

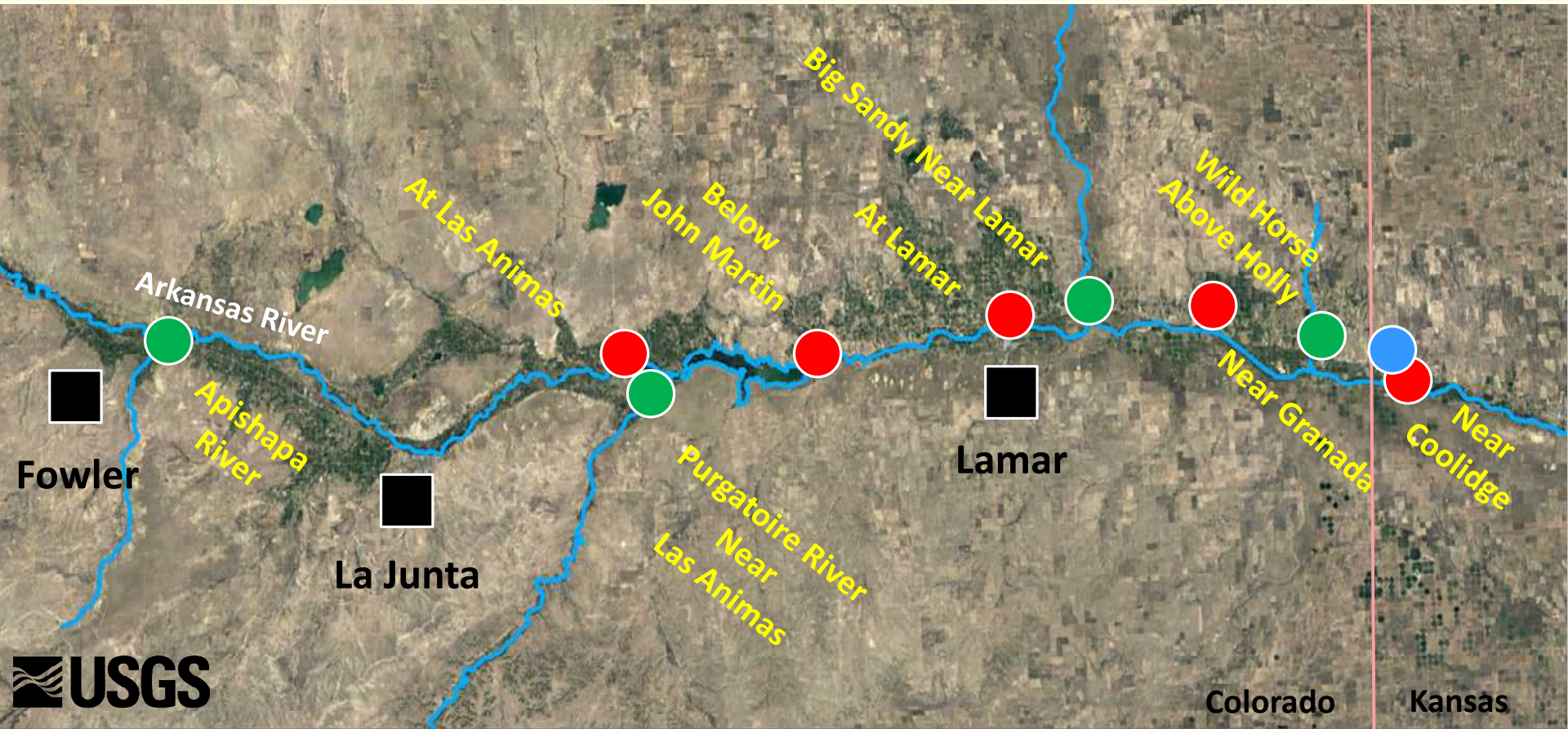


USGS Update:
Selected 2021 Surface-Water Topics
December 8, 2021

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USGS Colorado Water Science Center
ethredge@usgs.gov
719-568-2829

USGS/ARCA Cooperative Streamgauge Program

- Mainstem Arkansas Sites (5)
- Tributary Sites (4)
- Frontier Ditch



HISTORICAL PERSPECTIVE

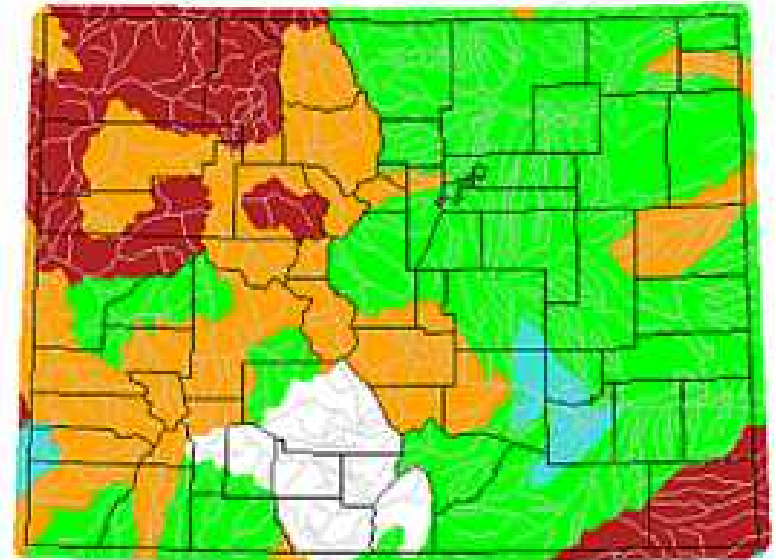
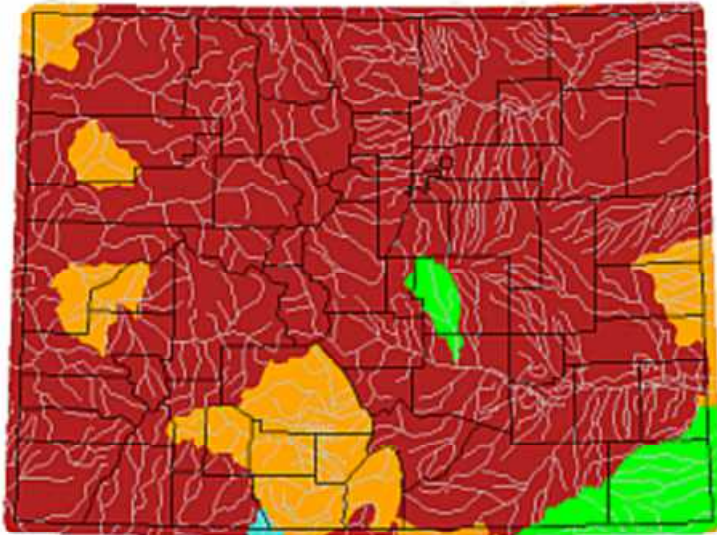
Monthly Streamflow Comparison

