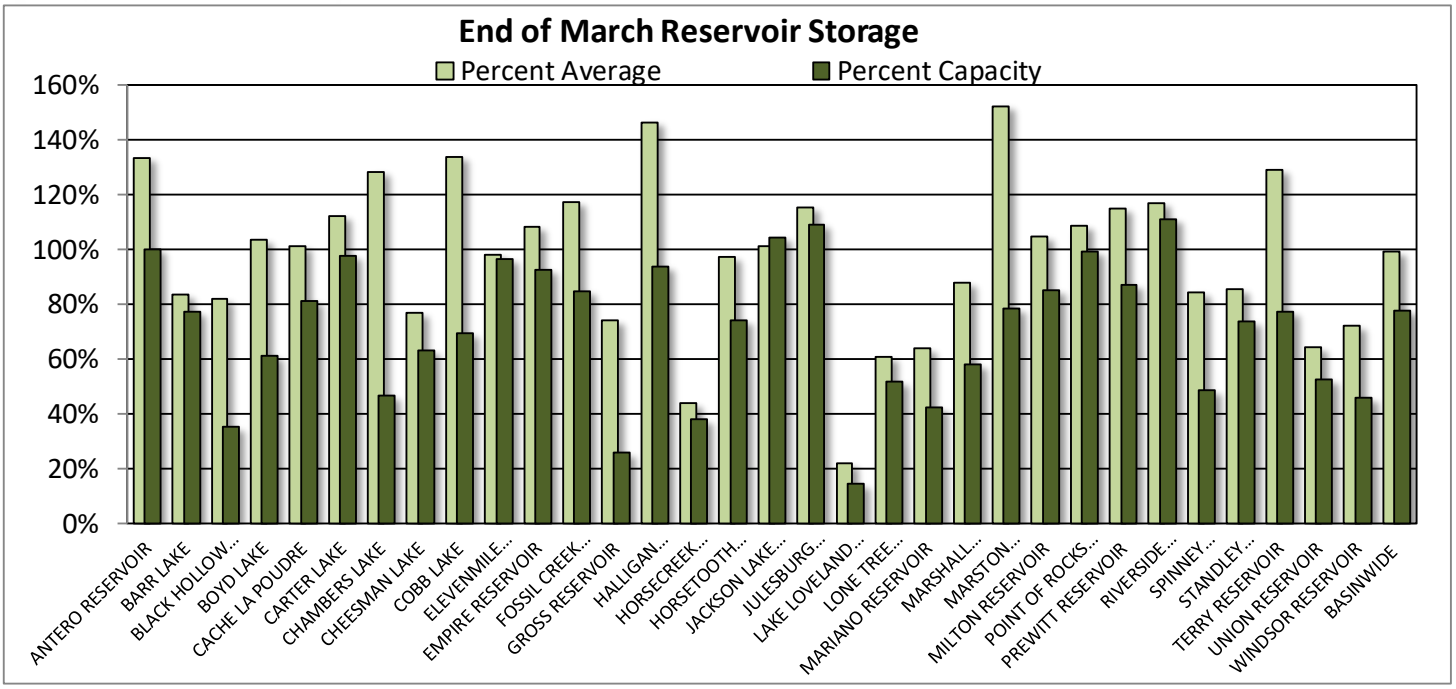

South Platte River Basin Snowpack and Streamflow Forecasts
April 1, 2021
Cache La Poudre
113%
Big Thompson
101%
Boulder-St Vrain
113%
Clear Creek
100%
Upper South Platte
104%
Percent of Normal
Basin Snowpack
>= 150
130 - 149
110 - 129
90 - 109
70 - 89
50 - 69
< 50
SNOTEL
Snow Course
Forecast Point
N
0 10 20 40 60 80
Miles
USDA
United States Department of Agriculture
Natural Resources Conservation Service


End of March Reservoir Storage
Percent Average
Percent Capacity
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...
HORSECREEK...
HORSETOOTH...
JACKSON LAKE...
JULESBURG...
LAKE LOVELAND...
LONE TREE...
MARIANO RESERVOIR
MARSHALL...
MARSTON...
MILTON RESERVOIR
POINT OF ROCKS...
PREWITT RESERVOIR
RIVERSIDE...
SPINNEY...
STANDLEY...
TERRY RESERVOIR
UNION RESERVOIR
WINDSOR RESERVOIR
BASINWIDE

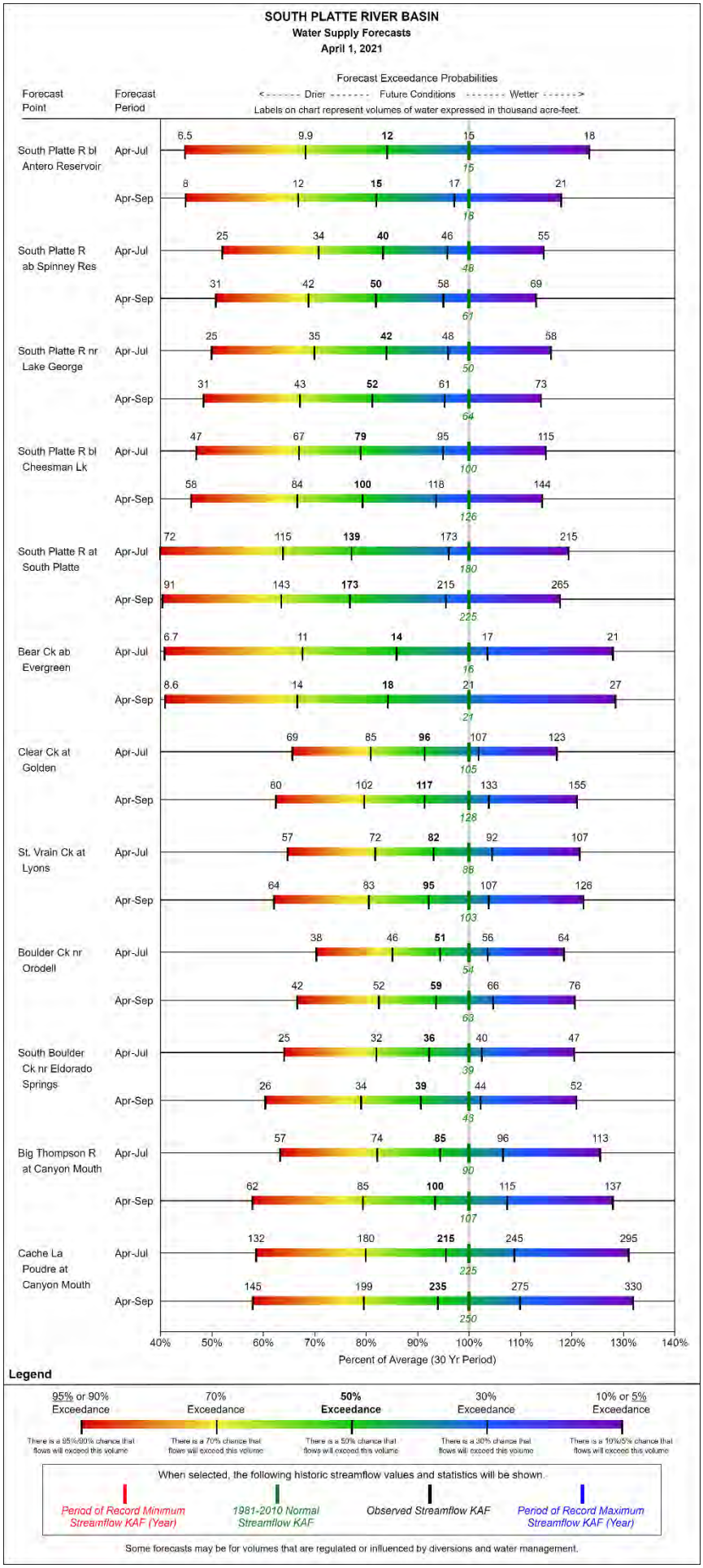
Watershed Snowpack Analysis April 1st, 2021

Sub-Basin	# of Sites	% Median	Last Year % Median
Big Thompson	7	101	69
Boulder Creek	6	107	110
Cache La Poudre	10	113	34
Clear Creek	4	100	72
Saint Vrain	4	136	8
Upper South Platte	16	104	67
Basin-Wide Total	46	107	65

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

Reservoir Storage End of March 2021

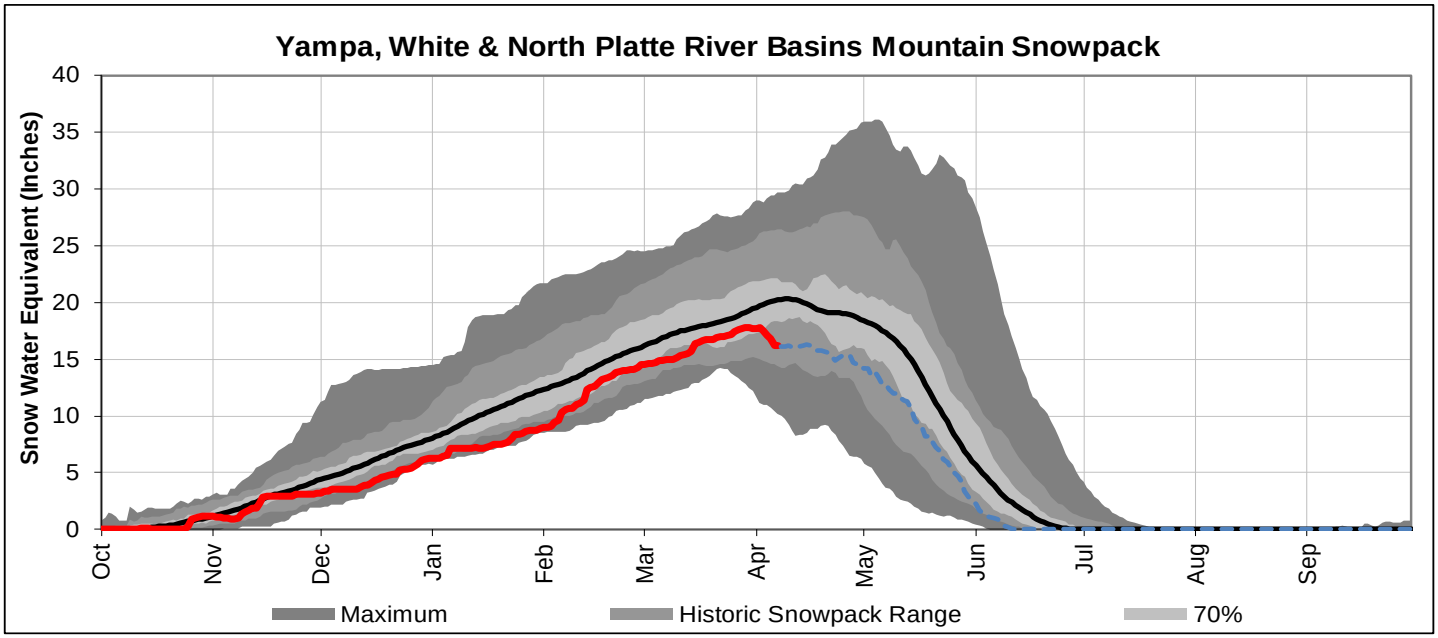
Reservoir	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
ANTERO RESERVOIR	19.9	20.0	14.9	19.9
BARR LAKE	23.2	29.0	27.8	30.1
BLACK HOLLOW RESERVOIR	2.3	3.6	2.8	6.5
BOYD LAKE	29.7	35.4	28.7	48.4
CACHE LA POUDRE	8.2	9.9	8.1	10.1
CARTER LAKE	106.4	106.1	94.9	108.9
CHAMBERS LAKE	4.1	4.2	3.2	8.8
CHEESMAN LAKE	50.0	54.7	65.1	79.0
COBB LAKE	15.5	18.1	11.6	22.3
ELEVENMILE CANYON RESERVOIR	94.6	100.1	96.4	98.0
EMPIRE RESERVOIR	33.8	32.6	31.2	36.5
FOSSIL CREEK RESERVOIR	9.4	9.3	8.0	11.1
GROSS RESERVOIR	7.7	14.4	10.4	29.8
HALLIGAN RESERVOIR	6.0	5.4	4.1	6.4
HORSECREEK RESERVOIR	5.6	11.5	12.7	14.7
HORSETOOTH RESERVOIR	110.9	144.0	113.7	149.7
JACKSON LAKE RESERVOIR	27.3	26.0	26.9	26.1
JULESBURG RESERVOIR	22.4	20.7	19.4	20.5
LAKE LOVELAND RESERVOIR	1.5	2.9	6.8	10.3
LONE TREE RESERVOIR	4.5	7.1	7.4	8.7
MARIANO RESERVOIR	2.3	0.2	3.6	5.4
MARSHALL RESERVOIR	5.8	7.0	6.6	10.0
MARSTON RESERVOIR	10.2	6.4	6.7	13.0
MILTON RESERVOIR	20.0	21.0	19.1	23.5
POINT OF ROCKS RESERVOIR	70.0	70.7	64.4	70.6
PREWITT RESERVOIR	24.6	24.6	21.4	28.2
RIVERSIDE RESERVOIR	62.1	55.0	53.1	55.8
SPINNEY MOUNTAIN RESERVOIR	23.8	37.0	28.2	49.0
STANDLEY RESERVOIR	31.0	38.9	36.2	42.0
TERRY RESERVOIR	6.2	5.5	4.8	8.0
UNION RESERVOIR	6.8	10.5	10.6	13.0
WINDSOR RESERVOIR	7.0	10.5	9.7	15.2
BASINWIDE	852.7	942.3	858.5	1079.5
Number of Reservoirs	32	32	32	32


