

# HUP Meeting

## 2021 Wrap Up

## 2022 Outlook

Cody Moser, Hydrologist  
Colorado Basin River Forecast Center

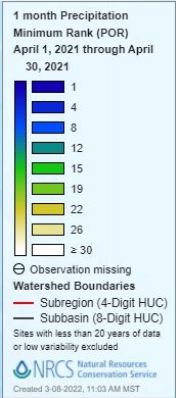
March 9, 2022



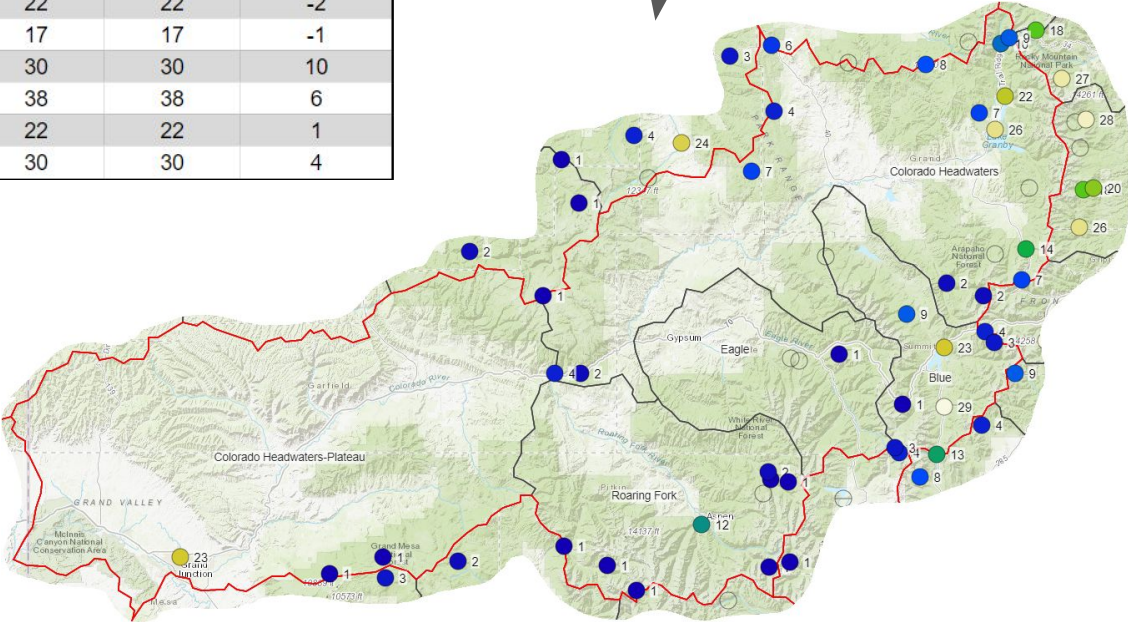
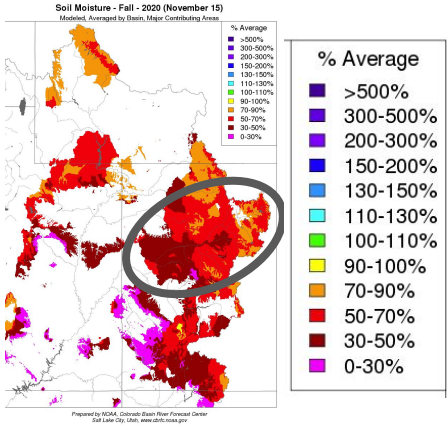
# Upper Colorado River Mainstem/Headwaters Water Year 2021 Water Supply Review

Location	April-July Observation (kaf)	1981-2020 Rank (1=Lowest)	CBRFC Water Supply Forecast Error (%)		
			Mar1	Apr1	May1
Granby	159	8	4	4	1
Willow Creek	32	12	-3	-6	0
Fraser	17	15	-12	-9	-15
Williams Fork	61	4	3	3	-5
Dillon	96	5	13	13	-8
Green Mountain	163	5	10	10	-8
Wolford	24	4	38	25	4
Kremmling	528	5	10	10	-2
Eagle-Gypsum	164	3	22	22	-2
Dotsero	775	5	17	17	-1
Ruedi	77	3	30	30	10
Roaring Fork-Glenwood	341	3	38	38	6
Colorado-Glenwood	1148	3	22	22	1
Cameo	1158	3	30	30	4

