



Water Availability Task Force Meeting

November 4th, 2021

NRCS Snow Survey and Water Supply Forecasting Program

Brian Domonkos

Hydrologist

Asst. Snow Survey Supervisor

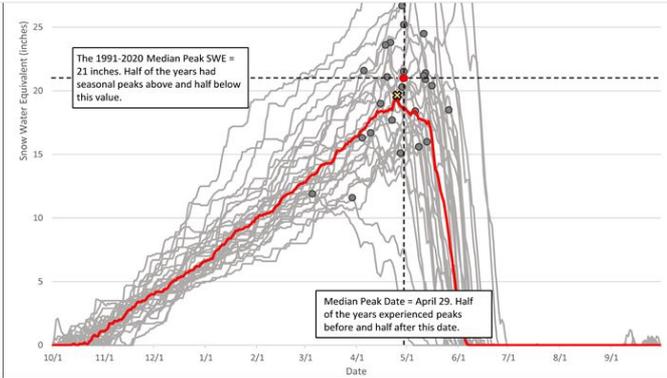
720-544-2852

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

Noteworthy Items

- New Normals for most data types were published on Oct 1, 2021.
 - The new normals are now based on 1991 to 2020 data.
 - You can find direct comparisons between normals both using easily accessed data and in more detailed explanations of methods and differences on our normal webpage. Simply reach out to us for links to those resources.

← → ↻ 🏠 nrcs.usda.gov/wps/portal/wcc/home/snowClimateMonitoring/30YearNormals/
 📱 Apps 🌟 Bookmarks 🌐 Snow Survey Color... 📧 Gmail ☁ OneDrive-Personal 🇺🇸 iMap - CO SWE 🌐 NOAA EMC Model...



Central Tendencies

The statistic used as the official NRCS normal for the 1981-2010 period varied by data type. The median was used as the official 1981-2010. The 1971-2000 normals only include the average. The median is the official 1991-2020 NRCS normal for all data types and will be the default.

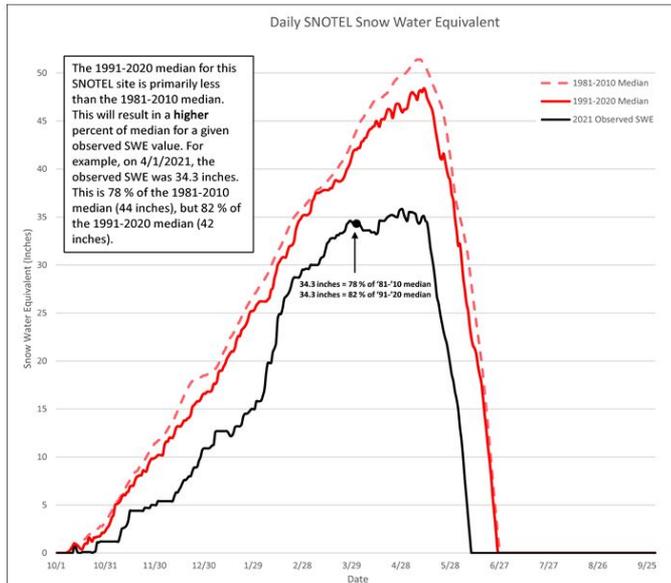
1971-2000 Averages

Most SNOTEL sites did not exist in 1971. The first major installations of SNOTEL sites occurred in the late 1970s to early 1980s. Therefore,

Interpreting Changes in Normal Values

A change in the normal values going from 1981-2010 to the new 1991-2020 reference period will result in a subsequent shift in the percent of normal values for the same observation, and vice versa.

1981-2010 Median SWE Compared to 1991-2020 Median SWE



Comparing 1981-2010 and 1991-2020 Normals

The Interactive Map provides access to charts comparing the official normals used for 1981-2010 with the official 1991-2020 normals. At each location, comparisons for SWE and some streamflow locations will show 1981-2010 median and 1991-2020 median. All other comparison charts show...

Noteworthy Items

- Product website and links will be changing. Both on the National Water and Climate Center (NWCC) webpages and on Colorado Website pages and links.
 - IT required a change to new servers. As a result links and webpages are changing.
 - Data resource links will not be affected.
 - Products resource webpages and links will be affected.
 - We aren't completely sure on timeline for the change but believe the mandatory change to be in the next one to three months.
 - Working as fast possible to minimize product interruptions.
 - Changes are requiring considerable work and entirely new tools to generate the replacement products.
- Current presentation maps and graphs will change in appearance however will maintain much of the same data and overall look.
- If you have questions and comments please reach out to us



