



COLORADO

Colorado Water Conservation Board

Department of Natural Resources
1313 Sherman Street, Room 718
Denver, CO 80203

TO: Reservoir Coordinating Committee (RCC) and Environmental Account
Committee (EAC) Members

FROM: Kara Scheel, Endangered Species Recovery Program Manager
Colorado Water Conservation Board

DATE: May 3, 2022

SUBJECT: Summary of Flow Conditions and Select Water Storage Information for the
South Platte River Basin

The South Platte River Basin currently at 88-89% of median snow water equivalent. Largely driven by hot November and December, temperatures across the state, and for much of the South Platte Basin, were above average for the water year. The eastern plains have received very little precipitation this year causing drought conditions to worsen to severe and moderate conditions across much of the South Platte Basin. The weather patterns over the next 4-6 weeks will be crucial to determining this year's water supply. Models are predicting a higher probability of a hot and dry climate over the next three months.

The following summarizes the events that have occurred in the water year so far that have shaped the available water supply in the South Platte River Basin. Additional and up-to-date information for the next several months may be found at the links provided in the reference section.

Snow Water Equivalent Status

Statewide, Colorado's snowpack is at about 76% of median snow water equivalent (SWE) (Figure 1). Across the state, northern basins are at greater than 85% of median, the Gunnison Basin is at 72%, and the southern basins are at less than 55% of median snowpack. As of May 2, 2022, the South Platte River Basin is at 88-89% of median of SWE. A series of big storms over the holidays in December boosted the snowpack early, but the following months failed to produce much snow, and the SWE fell below median towards the end of February (Figure 2). The South Platte Basin has not reached peak runoff yet, unlike most of the state.