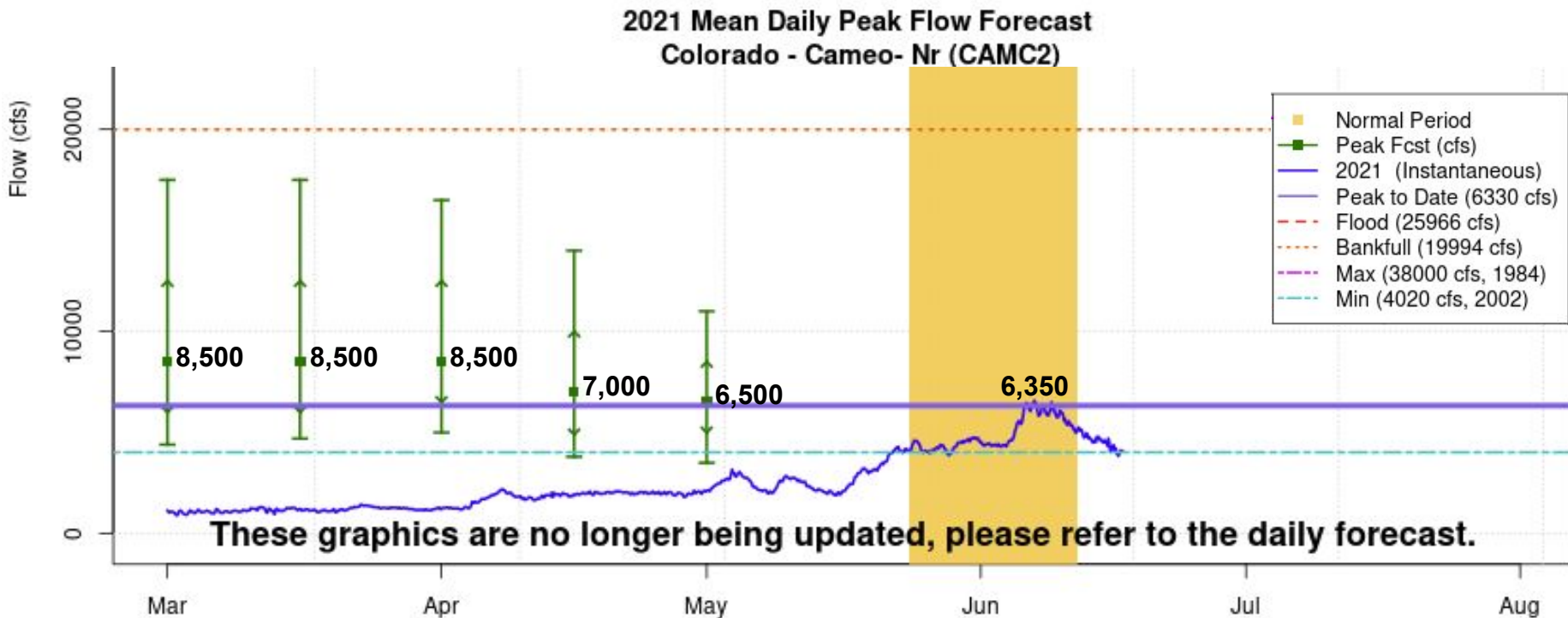
April 2021 precipitation was bottom 5 driest at many SNOTEL stations.



Near/record dry soil moisture conditions decreased early season runoff efficiency.



# 2021 Cameo Peak Flow Forecast Verification



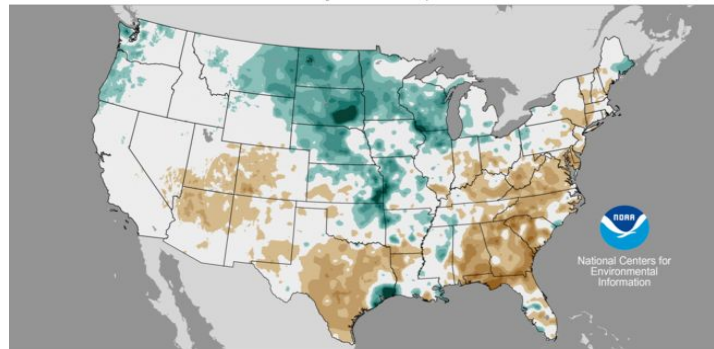
# Monsoon: July-September Precipitation

**2019**

Precipitation Departures from Average

July–September 2019

Average Period: 20<sup>th</sup> Century



Created: Fri Oct 04 2019

Inches

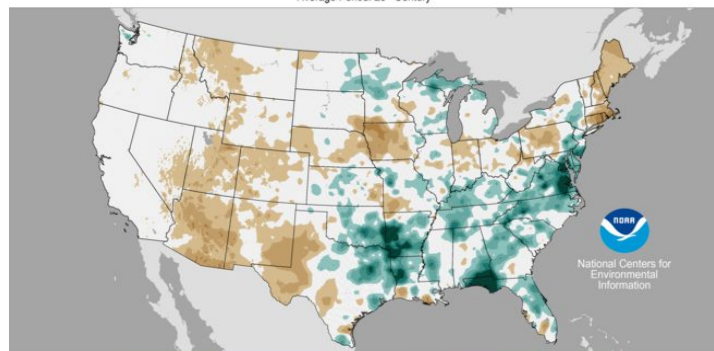
Data Source: 5km Gridded (nClimGrid)

**2020**

Precipitation Departures from Average

July–September 2020

Average Period: 20<sup>th</sup> Century



Created: Mon Oct 05 2020

Inches

Data Source: 5km Gridded (nClimGrid)

The 2021 monsoon season was much wetter than recent years.

The precipitation eased irrigation demand and benefited important fish reaches across the region.

