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: Jojo La, Endangered Species Policy Specialist
Colorado Water Conservation Board

DATE: October 26, 2021

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

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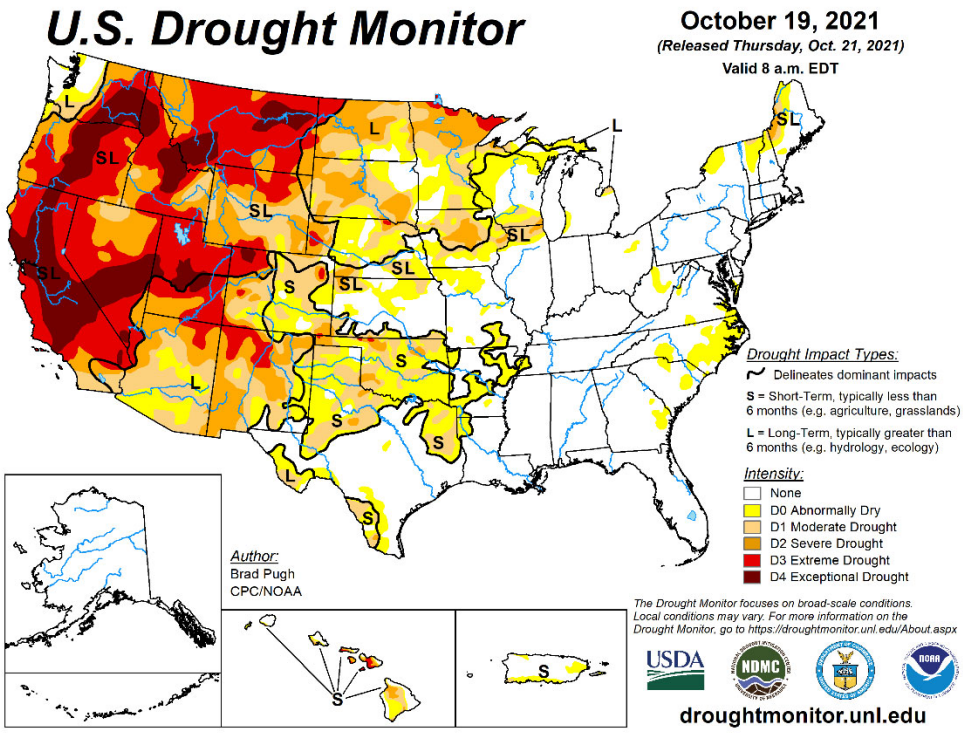
The South Platte River Basin is currently experiencing moderate drought conditions, with pockets of extreme, severe, and no drought conditions. Slightly below average precipitation (94 percent of average) and above average temperatures (in the top 10 to 33 percent of historical temperatures from July to September 2021) have persisted. These conditions have resulted in near to below average streamflows on the mainstem of the South Platte River. However, reservoir storage levels throughout the South Platte basin are well above average at 14 percent at the end of September 2021.

The following summarizes the current precipitation, temperature, and resulting streamflow conditions and water storage in the South Platte River Basin. Included are selected data that are considered most relevant to the Reservoir Coordinating Committee/Environmental Account Committee. Additional and up-to-date information for the next several months may be found at the links provided in the reference section.

Drought Status

The South Platte River Basin continues to have a basin-wide pattern of above average temperatures and below average precipitation resulting in moderate drought conditions (Figure 1), with pockets of extreme, severe, and no drought conditions. For the past 3-6 months, drought conditions have remained steady with no change or Class 1 degradation (Figure 2).



