

Colorado

Water Supply Outlook Report

March 1st, 2024



NRCS Surveyor, Maureen Cassidy, conducts a snow survey of the Como Snow Course in the Upper South Platte region. As of the end of February Como measured 120% of median.

Photo By: Zack Wilson

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.

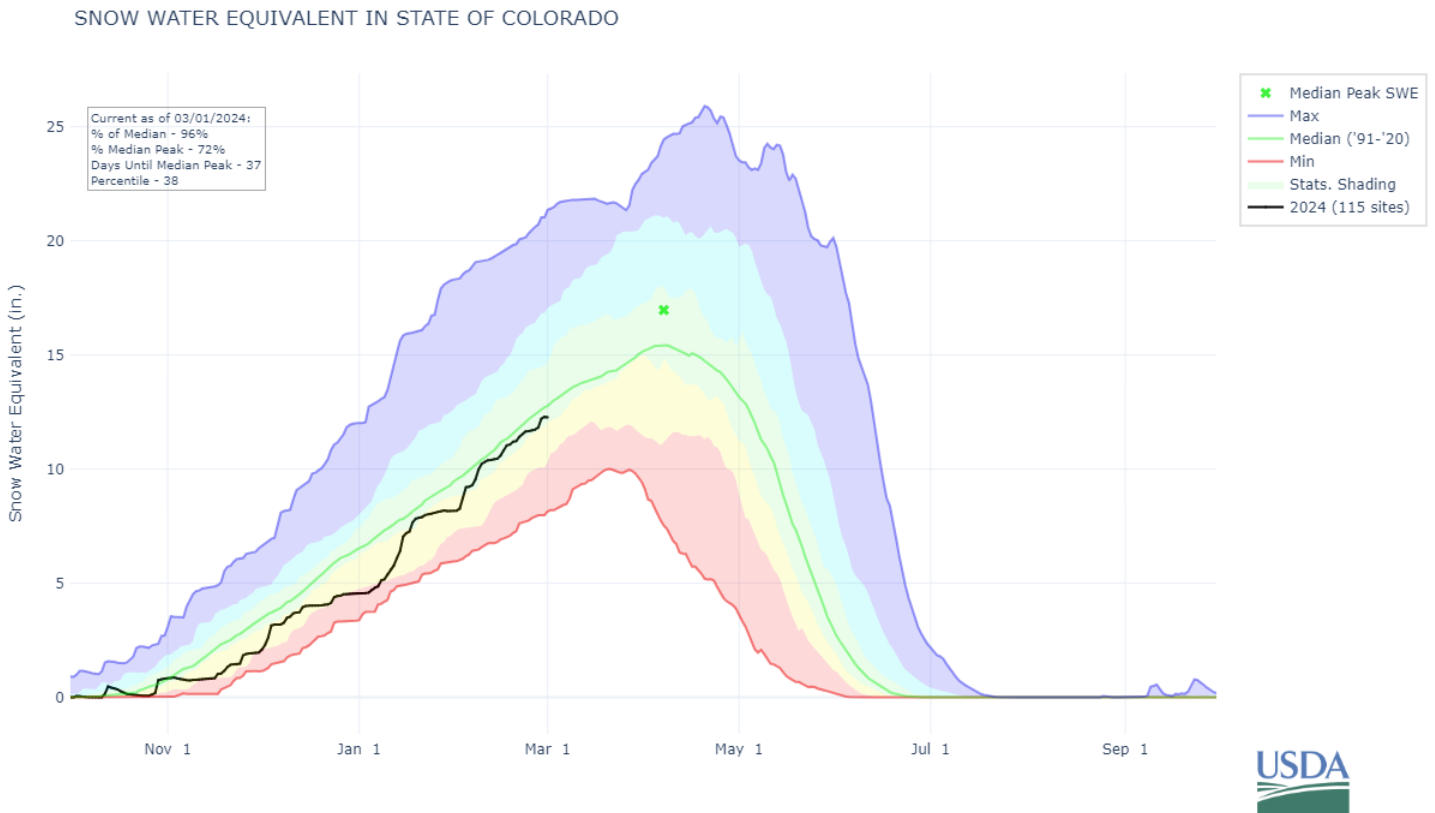
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Colorado Statewide Water Supply Conditions for March 1st

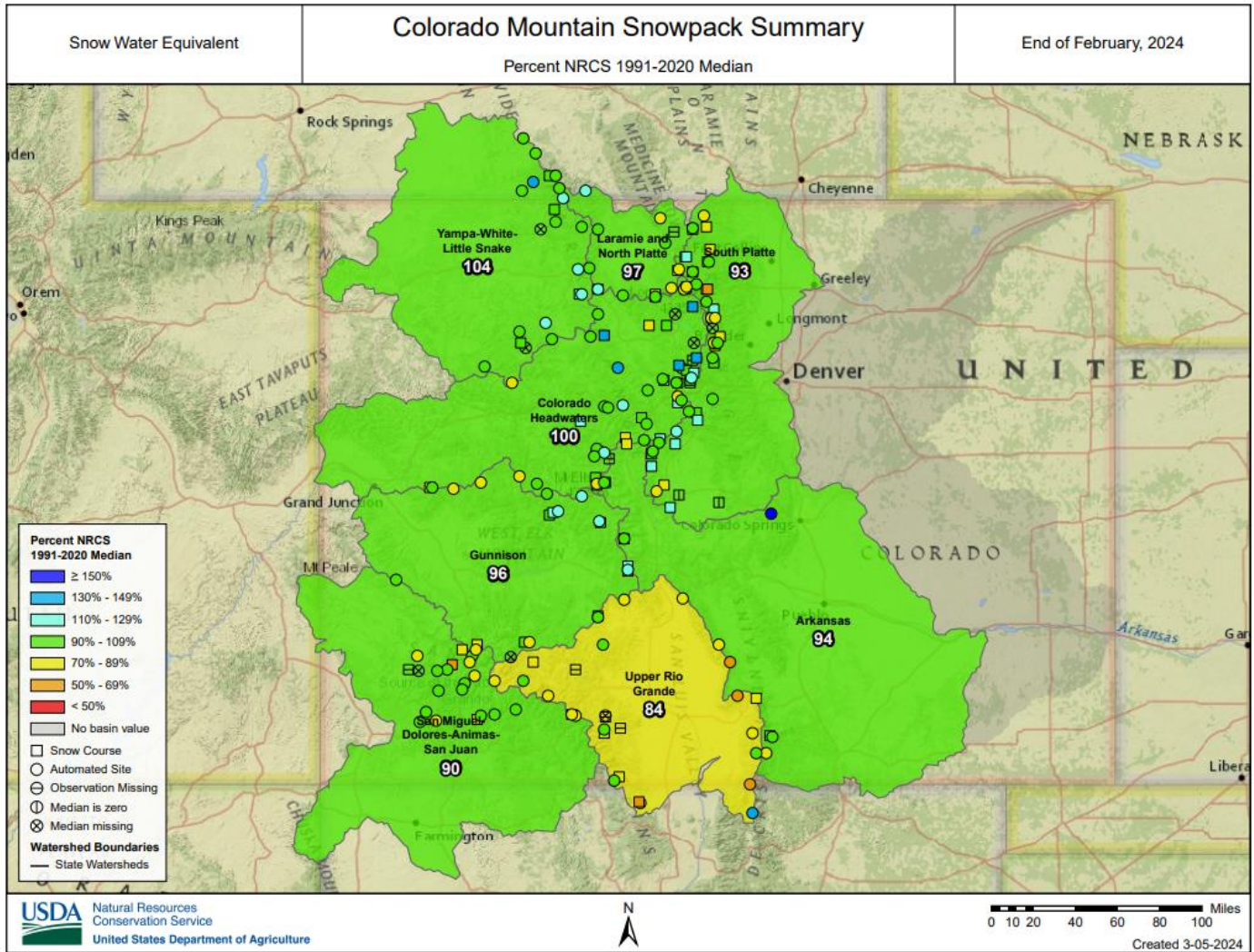
Summary



*For the above graph, snow water equivalent (SWE) values are calculated using daily SNOTEL data only. SWE numbers presented in the text are values from the first of the month and include manual Snow Course measurements along with SNOTEL data.

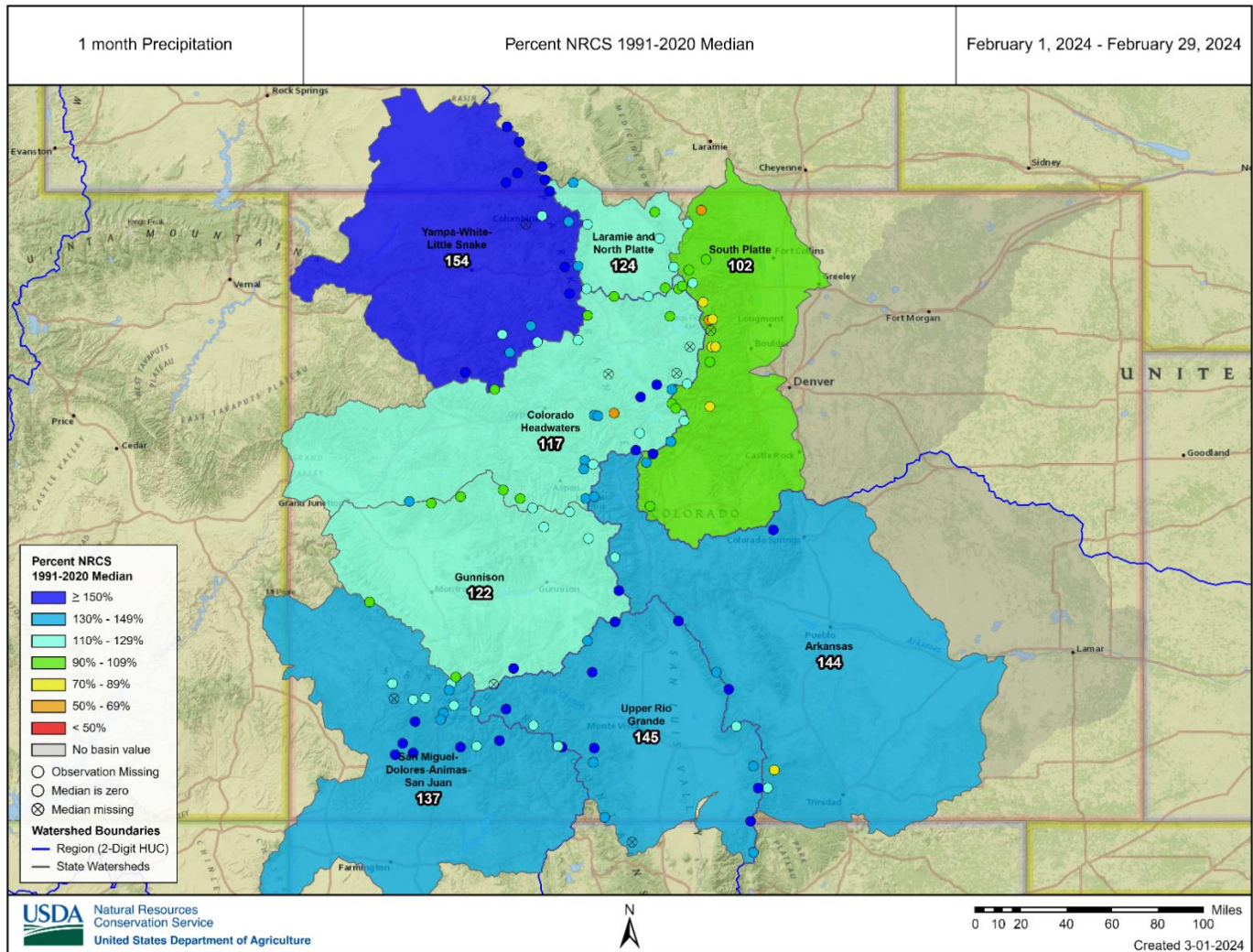
An active storm cycle developed at the beginning of February and continued through most of the month, bringing substantial snowfall to all major river basins and boosting water supply conditions across the state. During the first half of February, the storm track favored the southern basins, which brought snowpack to near normal conditions by February 10th; however, the storm track shifted northward around this time bringing substantially more moisture to the central and northern basins during the second half of the month. All major river basins received above normal precipitation during February, which led to improvements in snowpack compared to the end of January. As of March 1st, statewide snowpack was 96 percent of median compared to 85 percent of median on February 1st. Statewide precipitation received during February was above normal at 125 percent of median, bringing statewide water-year-to-date precipitation to 95 percent of median. Current streamflow forecasts follow similar spatial trends as precipitation and snowpack, and all major river basins saw improved streamflow forecasts compared to last month. The lowest streamflow forecasts in the state are mostly for streams in the Upper Rio Grande and combined San Miguel-Dolores-Animas-San Juan River basins where [drought conditions](#) persist; however, these southern streamflow forecasts have improved since last month because of the above normal precipitation received during February. Current statewide streamflow forecasts are 93 percent of median and range from a high of 136 percent of median for Tomichi Creek at Sargents in the Gunnison River basin to a low of 36 percent of median for Sangre de Cristo Creek in the Upper Rio Grande River basin. Reservoir storage across the state is similar to last month's storage and current statewide storage is 100 percent of median. With a little over a month left in the snow accumulation season, all conditions are trending in the right direction, and March will be crucial in determining how the upcoming snowmelt-runoff season will develop.

Snowpack



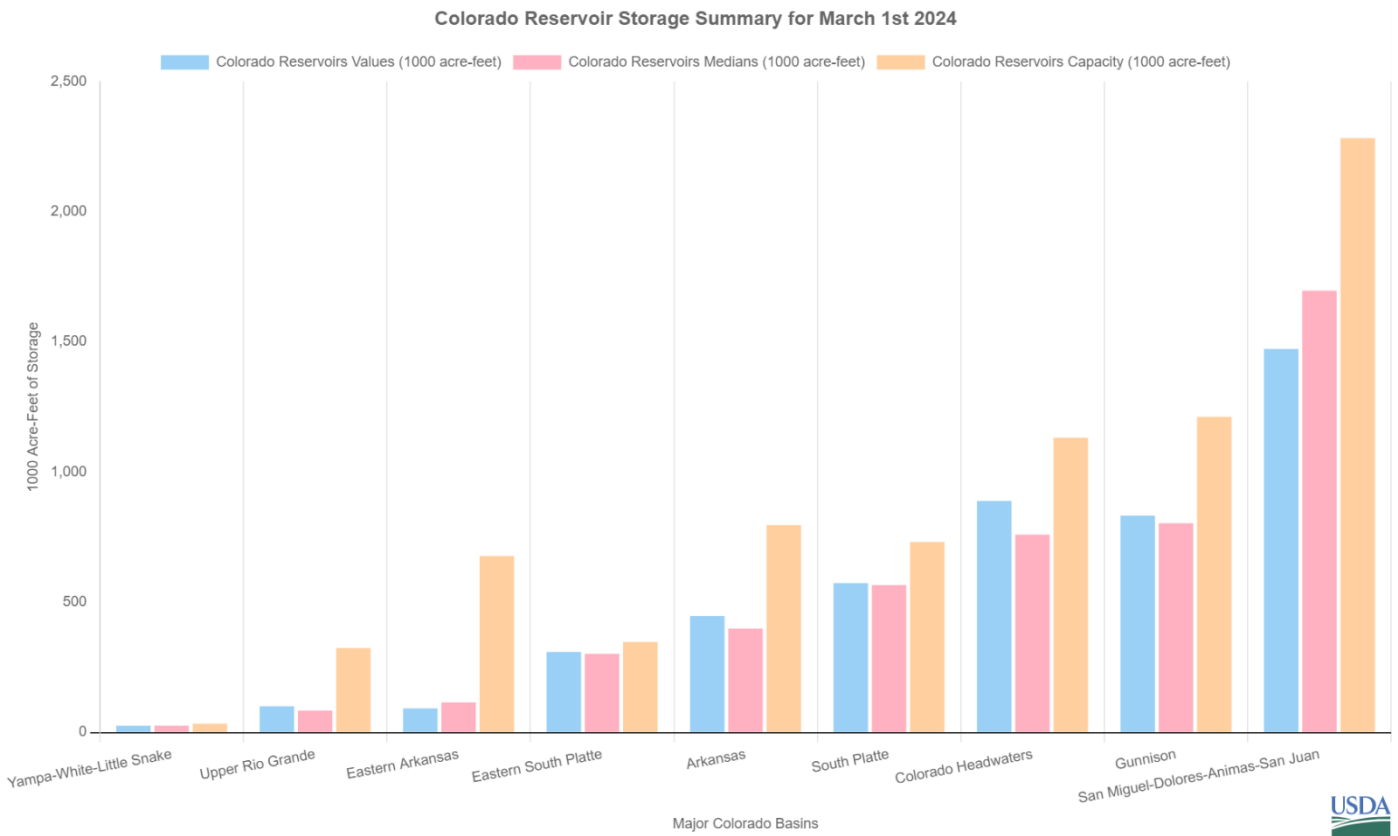
Colorado’s snowpack saw improvements during February compared to last month, increasing from 87 to 96 percent of median statewide. A north to southern trend persisted from January where northern basins maintained higher snowpack totals compared to southern basins. The combined Yampa-White-Little Snake River basin boasts the highest snowpack conditions in the state compared to normal, ending February with 104 percent of median which improved by 14 percentage points from last month. The Upper Rio Grande and the combined San Miguel-Dolores-Animas-San Juan River basins had the lowest snowpack conditions in the state at 84 and 90 percent of median, respectively. The Colorado-Kremmling to Glenwood Springs sub-basin stands out, boasting an above normal snowpack at 130 percent of median. The first [dust-on-snow](#) event of the winter occurred on February 26th- 27th in the southwest part of the state. Dust-on-snow impacts the snow melt rates and could speed up timing for when the snowpack goes isothermal. Much of the gains in snowpack were received in early February due to a series of storms that impacted the state; the second half of February was much drier. Although Colorado received above normal snowfall during the month of February, Colorado as a state is sitting around 98 percent of median for the current water year. The [NOAA outlook](#) indicates there is a chance for above-normal monthly precipitation and colder temperatures influenced by current El Nino conditions. If these favorable conditions develop, it will help maintain our snowpack going into runoff season.

Precipitation



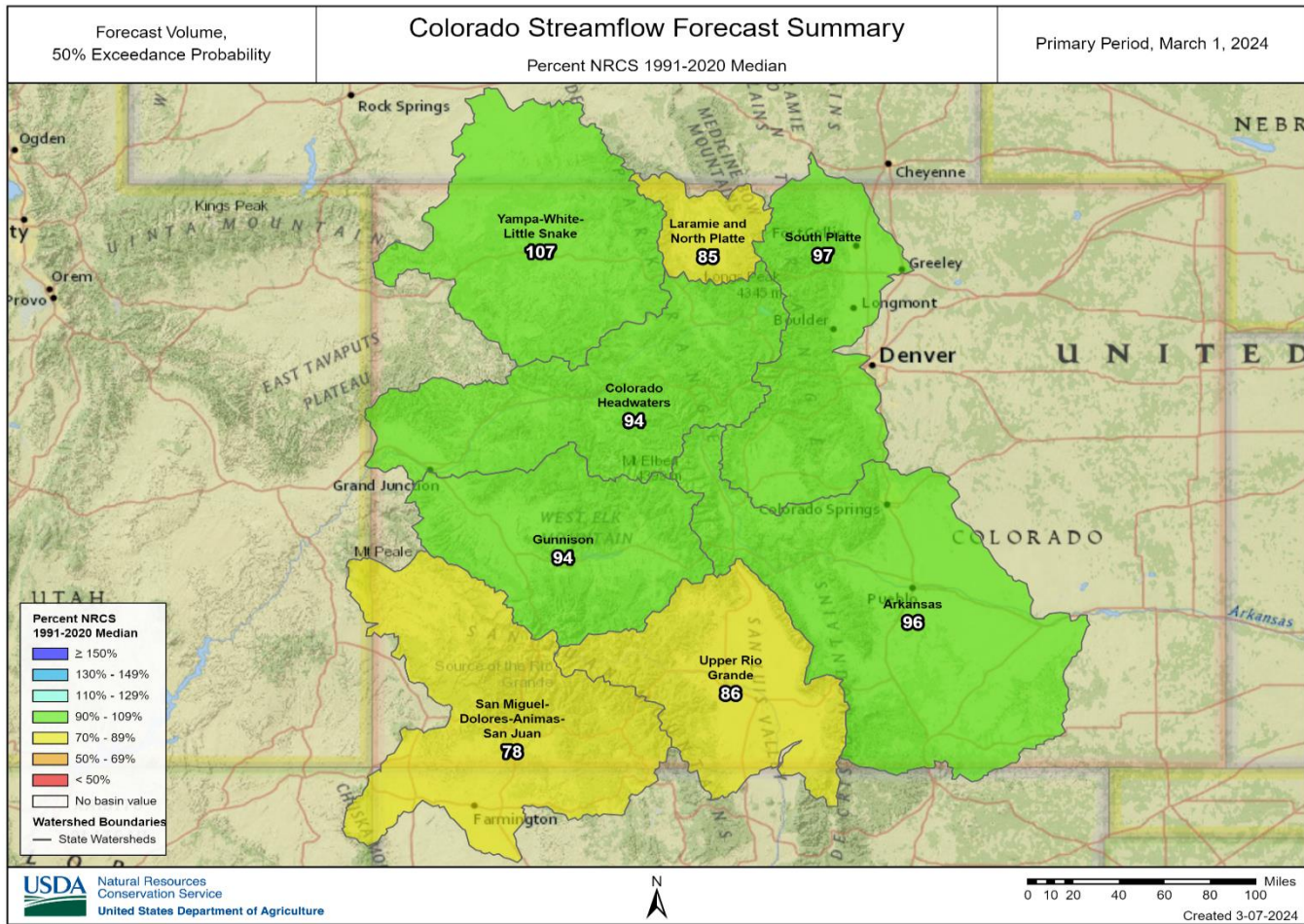
February precipitation delivered above normal for most basins across the state. Basin wide values were moderately elevated at 137, 145 and 144 percent above median for the San Miguel-Dolores-Animas, Upper Rio Grande and Arkansas basins respectively. The central basins (Gunnison, Colorado Headwaters, Laramie & North Platte) ranged between 117 to 124 percent of February median precipitation, while the South Platte basin is slightly above normal at 102 percent of median. Notably, the Yampa-White-Little-Snake basin recorded 154 percent of median precipitation totals for February. Of the 22 Snotel stations associated with the Yampa-White-Little Snake river basin, 3 sites recorded their highest ever recorded February precipitation. The greatest of which is the Rabbit Ears Snotel station with 8.5 inches of precipitation, clocking in at 181 percent of the median February value. Year-to-date precipitation totals are near median for the central and northern regions of the state, ranging from 97 (Laramie and North Platte) to 106 percent (Yampa-White-Little-Snake). However, year-to-date precipitation values continue to lag across the southern mountains with median values of 83 and 85 percent in the San Miguel-Dolores-Animas-San Juan, and Upper Rio Grande basins respectively. The South Platte is also somewhat below normal with a year-to-date precipitation accumulation at 89 percent of median. Drought conditions persist with conditions ranging from 35.26% D0, 16.37% D1, 8.66% D2, and 1.9% D3. El Niño conditions are expected to continue through March, but weaken in the coming months.