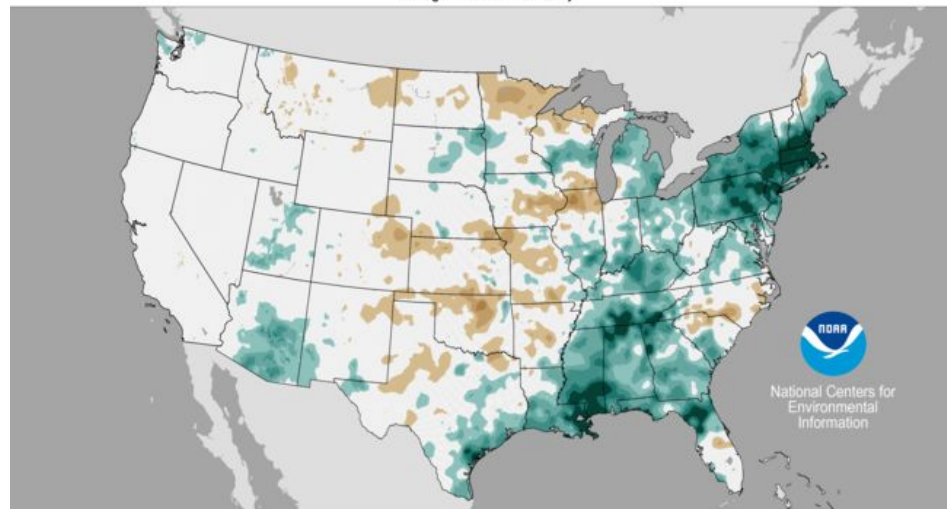
There were numerous rainfall events around the Cameo/Palisade area.

**2021**

Precipitation Departures from Average

July–September 2021

Average Period: 20<sup>th</sup> Century



Created: Wed Oct 06 2021

Inches

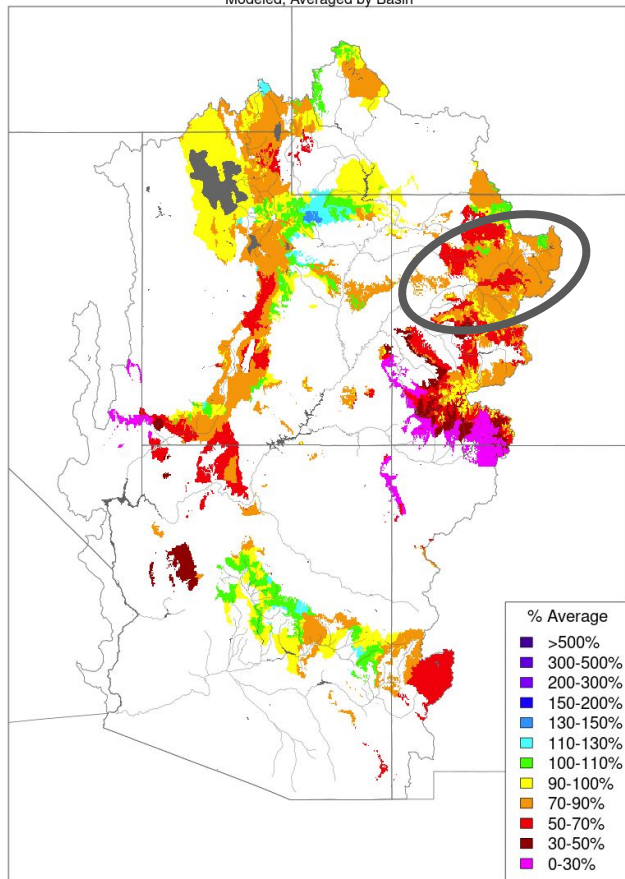
Data Source: nClimGrid



# Fall Model Soil Moisture Conditions: 2020 vs. 2021

Soil Moisture - Fall - 2021 (November 15)

Modeled, Averaged by Basin

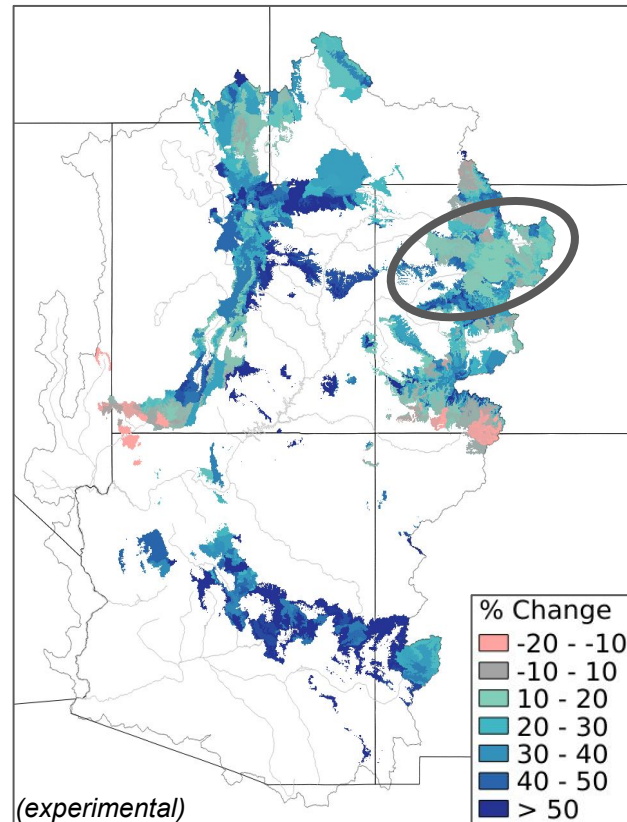


Prepared by NOAA, Colorado Basin River Forecast Center  
Salt Lake City, Utah, [www.cbrfc.noaa.gov](http://www.cbrfc.noaa.gov)

CBRFC model soil moisture conditions are improved from their record/near record dry levels a year ago but remain below to well below normal across many of the major runoff producing areas, notably western Colorado.