SOUTH PLATTE RIVER BASIN
Water Supply Forecasts
April 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.
South Platte R bl Antero Reservoir
Apr-Jul
6.5 9.9 12 15 18
15
Apr-Sep
8 12 15 17 21
16
South Platte R ab Spinney Res
Apr-Jul
25 34 40 46 55
46
Apr-Sep
31 42 50 58 69
67
South Platte R nr Lake George
Apr-Jul
25 35 42 48 58
50
Apr-Sep
31 43 52 61 73
64
South Platte R bl Cheesman Lk
Apr-Jul
47 67 79 95 115
100
Apr-Sep
58 84 100 118 144
126
South Platte R at South Platte
Apr-Jul
72 115 139 173 215
180
Apr-Sep
91 143 173 215 265
225
Bear Ck ab Evergreen
Apr-Jul
6.7 11 14 17 21
16
Apr-Sep
8.6 14 18 21 27
21
Clear Ck at Golden
Apr-Jul
69 85 96 107 123
105
Apr-Sep
80 102 117 133 155
128
St. Vrain Ck at Lyons
Apr-Jul
57 72 82 92 107
88
Apr-Sep
64 83 95 107 126
103
Boulder Ck nr Orodell
Apr-Jul
38 46 51 56 64
54
Apr-Sep
42 52 59 66 76
63
South Boulder Ck nr Eldorado Springs
Apr-Jul
25 32 36 40 47
39
Apr-Sep
26 34 39 44 52
43
Big Thompson R at Canyon Mouth
Apr-Jul
57 74 85 96 113
90
Apr-Sep
62 85 100 115 137
107
Cache La Poudre at Canyon Mouth
Apr-Jul
132 180 215 245 295
225
Apr-Sep
145 199 235 275 330
250
40% 50% 60% 70% 80% 90% 100% 110% 120% 130% 140%
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.

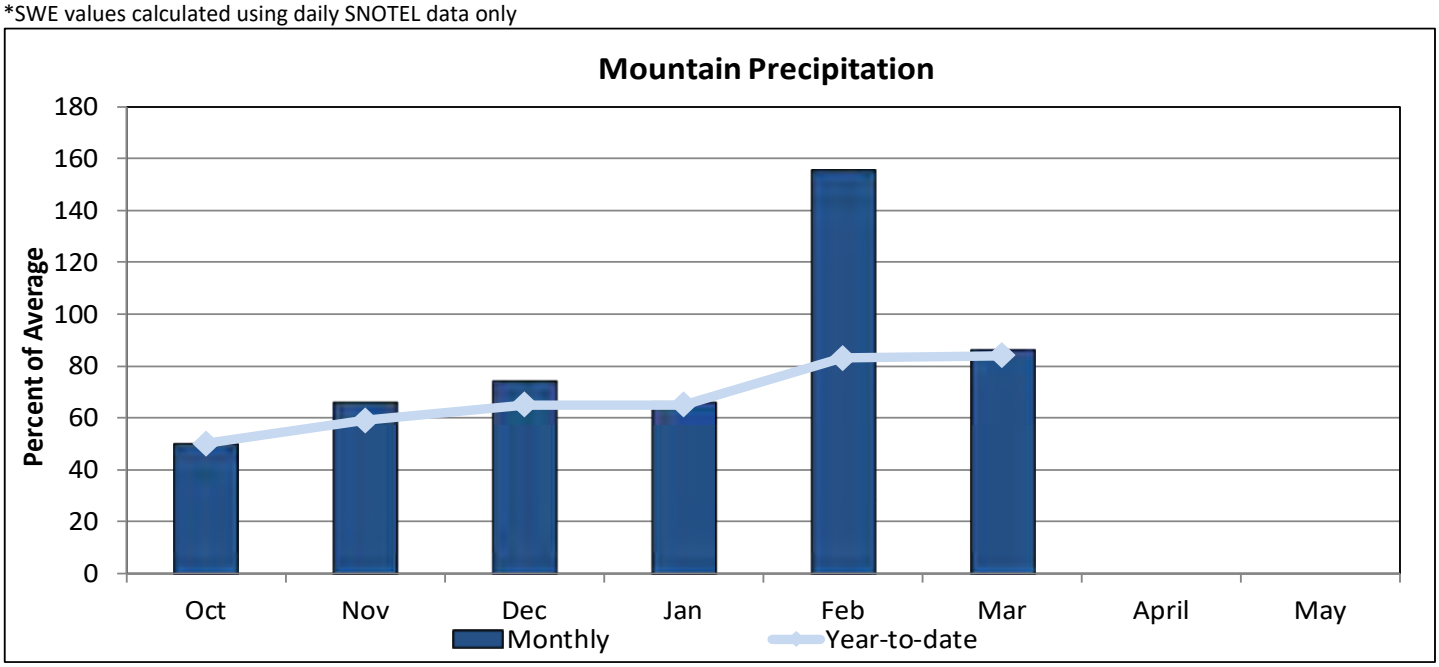
YAMPA, WHITE, NORTH PLATTE, AND LARAMIE RIVER BASINS

April 1, 2021

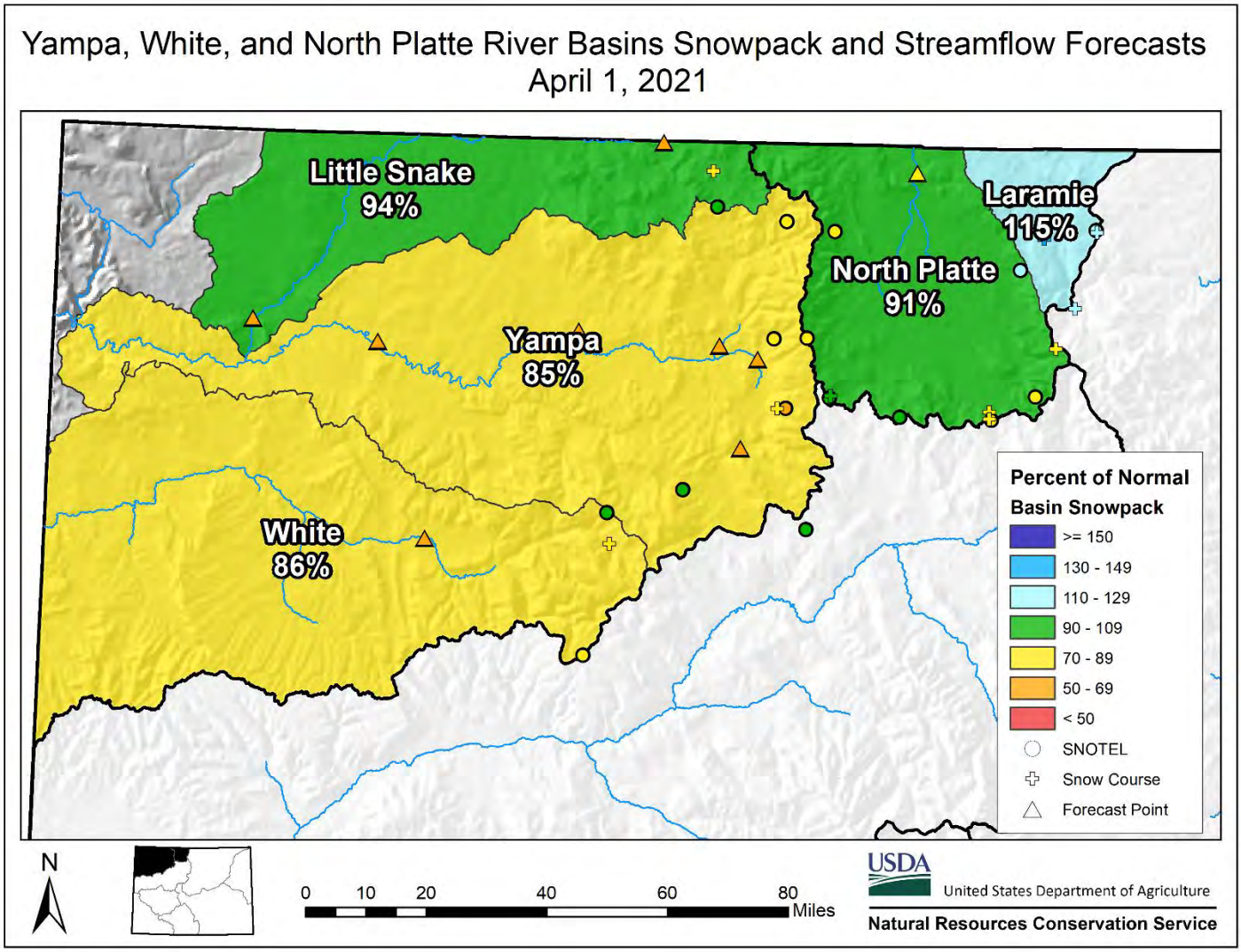
Snowpack in the Yampa, White & North Platte basins is below normal at 91% of the median. Precipitation for March was 86% of average and water year-to-date precipitation is 84% of average. Reservoir storage at the end of March was 111% of average compared to 125% last year**.** Current streamflow forecasts range from 105% of average on the Laramie River near Woods to 51% of average on Elkhead Creek above Long Gulch for April - July.

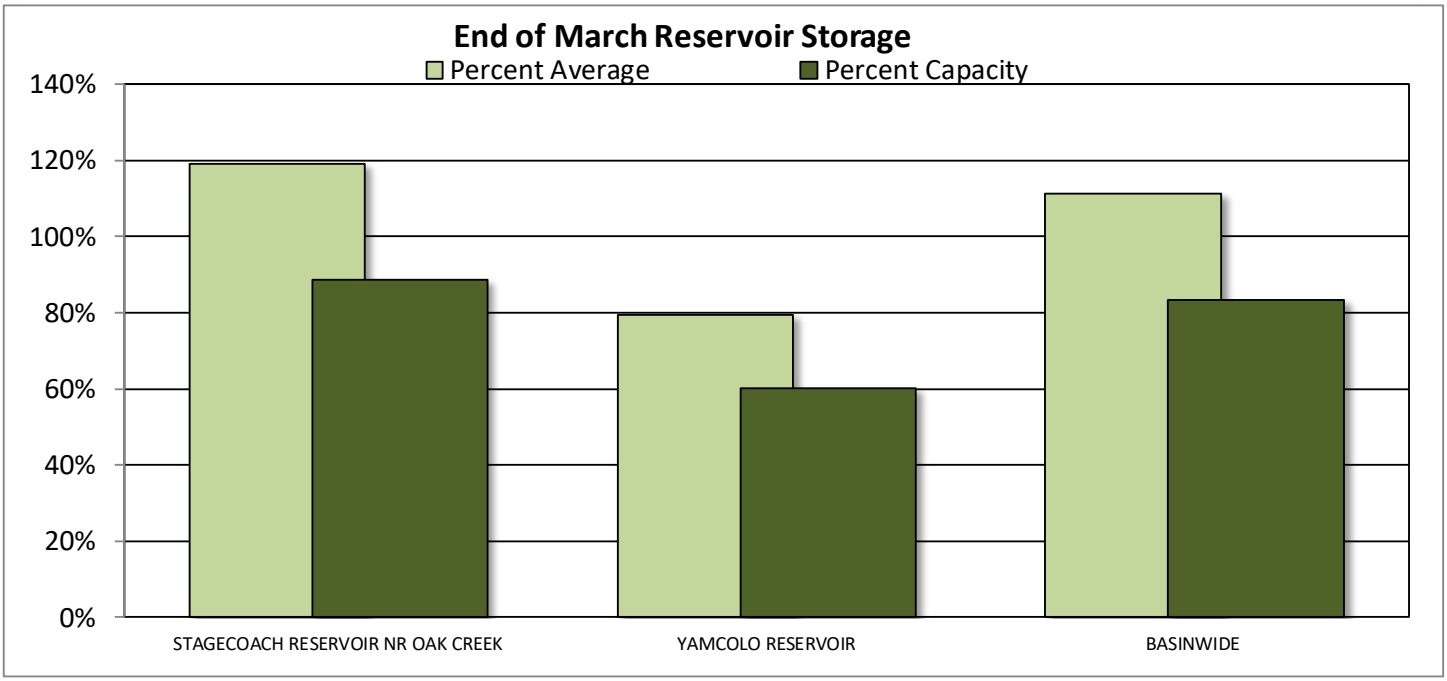


*SWE values calculated using daily SNOTEL data only



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


Yampa, White, and North Platte River Basins Snowpack and Streamflow Forecasts
April 1, 2021
Little Snake
94%
Laramie
115%
North Platte
91%
Yampa
85%
White
86%
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 March 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 April 1st, 2021