United States Department of Agriculture

Colorado Snow Surveys

Water Year 2021 Recap

Snow Water Equivalent

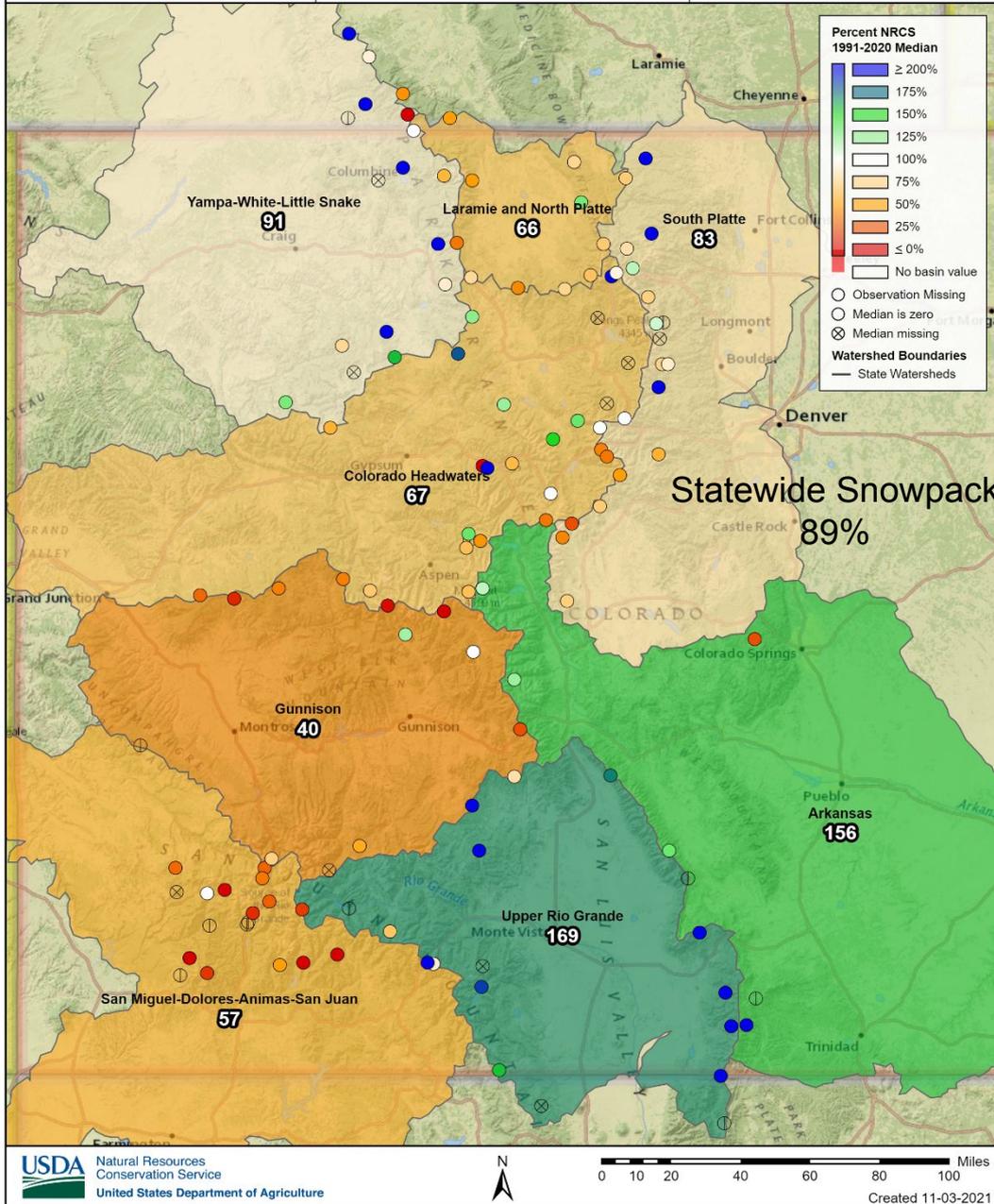
2021WYTD SWE

November 2, 2020, end of day

Percent NRCS 1991-2020 Median

Colorado Snow Surveys

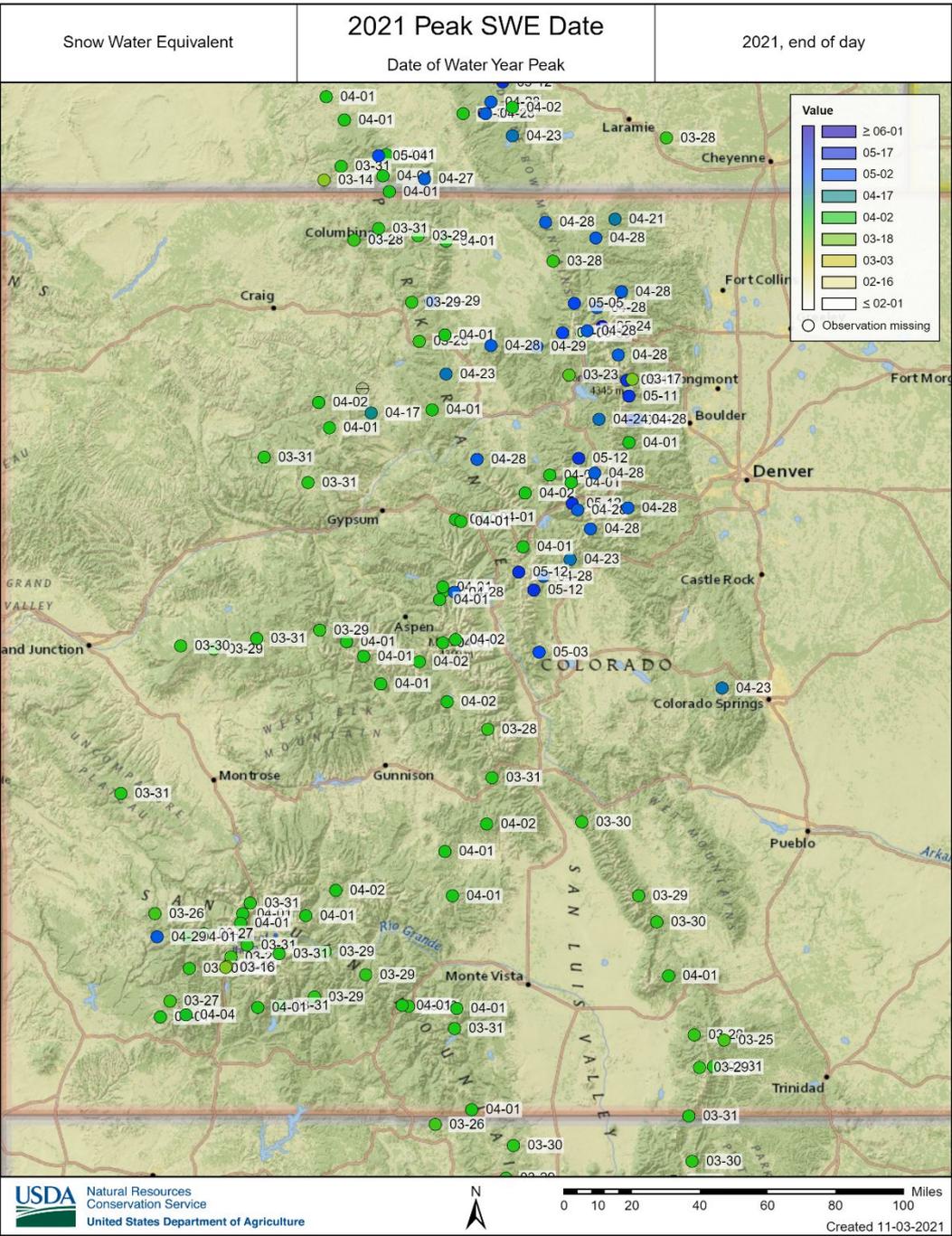
2021 Statewide Snowpack (SWE) Peak as a % of Median



Colorado Snow Surveys

Statewide Snowpack (SWE) Date

- 3/30 – 4/1
- 4/28
- 5/11 – 5/12





2020 Statewide Snowpack (SWE)

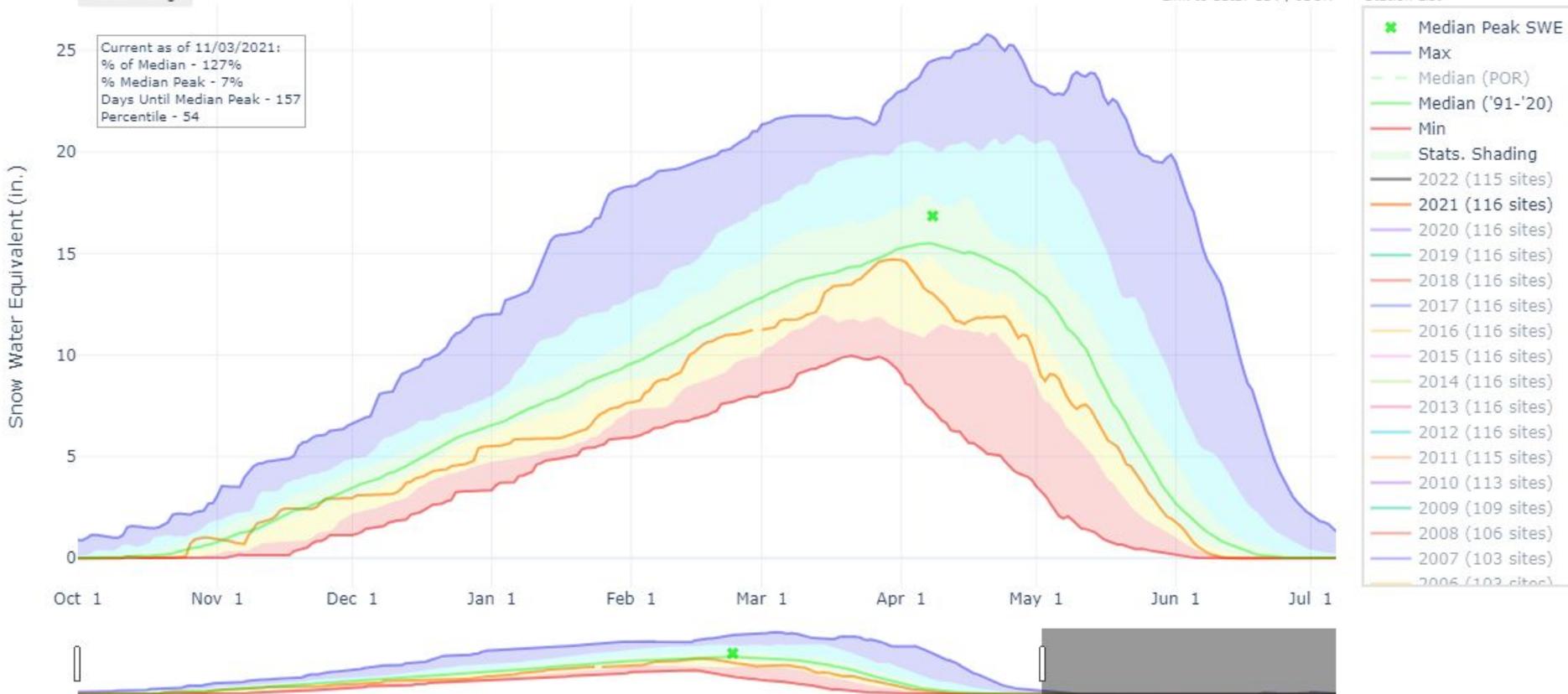
SNOW WATER EQUIVALENT IN STATE OF COLORADO