Soil Moisture - Fall (November 15)

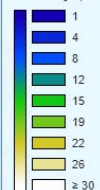
Modeled, %Change  
(2021-2020)



# Upper Colorado Mainstem/Headwaters: Water Year 2022 Precipitation Summary

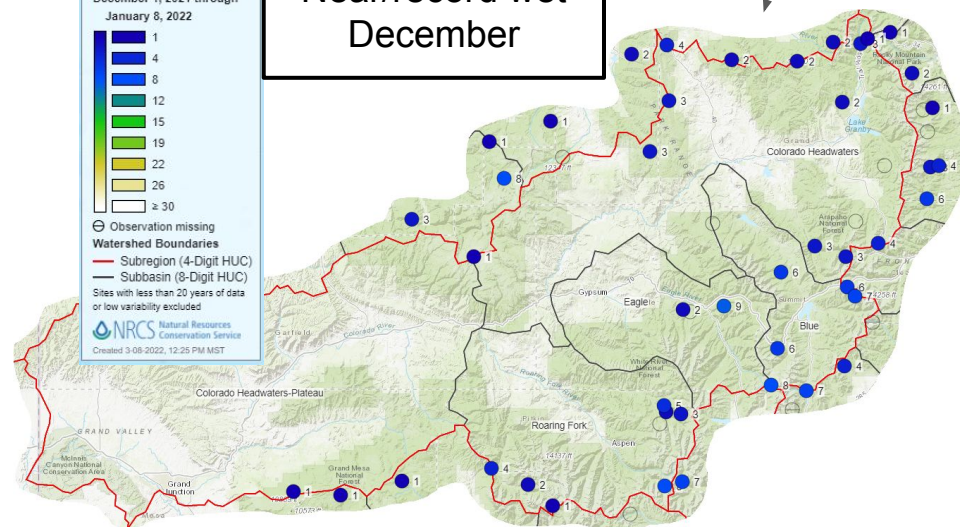
Basin	Water Year 2022 Monthly Precipitation (%Average)					WY (%Avg)
	Oct	Nov	Dec	Jan	Feb	Oct-Feb
CO Headwaters (No Blue)	92	68	144	101	61	93
Blue	112	79	142	94	59	98
Eagle	110	71	170	78	63	98
Roaring Fork	99	65	231	52	75	104
Entire Basin Above Cameo	103	66	186	75	65	99

39 day Precipitation  
Maximum Rank (POR)  
December 1, 2021 through  
January 8, 2022

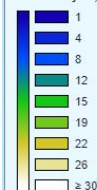


⊖ Observation missing  
Watershed Boundaries  
— Subregion (4-Digit HUC)  
— Subbasin (8-Digit HUC)  
Sites with less than 20 years of data  
or low variability excluded  
NRCS Natural Resources  
Conservation Service  
Created 3-08-2022, 12:25 PM MST

Near/record wet  
December

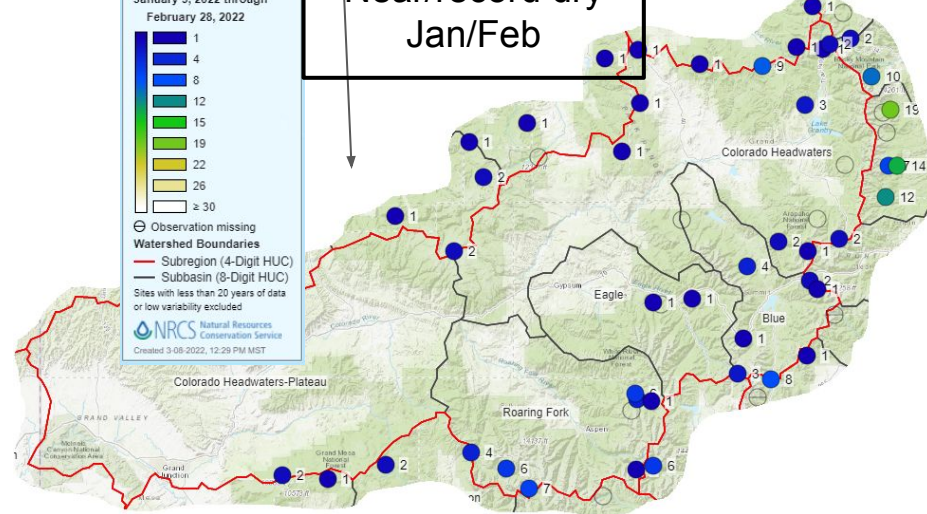


51 day Precipitation  
Minimum Rank (POR)  
January 9, 2022 through  
February 28, 2022

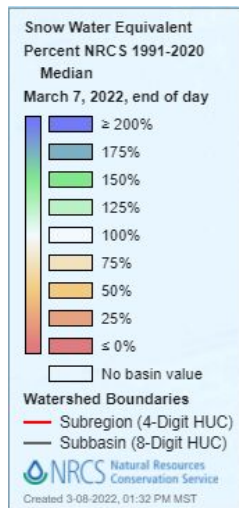


⊖ Observation missing  
Watershed Boundaries  
— Subregion (4-Digit HUC)  
— Subbasin (8-Digit HUC)  
Sites with less than 20 years of data  
or low variability excluded  
NRCS Natural Resources  
Conservation Service  
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Near/record dry  
Jan/Feb

