WY Conditions & Outlooks:

Precipitation, Temperatures, Drought, Floods, & Everything In-between

February 17, 2022

Presentation Outline

- Current Conditions
- Outlooks
- How to Get Involved

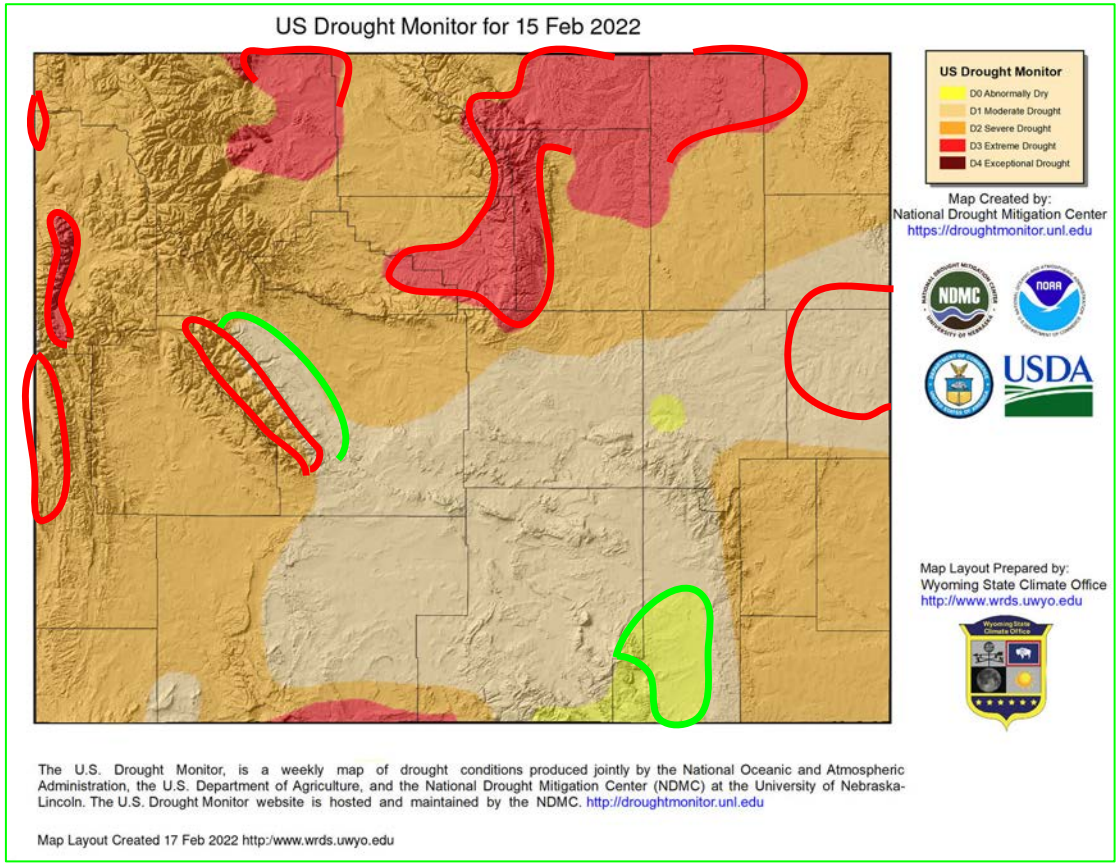
Current Conditions

US Drought Monitor for February 15, 2022

(Released Thursday, February 17, 2022)

Valid 8 a.m. EDT

Drought Level	Percentile
None	>30
D0 (Abnormally Dry)	21 to 30
D1 (Moderate Drought)	11 to 20
D2 (Severe Drought)	6 to 10
D3 (Extreme Drought)	3 to 5
D4 (Exceptional Drought)	0 to 2



Improvements in the southeast but also several degradations in the north, east, and west.

https://droughtmonitor.unl.edu

droughtmonitor.unl.edu

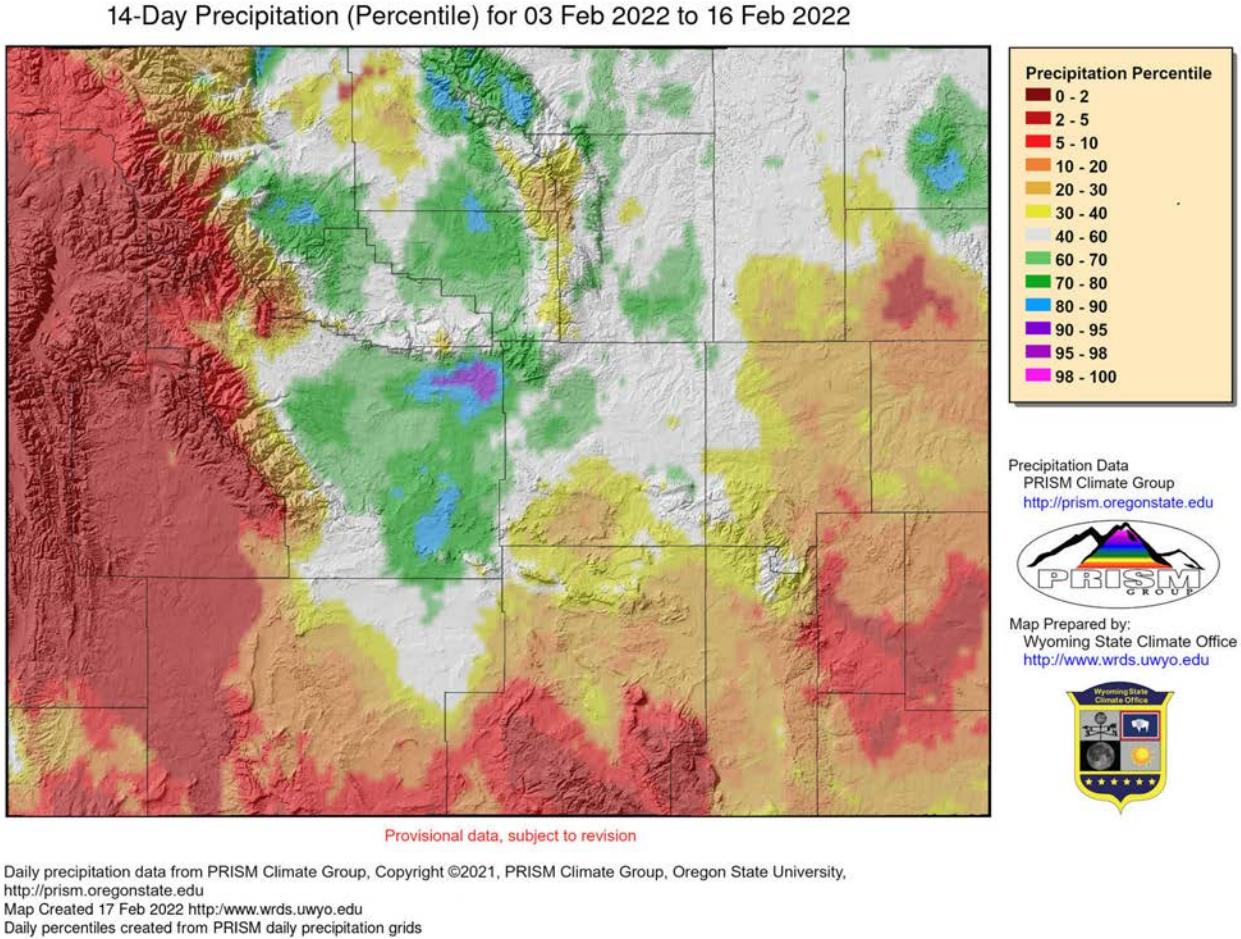
14-Day Precipitation Percentile (03 Feb 2022 to 16 Feb 2022)

Above Median:

- Northern Bighorns
- Southern Bighorn Basin
- Fremont County
- SE Crook County

Below Median (Areas of Concern):

- West
- Southeast and South-central



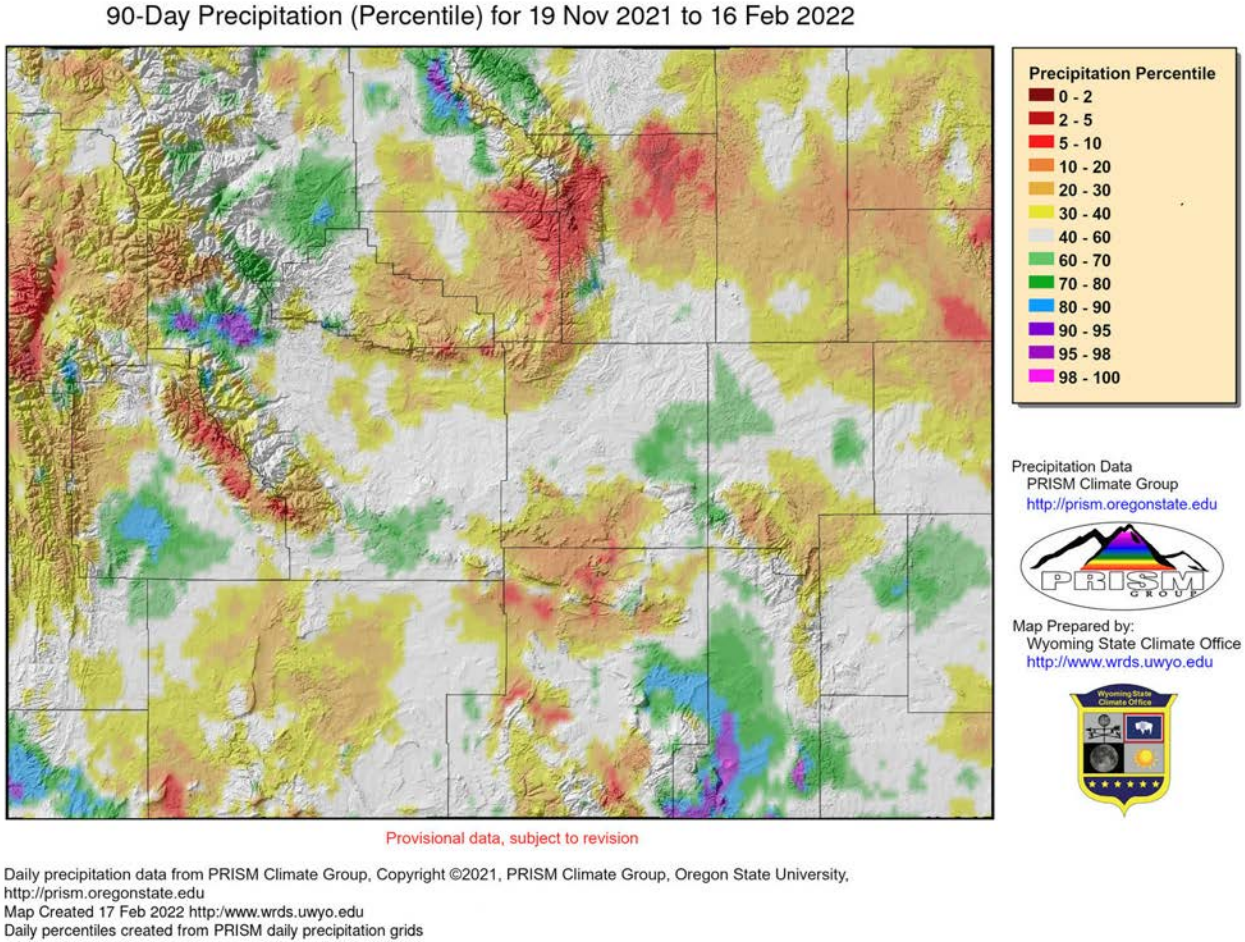
90-Day Precipitation Percentile (19 Nov 2021 to 16 Feb 2022)

Above Median:

- Laramie Valley
- Far Southwest
- Sublette County
- Northwest Fremont County
- Scattered other areas

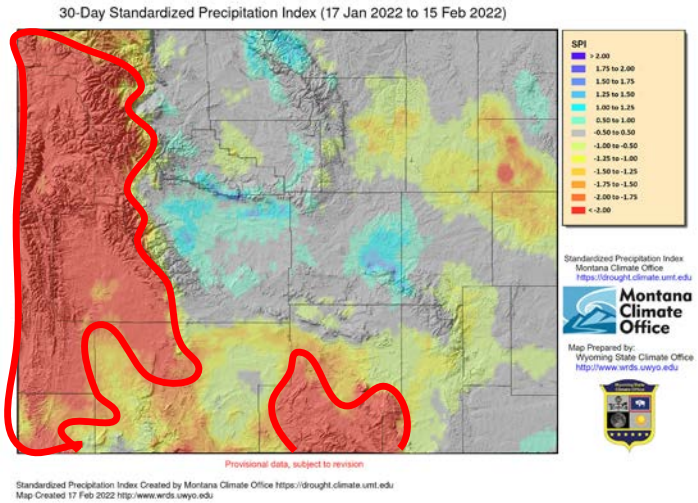
Below Median (Areas of Concern):

- Tetons
- West side of the Winds
- Southern Bighorns
- Northeast Johnson County

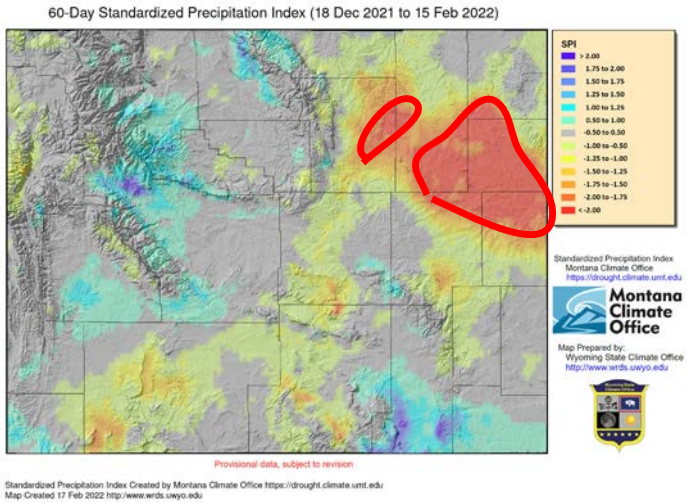


WRDS
Water Resources Data System

30-Day



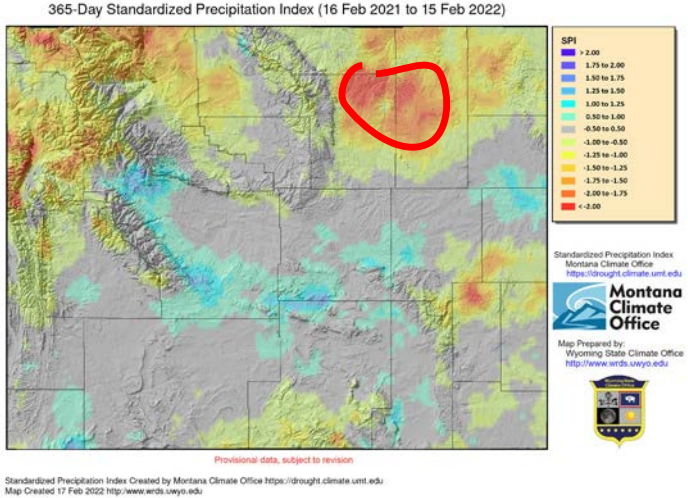
60-Day



Standardized Precipitation Index (SPI)

Areas of concern emerging.