Water Year 2002 below average streamflow

July 2002

July 2021

July 2002



Explanation

Percentile Classes



Source: waterwatch.usgs.gov

HISTORICAL PERSPECTIVE

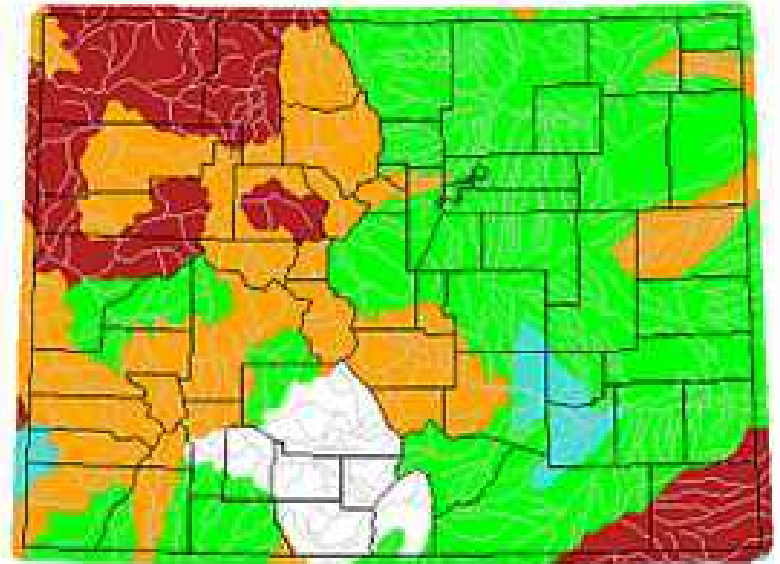
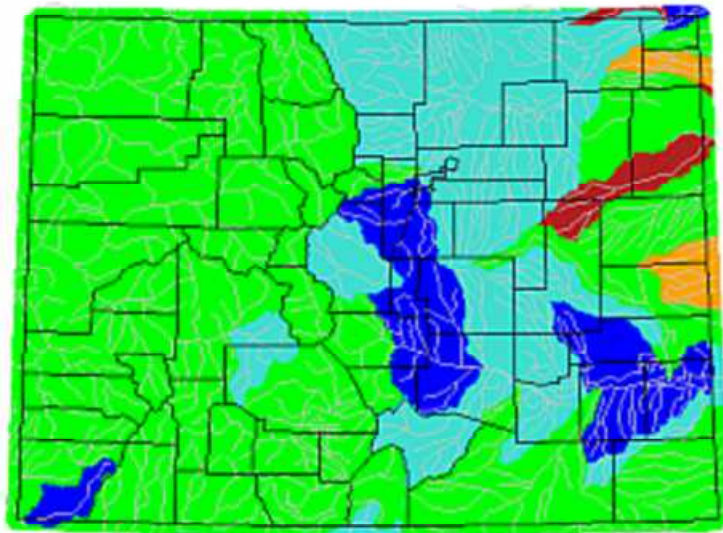
Monthly Streamflow Comparison

