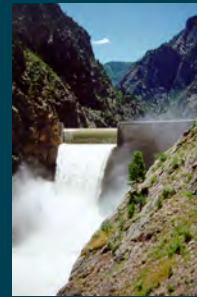


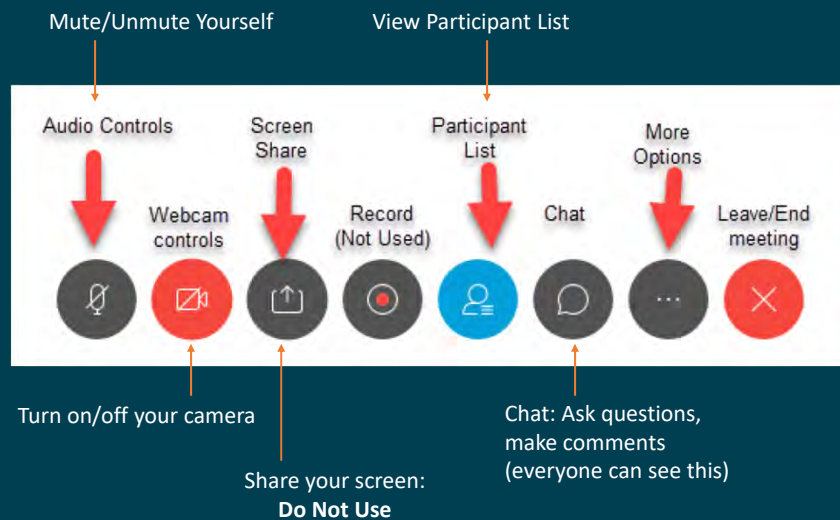
Aspinall Operations Meeting

August 25, 2022



1

WebEx Video Conferencing



2

Introductions and Purpose of Meeting

Weather Review/Outlook – Aldis Strautins (NWS)


Water Supply Review– Ashley Nielson (CBRFC)

Aspinall Unit Operations – Erik Knight (USBR)

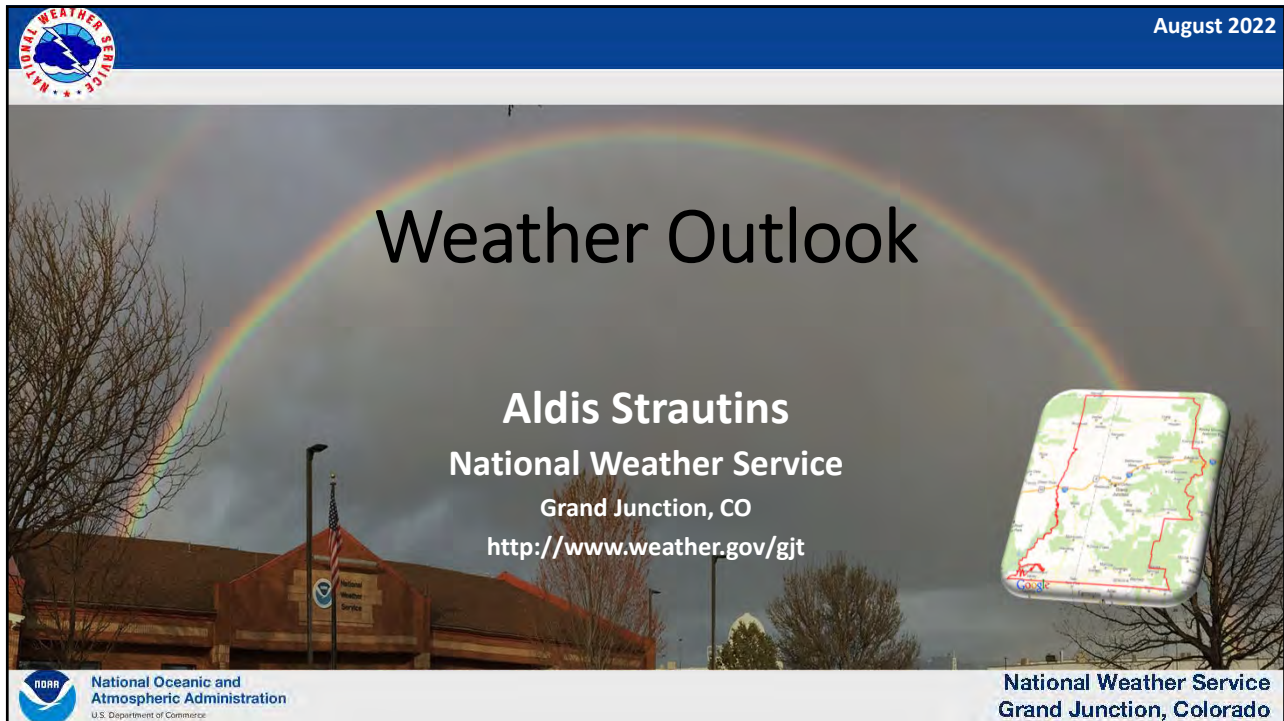
Special Flow Requests and Discussion

Reports of Agencies and Organizations – All

Conclusions
(Next meeting date – Jan 19th or Jan 26th ?)



3



NATIONAL WEATHER SERVICE

August 2022

Weather Outlook

Aldis Strautins
National Weather Service
Grand Junction, CO
<http://www.weather.gov/gjt>

National Oceanic and Atmospheric Administration
U.S. Department of Commerce

National Weather Service
Grand Junction, Colorado

4

Outline August 2022

- Precipitation and Temperature
- SNOTEL: Snow Water Equivalent and Precipitation
- Drought
- ENSO
- Weather outlook

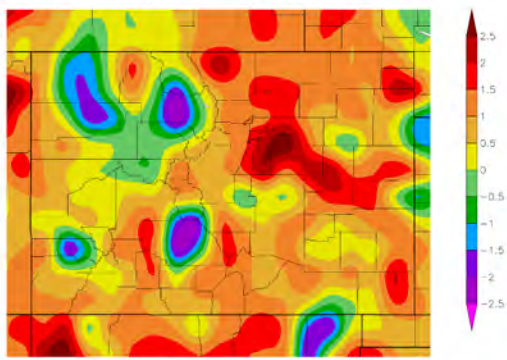
National Oceanic and Atmospheric Administration U.S. Department of Commerce **National Weather Service Grand Junction, Colorado**

5

Water Year 2022 through mid August August 2022

Temperature
Departure from normal

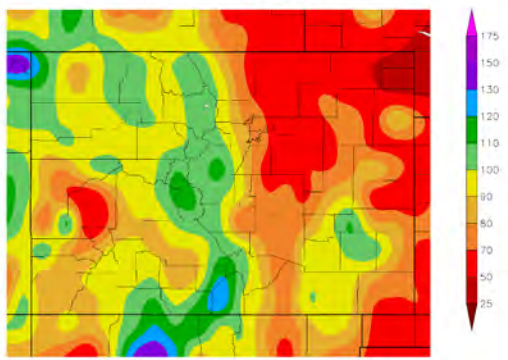
Departure from Normal Temperature (F)
10/1/2021 – 8/23/2022



Generated 5/24/2022 at: IPRCC using provisional data NOAA Regional Climate Centers

Precipitation
% of normal

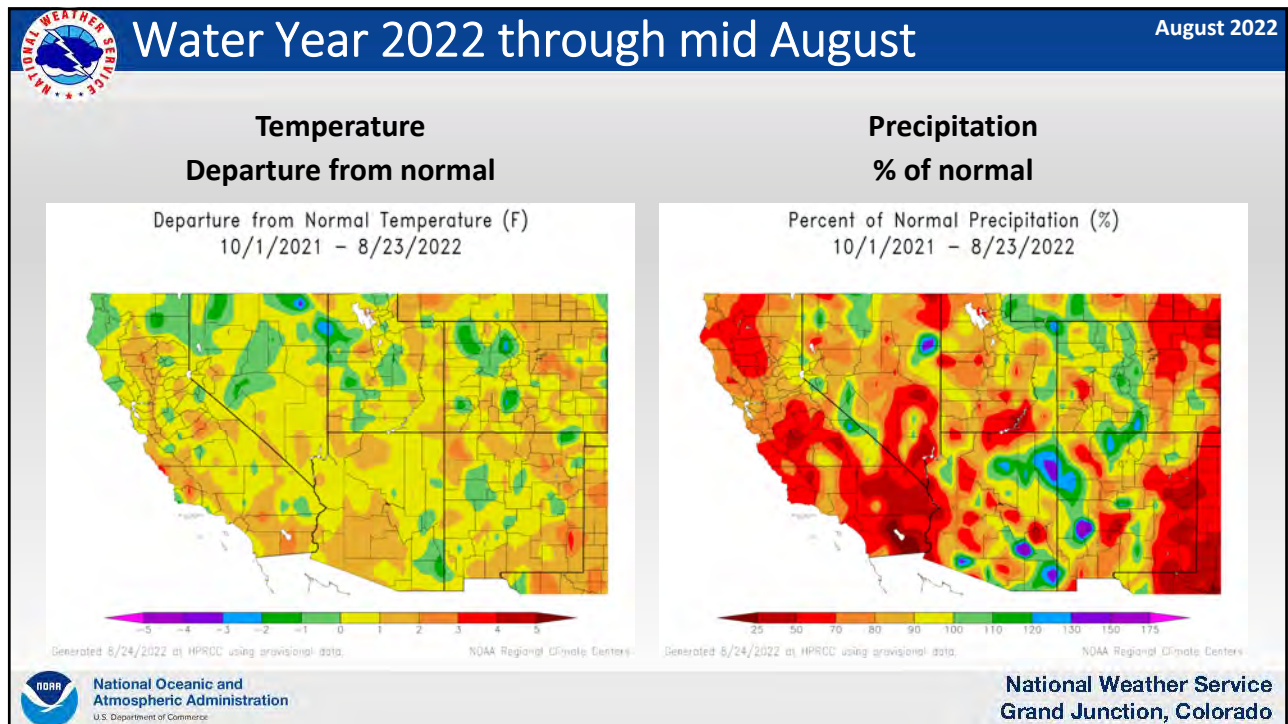
Percent of Normal Precipitation (%)
10/1/2021 – 8/23/2022



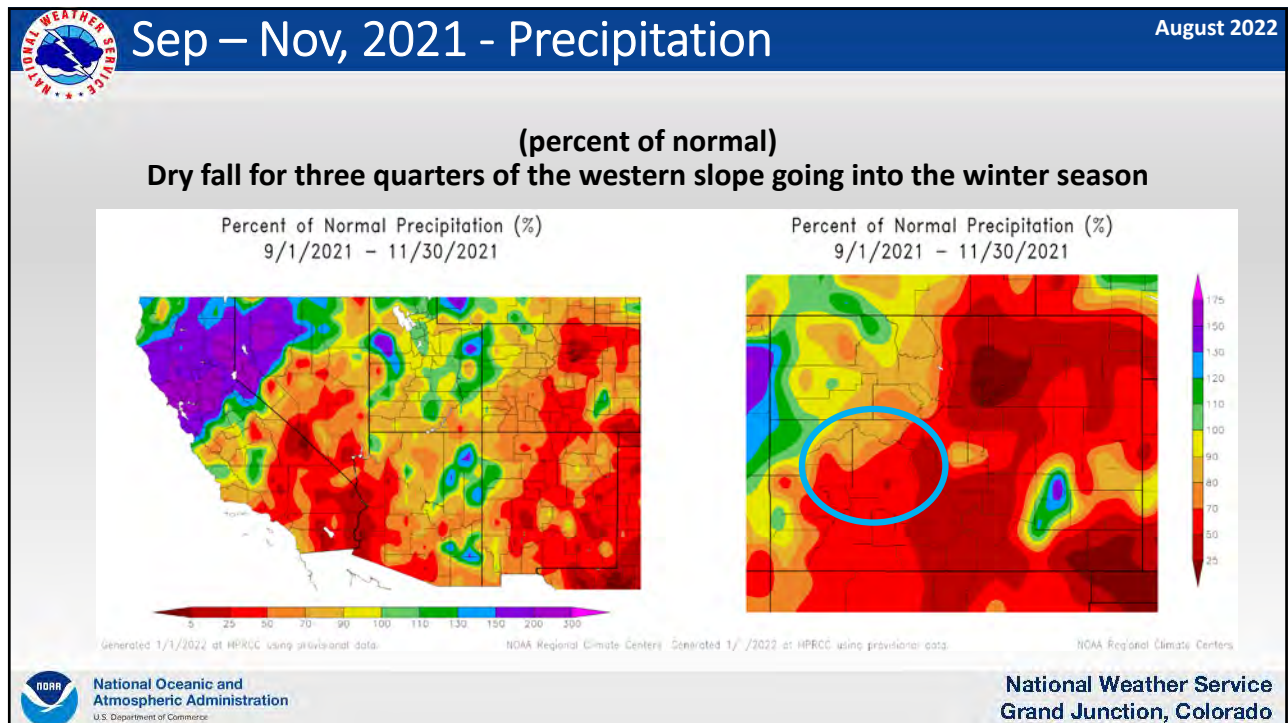
Generated 5/24/2022 at: IPRCC using provisional data NOAA Regional Climate Centers

National Oceanic and Atmospheric Administration U.S. Department of Commerce **National Weather Service Grand Junction, Colorado**