1-Year

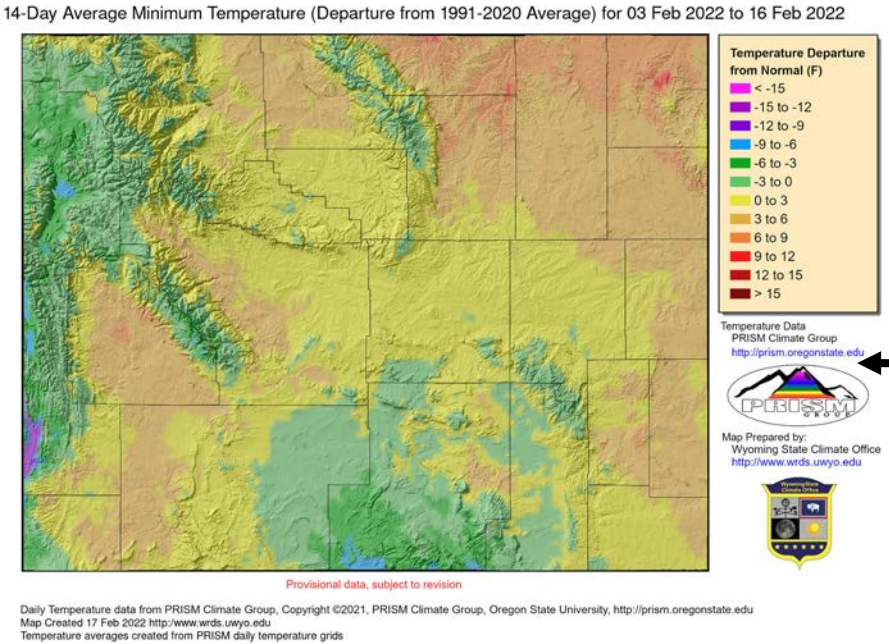


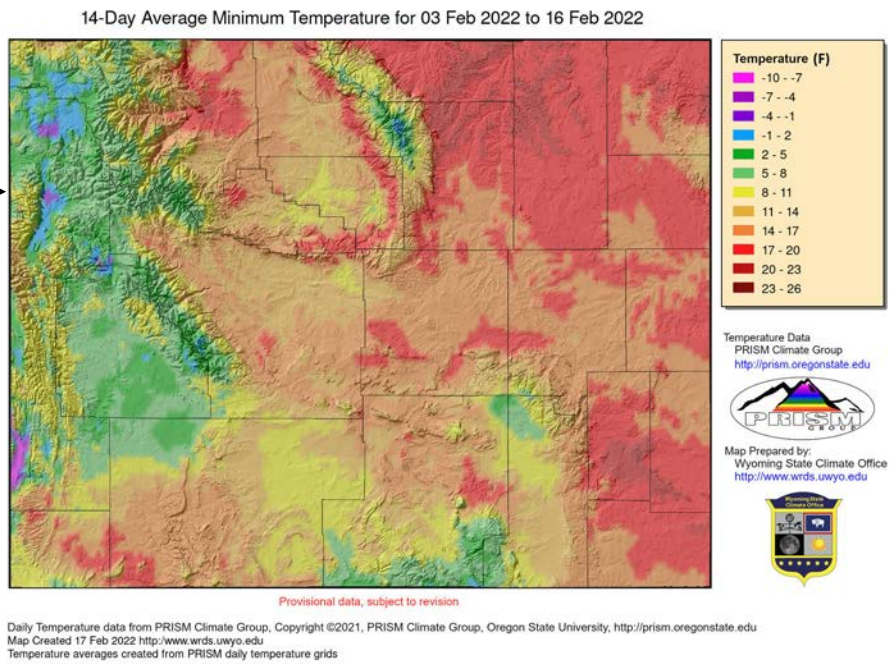
https://drought.climate.umt.edu

WRDS Water Resources Data System

14-Day Average Minimum Temperature (03 Feb to 16 Feb)

- Lows well below freezing statewide
- Warmest in NW and eastern plains





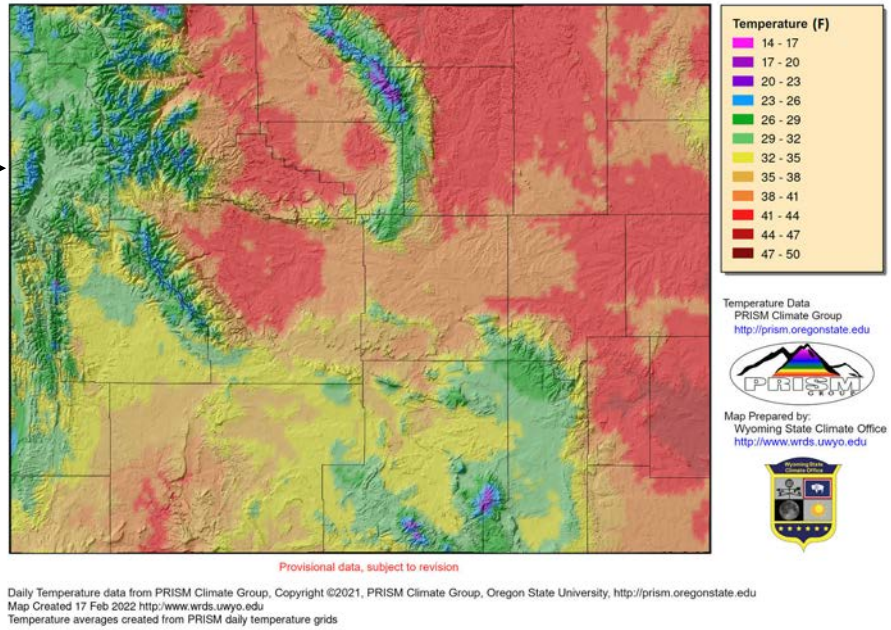
14-Day *Departure from* Normal Average Minimum Temperature

- 3-12F Below average for higher elevations and surrounding areas
- Bighorn, Wind, Green basins as well as eastern plains up to 10F above average

WRDS Water Resources Data System

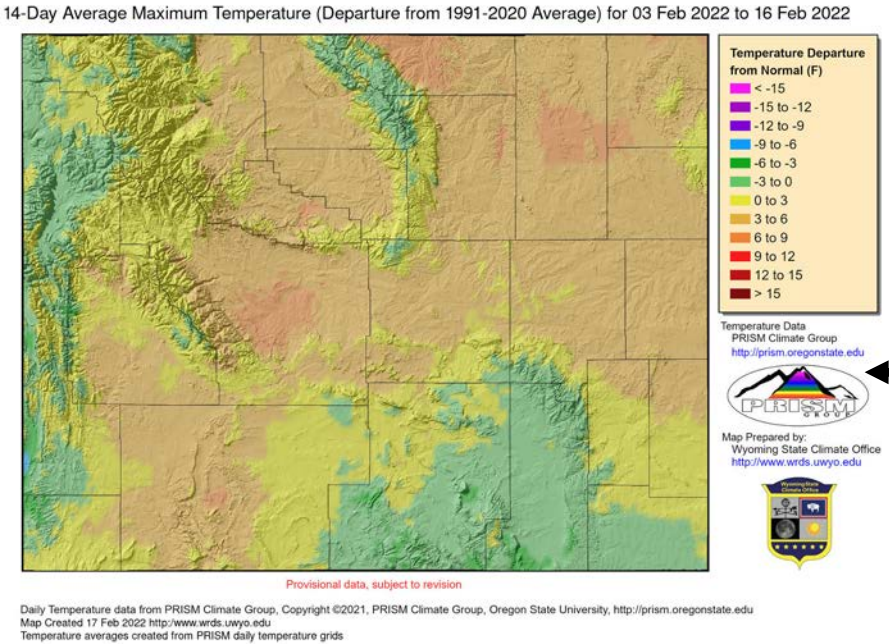
14-Day Average Maximum Temperature (03 Feb to 16 Feb)

- High elevations <32F for max temperatures
- 40-45F NW, Wind/Bighorn Basins, E Plains



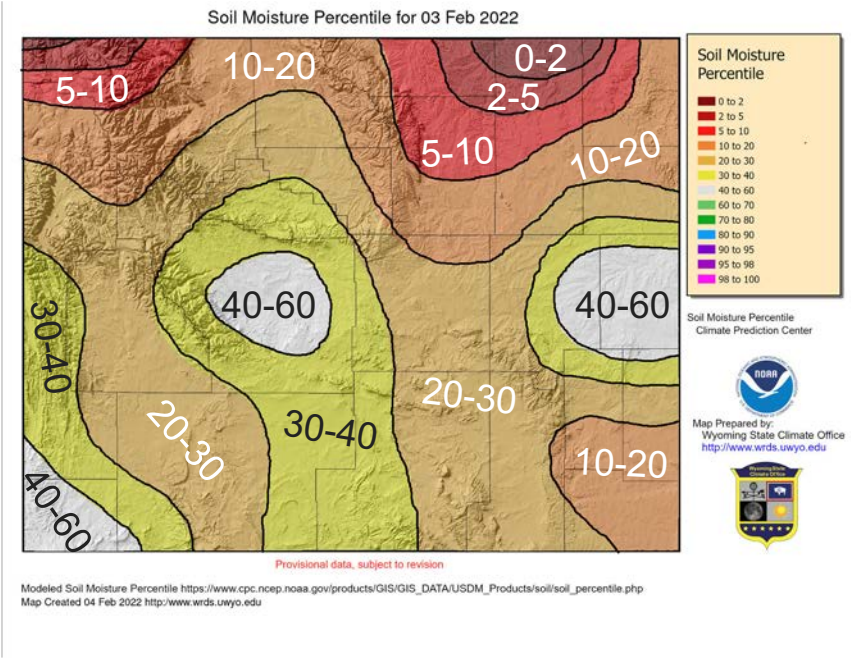
14- Day *Departure from* Normal Average Maximum Temperature

- Northern Bighorns, Far West, Southeast & South-central up to 6F below Average
- NW, Wind/Bighorn & parts Green Basins 3-6F above Average, remainder up to 3F above Avg