Water Year 2015 above average streamflow

July 2015

July 2021

Saturday, August 01, 2015



Explanation Percentile Classes



Source: waterwatch.usgs.gov

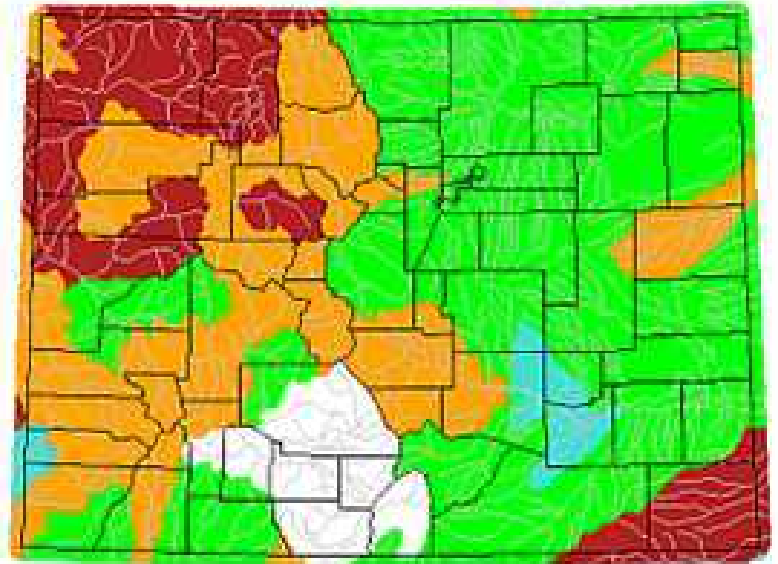
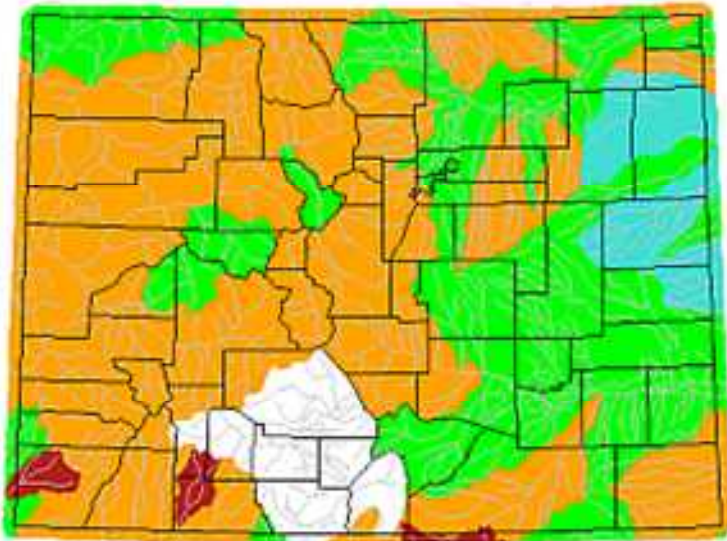
HISTORICAL PERSPECTIVE

Monthly Streamflow Comparison

Water Year 2020 Comparison

July 2020

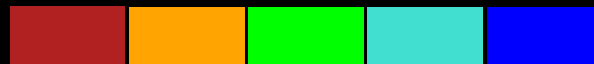
July 2021



USGS

Explanation

Percentile Classes



<10	10-24	25-75	76-90	>90
Much Below Normal	Below Normal	Normal	Above Normal	Much Above Normal

USGS

Source: waterwatch.usgs.gov

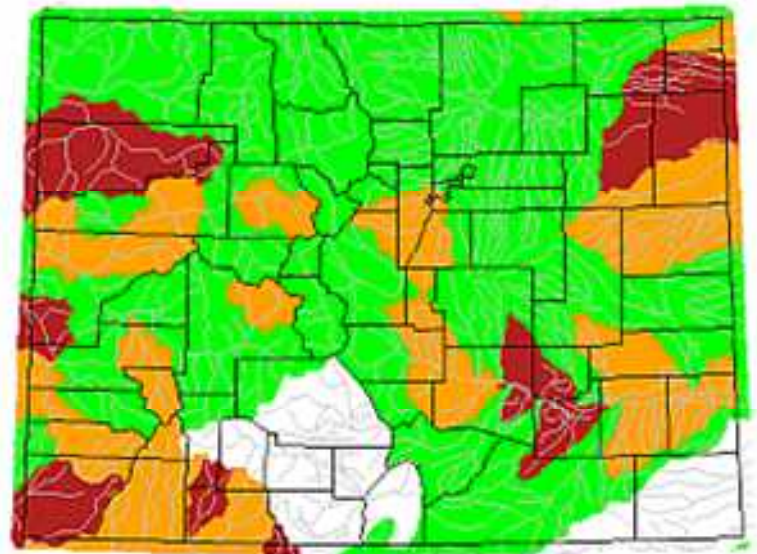
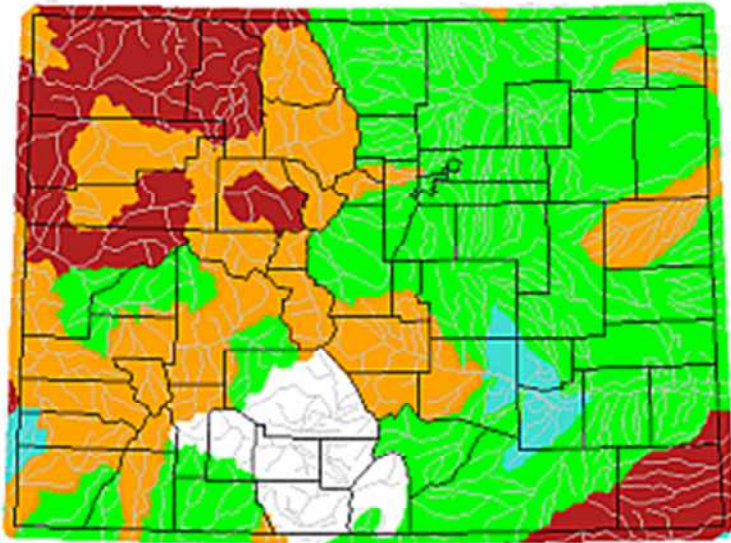
RECENT PERSPECTIVE

Monthly Streamflow Comparison

Water Year 2021 Monthly Comparison

July 2021

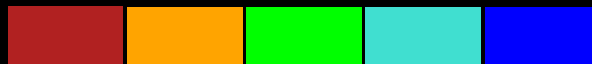
October 2021



USGS

Explanation

Percentile Classes



<10	10-24	25-75	76-90	>90
Much Below Normal	Below Normal	Normal	Above Normal	Much Above Normal