Reservoir Storage



Colorado’s reservoir storage as of March 1st is 100 percent of median. The Yampa-White-Little Snake, South Platte, Eastern South Platte, and Gunnison River basin are near median at 99, 101, 102, and 104 percent, respectively. The Upper Rio Grande, Colorado Headwaters, and Arkansas River basins ended February with above median storage at 119, 117, and 112 percent, respectively. Both the Eastern South Platte and the combined San Miguel-Dolores-Animas-San Juan River basins were slightly below median at 80 and 87 percent, respectively. There are many components, natural and artificial, that dictate a reservoir’s storage volume and therefore also factor into the median values calculated for each basin. Statewide reservoir storage as a percent of capacity ended February at 63 percent, which is an increase of more than 10 percent points from this time last year. Currently, the Arkansas, Upper Rio, and Eastern Arkansas River basins have the lowest percent of capacity in the state at 56, 31, and 15, respectively. Southwestern basins are faring better as a percent of capacity; where the combined San-Miguel-Dolores-Animas-San Juan and Gunnison River basins ended February at 64 and 69 percent of capacity, respectively. Reservoir storage in northern basins ended February near 80 percent of capacity, with the combined Yampa-White-Little Snake, South Platte, Colorado Headwaters, and Eastern South Platte River basins at 77, 78, 79, and 94 percent of capacity, respectively. Most basins show a 7 to 16 percent increase in percent of capacity as compared to this time last year with most in the 8 percent range.

Streamflow



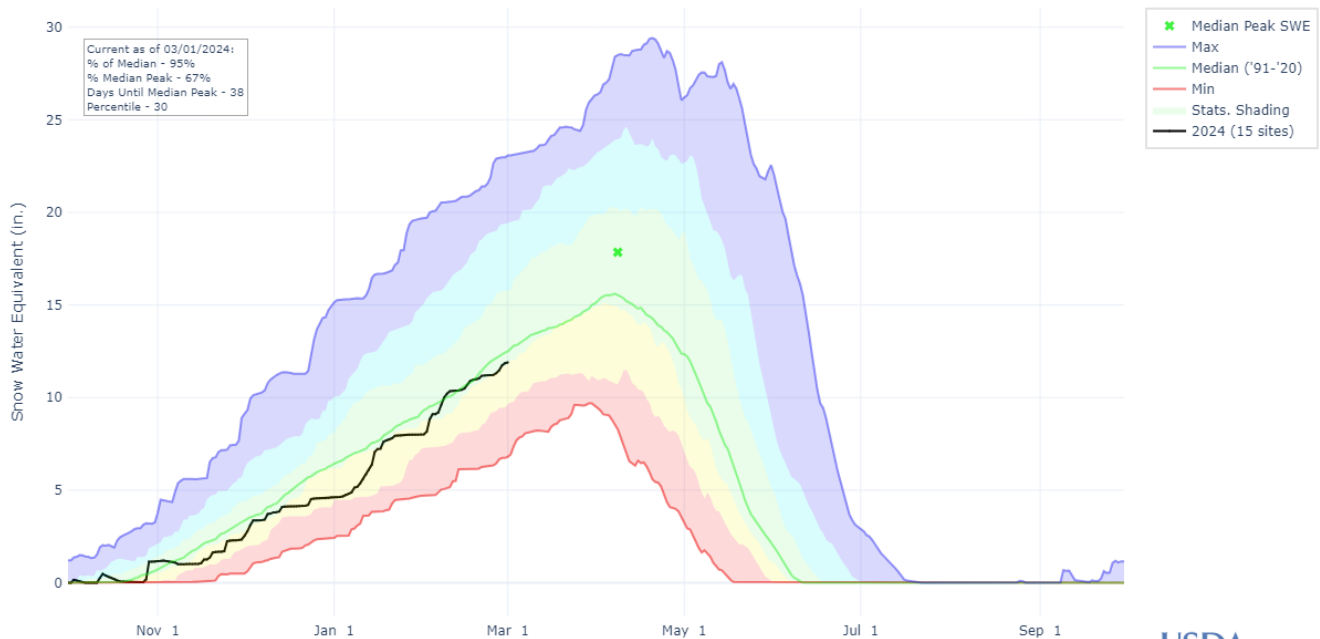
The latest forecasts have improved overall due to above normal precipitation in February. Statewide, 50 percent exceedance streamflow volume forecasts are 93 percent of median, an improvement from February forecasts at 83 percent of median. Conditions vary across the state, but February storms has brought overall improvements to the water supply outlook. Despite overall optimism, only 18 of 81 streamflow monitoring stations report forecasted 50% exceedance volumes above median, a slight improvement from last month's 12. Getting into specific basins reveals a nuanced view of recovery and ongoing needs. Forecasts are generally optimistic in the combined Yampa-White-Little Snake River basin with forecasted 50 percent exceedance volumes at 107 percent of median, a healthy rebound that's indicative of the productive snowfall in February. The Arkansas River basin is not far behind, with March 1st forecasts at 100 percent of median signaling a significant turnaround from earlier this year. March forecasts are less optimistic for the Upper Rio Grande and the San Miguel-Dolores-Animas-San Juan River basins which are still below normal, hovering at 85 and 78 percent of median, respectively. In the South Platte River basin, forecasts are varying but generally positive. Applying cautious optimism, all forecast points in the South Platte have expected runoff volumes greater than 90 percent of median. The Colorado Headwaters River basin paints a similar picture of recovery, with forecast points like Lake Granby showing forecasts above the 90 percent of median. The Laramie and North Platte River basin didn't see much improvement in its Northgate forecast point, which only increased by one percentage point from last month. In the Gunnison River basin, there is a spectrum of forecasts ranging from 75 to 136 percent of normal. Two higher flow rate forecast points, Taylor River below Taylor Park Reservoir and Gunnison River at Blue Mesa Dam, are both above median for March 1st forecasts.

GUNNISON RIVER BASIN

March 1st, 2024

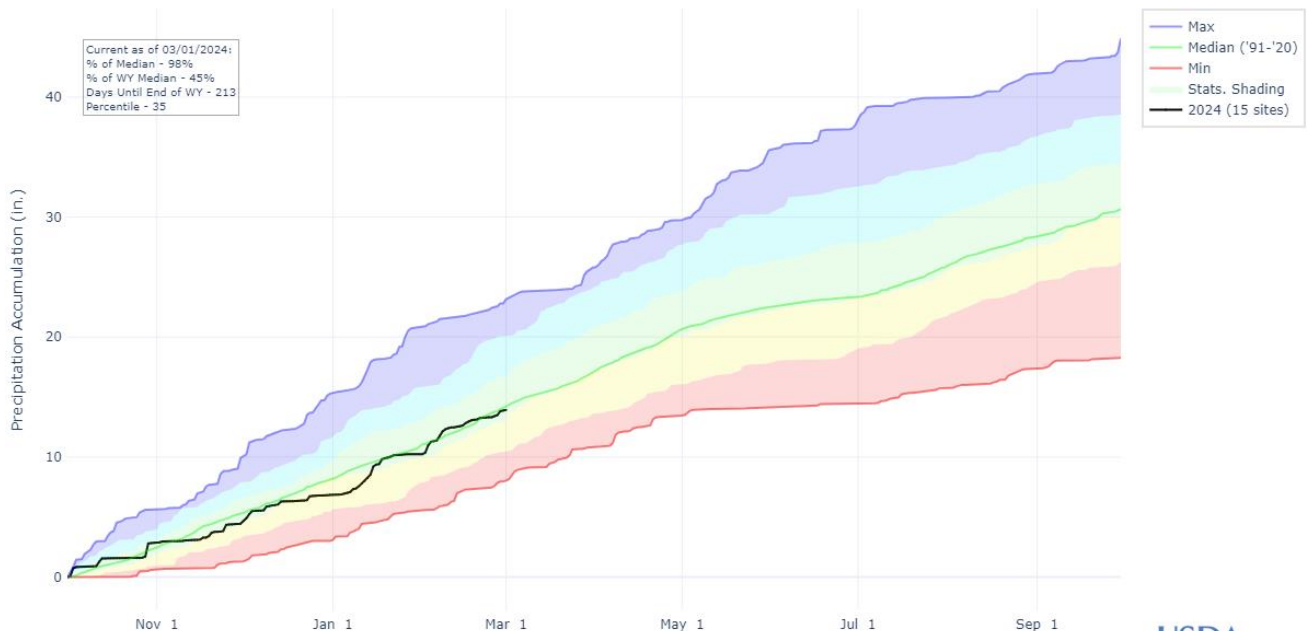
Snowpack in the Gunnison River basin is just below normal at 97% of median. Precipitation for February was 122% of median which brings water year-to-date precipitation to 98% of median. Reservoir storage at the end of January was 104% of median compared to 69% last year. Current streamflow forecasts range from 75% of median at Uncompahgre River at Colona to 136% of median at Tomichi Creek at Sargents.

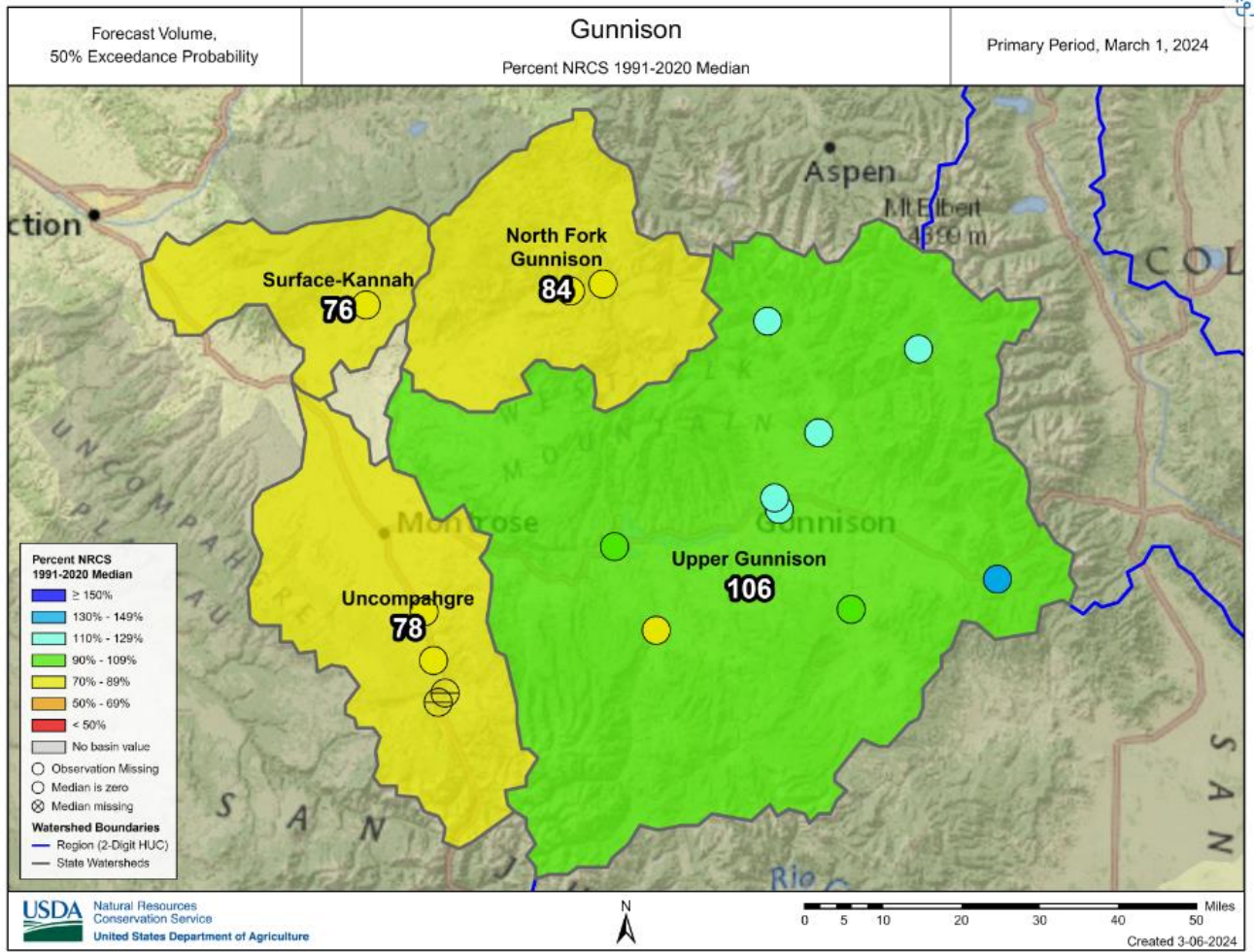
SNOW WATER EQUIVALENT IN GUNNISON



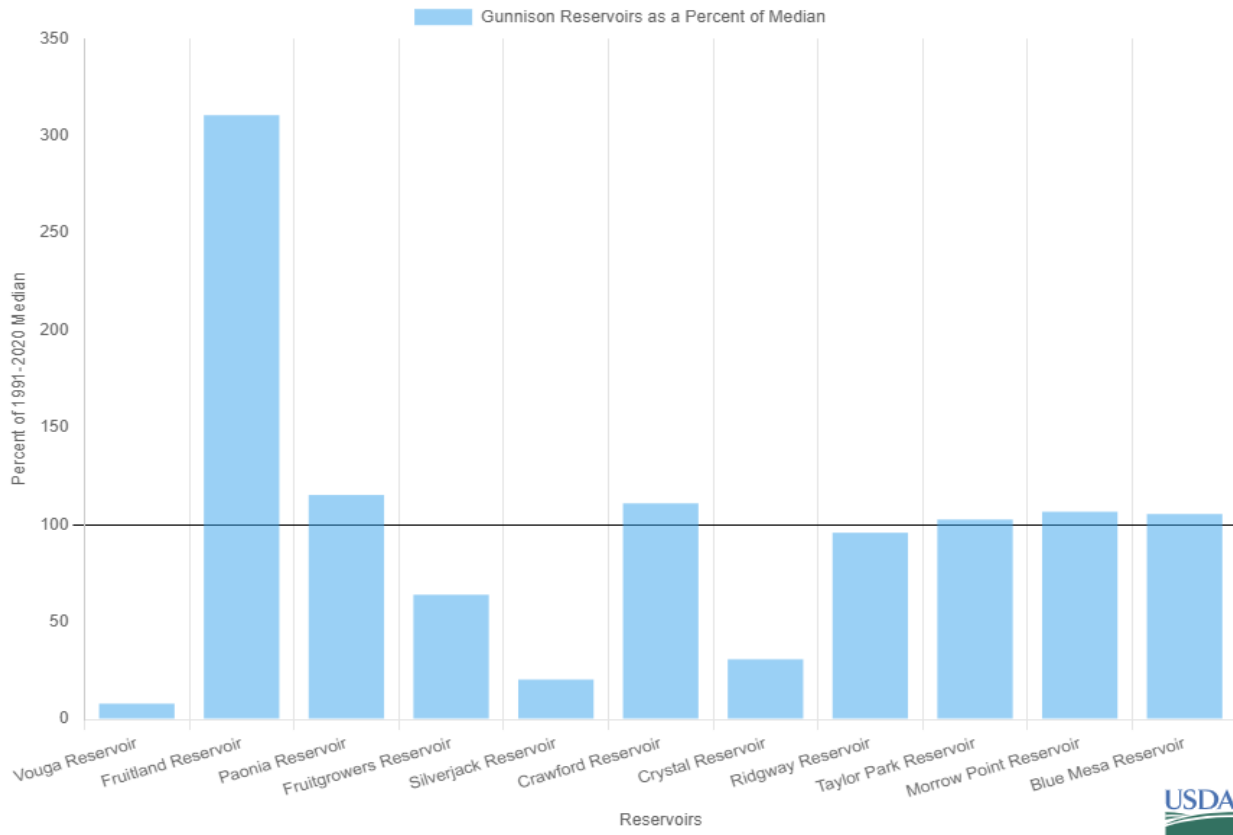
*Snow water equivalent (SWE) values are calculated using daily SNOTEL data only for the above graph. In the paragraph SWE is calculated for the first of the month using both SNOTEL and Snow Course data.

PRECIPITATION ACCUMULATION IN GUNNISON





Gunnison Reservoir Storage Summary for March 1st 2024



Watershed Snowpack Analysis March 1st, 2024

Gunnison Sub-Basin Snow Data

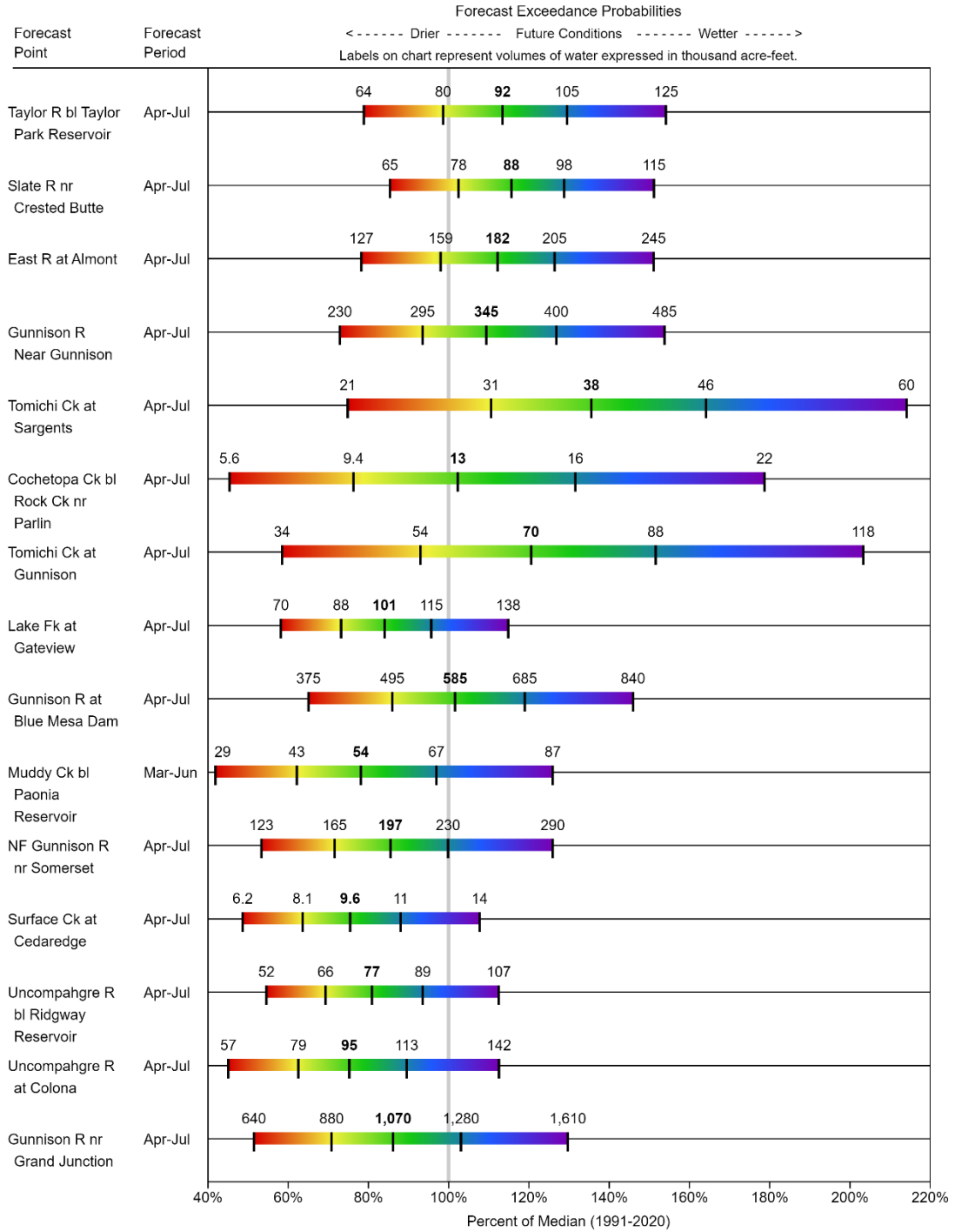
	# of Sites	% Median	Last Year % Median
North Fork Gunnison	3.0	86.3	147.7
Surface-Kannah	3.0	86.9	149.5
Uncompahgre Plateau	1.0	98.0	204.6
Upper Gunnison	14.0	104.8	122.7
Uncompahgre	3.0	88.4	123.4

Reservoir Storage End of February 2024

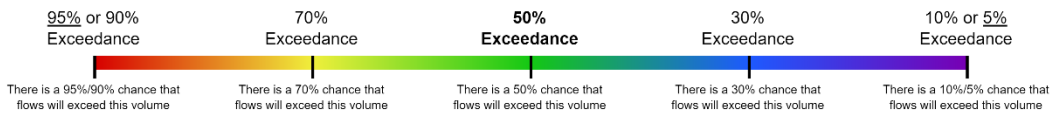
Gunnison Reservoir Data

	Current Storage (KAF)	LY Storage (KAF)	Median (KAF)	Percent of Median
Crystal Reservoir	2.5	8.88	8.1	30.9
Taylor Park Reservoir	70.55	64.11	68.7	102.7
Blue Mesa Reservoir	561.76	296.38	532.3	105.5
Silverjack Reservoir	0.88	1.17	4.3	20.5
Paonia Reservoir	2.77	1.0	2.4	115.4
Crawford Reservoir	6.99	2.62	6.3	111.0
Vouga Reservoir	0.06	0.3	0.75	8.0
Ridgway Reservoir	65.5	69.86	68.3	95.9
Fruitland Reservoir	3.57	1.14	1.15	310.4
Fruitgrowers Reservoir	2.3	2.39	3.6	63.9
Morrow Point Reservoir	116.25	107.58	108.9	106.7

GUNNISON
Water Supply Forecasts
March 1, 2024



Legend



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

| *Period of Record Minimum Streamflow KAF (Year)*
 | *1991-2020 Normal Streamflow KAF*
 | *Observed Streamflow KAF*
 | *Period of Record Maximum Streamflow KAF (Year)*

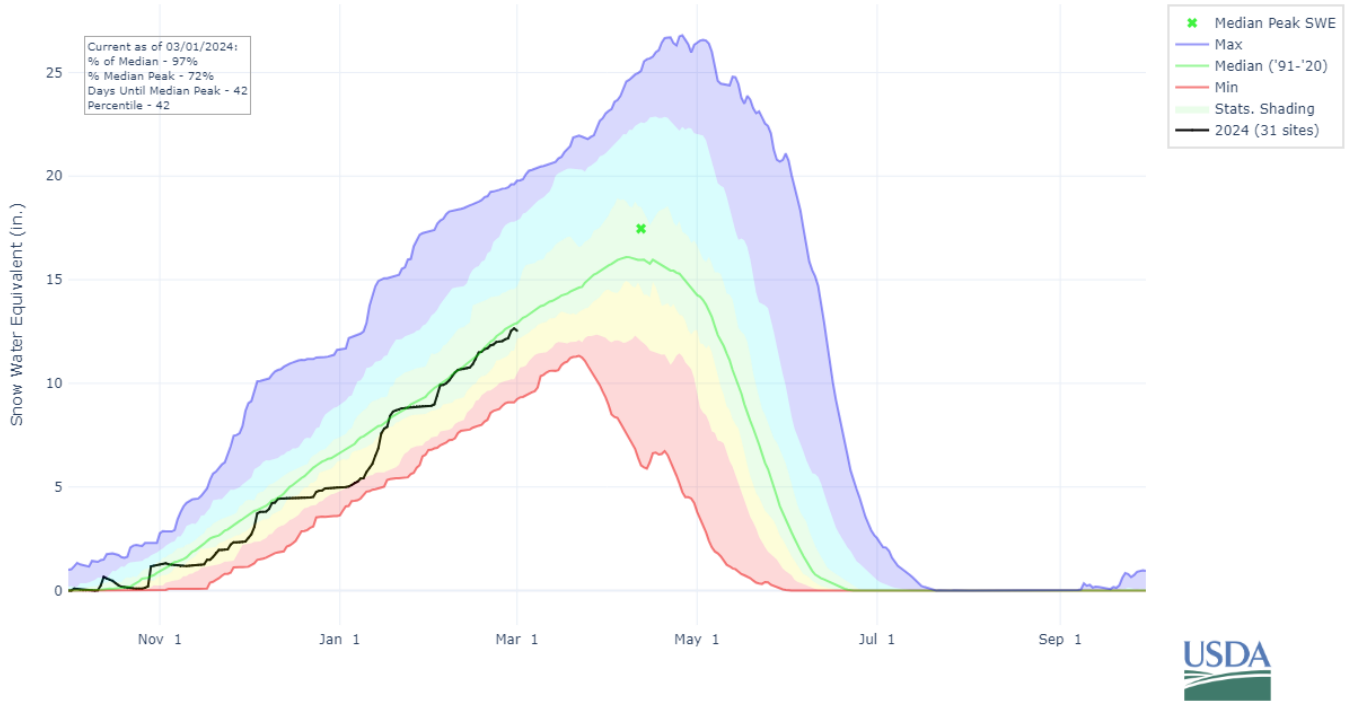
Some forecasts may be for volumes that are regulated or influenced by diversions and water management.