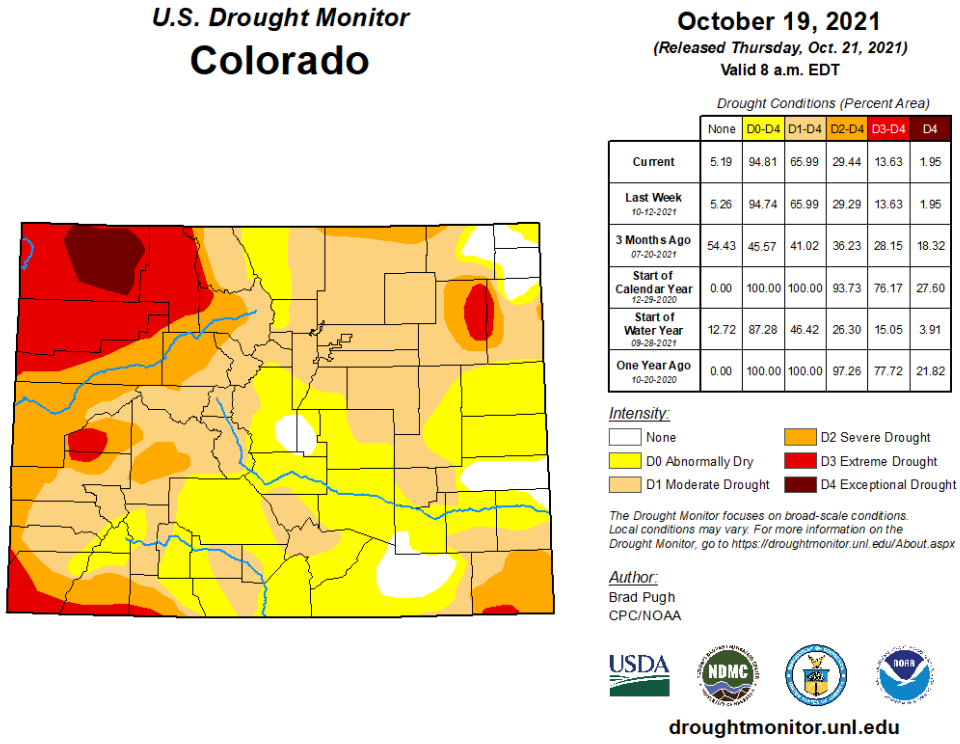
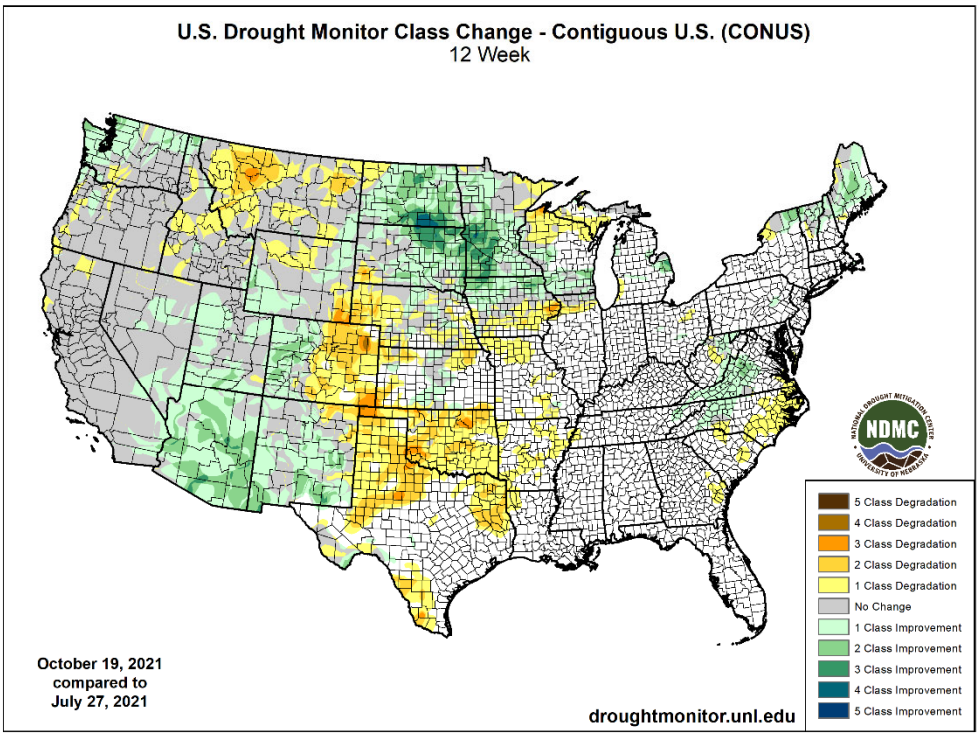


Figure 1: The South Platte River Basin is currently experiencing moderate drought conditions with pockets of extreme, severe, and no drought conditions.



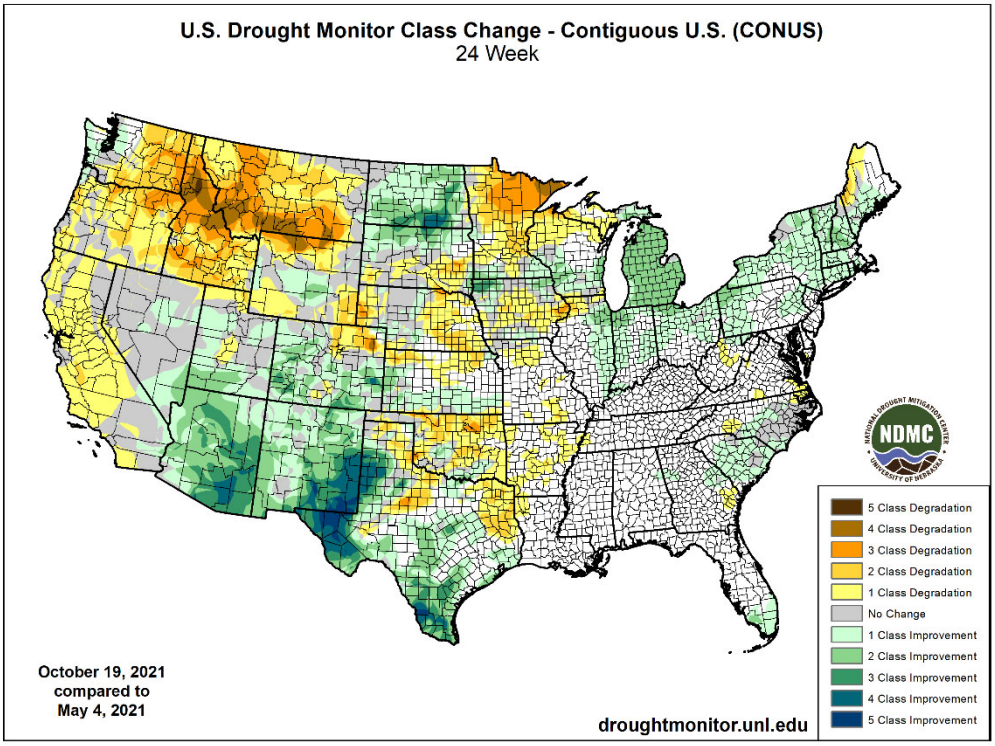


Figure 2: The South Platte River Basin has experienced no change to Class 1 degradation drought conditions for the past 3-6 months.