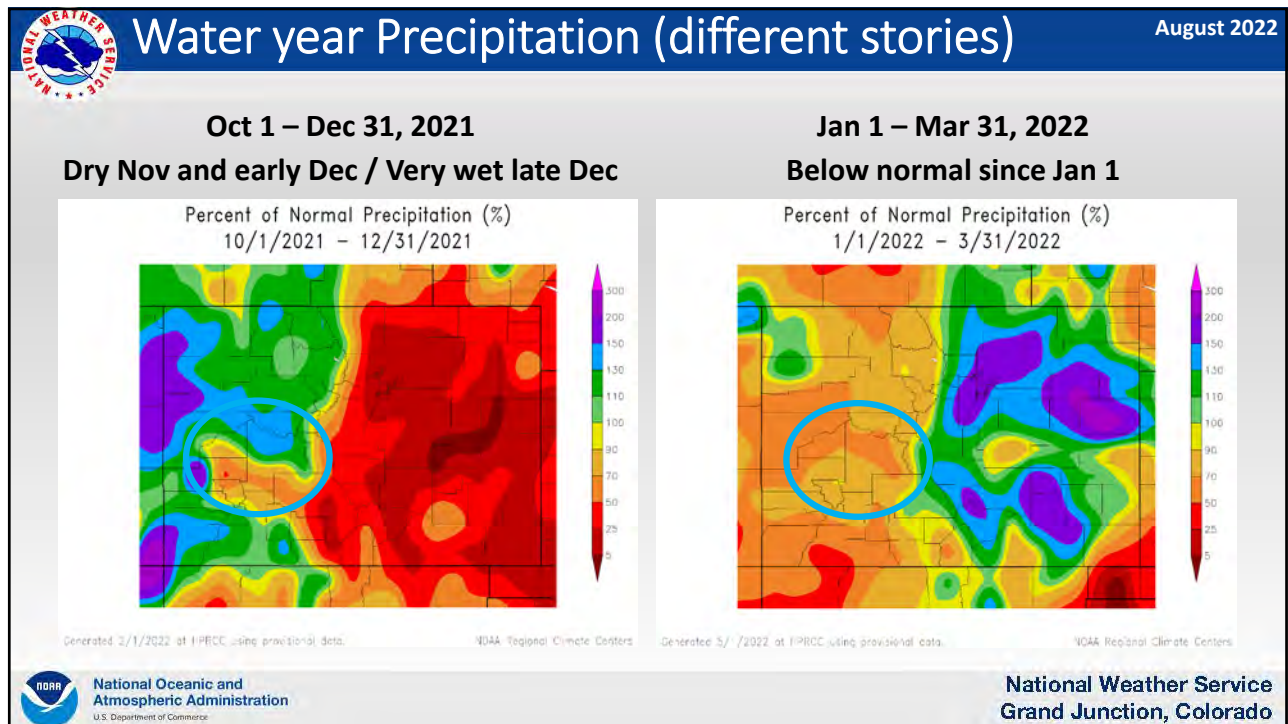
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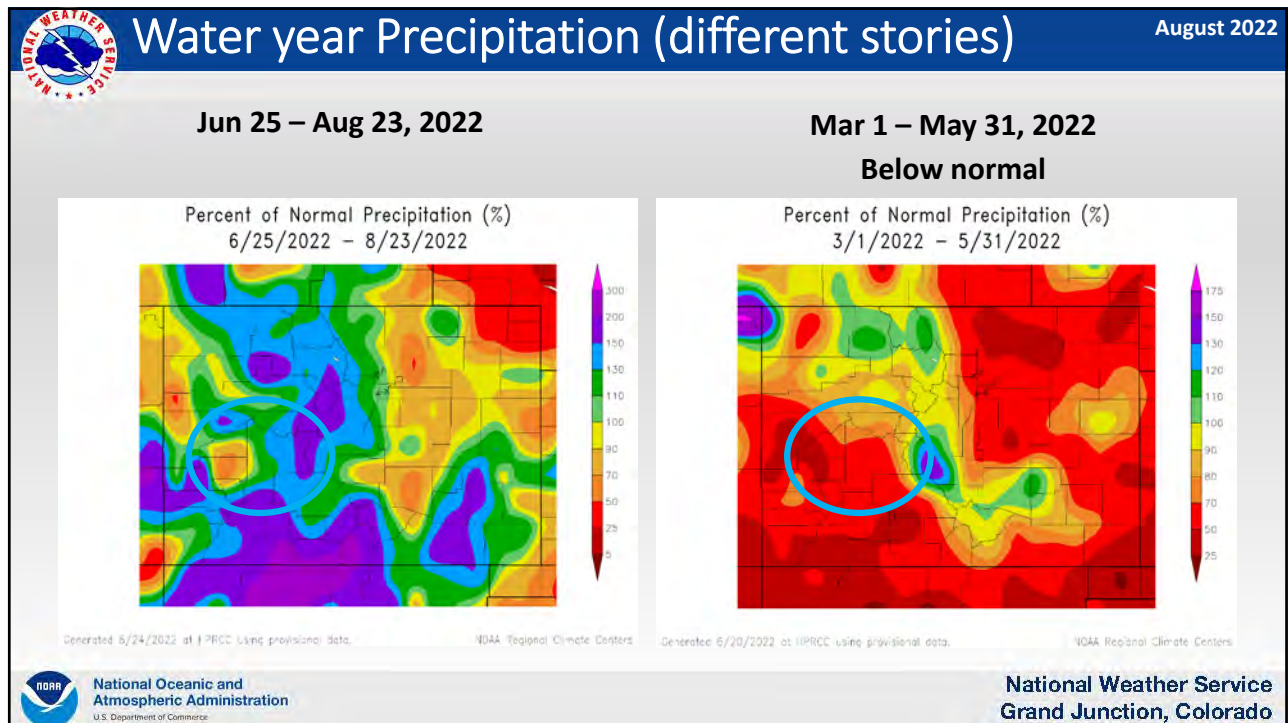
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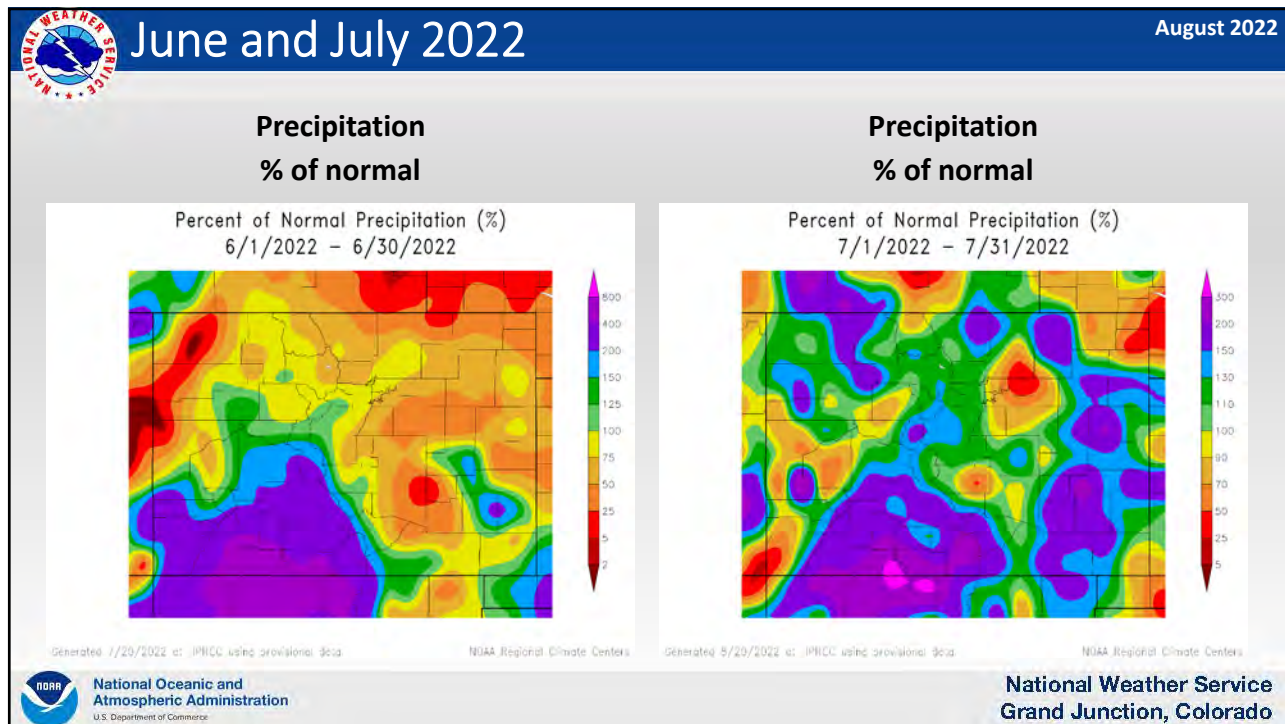
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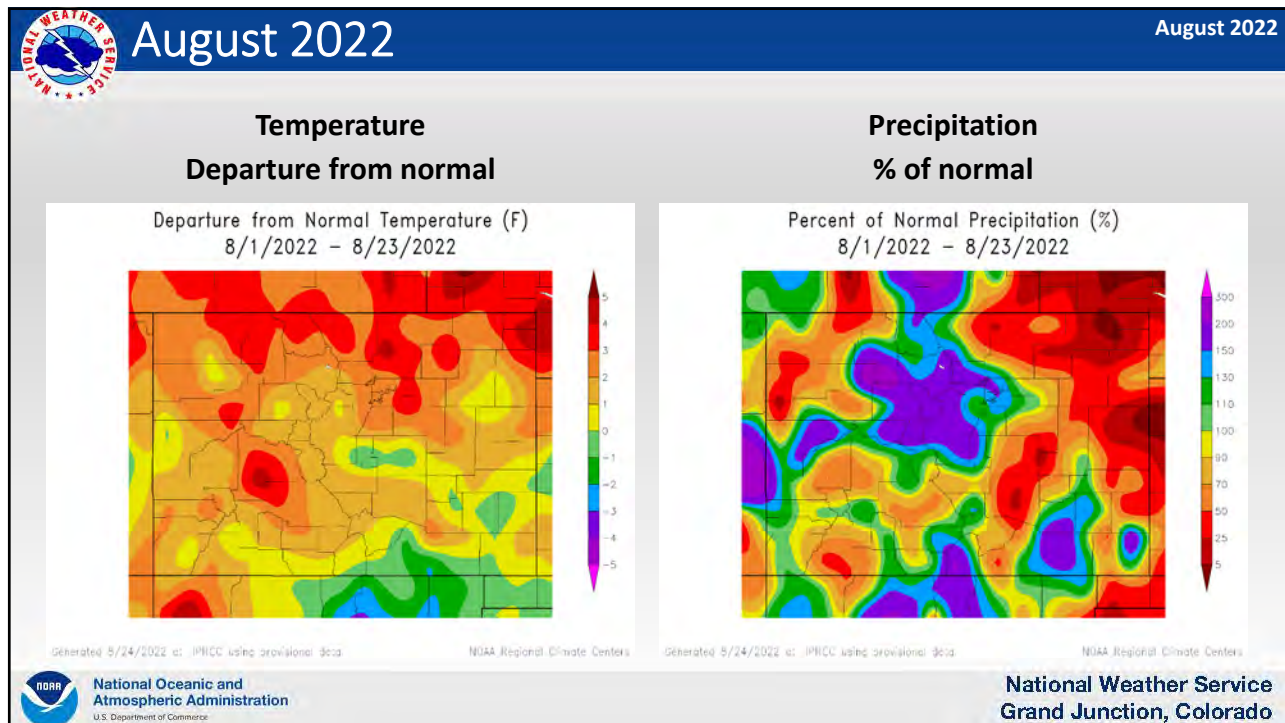
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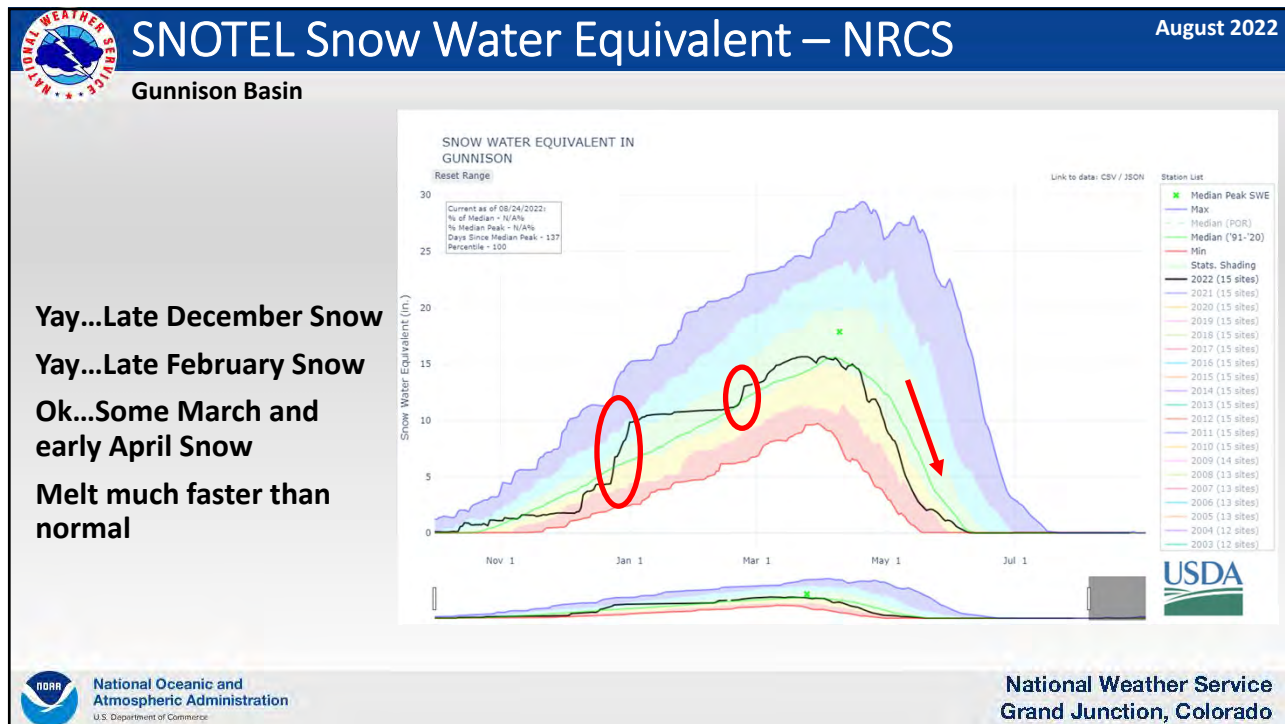
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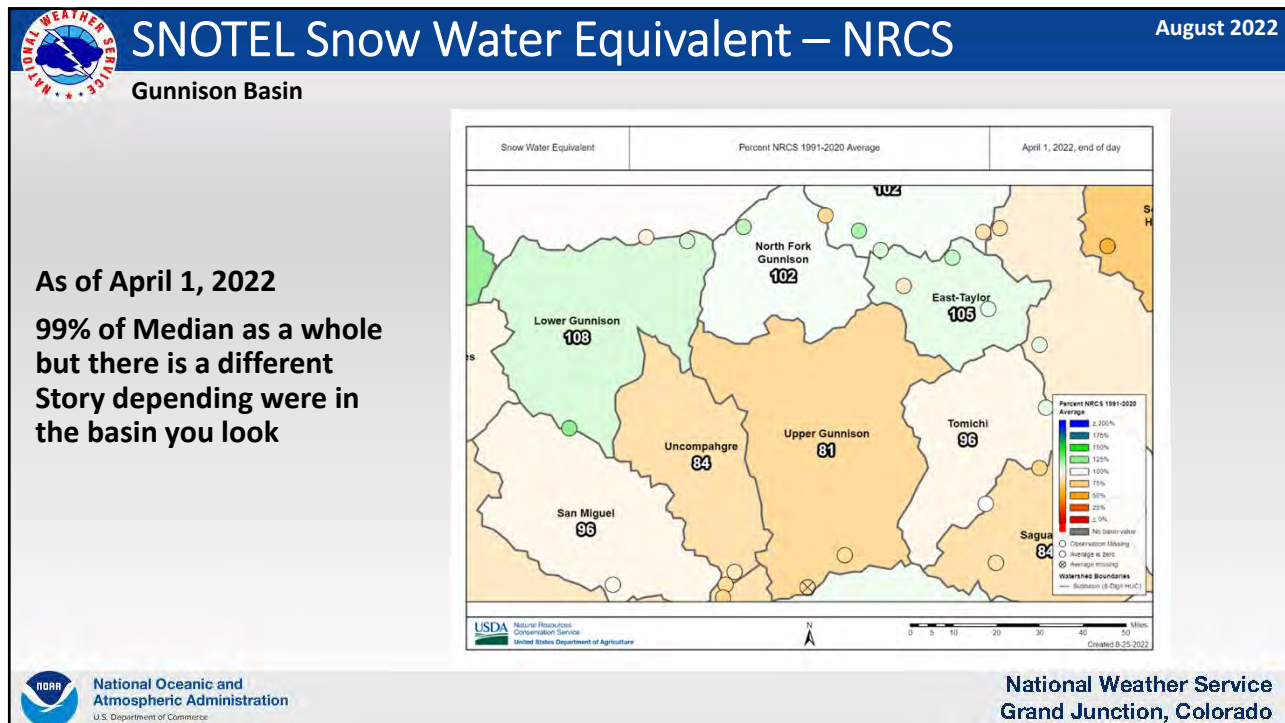
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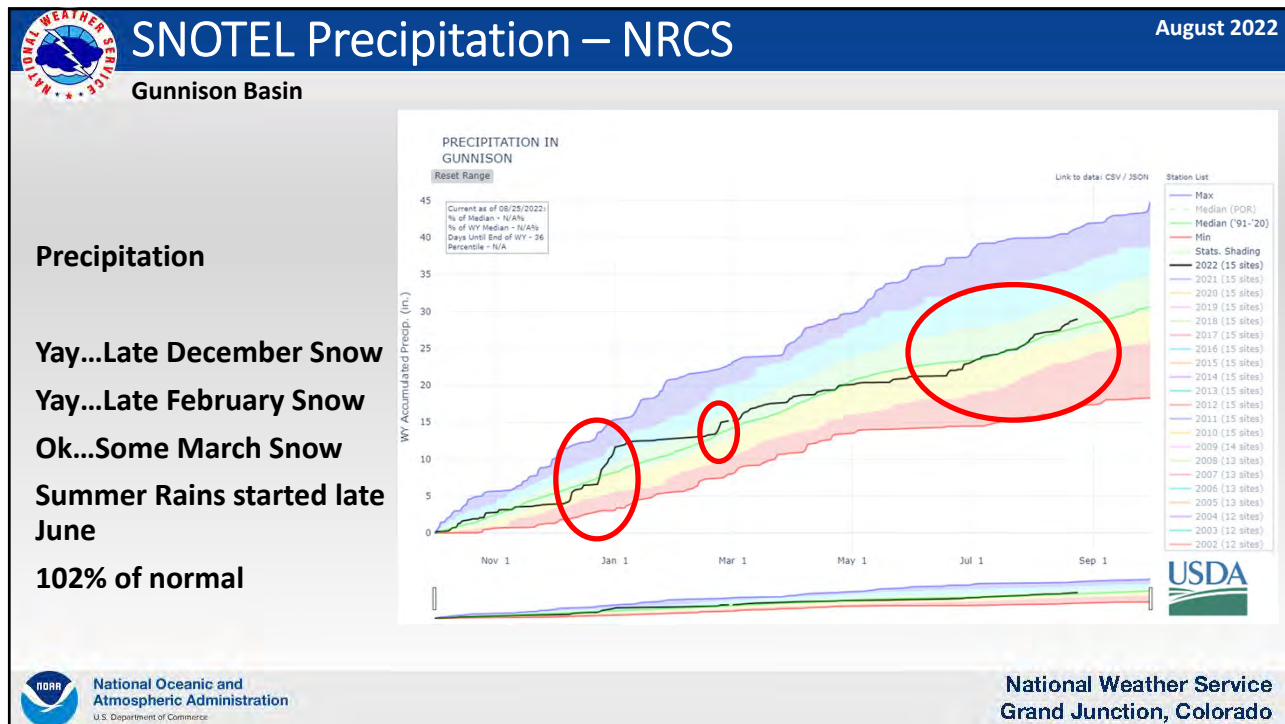