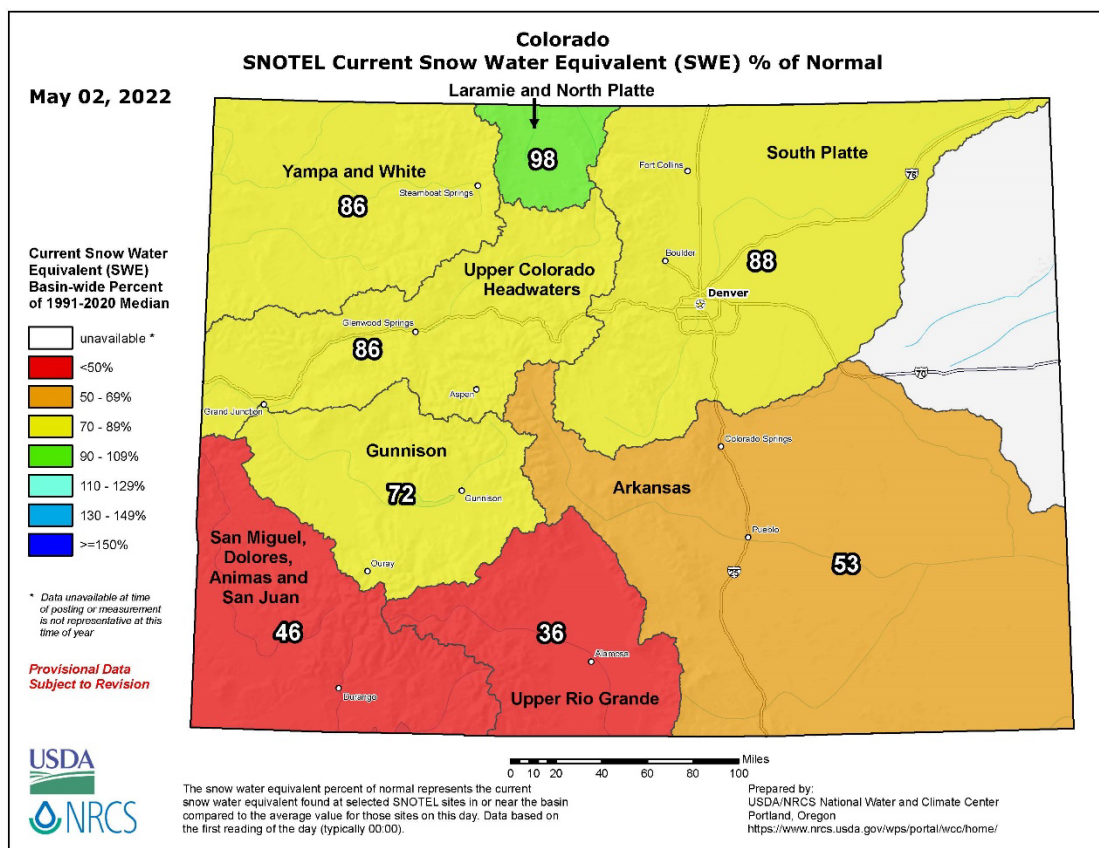


Figure 1: Statewide snowpack

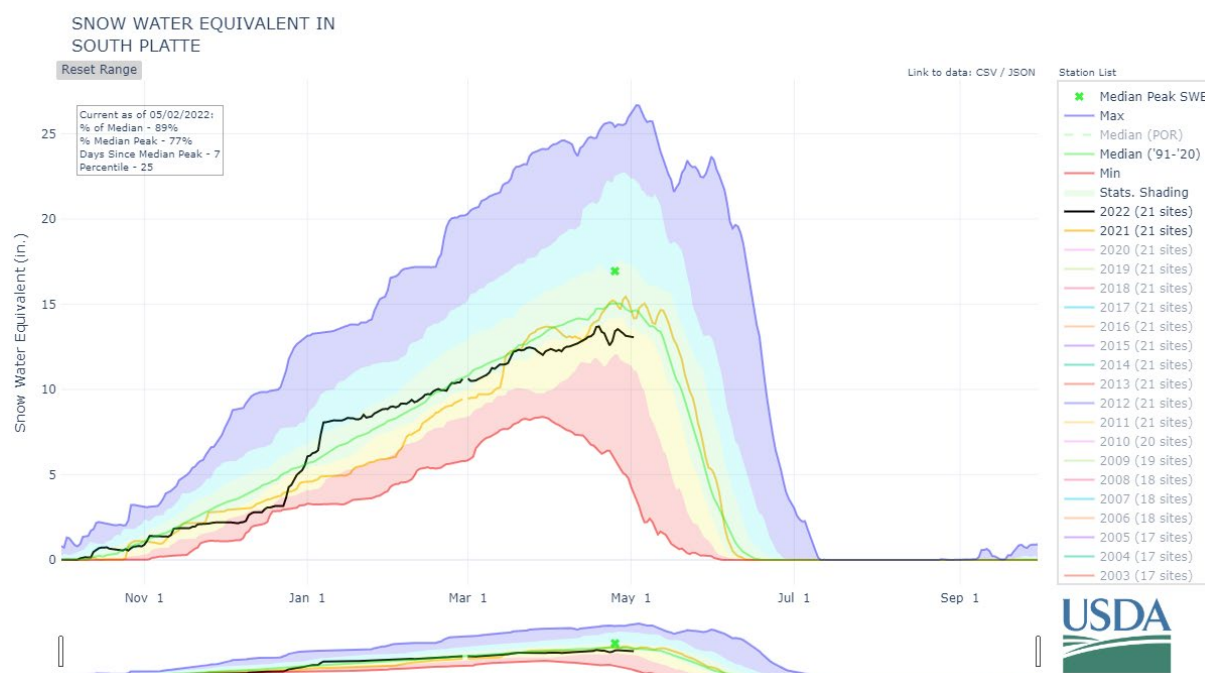


Figure 2: Natural Resources Conservation Service data and provisional SNOTEL Course data for snow water equivalent for the South Platte River Basin

Drought Status

The majority of Colorado is experiencing moderate to severe drought conditions. In the South Platte River Basin, a seasonal basin-wide pattern of above average temperatures and below average precipitation has resulted in moderate to severe drought conditions (Figure 3) for much of the basin. Over the last year, drought conditions have worsened in the South Platte (class 1 and 2 degradation) while the rest of the state has greatly improved (Figure 4).

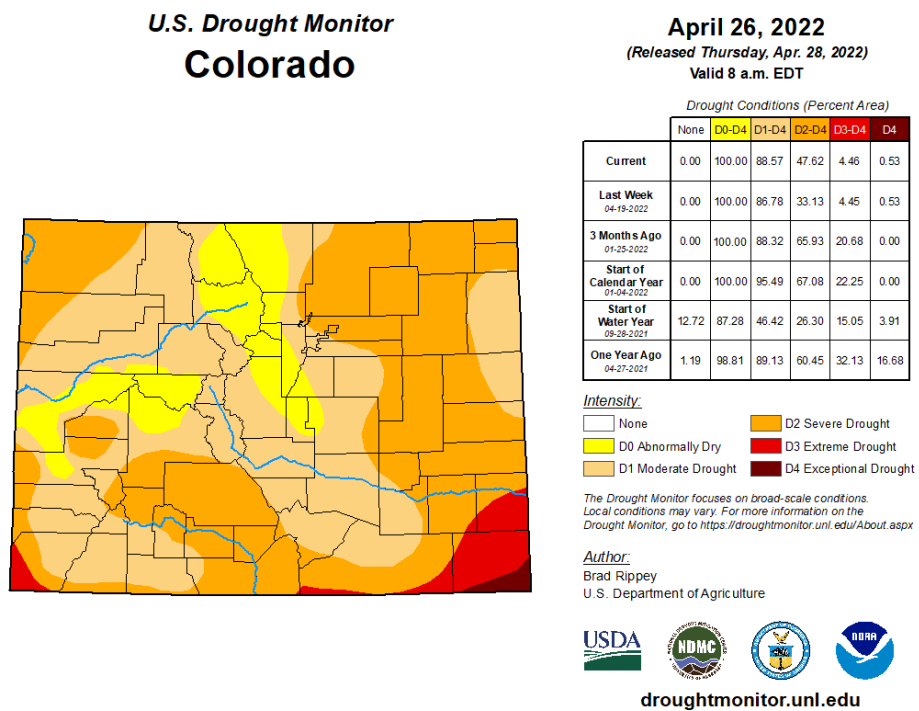
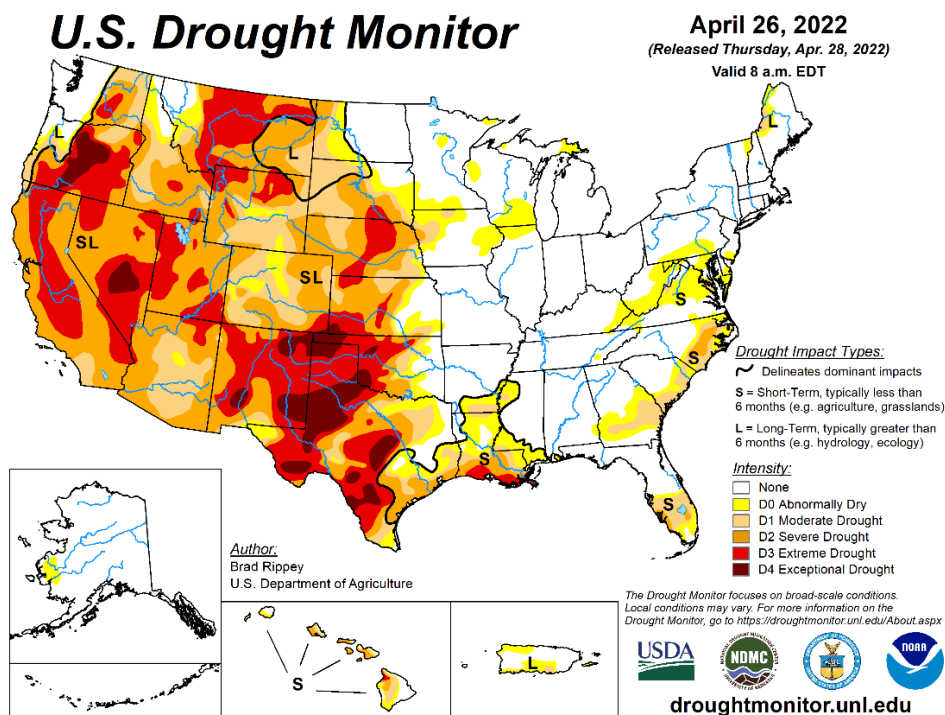