COLORADO HEADWATERS RIVER BASIN

March 1st, 2024

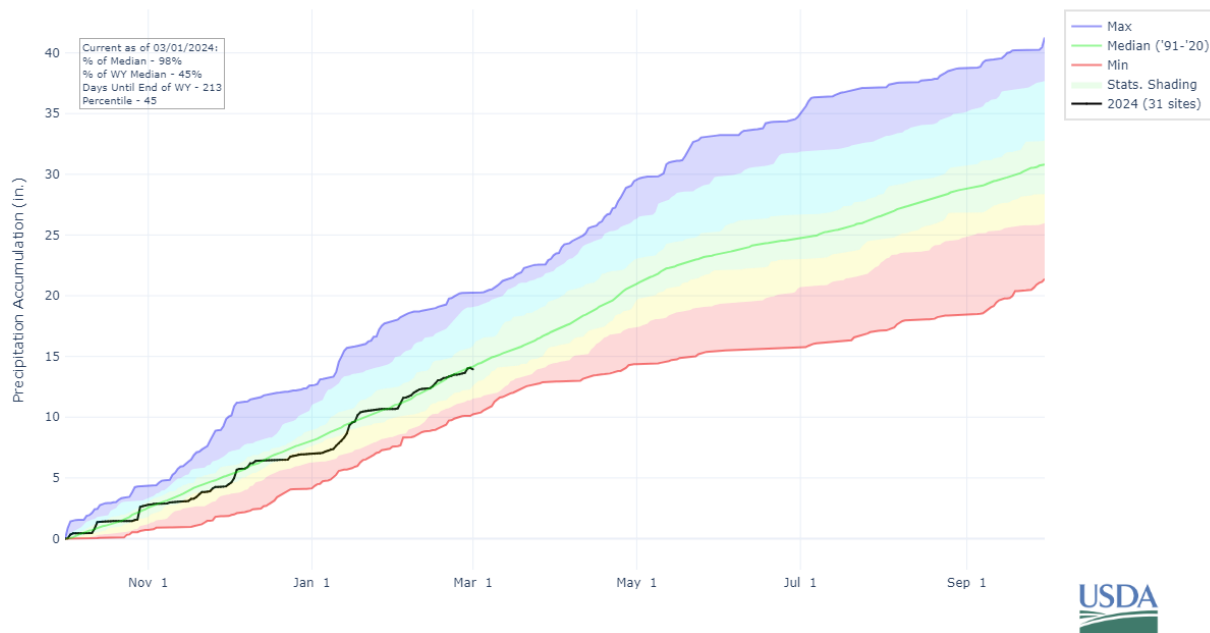
Snowpack in the Colorado River basin is right at normal with 100% of the median. Precipitation for February was 117% of median which brings water year-to-date precipitation to 100% of median. Reservoir storage at the end of January was 117% of median compared to 100% last year. Current streamflow forecasts range from 87% of median at the Colorado River below Lake Granby to 109% of median at Frying Pan River at Ruedi.

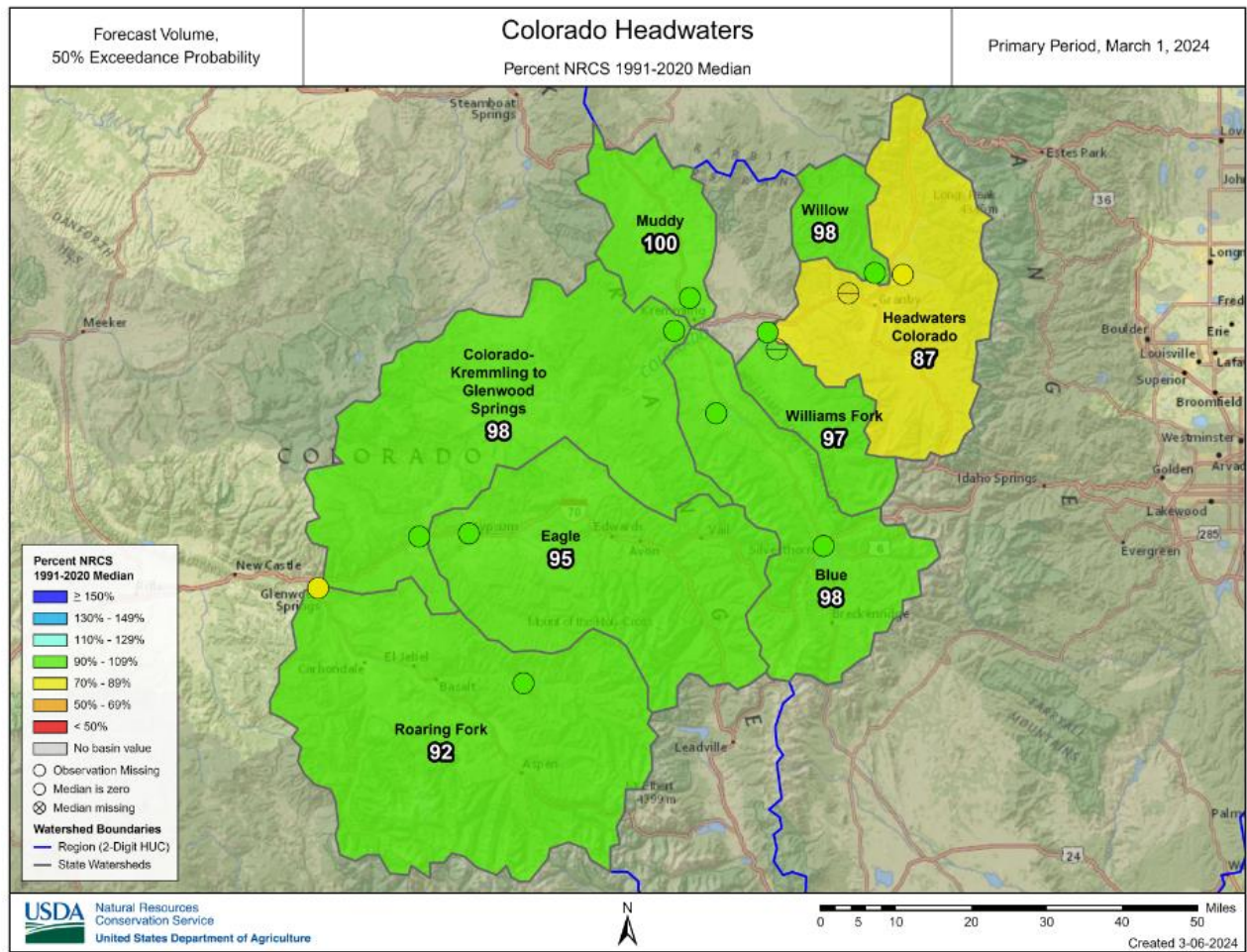
SNOW WATER EQUIVALENT IN COLORADO HEADWATERS



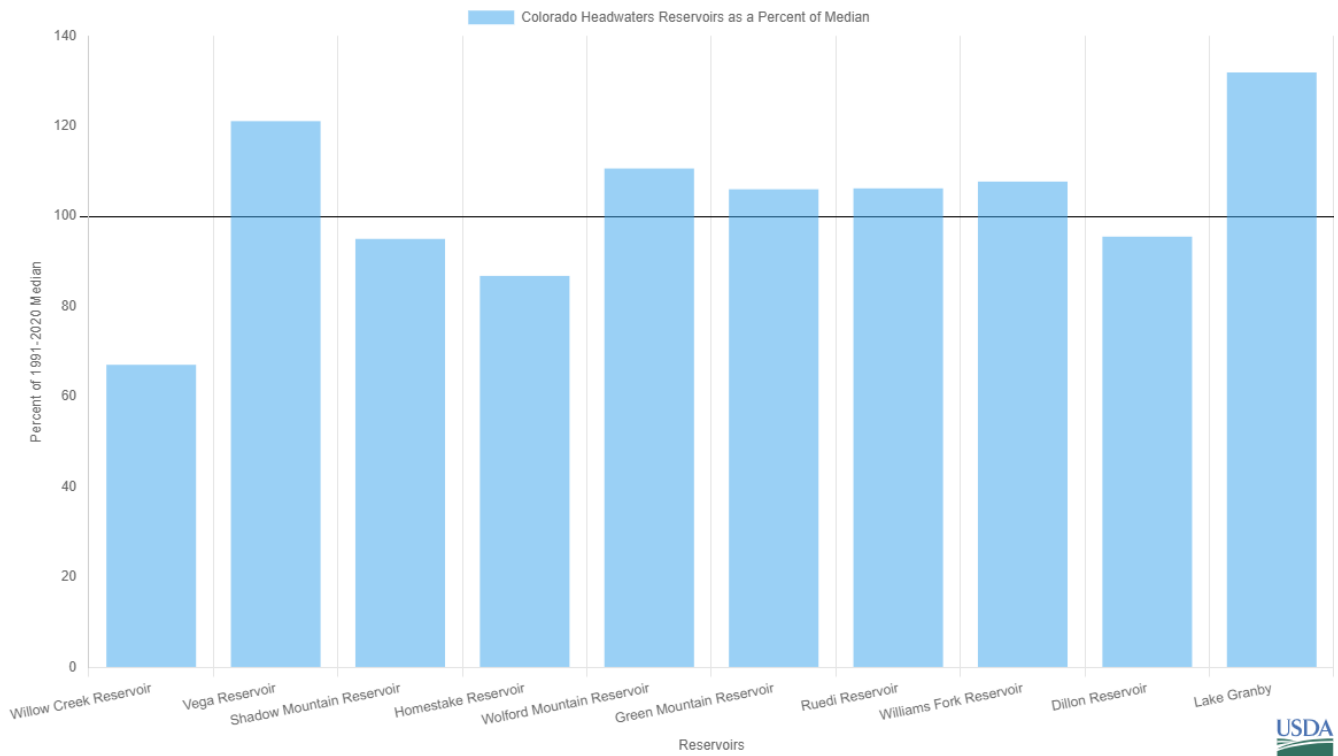
*Snow water equivalent (SWE) values are calculated using daily SNOTEL data only for the above graph. In the paragraph SWE is calculated for the first of the month using both SNOTEL and Snow Course data.

PRECIPITATION ACCUMULATION IN COLORADO HEADWATERS





Colorado Headwaters Reservoir Storage Summary for February 1st 2024



Watershed Snowpack Analysis March 1st, 2024

Colorado Headwaters Sub-Basin Snow Data

	# of Sites	% Median	Last Year % Median
Colorado-Kremmling to Glenwood Springs	5.0	109.2	147.2
Eagle	8.0	96.9	106.3
Muddy	4.0	109.3	121.0
Williams Fork	4.0	101.8	97.0
Blue	8.0	105.0	107.5
Roaring Fork	11.0	99.3	117.5
Plateau	4.0	85.2	152.5
Headwaters Colorado	10.0	106.9	109.5
Willow	4.0	91.2	128.4
Troublesome	2.0	90.9	114.0

Reservoir Storage End of February 2024

Colorado Headwaters Reservoir Data

	Current Storage (KAF)	LY Storage (KAF)	Median (KAF)	Percent of Median
Wolford Mountain Reservoir	52.92	39.29	48.1	110.0
Green Mountain Reservoir	68.5	70.05	64.9	105.5
Williams Fork Reservoir	nan	42.22	71.8	nan
Shadow Mountain Reservoir	16.42	16.5	17.3	94.9
Lake Granby	413.25	349.66	288.4	143.3
Homestake Reservoir	34.99	29.34	35.9	97.5
Dillon Reservoir	209.99	200.9	216.8	96.9
Vega Reservoir	15.42	9.6	12.9	119.5
Willow Creek Reservoir	5.05	6.91	7.1	71.1
Ruedi Reservoir	73.11	63.23	68.6	106.6

COLORADO HEADWATERS

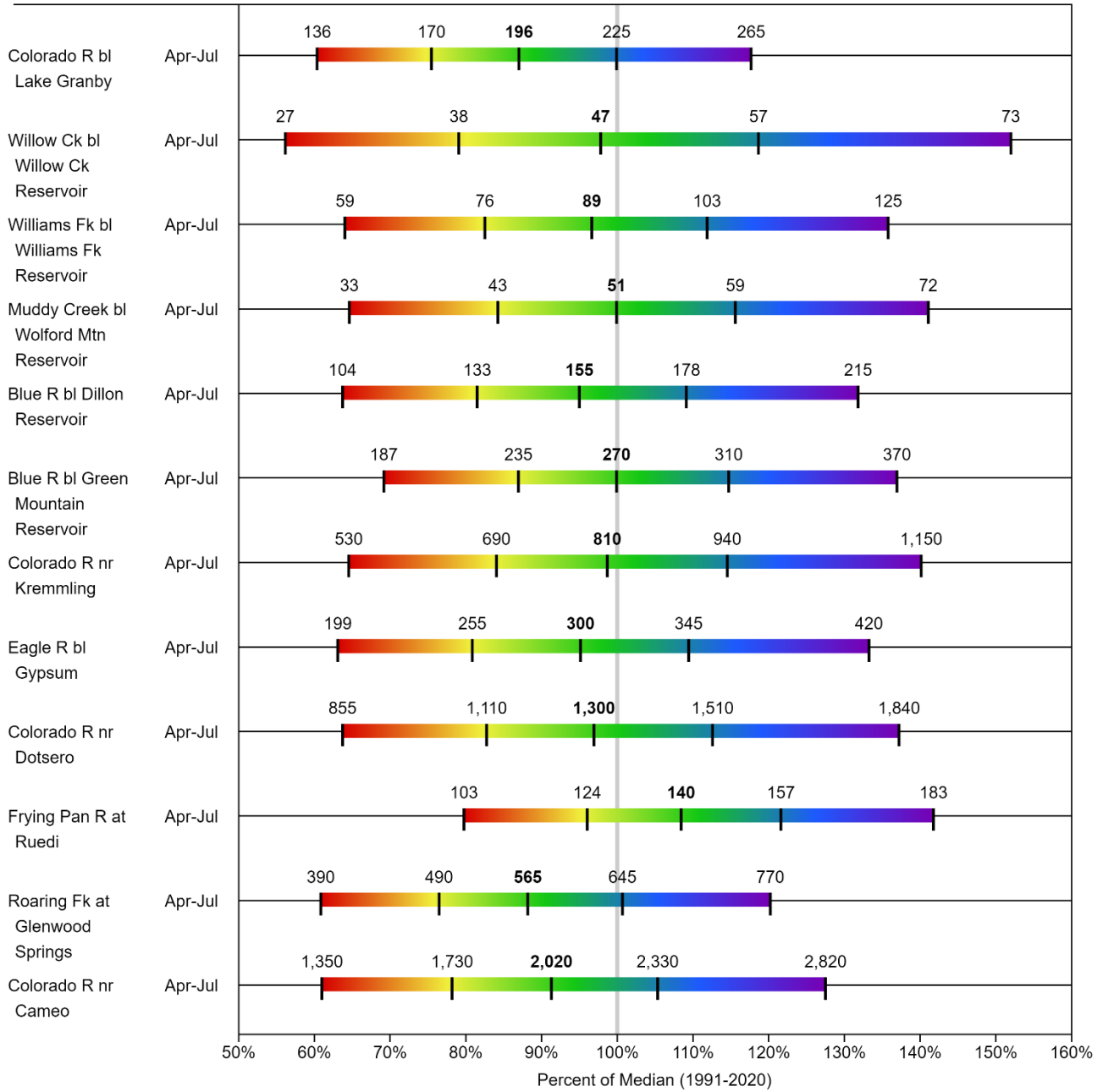
Water Supply Forecasts

March 1, 2024

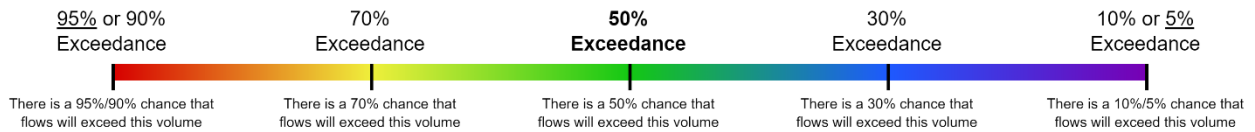
Forecast Exceedance Probabilities

<----- Drier ----- Future Conditions ----- Wetter ----->

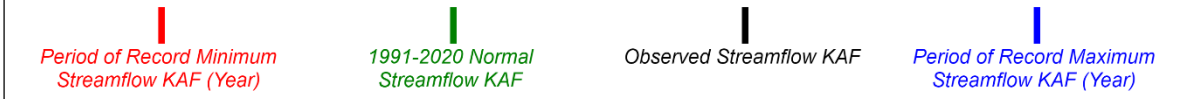
Labels on chart represent volumes of water expressed in thousand acre-feet.



Legend



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

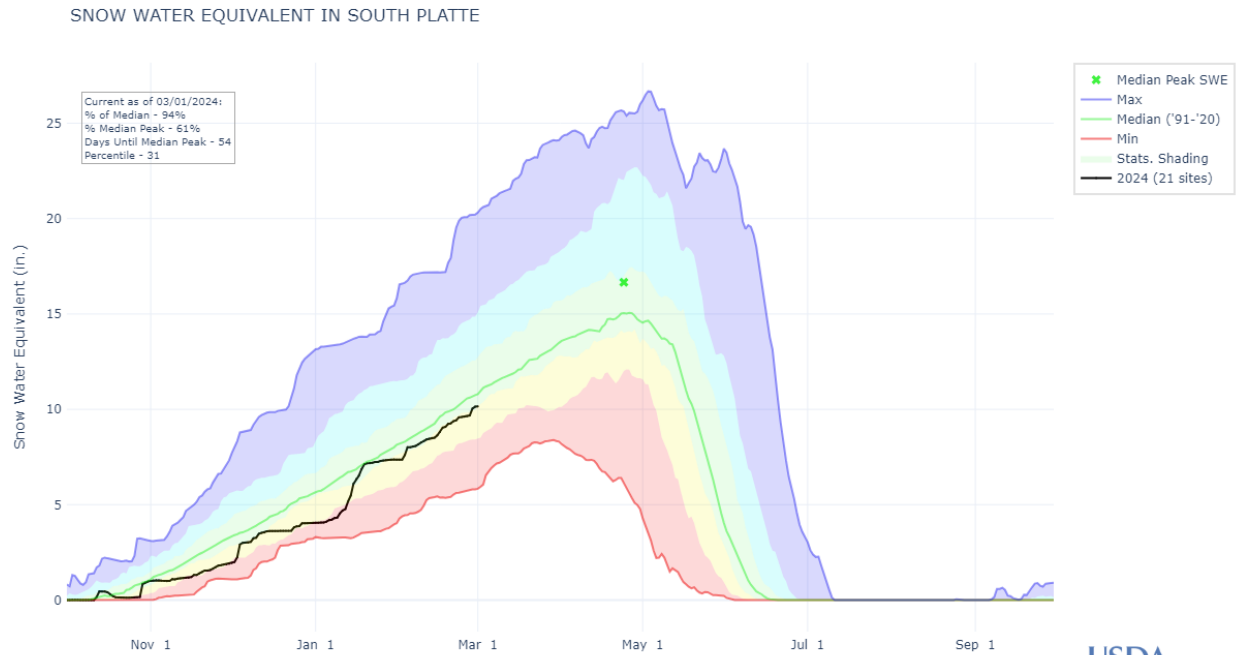


Some forecasts may be for volumes that are regulated or influenced by diversions and water management.