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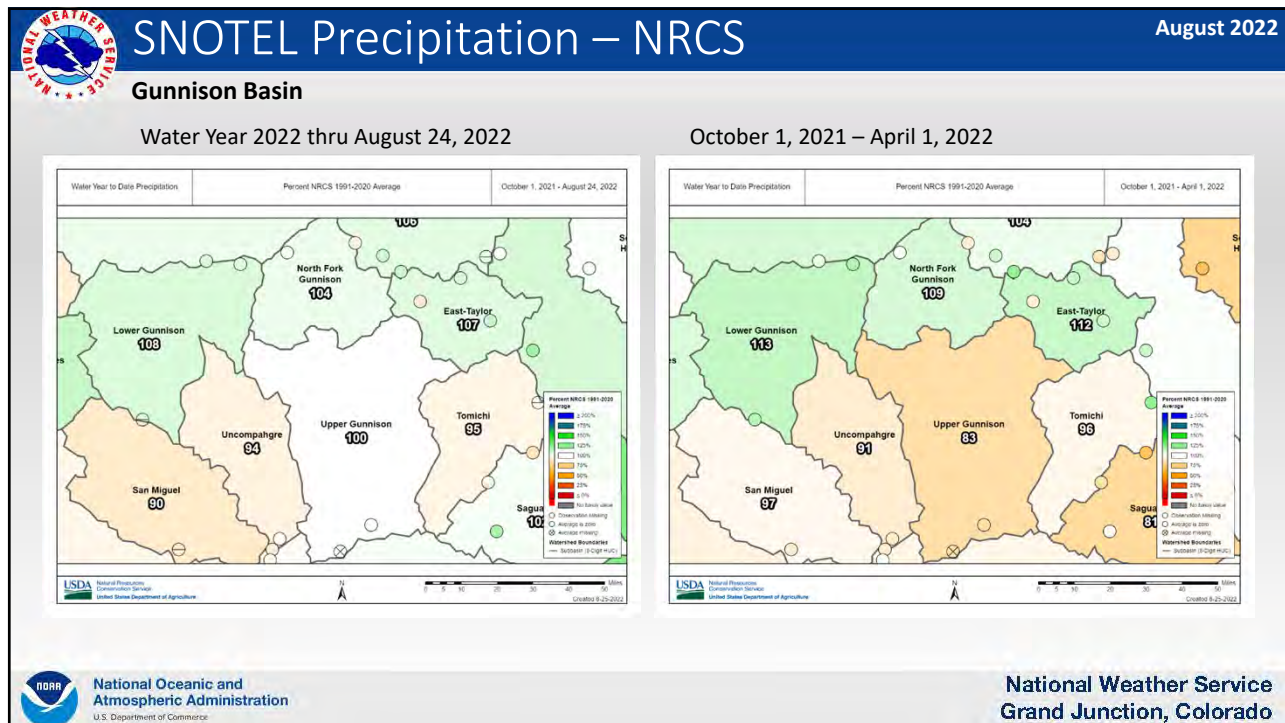
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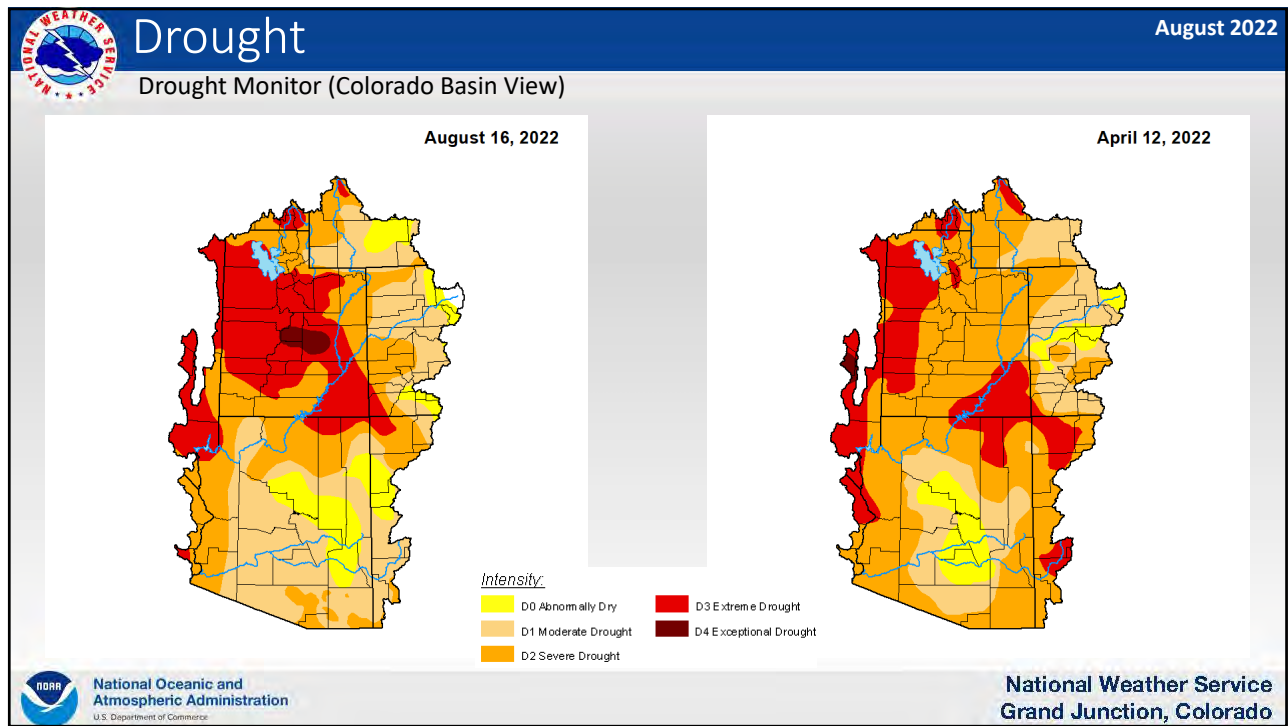
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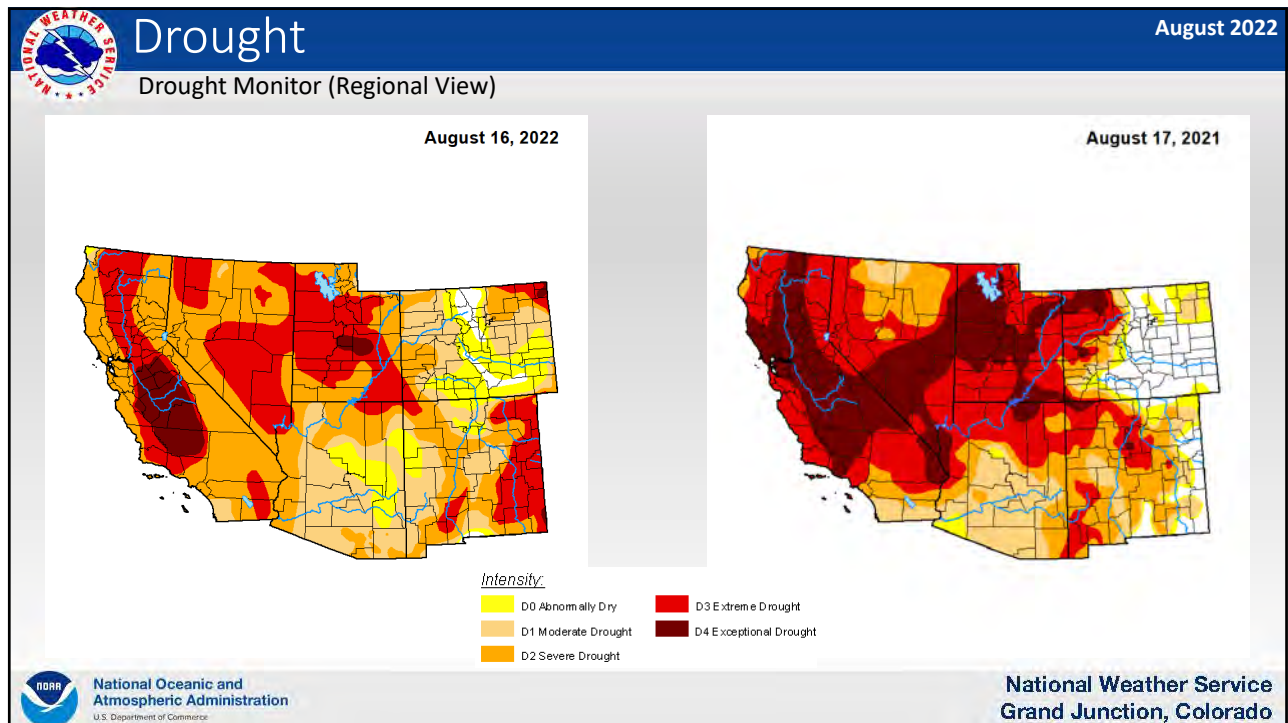
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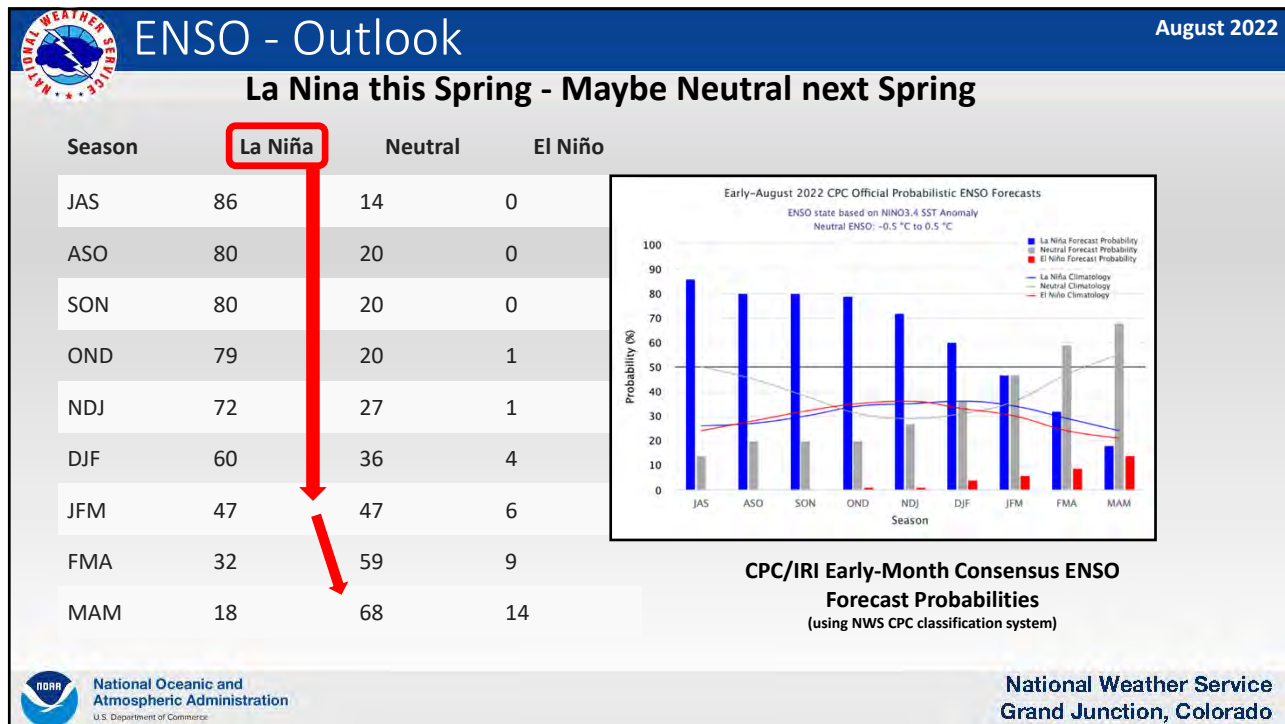
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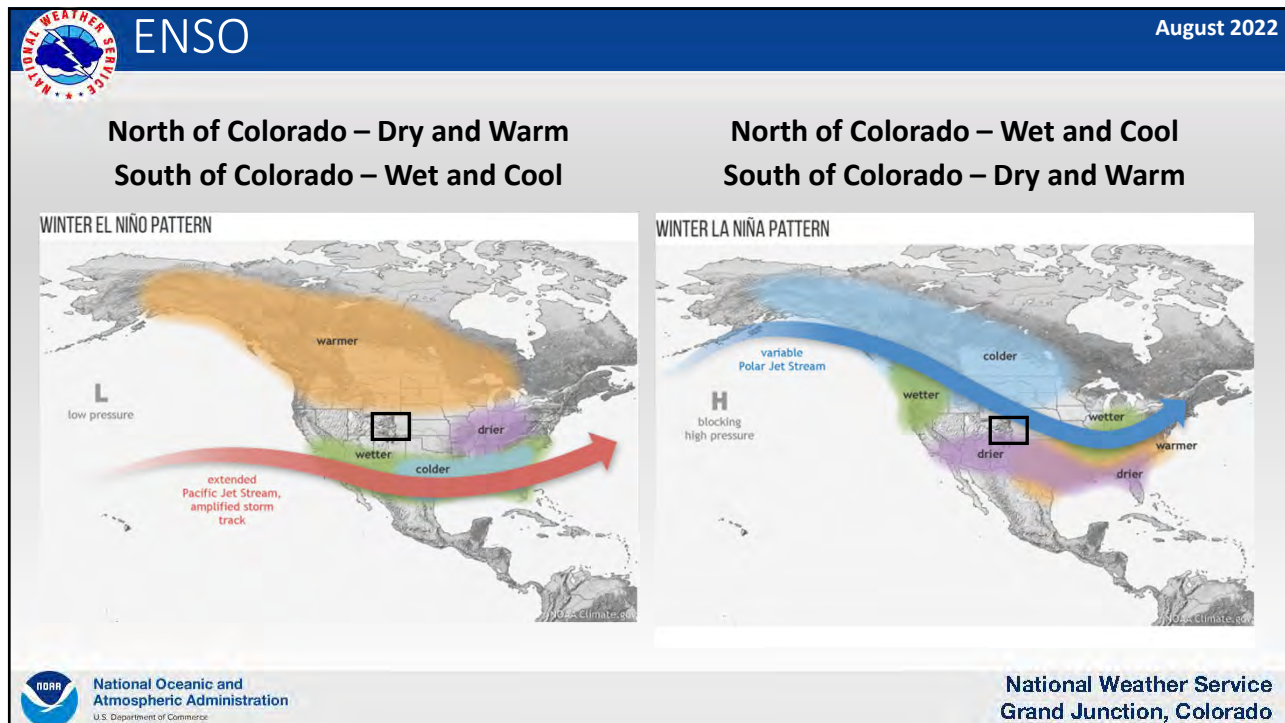
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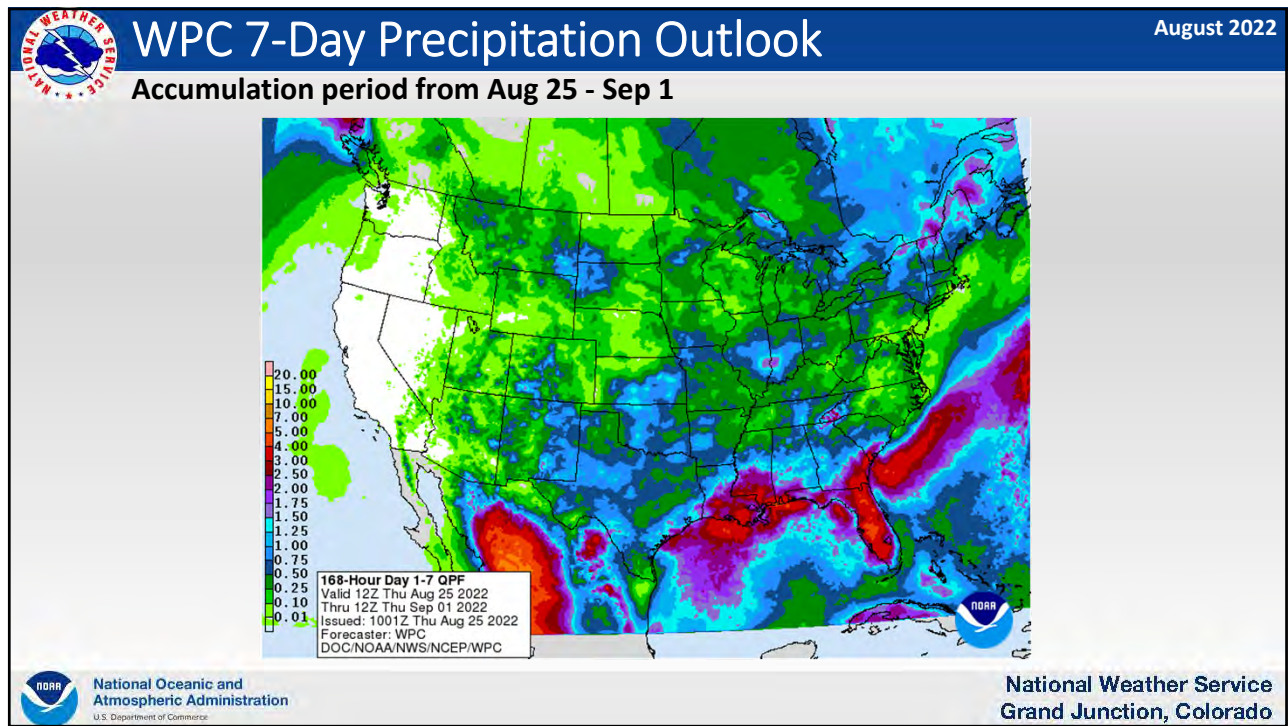
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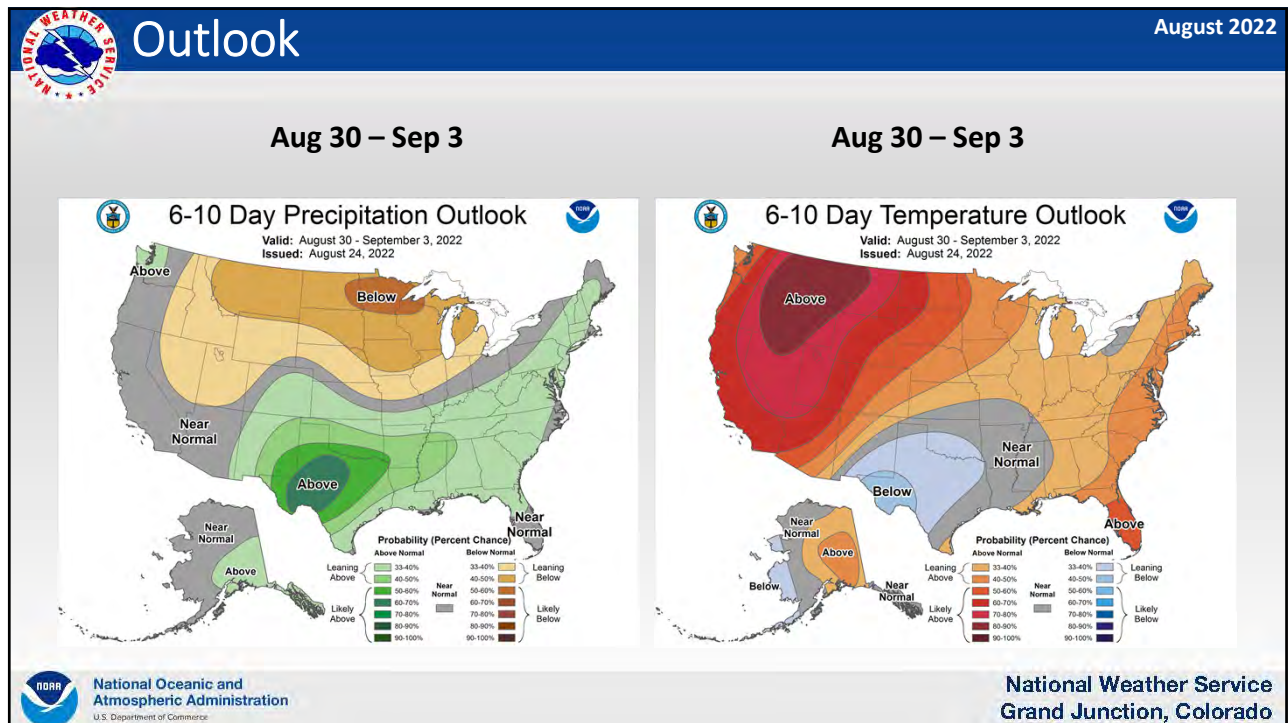