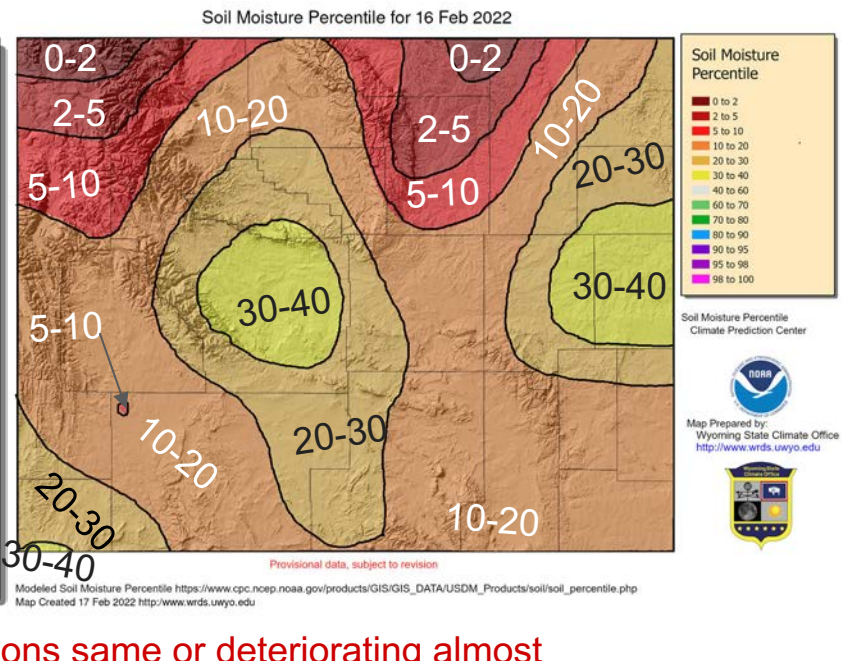


Soil Moisture Percentile

Two Weeks Ago
03 Feb 2022



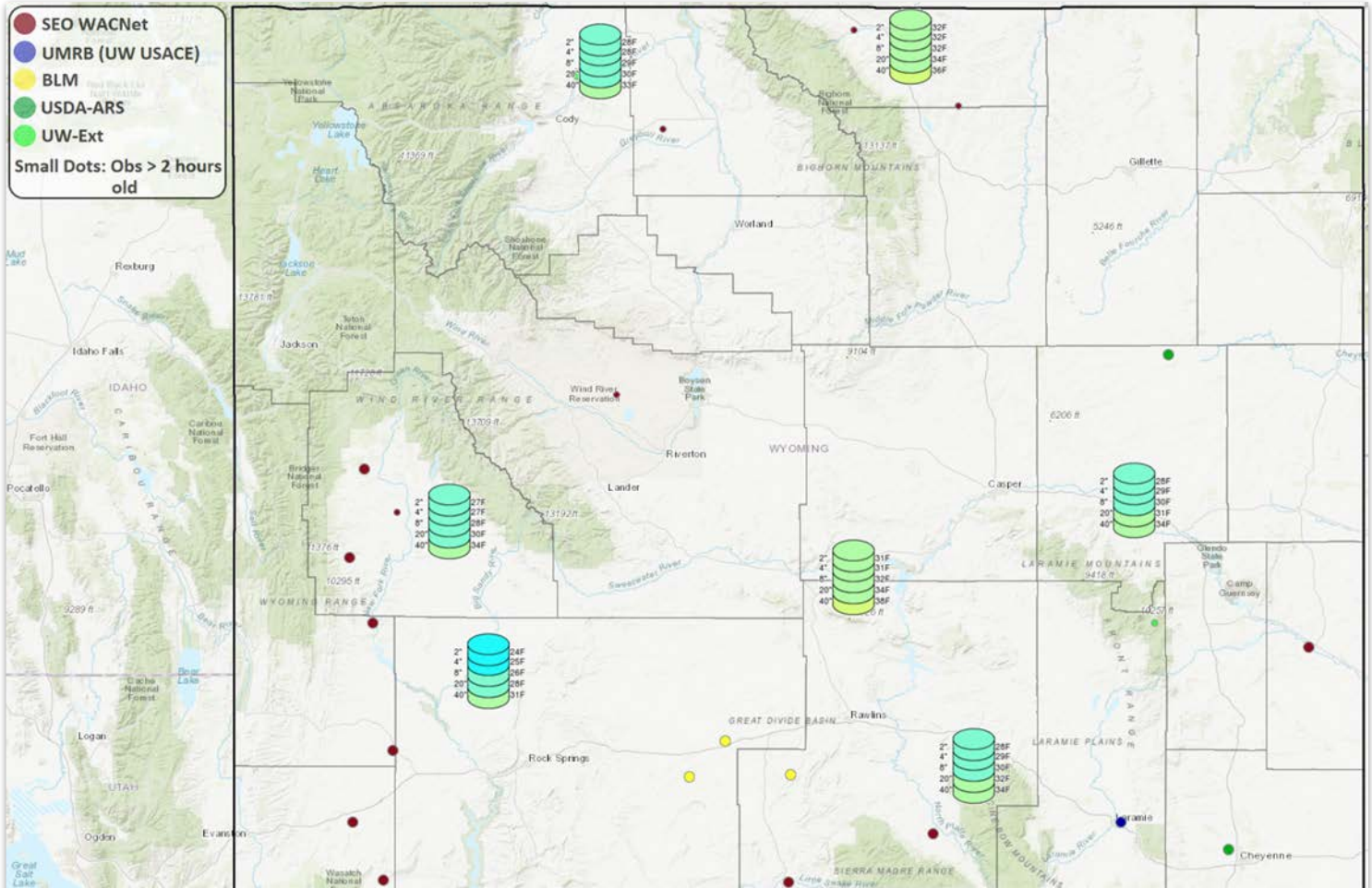
16 Feb 2022



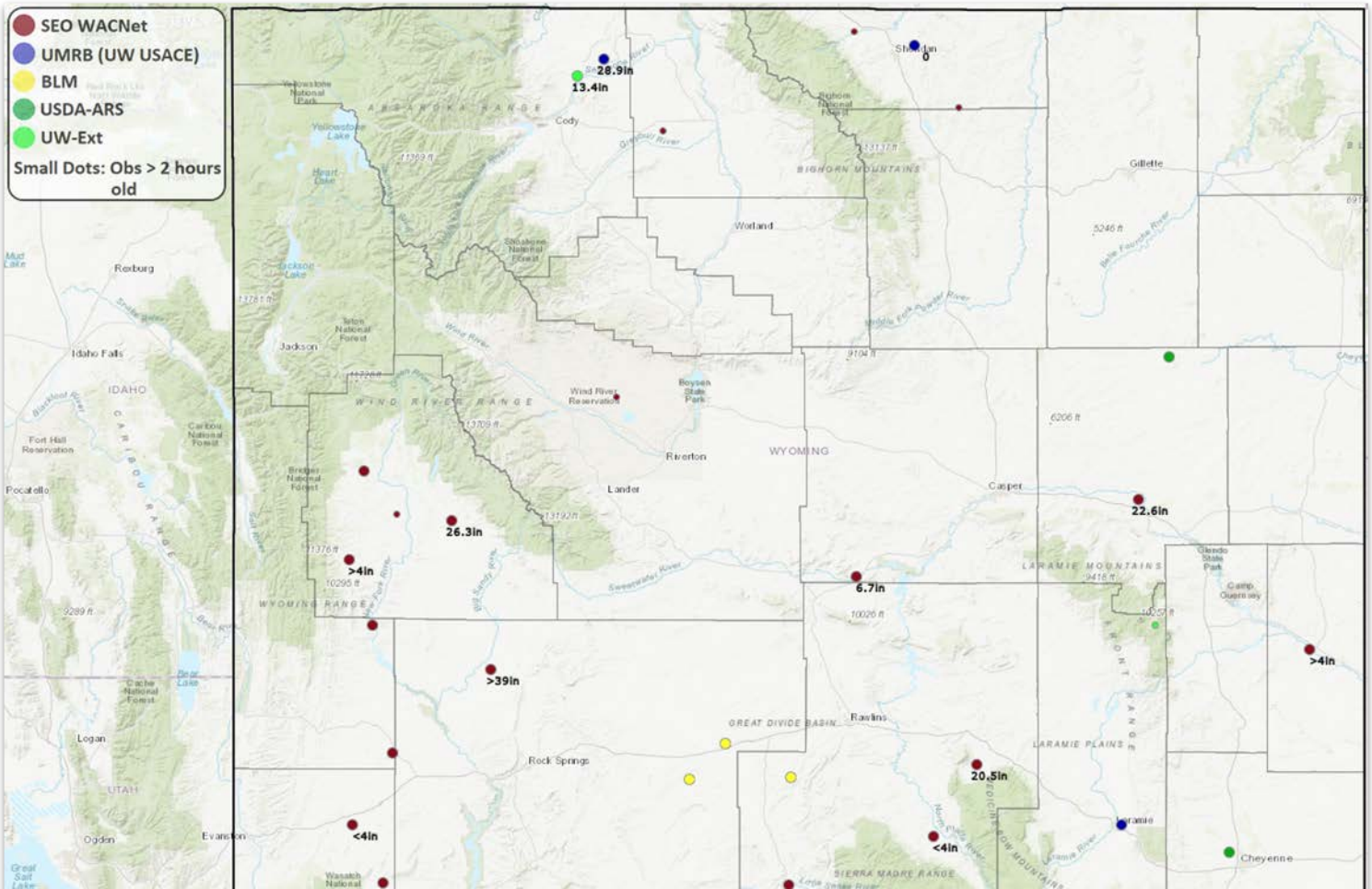
Conditions same or deteriorating almost everywhere over the last two weeks. NE Corner slight improvement.

http://www.wrds.uwyo.edu/Soil/Current_SoilMoisture_Ptile.html

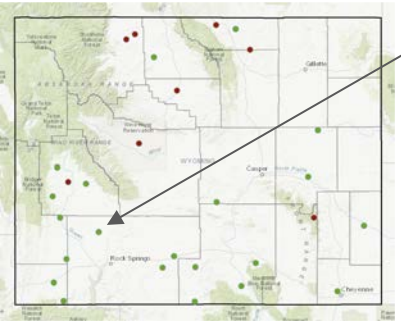
Soil Temperatures at 0700, 17 Feb 2022

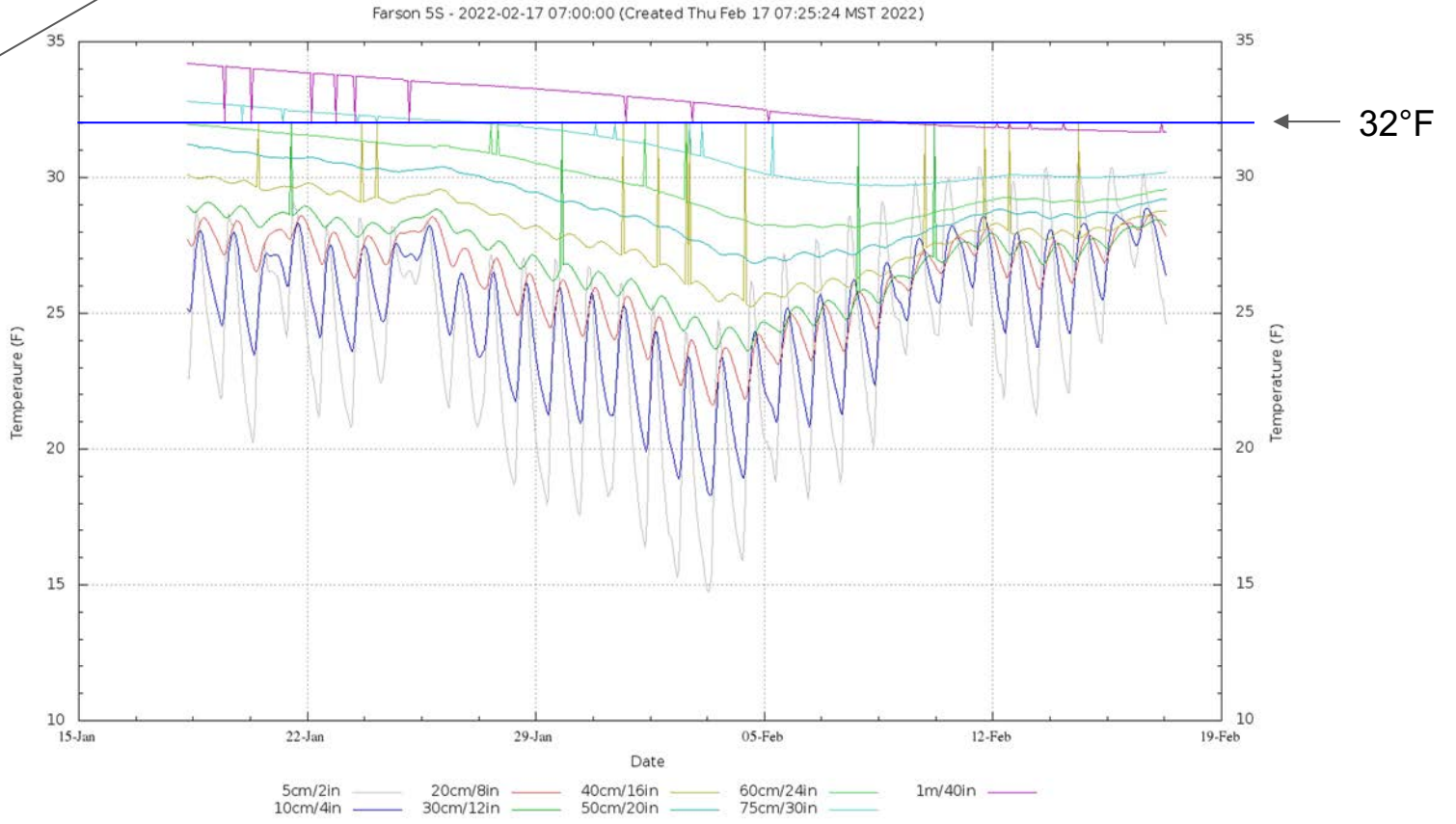


Frost Depths at 0700, 17 Feb 2022



Soil Temperature at Farson



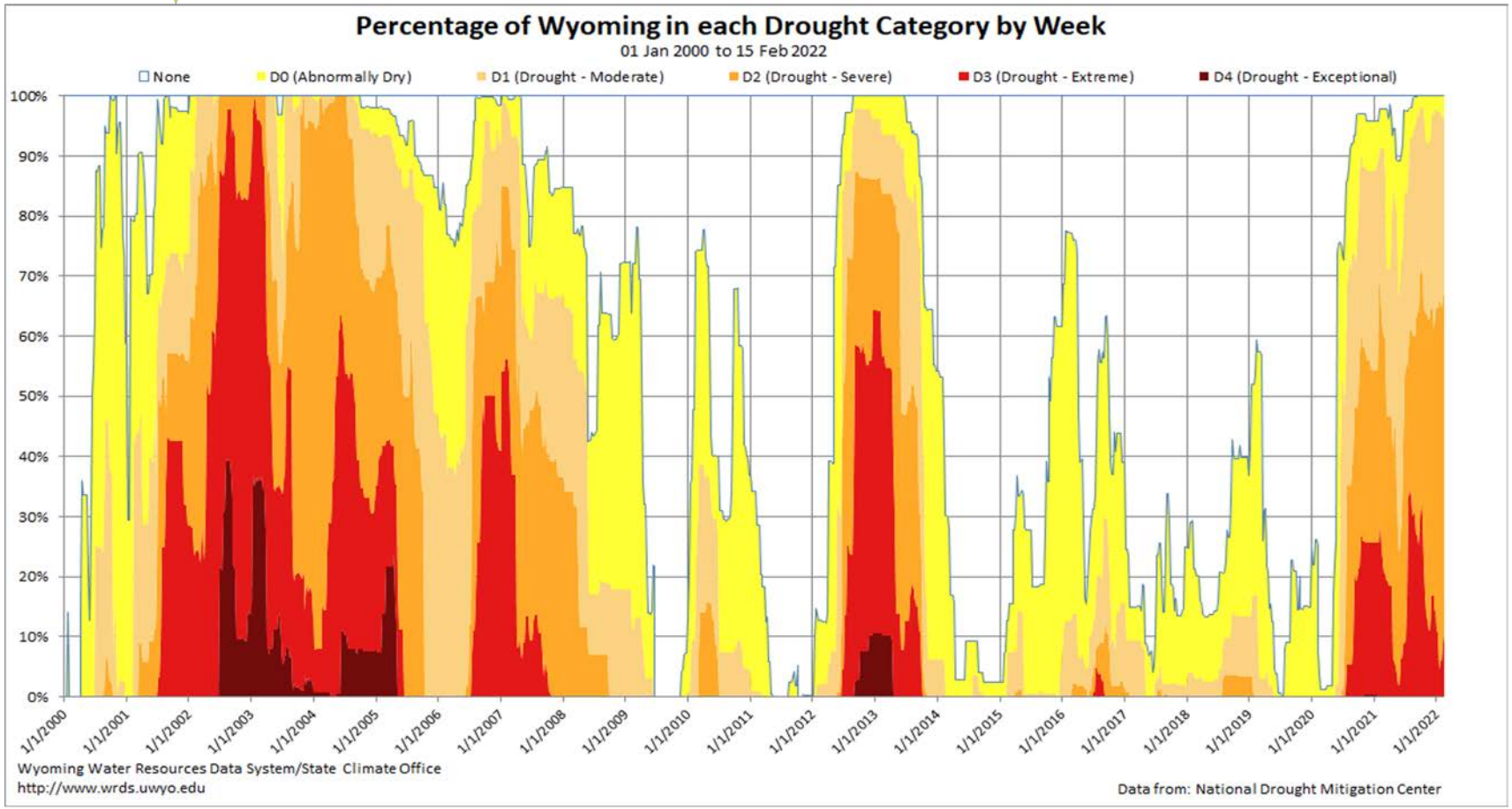


Frost depth reaching down over a meter

WRDS Water Resources Data System

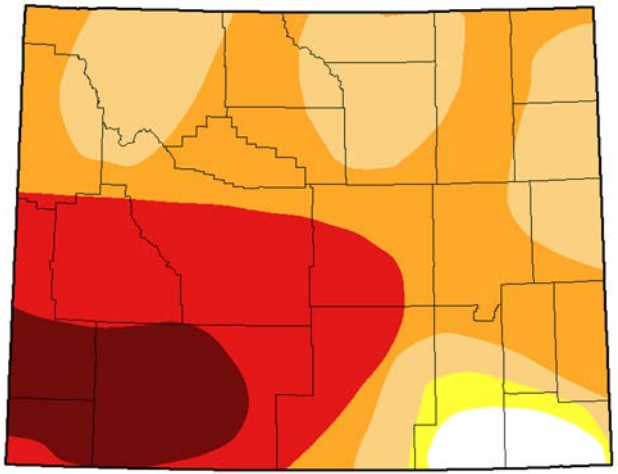
An increase of 0.34% from last month's Webinar

Wyoming Area Affected: 100% D0-D4 ; 97.59% D1-D4



http://www.wrds.uwyo.edu/drought/droughttimeline.html

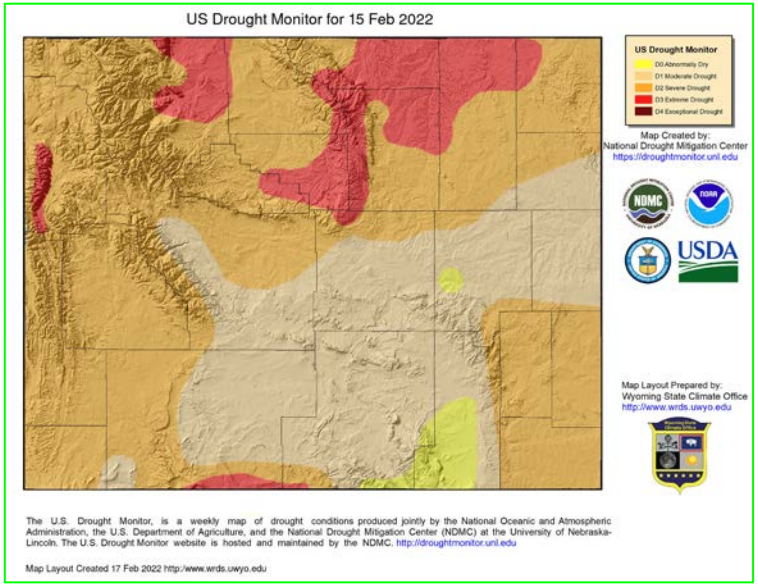
June 03, 2003



US Drought Monitor for February 15, 2022

(Released Thursday, February 17, 2022)