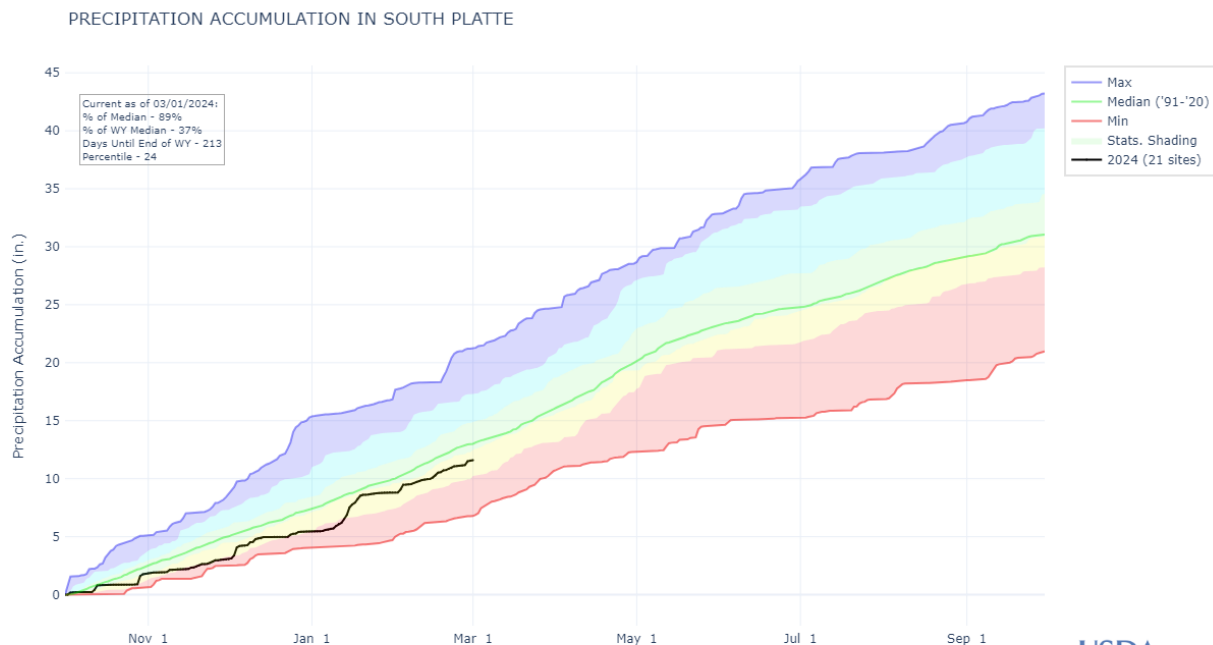
SOUTH PLATTE RIVER BASIN

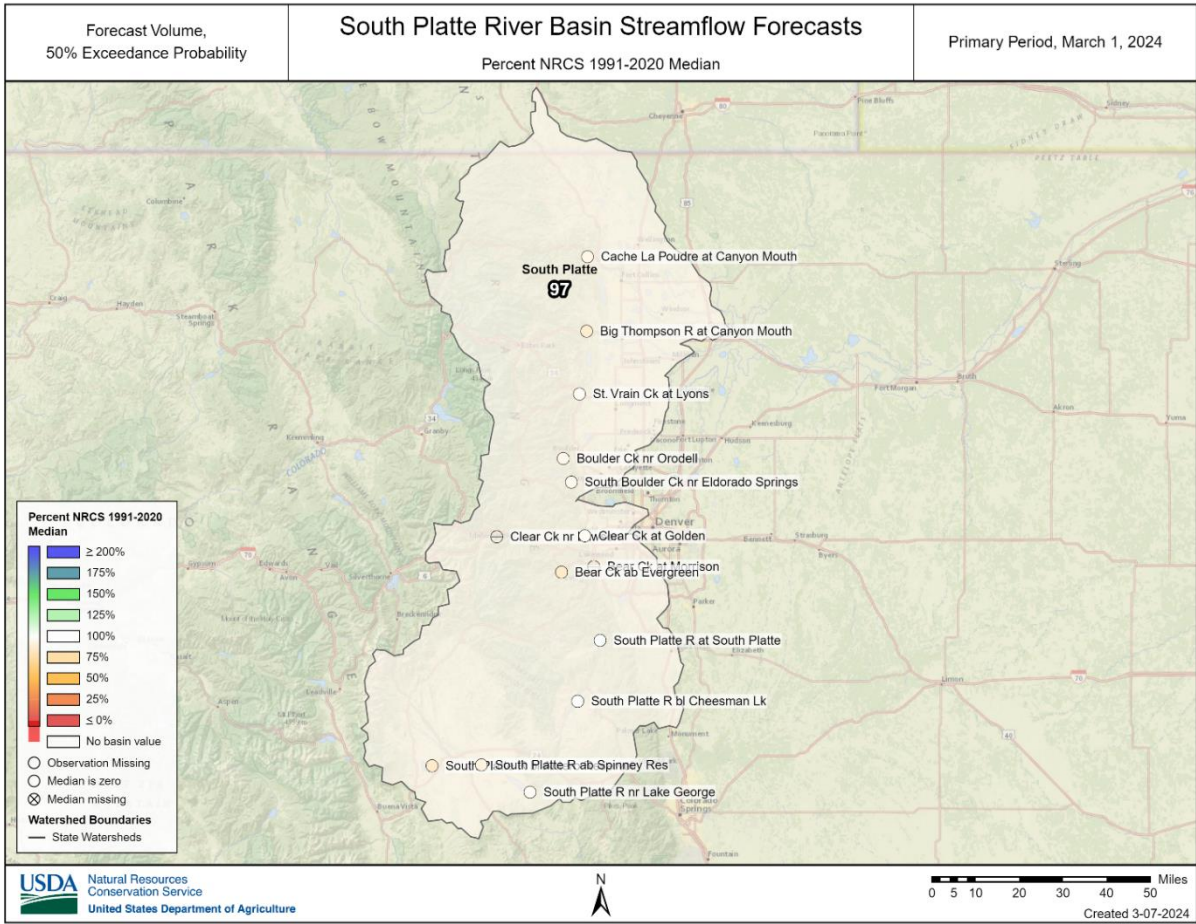
March 1st, 2024

Snowpack in the South Platte River basin is below normal at 93% of median. Precipitation for February was 102% of median which brings water year-to-date precipitation to 89% of median. Reservoir storage at the end of February was 101% of median compared to 90% last year. Current streamflow forecasts are at 90 percent of median and range from 90% of median at South Platte River below Antero Reservoir to 101% of median for South Platte River at South Platte.

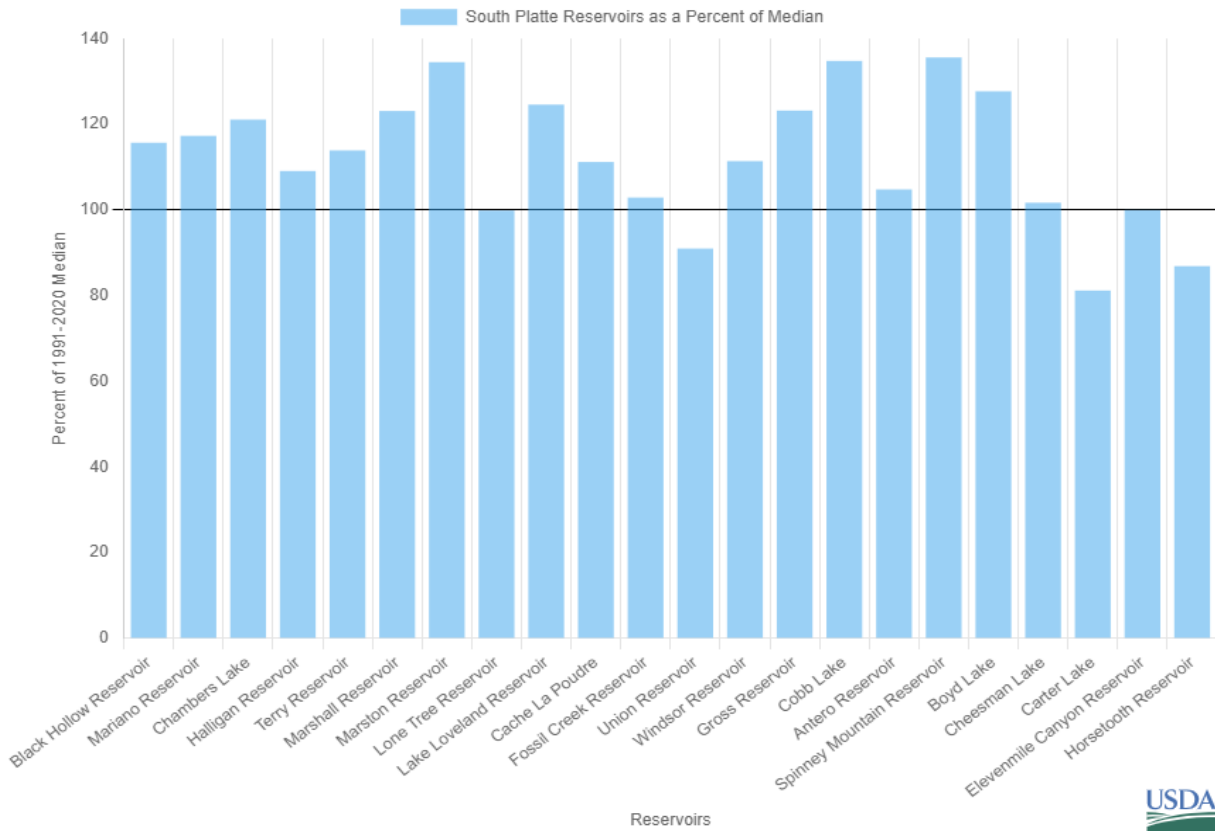


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South Platte Reservoir Storage Summary for March 1st 2024



* As of February 7th, we are still missing data from Northern Water Reservoirs. Please see website for updates.

Watershed Snowpack Analysis March 1st, 2024

South Platte Sub-Basin Snow Data

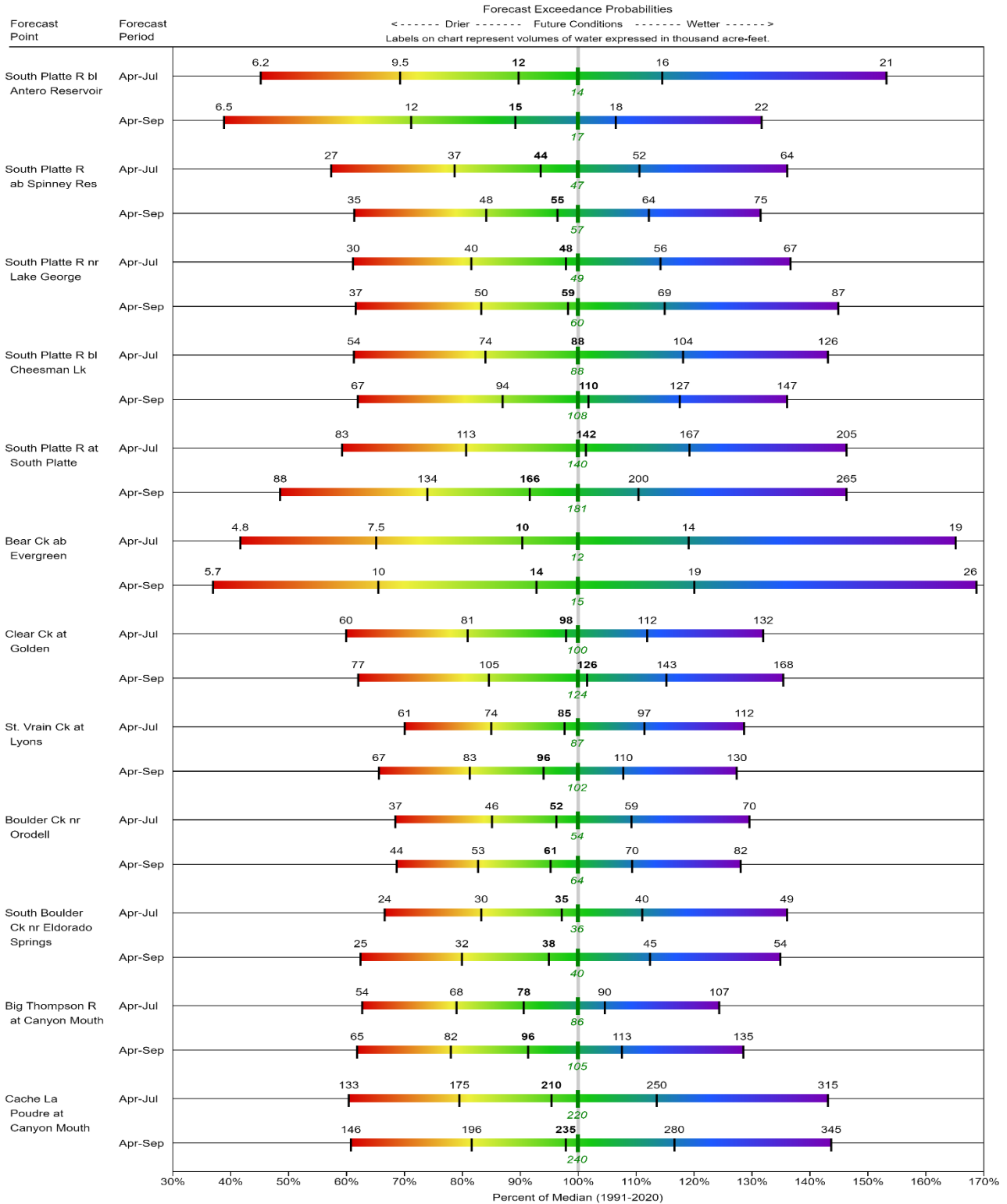
	# of Sites	% Median	Last Year % Median
Upper South Platte	15.0	103.9	84.2
Big Thompson	7.0	90.1	126.2
North Fork Cache La Poudre	4.0	84.6	114.9
Clear	5.0	99.0	95.3
Boulder	6.0	89.1	104.3
Cache La Poudre	12.0	90.1	115.2
Saint Vrain	5.0	89.6	128.6

Reservoir Storage End of March 2024

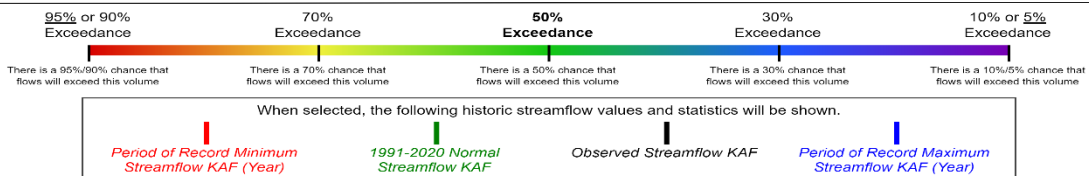
South Platte Reservoir Data

	Current Storage (KAF)	LY Storage (KAF)	Median (KAF)	Percent of Median
Elevenmile Canyon Reservoir	99.35	99.28	99.3	100.1
Gross Reservoir	16.88	6.62	13.7	123.2
Lake Loveland Reservoir	9.22	2.05	7.4	124.6
Horsetooth Reservoir	100.06	87.13	115.1	86.9
Lone Tree Reservoir	6.89	4.54	6.9	99.9
Windsor Reservoir	nan	13.9	12.5	nan
Mariano Reservoir	3.99	3.95	3.4	117.4
Carter Lake	73.53	83.77	90.5	81.2
Cheesman Lake	65.58	67.32	64.5	101.7
Cobb Lake	nan	14.88	14.3	nan
Fossil Creek Reservoir	nan	8.92	9.2	nan
Black Hollow Reservoir	nan	4.63	3.1	nan
Marshall Reservoir	7.1	6.34	6.2	114.5
Chambers Lake	nan	3.32	3.5	nan
Halligan Reservoir	nan	6.28	5.3	nan
Antero Reservoir	20.44	20.12	19.5	104.8
Spinney Mountain Reservoir	nan	24.57	29.9	nan
Union Reservoir	9.74	10.1	10.7	91.0
Ralph Price Reservoir	nan	14.38	13.3	nan
Marston Reservoir	9.01	7.52	6.7	134.5
Terry Reservoir	nan	4.72	5.4	nan
Cache La Poudre	nan	3.91	8.2	nan
Boyd Lake	39.45	21.83	30.9	127.7

SOUTH PLATTE
Water Supply Forecasts
 March 1, 2024



Legend

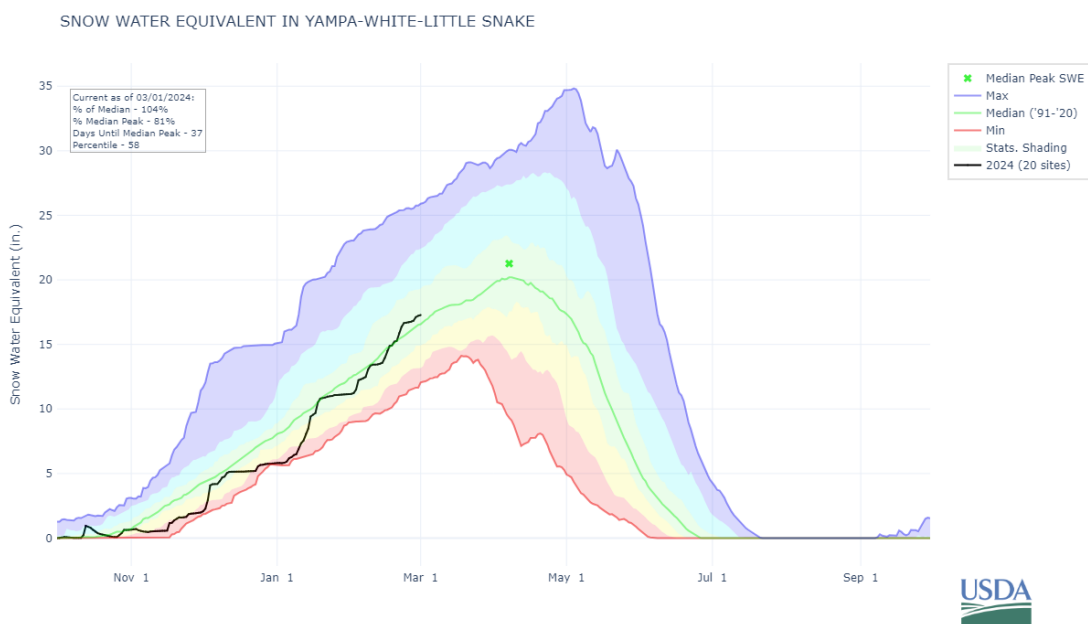


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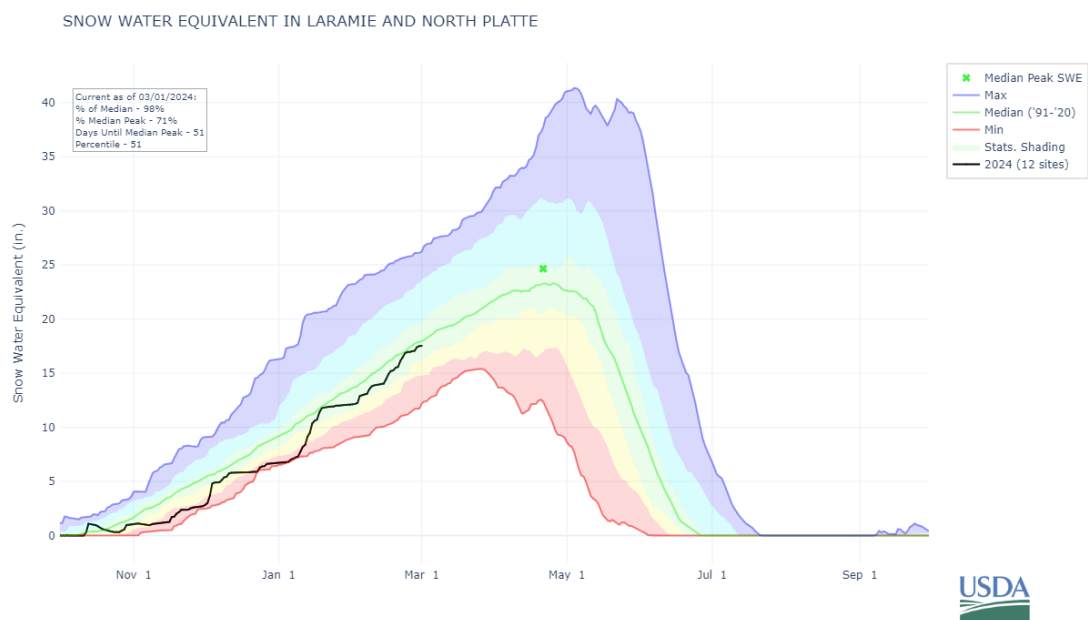
YAMPA-WHITE-LITTLE SNAKE AND LARAMIE-NORTH PLATTE RIVER BASINS

March 1st, 2024

Snowpack in the Yampa-White-Little Snake is slightly above normal at 104% and the Laramie-North Platte River basins are near normal at 97% of the median. Precipitation for February was 154% and 124% of median and water year-to-date precipitation is 106% and 97% of median, for each basin respectively. Reservoir storage at the end of February or the Yampa-White-Little Snake was 99% of median. Current streamflow forecasts range from 98% at Little Snake River near Slater to 126% of median at Yampa River above Stagecoach Reservoir.