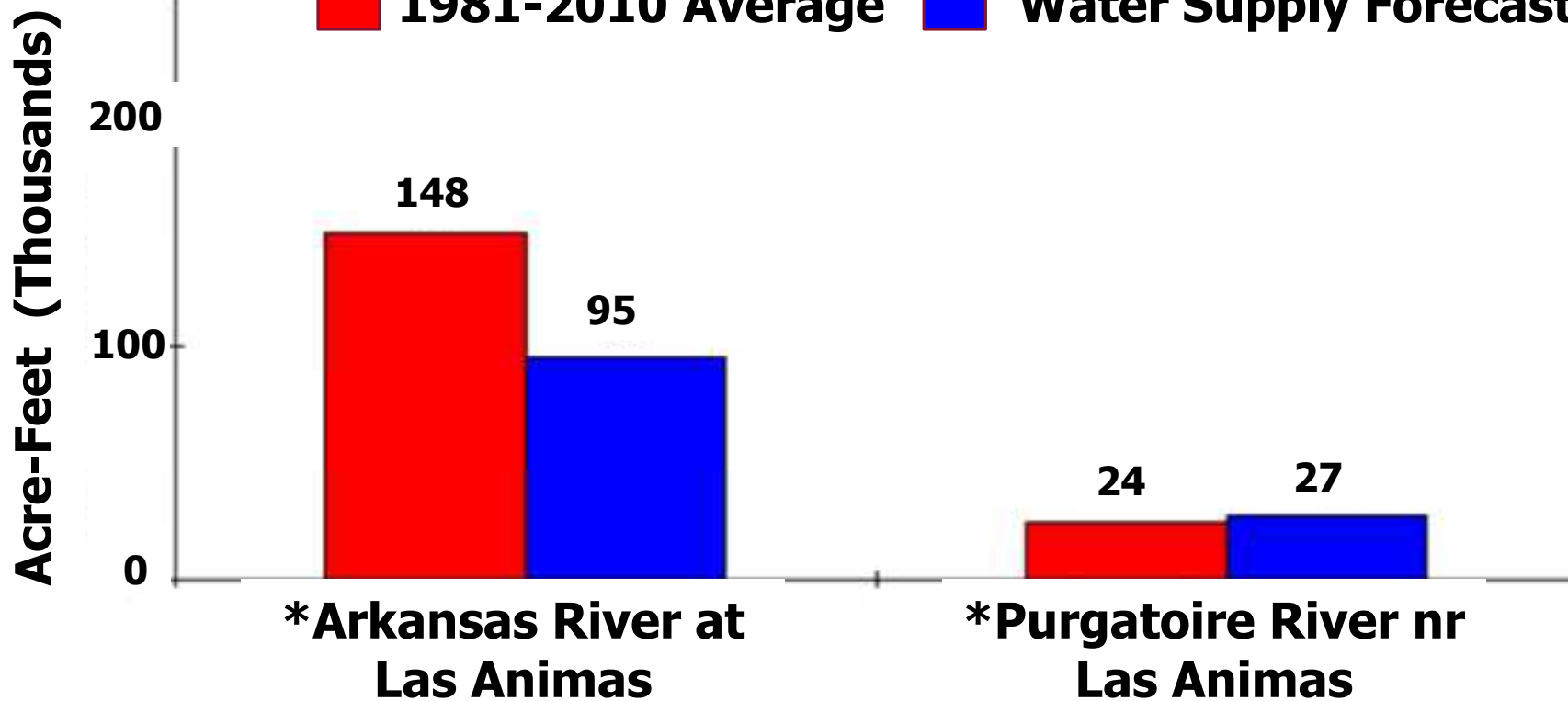
USGS

Source: waterwatch.usgs.gov

WATER SUPPLY FORECASTS - LOWER ARKANSAS BASIN IN COLORADO
Water Supply - April thru September, 2021

Forecasts made on June 4, 2021, based on 0.50 Exceedance Probability

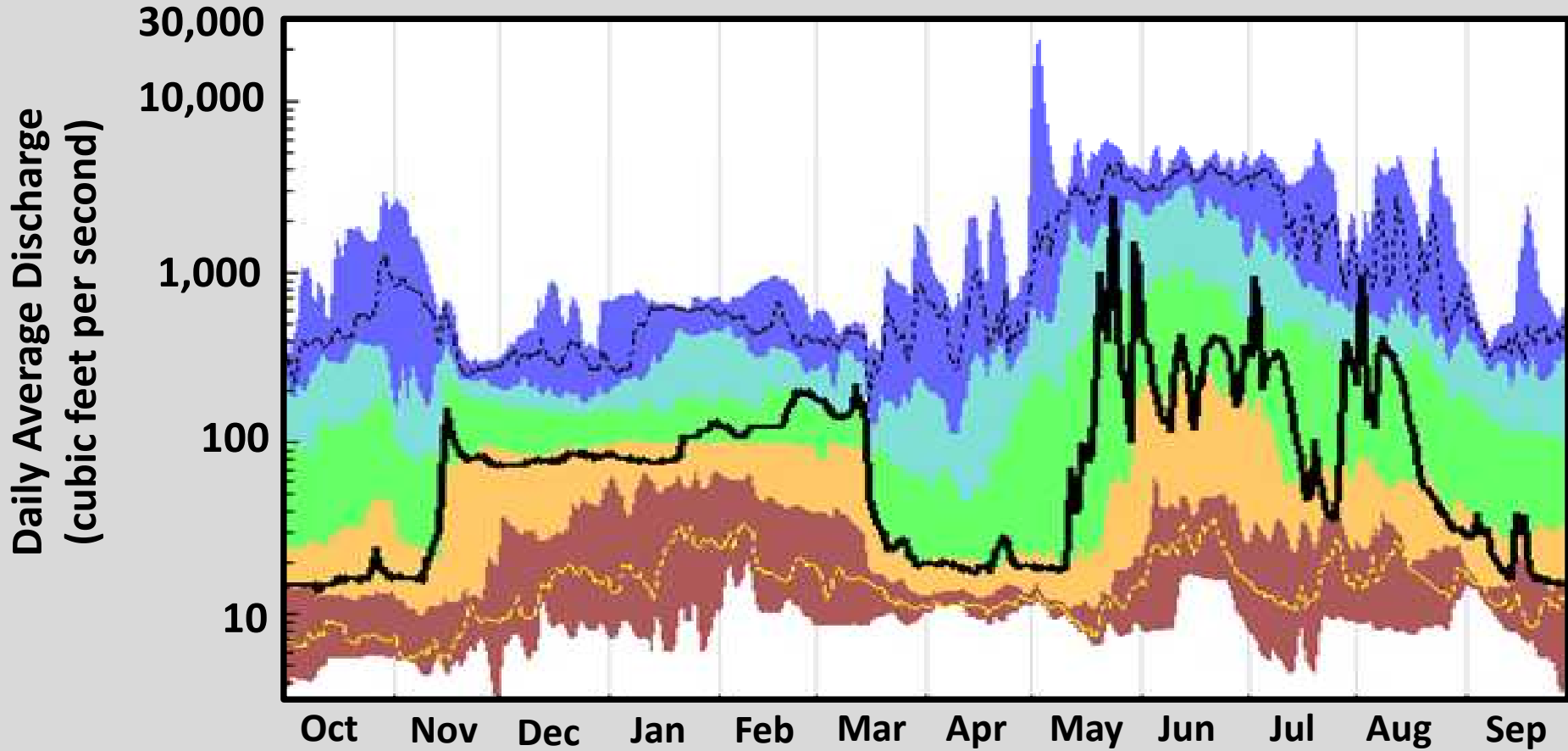
1981-2010 Average **Water Supply Forecast**



