



2021 WFO ABQ Flood/Flash Flood Warning Count



81 Flash Flood Warnings



1 Flood Warning: Chaves County August 14th



629 Arroyo & Small Stream Flood Advisories

Hydrologic Summary:

2021 started off the water year with several early season winter storms with healthy rain and snow across much of northern NM. The storm track drifted away from the region toward mid winter then warmer and drier weather dominated the area by the spring. Statewide snowpack remained below normal by March 2021 and much of the spring runoff was absorbed by the ground or what did make it into the watershed was modest and brief. The summer monsoon was robust in many areas but the coverage was just not enough to overcome a multi-year drought gripping the region. Drought conditions did improve but a very dry and warm fall season forced the state back into deteriorating drought conditions by early winter. The following slides summarize a few key elements of our hydrologic system for 2021.

New Senior Service Hydrologist- Andrew Mangham

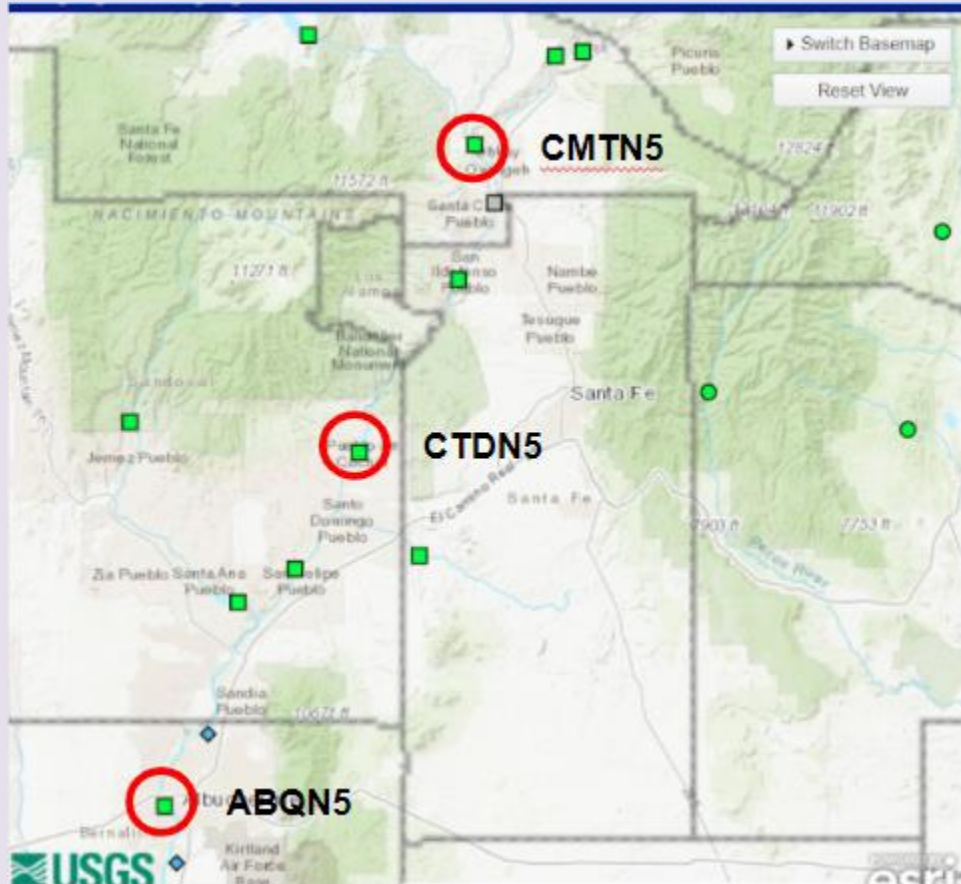
Four+ years in the National Weather Service

Started as a Hydrologist at the North Central River Forecast Center in Chanhassen, MN

Excited to be living in the Southwest and working more closely with clients and partners



Three Rio Grande Forecast Points Changed to Routine Daily Forecasts by the West Gulf River Forecast Center



The City of Albuquerque Office of Emergency Management is interested in having greater situational awareness of potential flood hazards within Albuquerque. Specifically, they requested routine daily forecasts for the Rio Grande at Albuquerque. However, as the flows at Albuquerque are strongly influenced by human controls upstream we identified two more points where routine daily forecasts would be helpful.

In coordination with Southern Region and the West Gulf River Forecast Center we upgraded the following forecast points to daily forecasts.

CMTN5: Rio Chama near Chamita, representative of outflows from Abiquiu Dam

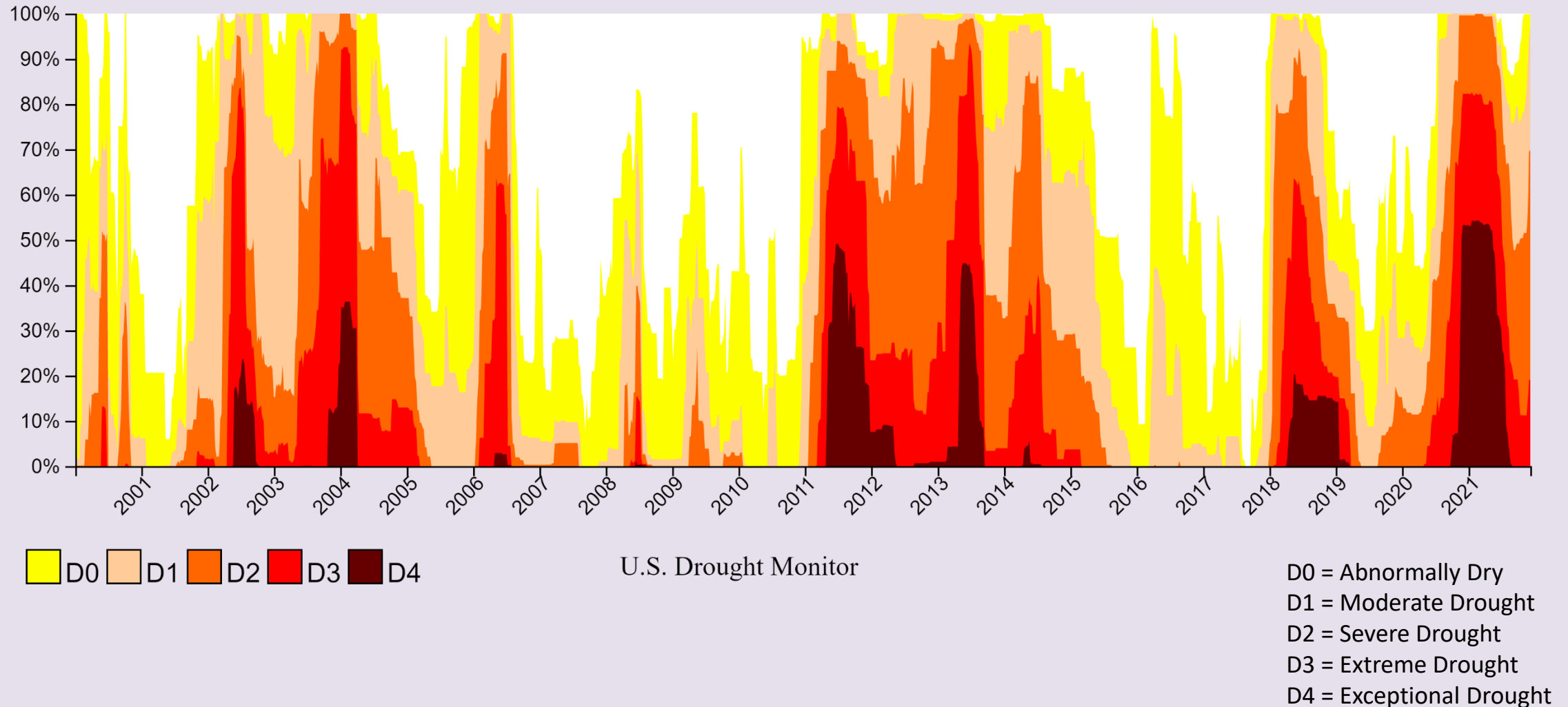
CTDN5: Rio Grande above Cochiti Pueblo, representative of outflows from Cochiti Dam

ABQN5: Rio Grande at Albuquerque

These are initial efforts aimed at improving hydrologic services in New Mexico. We are planning further outreach to counties and municipalities to identify more opportunities.