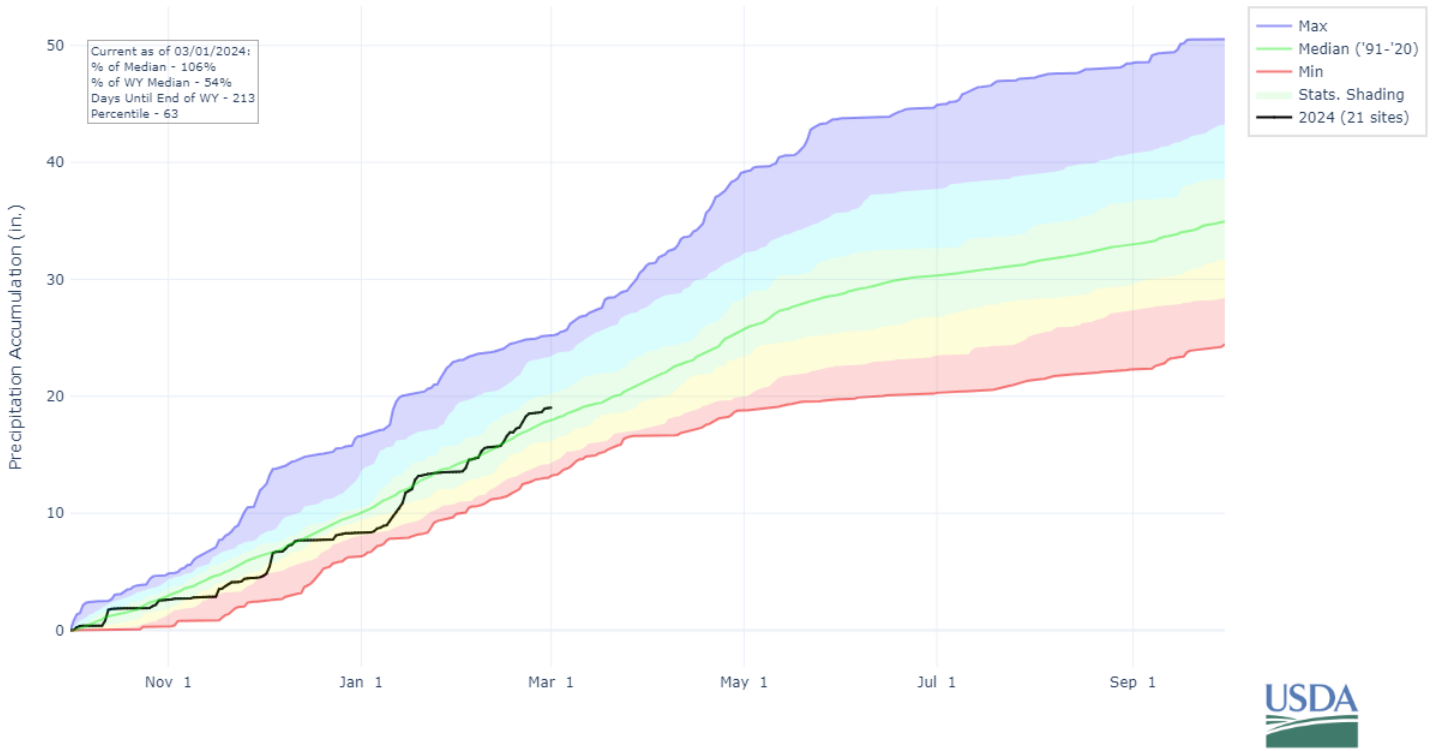


*SWE values calculated using daily SNOTEL data only

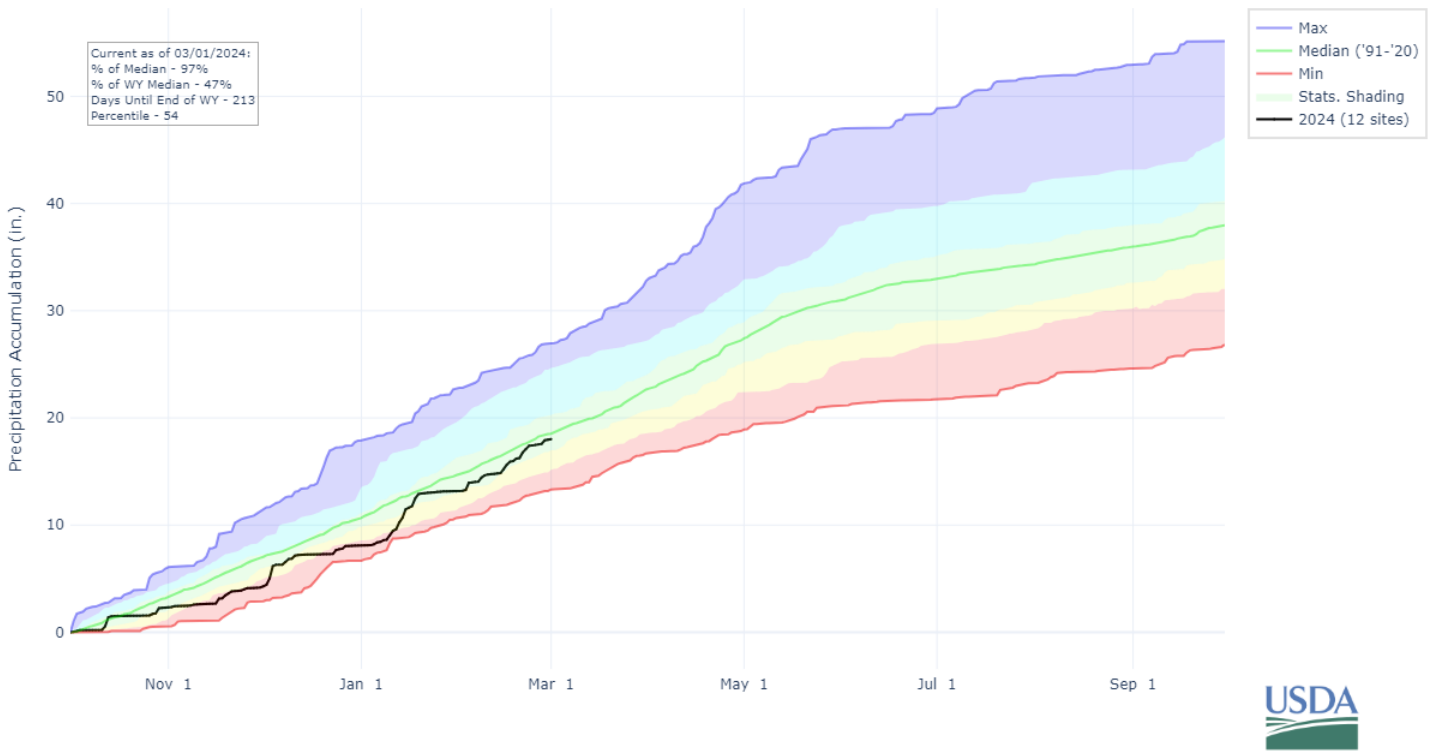


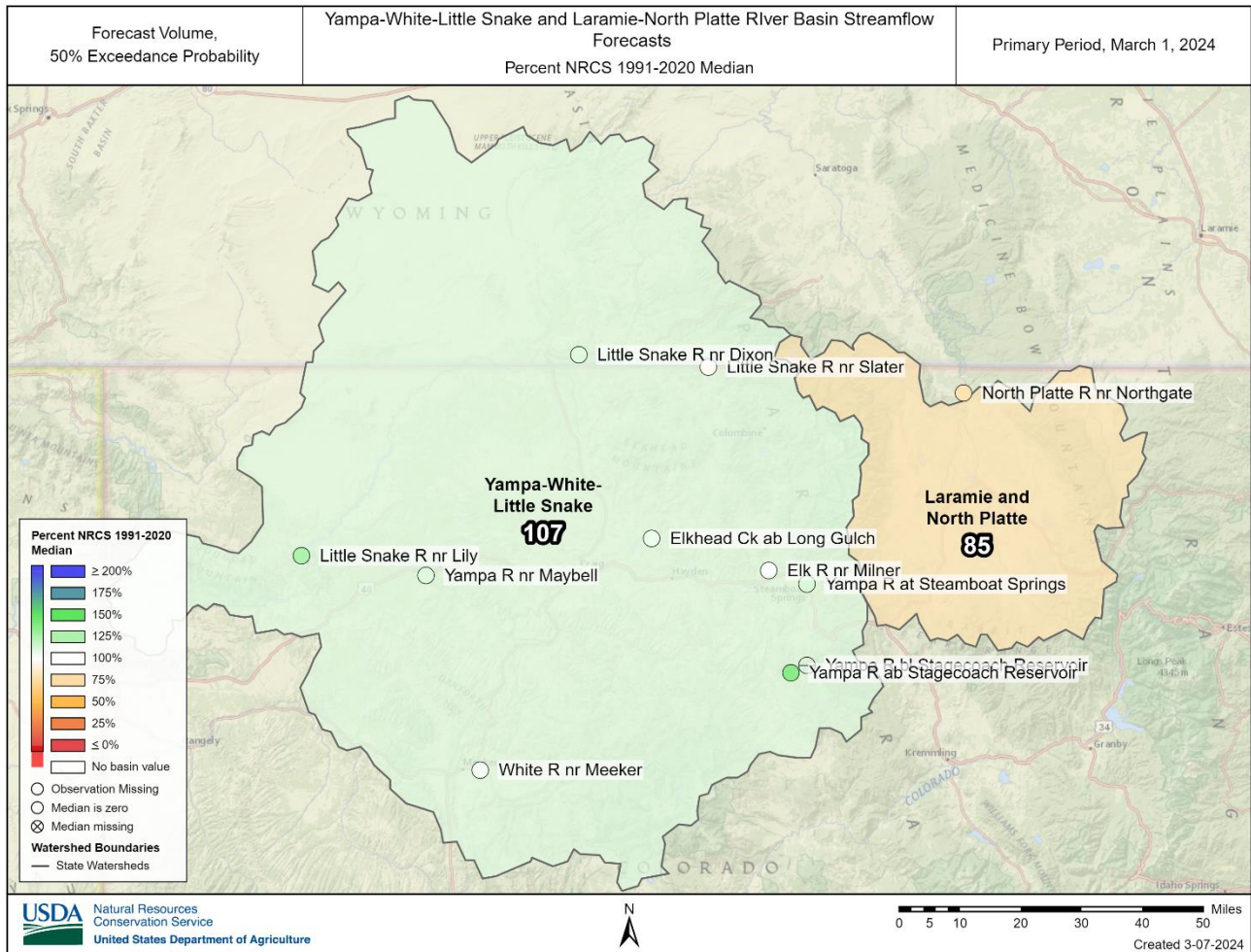
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PRECIPITATION ACCUMULATION IN YAMPA-WHITE-LITTLE SNAKE

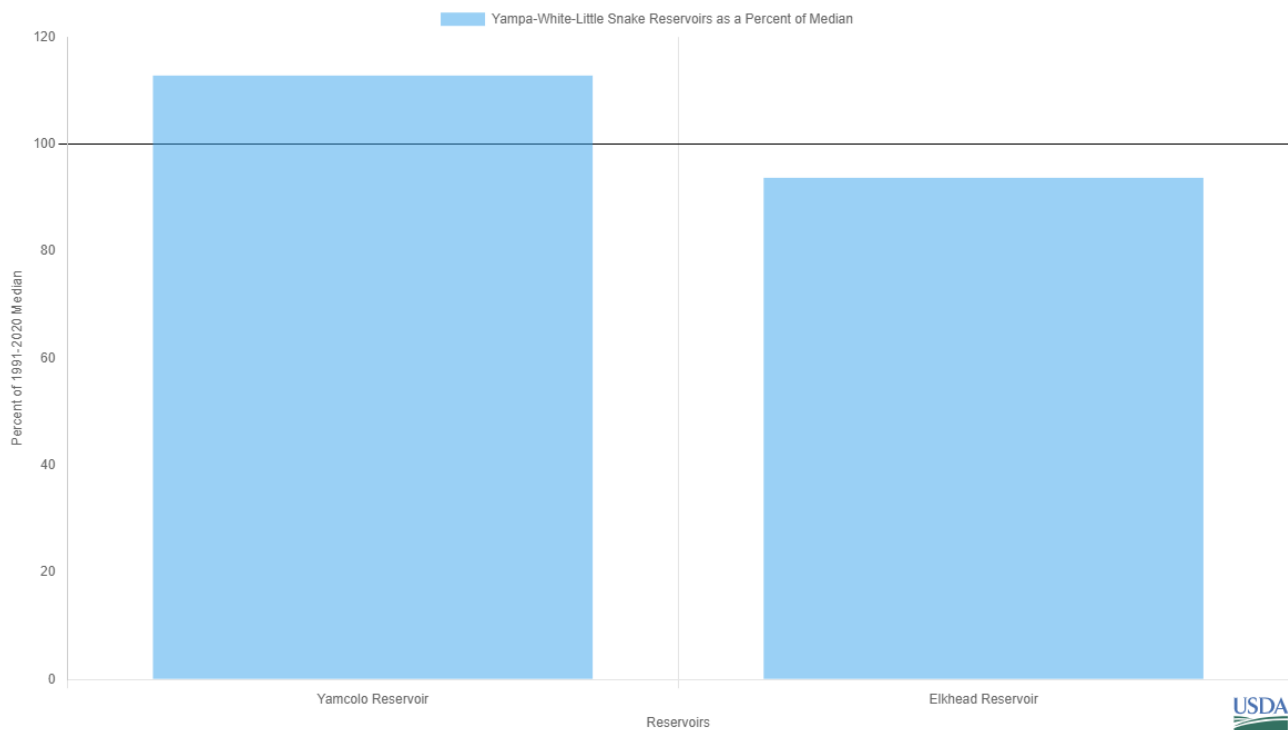


PRECIPITATION ACCUMULATION IN LARAMIE AND NORTH PLATTE





Yampa-White-Little Snake Reservoir Storage Summary for March 1st 2024



*No reservoirs are currently monitored in the Laramie-North Platte combined basin.

Watershed Snowpack Analysis March 1st, 2024

Yampa-White-Little Snake Sub-Basin Snow Data

	# of Sites	% Median	Last Year % Median
Yampa	10.0	107.0	123.4
Little Snake	10.0	106.3	148.0
Elk	2.0	96.5	139.9
White	4.0	95.6	140.9
Williams Fork of the Yampa	1.0	97.1	127.9

Laramie and North Platte Sub-Basin Snow Data

	# of Sites	% Median	Last Year % Median
North Platte Headwaters	14.0	98.1	123.3
Laramie	5.0	89.2	118.3

Reservoir Storage End of February 2024

Yampa-White-Little Snake Reservoir Data

	Current Storage (KAF)	LY Storage (KAF)	Median (KAF)	Percent of Median
Yamcolo Reservoir	7.9	4.6	7.0	112.9
High Savery Reservoir	nan	7.01	11.5	nan
Elkhead Reservoir	18.36	18.3	19.6	93.7
Stagecoach Reservoir nr Oak Creek	nan	27.05	27.8	nan

*No reservoirs are currently monitored in our database for the Laramie-North Platte combined basin.

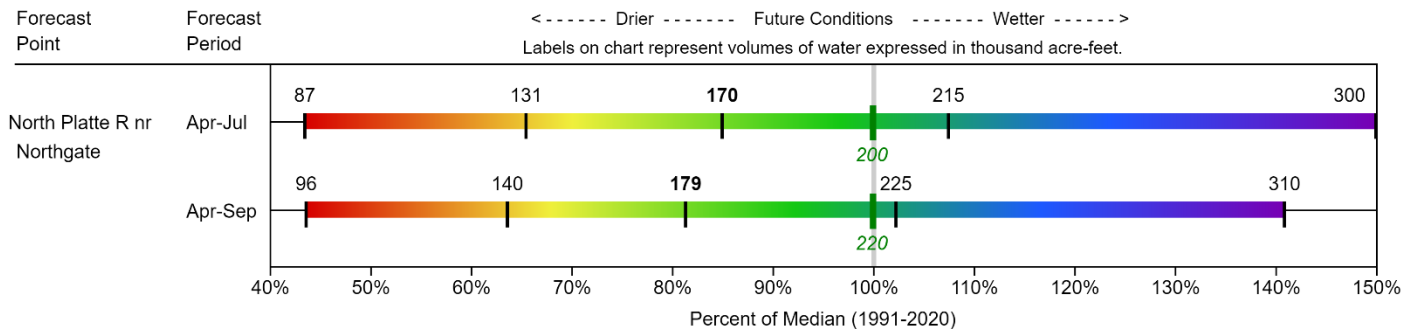
LARAMIE AND NORTH PLATTE

Water Supply Forecasts

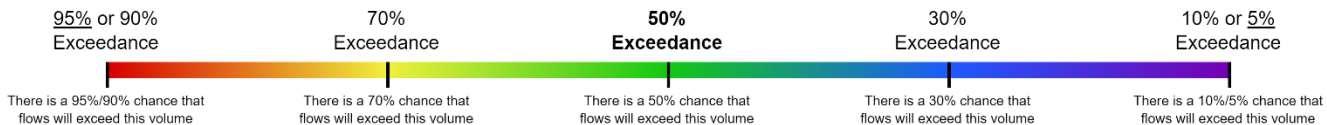
March 1, 2024

Forecast Exceedance Probabilities

<----- Drier ----- Future Conditions ----- Wetter ----->
 Labels on chart represent volumes of water expressed in thousand acre-feet.



Legend



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

<i>Period of Record Minimum Streamflow KAF (Year)</i>	<i>1991-2020 Normal Streamflow KAF</i>	<i>Observed Streamflow KAF</i>	<i>Period of Record Maximum Streamflow KAF (Year)</i>
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Some forecasts may be for volumes that are regulated or influenced by diversions and water management.

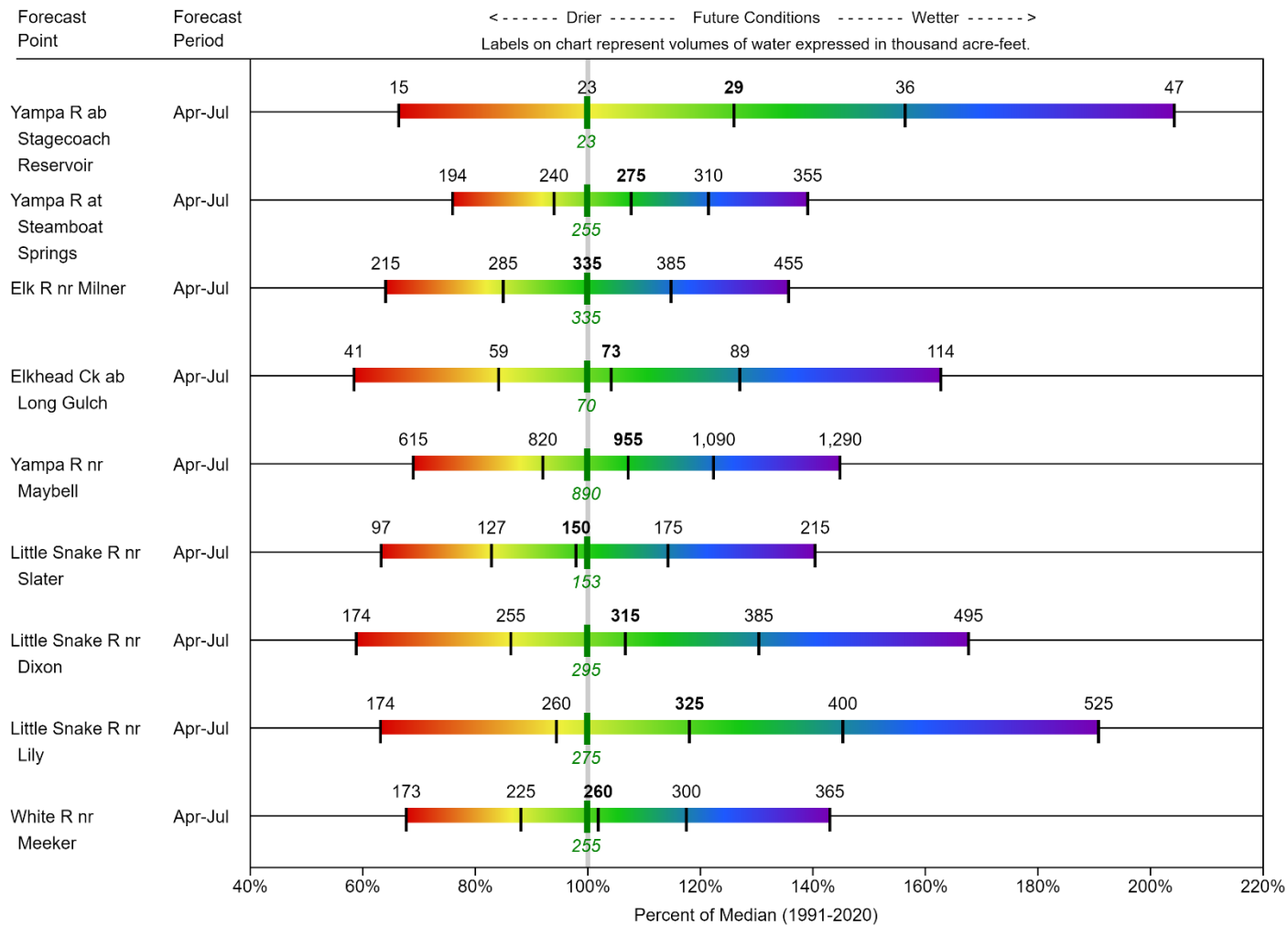
YAMPA-WHITE-LITTLE SNAKE

Water Supply Forecasts

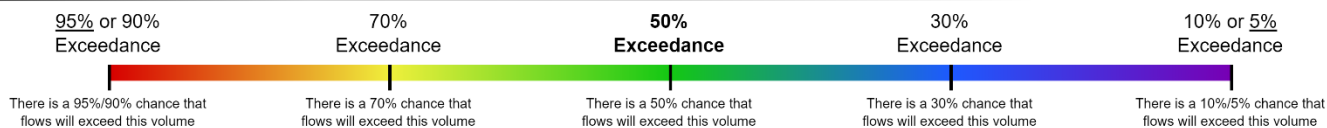
March 1, 2024

Forecast Exceedance Probabilities

<----- Drier ----- Future Conditions ----- Wetter ----->
 Labels on chart represent volumes of water expressed in thousand acre-feet.



Legend



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

Period of Record Minimum Streamflow KAF (Year)

1991-2020 Normal Streamflow KAF

Observed Streamflow KAF

Period of Record Maximum Streamflow KAF (Year)

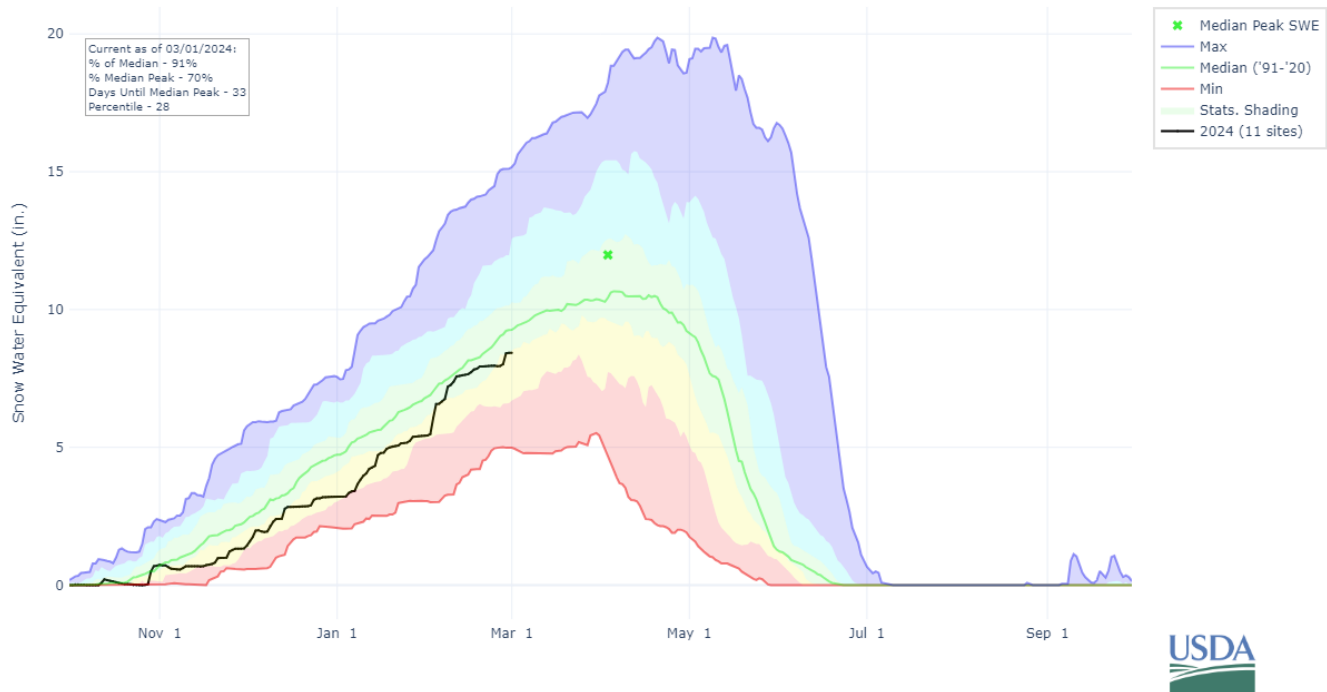
Some forecasts may be for volumes that are regulated or influenced by diversions and water management.