* Values represent historical or forecast OBSERVED values, not unregulated or "native" flow values

Water Supply Forecast Points

Arkansas River at Las Animas



**WY
2021**

Explanation

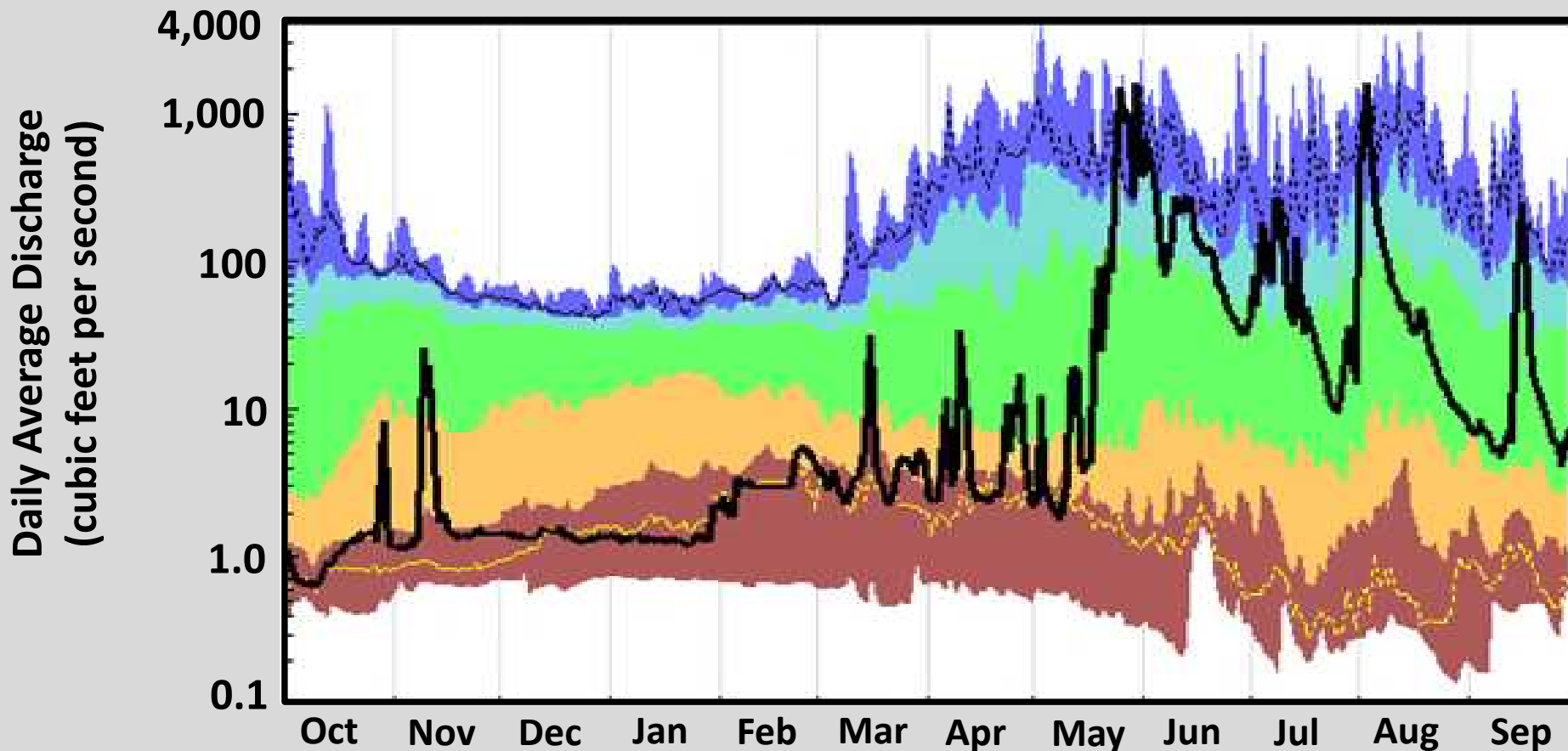


5	<10	10-24	25-75	76-90	>90	95
	Much Below Normal	Below Normal	Normal	Above Normal	Much Above Normal	