Reset Range

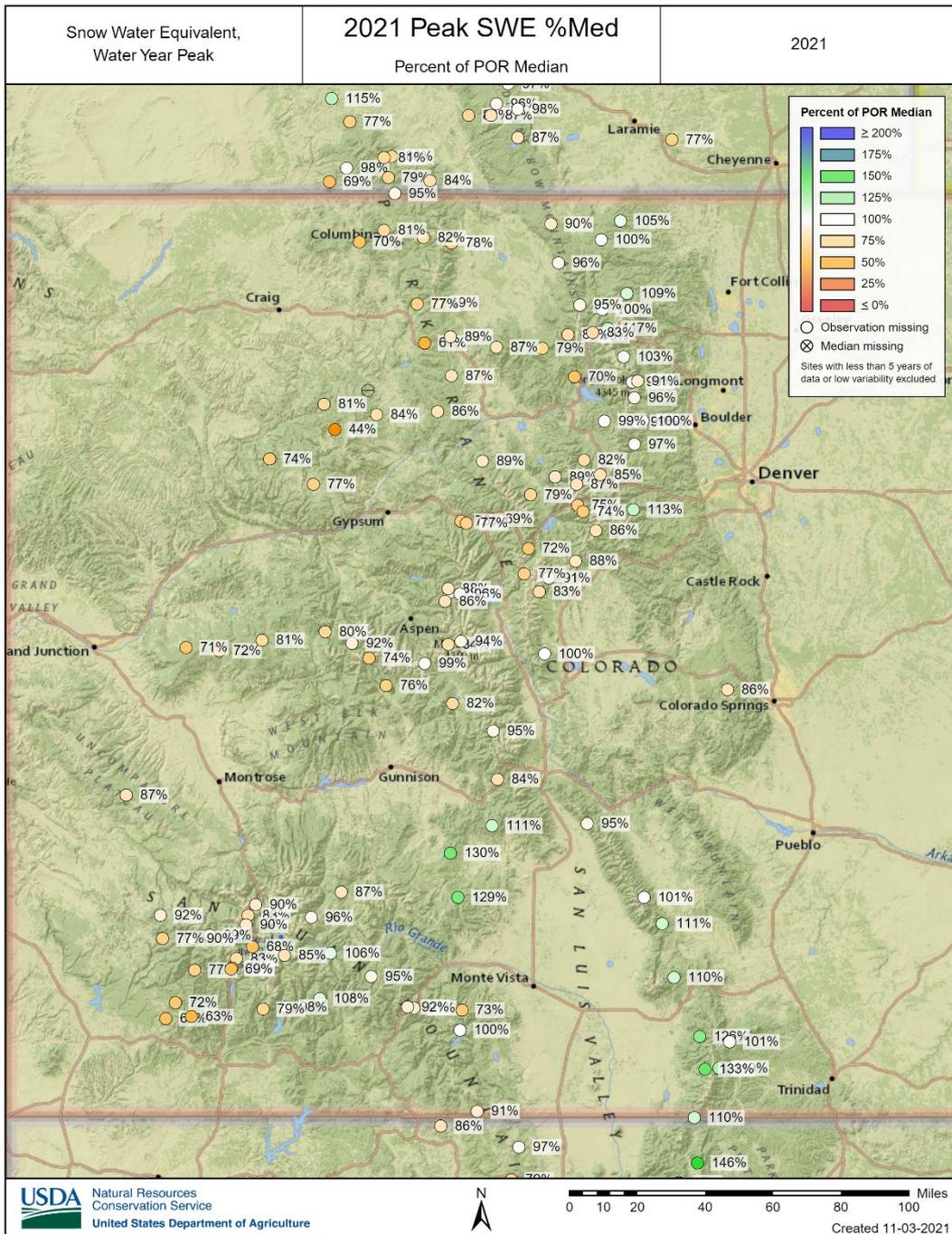
[Link to data: CSV / JSON](#)

Station List

Current as of 11/03/2021:
 % of Median - 127%
 % Median Peak - 7%
 Days Until Median Peak - 157
 Percentile - 54



- ✕ Median Peak SWE
- Max
- Median (POR)
- Median ('91-'20)
- Min
- Stats. Shading
- 2022 (115 sites)
- 2021 (116 sites)
- 2020 (116 sites)
- 2019 (116 sites)
- 2018 (116 sites)
- 2017 (116 sites)
- 2016 (116 sites)
- 2015 (116 sites)
- 2014 (116 sites)
- 2013 (116 sites)
- 2012 (116 sites)
- 2011 (115 sites)
- 2010 (113 sites)
- 2009 (109 sites)
- 2008 (106 sites)
- 2007 (103 sites)
- 2006 (102 sites)



Colorado Snow Surveys

Statewide Snowpack (SWE) Peak as a % of Median

- Statewide snowpack peaked 88% of median
- Ranked 28th in the 36 year period of record

2020 Statewide Year End Precip

PRECIPITATION IN STATE OF COLORADO

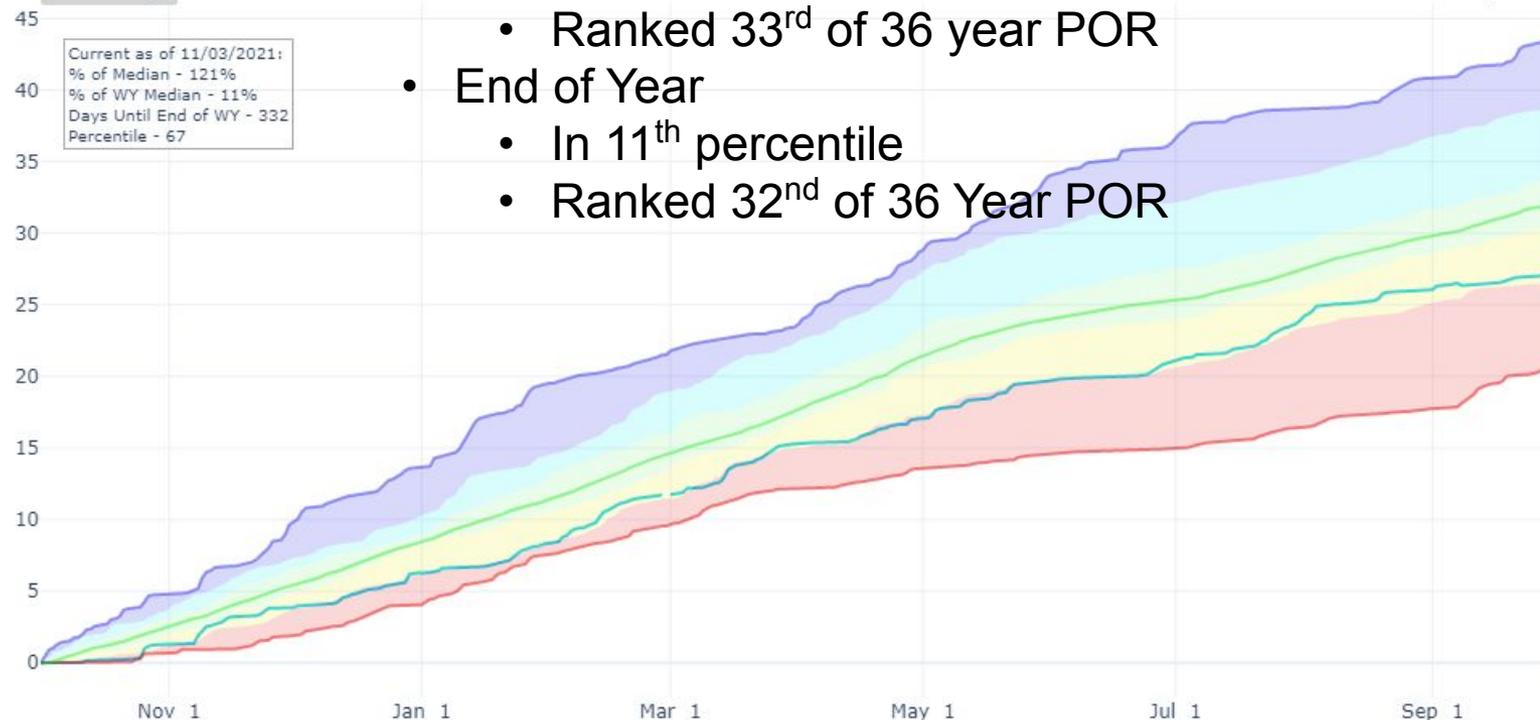
Reset Range

[Link to data: CSV / JSON](#)

Station List

Current as of 11/03/2021:
 % of Median - 121%
 % of WY Median - 11%
 Days Until End of WY - 332
 Percentile - 67

WY Accumulated Precip. (in.)



- Max
- Median (POR)
- Median ('91-'20)
- Min
- Stats. Shading
- 2022 (114 sites)
- 2021 (117 sites)
- 2020 (117 sites)
- 2019 (117 sites)
- 2018 (117 sites)
- 2017 (117 sites)
- 2016 (117 sites)
- 2015 (117 sites)
- 2014 (117 sites)
- 2013 (117 sites)
- 2012 (117 sites)
- 2011 (117 sites)
- 2010 (115 sites)
- 2009 (112 sites)
- 2008 (109 sites)
- 2007 (106 sites)
- 2006 (106 sites)
- 2005 (105 sites)