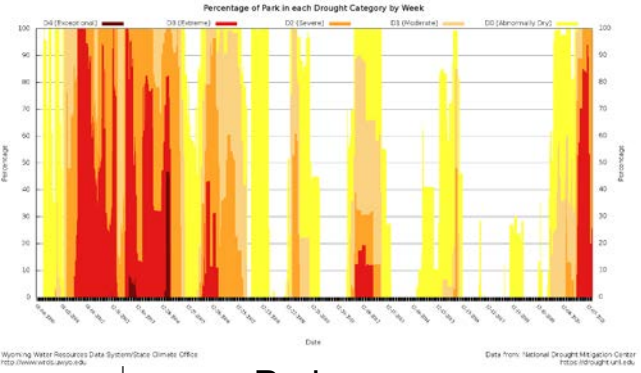
Valid 8 a.m. EDT



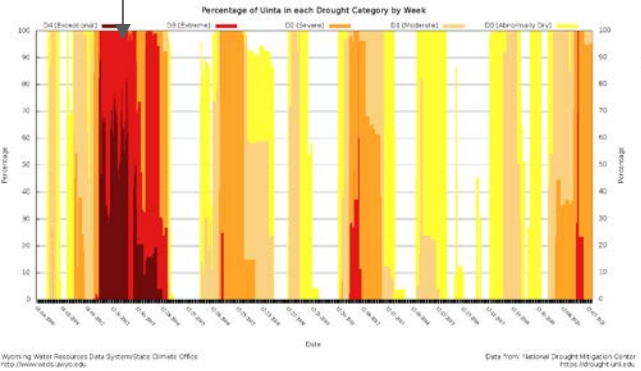
https://droughtmonitor.unl.edu

droughtmonitor.unl.edu

Drought Timelines by County

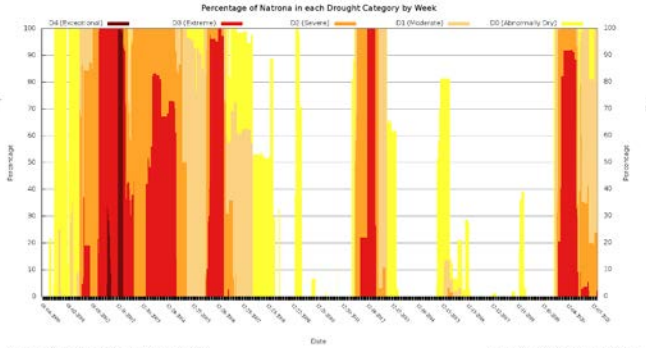


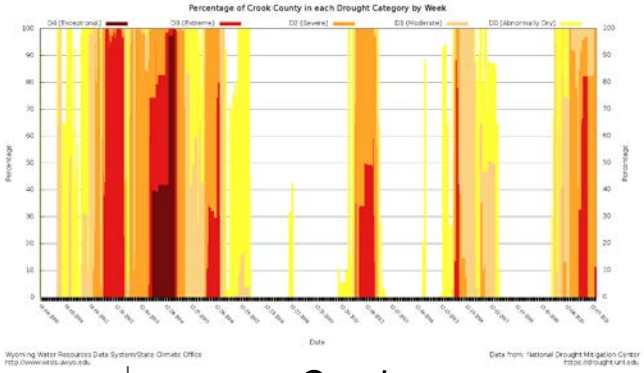
Park



Uinta

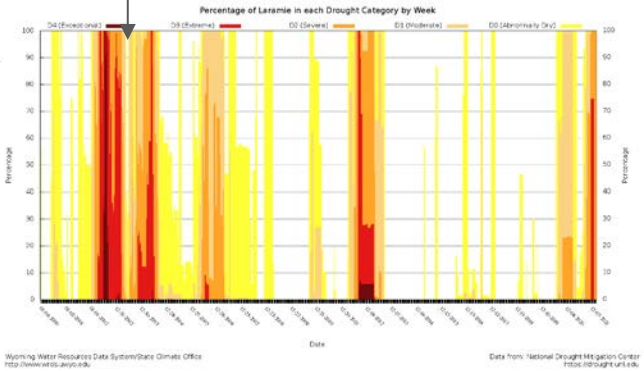
Natrona





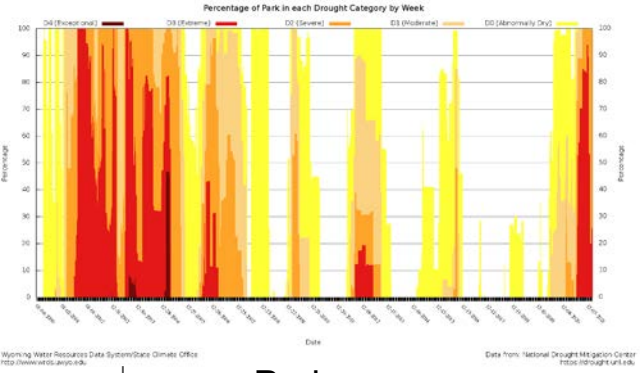
Crook

Laramie

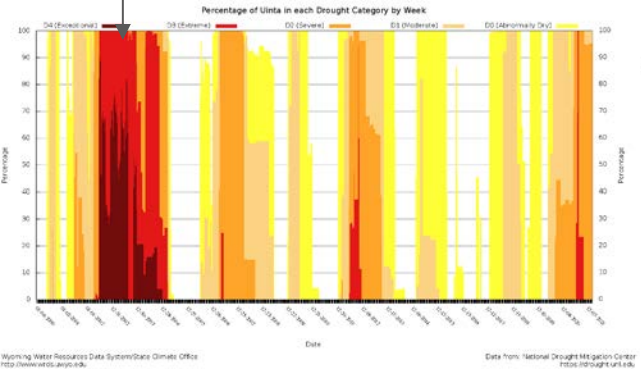


http://www.wrds.uwyo.edu/drought/timelines/timelines.html

Drought Timelines by County

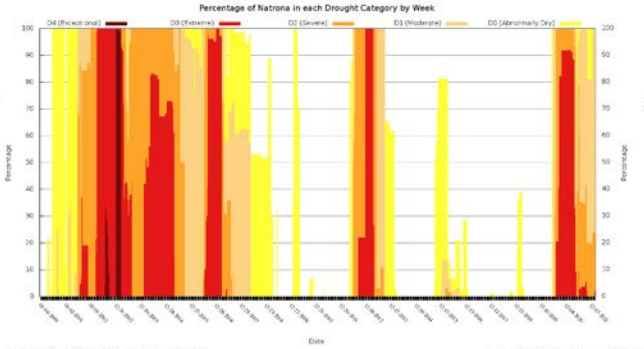


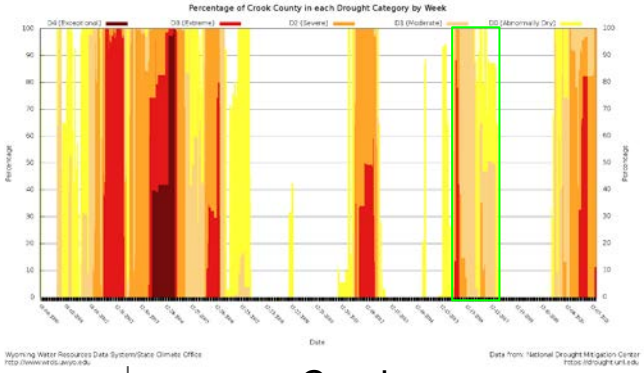
Park



Uinta

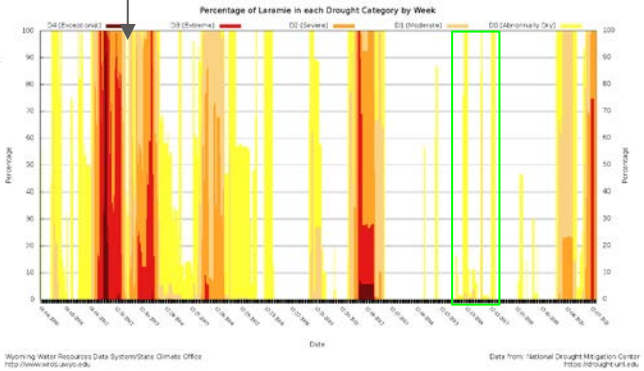
Natrona





Crook

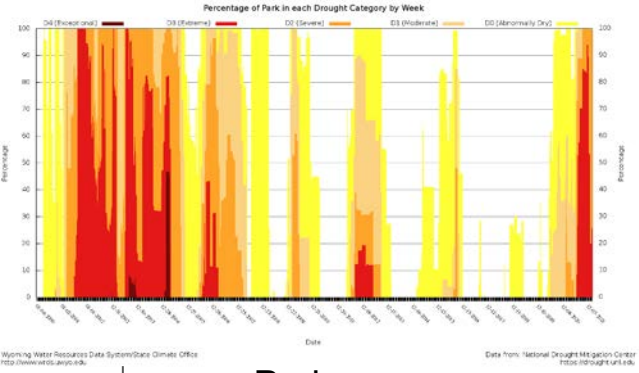
Laramie



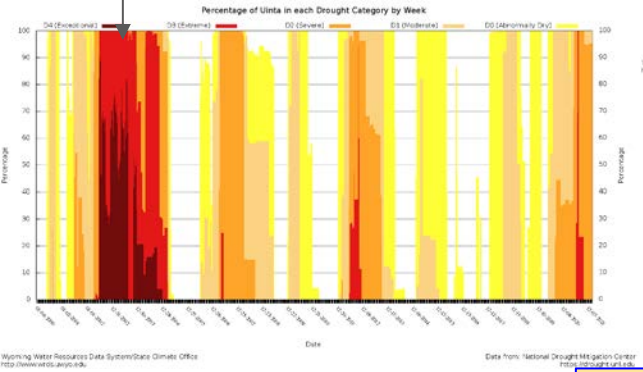
Laramie

http://www.wrds.uwyo.edu/drought/timelines/timelines.html

Drought Timelines by County

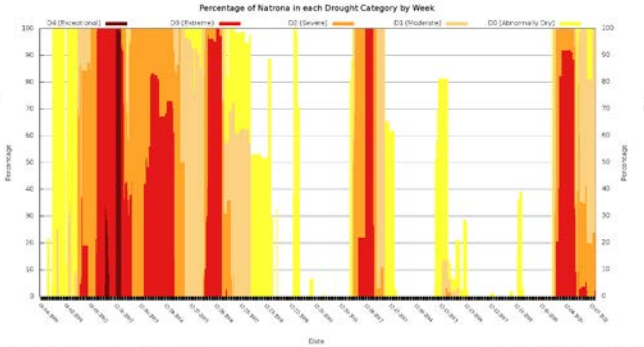


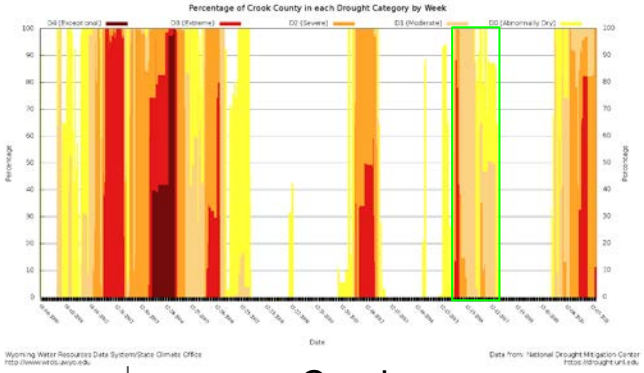
Park



Uinta

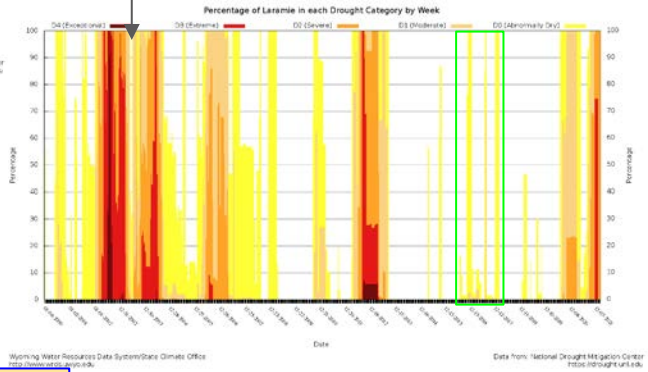
Natrona