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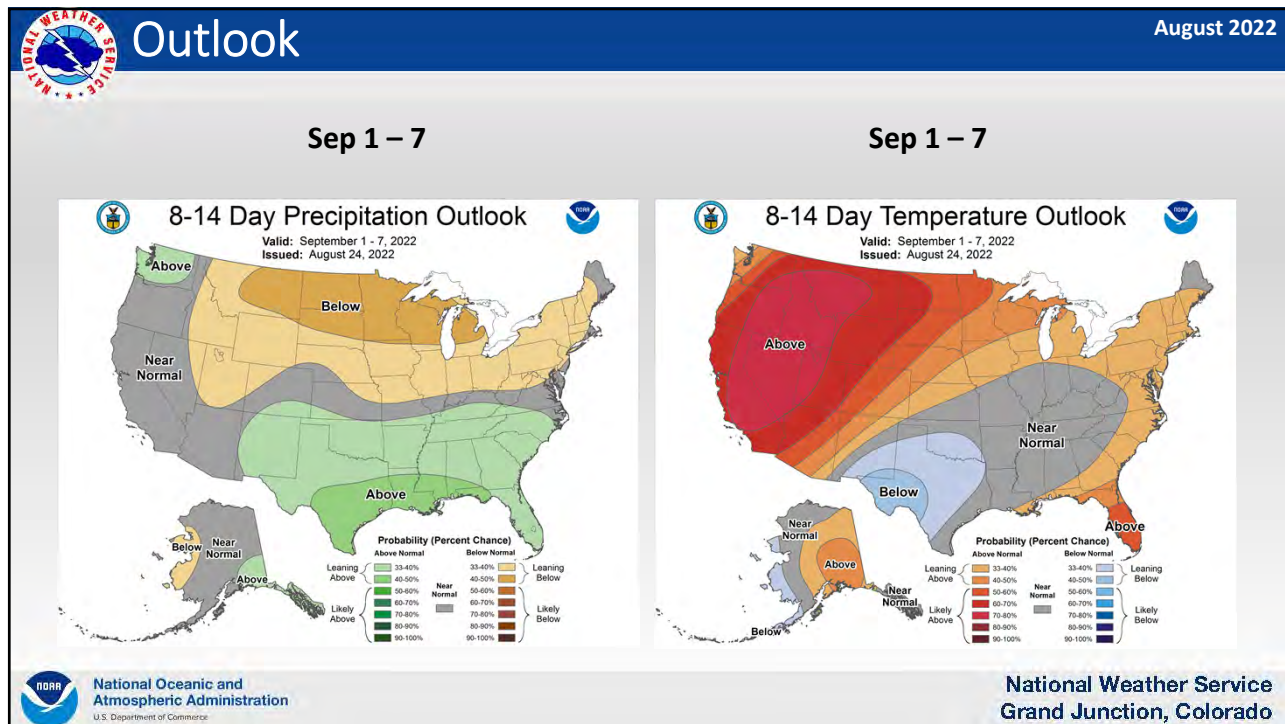
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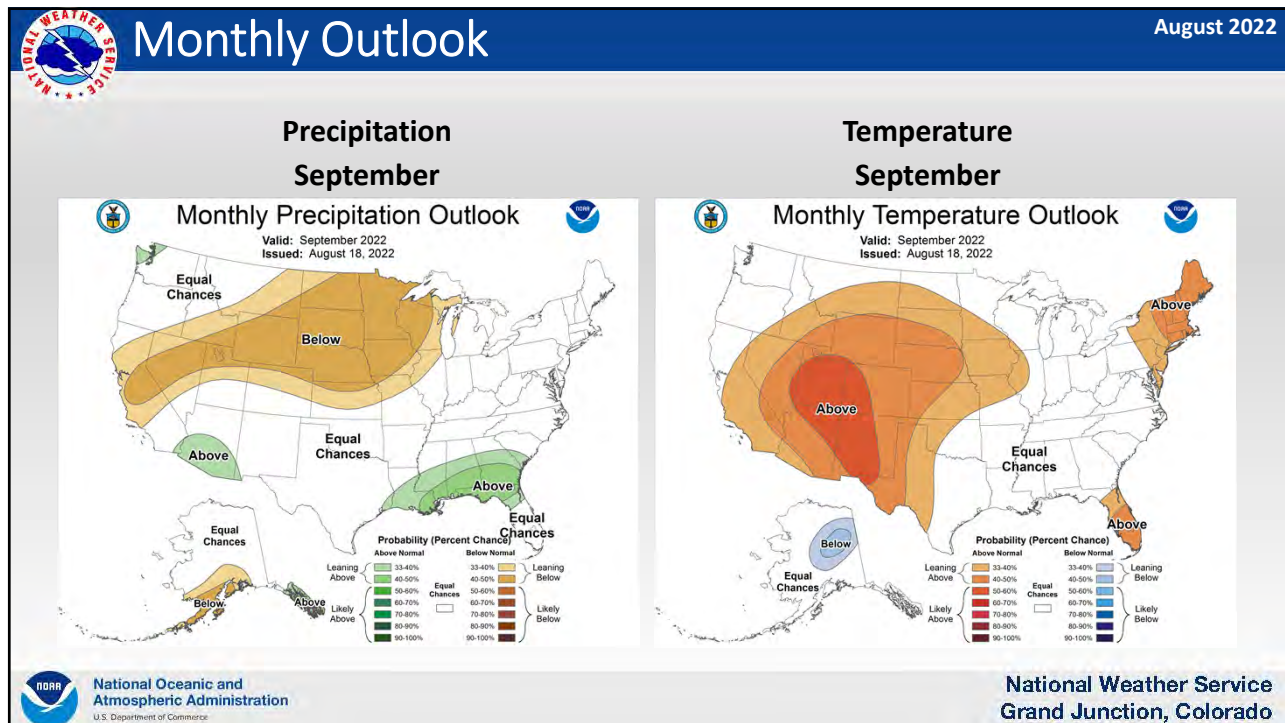
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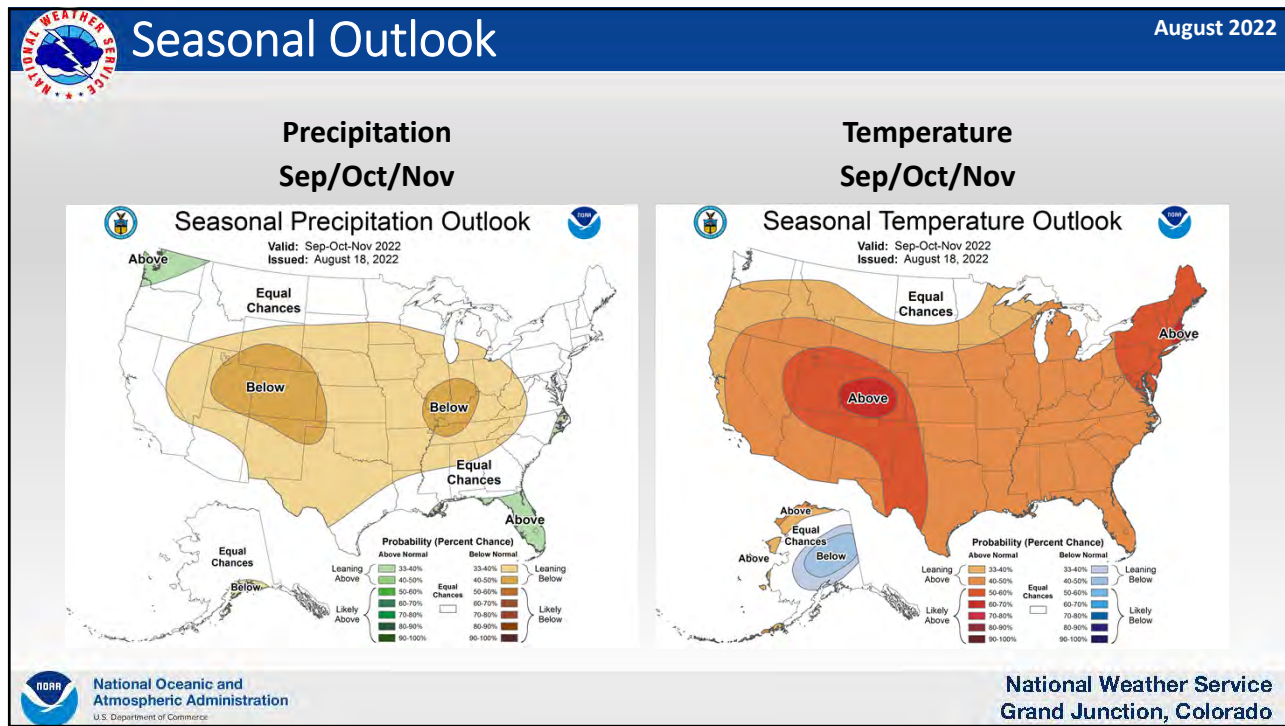
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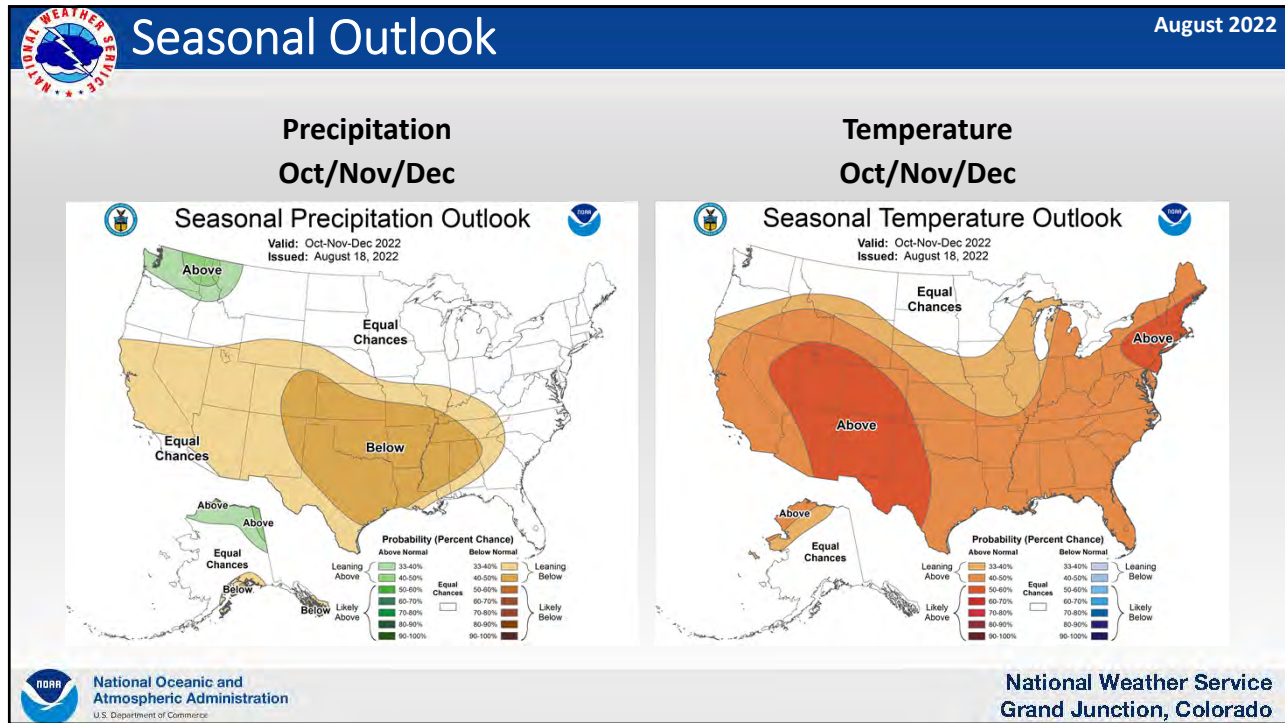
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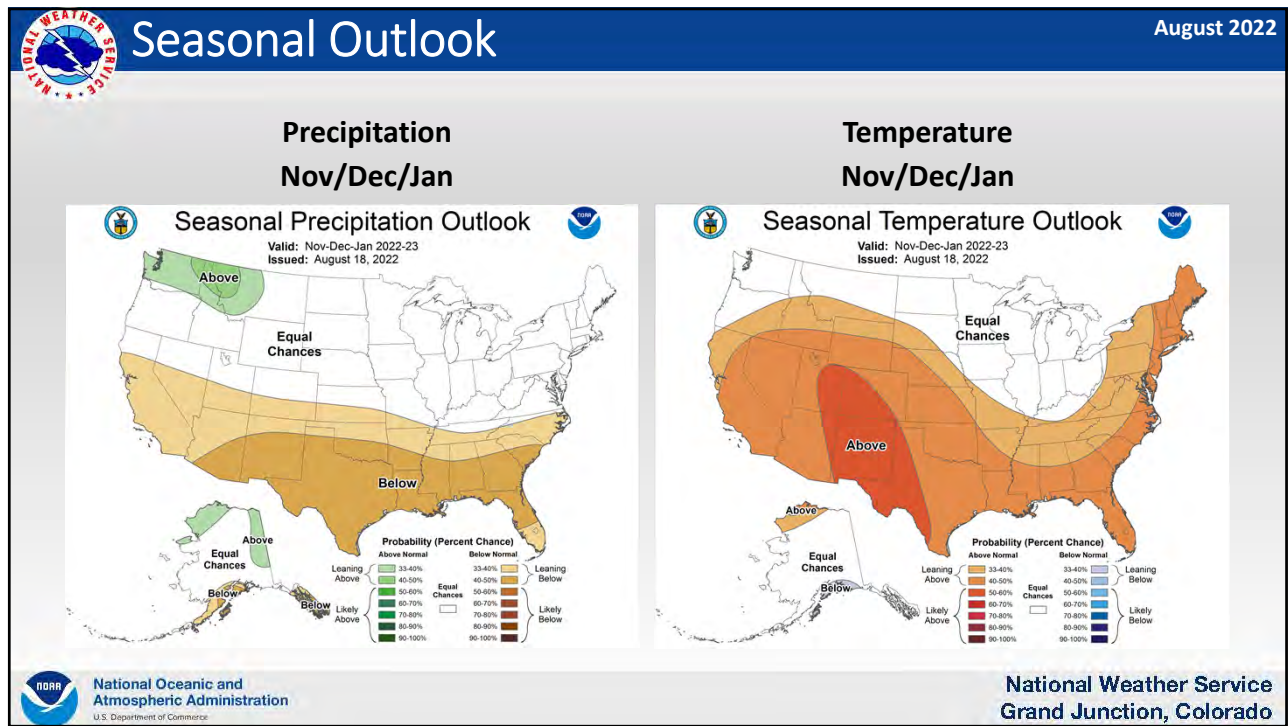
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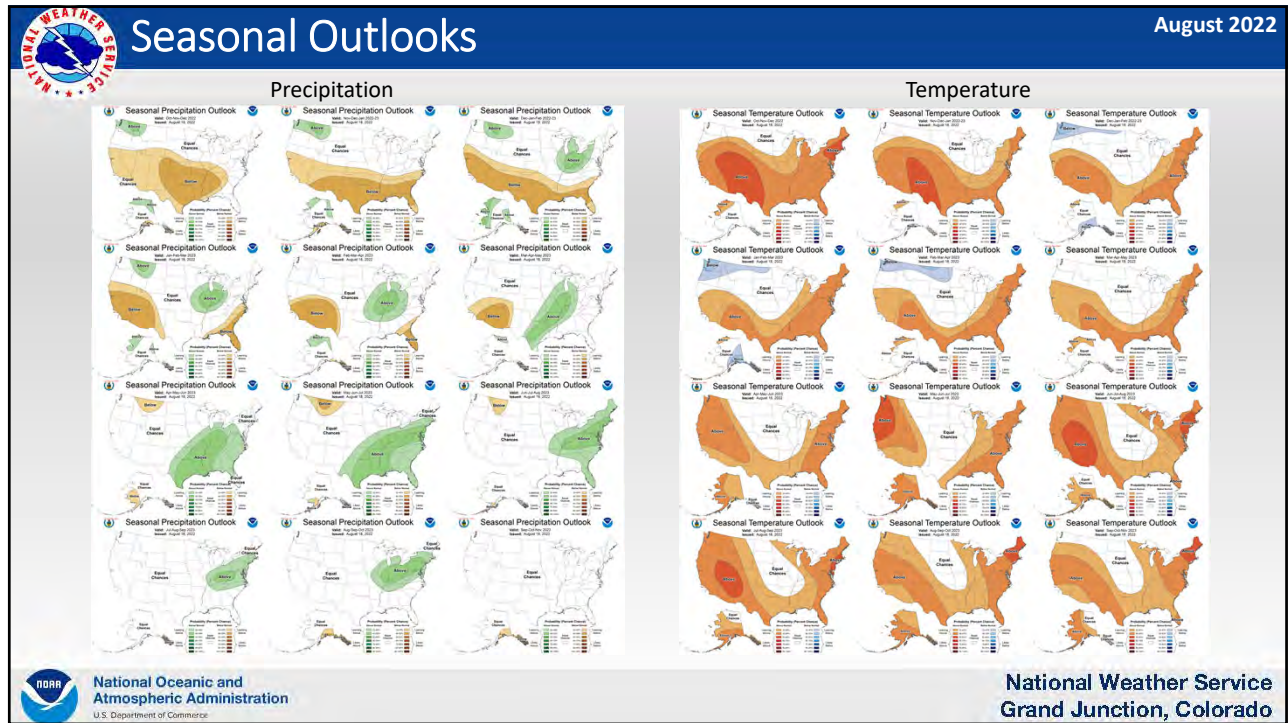
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26