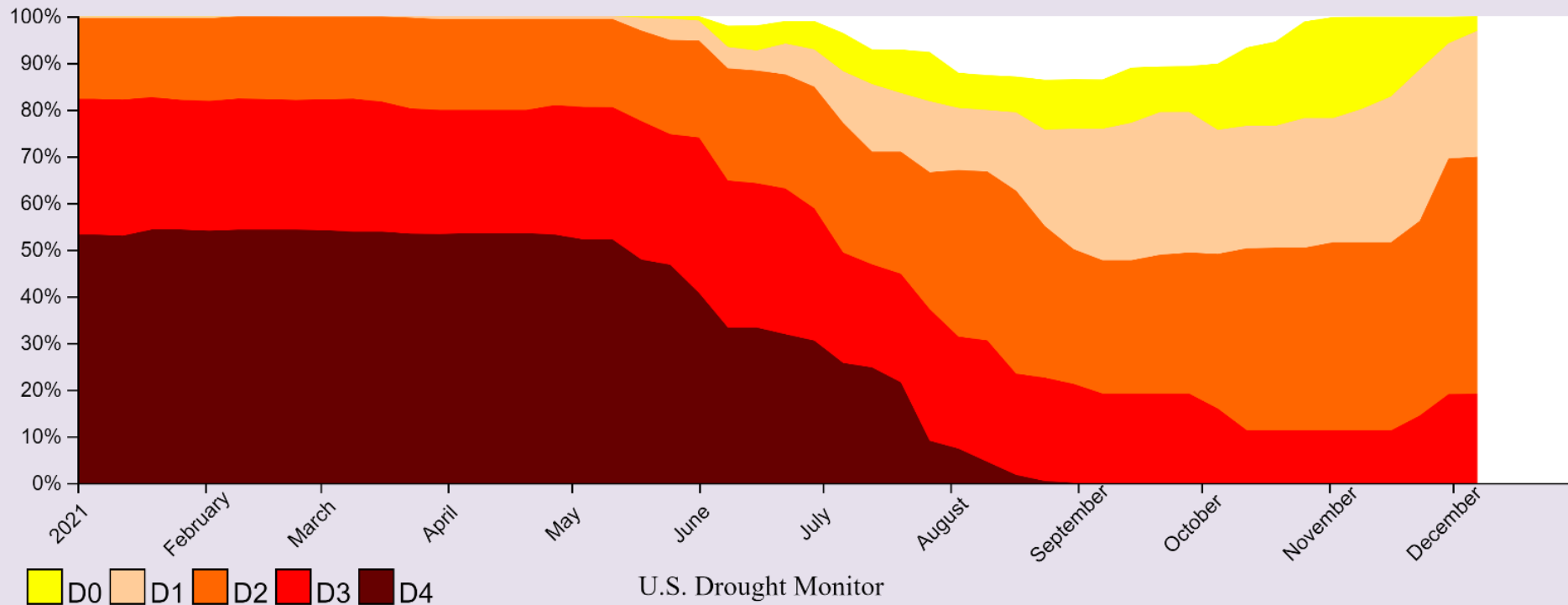


The chart below illustrates the progression of drought within New Mexico dating back to 2000. The coverage of exceptional drought conditions was greatest in 2011-2012 and during 2020-2021.





The chart below illustrates the progression of drought within NM during 2021 for the 5 drought categories. Greater than 50% of the state was in the worse category, exceptional drought, through May 2021.

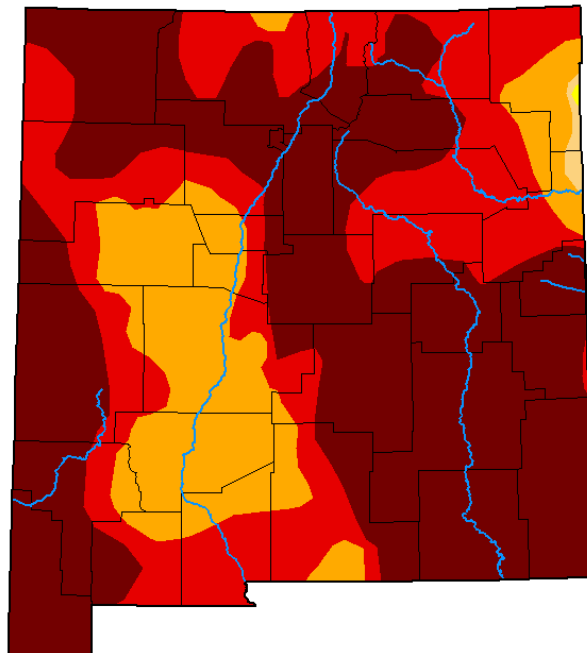


D0 = Abnormally Dry
 D1 = Moderate Drought
 D2 = Severe Drought
 D3 = Extreme Drought
 D4 = Exceptional Drought



Exceptional drought covered much of the state from January to May until improvements occurred over the summer months. Conditions began deteriorating by late fall as above normal temperatures and very dry conditions persisted through early winter.

U.S. Drought Monitor New Mexico



January 5, 2021
(Released Thursday, Jan. 7, 2021)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	99.96	99.59	82.26	53.20
Last Week 12-31-2020	0.00	100.00	99.97	99.59	82.26	53.20
3 Months Ago 10-08-2020	0.00	100.00	99.94	76.30	45.01	6.82
Start of Calendar Year 12-31-2020	0.00	100.00	99.97	99.59	82.26	53.20
Start of Water Year 10-01-2020	0.00	100.00	99.92	73.65	39.88	2.90
One Year Ago 01-09-2020	50.16	49.84	28.32	12.75	0.00	0.00

Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

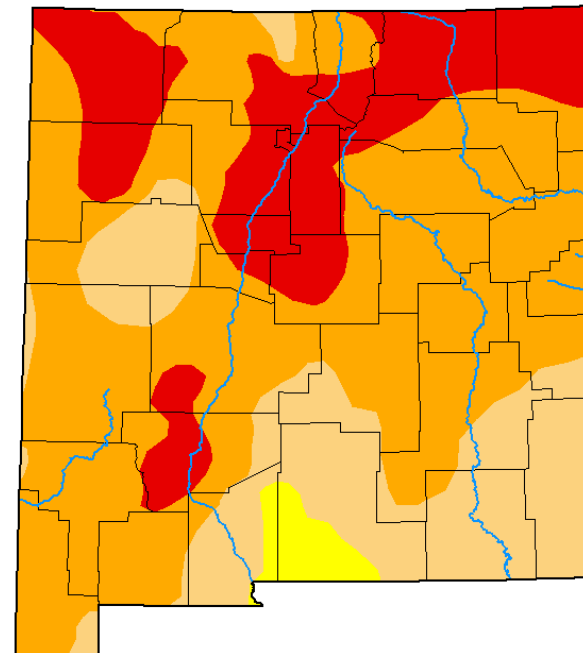
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

Author:
Deborah Bathke
National Drought Mitigation Center



droughtmonitor.unl.edu

U.S. Drought Monitor New Mexico



December 28, 2021
(Released Thursday, Dec. 30, 2021)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	97.79	75.72	20.91	0.00
Last Week 12-21-2021	0.00	100.00	97.91	69.91	22.94	0.00
3 Months Ago 09-28-2021	10.70	89.30	79.47	49.33	19.12	0.00
Start of Calendar Year 12-29-2020	0.00	100.00	99.97	99.59	82.26	53.20
Start of Water Year 09-28-2021	10.70	89.30	79.47	49.33	19.12	0.00
One Year Ago 12-29-2020	0.00	100.00	99.97	99.59	82.26	53.20

Intensity:

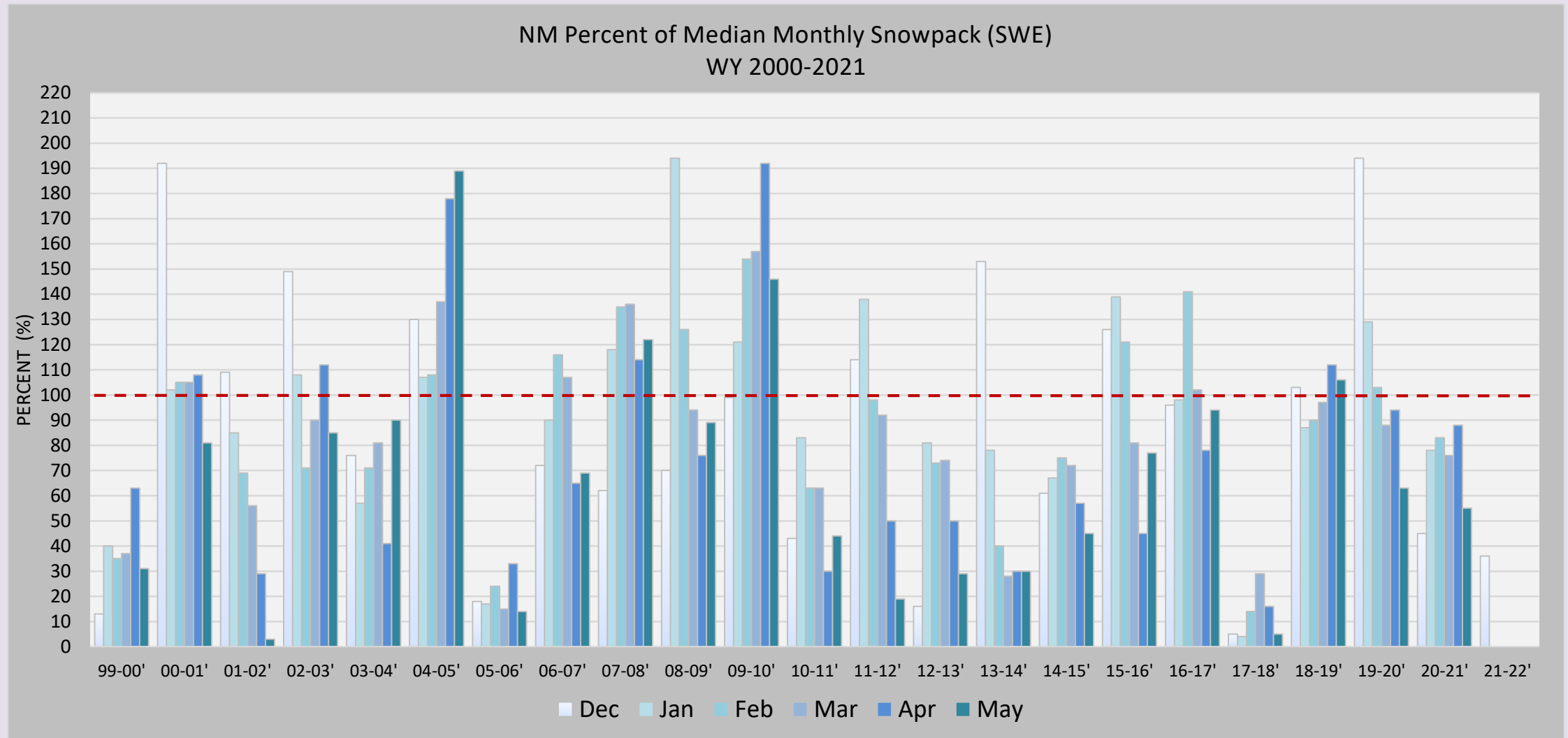
- None
- D0 Abnormally Dry
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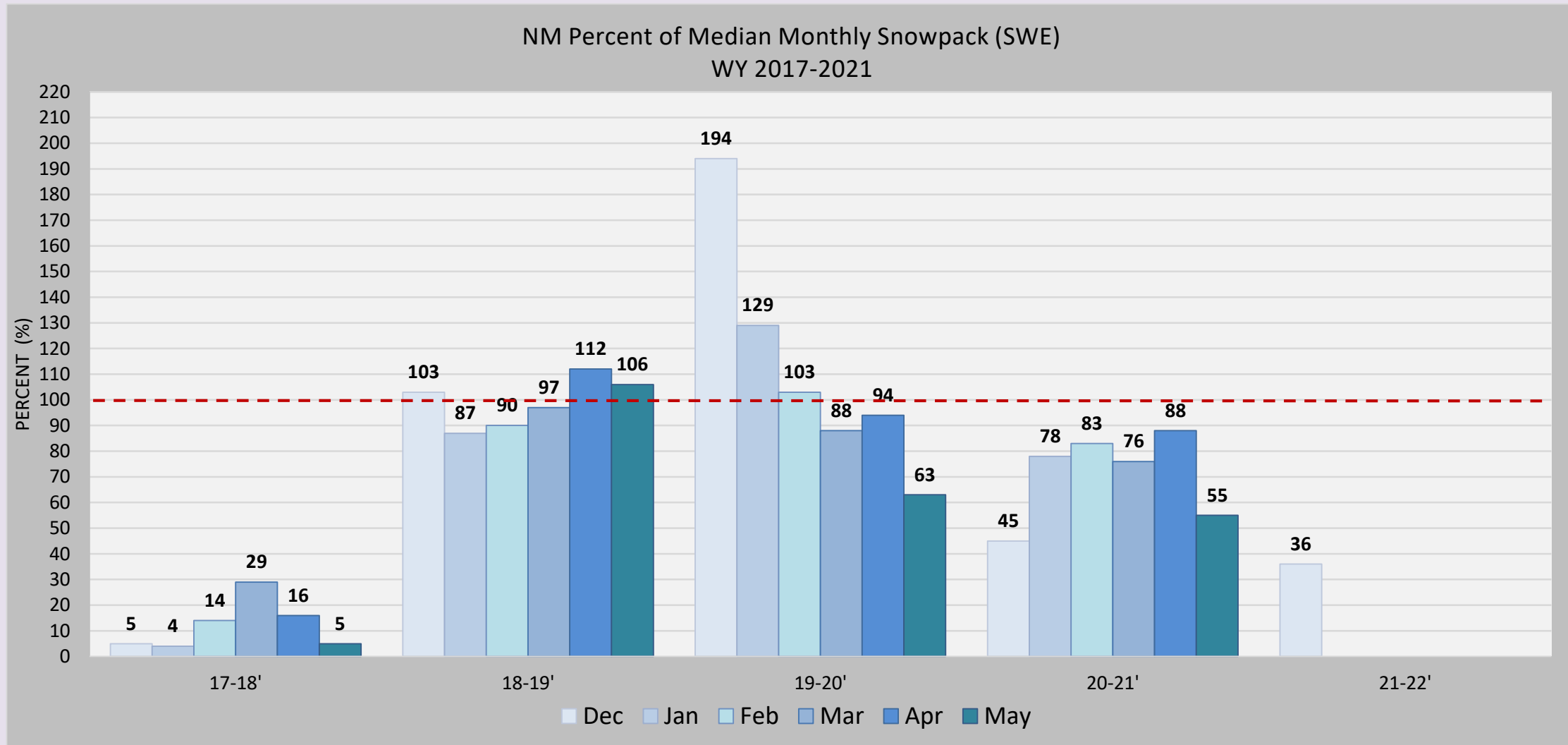
Author:
Brad Pugh
CPC/NOAA



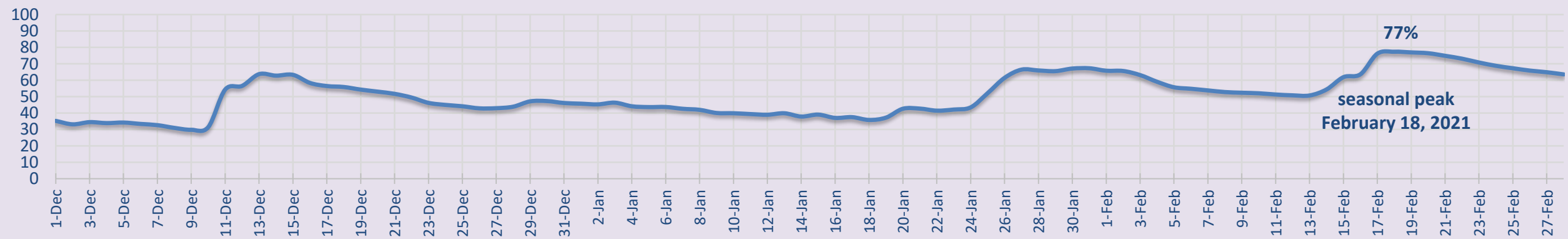
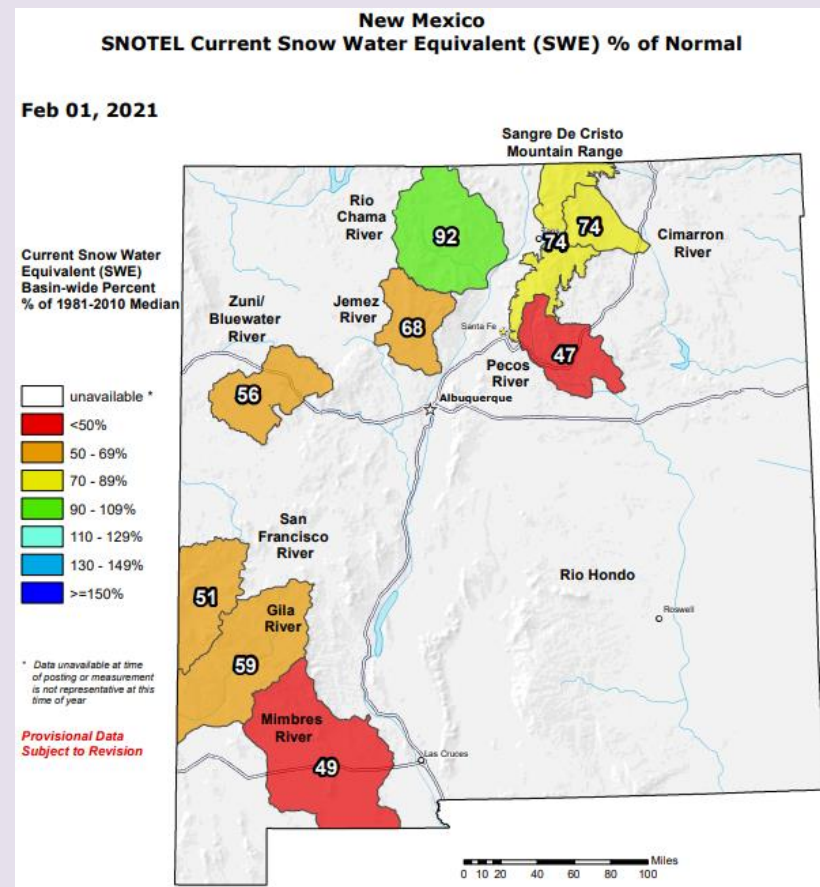
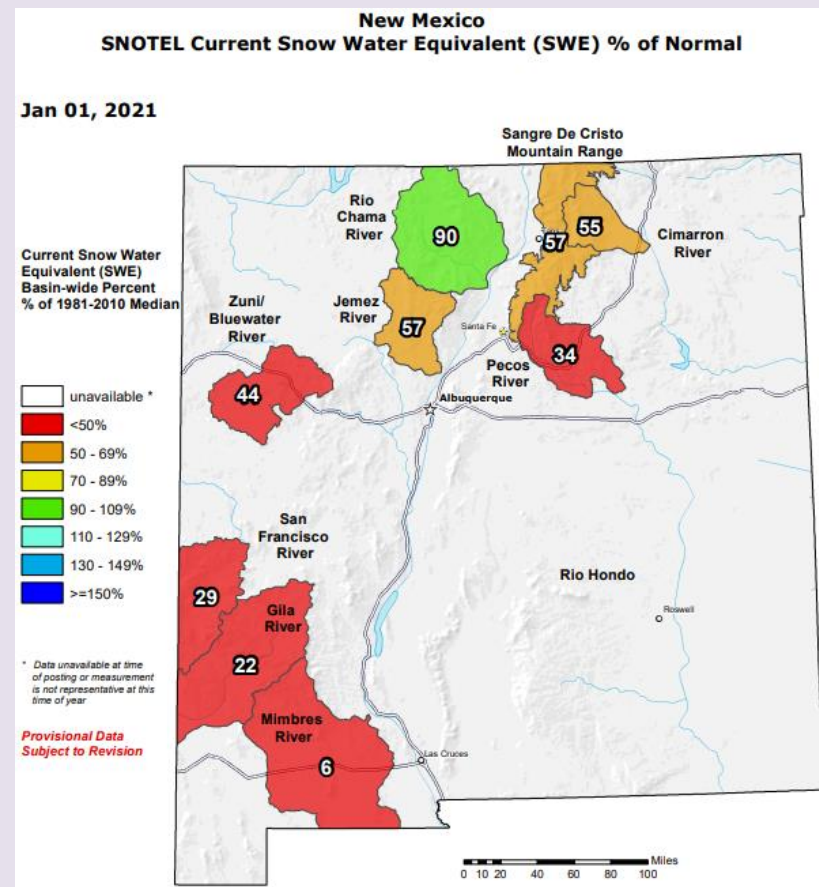
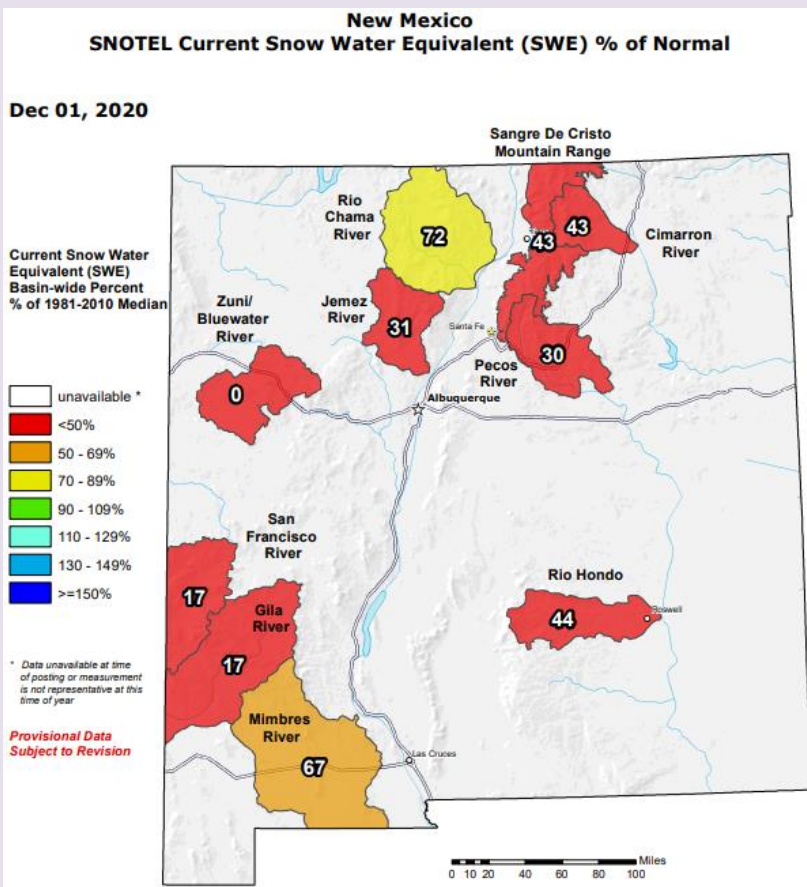
droughtmonitor.unl.edu