ARKANSAS RIVER BASIN

March 1st, 2024

Snowpack in the Arkansas River basin is near normal at 94% of median. Precipitation for February was 144% of median which brings water year-to-date precipitation to 101% of median. Reservoir storage at the end of February was 112% of median compared to 91% last year. Current streamflow forecasts range from 58 % of median at Huerfano River near Redwing to 110% of median at Chalk Creek near Nathrop.

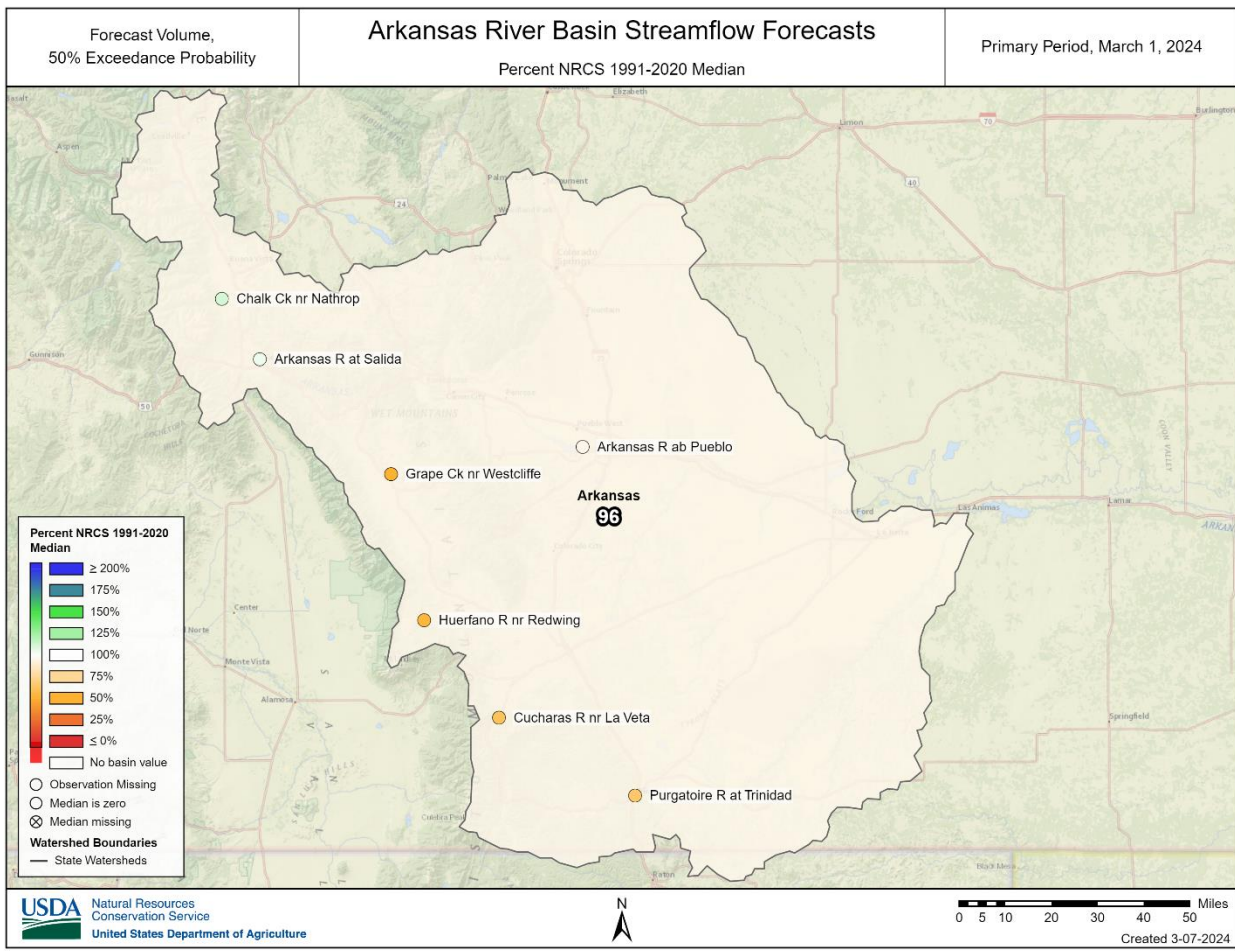
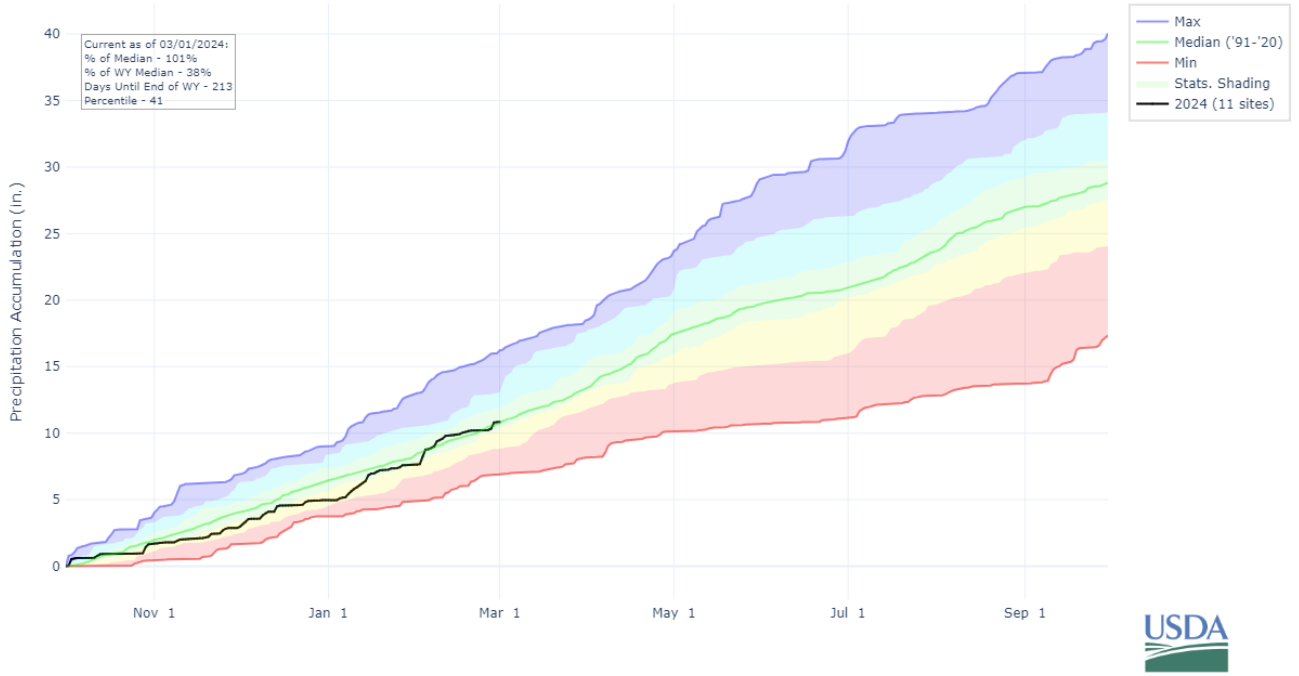
SNOW WATER EQUIVALENT IN ARKANSAS



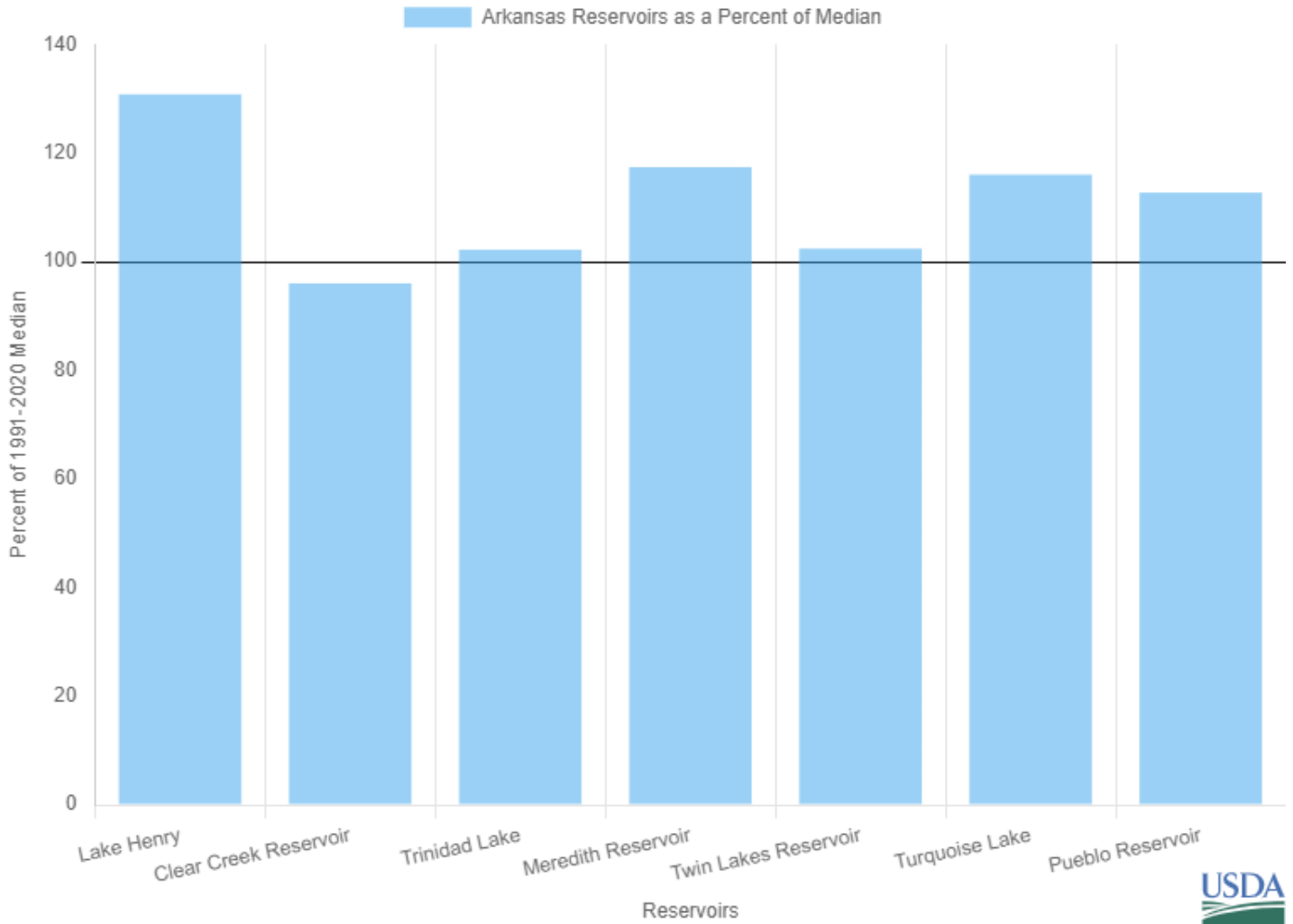
*Snow water equivalent (SWE) values are calculated using daily SNOTEL data only for the above graph. In the paragraph SWE is calculated for the first of the month using both SNOTEL and Snow Course data.



PRECIPITATION ACCUMULATION IN ARKANSAS



Arkansas Reservoir Storage Summary for March 1st 2024



Watershed Snowpack Analysis March 1st, 2024

Arkansas Sub-Basin Snow Data

	# of Sites	% Median	Last Year % Median
Apishapa	2.0	96.1	39.4
Purgatoire	3.0	87.9	50.7
Lower Arkansas Headwaters	3.0	87.2	64.1
Upper Arkansas Headwaters	9.0	102.4	101.6
Cucharas & Huerfano	5.0	81.9	55.1

Reservoir Storage End of February 2024

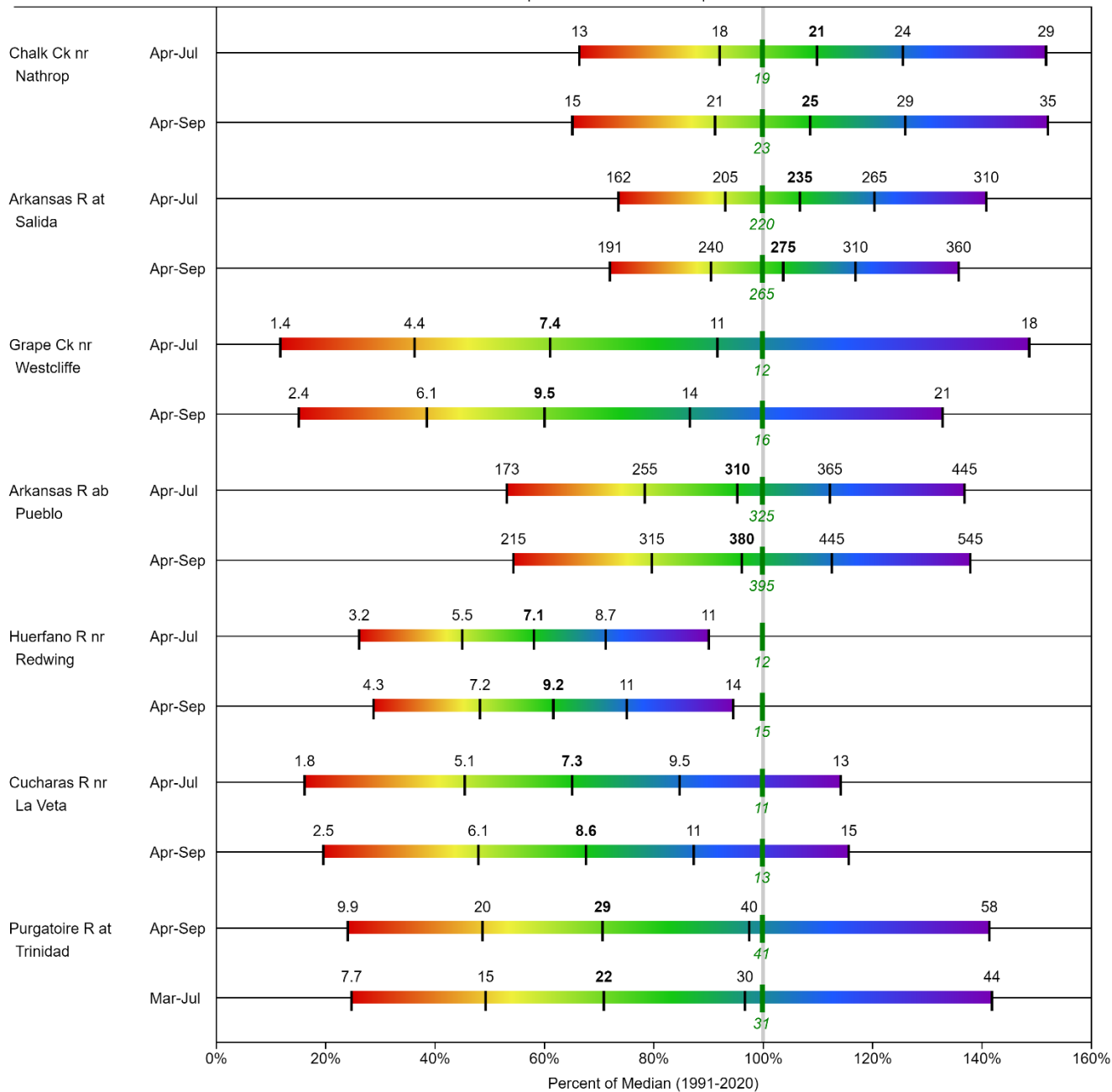
Arkansas Reservoir Data

	Current Storage (KAF)	LY Storage (KAF)	Median (KAF)	Percent of Median
Clear Creek Reservoir	7.78	8.46	8.1	96.0
Twin Lakes Reservoir	39.64	36.77	38.7	102.4
Trinidad Lake	21.26	23.07	20.8	102.2
Pueblo Reservoir	249.89	213.74	221.8	112.7
Turquoise Lake	77.16	61.0	66.5	116.0
Meredith Reservoir	42.5	13.82	36.2	117.4
Lake Henry	9.55	4.84	7.3	130.8

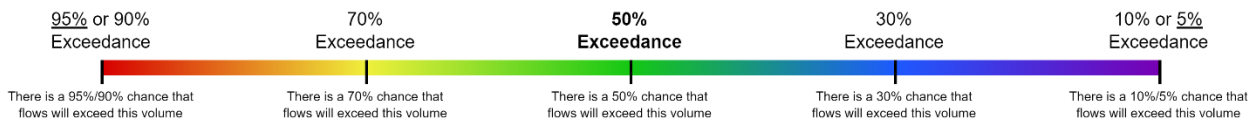
ARKANSAS Water Supply Forecasts March 1, 2024

Forecast Exceedance Probabilities

<----- Drier ----- Future Conditions ----- Wetter ----->
Labels on chart represent volumes of water expressed in thousand acre-feet.



Legend



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

█ *Period of Record Minimum Streamflow KAF (Year)*
 █ *1991-2020 Normal Streamflow KAF*
 █ *Observed Streamflow KAF*
 █ *Period of Record Maximum Streamflow KAF (Year)*

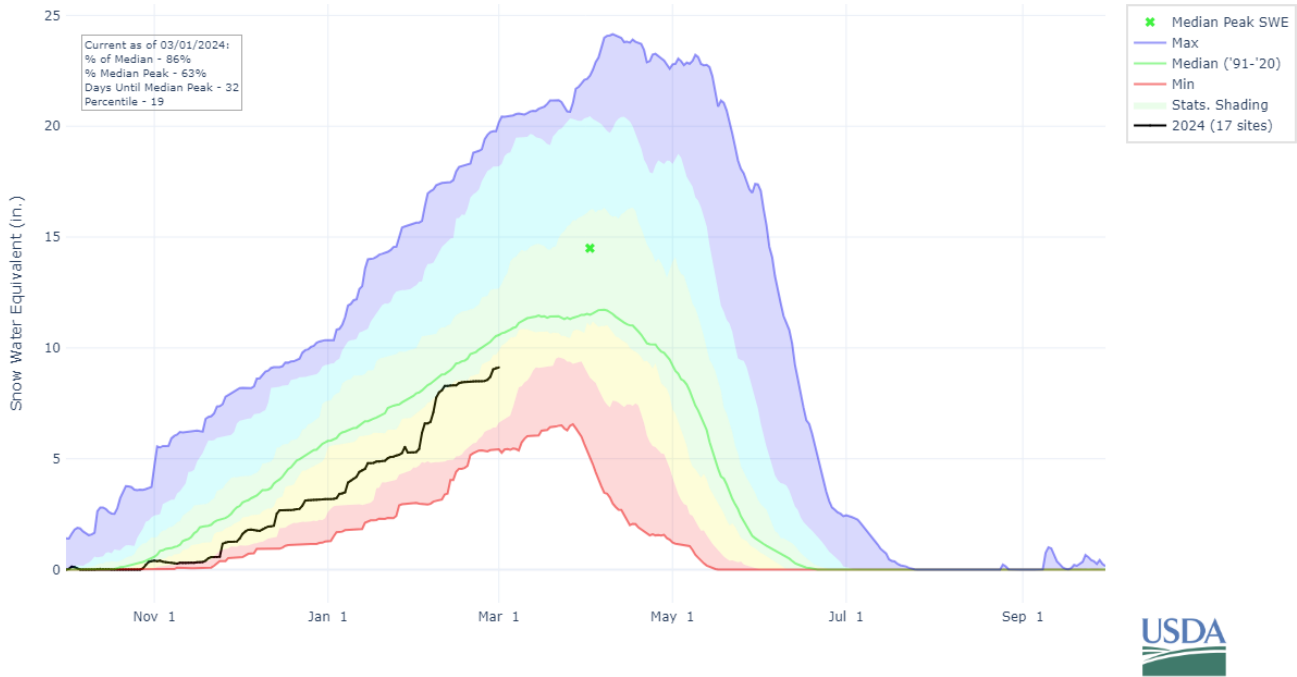
Some forecasts may be for volumes that are regulated or influenced by diversions and water management.

UPPER RIO GRANDE RIVER BASIN

March 1st, 2024

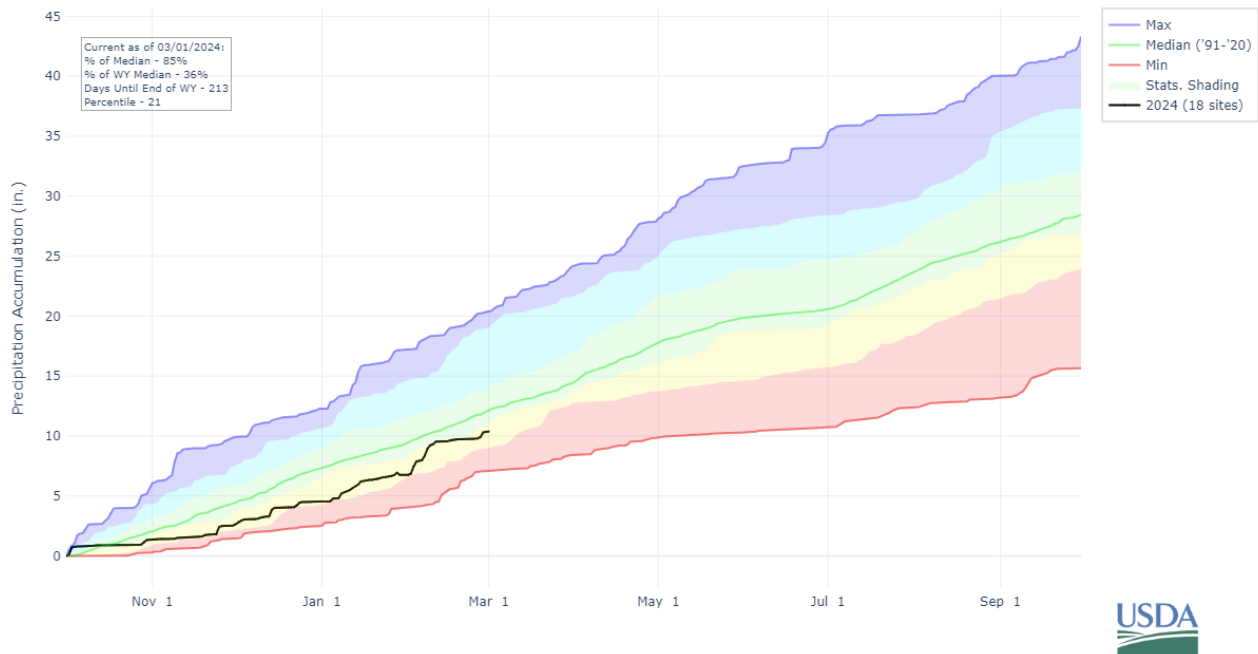
Snowpack in the Upper Rio Grande River basin is below normal at 84% of median. Precipitation for February was 145% of median which brings water year-to-date precipitation to 85% of median. Reservoir storage at the end of February was 119% of median compared to 107% last year. Current streamflow forecasts range from 36% of median at Sangre De Cristo Creek to 94% of median at Conejos River below Platoro Reservoir.