Temperature

The South Platte River Basin has experienced above average temperatures in the top 10 to 33 percent of historical temperatures from July to September 2021 (Figure 3). Long-term forecasts indicate an increased likelihood of above average temperatures through December 2021.

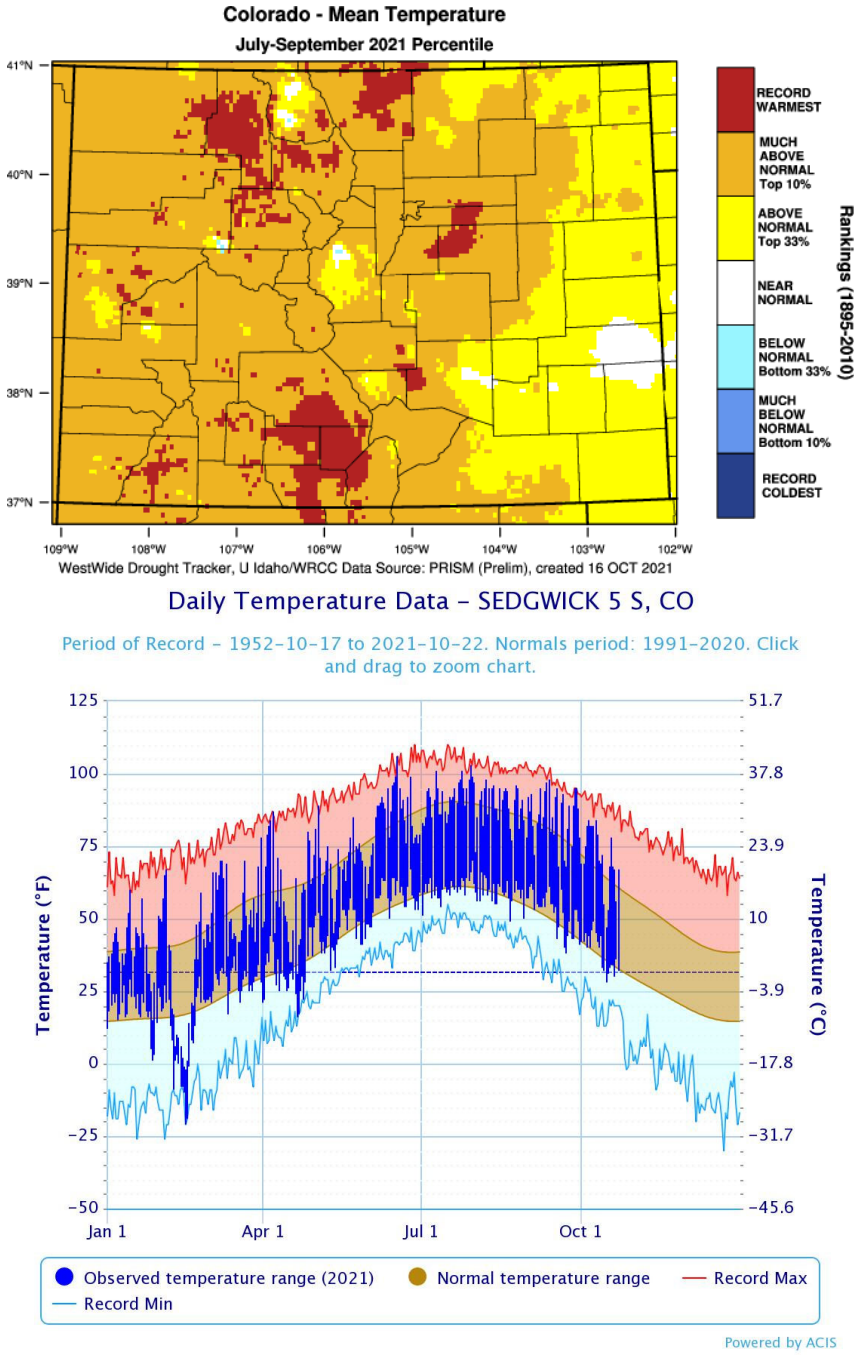
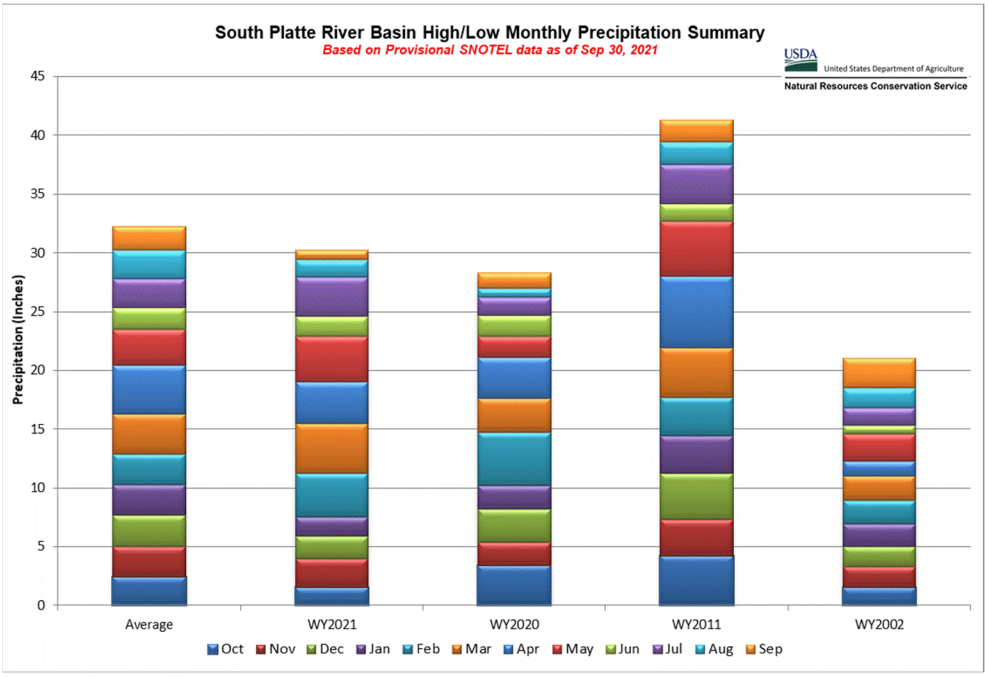