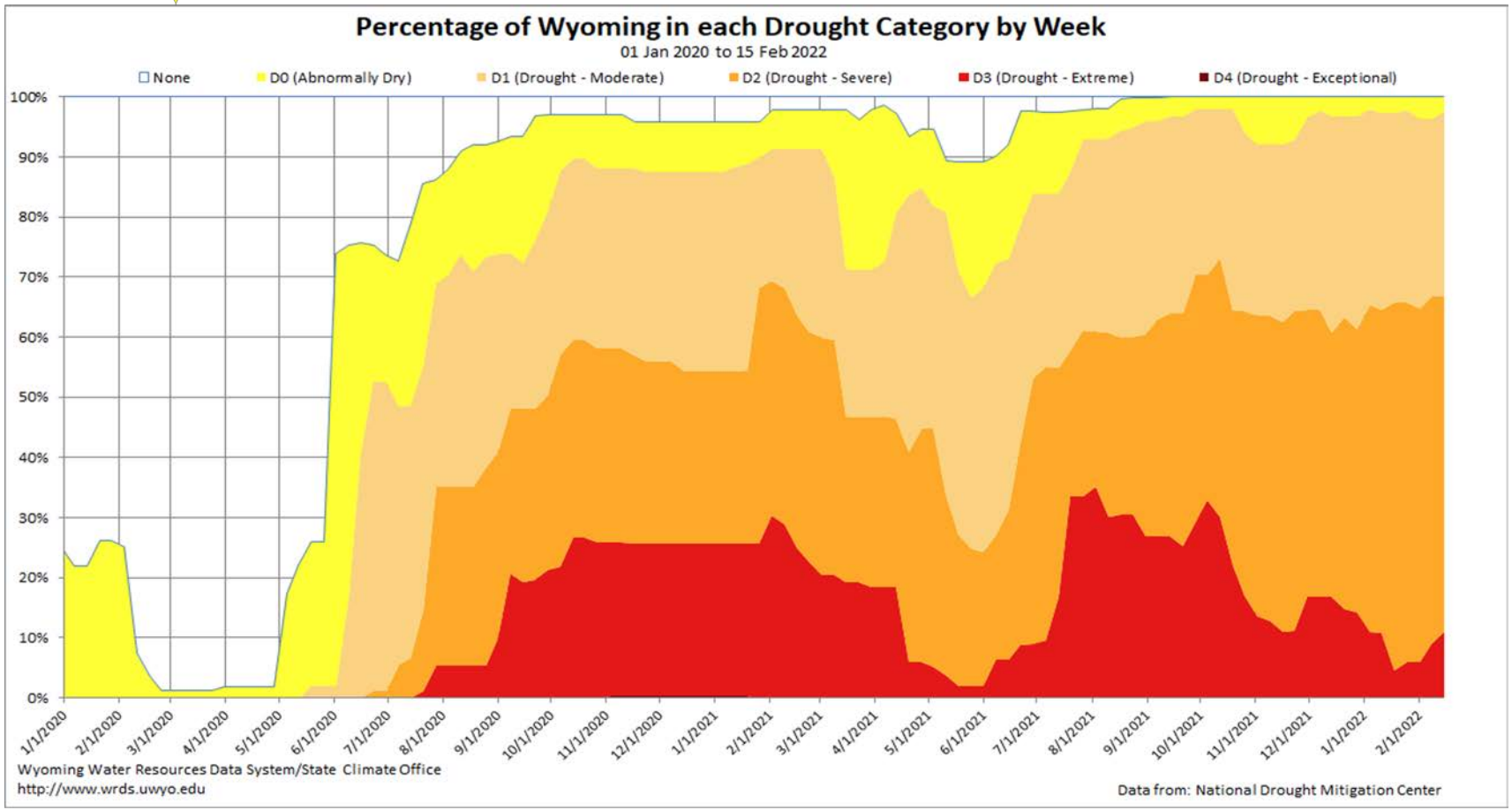
Crook

Laramie



http://www.wrds.uwyo.edu/drought/timelines/timelines.html

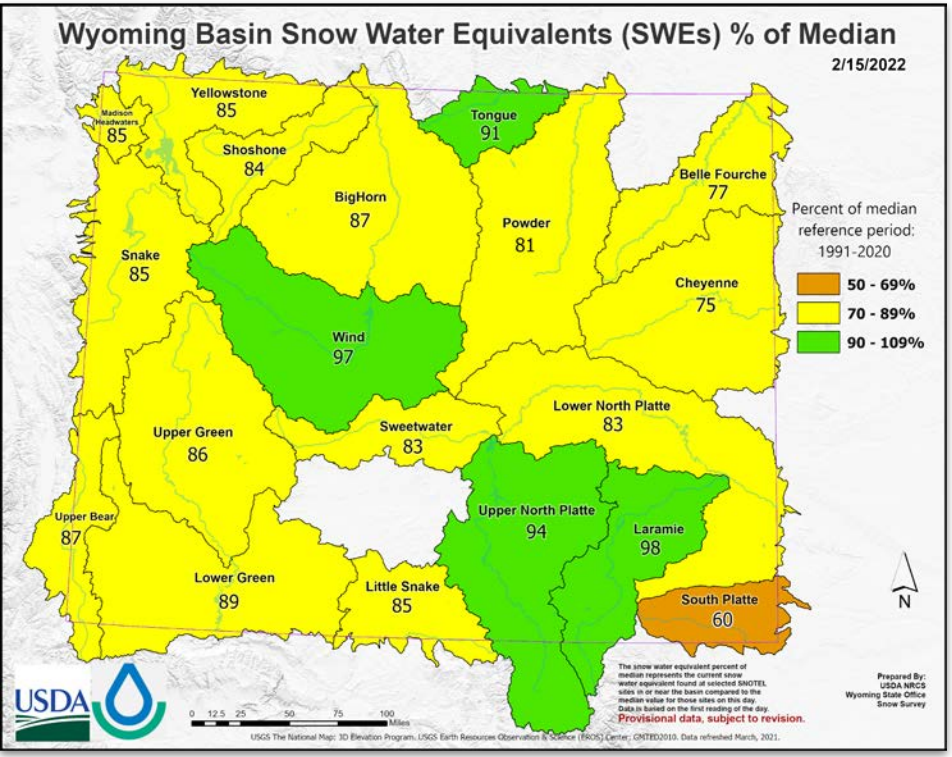
WRDS
Water Resources Data System



http://www.wrds.uwyo.edu/drought/droughttimeline.html

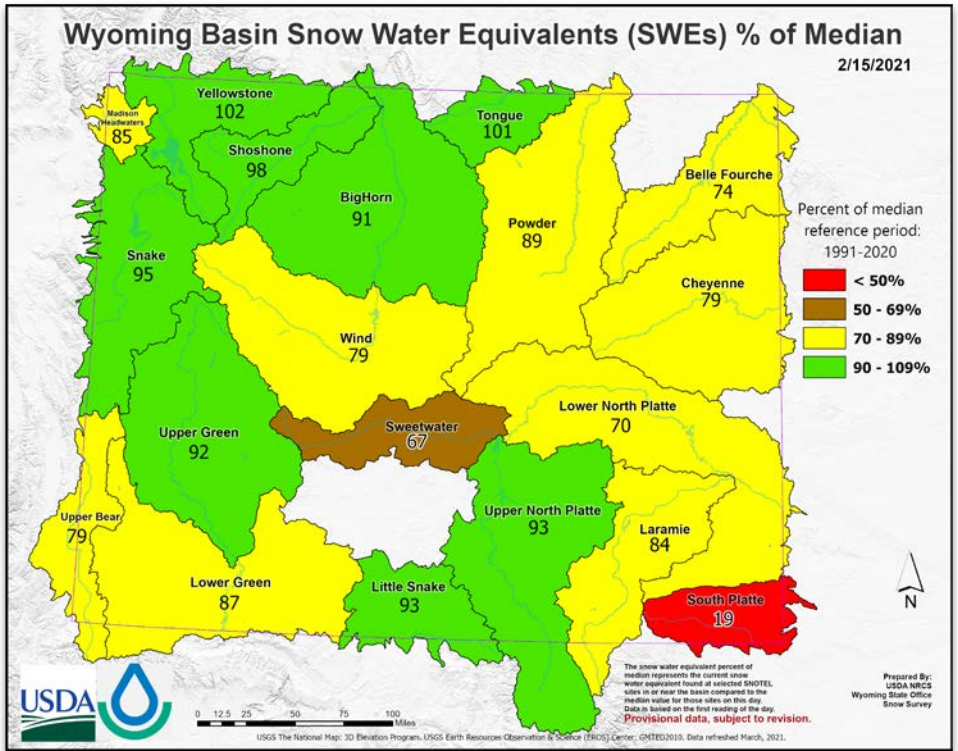
SWEs % Median

https://www.nrcs.usda.gov/wps/portal/wcc/home/

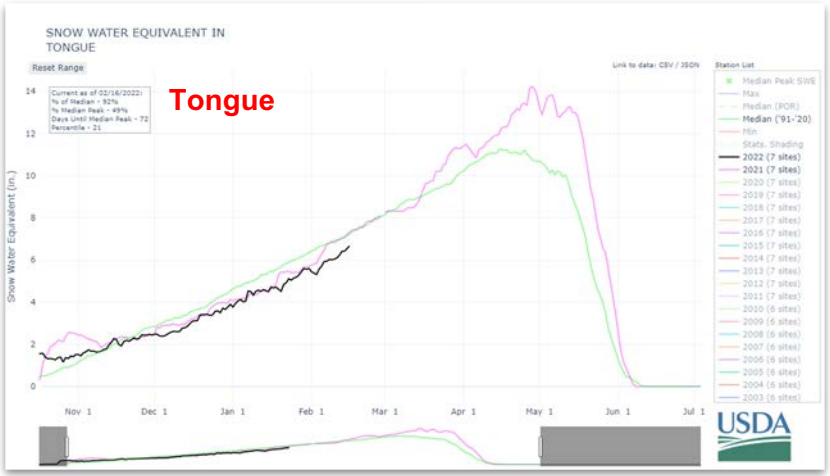


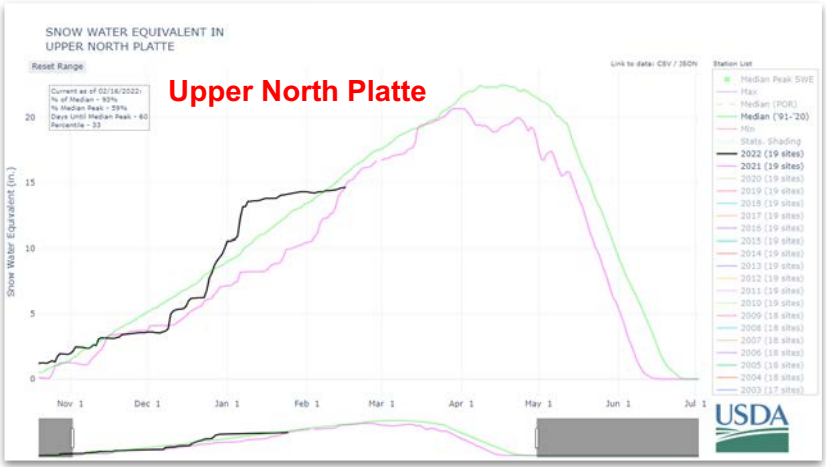
February 15, 2022 State Wide = **84%**

Compared to 2021 State Wide = **88%**

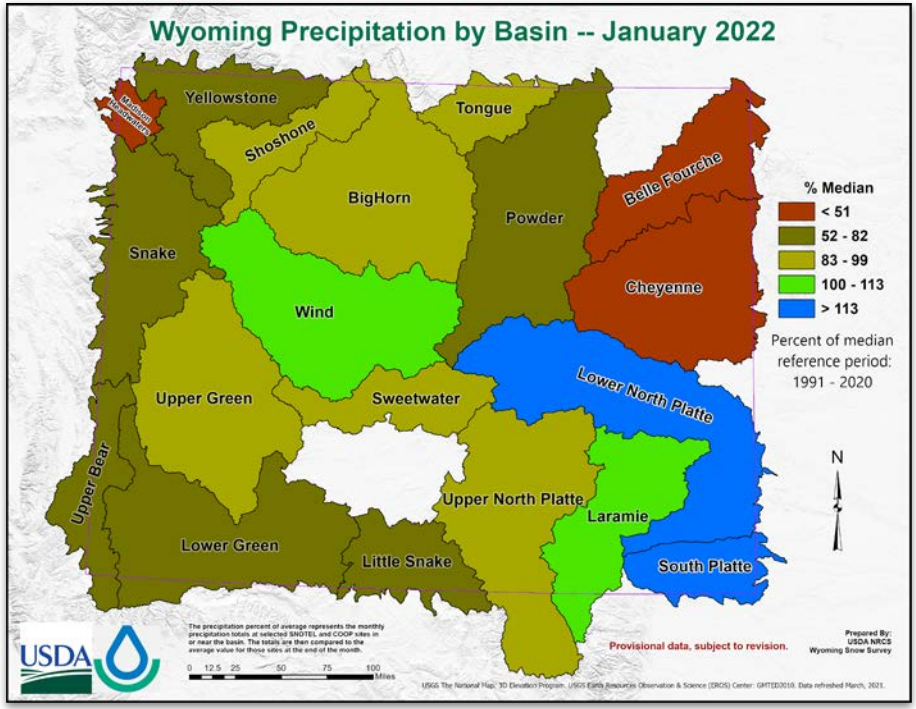


SWEs for Select Basins



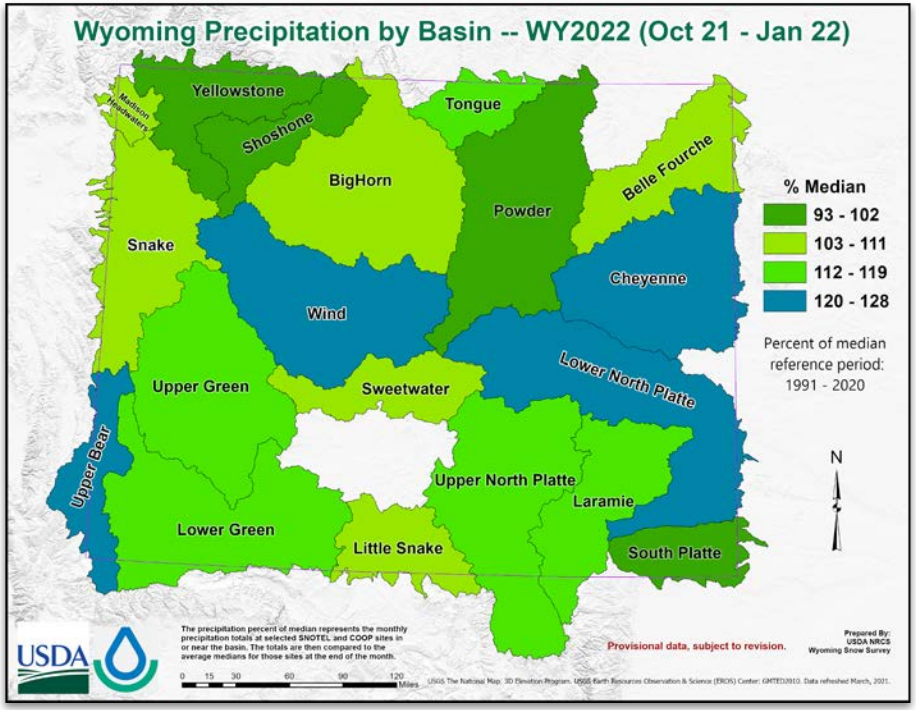


Basin Precipitation

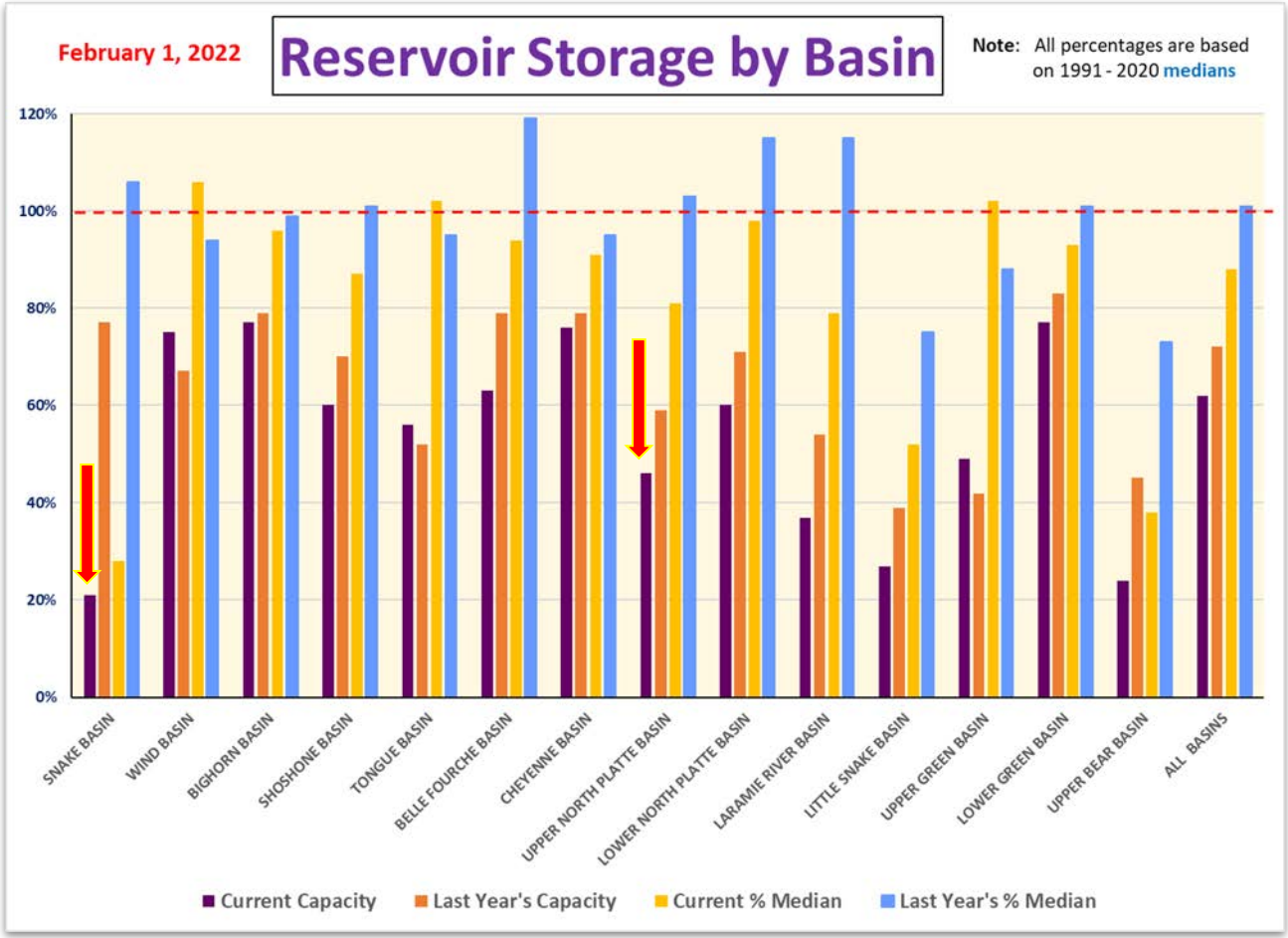


January 2022

WY2022



Reservoir Storages



Water Supply Highlights

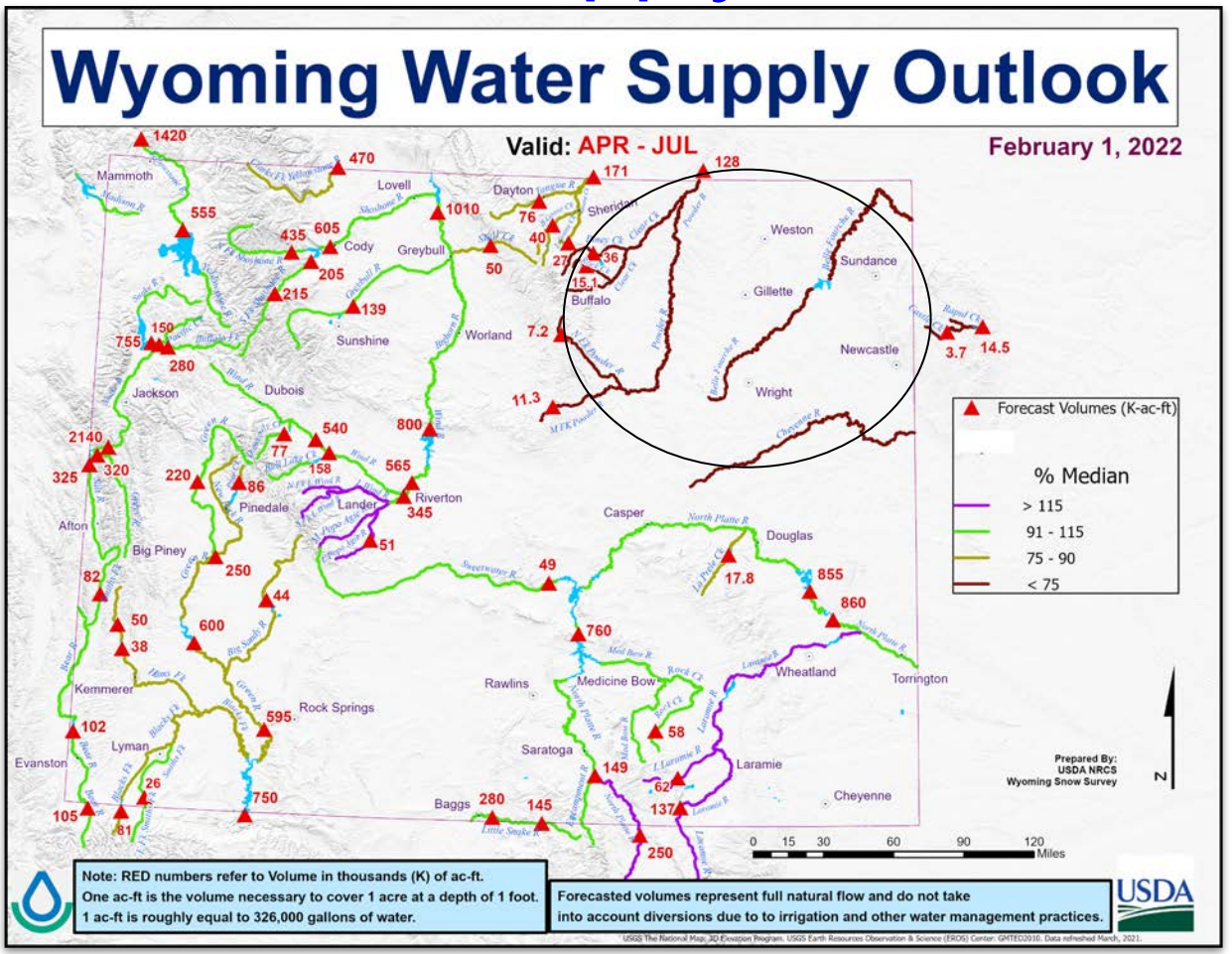
- Wyoming snowpack and/or snow water equivalents (SWEs) were **below** median by late January.

- Precipitation totals across Wyoming for January were **below** median. Water year precipitation totals continued to be **above** median.