Sub-Basin	# of Sites	% Median	Last Year % Median
Laramie	5	115	55
North Platte	12	91	84
Total Laramie & North Platte	17	95	78
Elk	2	84	103
Yampa	11	85	95
White	4	86	81
Total Yampa & White	14	84	89
Little Snake	9	94	109
Basin-Wide Total	36	91	88

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

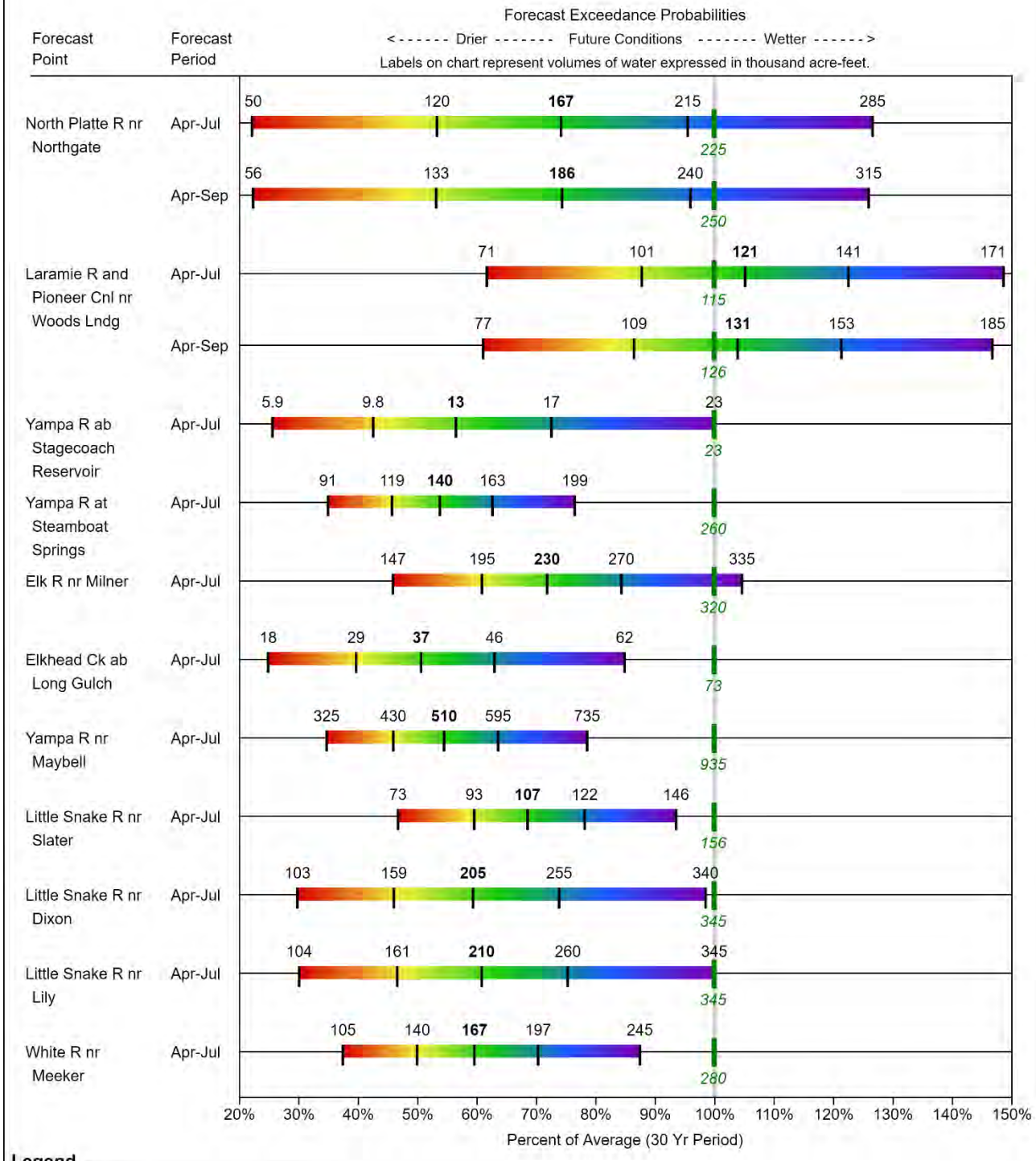
Reservoir Storage End of March 2021

Reservoir	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
STAGECOACH RESERVOIR NR OAK CREEK	32.4	34.1	27.2	36.5
YAMCOLO RESERVOIR	5.2	8.1	6.6	8.7
BASINWIDE	37.6	42.2	33.8	45.2
Number of Reservoirs	2	2	2	2

YAMPA-WHITE-NORTH PLATTE RIVER BASINS

Water Supply Forecasts

April 1, 2021



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

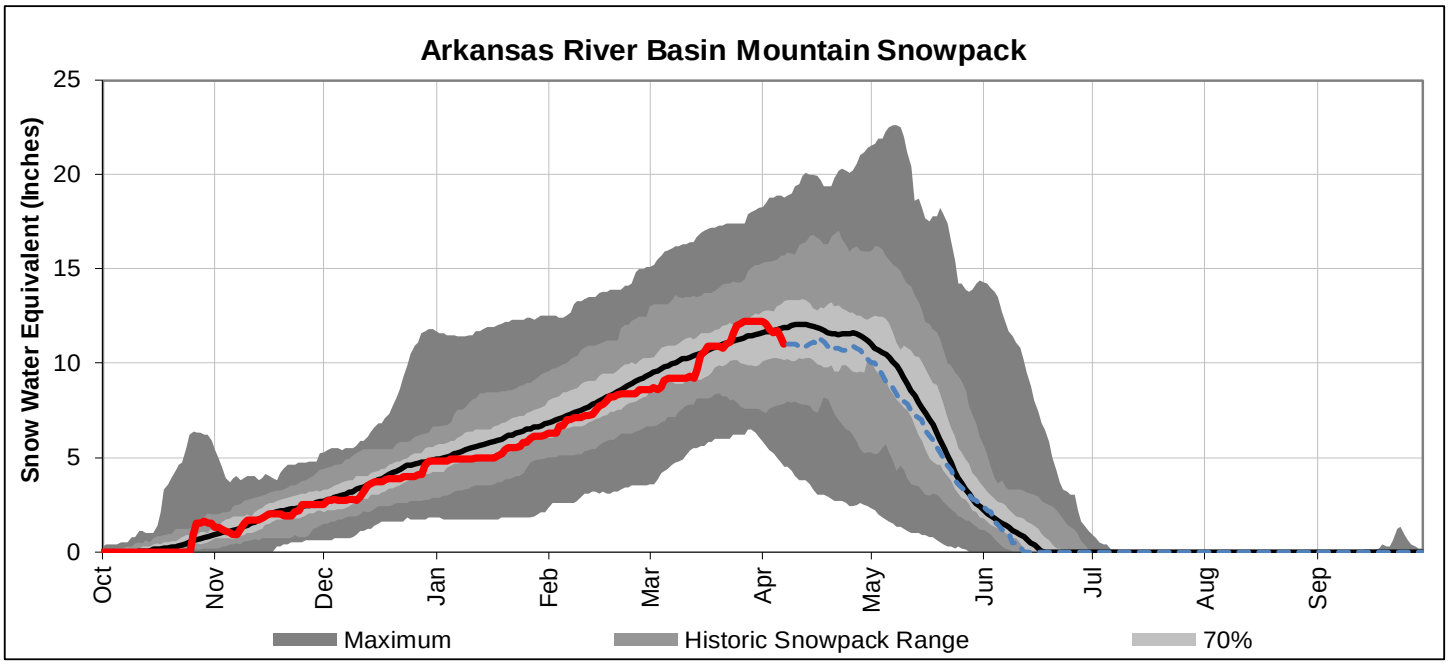
Period of Record Maximum Streamflow KAF (Year)