Figure 3: Much of the South Platte River Basin is currently experiencing moderate to severe drought conditions

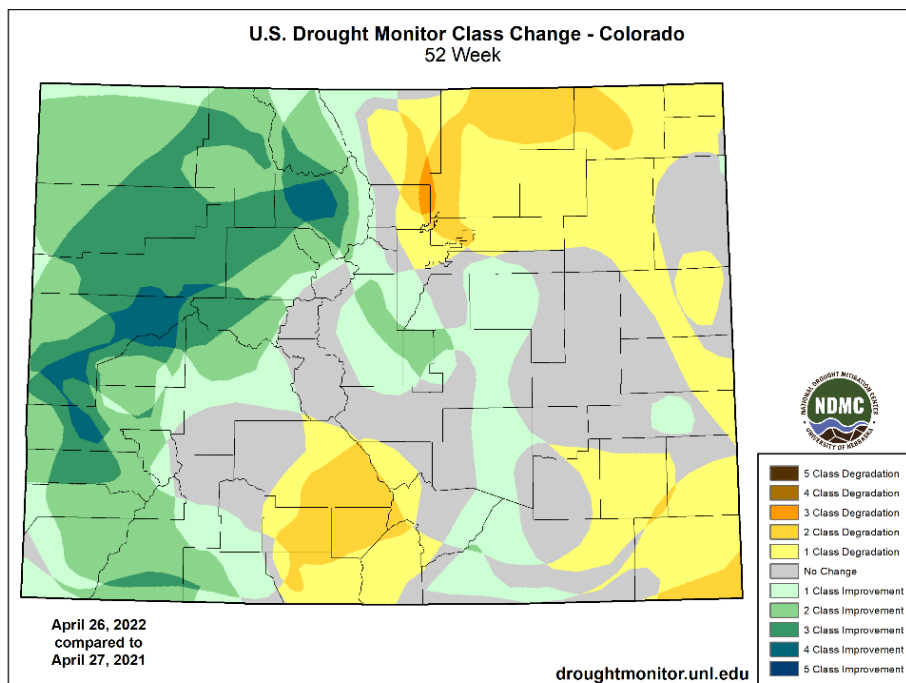
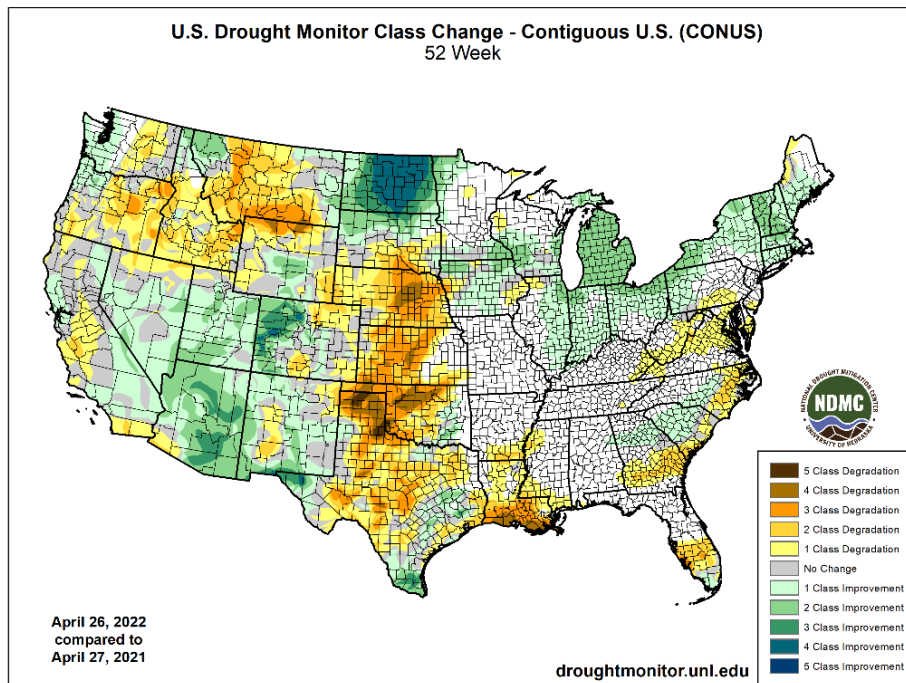


Figure 4: The South Platte River Basin has experienced Class 1 to 2 degradation drought conditions over the last year

Temperature

The South Platte River Basin has experienced average to above average temperatures, ranging up to the top 33% of historical temperatures so far in water year 2022 (October 2021 to March 2022) (Figure 5). This was largely driven by the hot November and December 2021. Temperatures from January to March of 2022 were below normal for much of the basin (Figure 6).