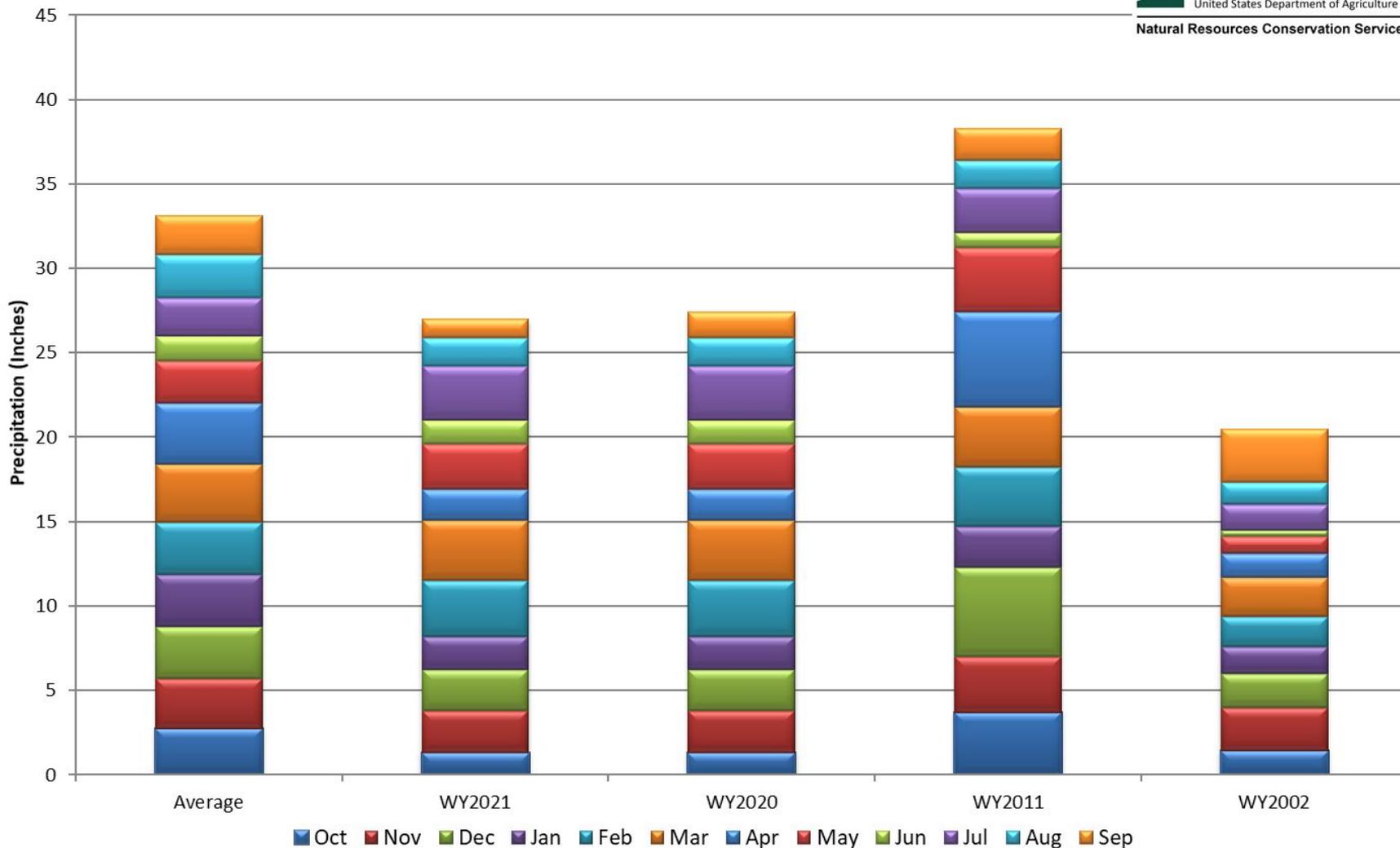
- This time last year Precip
 - In 9th percentile
 - Ranked 33rd of 36 year POR
- End of Year
 - In 11th percentile
 - Ranked 32nd of 36 Year POR



2020 Statewide Year End Precip

Colorado Statewide High/Low Monthly Precipitation Summary

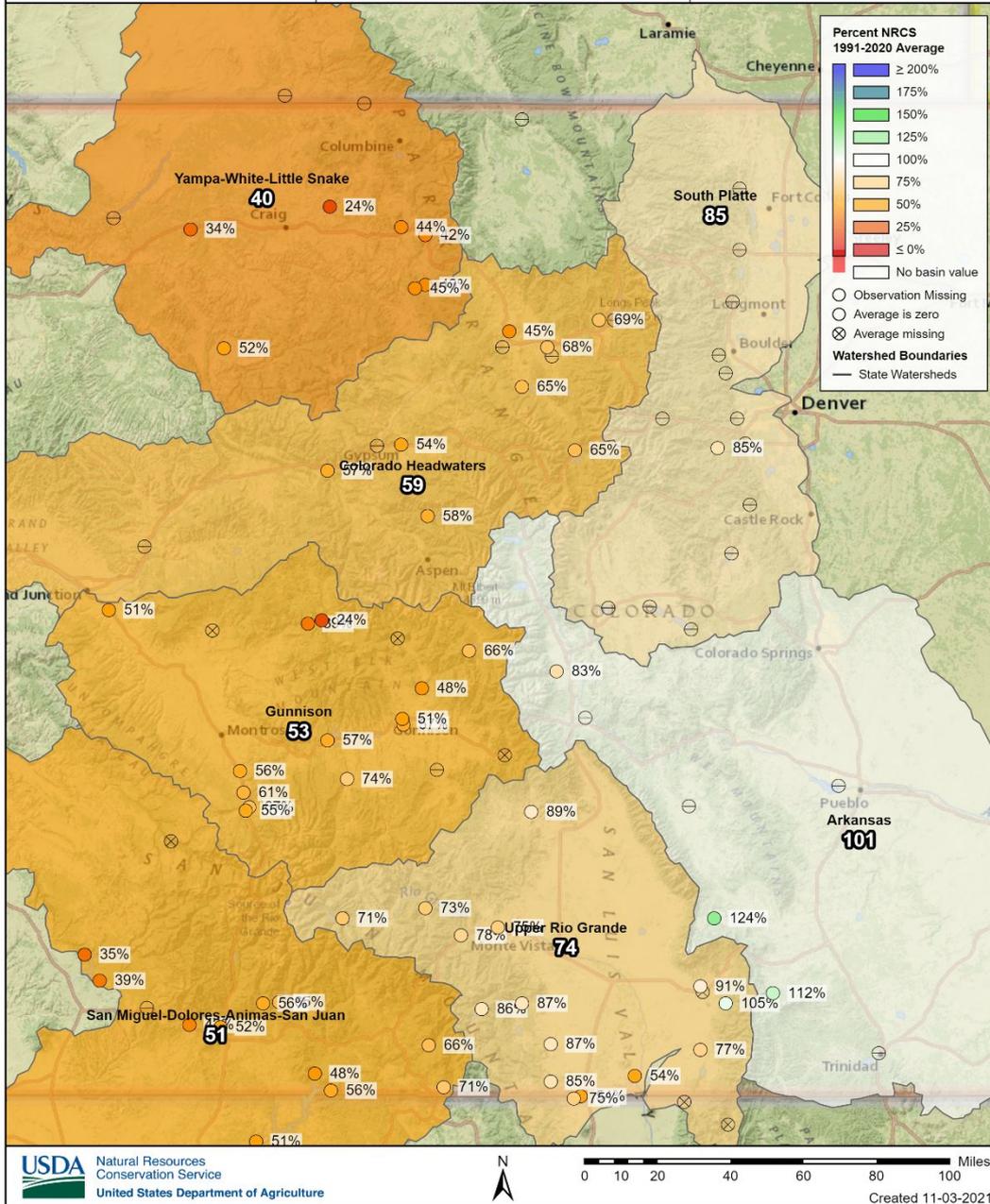
Based on Provisional SNOTEL data as of Sep 30, 2021