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

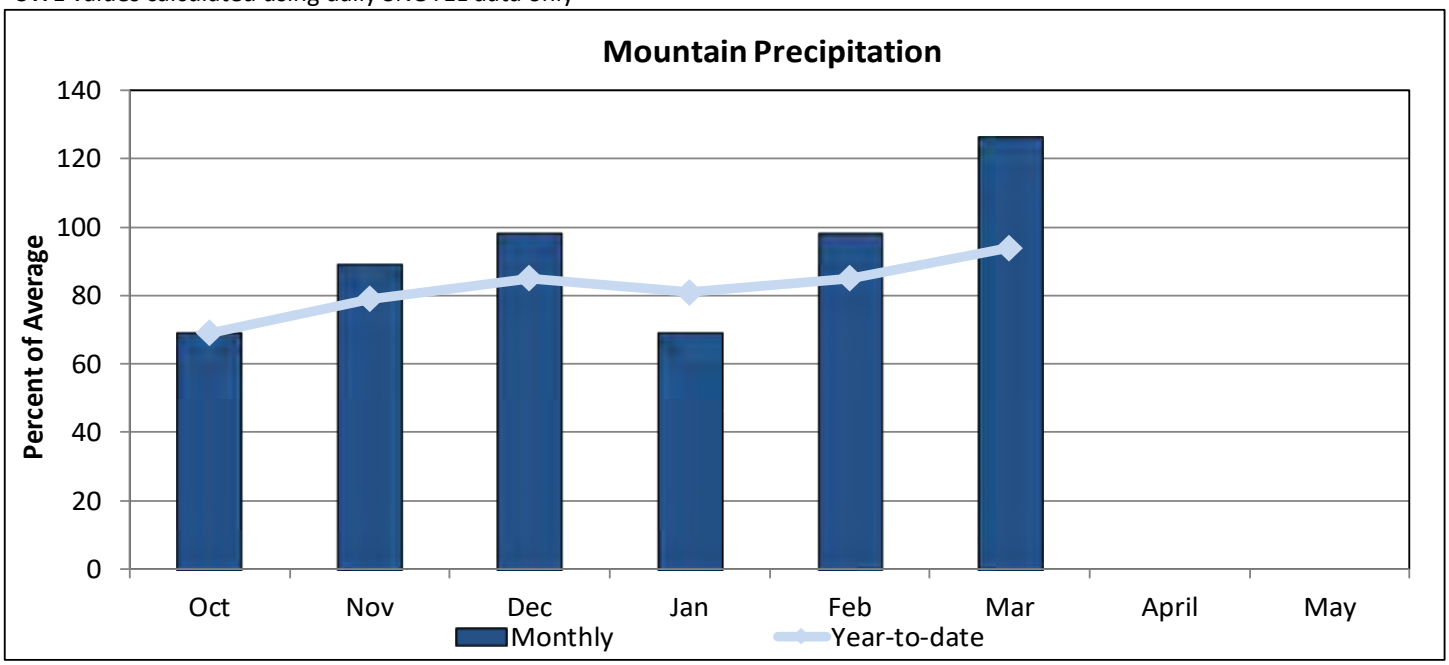
ARKANSAS RIVER BASIN

April 1, 2021

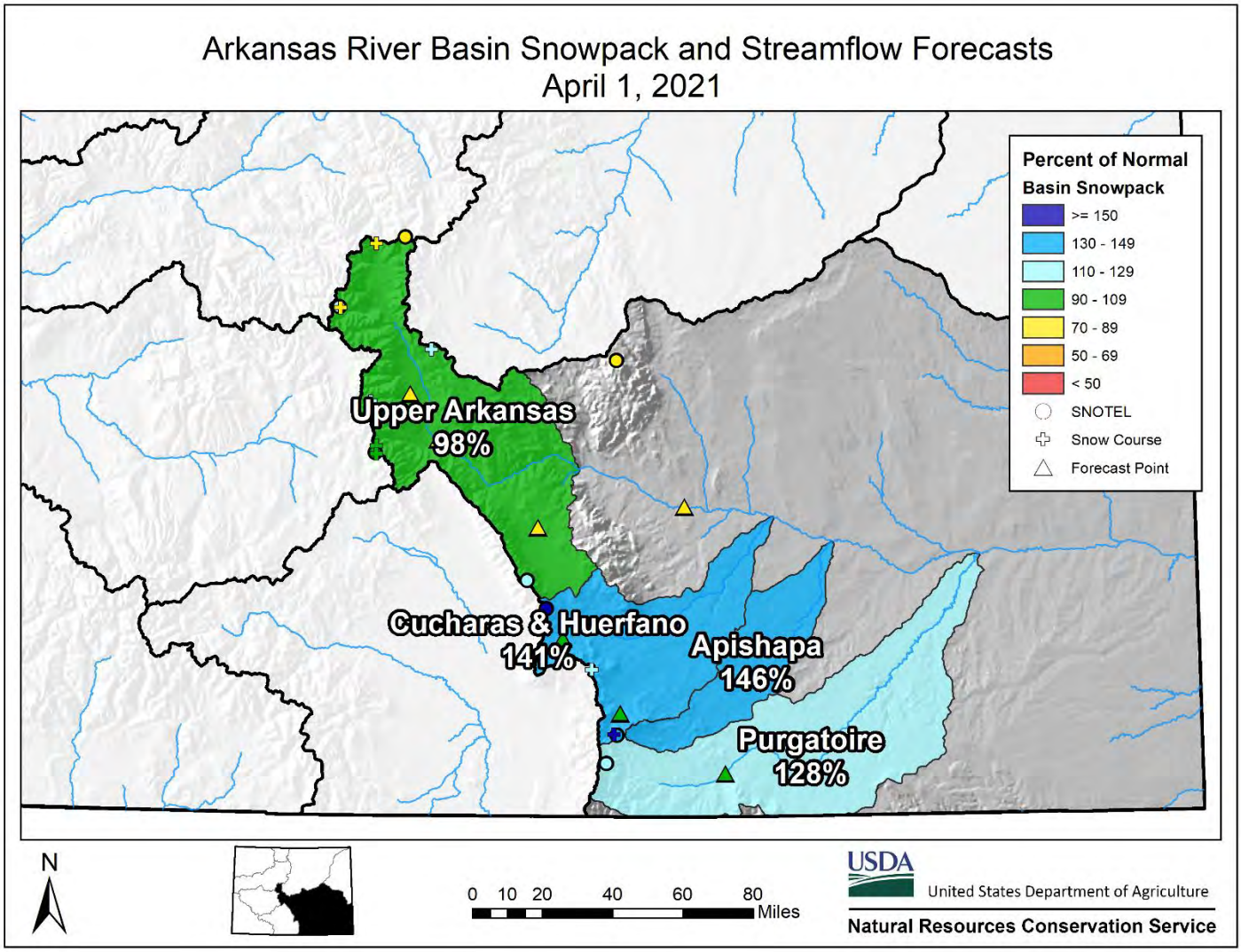
Snowpack in the Arkansas river basin is above normal at 110% of the median. Precipitation for March was 126% of average which brings water year-to-date precipitation to 94% of average. Reservoir storage at the end of March was 69% of average compared to 92% last year. Current streamflow forecasts range from 109% of average on the Cucharas River near La Veta to 83% of average on the Pueblo Reservoir Inflow for April - July.

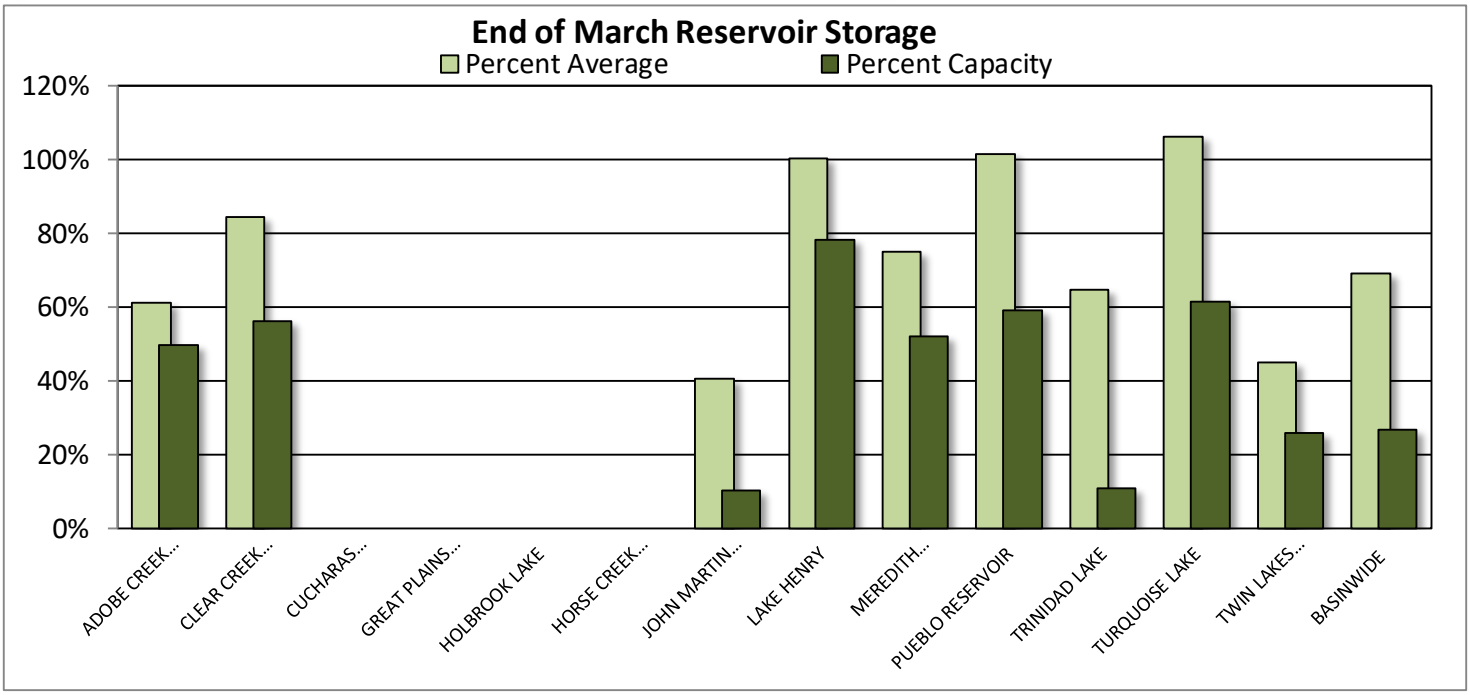


*SWE values calculated using daily SNOTEL data only



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


Arkansas River Basin Snowpack and Streamflow Forecasts
April 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
98%
Cucharas & Huerfano
141%
Apishapa
146%
Purgatoire
128%
N
0 10 20 40 60 80
Miles
USDA
United States Department of Agriculture
Natural Resources Conservation Service


End of March Reservoir Storage
Percent Average
Percent Capacity
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

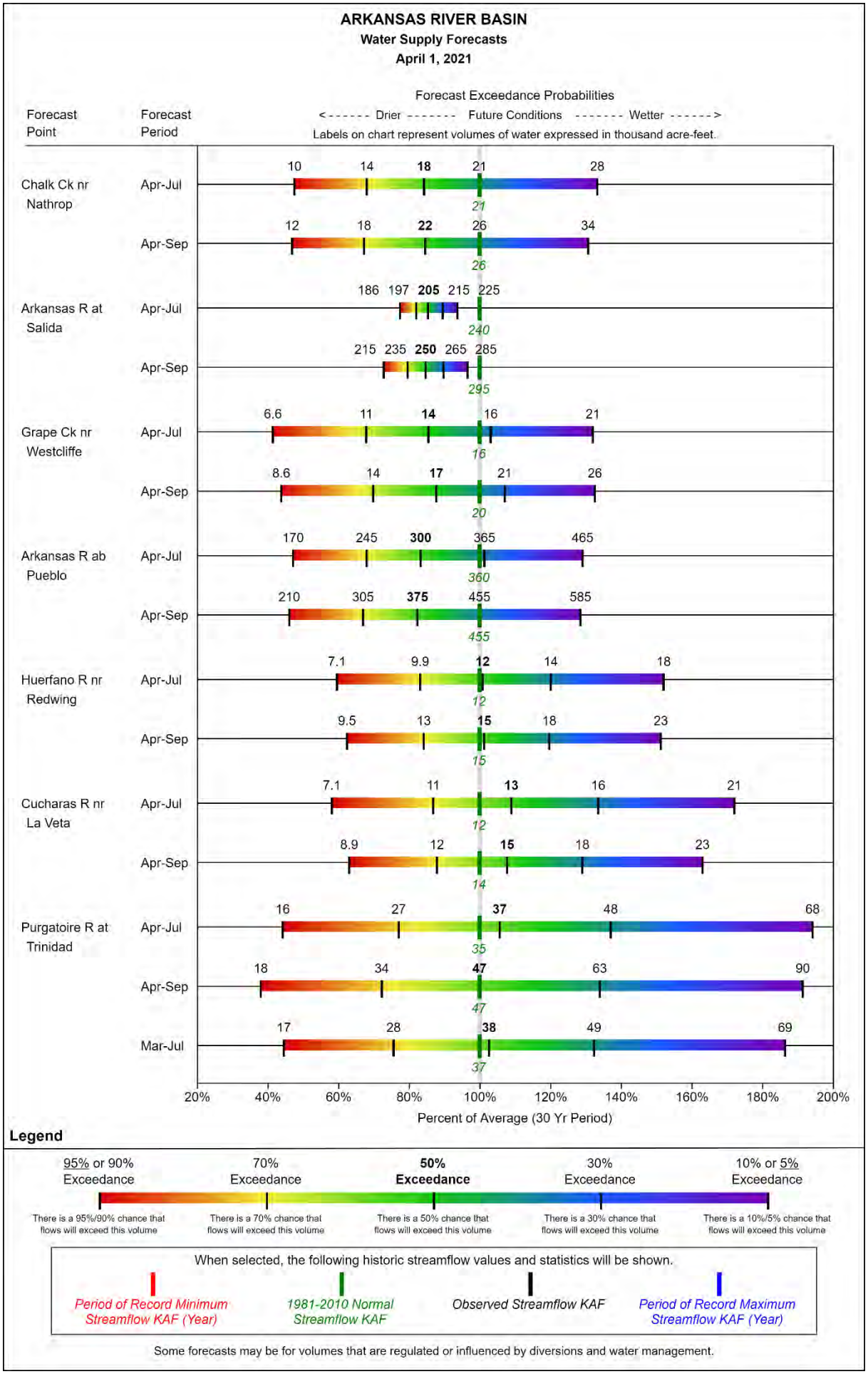
Watershed Snowpack Analysis April 1st, 2021

Sub-Basin	# of Sites	% Median	Last Year % Median
Upper Arkansas	9	98	58
Cucharas & Huerfano	5	141	53
Purgatoire	2	128	78
Basin-Wide Total	16	110	60