Figure 3: South Platte River Basin showing above normal temperatures in the top 10 to 33 percent from July to September 2021. Long-term temperature trends also show increases in temperature.

Precipitation

Precipitation in the South Platte River Basin is currently slightly below average, with current precipitation at 94 percent of average as of September 2021 (Figure 4).



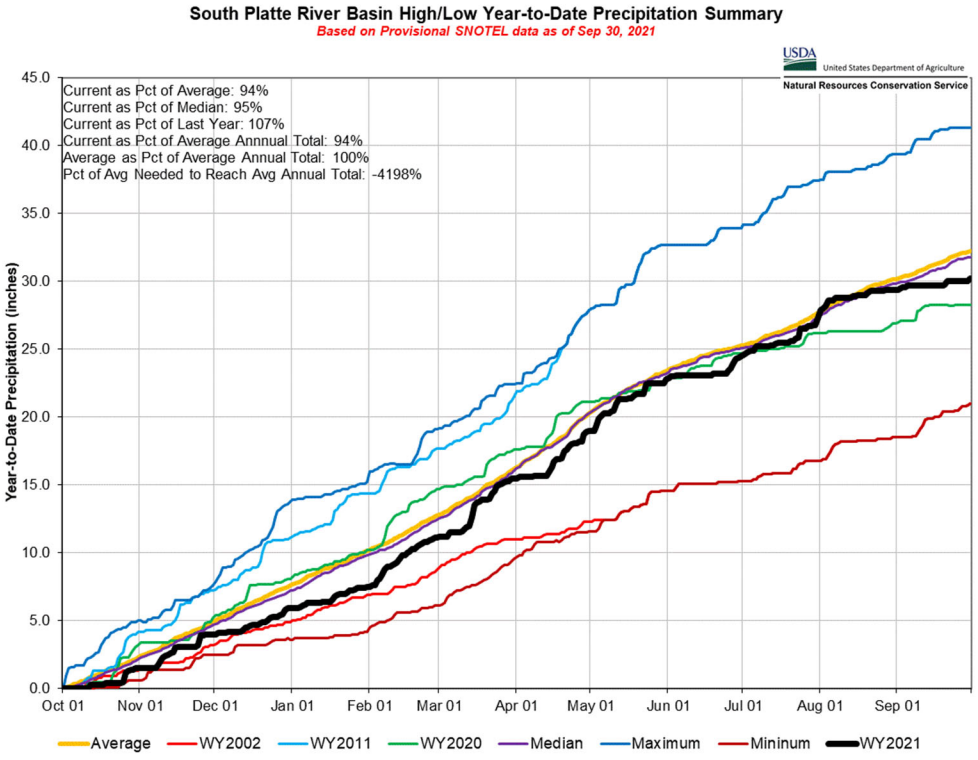


Figure 4: Precipitation in the South Platte Basin is currently below average.

Streamflows

Streamflows in the South Platte basin have been near to below historic mean flow (1901-2016) for water year 2021 (Figure 5).