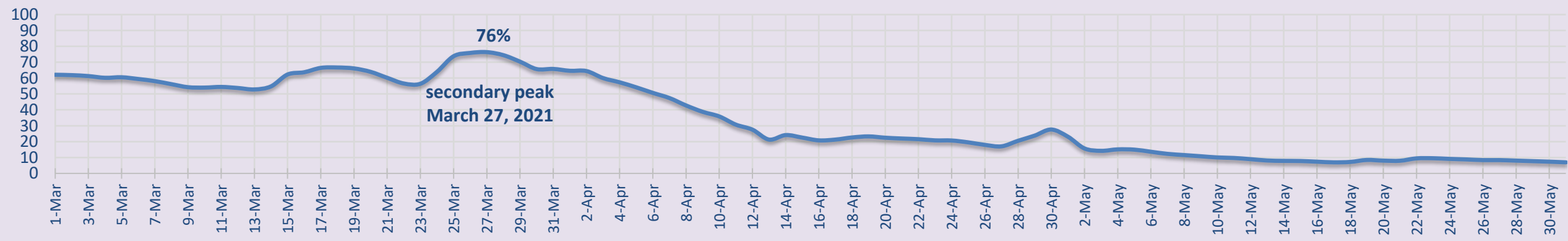
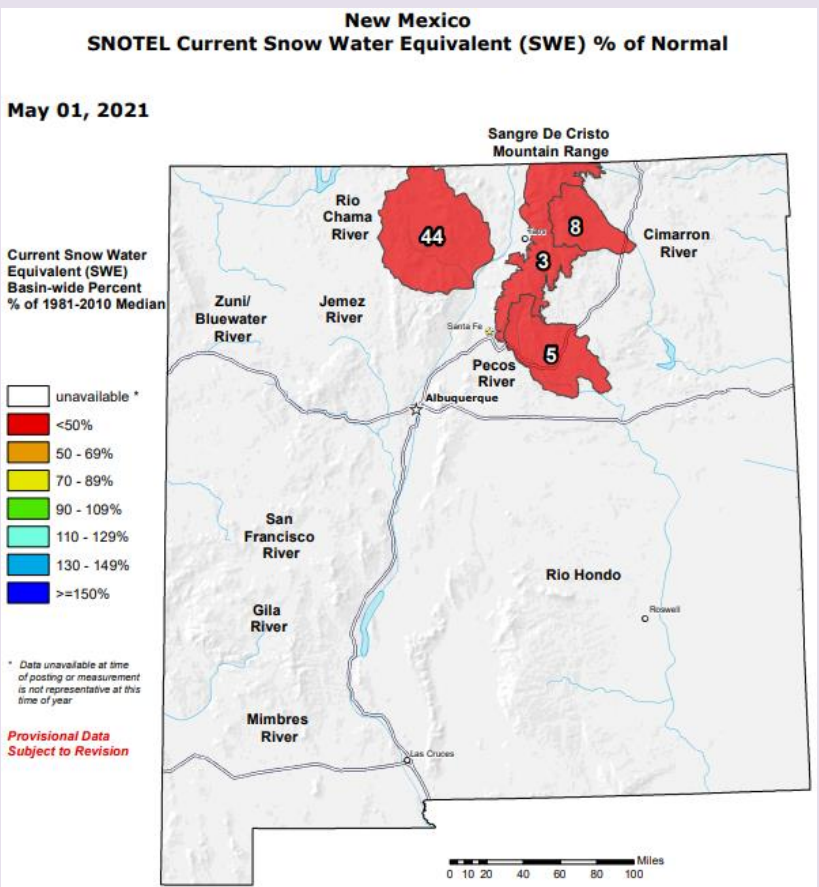
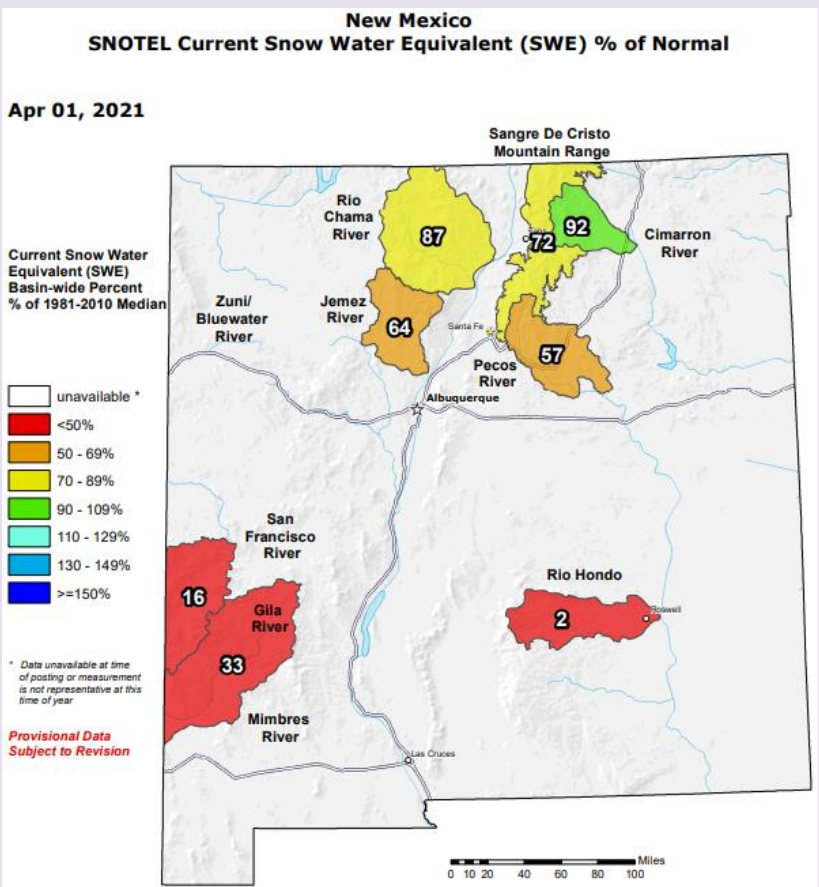
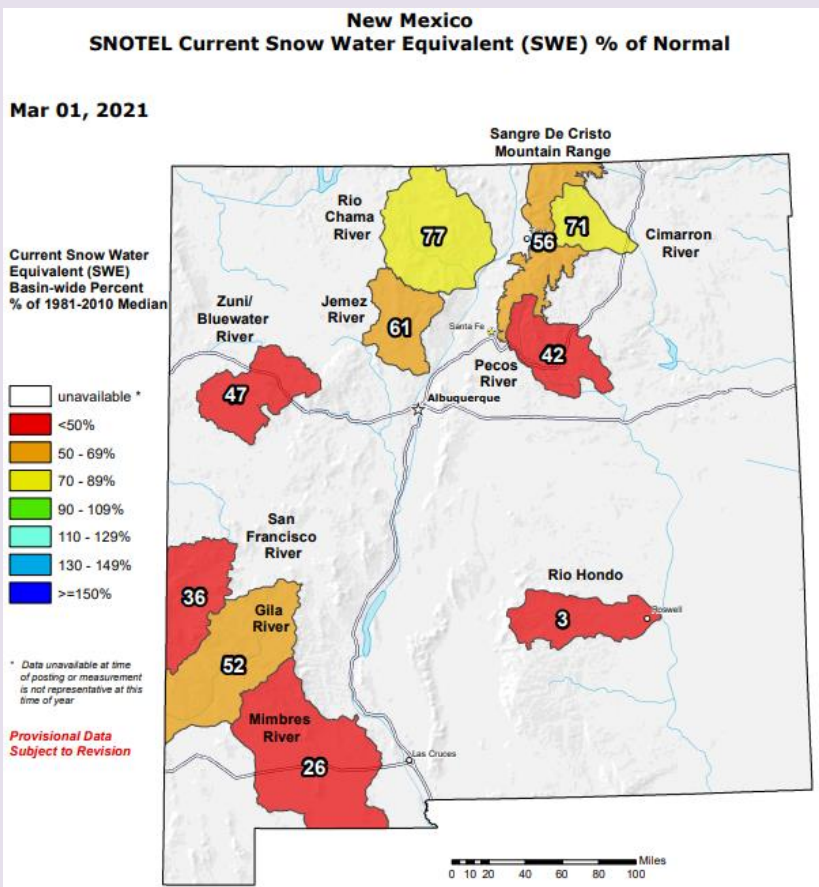