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

Reservoir Storage End of March 2021

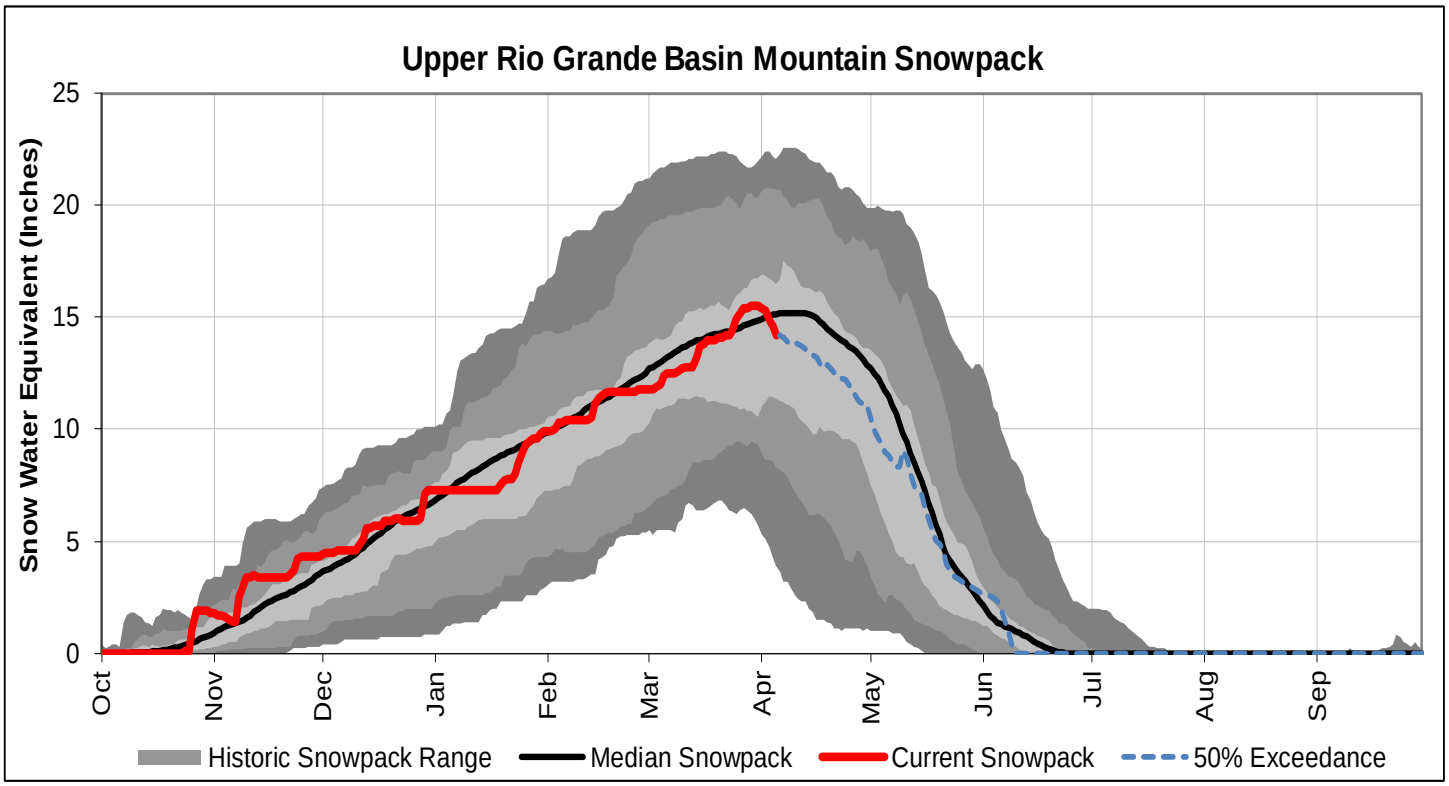
Reservoir	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
ADOBE CREEK RESERVOIR	30.9	47.6	50.4	62.0
CLEAR CREEK RESERVOIR	6.4	8.2	7.6	11.4
CUCHARAS RESERVOIR				40.0
GREAT PLAINS RESERVOIR				150.0
HOLBROOK LAKE	0.0	3.6	4.7	7.0
HORSE CREEK RESERVOIR	0.0	3.4	12.8	27.0
JOHN MARTIN RESERVOIR	63.1	122.9	155.0	616.0
LAKE HENRY	7.3	3.6	7.3	9.4
MEREDITH RESERVOIR	21.9	39.6	29.2	42.0
PUEBLO RESERVOIR	209.1	258.7	205.8	354.0
TRINIDAD LAKE	18.4	24.4	28.5	167.0
TURQUOISE LAKE	78.2	52.8	73.5	127.0
TWIN LAKES RESERVOIR	22.3	42.2	49.6	86.0
BASINWIDE	457.7	606.9	624.4	1698.8
Number of Reservoirs	11	11	11	13


ARKANSAS RIVER BASIN
Water Supply Forecasts
April 1, 2021
Forecast Exceedance Probabilities
<------- Drier -------- Future Conditions -------- Wetter ------->
Labels on chart represent volumes of water expressed in thousand acre-feet.
Forecast Point
Forecast Period
Chalk Ck nr Nathrop
Apr-Jul 10 14 18 21 28 21
Apr-Sep 12 18 22 26 34 26
Arkansas R at Salida
Apr-Jul 186 197 205 215 225 240
Apr-Sep 215 235 250 265 285 295
Grape Ck nr Westcliffe
Apr-Jul 6.6 11 14 16 21 16
Apr-Sep 8.6 14 17 21 26 20
Arkansas R ab Pueblo
Apr-Jul 170 245 300 365 465 360
Apr-Sep 210 305 375 455 585 455
Huerfano R nr Redwing
Apr-Jul 7.1 9.9 12 14 18 12
Apr-Sep 9.5 13 15 18 23 15
Cucharas R nr La Veta
Apr-Jul 7.1 11 13 16 21 12
Apr-Sep 8.9 12 15 18 23 14
Purgatoire R at Trinidad
Apr-Jul 16 27 37 48 68 35
Apr-Sep 18 34 47 63 90 47
Mar-Jul 17 28 38 49 69 37
20% 40% 60% 80% 100% 120% 140% 160% 180% 200%
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.

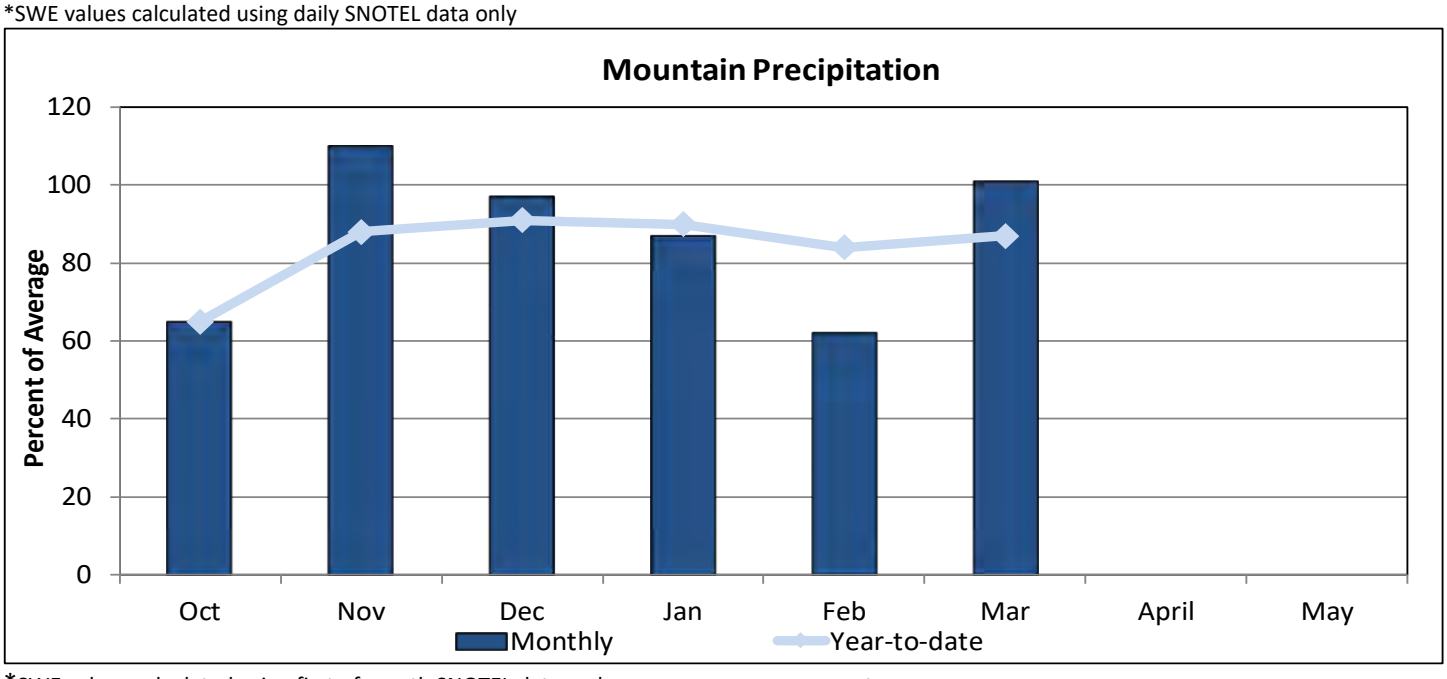
UPPER RIO GRANDE RIVER BASIN

April 1, 2021

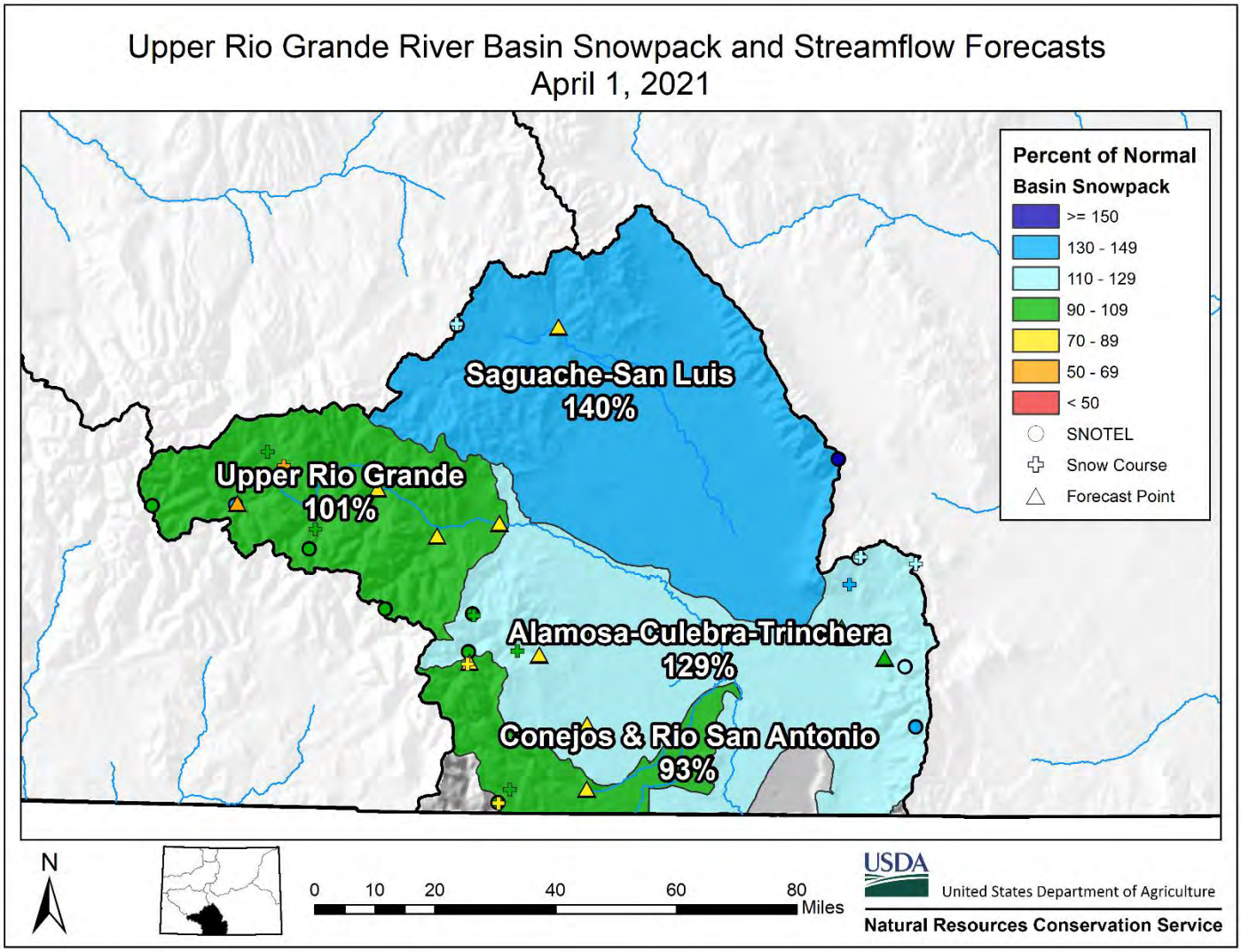
Snowpack in the Upper Rio Grande river basin is 105% of median. Precipitation for March was 101% of average which brings water year-to-date precipitation to 87% of average. Reservoir storage at the end of March was 75% of average compared to 83% last year. Current streamflow forecasts range from 77% of average on the Costilla Reservoir Inflow to 114% of average on the San Antonio River at Ortiz for April - July.