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28



August 2022

My Last Aspinall Meeting

Aldis Strautins
National Weather Service
 Grand Junction, CO
<http://www.weather.gov/gjt>

National Oceanic and Atmospheric Administration
 U.S. Department of Commerce



National Weather Service
Grand Junction, Colorado

29

Aspinall Operations Meeting August 2022

Water Year 2022 Runoff Review

Ashley Nielson
 Hydrologist
 Colorado Basin River Forecast Center
 National Weather Service/NOAA

30

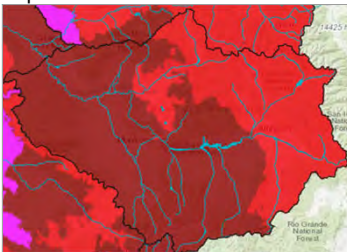
Outline

- Water Year 2022 Conditions Summary
 - Precipitation
 - Snow
- 2022 April-July Observed Volumes
- 2022 Water Supply Forecast Performance
- Current conditions
 - Soil Moisture
 - Streamflow
- Summary

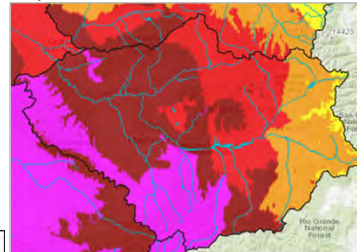
31

Precipitation: April-July

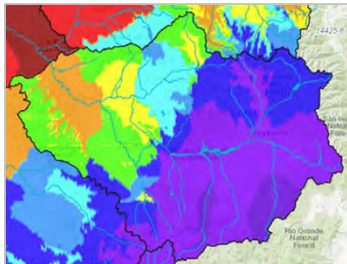
April



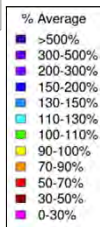
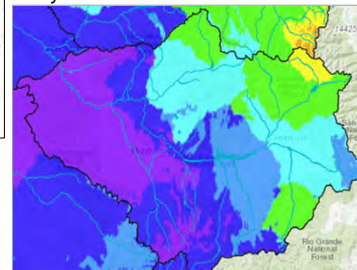
May



June



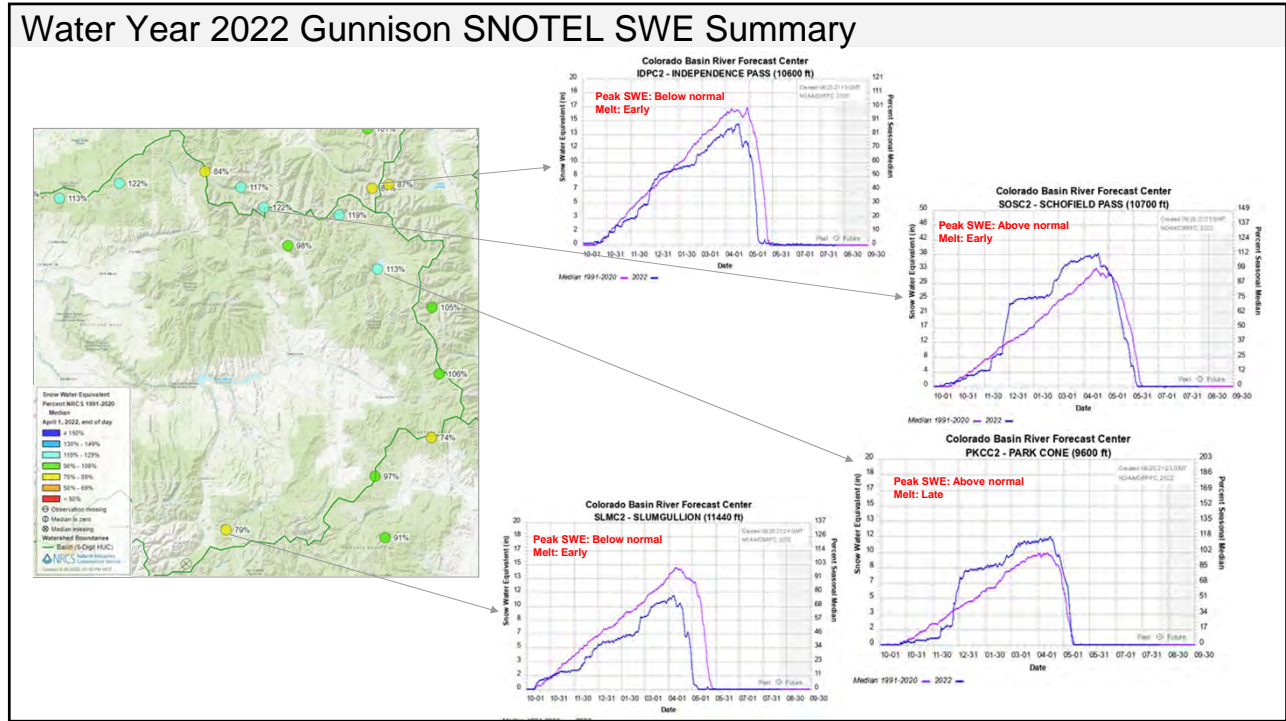
July



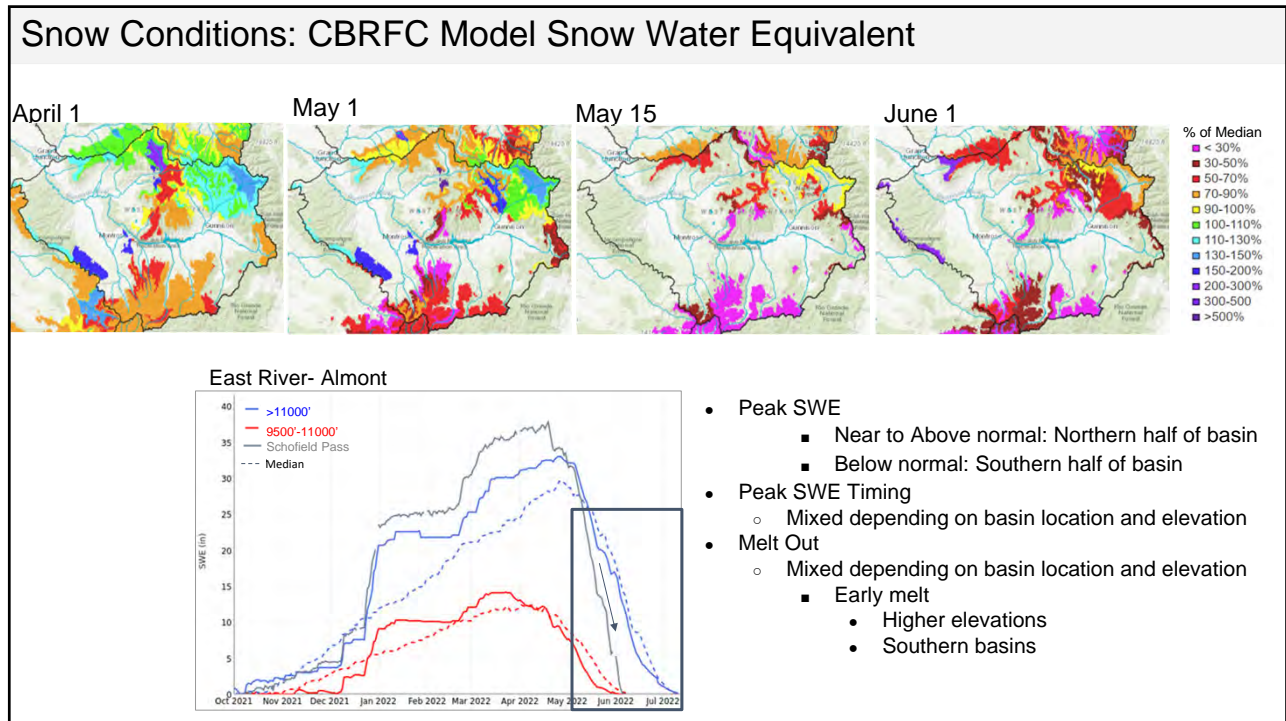
Gunnison Basin Precipitation as a % of Average

Oct-Mar	95
April	50
May	45
June	200
July	155
Oct-Jul	100

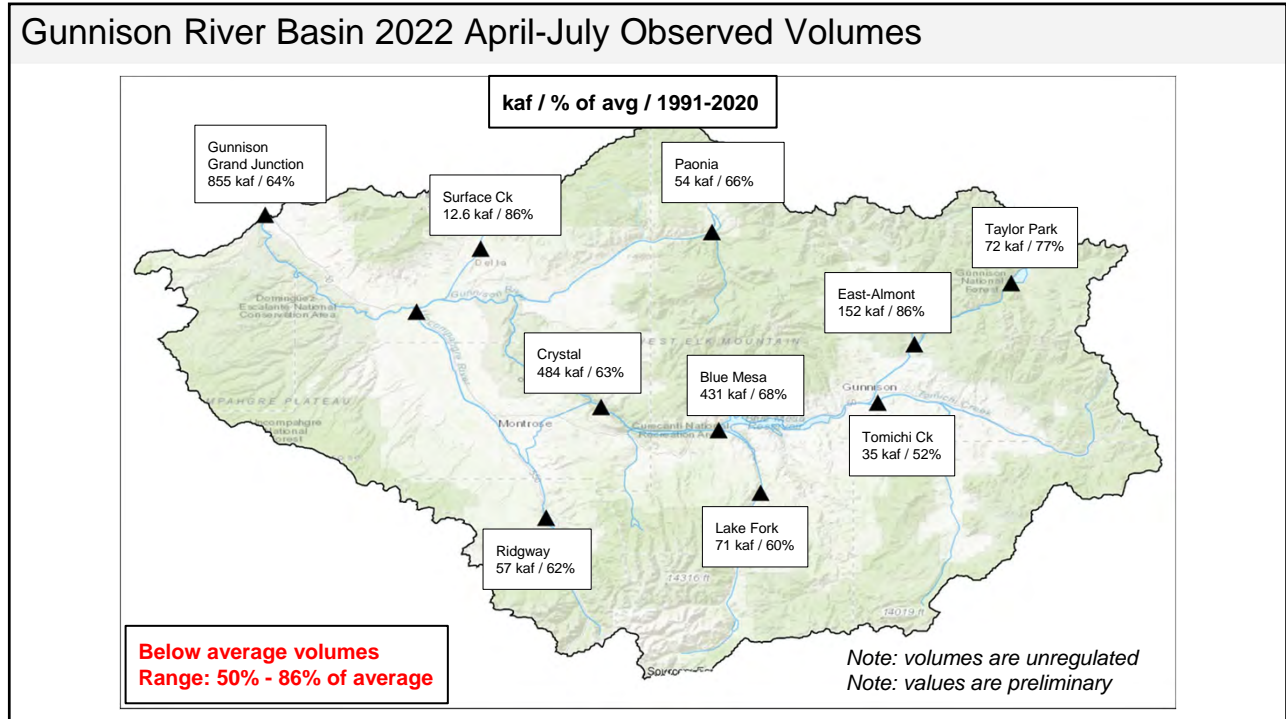
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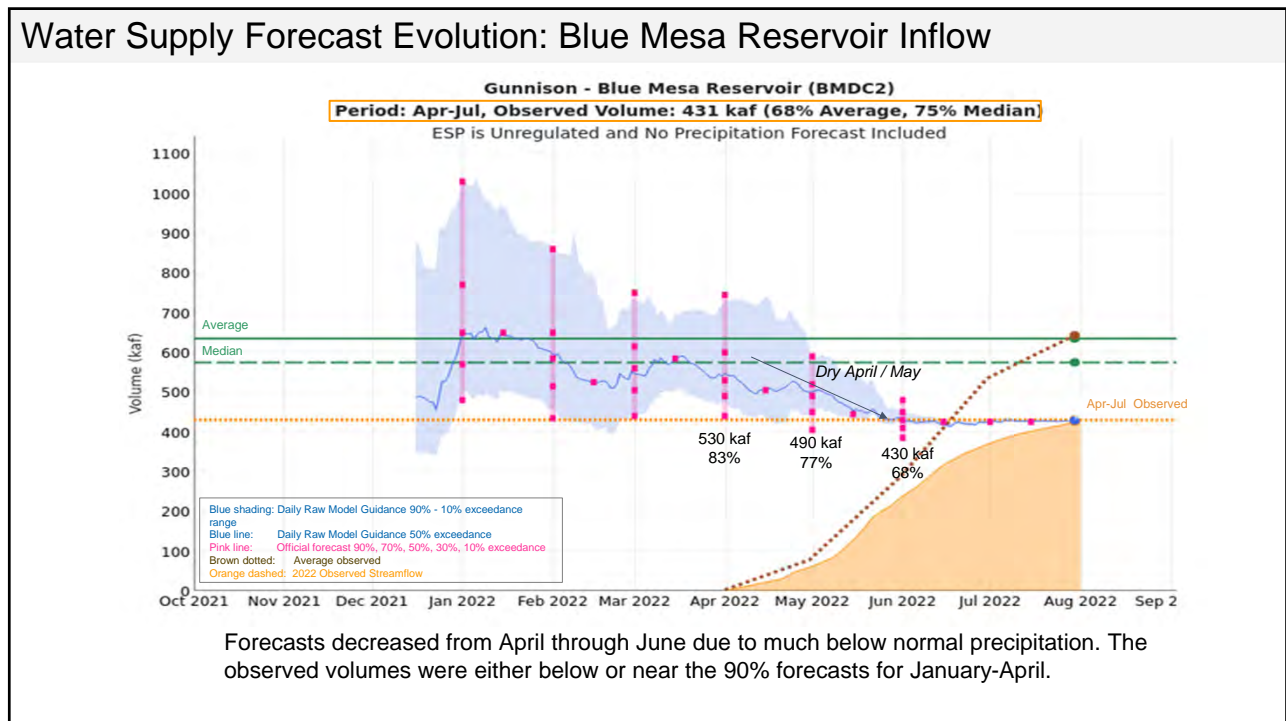
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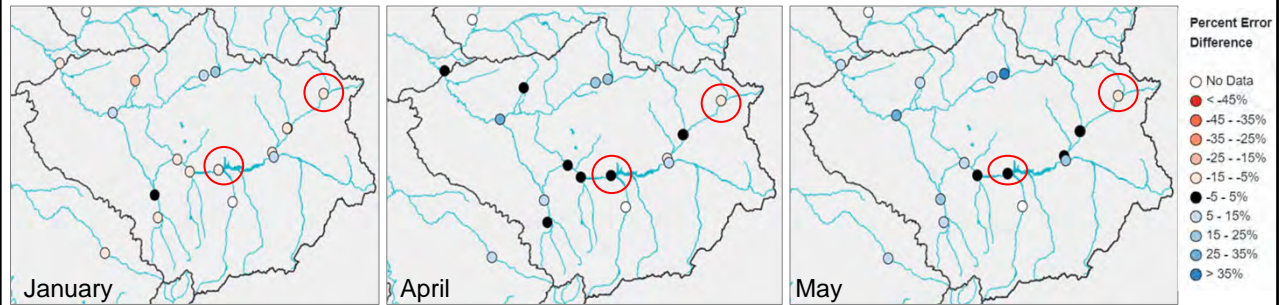
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36

Forecast Performance

WY2022 Forecast Error Compared to Normal Model Error



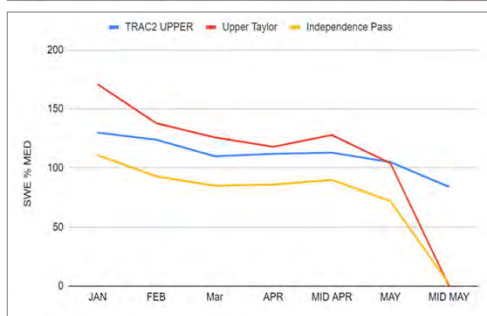
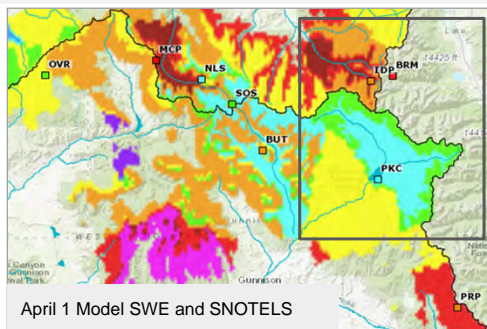
Warm Colors: WY22 forecast error > typical model error
Black: WY22 forecast error = typical model error
Cool Colors: WY22 forecast error < typical model error

Ideally, the current year forecast should have a similar or lower error than the model. If the current year forecast error is higher than the model, it suggests a problem with the following:

- Model initial conditions
- Model adjustments during the season
- Data quality issues

37

What happened?