Water Year to Date
Adjusted Volume, Observed

2021 WYTD Strm
Percent NRCS 1991-2020 Average

October 1, 2020 - September 30, 2021



Colorado Snow Surveys

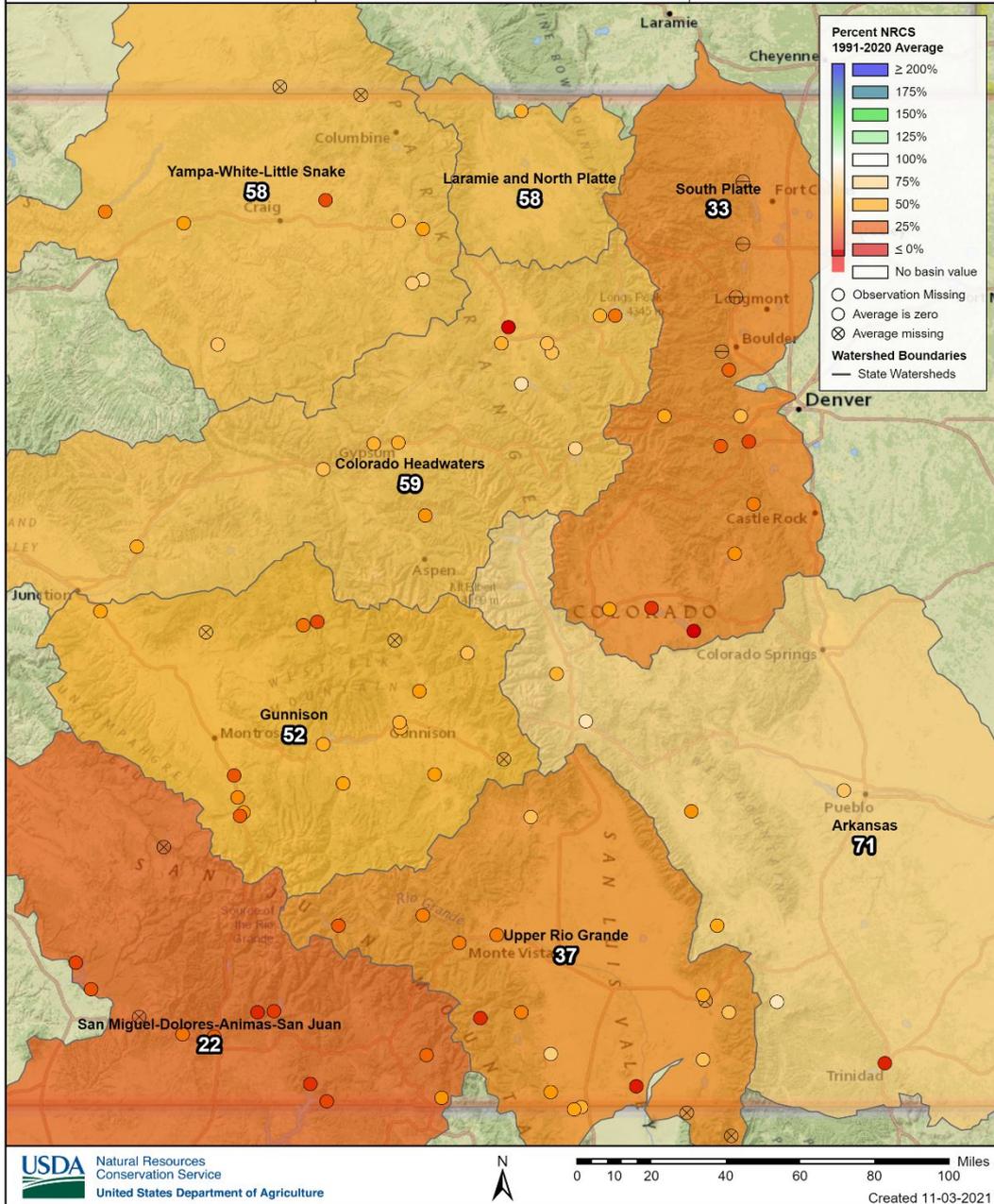
Statewide
Volumetric
Streamflow as
a % of Average
Oct 1, 2020 to
Sept 30, 2021

1 month Adjusted Volume, Observed

Oct 2021 StrmFlw

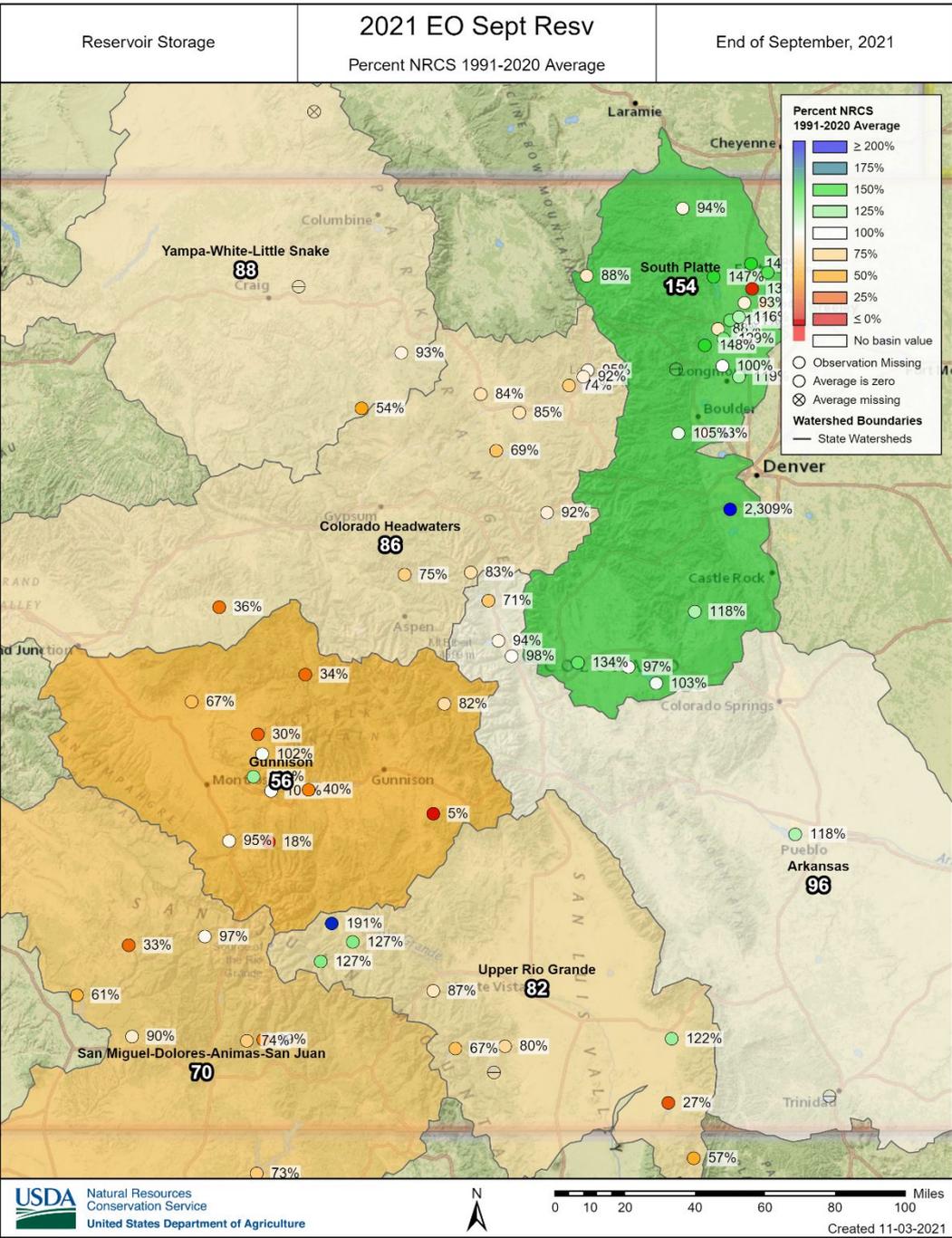
October 1, 2020 - October 31, 2020

Percent NRCS 1991-2020 Average



Colorado Snow Surveys

Oct 1, 2020
Volumetric
Streamflow as an
Indicator of
Baseflow Leading
Into Winter 2021