The chart above shows the percent of median monthly snow water equivalent (SWE) since 2000 for NM (1981-2010 climatology). The past 22 winter seasons have seen considerable variability with overall below median snowpack most years. Of the 133 months illustrated above, only 33% have seen above median SWE. The expansive drought from 2010 to 2015 resulted in significant drawdown of reservoirs with modest recovery still struggling after the atrocious 2017-2018 season.



The chart above is the same as slide five but for 2018 to 2021. The 2017-2018 season was practically snow-free most of the time in many areas. The following 2018-2019 season made a big comeback with close to median snowpack through the entire season. 2019-2020 started out great then trailed off by late spring. 2020-2021 was fair while the 2021-2022 season was off to a poor start in December. At this point, significant reservoir recovery will require several back-to-back years of robust snowfall.

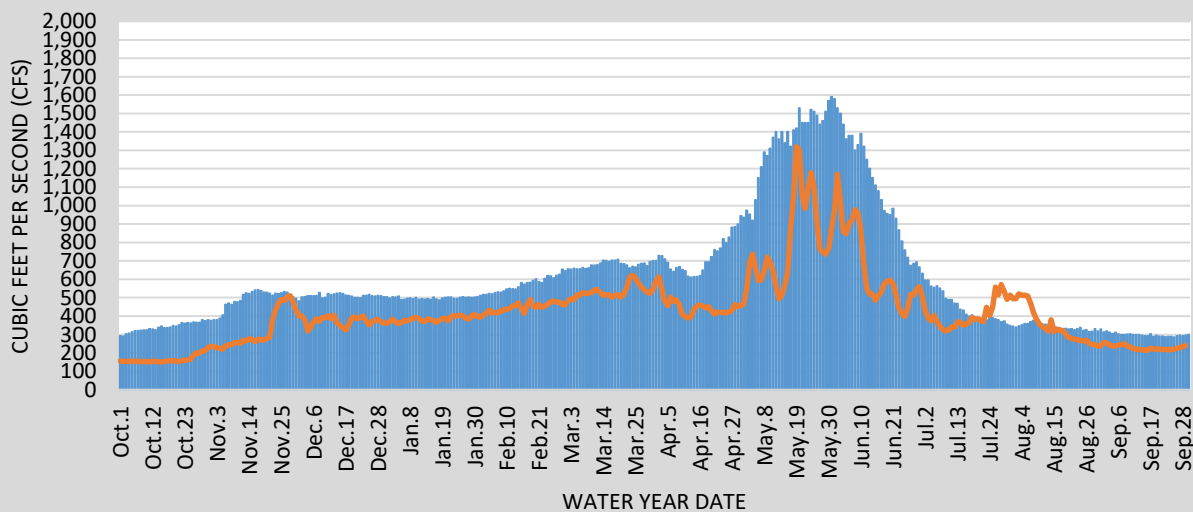




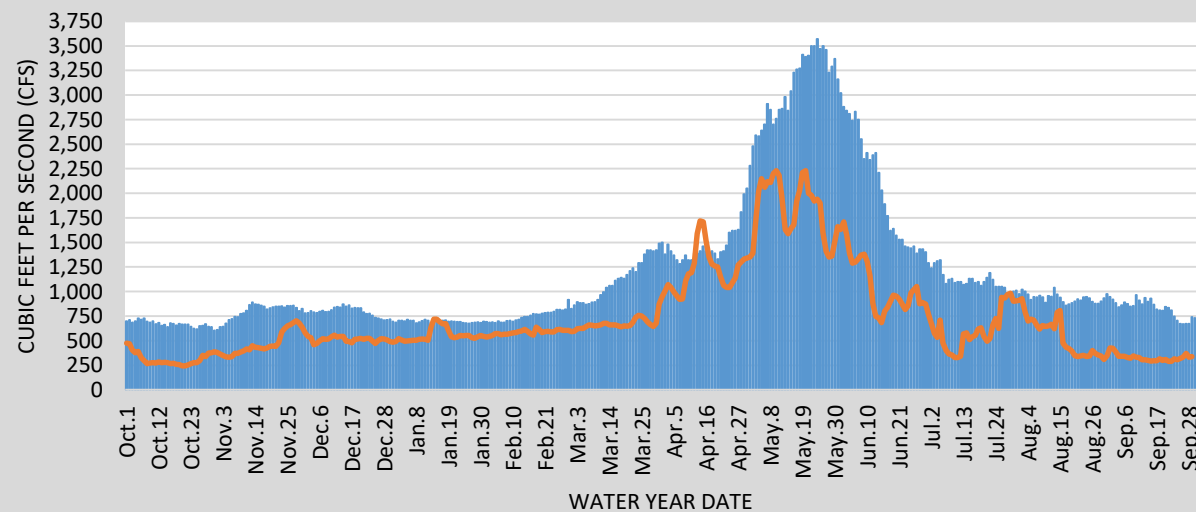


The charts below shows the median daily discharge for the time period listed at select river gages compared to the 2021 discharge (orange). The area under the curve is analogous to the overall volume of water passing by the gage throughout the season. A “skinnier” discharge curve like 2021 indicated a much lower volume of water passed by the gage compared to the long-term median. A secondary peak was observed at several gage locations in late July during the heart of the active 2021 monsoon season. (It is worth noting to pay special attention to the scale of the vertical axis on each chart as the peak discharge varies considerably between the various stations shown on slides 9 and 10.)

Rio Grande at Embudo
Median Discharge (cfs) 1930-2021 & Mean Discharge 2021

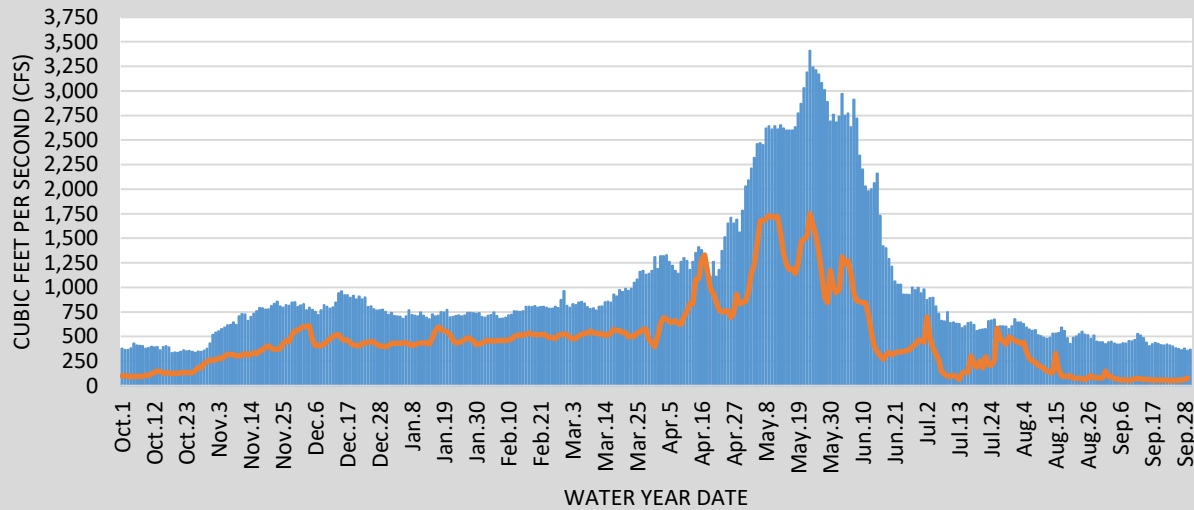


Rio Grande at Otowi Bridge
Median Discharge (CFS) 1970-2021 & Mean Discharge 2021