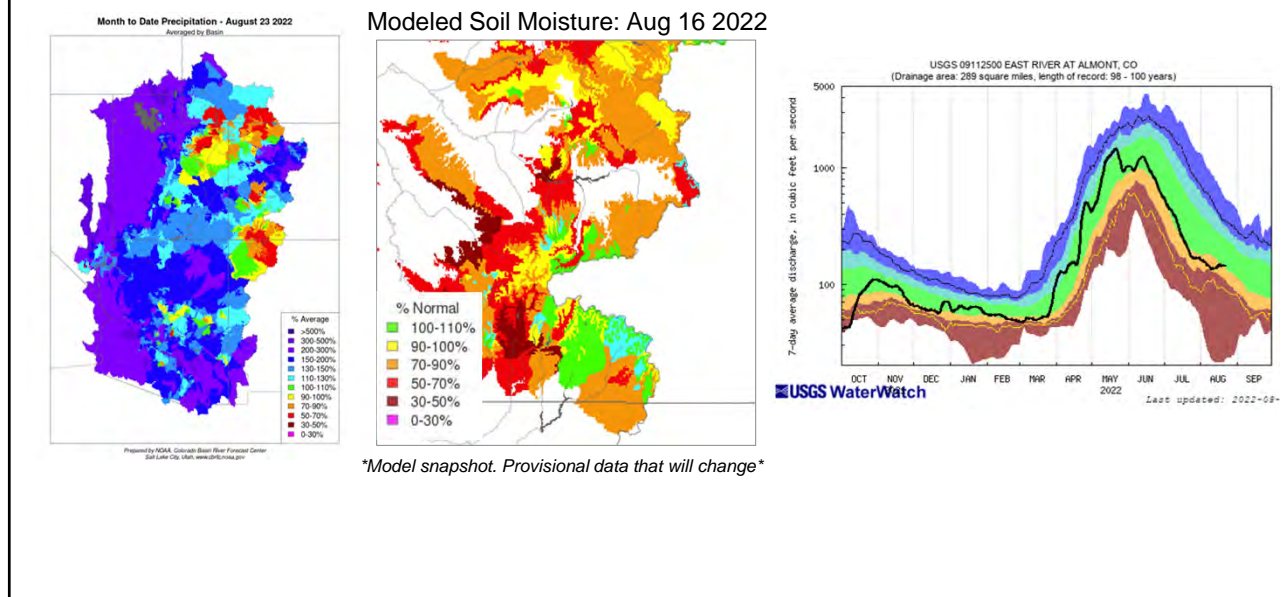


2022 Model Errors:

- Model SWE too high
 - Model uses precipitation to build snowpack
 - Independence Pass more representative of conditions?
 - More weight was put on Upper Taylor and Park Cone SNOTELs as Independence Pass seemed like an outlier. This may have been the wrong idea.
 - Removed snow from the model in June
- The model did not melt enough snow in May; held onto the snow in the model as streamflow wasn't showing response
 - Model soil moisture too wet?
 - Sublimation?
 - Dust impacts?
- Continue to investigate a suite of other snow products to help verify and reality check model SWE
- Taylor River errors impacted downstream forecasts including Blue Mesa Reservoir.
- Unusual year and a particularly tricky Spring with a warm/dry period followed by a wet/cool period during the typical runoff time. The model often struggles with this kind of transition.

38

Late August Conditions



39

Summary:

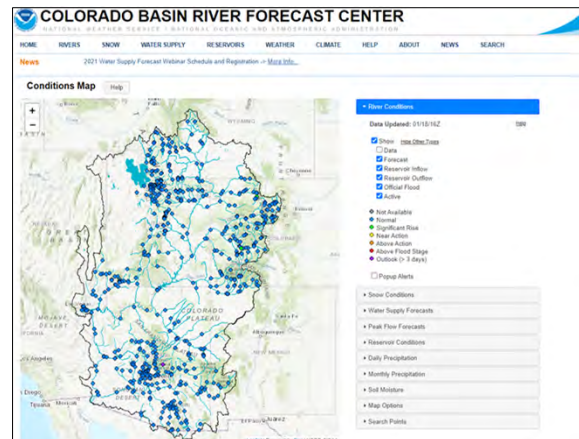
- Water Supply Conditions:
 - Below normal soil moisture conditions entering the 2022 spring runoff season
 - April-July observed unregulated runoff volumes ranged from 50-85% of average.
 - Peak SWE and melt timing were dependent on basin location and elevation
 - Near to above normal: Northern half of the basin
 - Below normal: Southern half of the basin
 - Below normal precipitation in April-May
 - Above normal precipitation in June-July
 - Warm and dry spring weather had a significant impact on water supply conditions
- Current conditions
 - Improved baseflow and soil moisture conditions
 - Aug-Oct weather will determine final conditions prior to winter
- Water Supply Forecasts
 - Forecasts decreased from April-June due to below normal precipitation
 - Observed volumes were near or below the 90% forecasts
 - Forecast error was higher than the normal model error; specifically above Taylor Park Reservoir
 - Model snow states too high
 - Model melt rates too slow
- Weather
 - June-August weather has brought precipitation and hydrologic relief to the region

40

Contact Info:

Contact Information

- Ashley Nielson - Gunnison River Forecaster
 - ashley.nielson@noaa.gov
 - 801-524-5130 x333
- Operational Hydrologist: in office
 - 801-524-4004
 - cbrfc.operations@noaa.gov



CBRFC Webpage

<https://www.cbrfc.noaa.gov/>

CBRFC Water Supply Presentations

<https://www.cbrfc.noaa.gov/present/present.php>

41

RESERVOIR AND RIVER STATUS

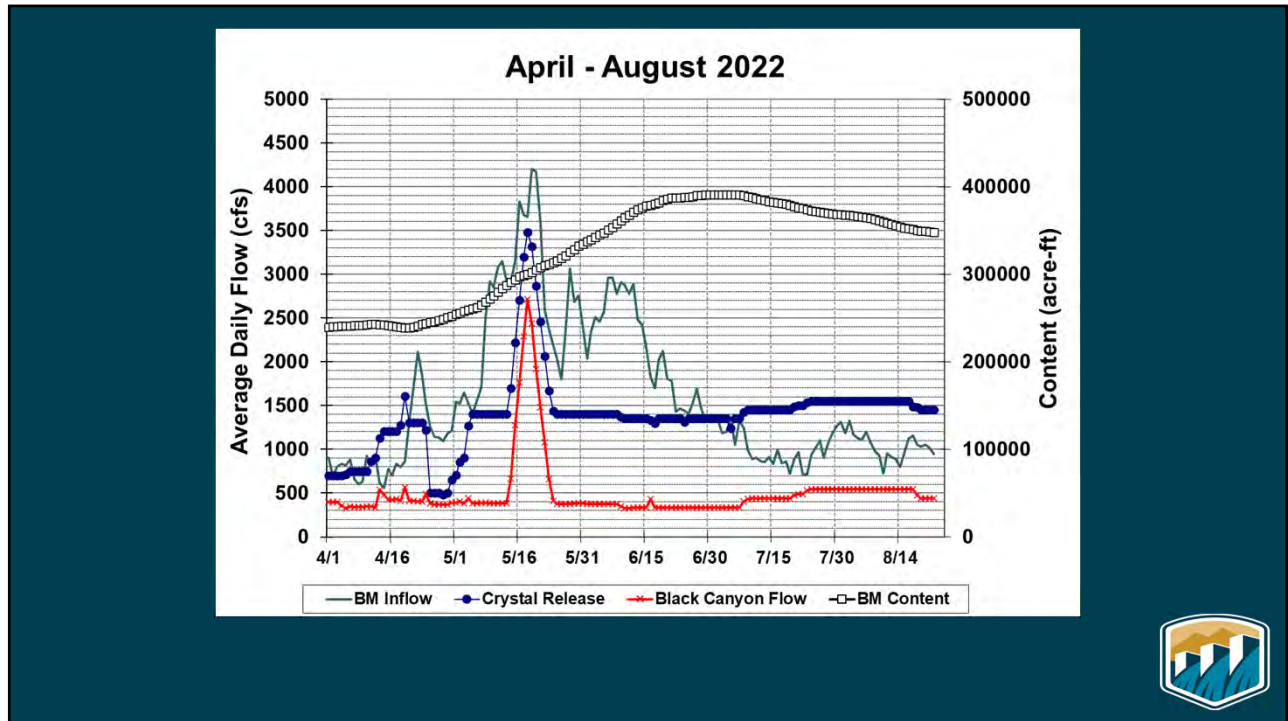
Blue Mesa Reservoir content is currently at 346,000 acre-feet at an elevation of 7456 feet. (42% full)

Crystal Dam is releasing 1450 cfs and flows in the Gunnison River through the Black Canyon are 440 cfs

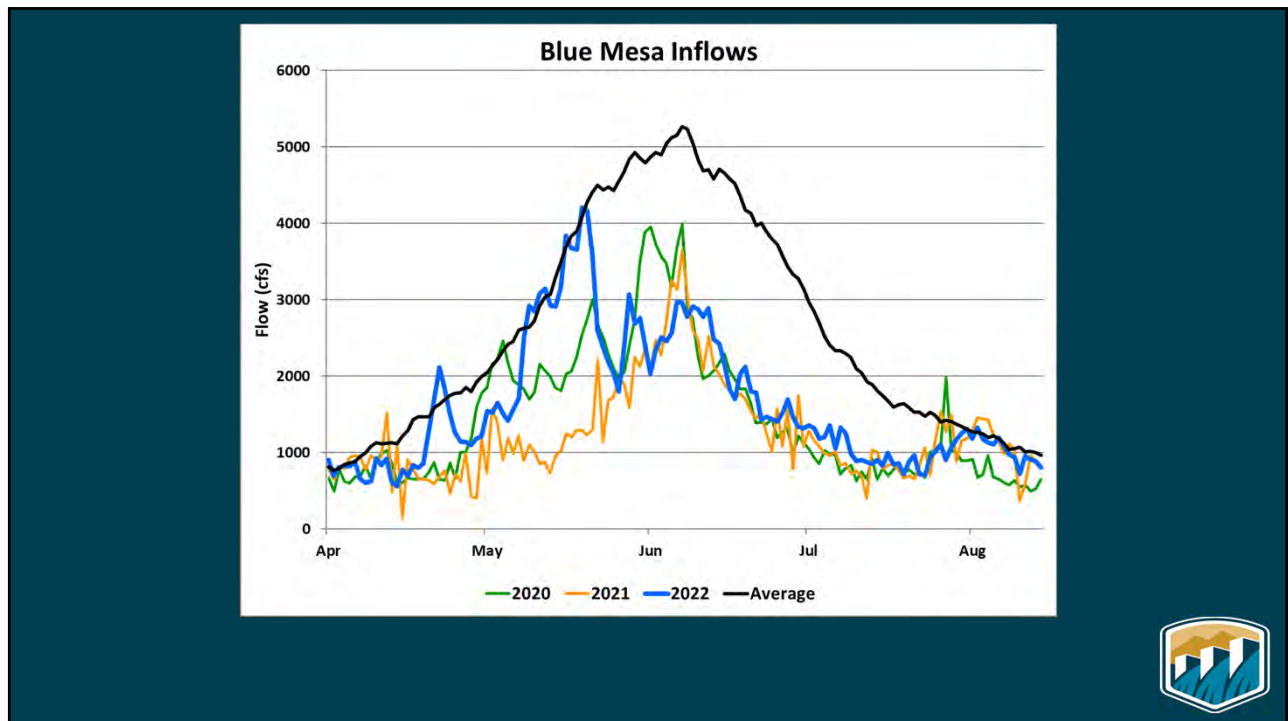
Flows in the lower Gunnison River at the Whitewater gage are ~1000 cfs, above the baseflow target of 900 cfs



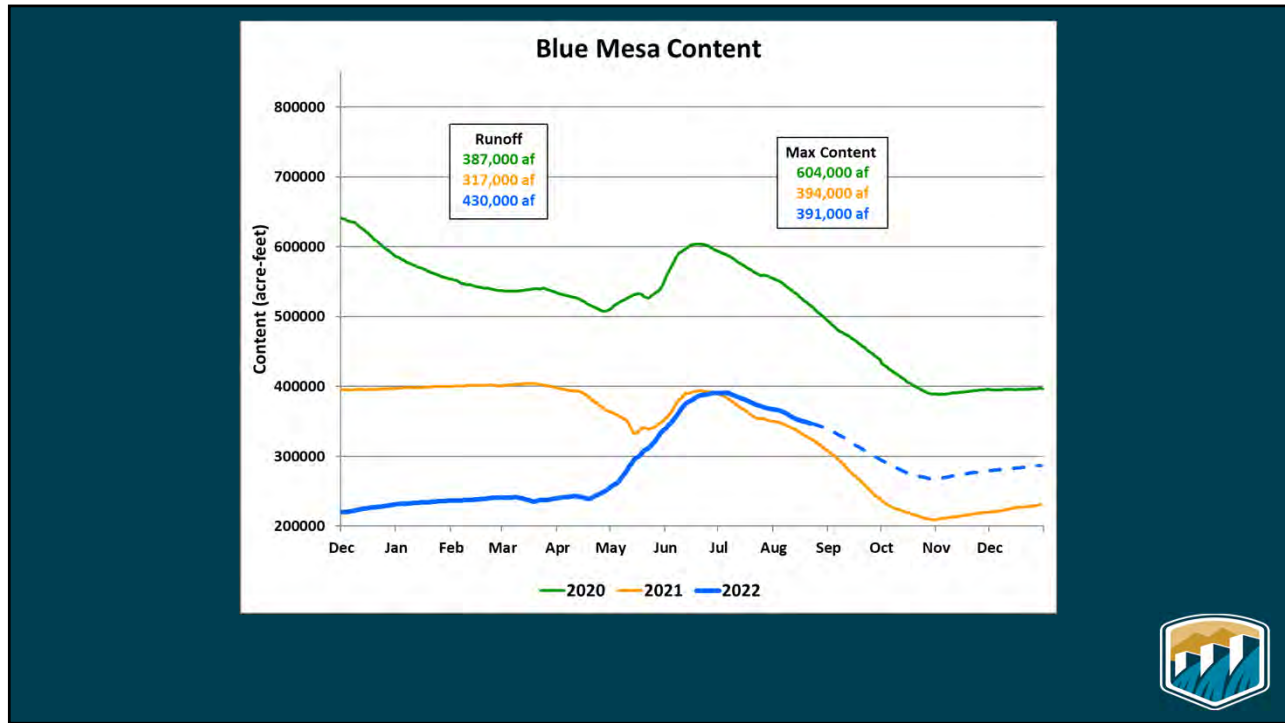
42



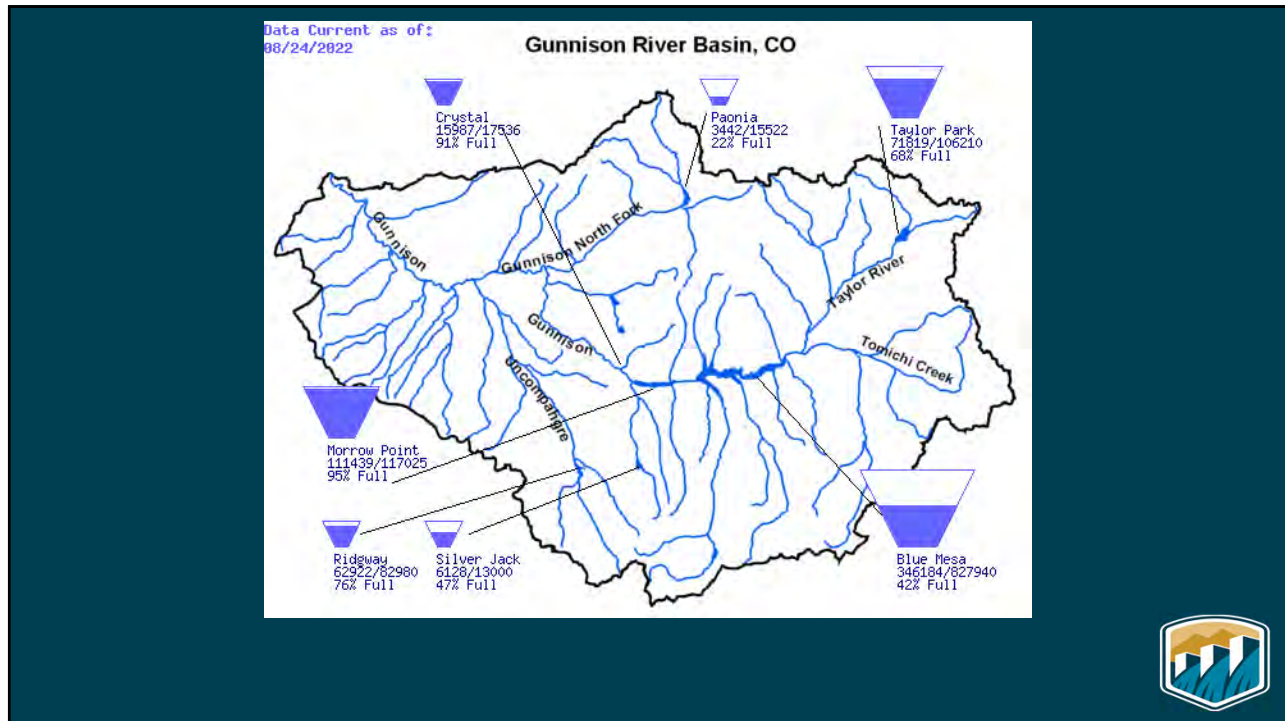
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44



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46

SPRING RUNOFF

Actual runoff for major rivers in the Gunnison Basin fell in the 55-85% of average range

The May 1 runoff forecast for Blue Mesa Reservoir put 2022 into the Moderately Dry hydrologic category. Actual runoff was 68% of average.