Colorado Snow Surveys

Reservoir Storage
at end of Water
Year 2021 as a %
of Average



United States Department of Agriculture

Colorado Snow Surveys

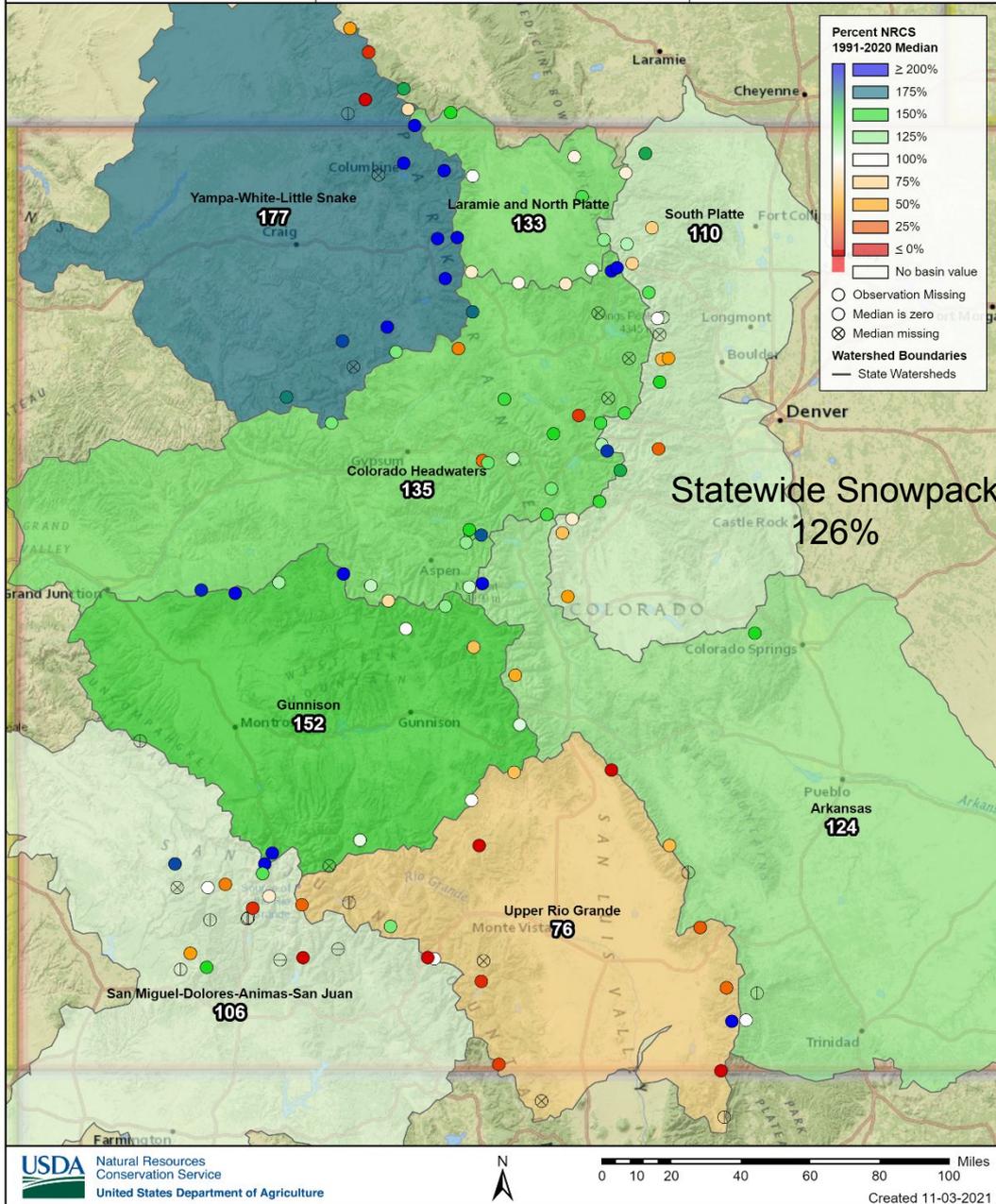
Water Year 2022 To Date

Snow Water Equivalent

SWE

November 2, 2021, end of day

Percent NRCS 1991-2020 Median



Colorado Snow Surveys

Statewide
Snowpack (SWE)
Peak as a % of
Median



2020 Statewide Snowpack (SWE)

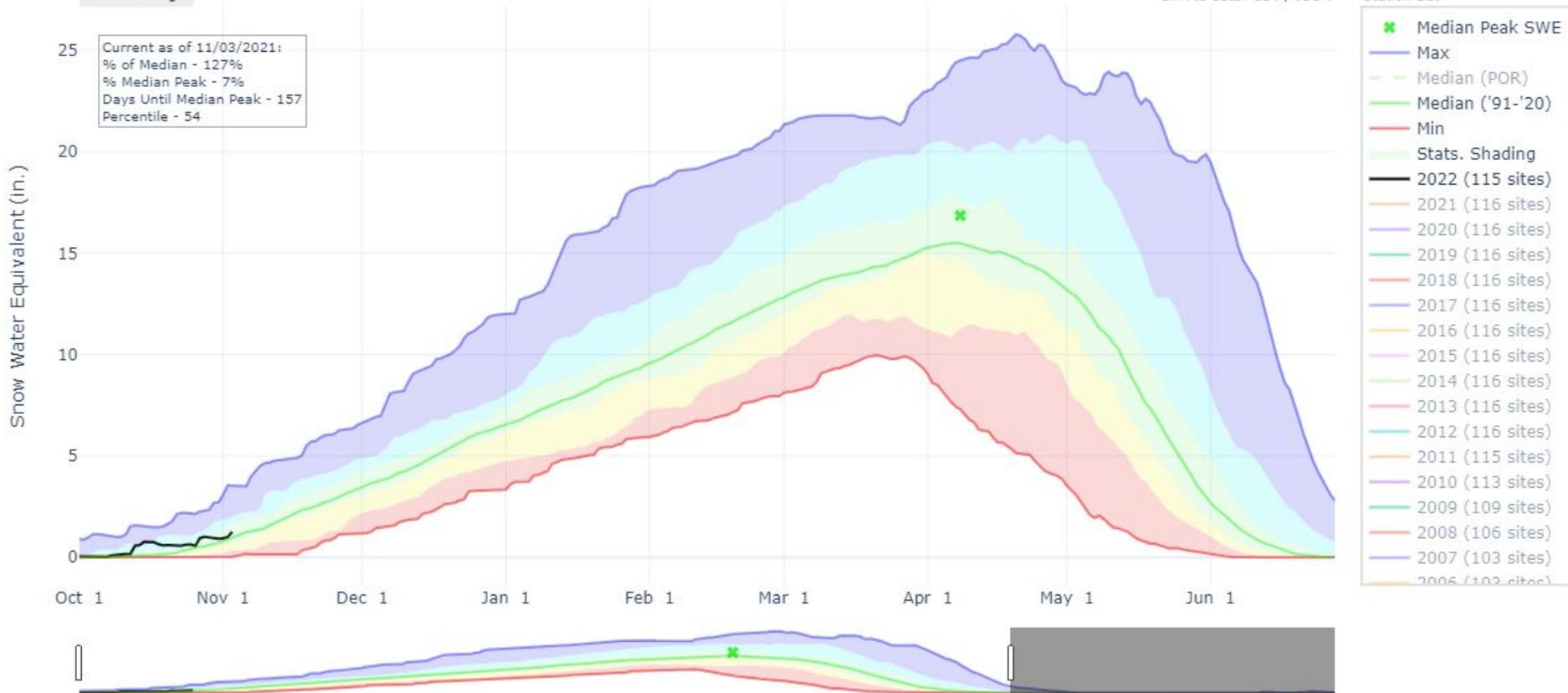
SNOW WATER EQUIVALENT IN STATE OF COLORADO

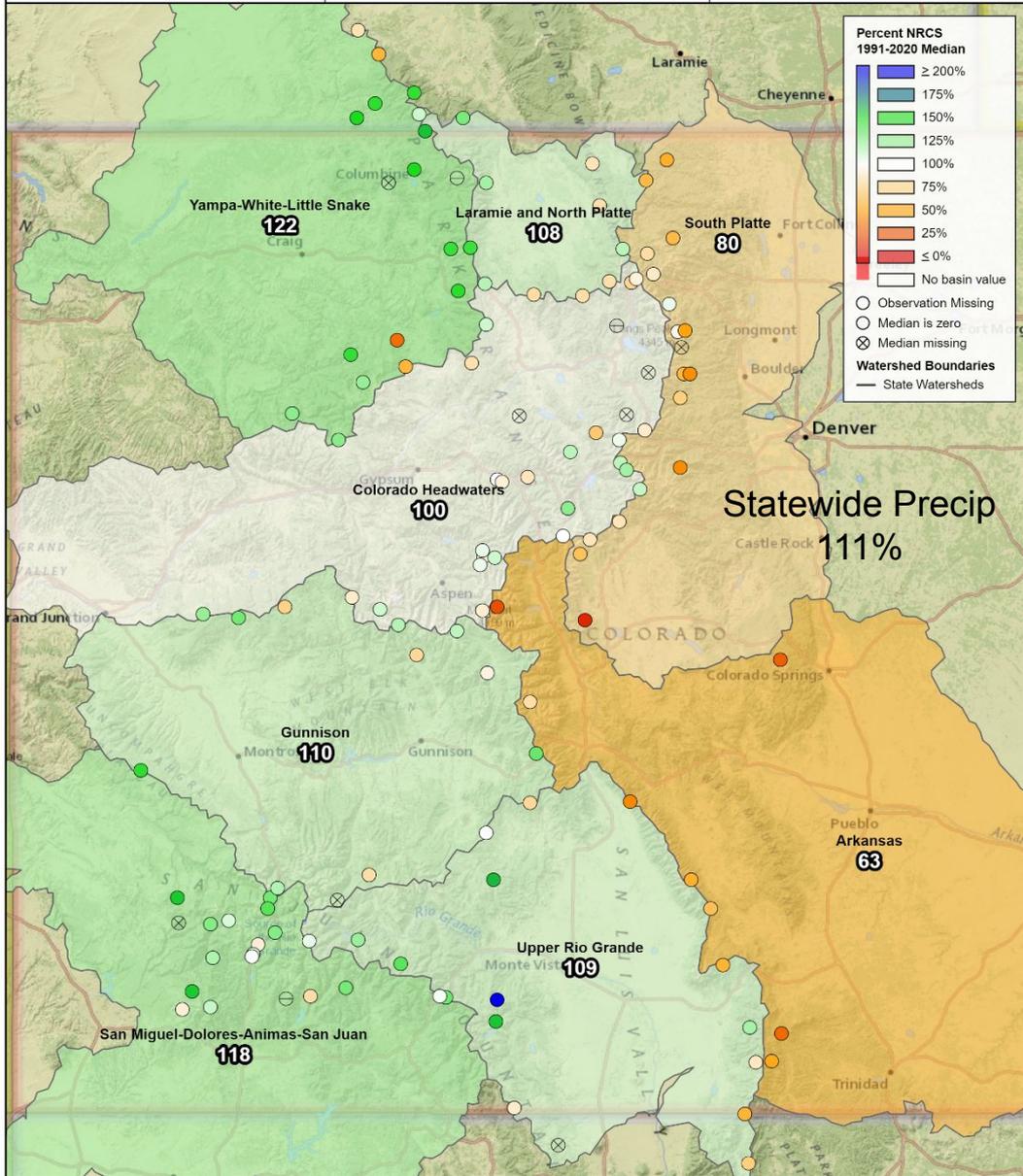
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 Percentile - 54