SNOW WATER EQUIVALENT IN UPPER RIO GRANDE



*Snow water equivalent (SWE) values are calculated using daily SNOTEL data only for the above graph. In the paragraph SWE is calculated for the first of the month using both SNOTEL and Snow Course data.

PRECIPITATION ACCUMULATION IN UPPER RIO GRANDE

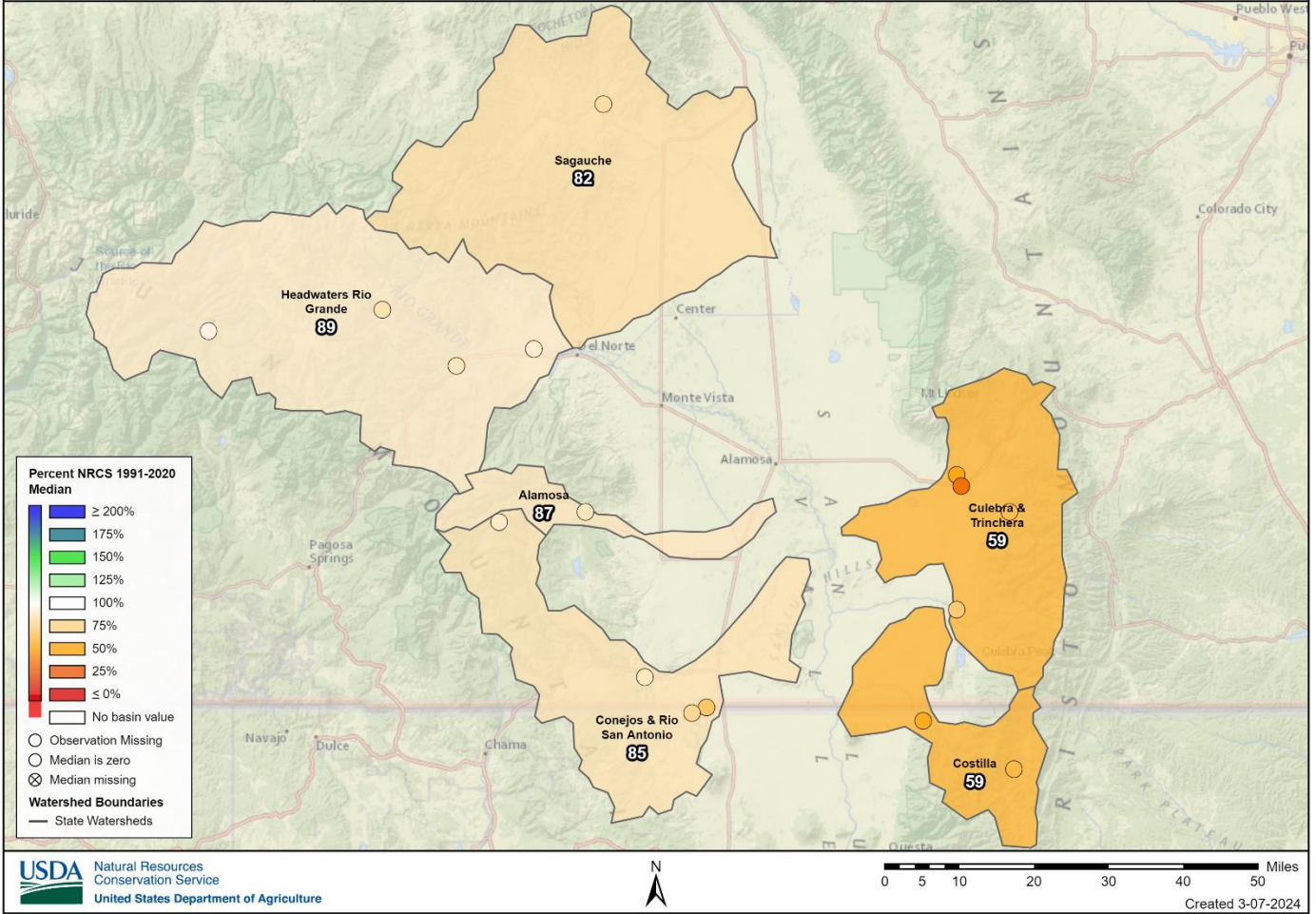


Forecast Volume,
50% Exceedance Probability

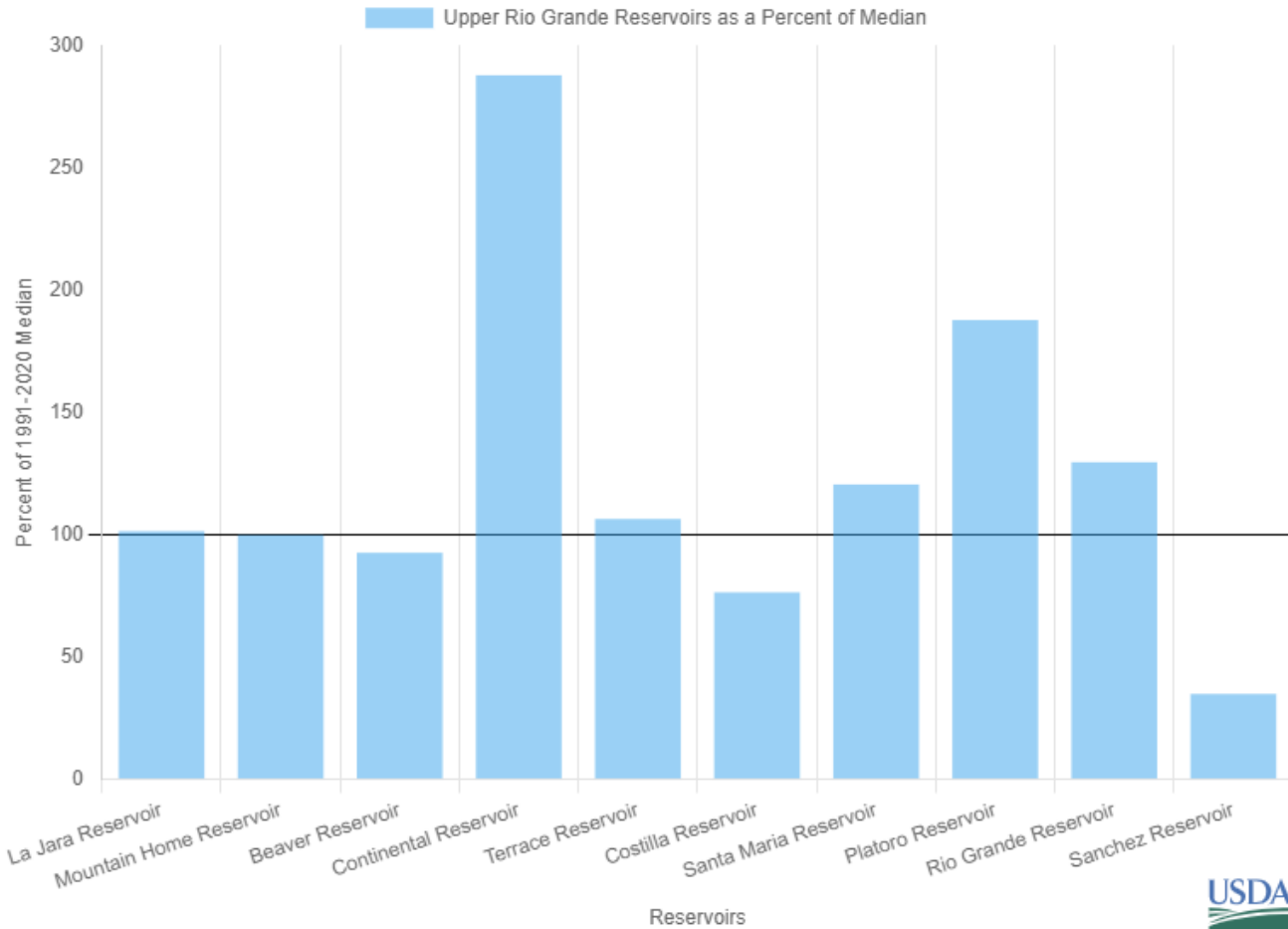
Upper Rio Grande River Basin Streamflow Forecasts

Primary Period, March 1, 2024

Percent NRCS 1991-2020 Median



Upper Rio Grande Reservoir Storage Summary for March 1st 2024



Watershed Snowpack Analysis March 1st, 2024

Upper Rio Grande Sub-Basin Snow Data

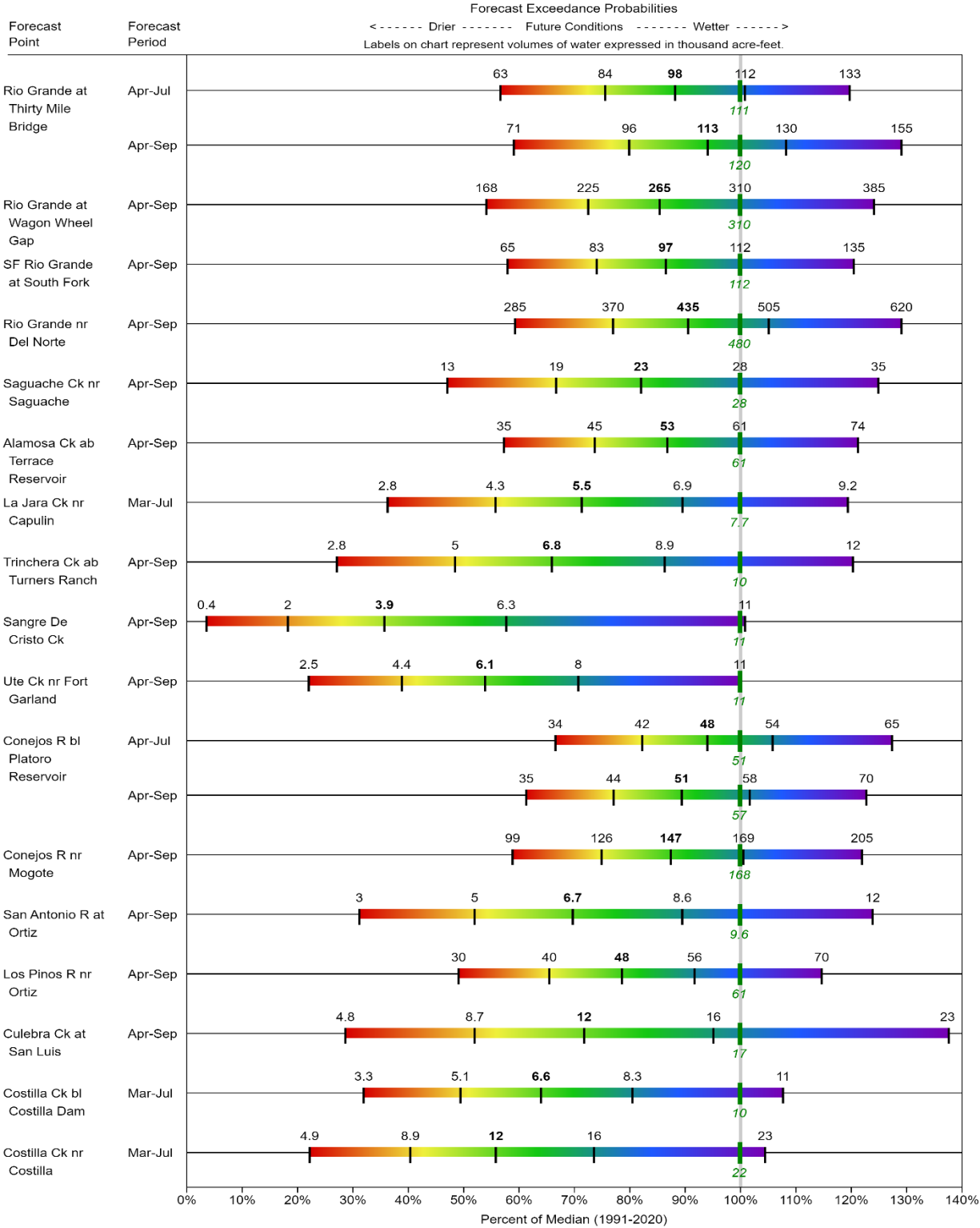
	# of Sites	% Median	Last Year % Median
Sagauche	3.0	90.1	97.8
Northern San Luis Valley	2.0	69.8	47.8
Culebra & Trinchera	4.0	82.7	82.1
Conejos & Rio San Antonio	5.0	82.5	125.3
Headwaters Rio Grande	6.0	86.6	127.7
Alamosa	2.0	83.7	117.3
Costilla	2.0	95.0	66.7

Reservoir Storage End of February 2024

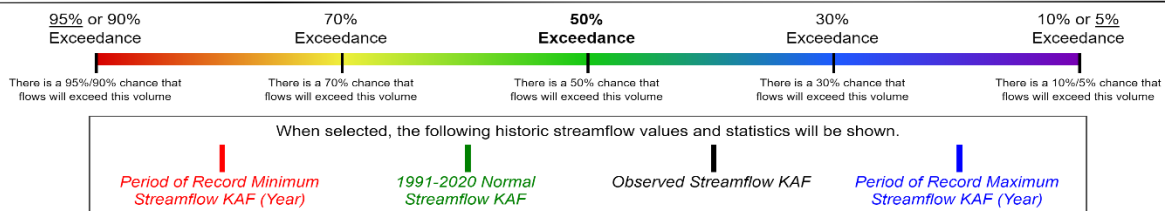
Upper Rio Grande Reservoir Data

	Current Storage (KAF)	LY Storage (KAF)	Median (KAF)	Percent of Median
Costilla Reservoir	4.89	6.9	6.4	76.4
Continental Reservoir	13.24	11.48	4.6	287.8
Mountain Home Reservoir	2.5	4.46	2.5	100.0
Terrace Reservoir	6.38	7.52	6.0	106.3
Santa Maria Reservoir	9.52	9.62	7.9	120.5
Sanchez Reservoir	6.83	8.43	19.6	34.8
Platoro Reservoir	32.48	14.08	17.3	187.7
Rio Grande Reservoir	23.71	27.77	18.3	129.6
La Jara Reservoir	2.13	1.01	2.1	101.4
Beaver Reservoir	3.89	3.93	4.2	92.6

**UPPER RIO GRANDE
Water Supply Forecasts
March 1, 2024**



Legend

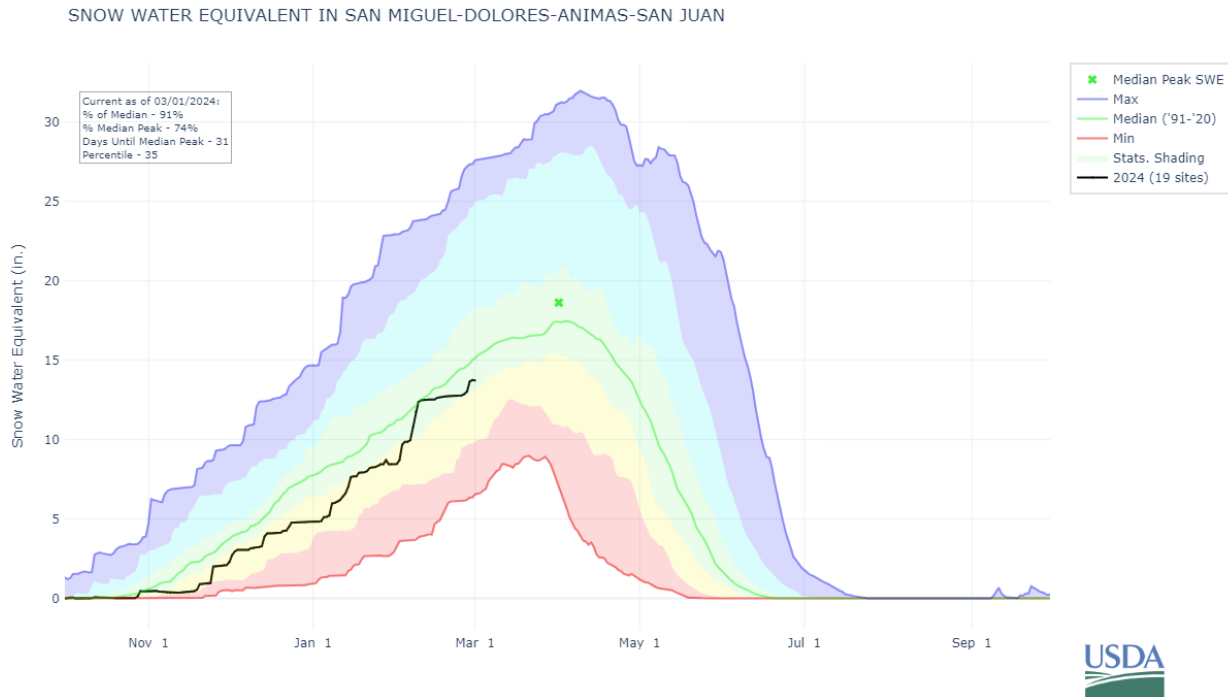


Some forecasts may be for volumes that are regulated or influenced by diversions and water management.

SAN MIGUEL-DOLORES-ANIMAS-SAN JUAN COMBINED RIVER BASIN

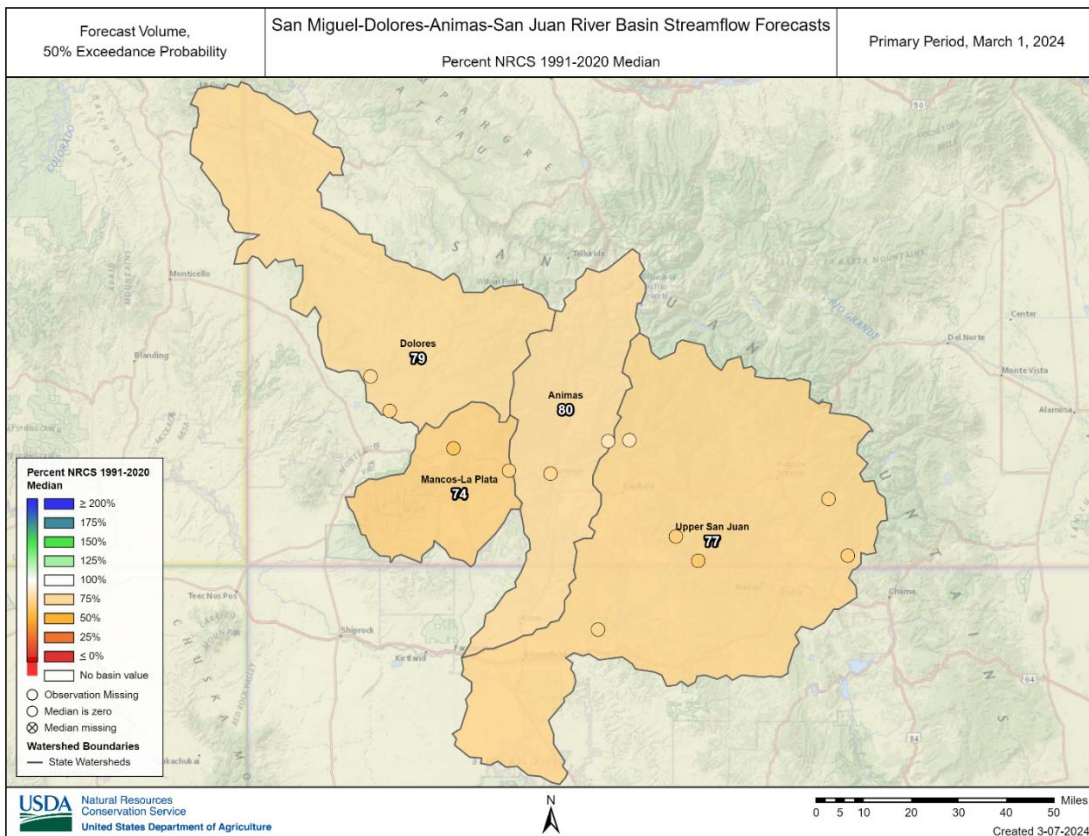
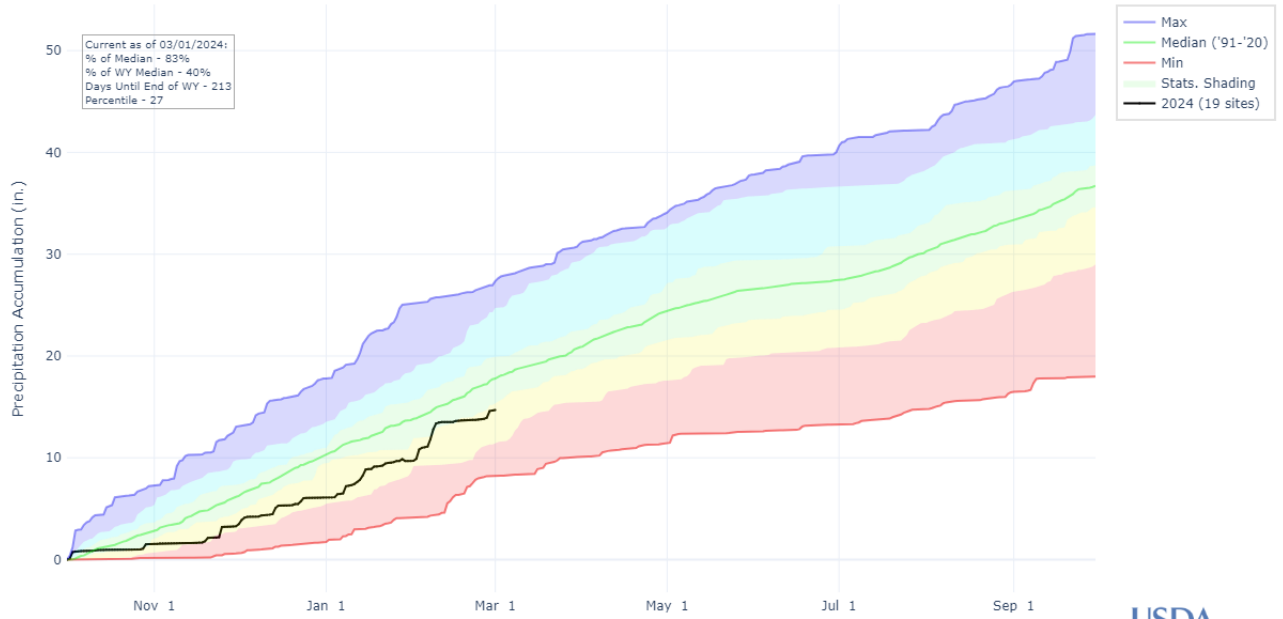
March 1st, 2024

Snowpack in the combined southwest river basins is near normal at 90% of median. Precipitation for February was 137% of median which brings water year-to-date precipitation to 83% of median. Reservoir storage at the end of February was 87% of median compared to 66% last year. Current streamflow forecasts range from 70% of median at Mancos River near Mancos to 87% of median at Florida River below Lemon Reservoir near Durango.