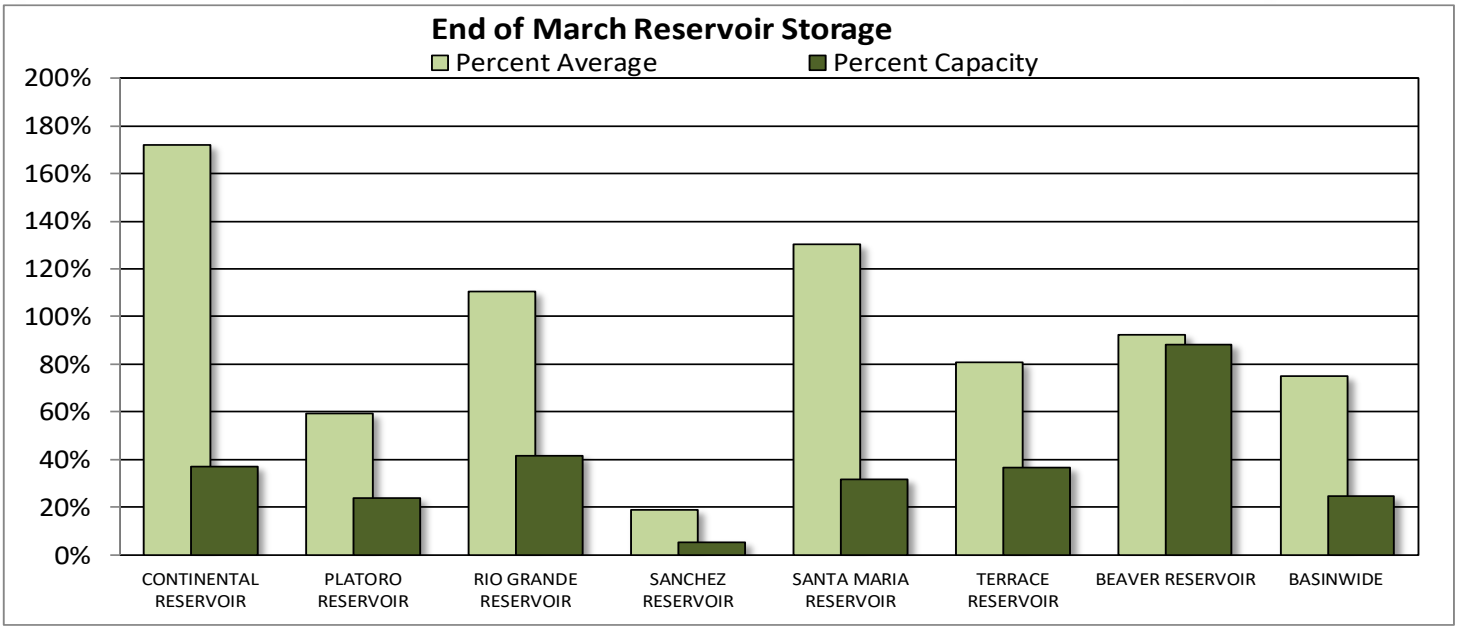


*SWE values calculated using daily SNOTEL data only



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


Upper Rio Grande River Basin Snowpack and Streamflow Forecasts
April 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
140%
Upper Rio Grande
101%
Alamosa-Culebra-Trinchera
129%
Conejos & Rio San Antonio
93%
N
0 10 20 40 60 80
Miles
USDA
United States Department of Agriculture
Natural Resources Conservation Service


End of March Reservoir Storage
Percent Average
Percent Capacity
200%
180%
160%
140%
120%
100%
80%
60%
40%
20%
0%
CONTINENTAL RESERVOIR
PLATORO RESERVOIR
RIO GRANDE RESERVOIR
SANCHEZ RESERVOIR
SANTA MARIA RESERVOIR
TERRACE RESERVOIR
BEAVER RESERVOIR
BASINWIDE

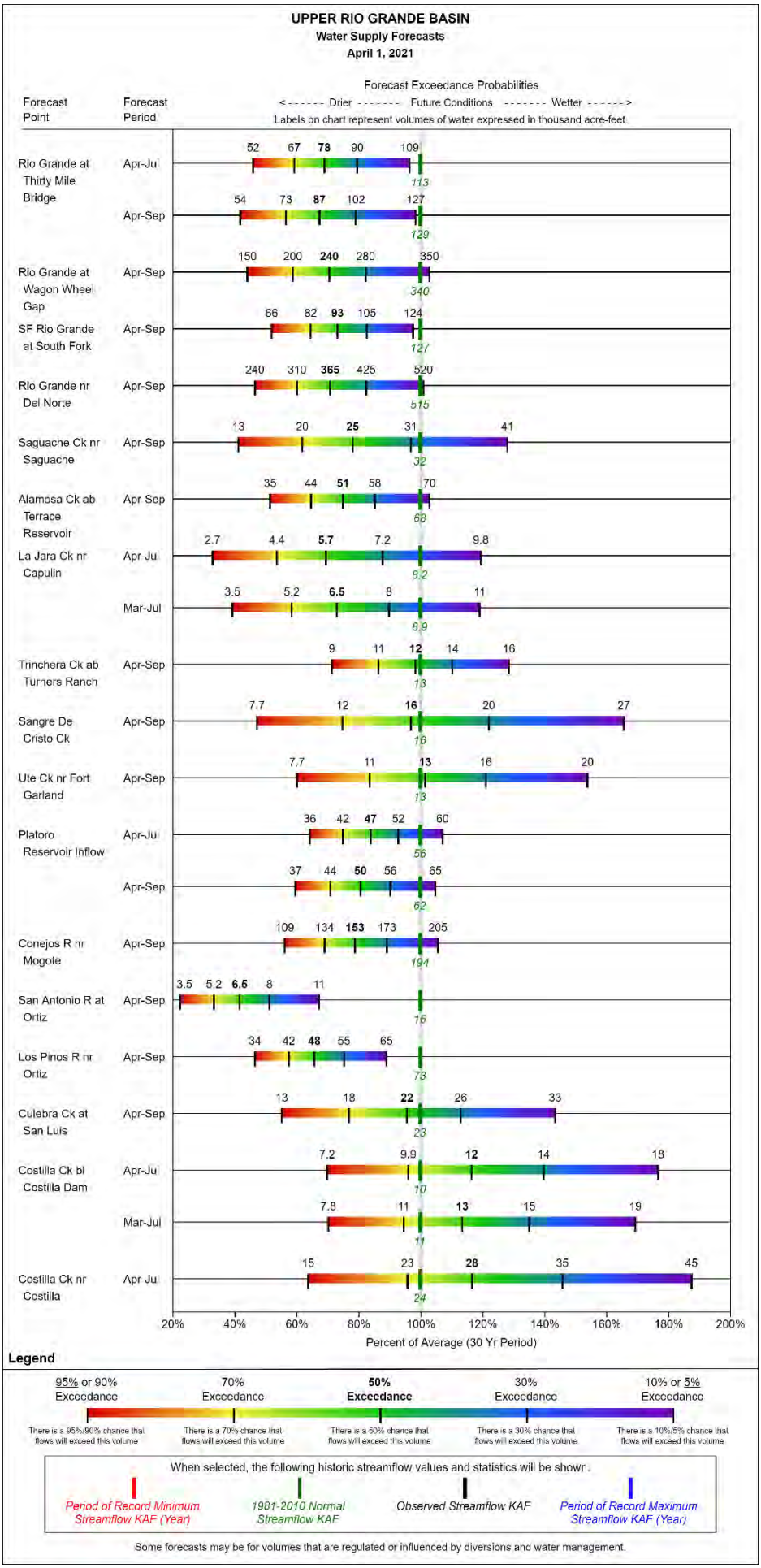
Watershed Snowpack Analysis April 1st, 2021

Sub-Basin	# of Sites	% Median	Last Year % Median
Alamosa Creek	3	93	33
Conejos & Rio San Antonio	5	93	33
Culebra & Trinchera Creek	6	123	61
Upper Rio Grande	11	101	67
Basin-Wide Total	24	105	54

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

Reservoir Storage End of March 2021

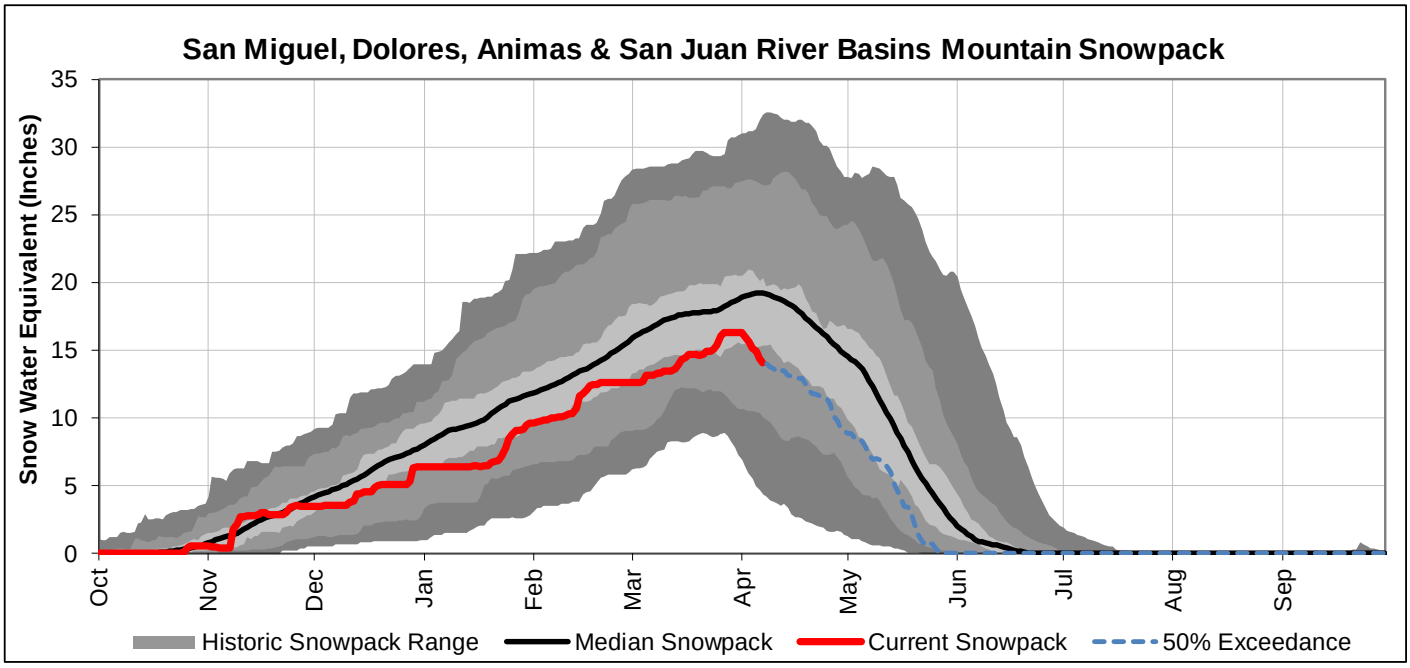
Reservoir	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
CONTINENTAL RESERVOIR	10.0	16.7	5.8	27.0
PLATORO RESERVOIR	14.3	18.4	24.2	60.0
RIO GRANDE RESERVOIR	21.1	4.0	19.1	51.0
SANCHEZ RESERVOIR	5.3	9.1	28.1	103.0
SANTA MARIA RESERVOIR	14.2	21.8	10.9	45.0
TERRACE RESERVOIR	6.6	9.0	8.2	18.0
BEAVER RESERVOIR	4.0	4.2	4.3	4.5
BASINWIDE	75.6	83.1	100.6	308.5
Number of Reservoirs	7	7	7	7


UPPER RIO GRANDE BASIN
Water Supply Forecasts
April 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
52 67 78 90 109
113
Apr-Sep
54 73 87 102 127
129
Rio Grande at Wagon Wheel Gap
Apr-Sep
150 200 240 280 350
340
SF Rio Grande at South Fork
Apr-Sep
66 82 93 105 124
127
Rio Grande nr Del Norte
Apr-Sep
240 310 365 425 520
515
Saguache Ck nr Saguache
Apr-Sep
13 20 25 31 41
32
Alamosa Ck ab Terrace Reservoir
Apr-Sep
35 44 51 58 70
68
La Jara Ck nr Capulin
Apr-Jul
2.7 4.4 5.7 7.2 9.8
8.2
Mar-Jul
3.5 5.2 6.5 8 11
8.9
Trinchera Ck ab Turners Ranch
Apr-Sep
9 11 12 14 16
13
Sangre De Cristo Ck
Apr-Sep
7.7 12 16 20 27
16
Ute Ck nr Fort Garland
Apr-Sep
7.7 11 13 16 20
13
Platoro Reservoir Inflow
Apr-Jul
36 42 47 52 60
56
Apr-Sep
37 44 50 56 65
62
Conejos R nr Mogote
Apr-Sep
109 134 153 173 205
194
San Antonio R at Ortiz
Apr-Sep
3.5 5.2 6.5 8 11
16
Los Pinos R nr Ortiz
Apr-Sep
34 42 48 55 65
73
Culebra Ck at San Luis
Apr-Sep
13 18 22 26 33
23
Costilla Ck bl Costilla Dam
Apr-Jul
7.2 9.9 12 14 18
10
Mar-Jul
7.8 11 13 15 19
11
Costilla Ck nr Costilla
Apr-Jul
15 23 28 35 45
24
20% 40% 60% 80% 100% 120% 140% 160% 180% 200%
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.