Colorado Snow Surveys

Statewide End Of Year Precip as a % of Median



2020 Statewide Year End Precip

PRECIPITATION IN STATE OF COLORADO

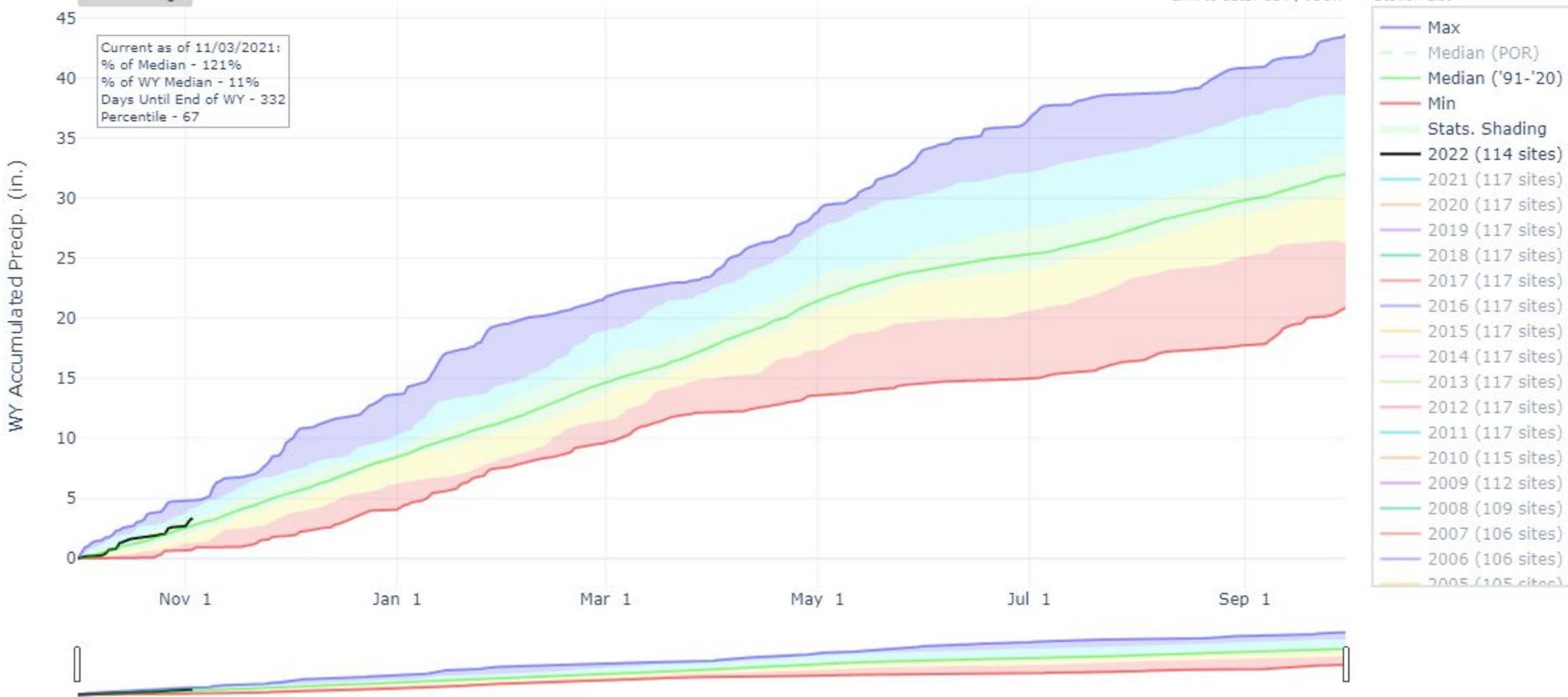
Reset Range

[Link to data: CSV / JSON](#)

Station List

Current as of 11/03/2021:
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 % of WY Median - 11%
 Days Until End of WY - 332
 Percentile - 67