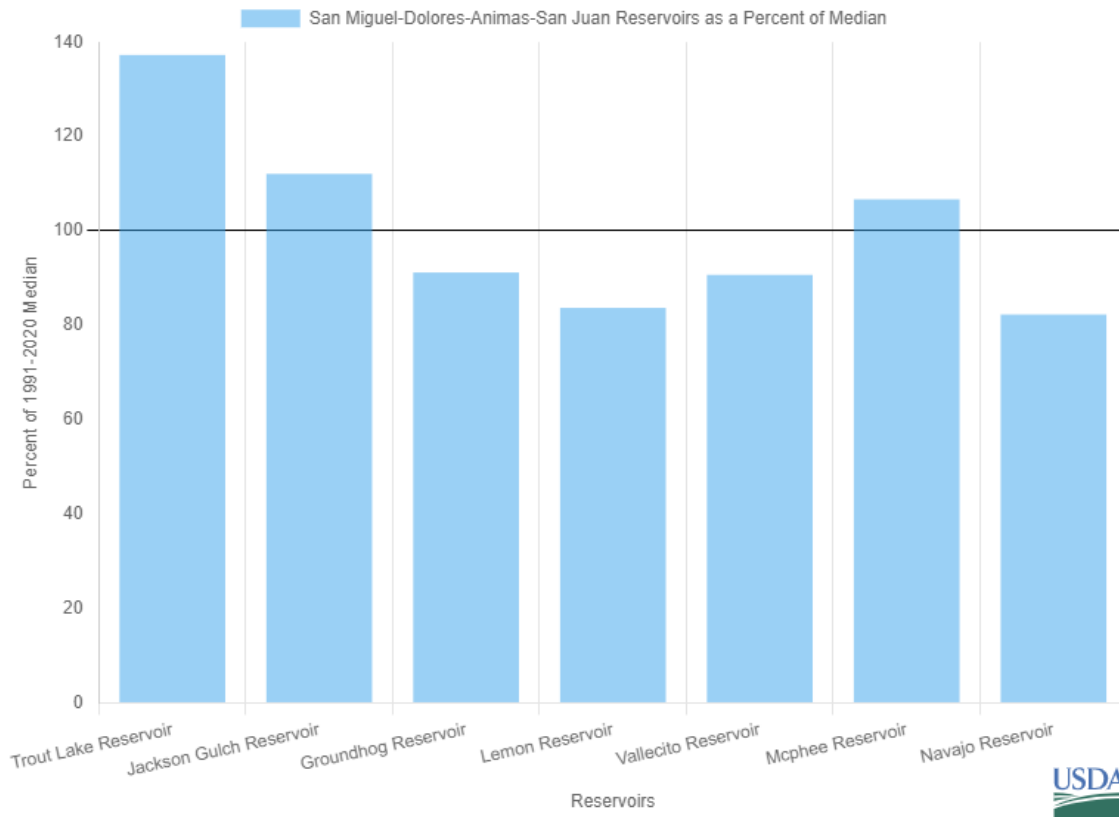


*Snow water equivalent (SWE) values are calculated using daily SNOTEL data only for the above graph. In the paragraph SWE is calculated for the first of the month using both SNOTEL and Snow Course data.

PRECIPITATION ACCUMULATION IN SAN MIGUEL-DOLORES-ANIMAS-SAN JUAN



San Miguel-Dolores-Animas-San Juan Reservoir Storage Summary for March 1st 2024



Watershed Snowpack Analysis March 1st, 2024

San Miguel-Dolores-Animas-San Juan Sub-Basin Snow Data

	# of Sites	% Median	Last Year % Median
Mancos-La Plata	3.0	88.5	132.0
Animas	9.0	88.6	136.3
Upper San Juan	6.0	90.2	135.5
San Miguel	6.0	90.1	147.2
Dolores	4.0	98.5	150.5

Reservoir Storage End of February 2024

San Miguel-Dolores-Animas-San Juan Reservoir Data

	Current Storage (KAF)	LY Storage (KAF)	Median (KAF)	Percent of Median
Trout Lake Reservoir	2.5	2.63	1.82	137.4
Navajo Reservoir	1078.73	843.03	1311.0	82.3
Lemon Reservoir	15.74	17.15	18.8	83.7
Vallecito Reservoir	66.68	74.69	73.5	90.7
Jackson Gulch Reservoir	4.6	5.58	4.1	112.2
Groundhog Reservoir	12.95	0.0	14.2	91.2
Mcphee Reservoir	292.14	184.19	273.8	106.7

SAN MIGUEL-DOLORES-ANIMAS-SAN JUAN

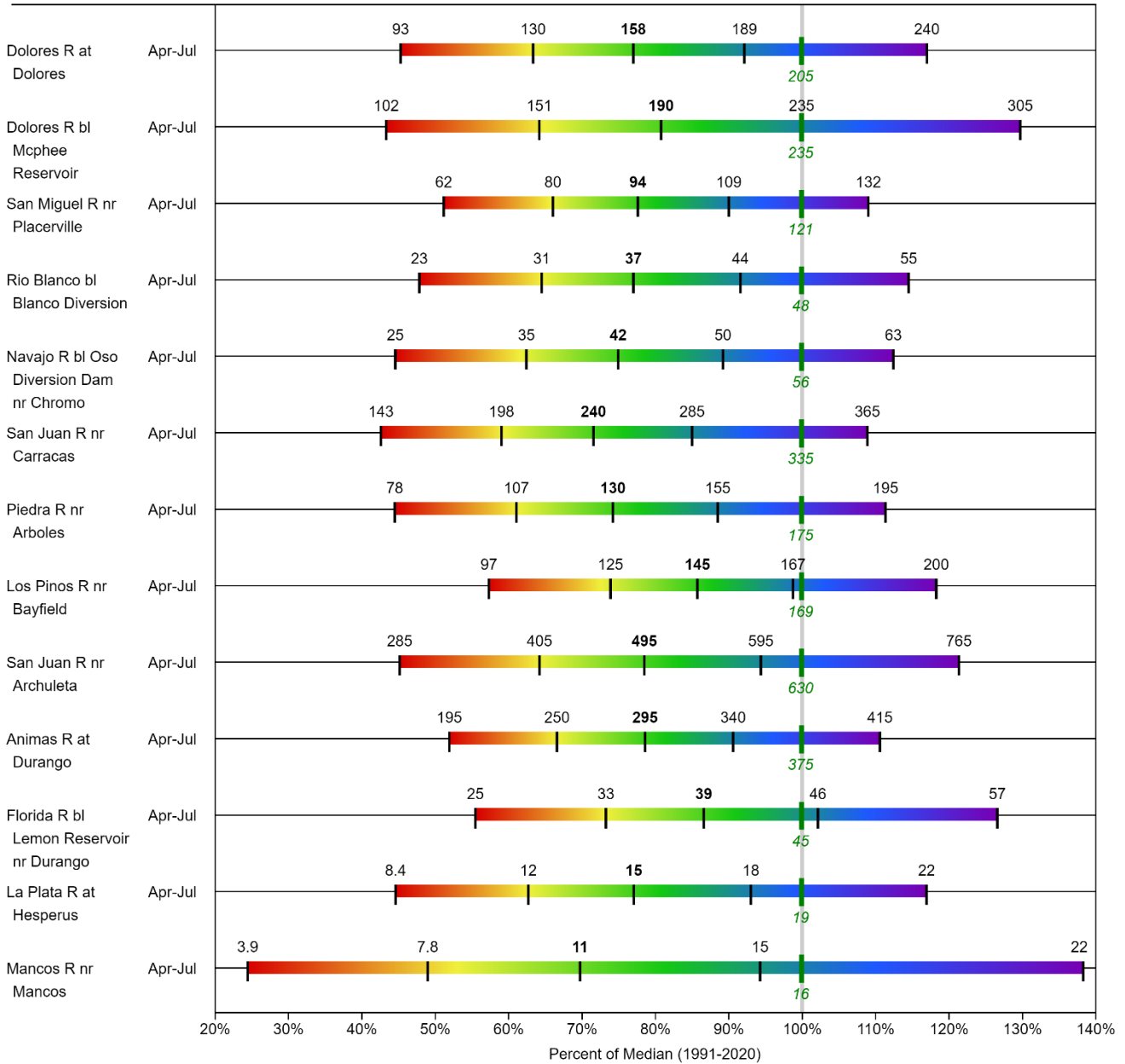
Water Supply Forecasts

March 1, 2024

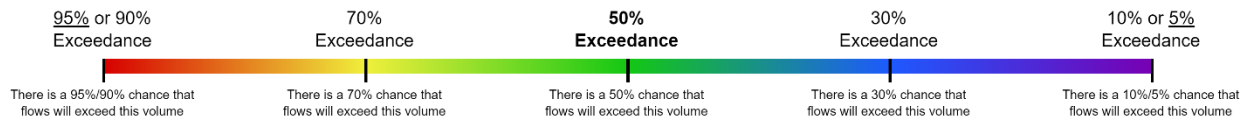
Forecast Exceedance Probabilities

<----- Drier ----- Future Conditions ----- Wetter ----->

Labels on chart represent volumes of water expressed in thousand acre-feet.



Legend



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

█ *Period of Record Minimum Streamflow KAF (Year)*
 █ *1991-2020 Normal Streamflow KAF*
 █ *Observed Streamflow KAF*
 █ *Period of Record Maximum Streamflow KAF (Year)*

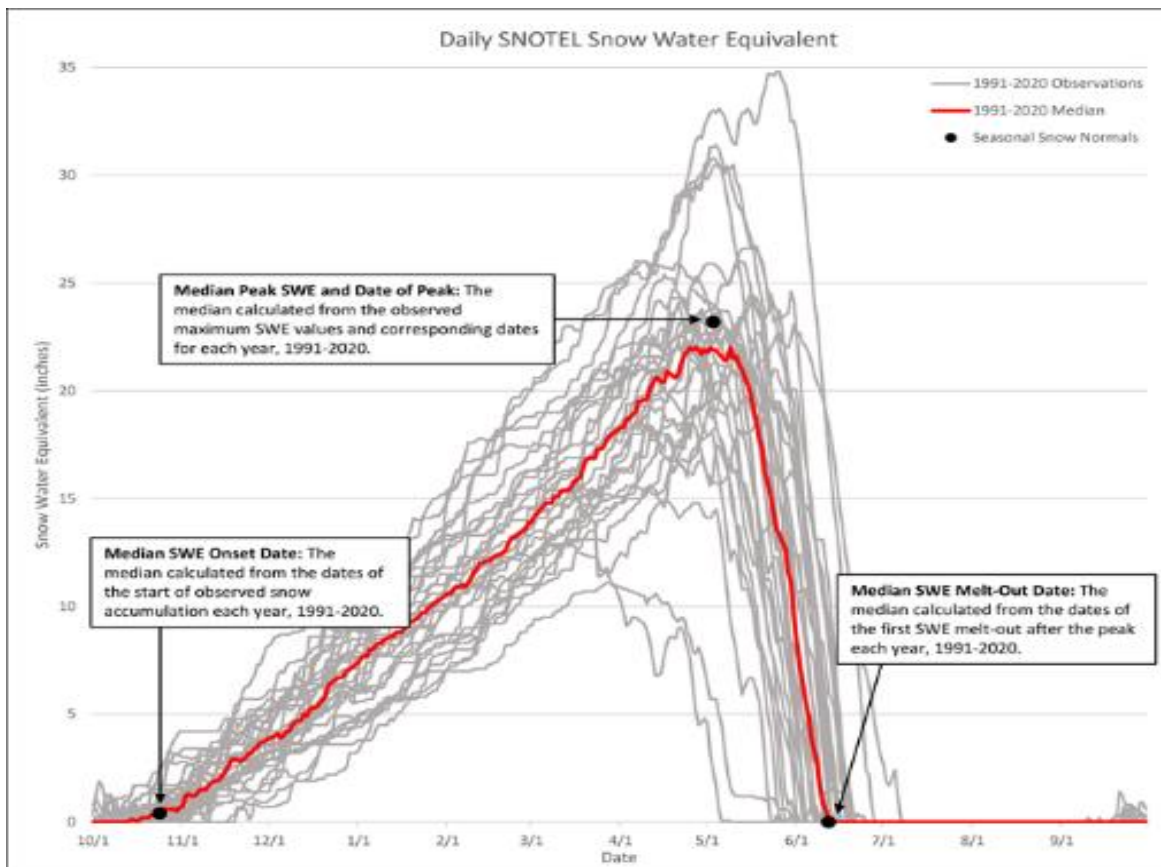
Some forecasts may be for volumes that are regulated or influenced by diversions and water management.

New 1991-2020 Statistical Normals

The NRCS Snow Survey and Water Supply Forecasting (SSWSF) Program recently published new statistical normals (medians or averages) to describe the central tendency of a data record over a 30-year period. Data normals are key in helping water users compare current conditions to past conditions using the metric “% of normal.” Every 10 years, the SSWSF Program updates the 30-year normals reference period to stay consistent with World Meteorological Organization standards that account for changing climatic conditions over time. As such, this year the SSWSF Program transitioned from using 1981-2010 data normals to using 1991-2020 data normals.

For the 1991-2020 reference period, the median is the official NRCS normal when conveying information about current snowpack, precipitation, and water supply conditions. The median was previously used as the official 1981-2010 normal for SWE and some streamflow forecast points, but the average was used for other data types. Setting the official normal to the median provides consistency across data types and stations. Viewing the 30-year average December be preferable over the median in some instances, therefore, both the average and the median are available in most NRCS reports and products. See Median vs. Average for more information about the median.

A new suite of statistics for automated snow monitoring stations are available to provide information about normal seasonal snowpack characteristics. These new seasonal statistics include medians and averages for the SWE onset date and melt-out date, as well as the median and average maximum seasonal SWE value (Peak SWE) and date of Peak SWE. More detailed information on the updated normals can be found on the Water and Climate Center’s [30-year normals page](#).



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.

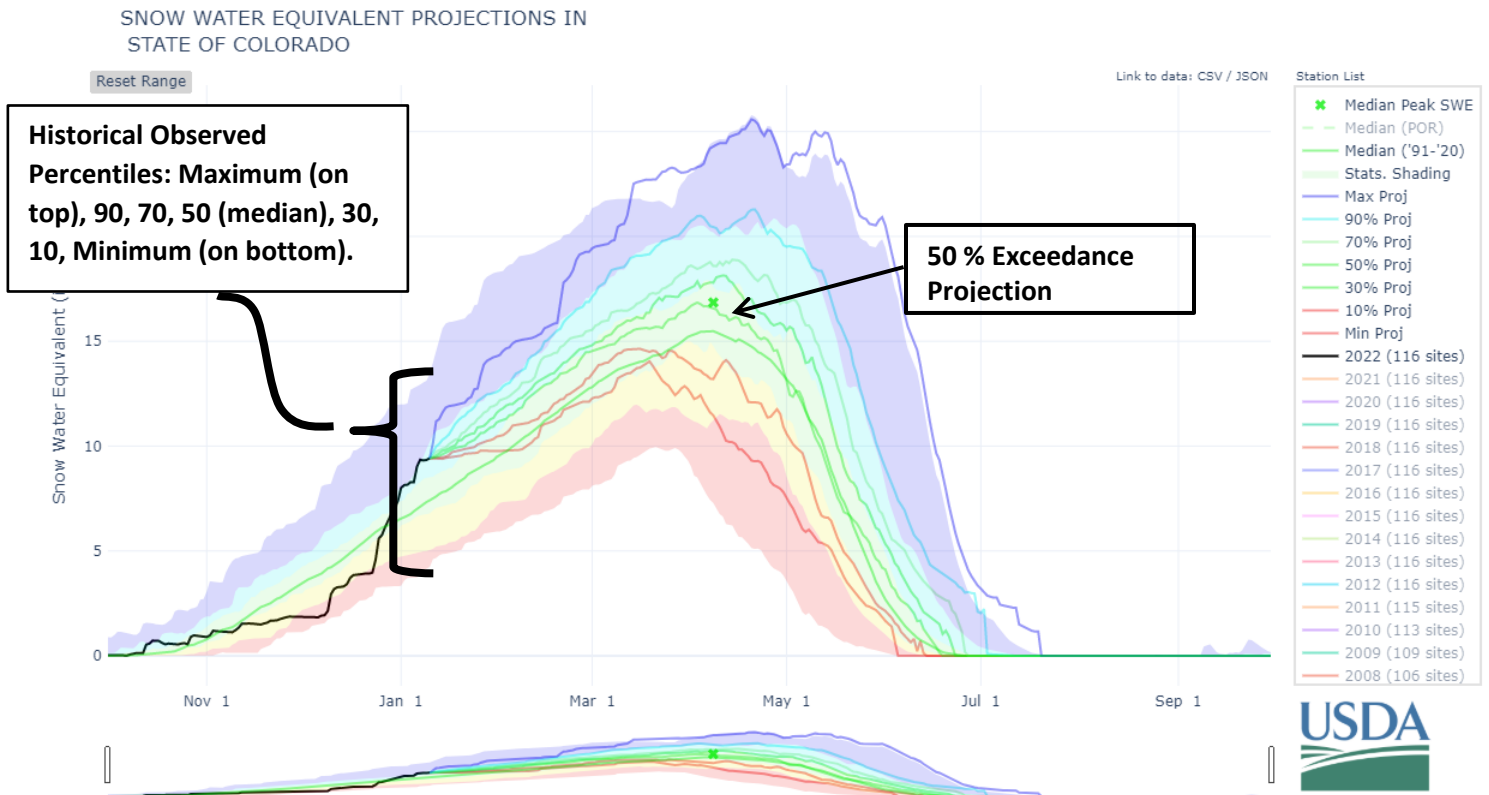
Current water year is represented by the heavy red line terminating on the last day the graphic was updated.

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:

Brian Domonkos

Snow Survey Supervisor

USDA, Natural Resources Conservation Service

Denver Federal Center, Bldg 56, Rm 2604

PO Box 25426

Denver, CO 80225-0426

Phone (720) 544-2852

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

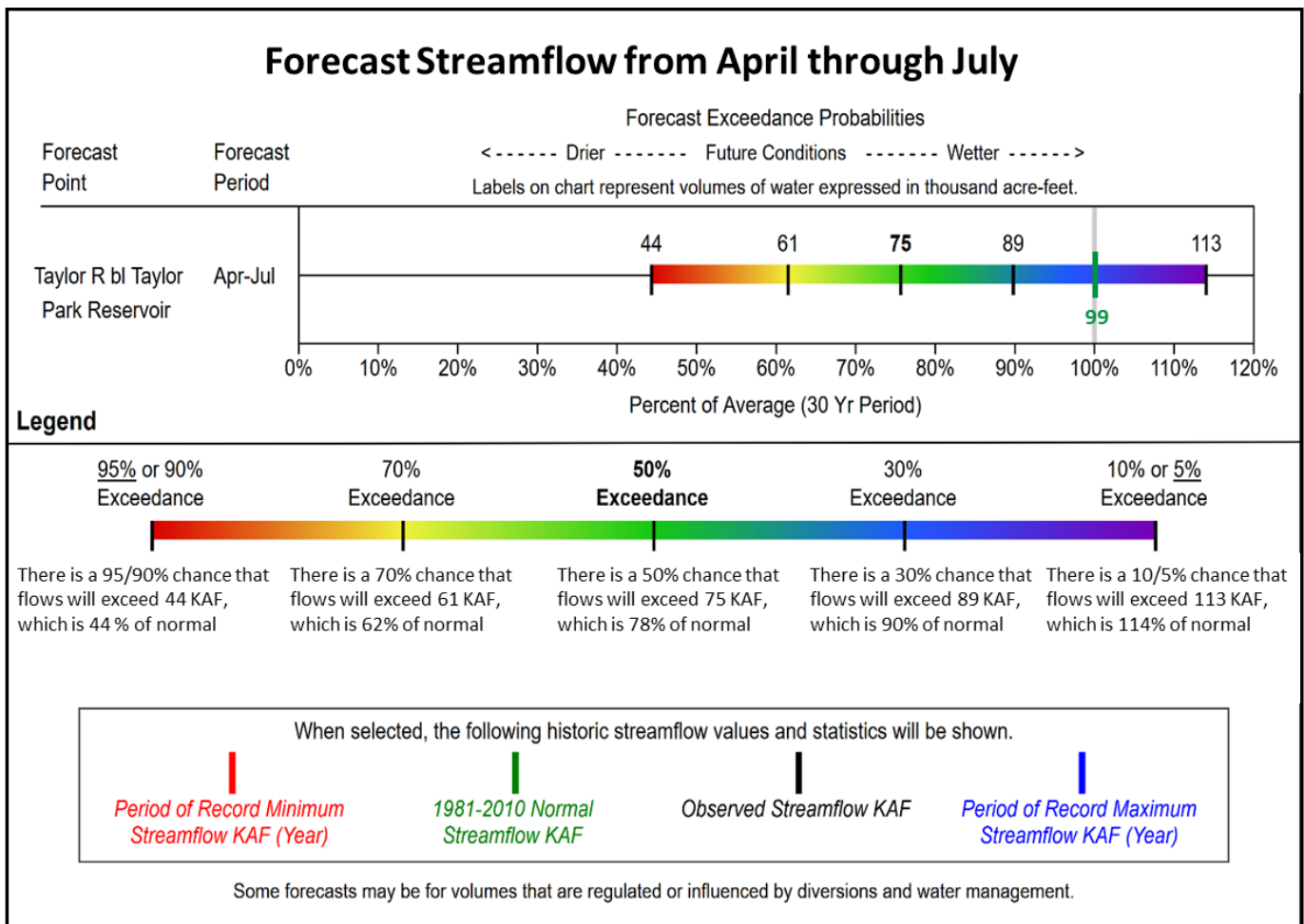
Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snow courses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they December 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 December 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 median represented by each forecast and the gray line centered above 100% represents the 1981-2010 historical median 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 median streamflow volumes during the provided forecast period. Conversely, if the majority of the color bar is to the left of the median mark, below median 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.





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

In addition to the water supply outlook reports, water supply forecast information for the Western United States is available from the Natural Resources Conservation Service and the National Weather Service monthly, February through June. The information December be obtained from the Natural Resources Conservation Service web page at <http://www.wcc.nrcs.usda.gov/wsf/westwide.html>

Issued by

Matthew J. Lohr
Chief, Natural Resources Conservation Service
Farm Production and Conservation Mission Area
U.S. Department of Agriculture

Released by

Clint Evans
State Conservationist
Natural Resources Conservation Service
Lakewood, Colorado

Colorado

Water Supply Outlook Report

Natural Resources Conservation Service
Lakewood, CO