Source:
waterwatch.usgs.gov

April 1-Sept 30
65,200 acre-ft

Purgatoire River near Las Animas



**WY
2021**

Explanation



5	<10	10-24	25-75	76-90	>90	95
	Much Below Normal	Below Normal	Normal	Above Normal	Much Above Normal	

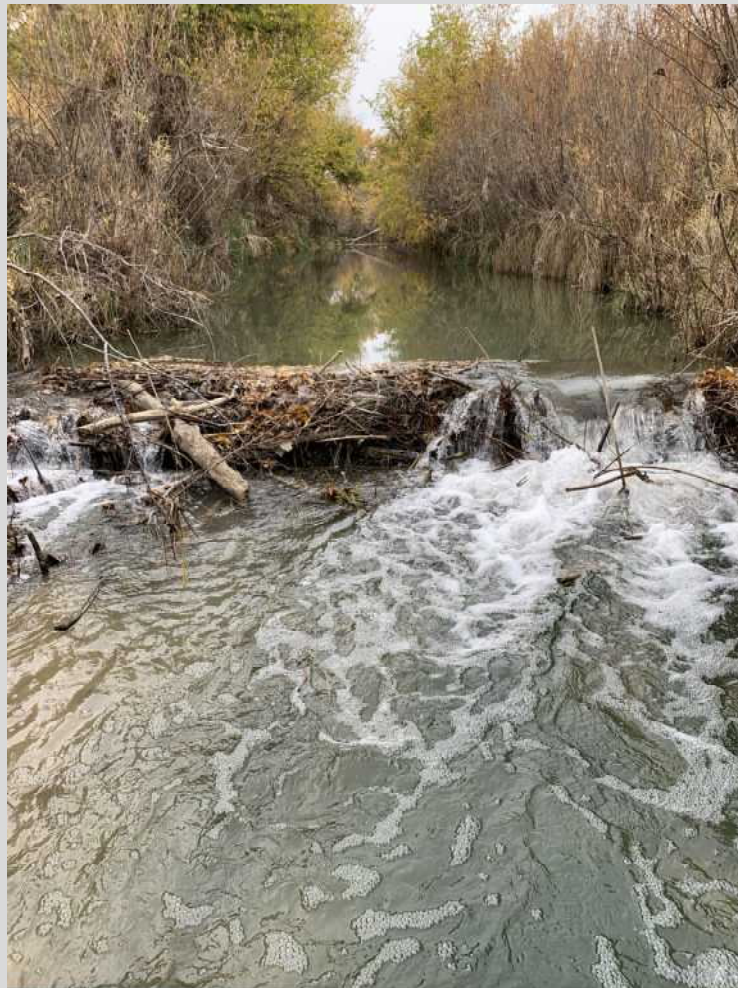
Source:
waterwatch.usgs.gov

April 1-Sept 30
40,800 acre-ft

Big Sandy Creek near Lamar, CO

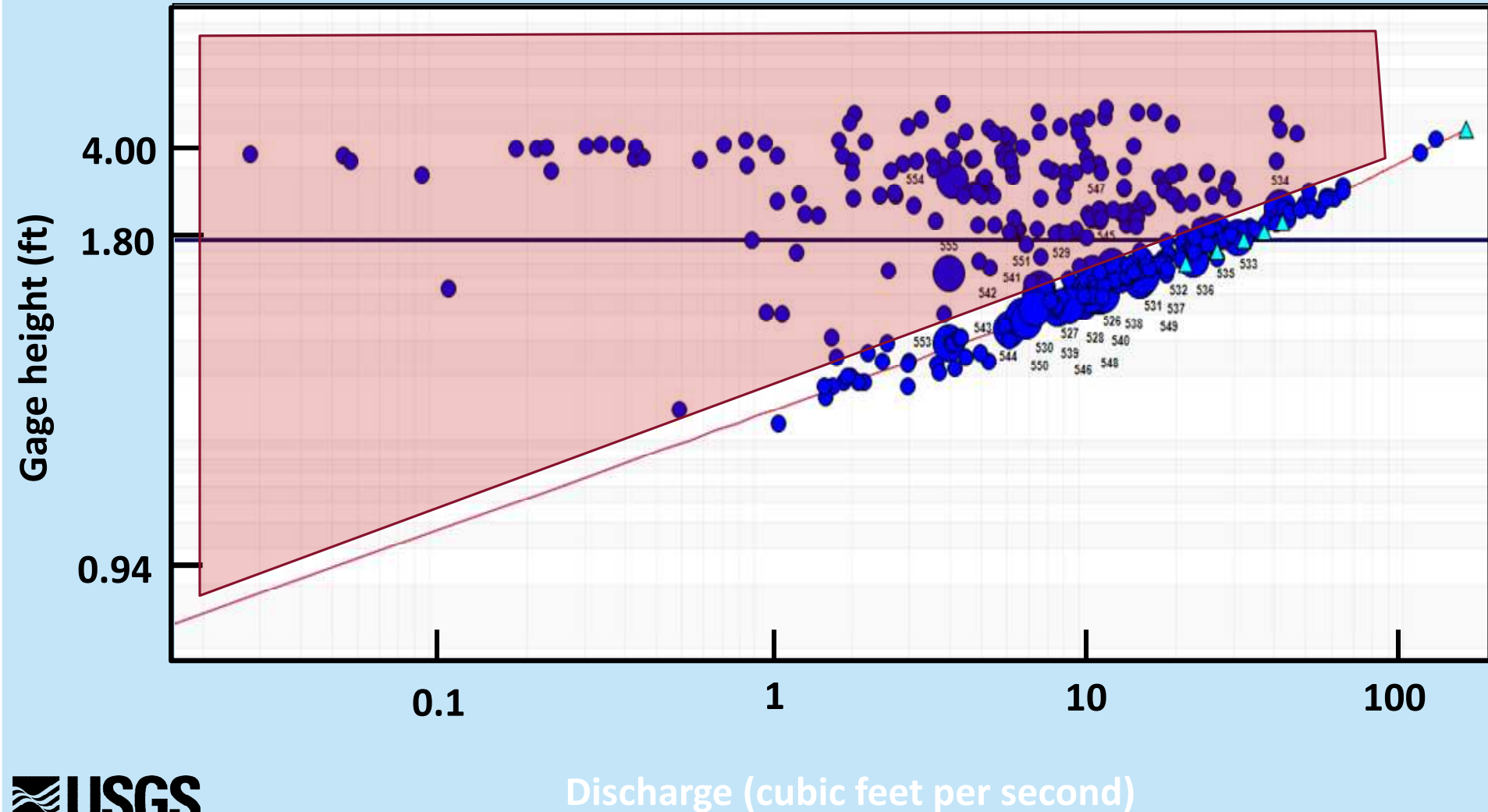