- Overall reservoir storages for late January continue to be **below** median.

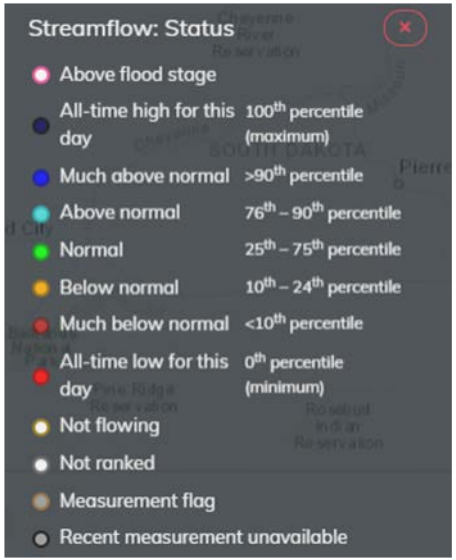
- Stream flow snowmelt volumes during April through July across Wyoming are forecasted to be generally near median.

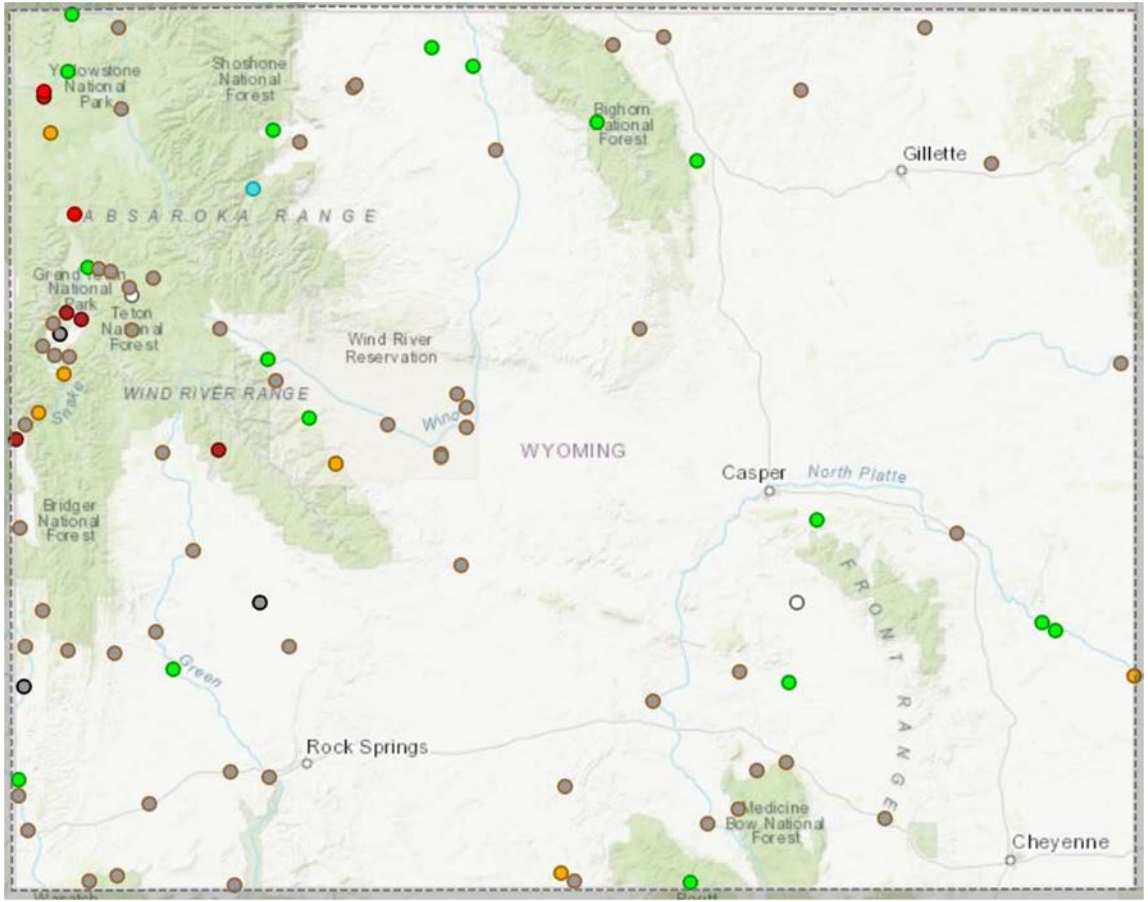
Water Supply Outlook



Current Streamflow Conditions (February 16, 2022)

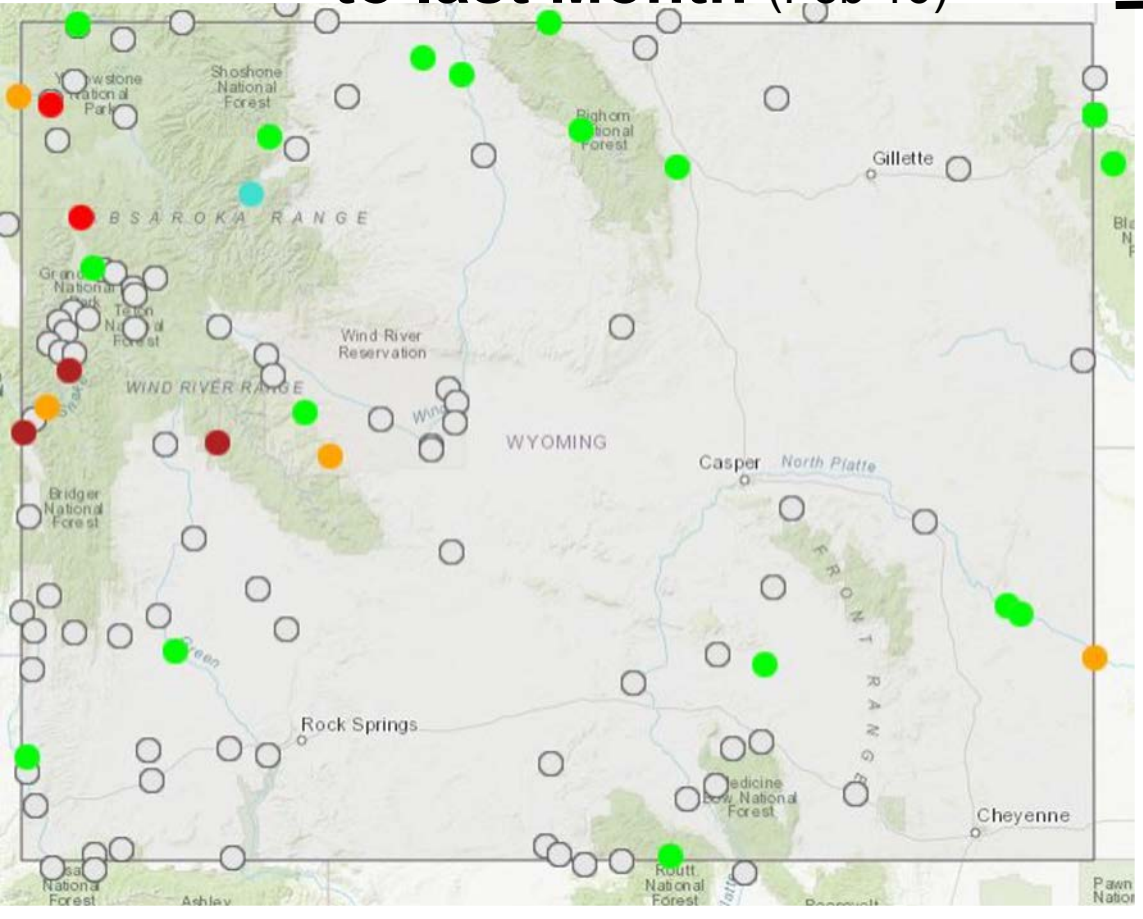
Streamflow Status



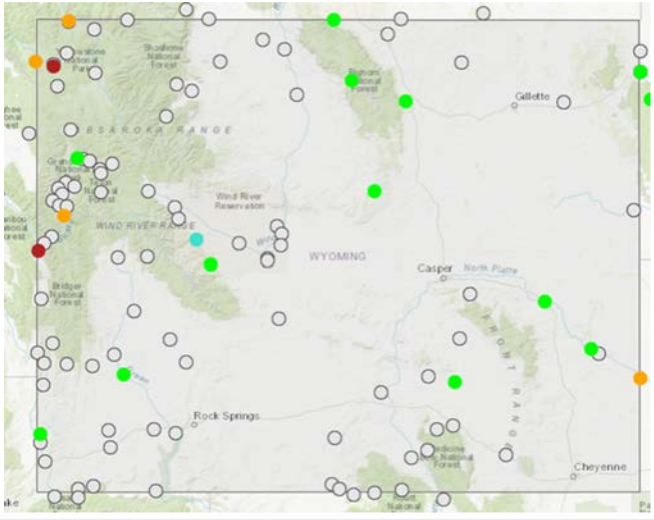


https://dashboard.waterdata.usgs.gov/

7-Day Avg Compared to last Month (Feb 16)



Jan 20 →

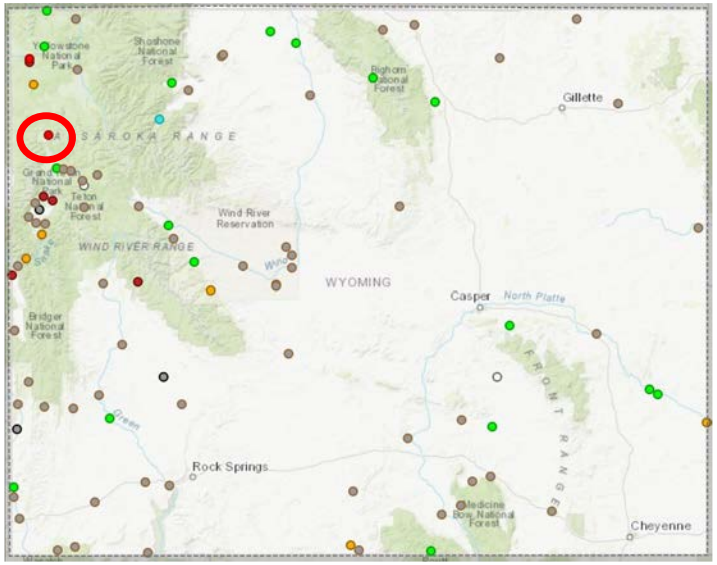


Explanation - Percentile classes							
Low	<10	10-24	25-75	76-90	>90	High	Not-ranked
	Much below normal	Below normal	Normal	Above normal	Much above normal		

https://waterwatch.usgs.gov

- **Majority of sites in ice**

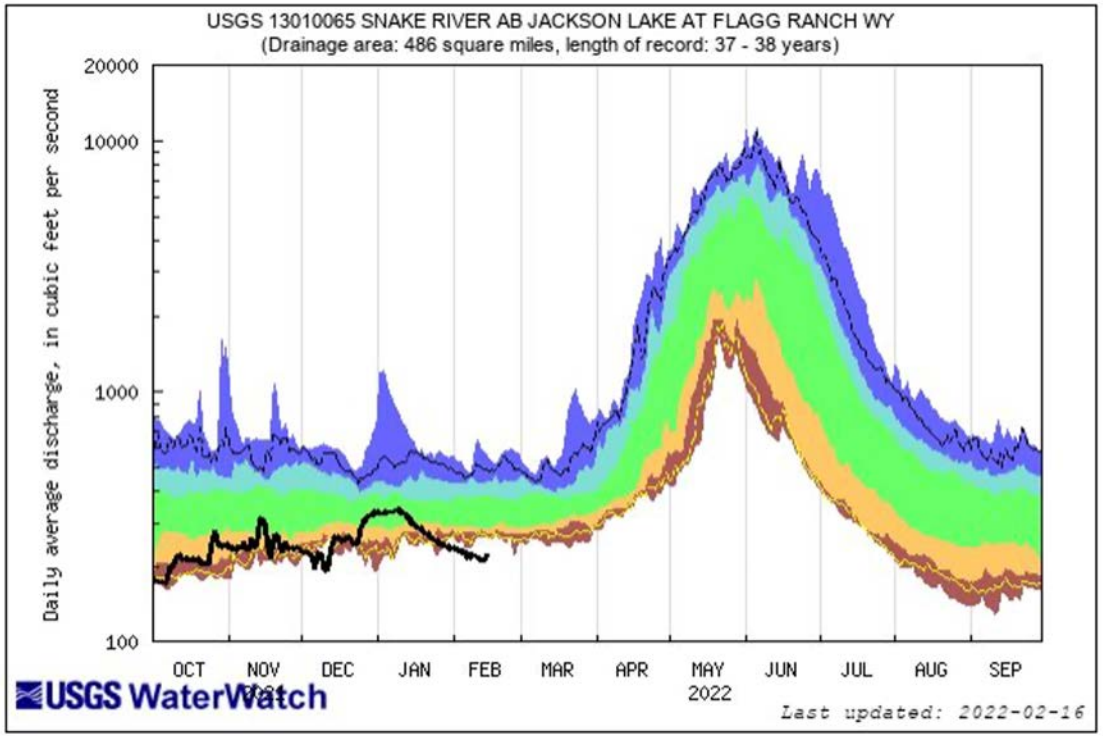
Select WY Streamflows



https://dashboard.waterdata.usgs.gov/
https://waterdata.usgs.gov/

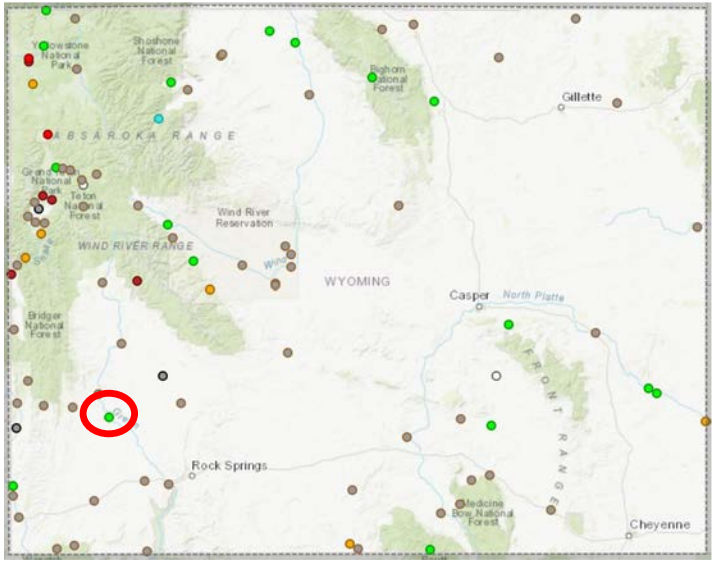
Snake River ab Jackson Lake at Flagg Ranch, WY