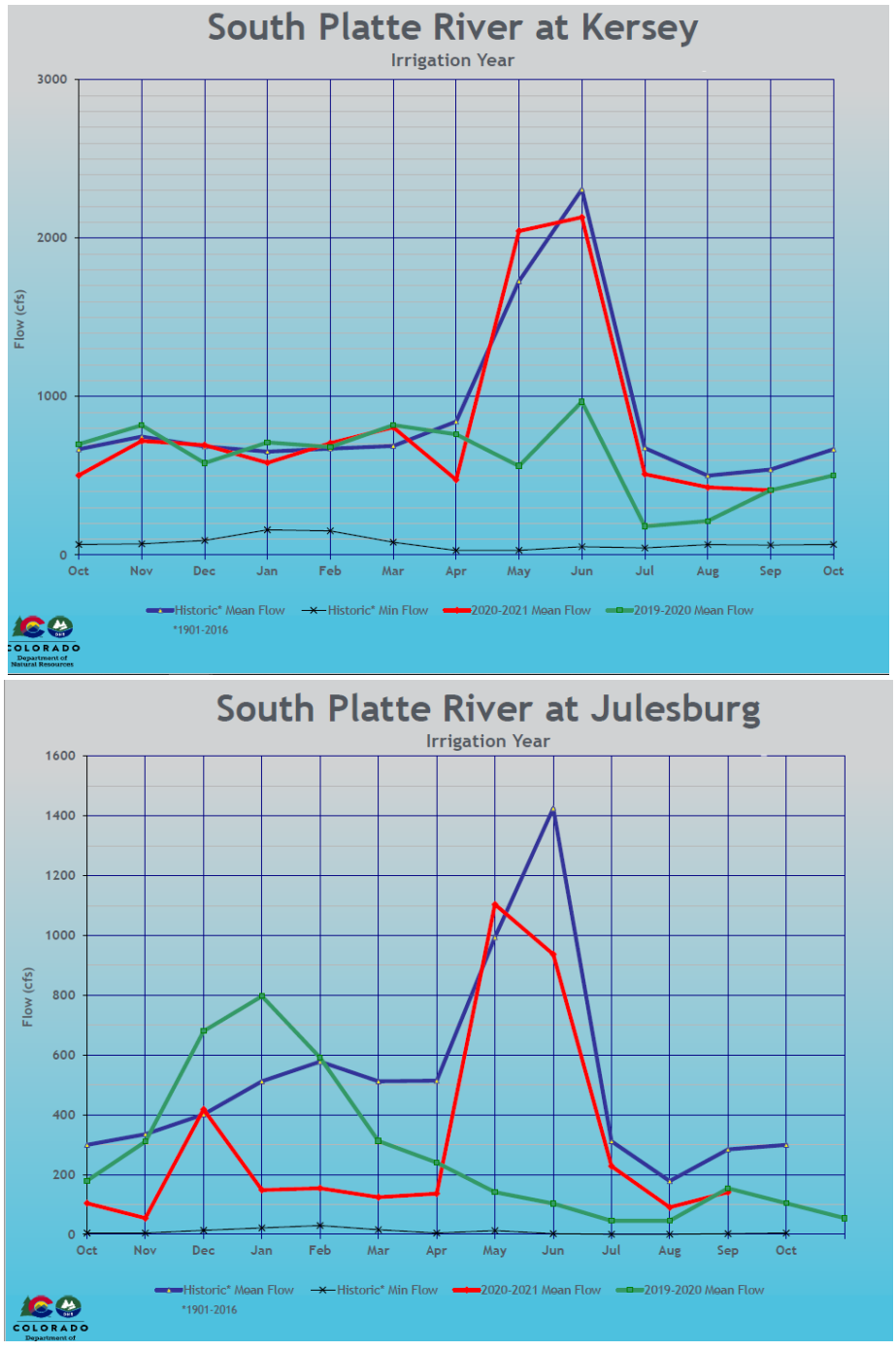
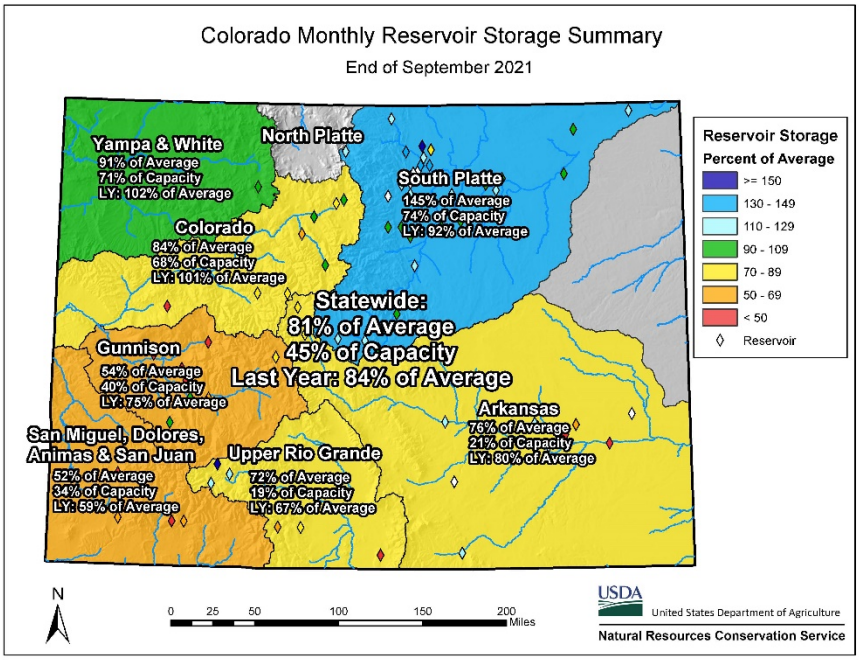


Figure 5: South Platte River streamflows at the Kersey and Julesburg gages showing slightly below average flows.

Reservoir Storage

Reservoir storage is average in the South Platte River Basin at 145 percent of average at the end of September 2021 (Figures 6 and 7).