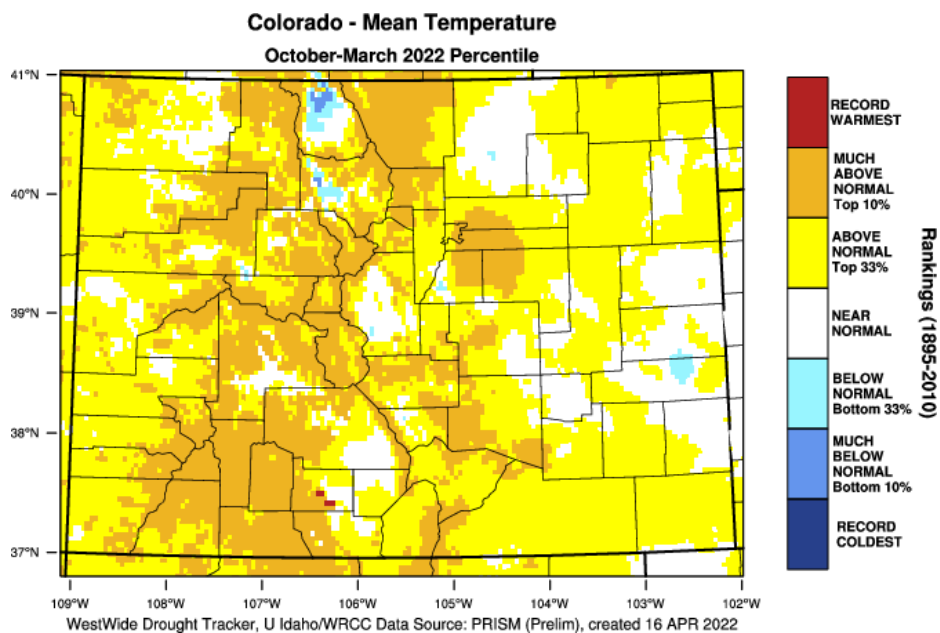


Figure 5: Colorado mean temperature percentile for October 2021 - March 2022

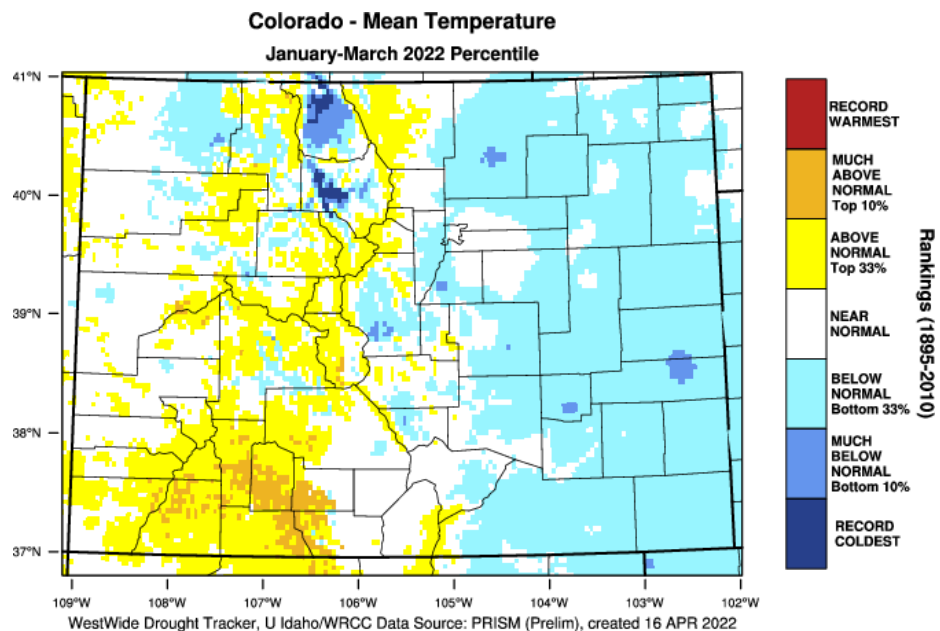


Figure 6: Colorado mean temperature percentile for January 2022 – March 2022

Precipitation

Precipitation in the high country of the South Platte River Basin is near normal for the current water year. Precipitation on much the eastern plains of the basin is around 71-90% of normal with some areas experiencing as low as 51-70% of normal (Figure 7). April is typically a wet month on the eastern plains of Colorado, however many areas have received less than 0.1 inch, with some areas receiving no precipitation (Figure 8). The South Platte Basin averages 2 inches of precipitation for April.