Last updated February 16, 2022



Explanation - Percentile classes							
lowest-10th percentile	5	10-24	25-75	76-90	95	90th percentile -highest	Flow
Much below Normal		Below normal	Normal	Above normal	Much above normal		

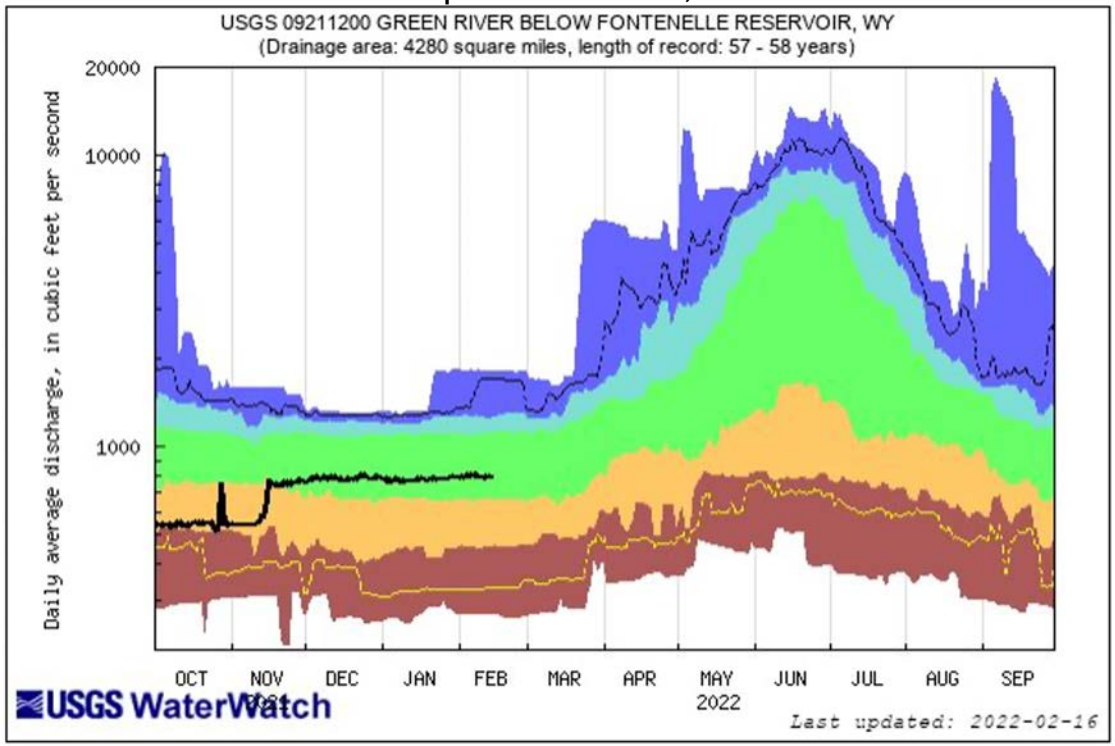
Select WY Streamflows



https://dashboard.waterdata.usgs.gov/
https://waterdata.usgs.gov/

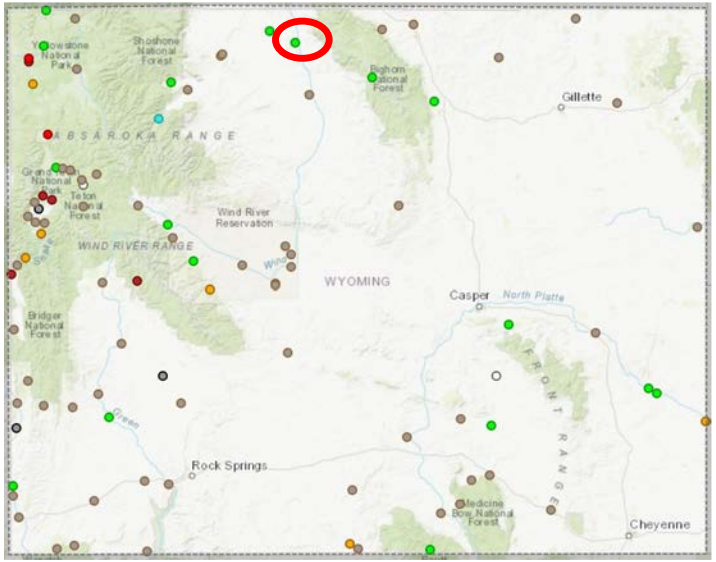
Green River below Fontenelle Reservoir, WY

Last updated Feb 16, 2022



Explanation - Percentile classes							
lowest-10th percentile	5	10-24	25-75	76-90	95	90th percentile -highest	Flow
Much below Normal		Below normal	Normal	Above normal	Much above normal		

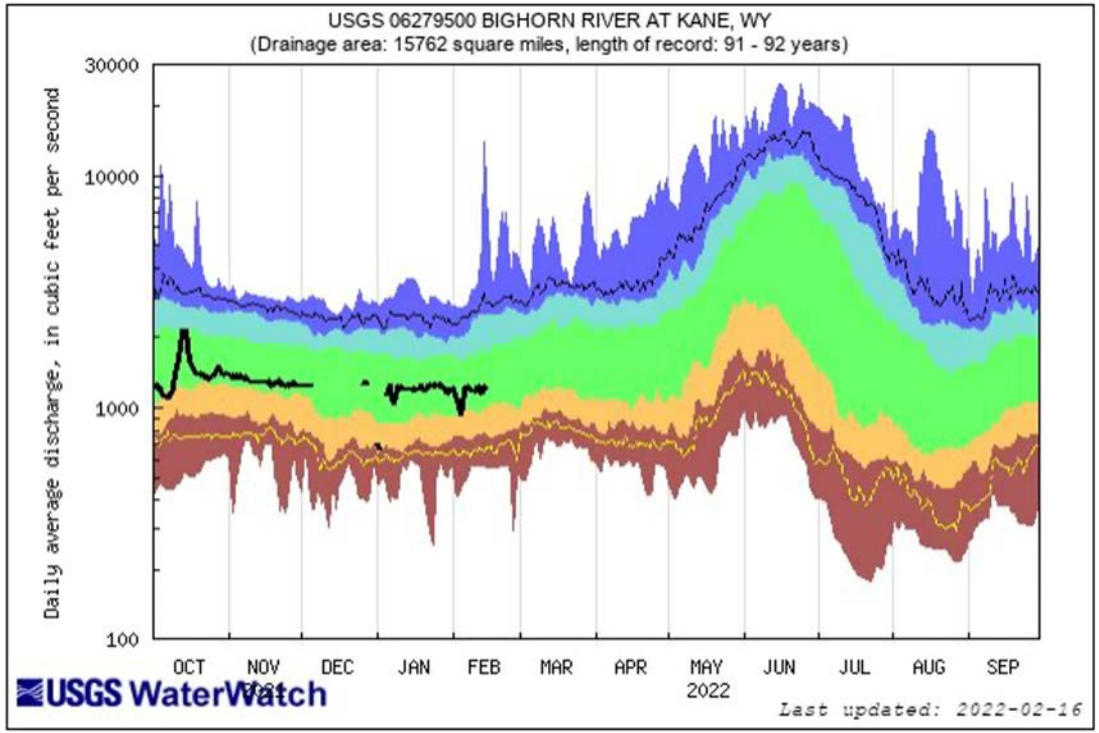
Select WY Streamflows

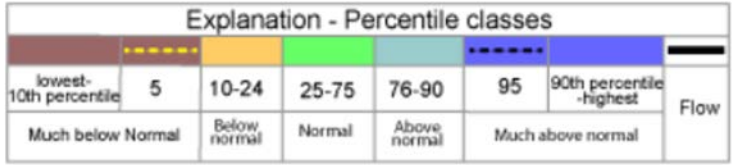


https://dashboard.waterdata.usgs.gov/
https://waterdata.usgs.gov/

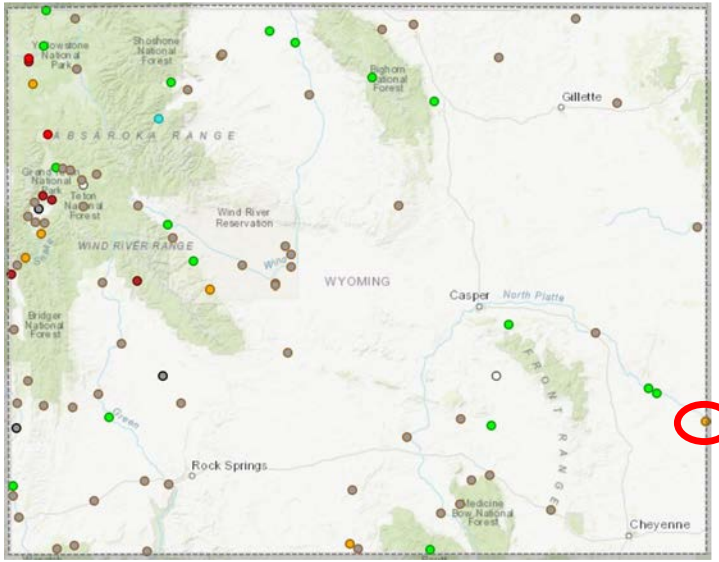
Bighorn River at Kane, WY

Last updated Feb 16, 2022





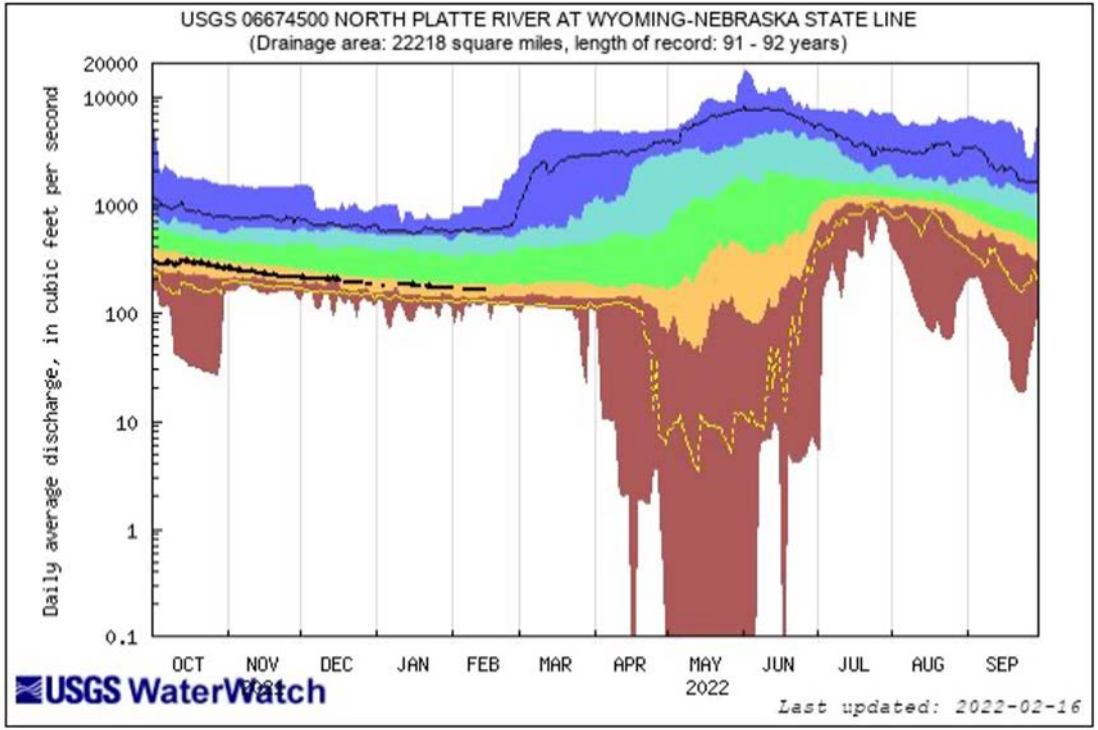
Select WY Streamflows

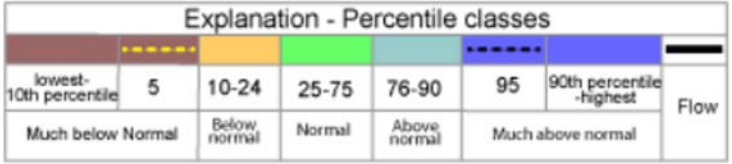


https://dashboard.waterdata.usgs.gov/
https://waterdata.usgs.gov/

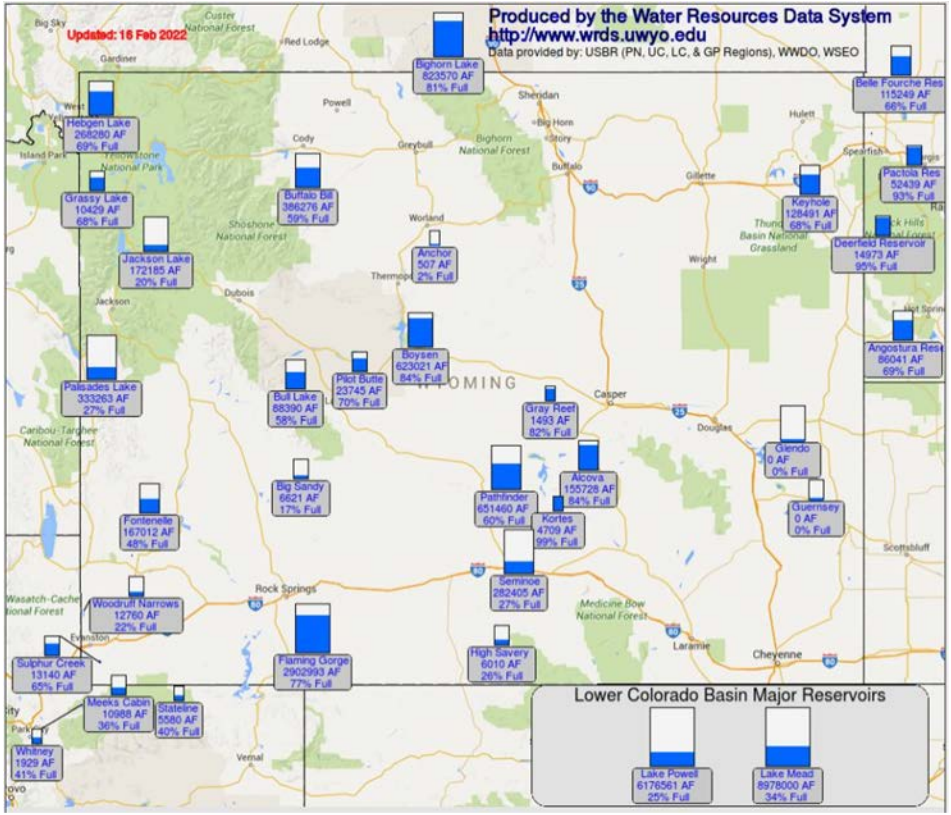
North Platte River at WY-NE State Line, WY