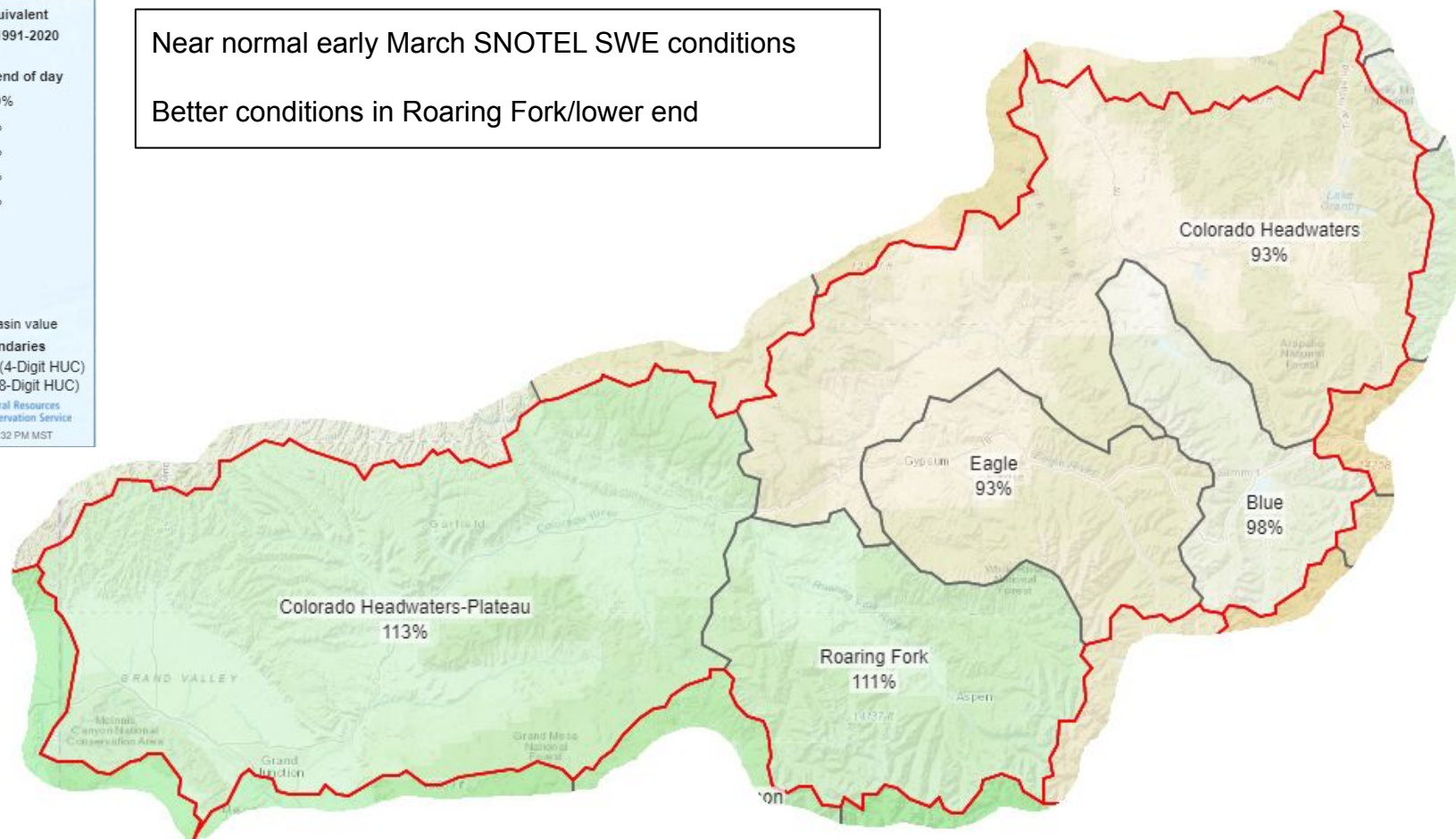


# March 8 NRCS SNOTEL SWE Conditions (%Normal)



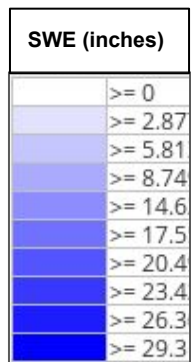
Near normal early March SNOTEL SWE conditions