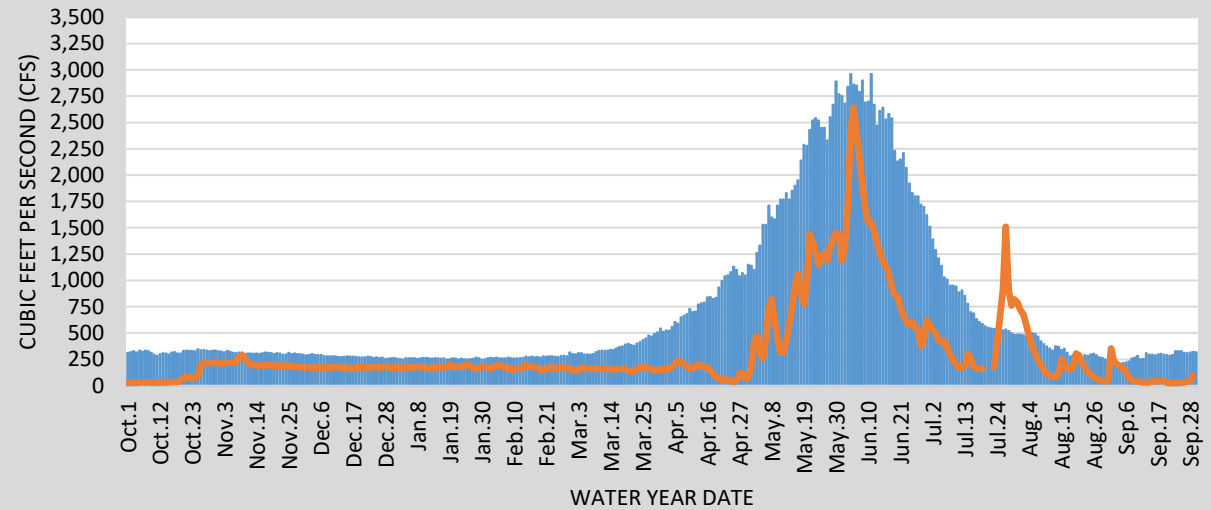




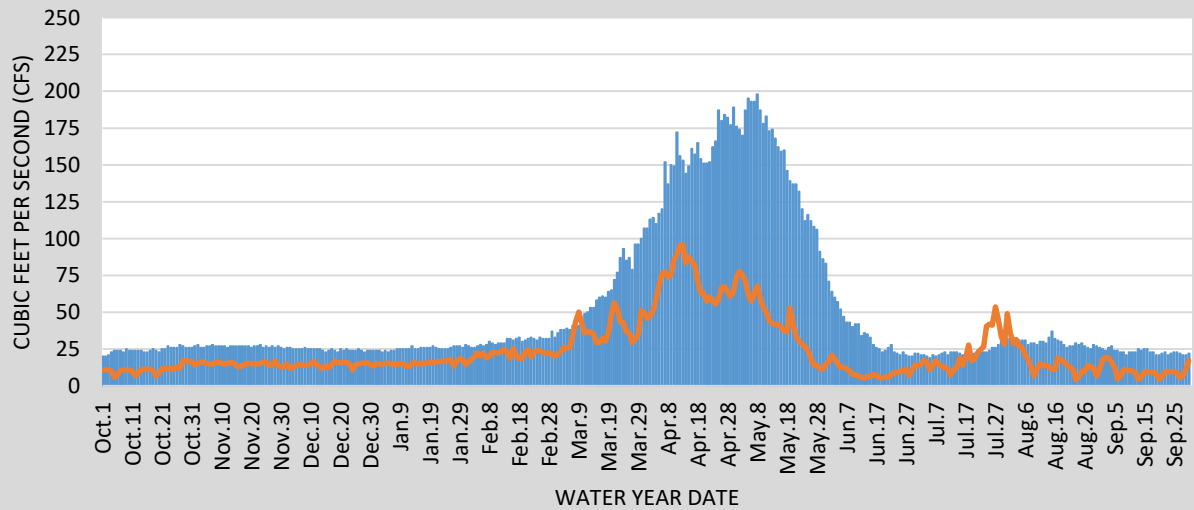
Rio Grande at Albuquerque
Median Discharge (cfs) 1973-2021 & Mean Discharge 2021



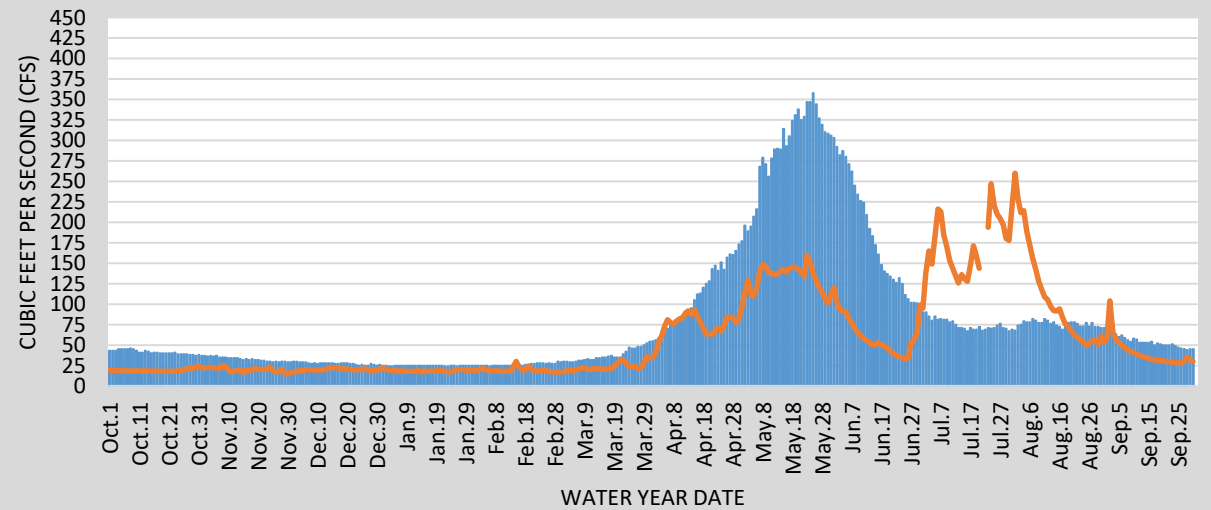
Animas River at Farmington
Median Discharge (CFS) 1913-2020 & Mean Discharge 2021