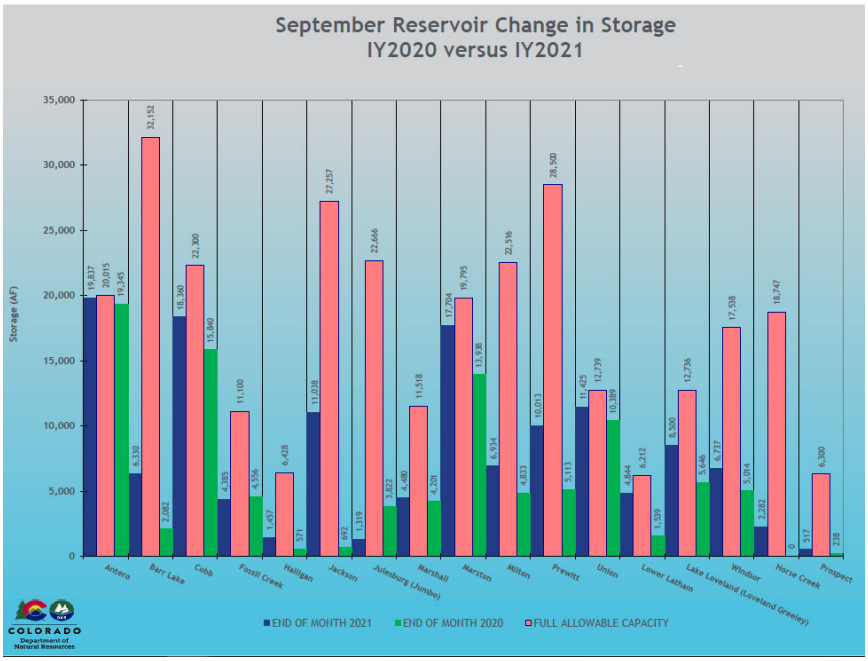


Figure 6: The South Platte River Basin has above average reservoir storage and was at 145 percent of average at the end of September 2021.