Apishapa River near Fowler, CO



Stage-Discharge Relation

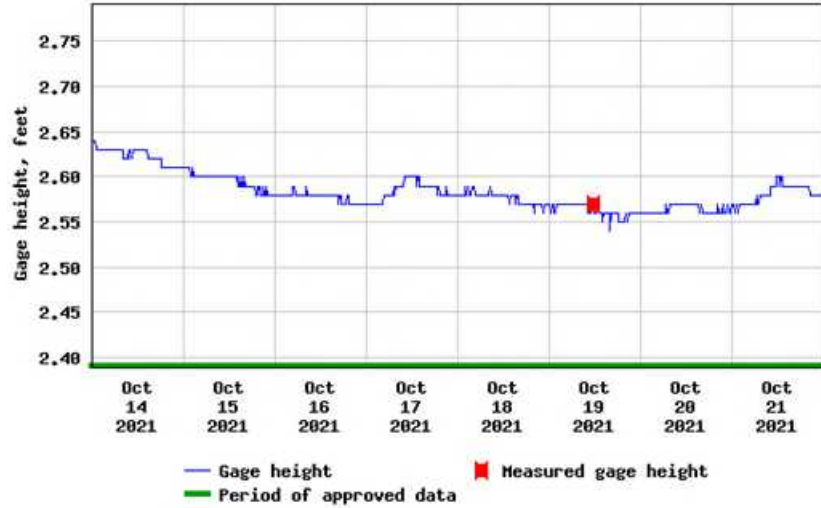
Big Sandy Creek near Lamar, CO



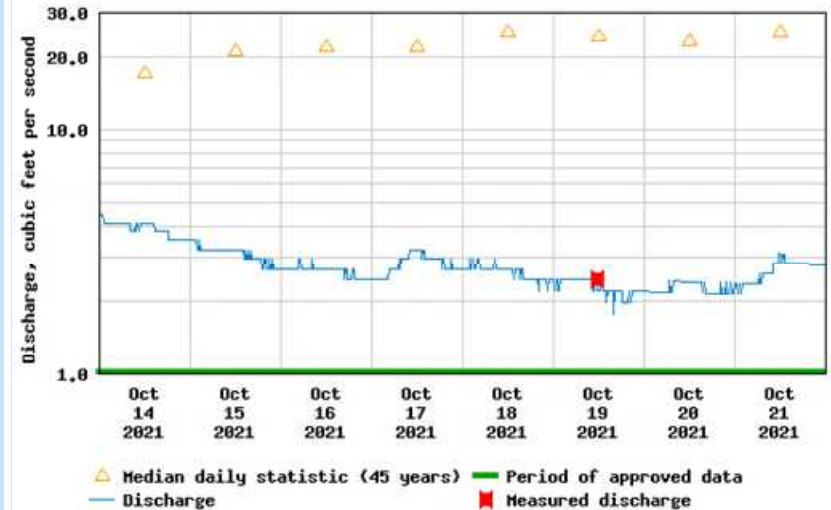
Stage-Discharge Relation



USGS 07128500 PURGATOIRE RIVER NEAR LAS ANIMAS, CO



USGS 07128500 PURGATOIRE RIVER NEAR LAS ANIMAS, CO



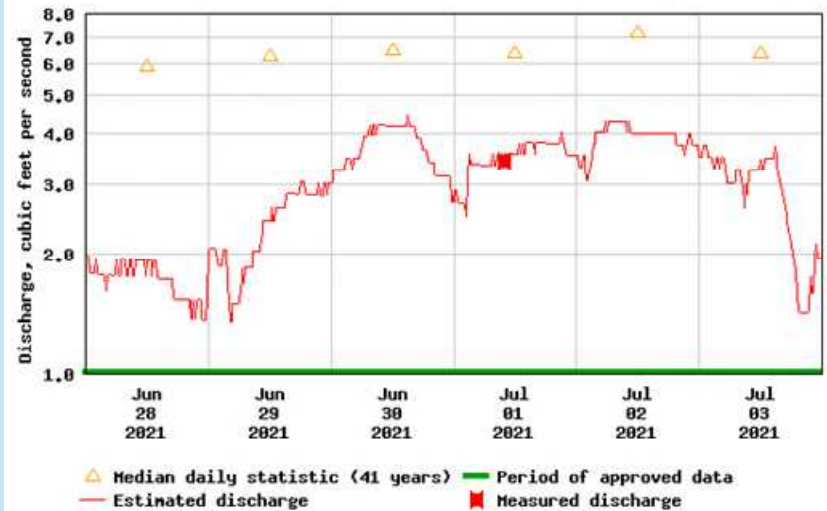
Stage-Discharge Relation



USGS 07134100 BIG SANDY CREEK NEAR LAMAR, CO.