- Precip is in 74st percentile
- Ranked 8th of 36 Year POR

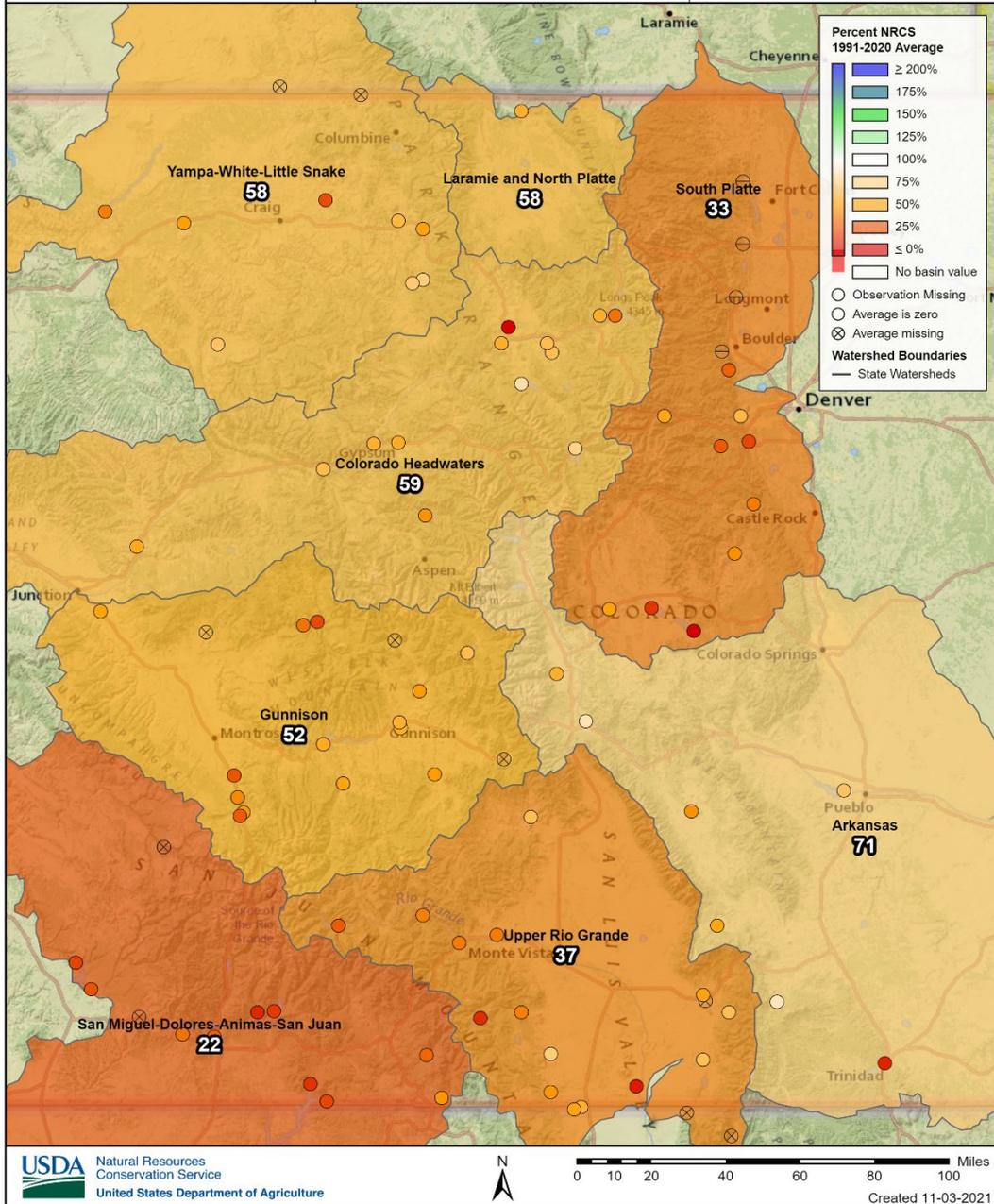


1 month Adjusted Volume, Observed

Oct 2021 StrmFlw

October 1, 2020 - October 31, 2020

Percent NRCS 1991-2020 Average



Colorado Snow Surveys

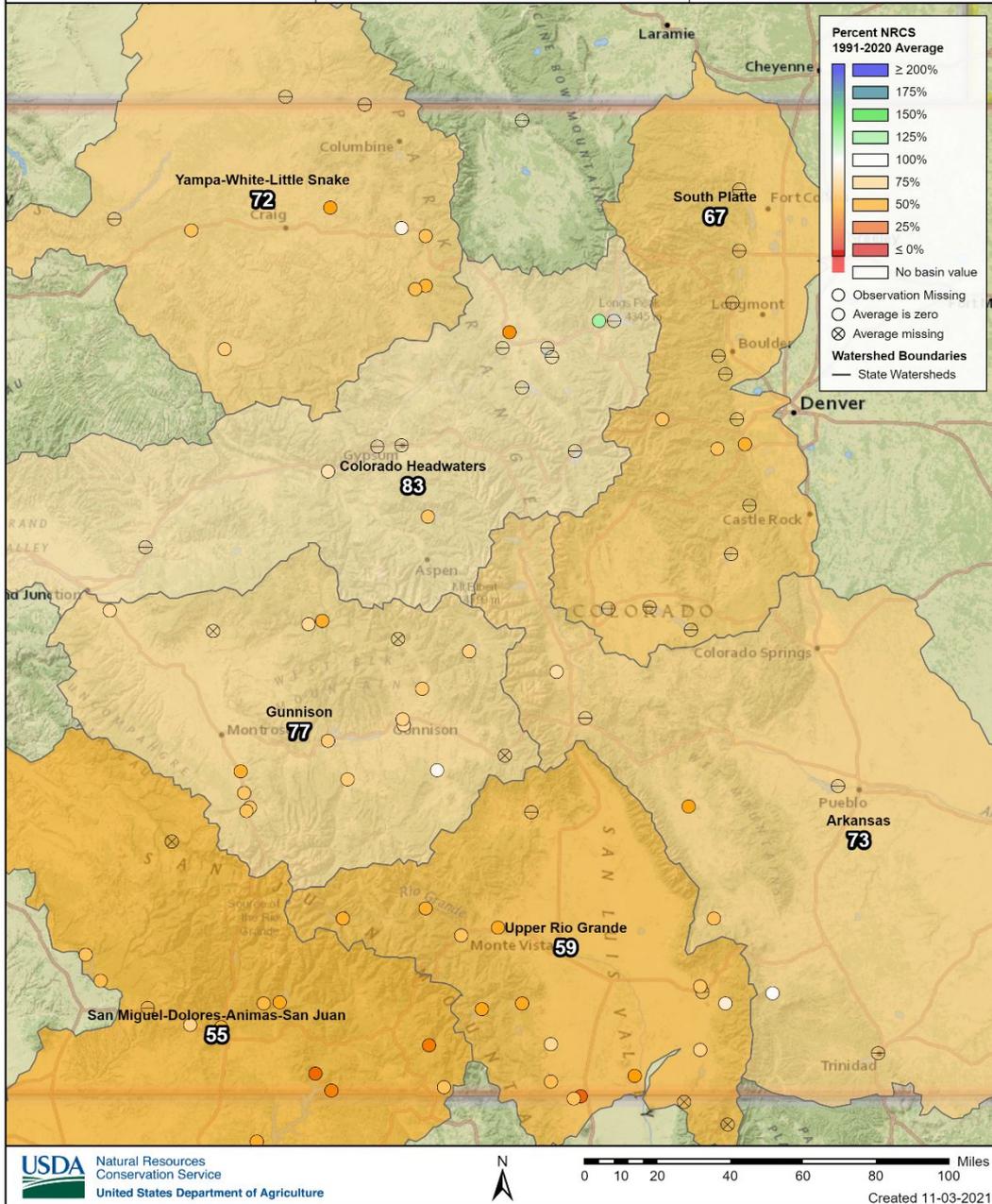
Oct 1, 2020
Volumetric
Streamflow as an
Indicator of
Baseflow Leading
Into Winter 2021

1 month Adjusted Volume, Observed

Oct 2021 StrmFlw

October 1, 2021 - October 31, 2021

Percent NRCS 1991-2020 Average



Colorado Snow Surveys

Oct 1, 2021
Volumetric
Streamflow as an
Indicator of
Baseflow Leading
Into Winter 2022

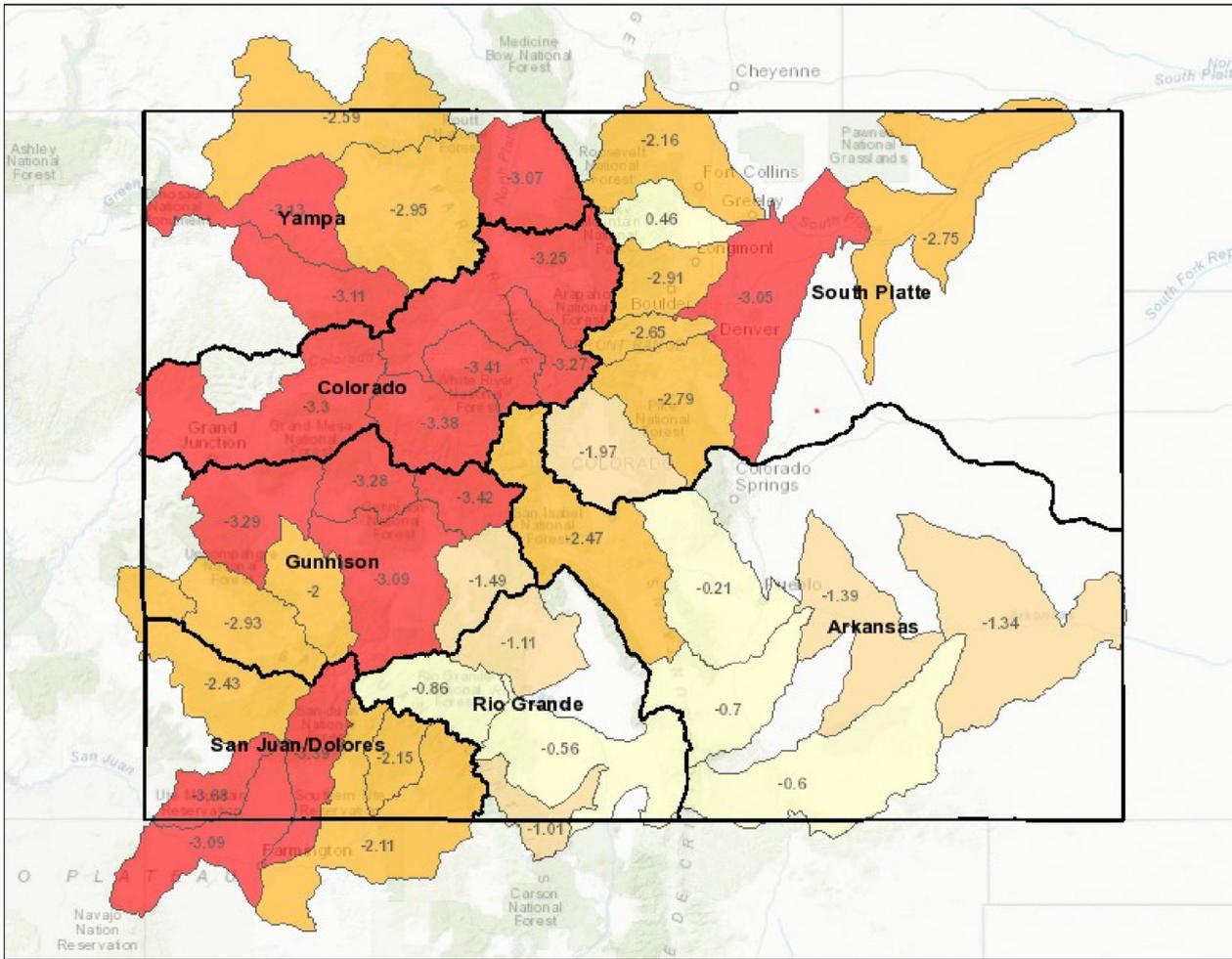
Current streamflows are considerably better than last year at this time, but still not quite average.



February 1, 2020 SWSI

COLORADO
Division of Water Resources
Department of Natural Resources

SWSI February 1, 2021



Legend

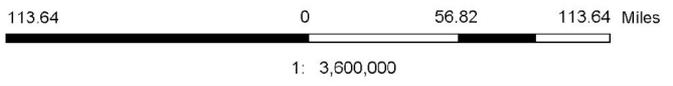
SWSI - Current Report

- SWSI Not Applicable (-99.99)
- Extremely Dry (-3.0 to -4.2)
- Moderately Dry (-2.0 to -2.5)
- Slightly Dry (-1.0 to -1.9)
- Near Average (-0.9 to 0.9)
- Slightly Wet (1.0 to 1.9)
- Moderately Wet (2.0 to 2.9)
- Extremely Wet (3.0 to 4.2)

Water Division



Notes



This product is for informational purposes and may not have been prepared for, or be suitable for, legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.

Date Prepared: 2/16/2021 7:56:27 AM



Summary

- Current conditions at this point leading into winter are better than last year at this point in terms of
 - Snowpack
 - And most particularly Precipitation and Streamflow – Indicators of soil moisture
 - Snowpack at 126% of median
 - Precipitation at 120% of median
- New normals are published and available for comparison
- Products will be changing somewhat both in appearance and in web links
- If you need any assistance don't hesitate to reach out to us



Input and Feedback Welcome

- What did you like or not like about the maps and graphs I showed today?
- What is missing?



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