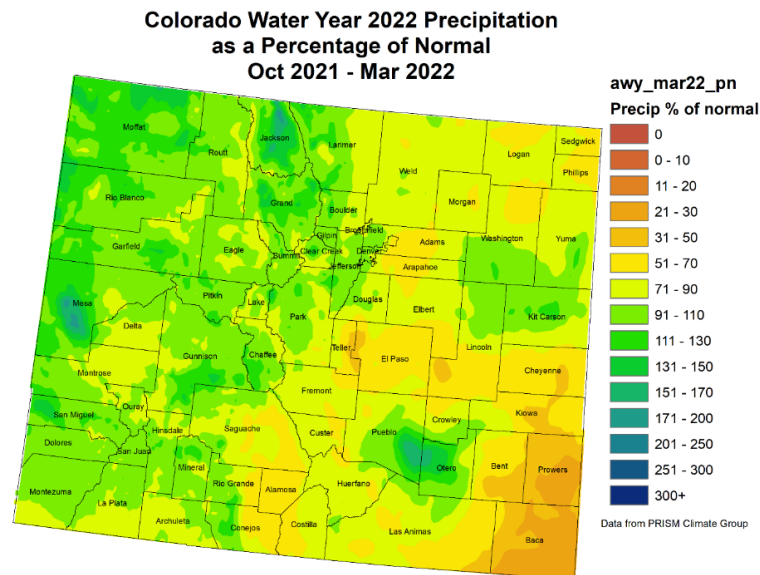


Figure 7: Precipitation in the South Platte Basin from October 2021 – March 2022 as a percent of normal

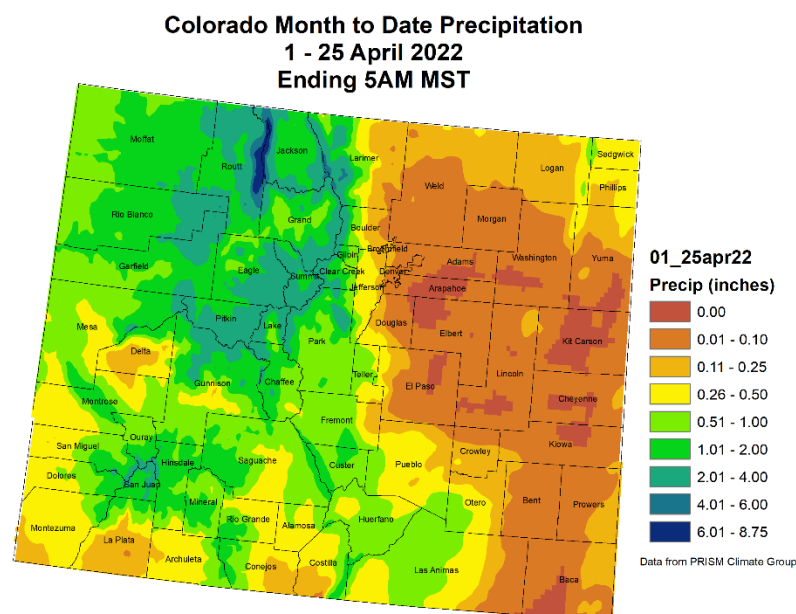
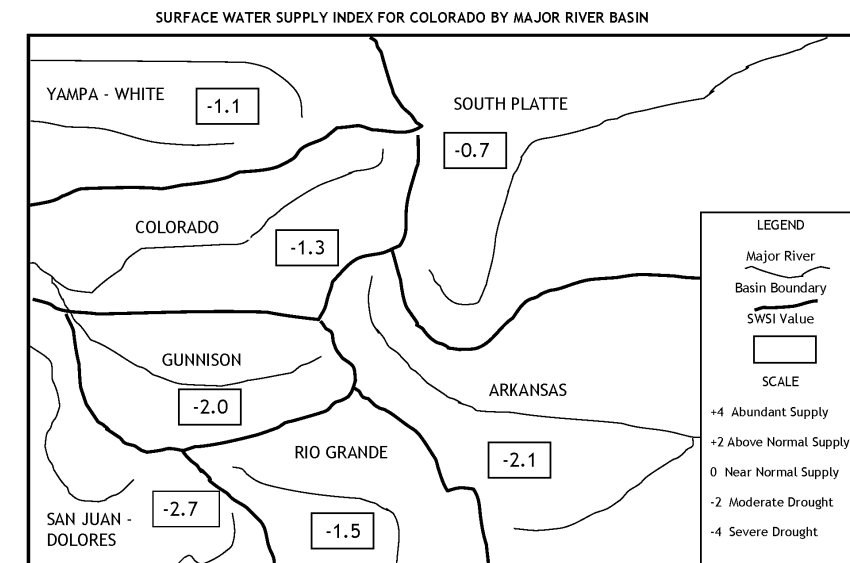


Figure 8: Precipitation totals in the South Platte Basin in April 2022

Surface Water Supply Index

The Surface Water Supply Index (SWSI) is used as an indicator of water supply conditions in Colorado. SWSI is based on a ranking of total volume of water in the South Platte watershed against similar volumes in historical years. For example, in April, the total volume in the South Platte River Basin is based on the runoff and forecasted precipitation at specific locations plus the volume in reservoir storage. That total is ranked against similar total volumes that occurred in April between 1980 and 2020. As of April 1, 2022, the South Platte River Basin had a slightly below normal water supply (Figure 9). By HUC, the majority of the lower South Platte Basin is classified as Slightly Dry conditions.