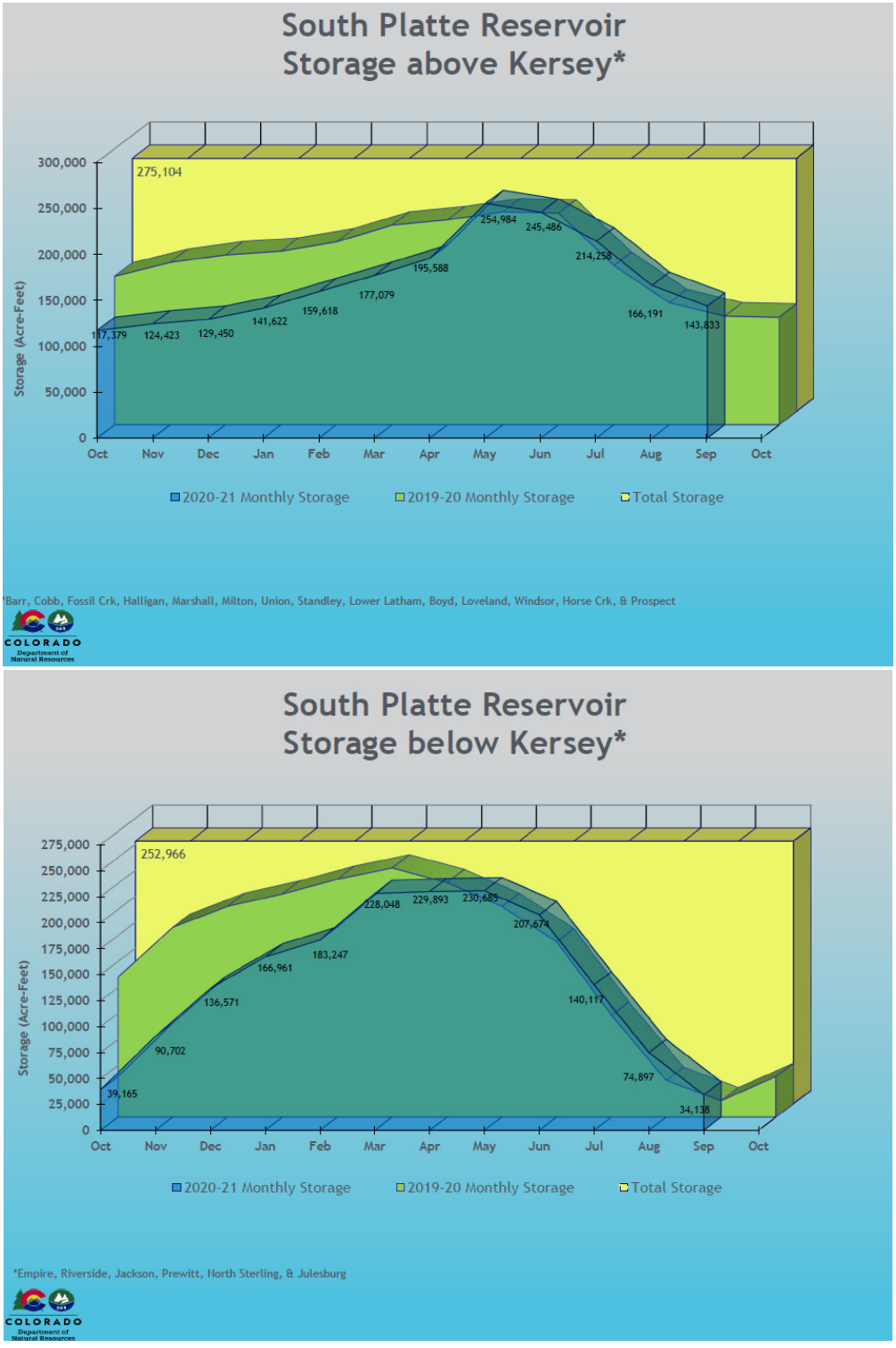


Figure 7: Reservoir Storage in the South Platte River Basin above and below Kersey.

Long-Term Forecast

The long-term forecasts and most models indicate La Niña is favored to continue through winter 2021-22. La Niña could bring drier conditions for the South Platte River Basin. Figure 8 shows the La Niña model prediction. The three month outlook shows above normal temperatures and below normal precipitation (Figure 9).

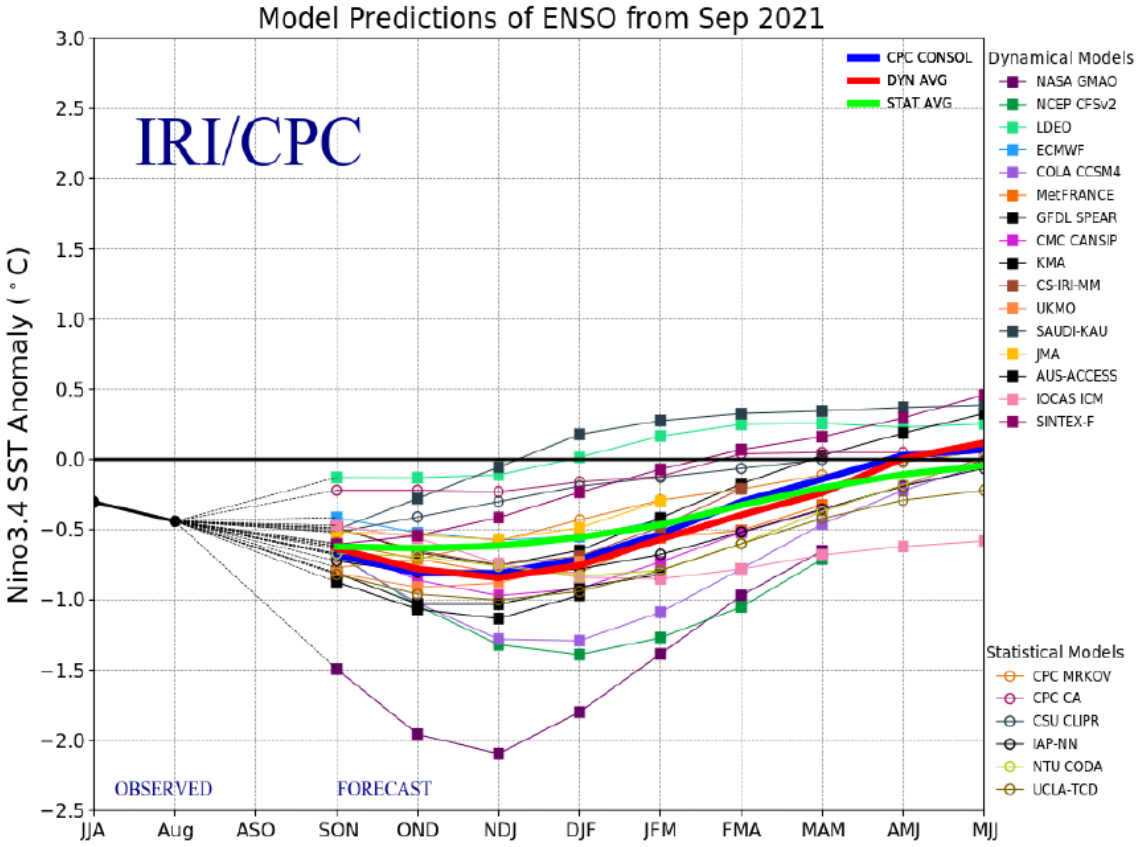


Figure 8: La Niña model predictions; an average anomaly temperature below 0.5°C indicates a higher probability of La Niña occurring.