The ROD targets in the Moderately Dry category call for a 1 day peak flow of ~7,000 cfs at Whitewater. **However, the drought rules allow the peak flow at Whitewater to be reduced to 5,000 cfs when Blue Mesa content is less than 400,000 acre-feet.**

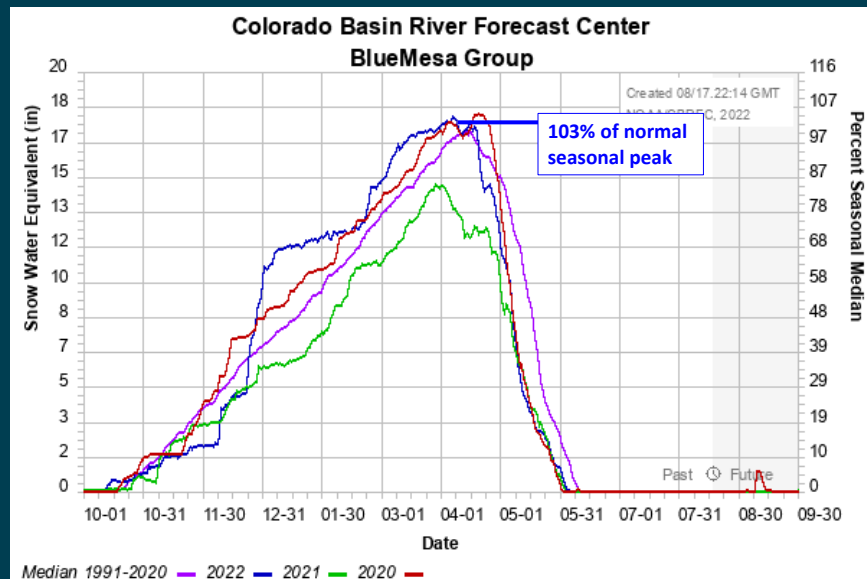
There were no half bankfull or peak flow duration targets.

Drought rules that lower the baseflow targets are in effect in a Moderately Dry year

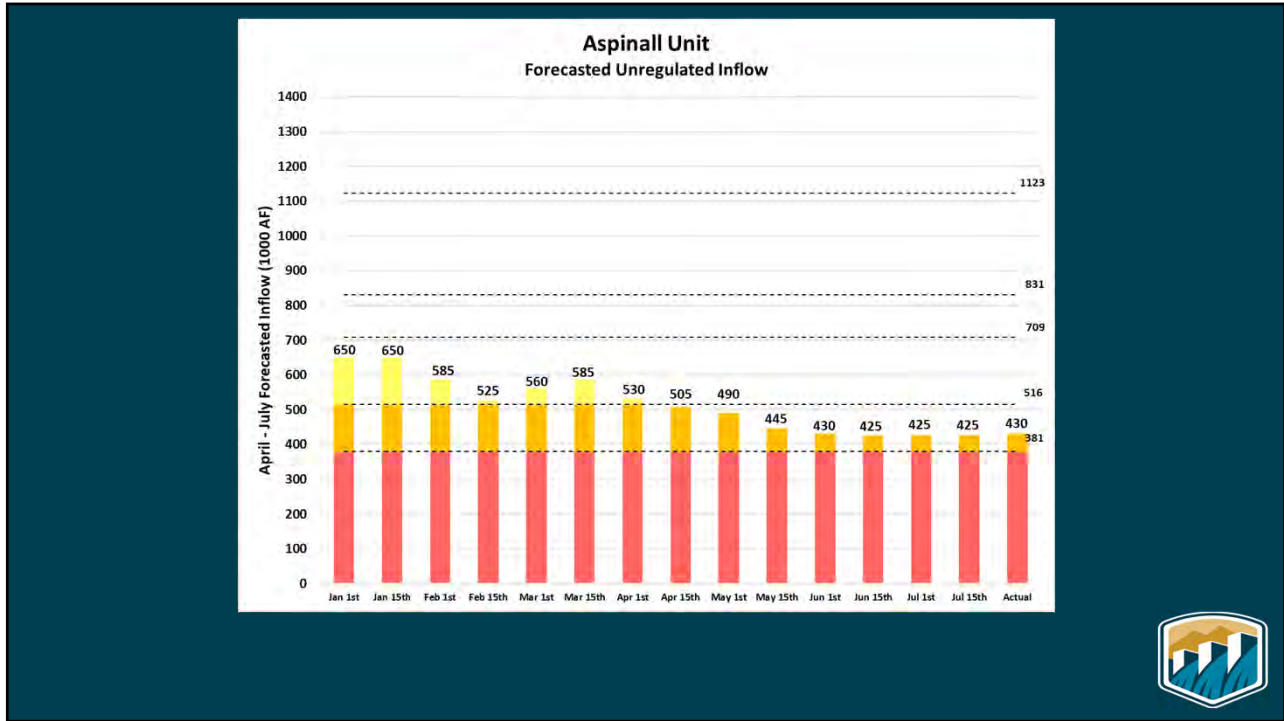
The Black Canyon water right peak flow target was 2,412 cfs



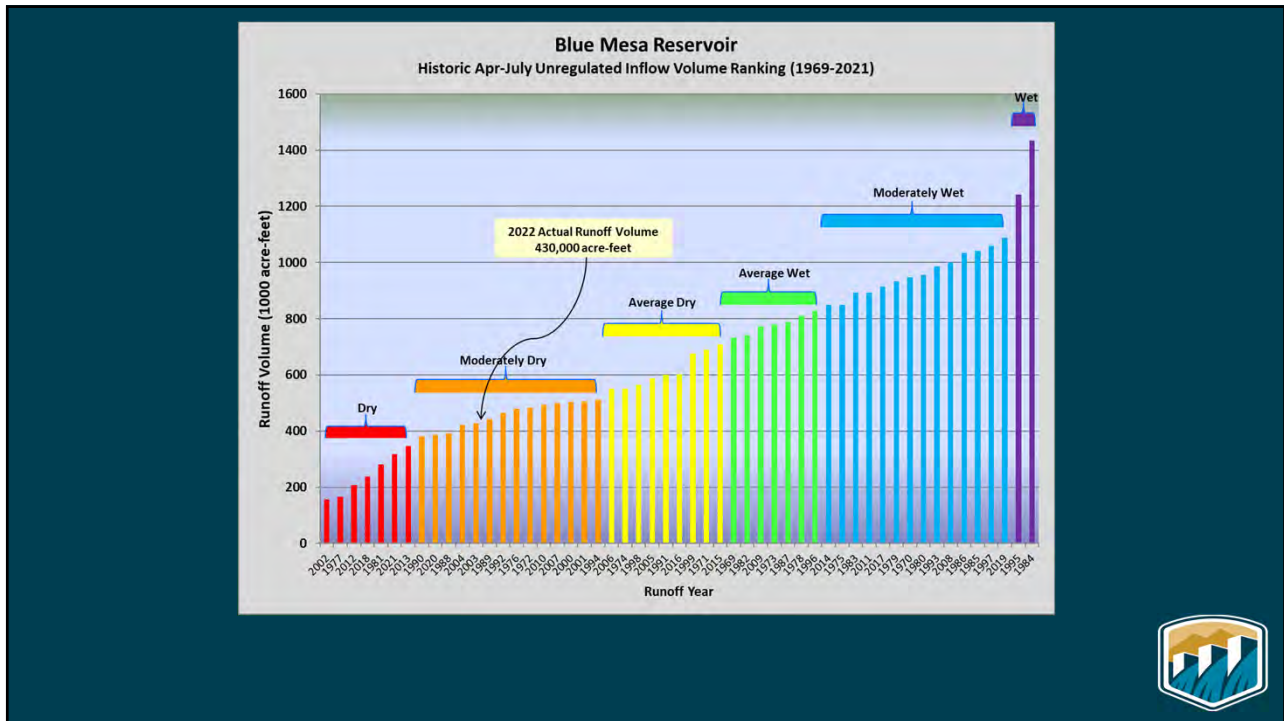
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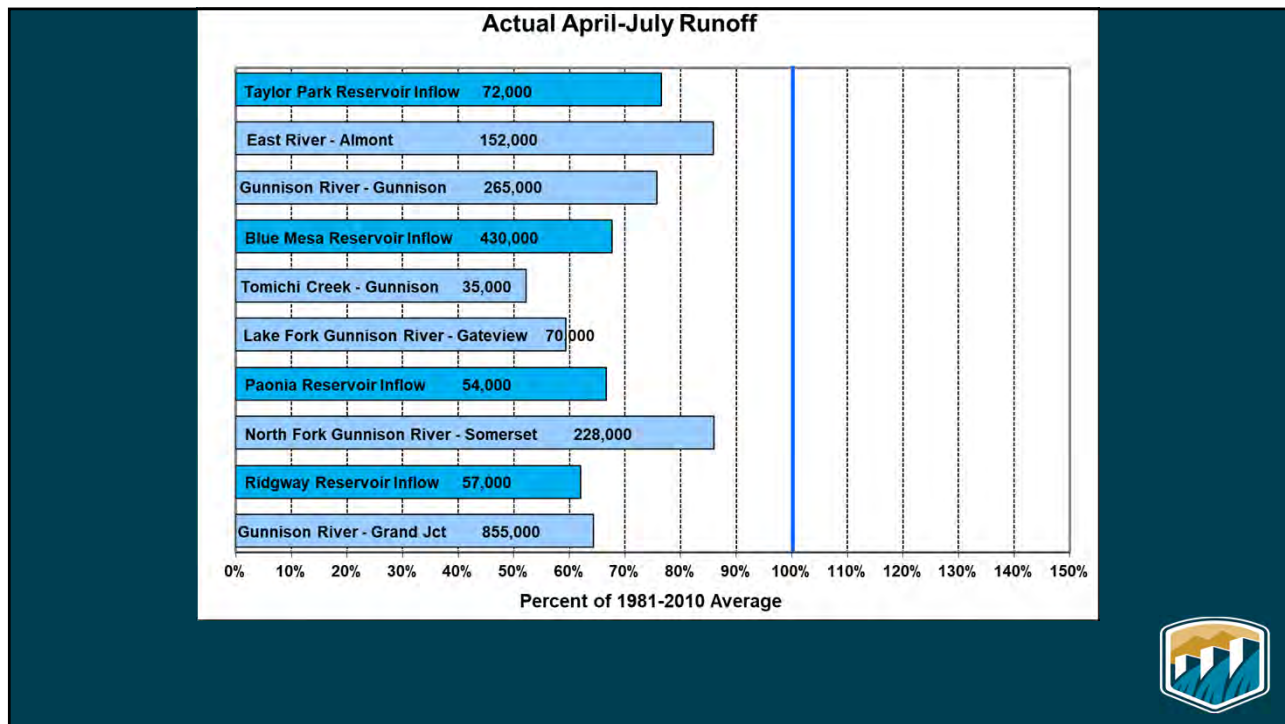
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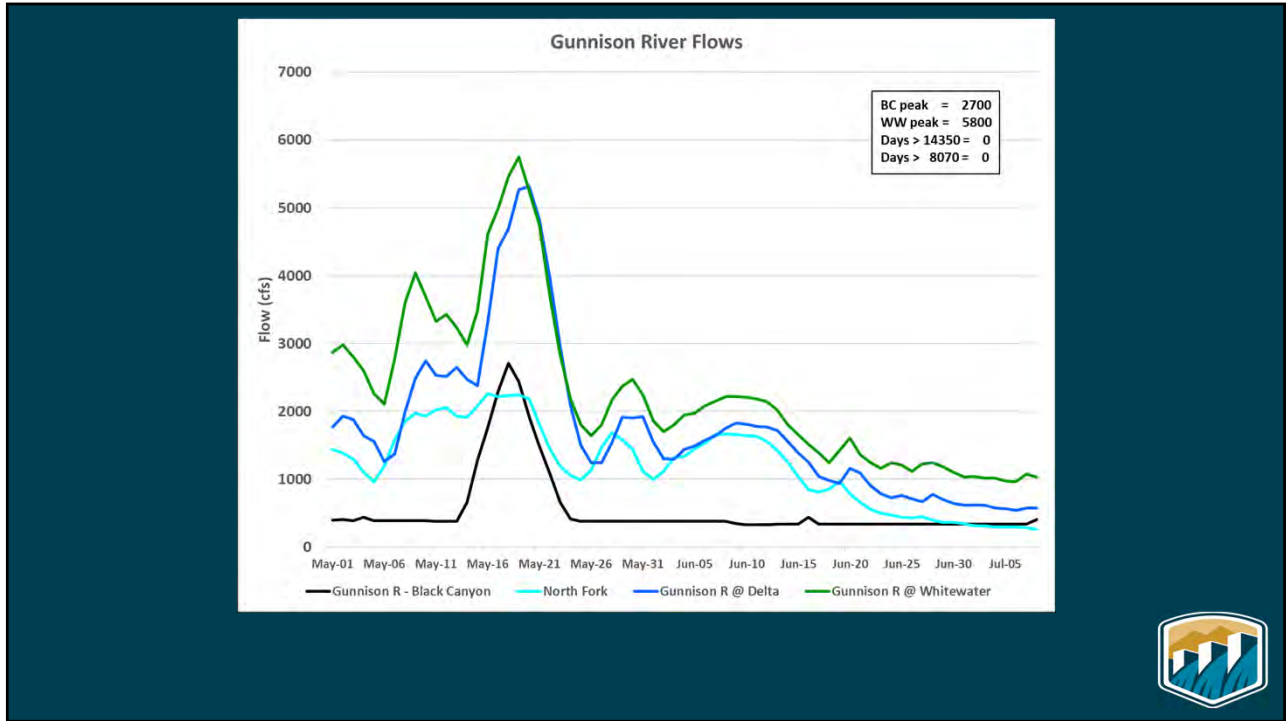
Spring Peak & Duration Targets Based on Hydrologic Year Type

Year Type	Blue Mesa Forecasted April-July Inflow Af	Desired Peak at Whitewater cfs	Duration of Half Bank (8,070 cfs) Days	Duration of Peak Flow (up to 14,350 cfs) Days
DRY	< 381,000	900	0	0
MOD DRY	381,000 to 516,000	2,600 to 8,070	0	0
AVG DRY	516,001 to 709,000	8,070	10	0
AVG WET	709,001 to 831,000	8,070 to 14,350	20	2
MOD WET	831,001 to 1,123,000	14,350	40	10
WET	>1,123,000	14,350	60	15