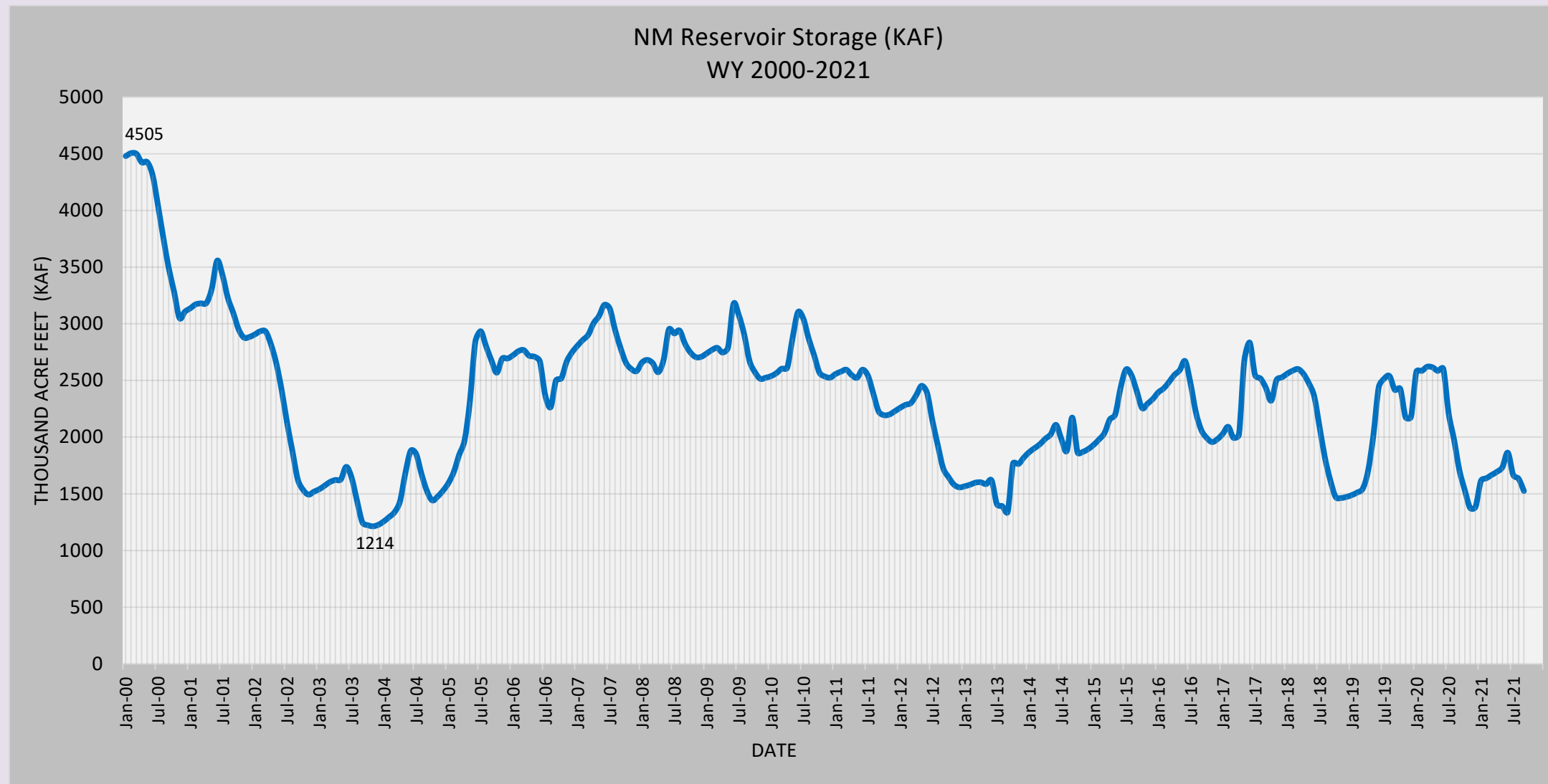


Jemez River near Jemez
Median Discharge (cfs) 1953-2021 & Mean Discharge 2021

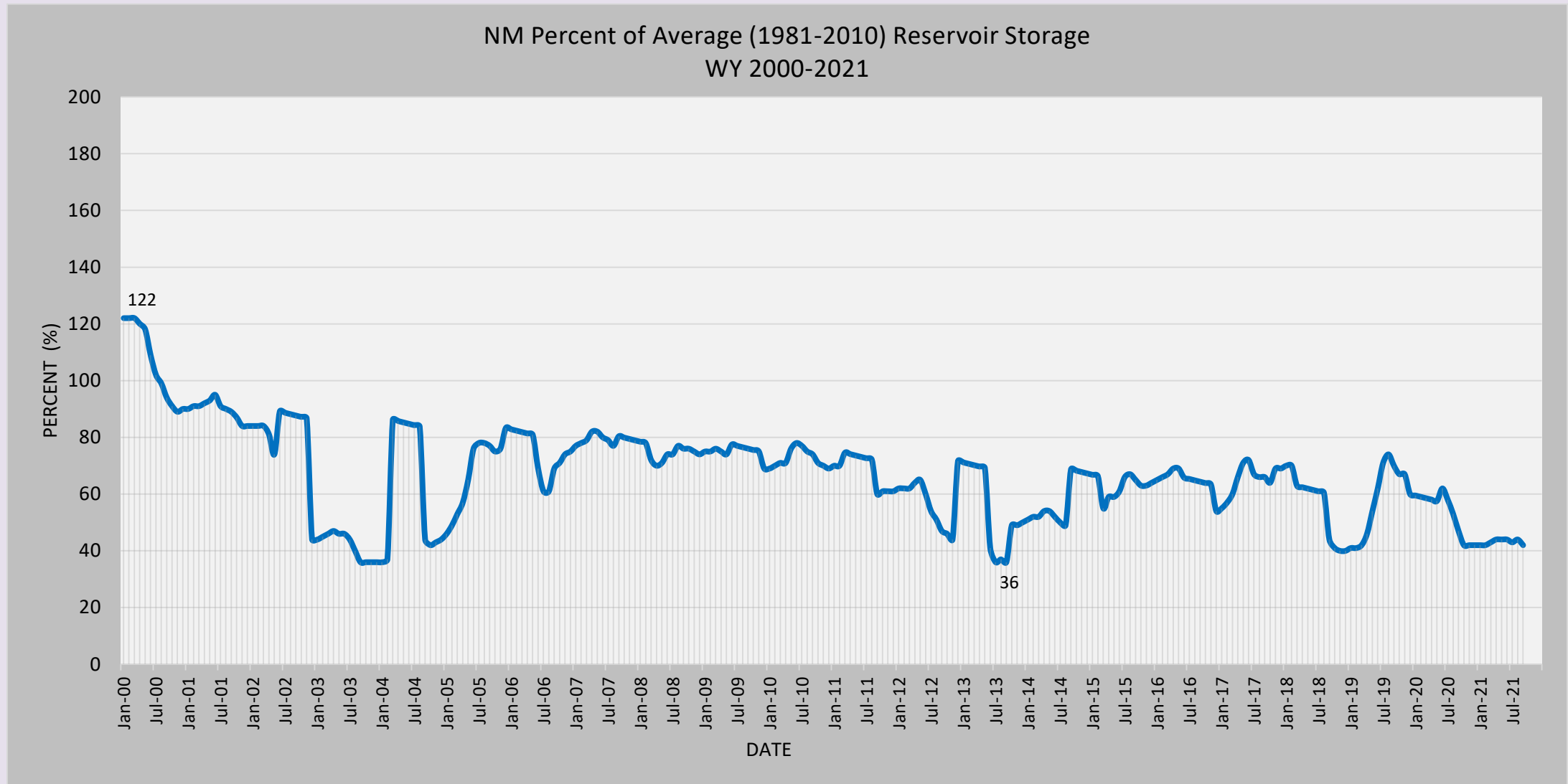


Pecos River near Pecos
Median Discharge (cfs) 1919-2021 & Mean Discharge 2021





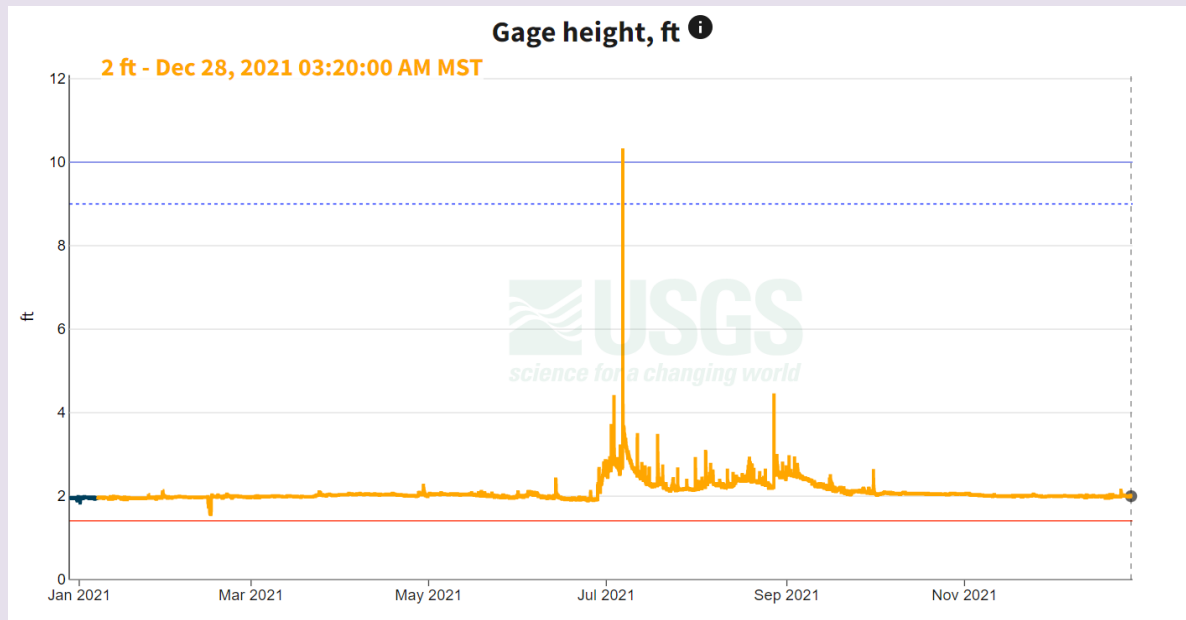
Reservoir storage in New Mexico trended slightly higher in early 2021 then fell sharply by the end of the year. The maximum value observed in 2021 was 1863 kAF (thousand acre feet) in June and the minimum value was 1583 kAF in September. The lowest value observed since 2000 was 1214 kAF in November 2003.



Reservoir storage in New Mexico trended lower through 2021. Values near 40% of average are similar to some of the lowest levels that occurred in 2018-2019, 2013, and during 2003-2004. The lowest value observed since 2000 was 36% in September 2013.