April 1, 2022

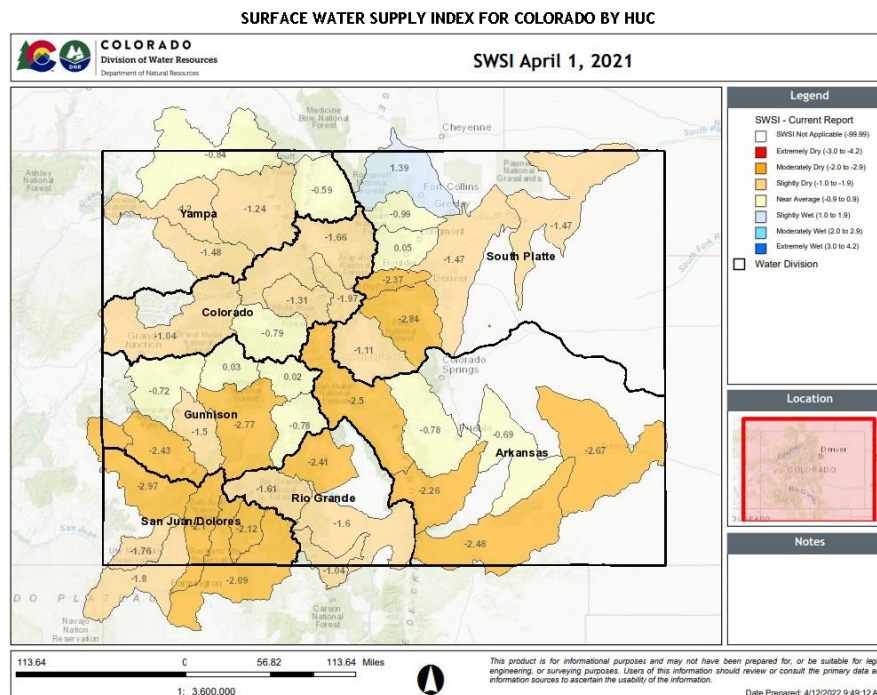


Figure 9: SWSI for major Colorado River Basin's and by HUC for April 2022

Reservoir Storage

Reservoir storage across the South Platte Basin is near median at most locations (Figure 10). At the end of March, the South Platte reservoir storage is at about 98% of median. Compared to March of 2021, storage has greatly improved from 86% of median. Table 1 summarizes storage amounts of selected representative reservoirs across the basin.

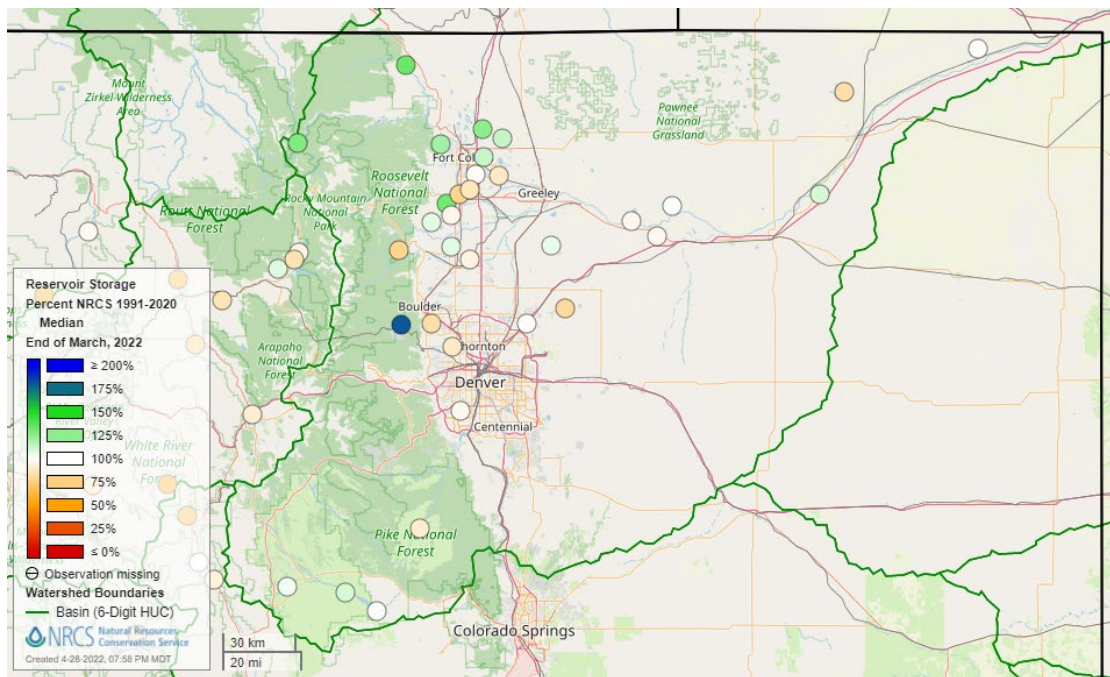


Figure 10: Percent of median storage in the South Platte River Basin, end of March 2022