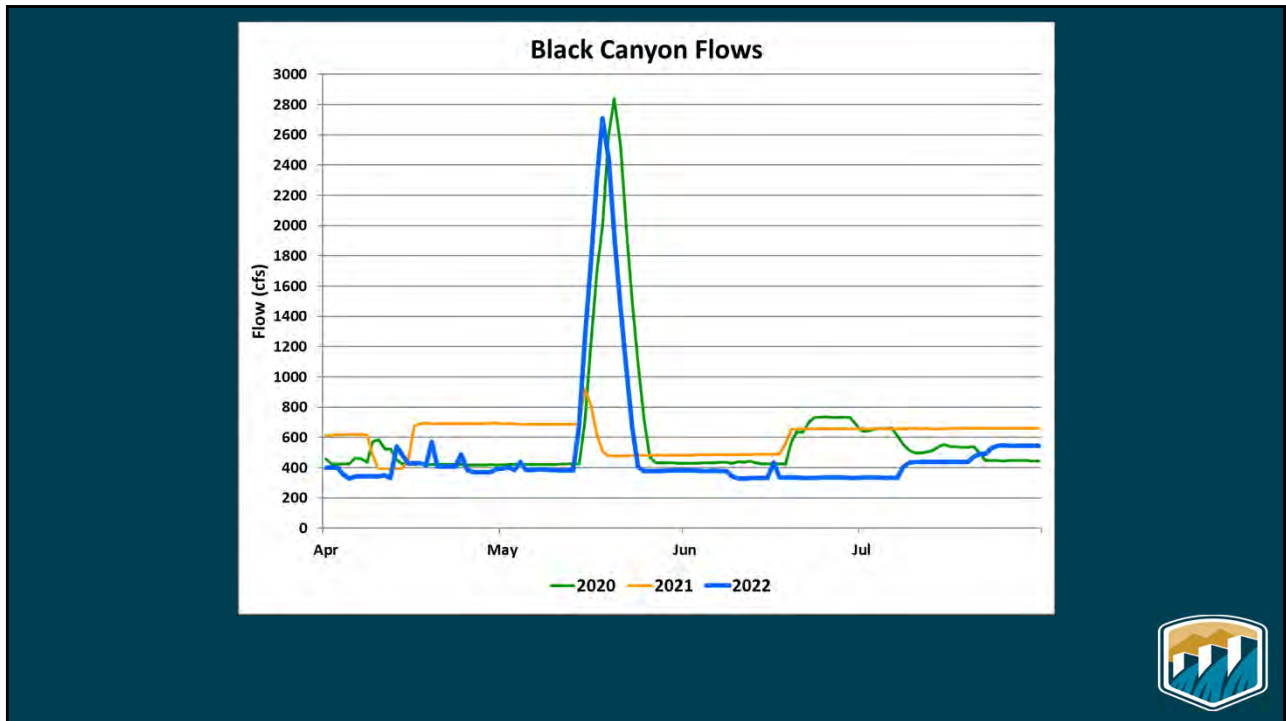
Actual 430,000 →

WW Peak Flow = 5800 cfs – occurred on May 19
BC Peak Flow = 2700 cfs – occurred on May 18
1 day at Peak Flow

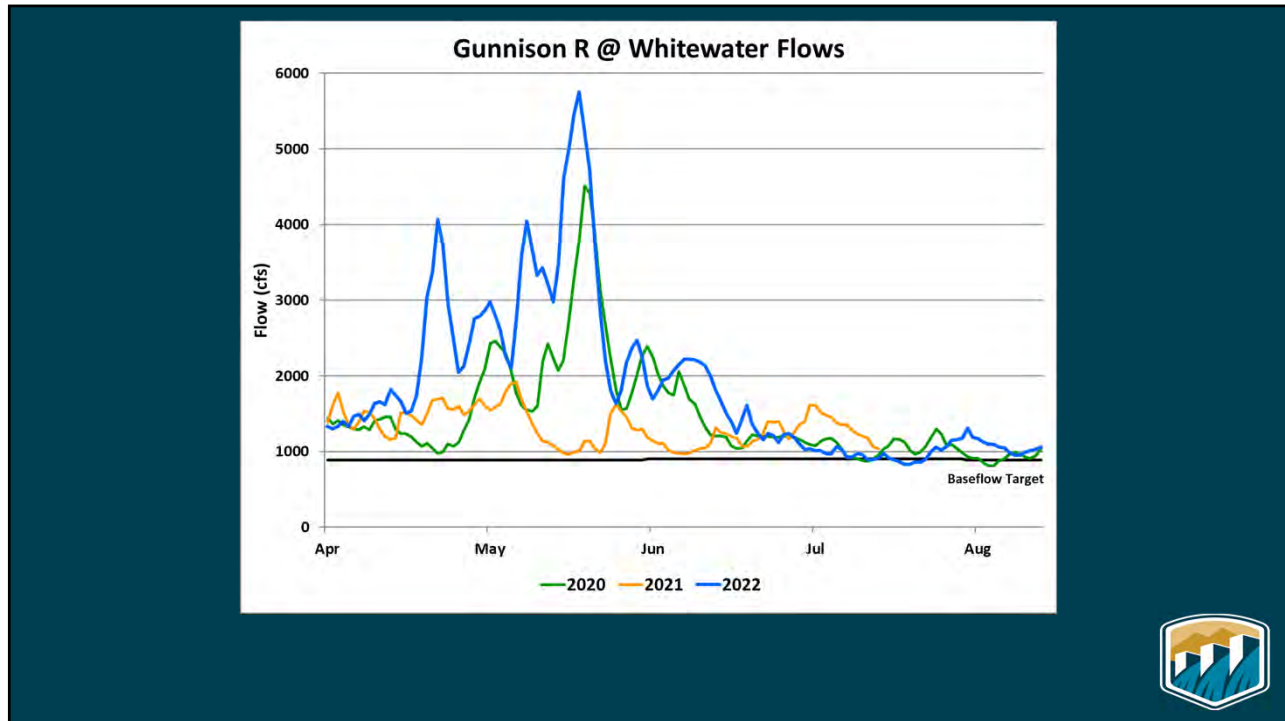
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53



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55

SUMMER/FALL OPERATIONS

Releases from the Aspinall Unit to meet the baseflow target on the lower Gunnison River at Whitewater have resulted in flows of 350 cfs to 550 cfs in the Gunnison River through the Black Canyon and Gunnison Gorge this summer

Gunnison River flows through the Canyon/Gorge are expected to be between 350 cfs and 450 cfs for the remaining summer and fall months

On December 31, 2022, Blue Mesa Reservoir is expected to be at elevation 7446 feet with a content of 287,000 acre-feet (35% full)

56

Baseflow Targets

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Wet	1050	1050	1050	1050	1050	1500	1500	1500	1050	1050	1050	1050
Mod Wet	1050	1050	1050	1050	1050	1500	1500	1500	1050	1050	1050	1050
Avg Wet	1050	1050	1050	1050	1050	1500	1500	1050	1050	1050	1050	1050
Avg Dry	1050	1050	1050	1050	1050	1500	1500	1050	1050	1050	1050	1050
Mod Dry*	750	750	750/790	750/890	750/890	1050	1050	1050	750/890	750/790	750/790	750
Dry*	750	750	750/790	750/890	750/890	1050	1050	750/890	750/890	750/790	750/790	750

*During March through November in Moderately Dry and Dry type years, additional releases will be made as necessary to provide flows above the 750 cfs anticipated to be diverted by the Redlands Water and Power Company, for the fish ladder and fish screen as shown.

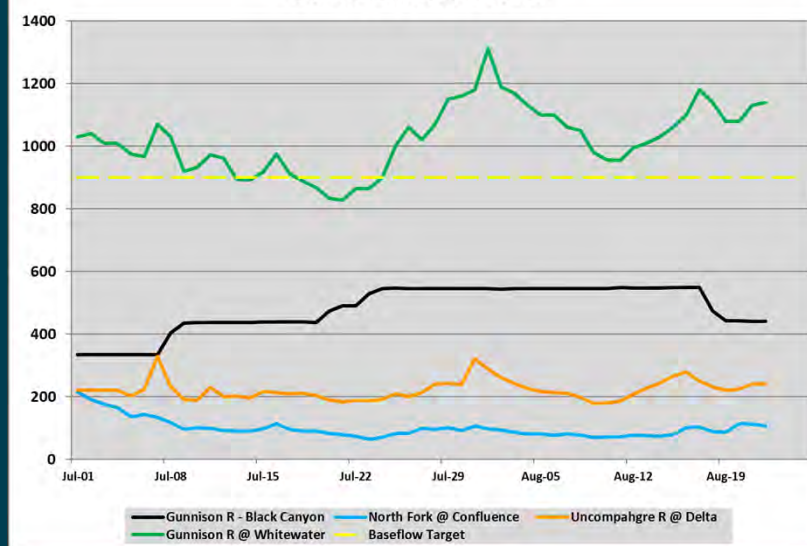
Drought Rule

- During Dry and Moderately Dry years, if Blue Mesa Reservoir content drops below 600,000 af, the Whitewater baseflow target is reduced from 1050 cfs to 900 cfs until Blue Mesa Reservoir content exceeds 600,000 af

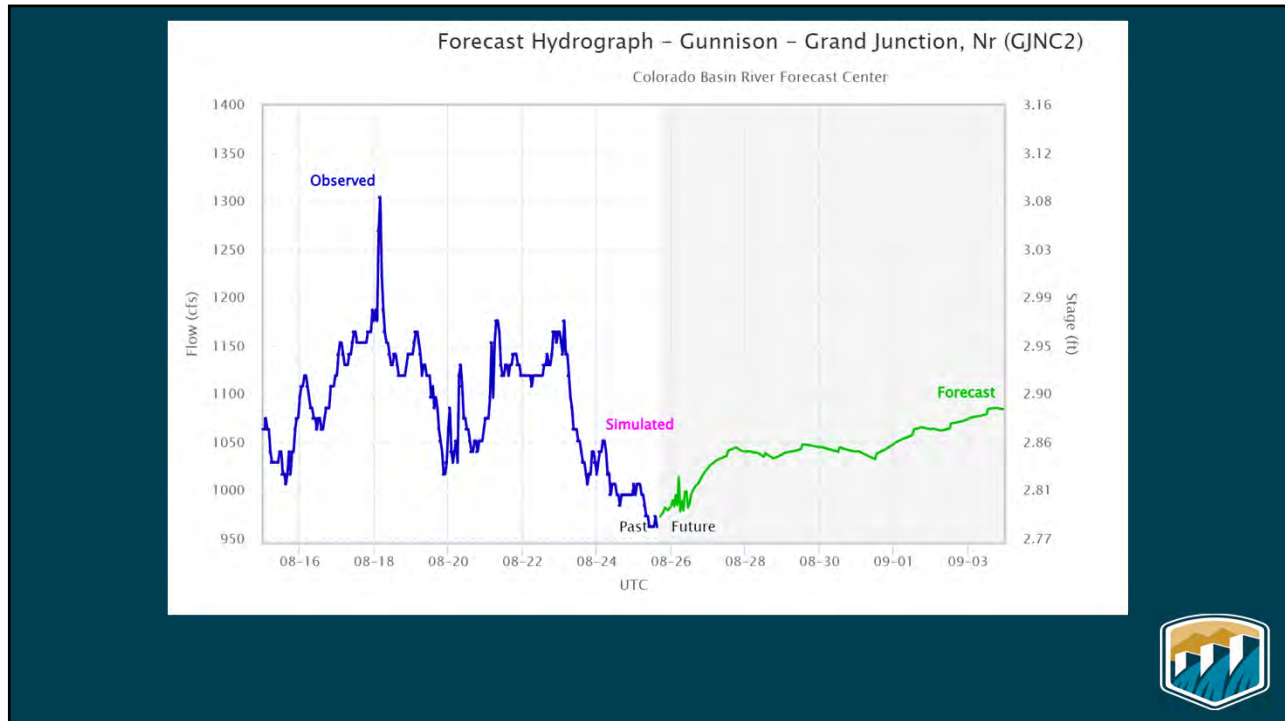


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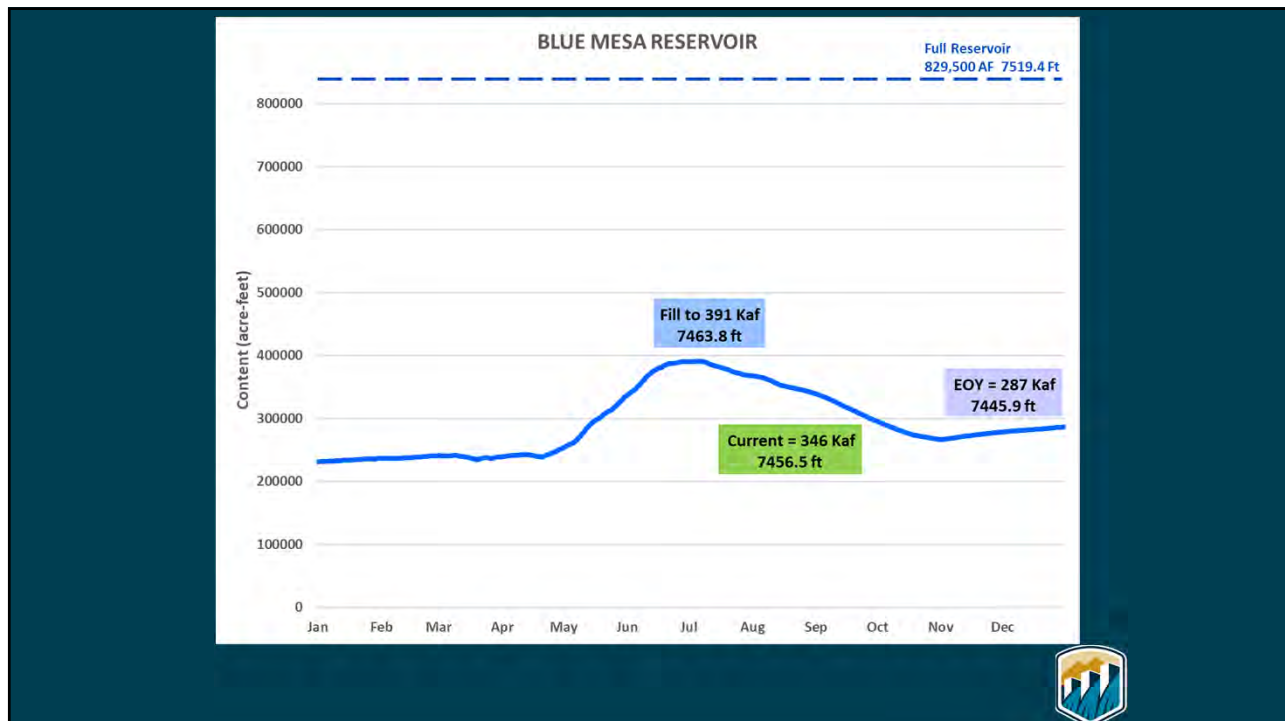
Gunnison River Flows



58



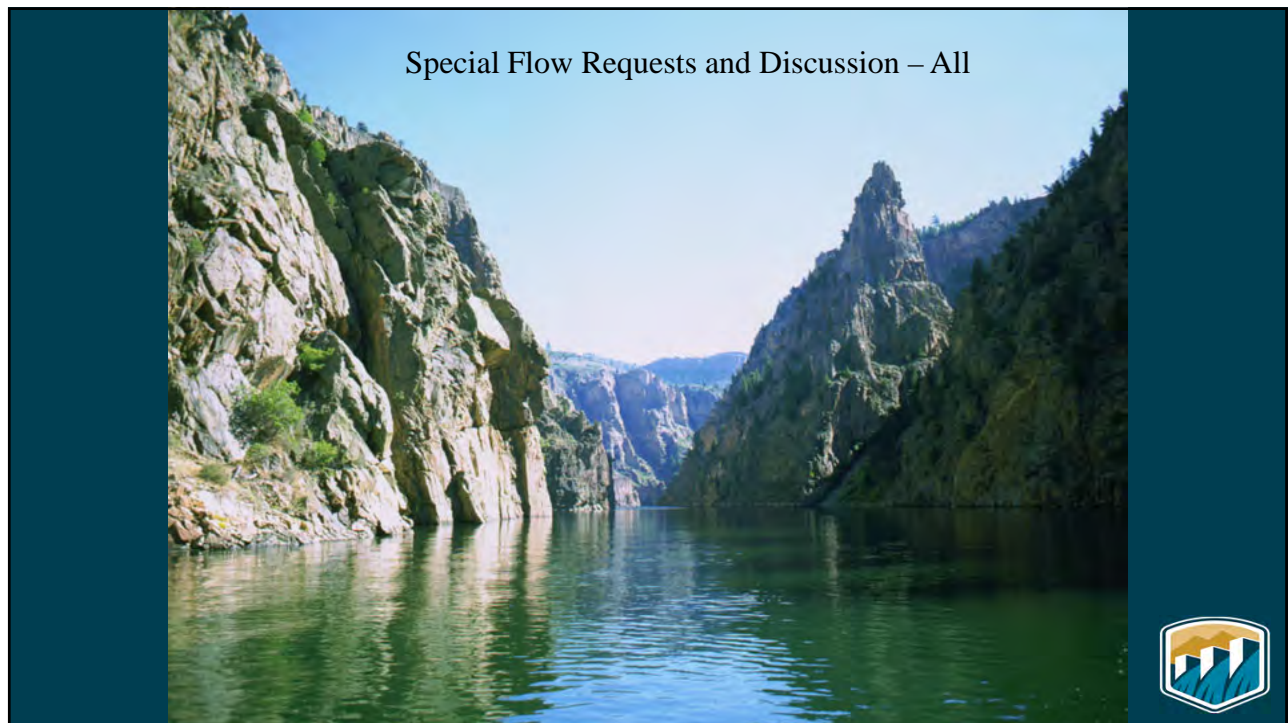
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