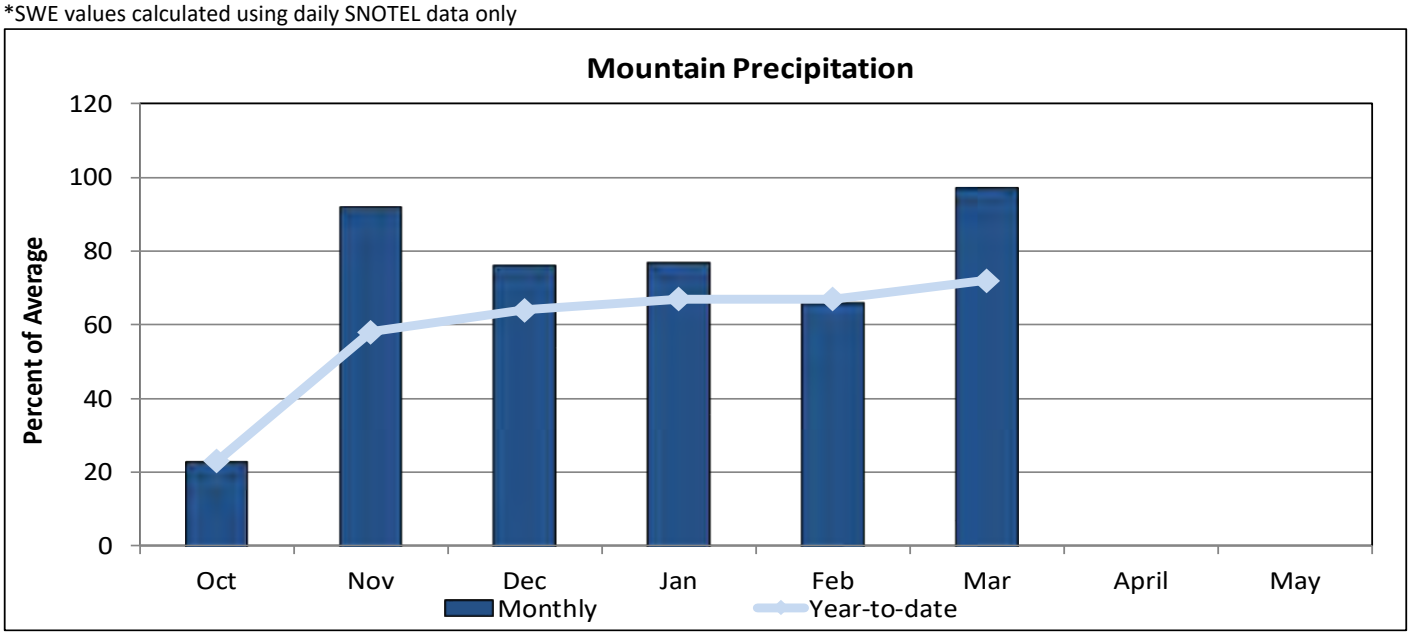
SAN MIGUEL, DOLORES, ANIMAS, AND SAN JUAN RIVER BASINS

April 1, 2021

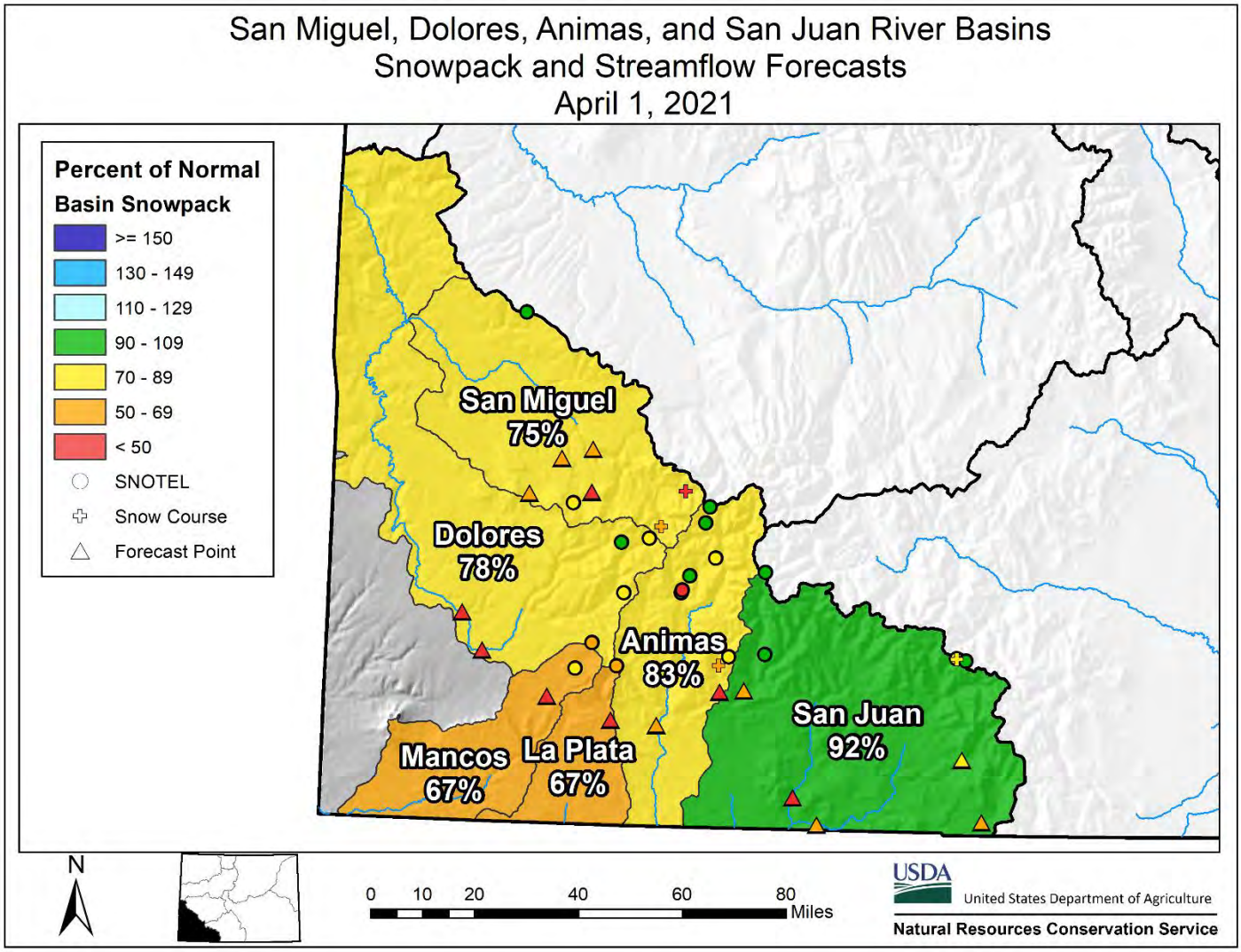
Snowpack in the combined southwest river basins is below normal at 83% of median. Precipitation for March was 97% of average which brings water year-to-date precipitation to 72% of average. Reservoir storage at the end of March was 59% of average compared to 104% last year. Current streamflow forecasts range from 74% of average on the Rio Blanco at Blanco Diversion to 43% of average on the La Plata River at Hesperus for April - July.

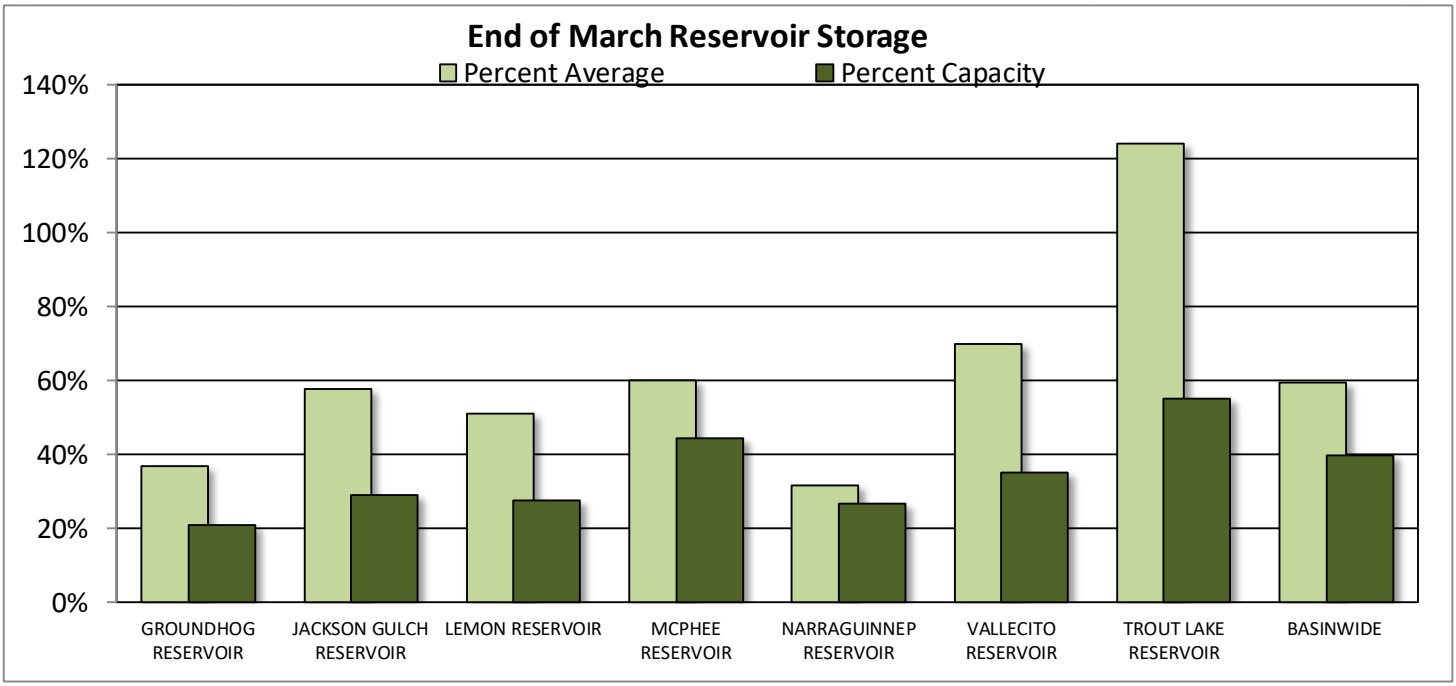


*SWE values calculated using daily SNOTEL data only



*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
April 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
75%
Dolores
78%
Animas
83%
San Juan
92%
Mancos
67%
La Plata
67%
N
0 10 20 40 60 80
Miles
USDA
United States Department of Agriculture
Natural Resources Conservation Service


End of March Reservoir Storage
Percent Average
Percent Capacity
140%
120%
100%
80%
60%
40%
20%
0%
GROUNDHOG RESERVOIR
JACKSON GULCH RESERVOIR
LEMON RESERVOIR
MCPHEE RESERVOIR
NARRAGUINNEP RESERVOIR
VALLECITO RESERVOIR
TROUT LAKE RESERVOIR
BASINWIDE