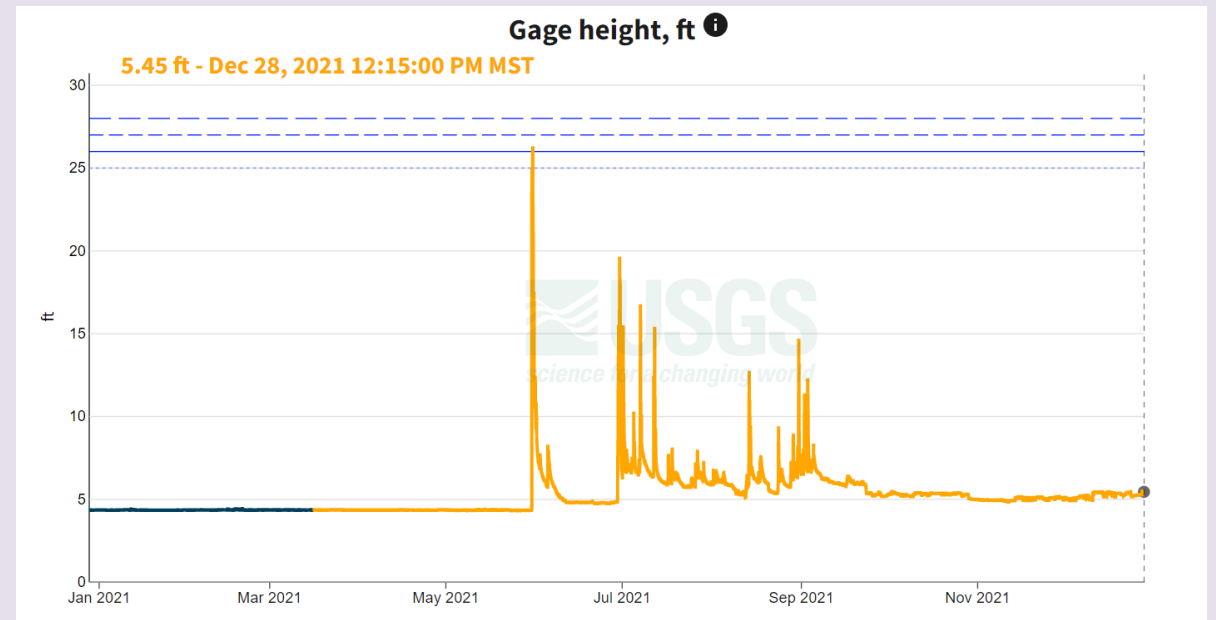
Pecos River Basin

RUHN5 - Rio Ruidoso at Hollywood



10.3' June 6th: Minor

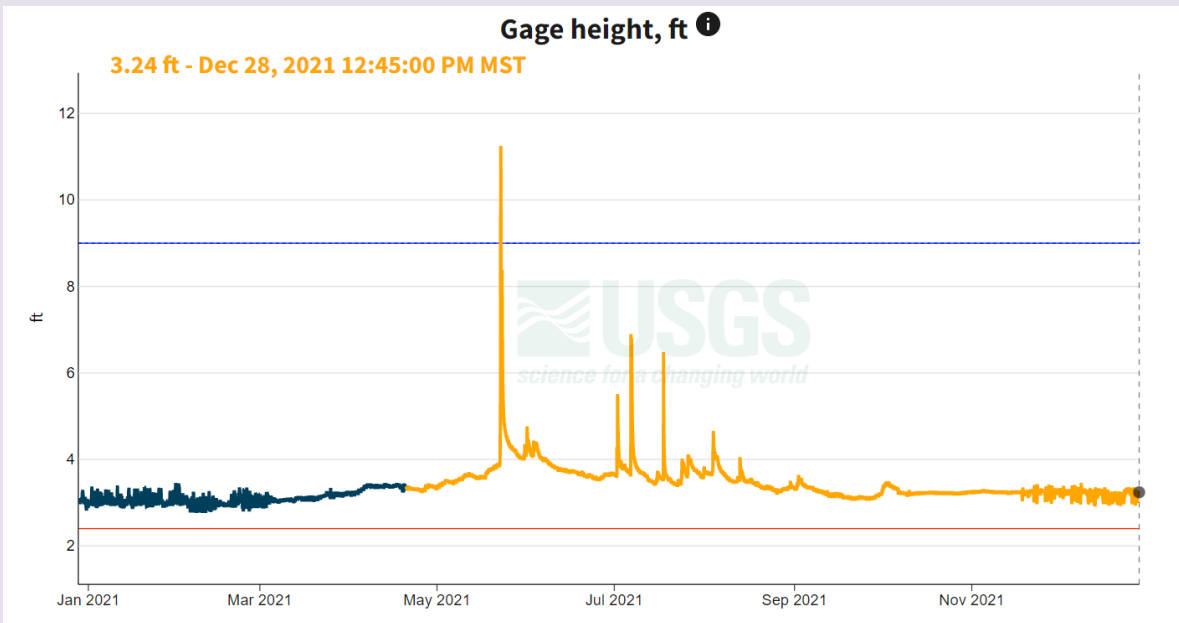
DARN5 - Rio Hondo above Roswell



26.3' May 30th: Minor
Associated with levee break that caused significant damage in Roswell.

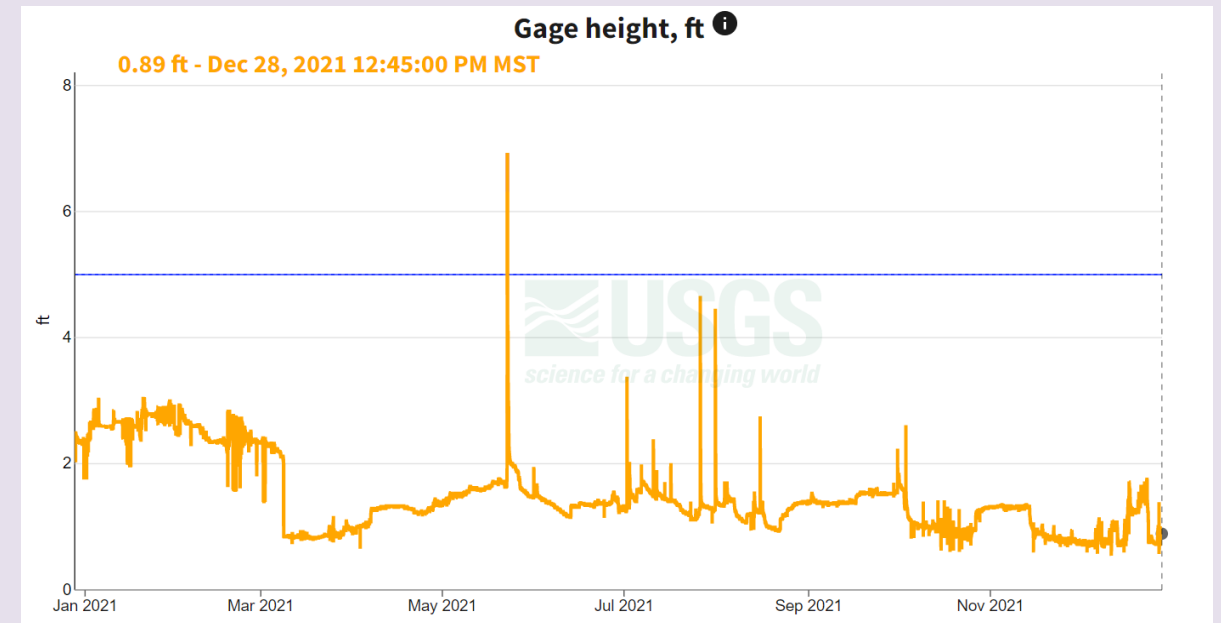
Arkansas River Basin

DAWN5 - Vermejo River near Dawson



10.69' May 23rd: Action/Minor

CMMN5 - Cimmaron River near Cimmaron

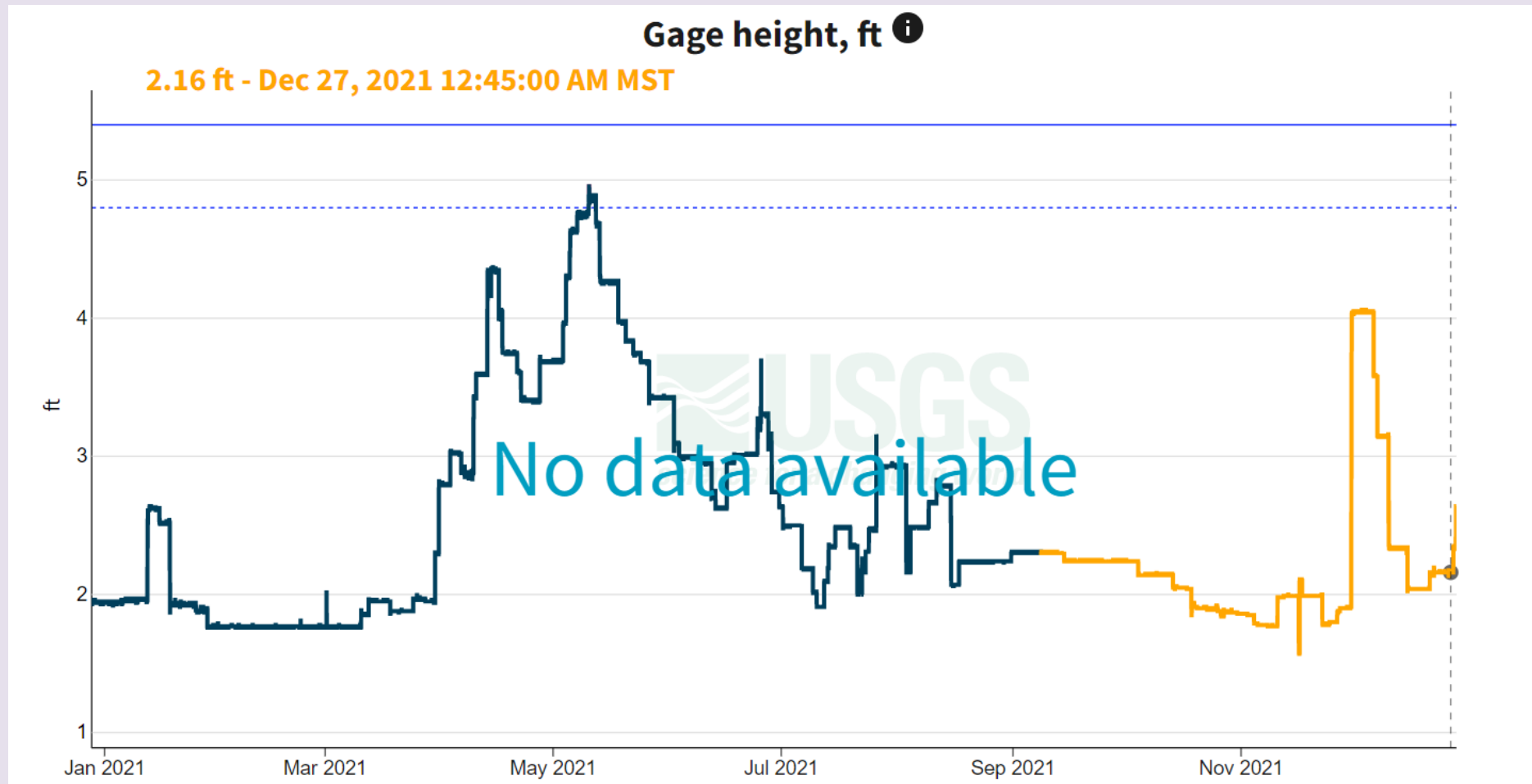


7.0' May 23rd: Action/Minor



Rio Grande Basin

AICN5 – Rio Chama below Abiquiu



4.9' May 10th: Action



[USGS Water Dashboard](#)



[NM Water Data Dashboard](#)



[US Drought Monitor](#)



[NM Drought Status](#)



[USGS Water Data](#)



[USGS Groundwater Watch](#)



[City of Albuquerque Groundwater Monitoring](#)



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