Better conditions in Roaring Fork/lower end

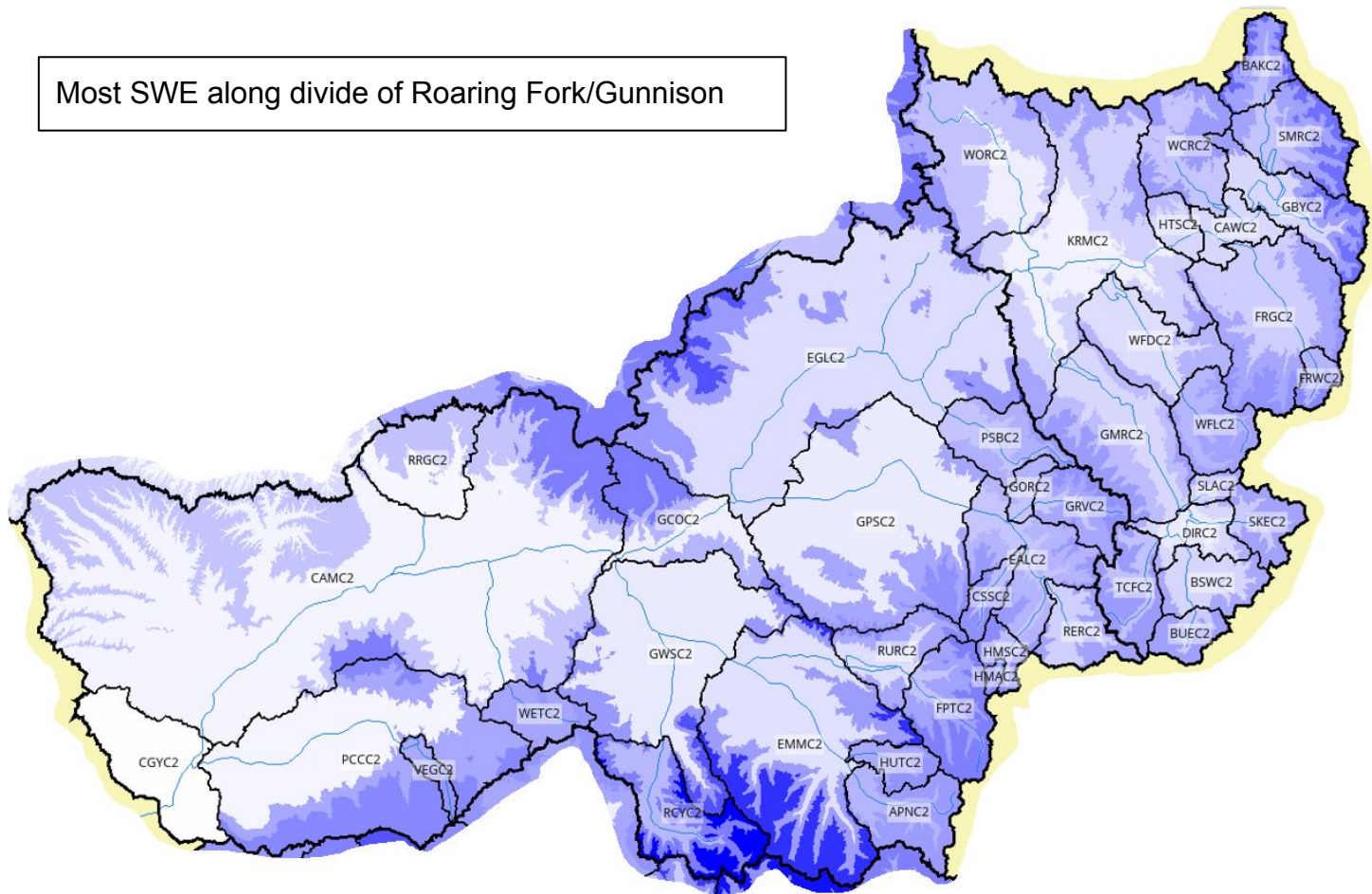




# March 8 CBRFC Model SWE Conditions



Most SWE along divide of Roaring Fork/Gunnison



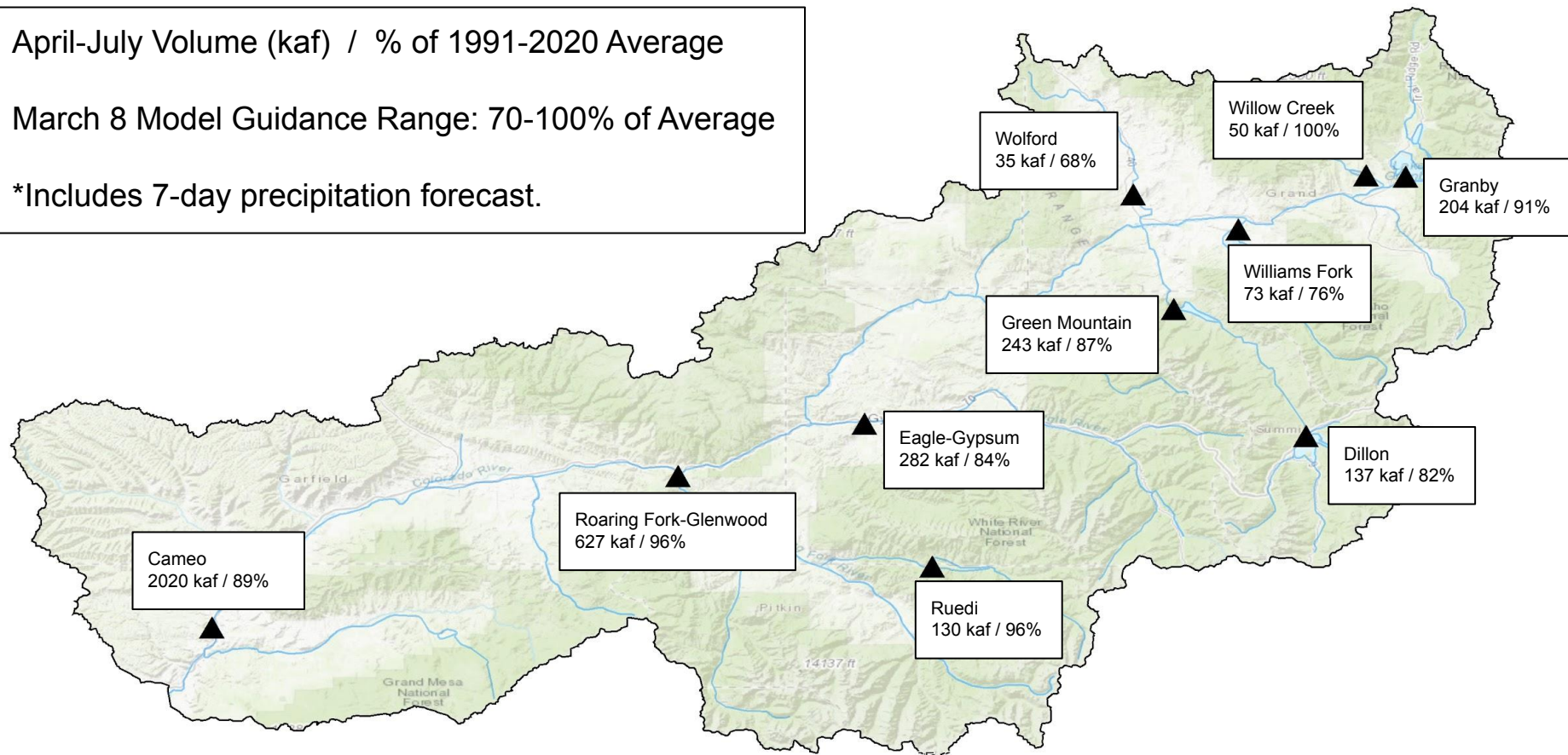