Table 1. South Platte Storage, end of March 2022

South Platte	Current (KAF)	Last Year (KAF)	Median (KAF)	Capacity (KAF)	Current % Capacity	Last Year % Capacity	Median % Capacity	Current % Median	Last Year % Median
Barr Lake	28.9	23.2	28.9	30.1	96%	77%	96%	100%	80%
Boyd Lake	27.3	29.7	31.4	48.4	56%	61%	65%	87%	95%
Cobb Lake	17.8	15.5	14.3	22.3	80%	70%	64%	125%	108%
Empire Reservoir	32.6	33.8	33.7	36.5	89%	93%	92%	97%	100%
Fossil Creek Reservoir	9.4	9.4	9.5	11.1	85%	85%	86%	99%	99%
Halligan Reservoir	6.1	6.0	4.6	6.4	96%	94%	72%	133%	130%
Horse creek Reservoir	11.4	5.6	14.2	14.7	78%	38%	97%	81%	39%
Jackson Lake Reservoir	26.1	26.1	25.9	26.1	100%	100%	99%	101%	101%
Julesburg Reservoir	20.2	22.4	20.5	20.5	99%	109%	100%	99%	109%
Lake Loveland Reservoir	5.8	1.5	7.4	10.3	56%	15%	72%	78%	20%
Marshall Reservoir	5.7	5.7	6.9	10.0	57%	57%	69%	83%	83%
Milton Reservoir	22.2	20.0	21.2	23.5	95%	85%	90%	105%	94%
Prewitt Reservoir	24.6	24.6	22.5	28.2	87%	87%	80%	109%	109%
Riverside Reservoir	53.8	54.6	55.4	55.8	96%	98%	99%	97%	98%
Standley Reservoir	34.0	31.0	38.2	42.0	81%	74%	91%	89%	81%
Union Reservoir	10.5	6.8	11.1	13.0	81%	53%	85%	94%	62%
Windsor Reservoir	11.5	7.0	12.9	15.2	76%	46%	85%	89%	54%
Basin Index					83%	73%	85%	98%	86%

Long-Term Forecast

NOAA climate prediction center is showing that over the month of May, there are equal chances of below and above temperatures in the South Platte Basin. Over the month of May, precipitation forecasts show the eastern plains of the basin having equal chances of below and above normal precipitation, with the higher elevations having a higher probability of below normal precipitation (Figure 11). The three month outlook shows a higher probability of above normal temperatures and below normal precipitation (Figure 12) for the South Platte Basin.