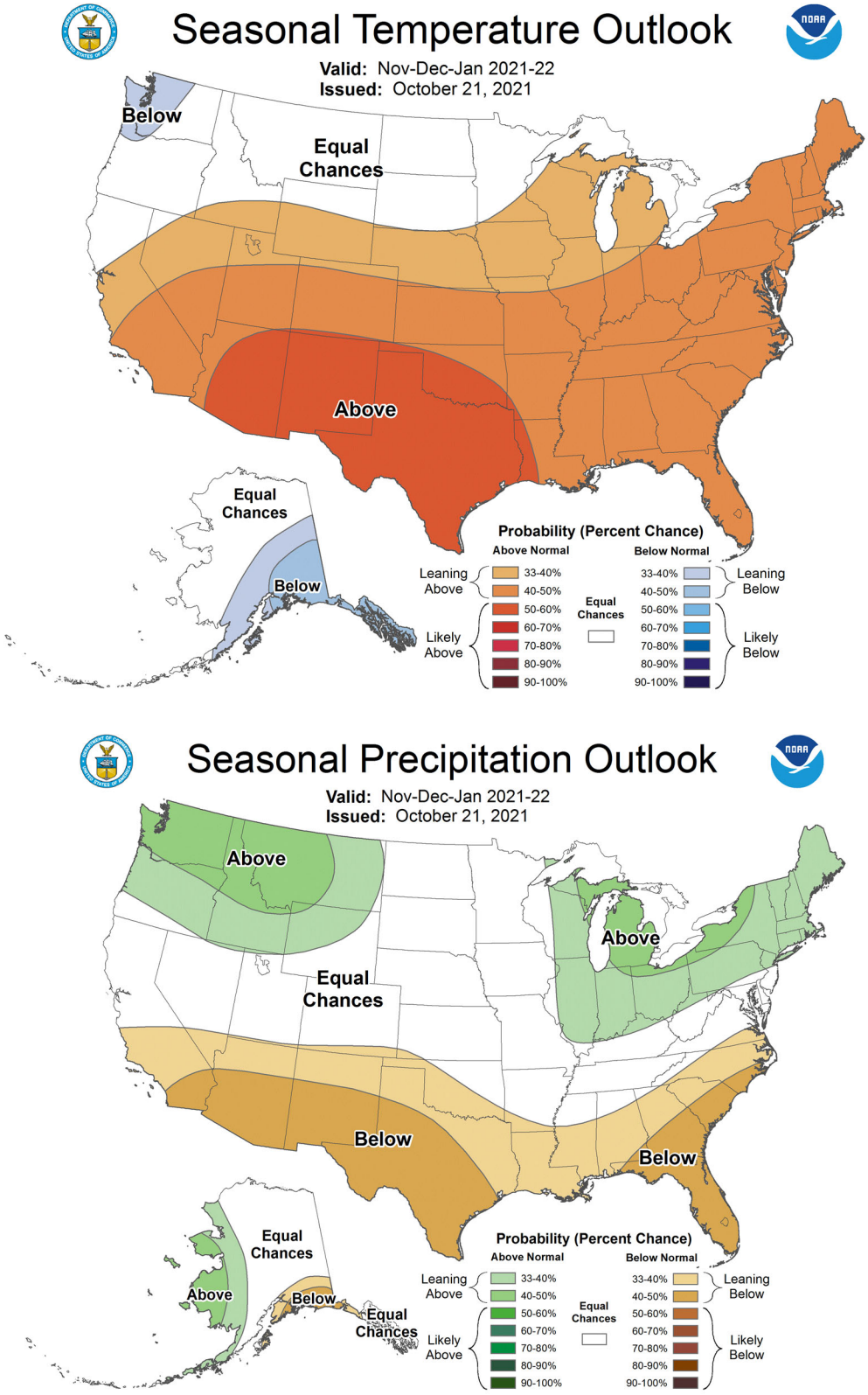


Figure 9: Three month outlook predicting leaning above normal temperatures and equal chances of above or below normal precipitation.

References

Figure 1: Current U.S. Drought Map:
https://droughtmonitor.unl.edu/CurrentMap.aspx
Current Colorado Drought Map:
https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?CO

Figure 2: Drought Monitor Class Change:
https://droughtmonitor.unl.edu/Maps/ChangeMaps.aspx

Figure 3: Colorado Mean Temperature Map:
https://wrcc.dri.edu/wwdt/index.php?folder=mdn3per
Daily Historic Temperature Data:
https://w2.weather.gov/climate/xmacis.php?wfo=bou

Figure 4: South Platte River Basin High/Low Monthly Precipitation Summaries:
https://www.wcc.nrcs.usda.gov/ftpref/states/co/charts/mphilosprb21.gif?
https://www.wcc.nrcs.usda.gov/ftpref/states/co/charts/prechilosprb21.gif?
https://www.nrcs.usda.gov/wps/portal/nrcs/detail/co/snow/products/?cid=nrcs144p2_063306

Figure 5: South Platte River Flow Summaries:
https://dwr.colorado.gov/division-offices/division-1-office
https://dnrweblink.state.co.us/dwr/ElectronicFile.aspx?docid=3830972&dbid=0

Figure 6: Colorado Monthly Reservoir Storage Summary:
https://www.wcc.nrcs.usda.gov/ftpref/states/co/resv/state/monthly/resmap.pdf
https://dnrweblink.state.co.us/dwr/ElectronicFile.aspx?docid=3830972&dbid=0

Figure 7: South Platte River Reservoir Storage Above and Below the Kersey Gage:
https://dwr.colorado.gov/division-offices/division-1-office
https://dnrweblink.state.co.us/dwr/ElectronicFile.aspx?docid=3830972&dbid=0

Figure 8: El Niño Model Predictions:
http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/lanina/enso_evolution-status-fcsts-web.pdf
https://wwa.colorado.edu/climate/dashboard.html

Figure 9: Three Month Precipitation and Temperature Outlooks:
http://www.cpc.ncep.noaa.gov/products/predictions/long_range/seasonal.php?lead=1