# March 8 CBRFC Water Supply Guidance

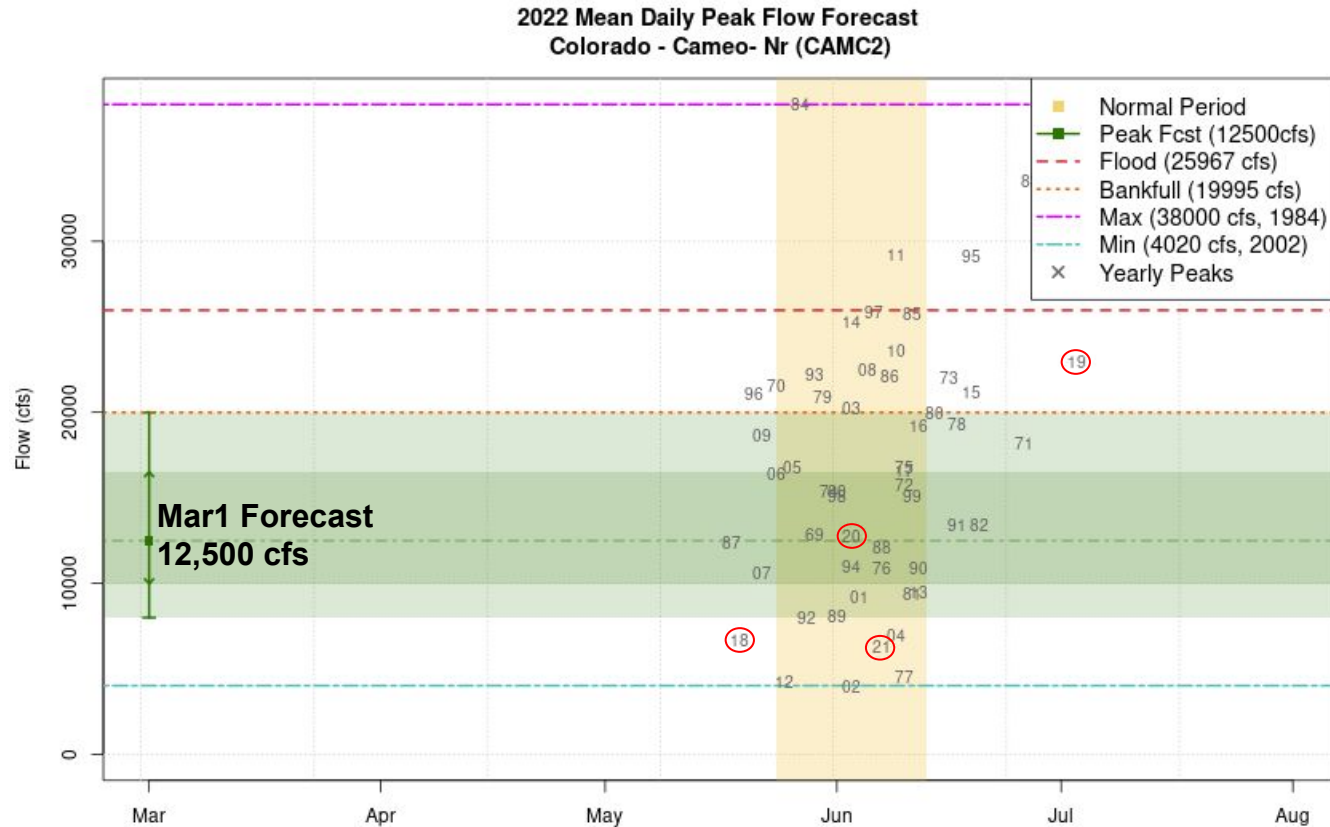
April-July Volume (kaf) / % of 1991-2020 Average

March 8 Model Guidance Range: 70-100% of Average

\*Includes 7-day precipitation forecast.