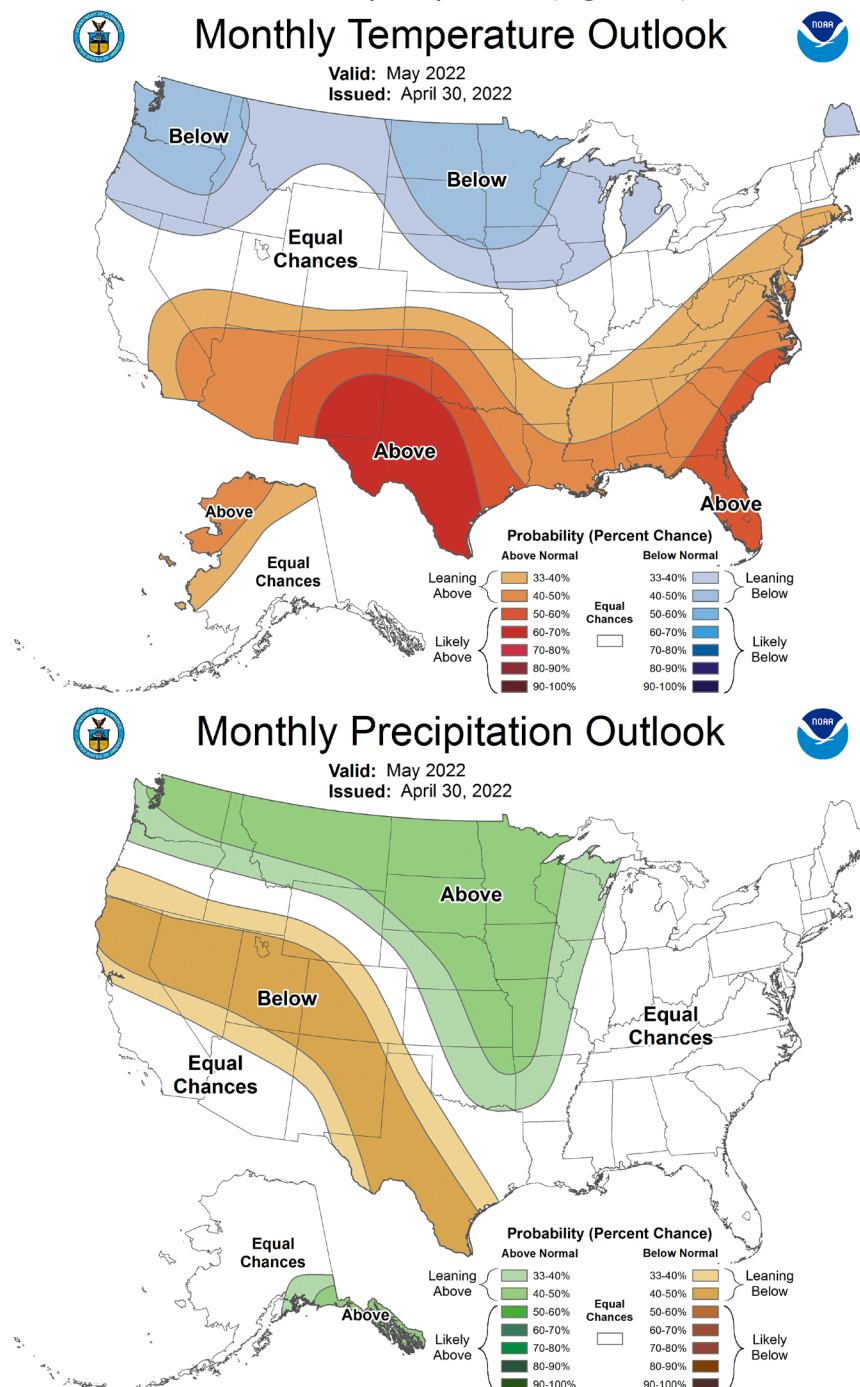


Figure 21: May 2022 temperature and precipitation outlook

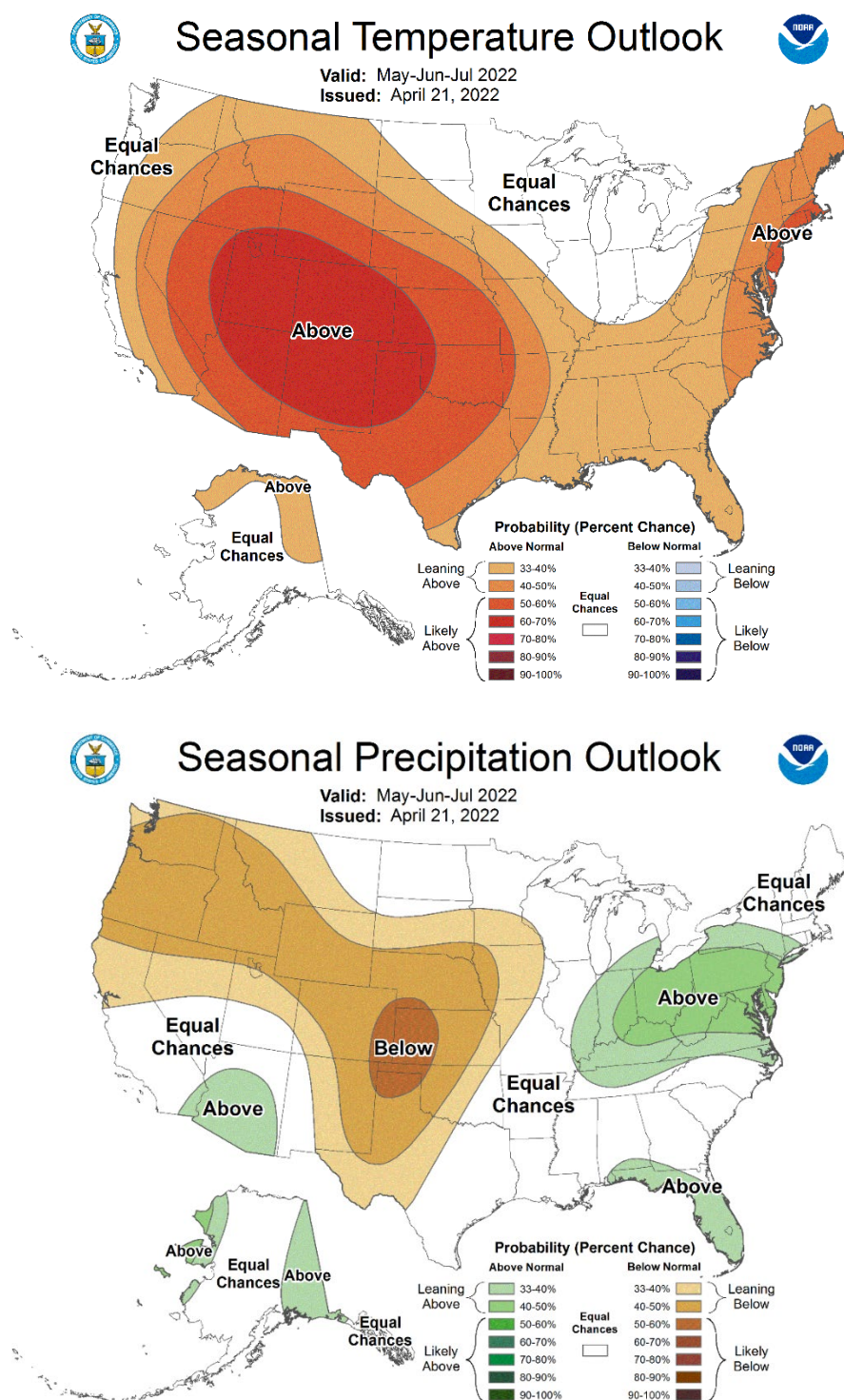


Figure 32: Three month temperature and precipitation outlook

References

30-day forecast: <https://www.cpc.ncep.noaa.gov/products/predictions/30day/>

Colorado Climate Center: <https://climate.colostate.edu/>

Colorado DWR, Division 1 office: <https://dwr.colorado.gov/division-offices/division-1-office>

Colorado DWR, Drought & Surface Water Supply Index:
<https://dwr.colorado.gov/services/water-administration/drought-and-swsi>

Drought Monitor: <https://droughtmonitor.unl.edu/Maps/MapArchive.aspx>

Drought Monitor Class Change: <https://droughtmonitor.unl.edu/Maps/ChangeMaps.aspx>

National Water and Climate Center: <https://www.nrcs.usda.gov/wps/portal/wcc/home/>

NRCS Water Supply Outlook Report:
https://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/co/snow/waterproducts/basin/?cid=nrcs144p2_063076

Reservoir Storage:
<https://www.nrcs.usda.gov/wps/portal/wcc/home/waterSupply/reservoirStorage/>

Snow Water Equivalent, Colorado: <https://www.nrcs.usda.gov/wps/portal/nrcs/main/co/snow/>

Snow Water Equivalent, South Platte Basin:
https://www.nrcs.usda.gov/wps/portal/nrcs/detail/co/snow/products/?cid=nrcs144p2_063323

Three Month Precipitation and Temperature Outlooks:
http://www.cpc.ncep.noaa.gov/products/predictions/long_range/seasonal.php?lead=1

Colorado's Water Availability Task Force: <https://cwcb.colorado.gov/water-availability-flood-task-forces>