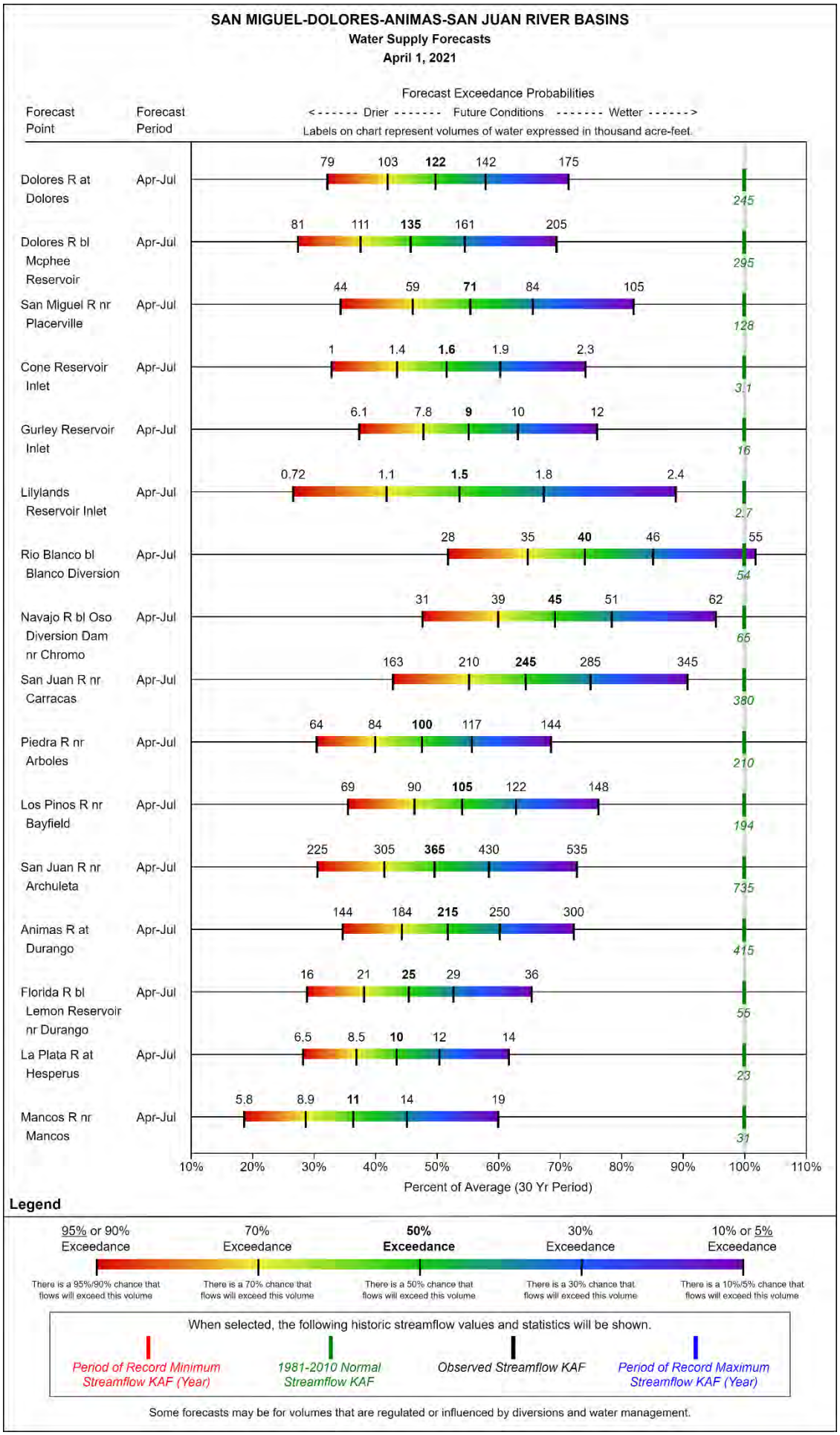
Watershed Snowpack Analysis April 1st, 2021

Sub-Basin	# of Sites	% Median	Last Year % Median
Animas	10	83	99
Dolores	5	78	102
San Miguel	5	75	64
San Juan	4	92	67
Basin-Wide Total	23	83	85

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

Reservoir Storage End of March 2021

Reservoir	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
GROUNDHOG RESERVOIR	4.6	16.3	12.5	22.0
JACKSON GULCH RESERVOIR	2.9	3.9	5.0	10.0
LEMON RESERVOIR	11.1	17.7	21.7	40.0
MCPHEE RESERVOIR	169.4	280.5	282.2	381.0
NARRAGUINNEP RESERVOIR	5.1	15.4	16.1	19.0
VALLECITO RESERVOIR	44.3	83.5	63.3	126.0
TROUT LAKE RESERVOIR	1.8	1.9	1.4	3.2
BASINWIDE	239.1	419.3	402.2	601.2
Number of Reservoirs	7	7	7	7


SAN MIGUEL-DOLORES-ANIMAS-SAN JUAN RIVER BASINS
Water Supply Forecasts
April 1, 2021
Forecast Exceedance Probabilities
< ------- Drier ------- Future Conditions ------- Wetter ------ >
Labels on chart represent volumes of water expressed in thousand acre-feet.
Forecast Point
Forecast Period
Dolores R at Dolores Apr-Jul 79 103 122 142 175 245
Dolores R bl Mcphee Reservoir Apr-Jul 81 111 135 161 205 295
San Miguel R nr Placerville Apr-Jul 44 59 71 84 105 128
Cone Reservoir Inlet Apr-Jul 1 1.4 1.6 1.9 2.3 3.1
Gurley Reservoir Inlet Apr-Jul 6.1 7.8 9 10 12 16
Lilylands Reservoir Inlet Apr-Jul 0.72 1.1 1.5 1.8 2.4 2.7
Rio Blanco bl Blanco Diversion Apr-Jul 28 35 40 46 55 54
Navajo R bl Oso Diversion Dam nr Chromo Apr-Jul 31 39 45 51 62 65
San Juan R nr Carracas Apr-Jul 163 210 245 285 345 380
Piedra R nr Arboles Apr-Jul 64 84 100 117 144 210
Los Pinos R nr Bayfield Apr-Jul 69 90 105 122 148 194
San Juan R nr Archuleta Apr-Jul 225 305 365 430 535 735
Animas R at Durango Apr-Jul 144 184 215 250 300 415
Florida R bl Lemon Reservoir nr Durango Apr-Jul 16 21 25 29 36 55
La Plata R at Hesperus Apr-Jul 6.5 8.5 10 12 14 23
Mancos R nr Mancos Apr-Jul 5.8 8.9 11 14 19 31
10% 20% 30% 40% 50% 60% 70% 80% 90% 100% 110%
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.

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.

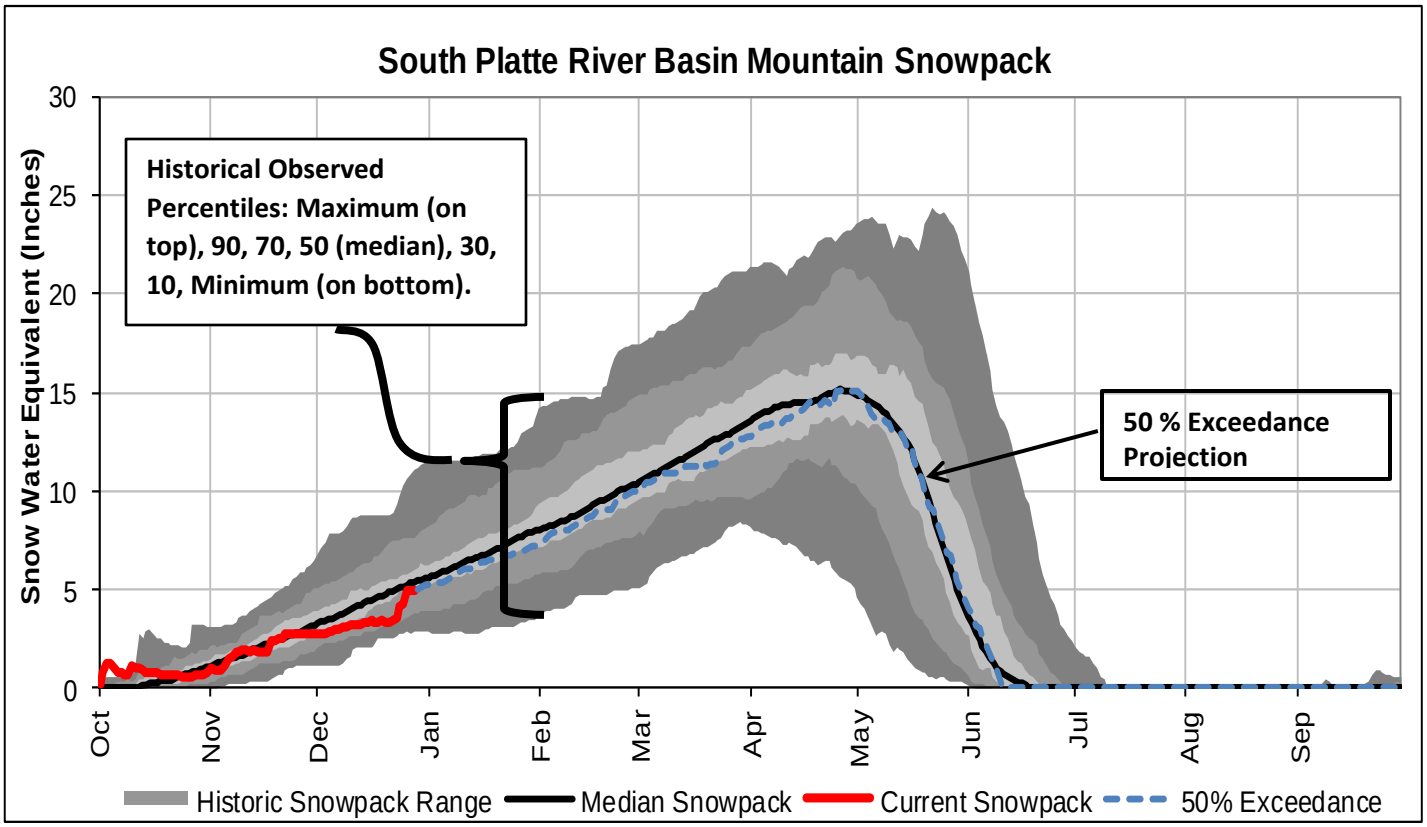
Current water year is represented by the heavy red line terminating on the last day the graphic was updated.

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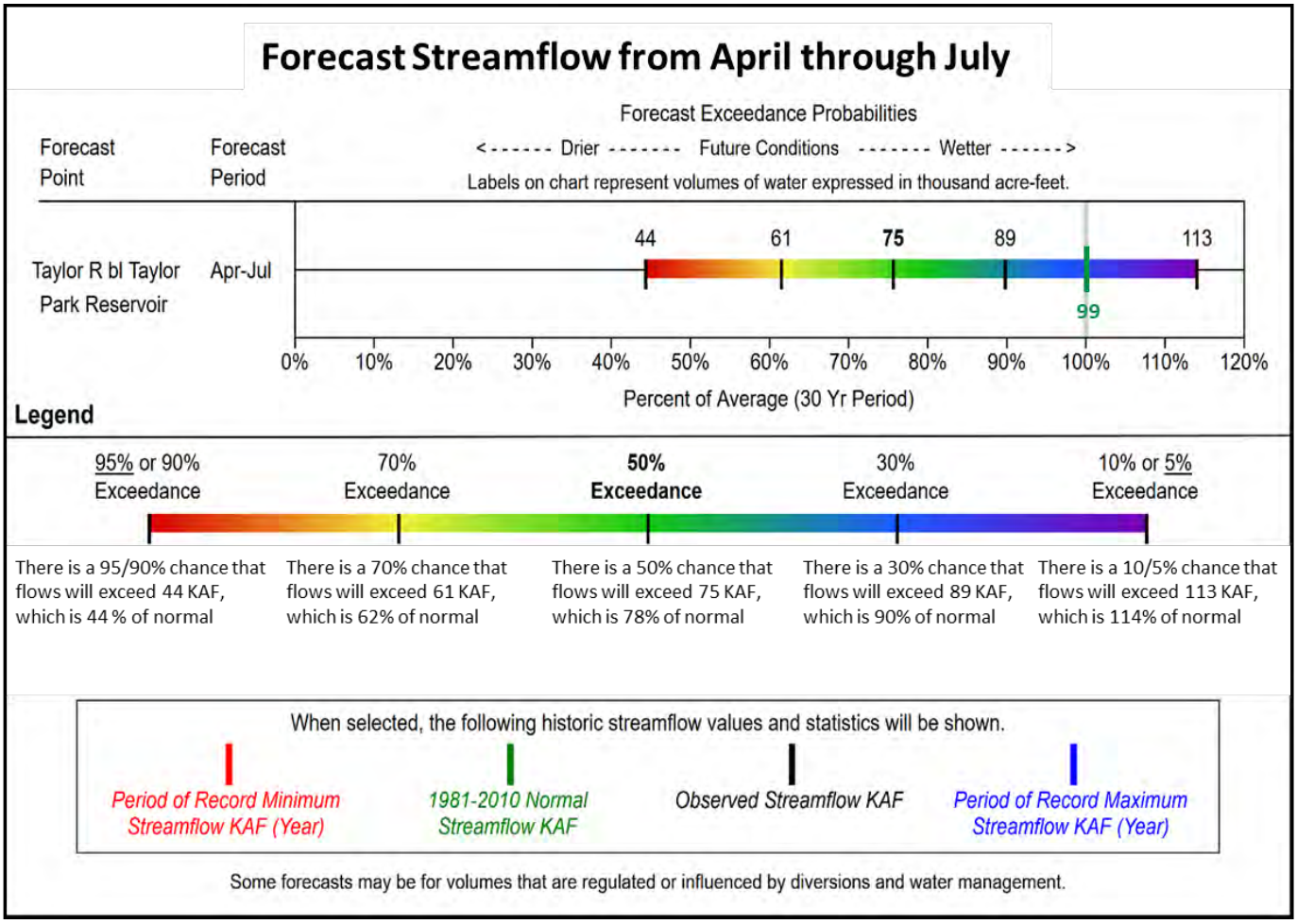
Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual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

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Clint Evans
State Conservationist
Natural Resources Conservation Service
Lakewood, Colorado

Colorado
Water Supply Outlook Report
Natural Resources Conservation Service
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