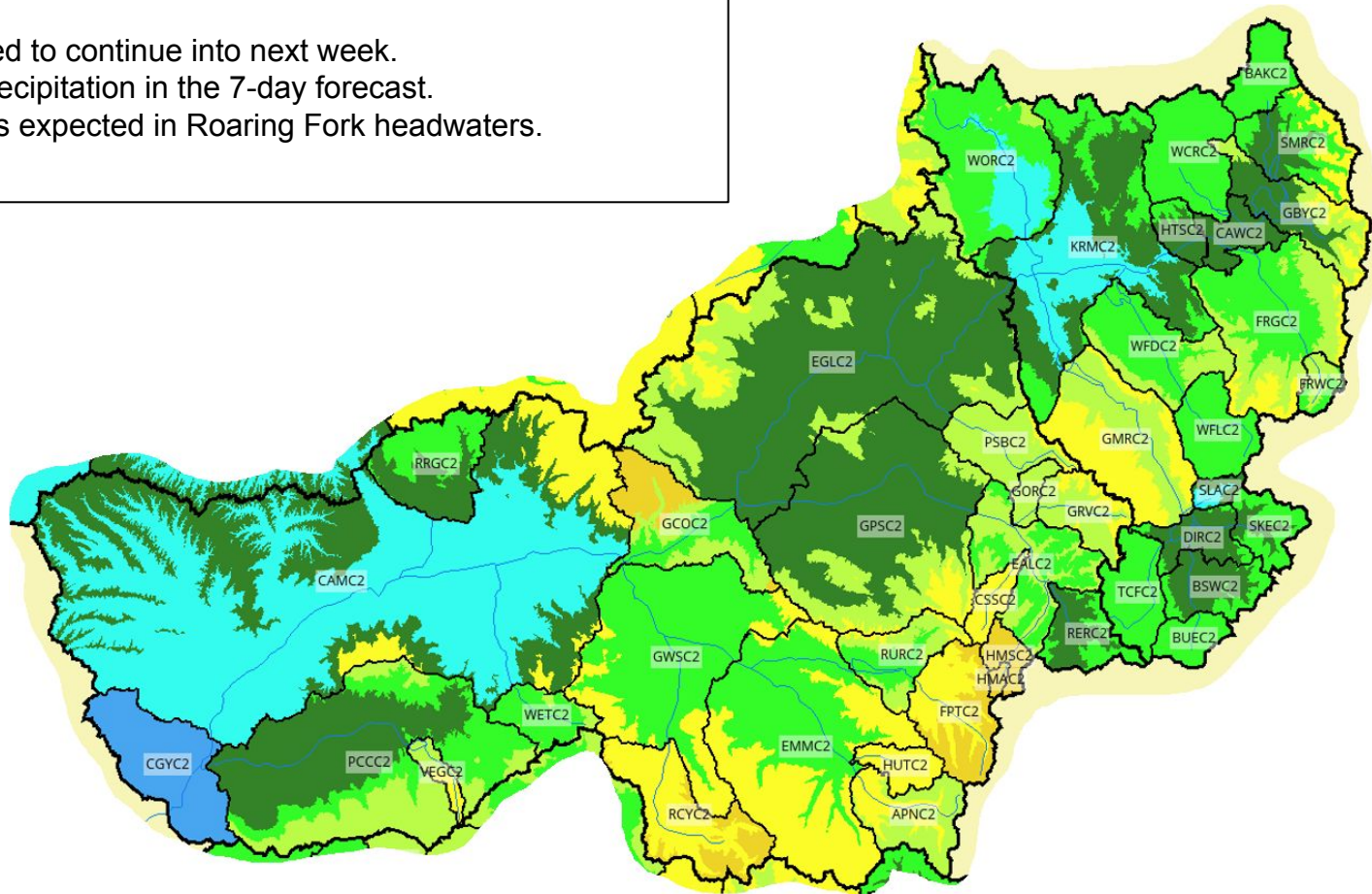
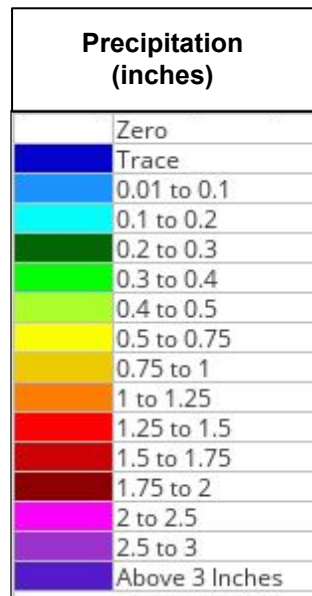
# 2022 Cameo Peak Flow Forecast



Plot Created 2022-03-04 20:36:14  
CBRFC / NWS / NOAA

# 7-Day Forecast Precipitation Amounts and Weather Outlook

- Active weather expected to continue into next week.
- Up to 0.75 inches of precipitation in the 7-day forecast.
  - Highest amounts expected in Roaring Fork headwaters.





## March 8, 2022 Hydrologic Conditions Summary

- A wet monsoon season helped soil moisture conditions, which are improved from a year ago but soil moisture deficits are still out there, notably across much of western Colorado
- Snow conditions: 90-110% of normal
- April-July Water Supply Forecast Volumes: 70-100% of normal
- Cameo/CROS Peak Flow Forecast
  - 12,500 CFS (76% of 1991-2020 peak flow normal )
  - Higher peak flows expected compared to peak flows last year
- Weather Forecast
  - Active weather expected to continue into next week
  - Up to 0.75 inches of precipitation in the 7-day forecast
    - Highest amounts expected along the Roaring Fork/Gunnison divide
- Questions?
  - [cody.moser@noaa.gov](mailto:cody.moser@noaa.gov)