USGS 07134100 BIG SANDY CREEK NEAR LAMAR, CO.



Water-Quality Issues of Concern 'Salinity'

- Total concentration of dissolved salts in water
- Monitored through continuous specific-conductance water quality monitors
 - Specific conductance is directly related to salinity
- Assess water-quality changes influenced by water operations and/or land use
- Continuous water-quality monitor at Arkansas River below John Martin Reservoir
 - Specific Conductance
 - Water Temperature

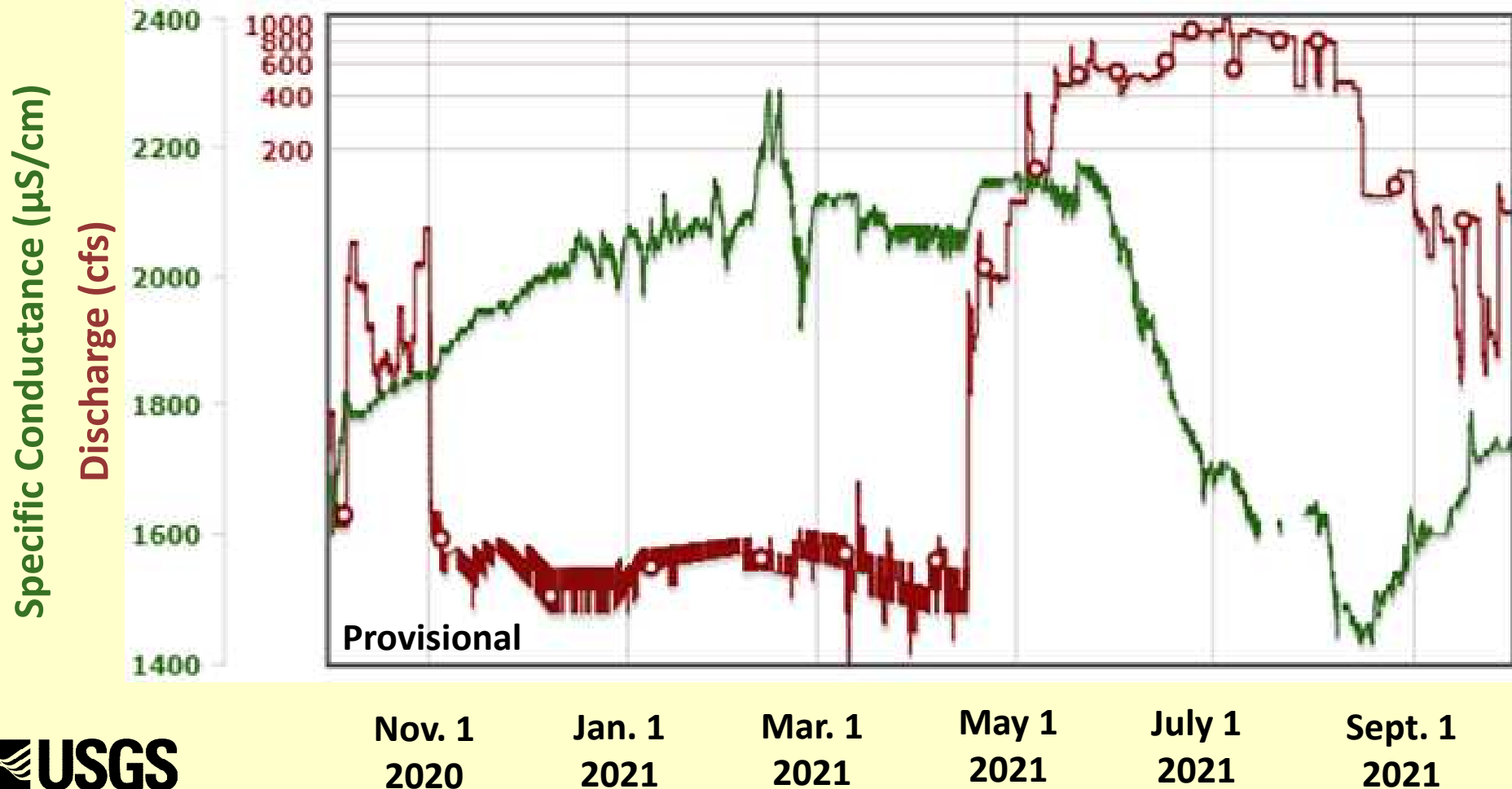
Real-Time USGS Water Temperature and Specific Conductance Locations

(Pueblo, Colorado to Coolidge, Kansas)



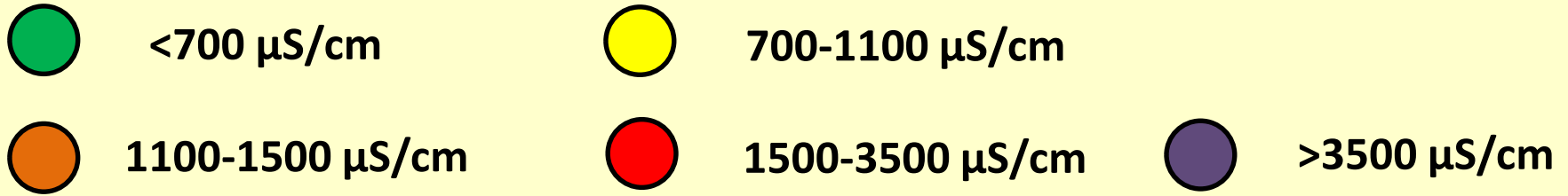
Specific Conductance Relationship with Discharge

Arkansas River below John Martin Reservoir, CO



Specific Conductance Concentrations

2021 Daily Value Median





Questions?