Last updated Feb 16, 2022





WY Reservoirs (Updated 1/20/22)



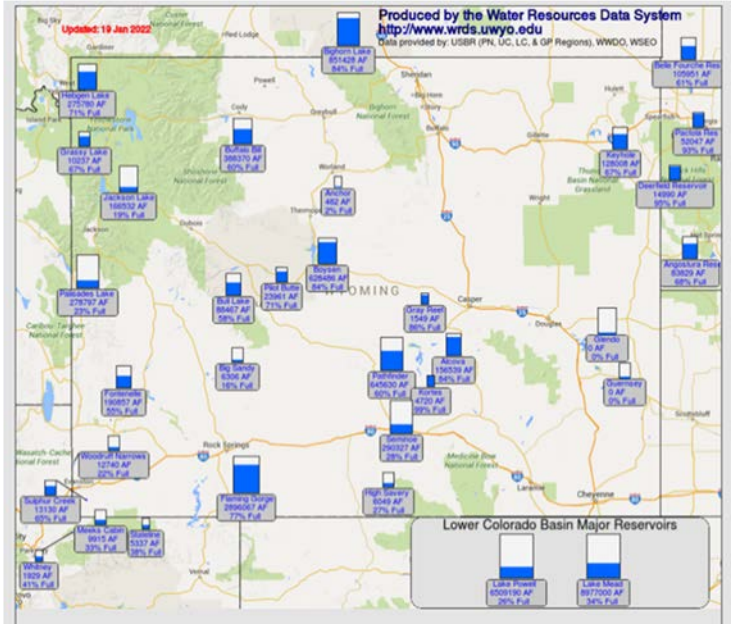
February 16, 2022

http://www.wrds.uwyo.edu/surface_water/teacups.html

Compared to January

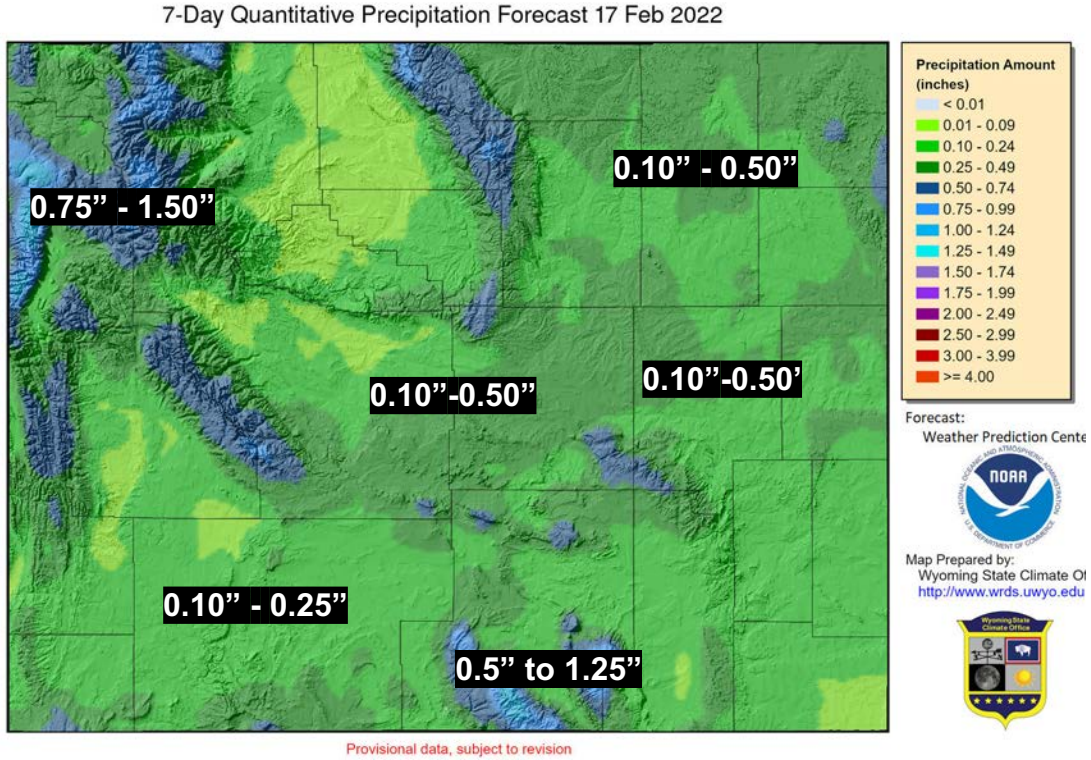
- No significant changes

January 20, 2022



Forecasts & Outlooks

7-Day Quantitative Precipitation Forecast
February 17-24



The Quantitative Precipitation Forecast shows the liquid amount of forecasted precipitation over the next 7 days
The Forecast is created by the National Weather Service Weather Prediction Center
Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, National Centers for Environmental Prediction, and Weather Prediction Center - https://www.wpc.ncep.noaa.gov
Map Layout Created 17 Feb 2022 http:/www.wrds.uwyo.edu

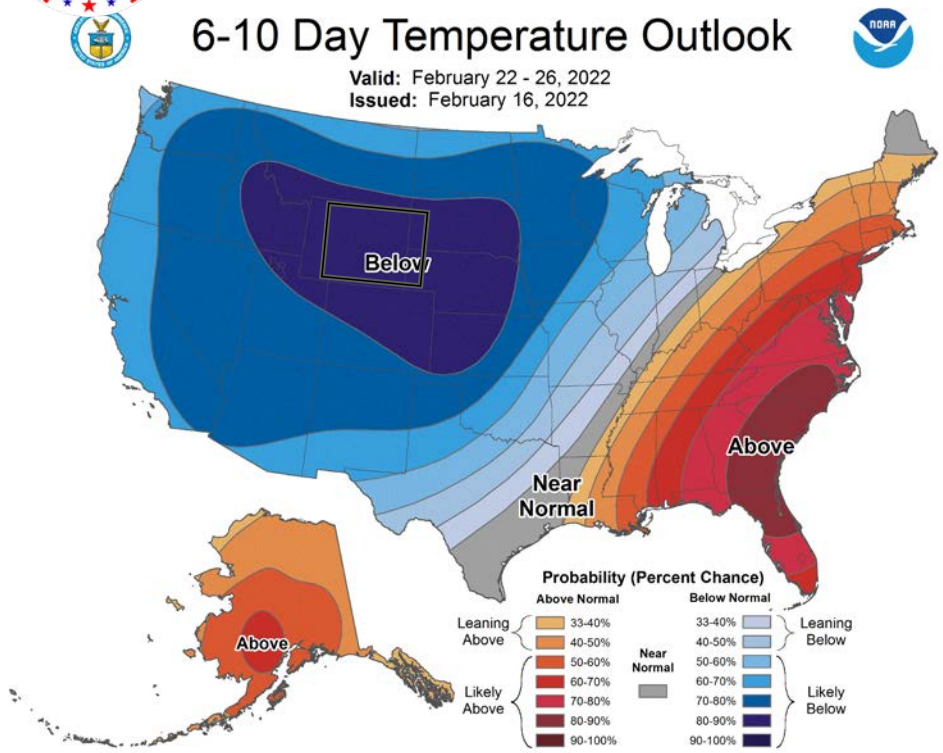
Quantitative Precipitation Forecast = Liquid Precipitation Forecast

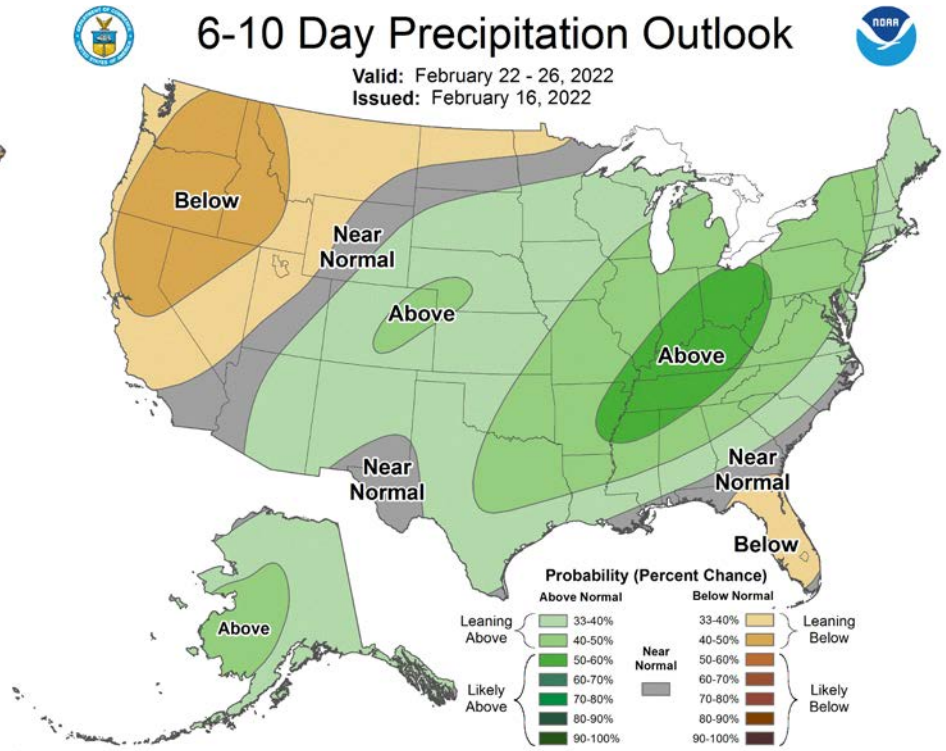
- Light to moderate snow possible across the state
- Tetons, Sierras, and Snowy ranges look like the best bets for significant snow
- No game-changing snow in the near future

https://bit.ly/3bZXQeN

6-10 Day Outlooks February 22 - 26

Probability = Chance





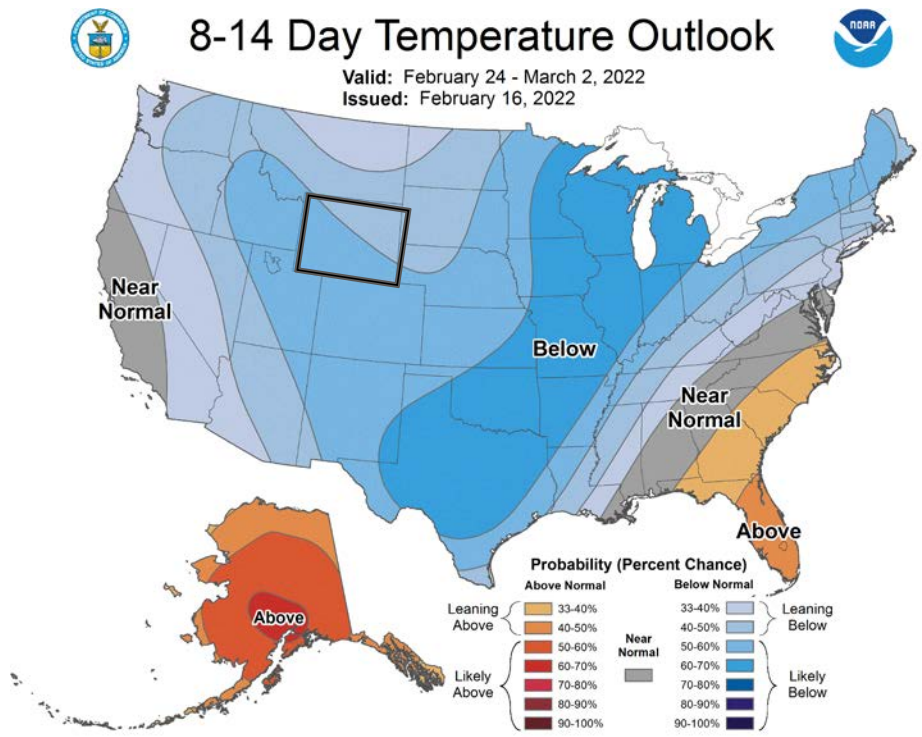
COLD!! Below seasonal averages for the next week

Weak dry signal in northwest. Weak wet signal in the southeast.

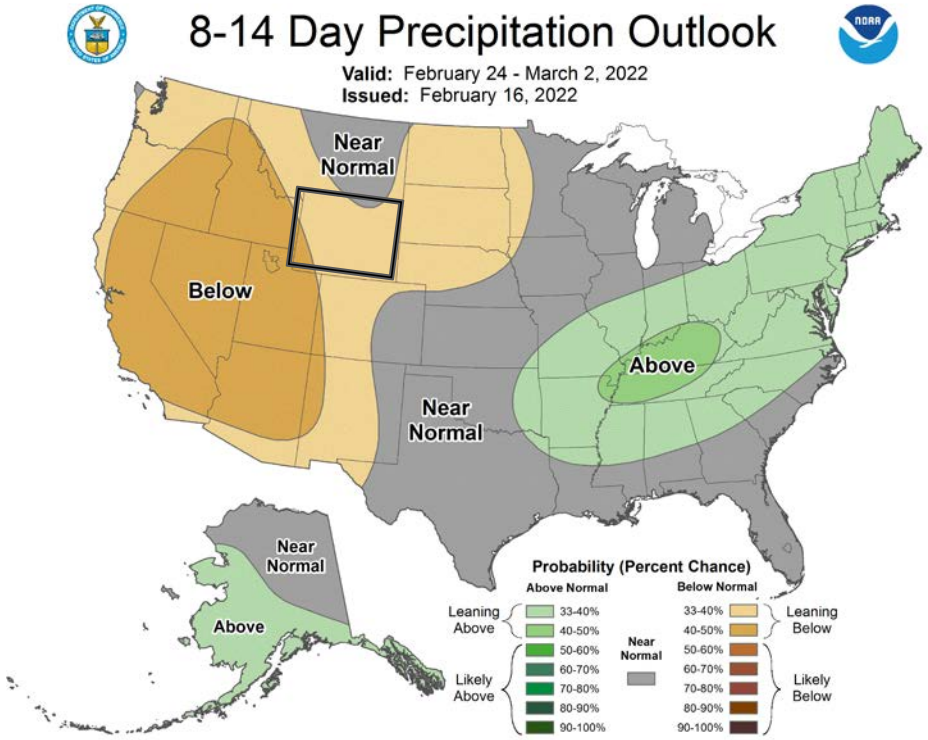
http://bit.ly/3kq3LxA

8-14 Day Outlooks February 24 to March 2

Probability = Chance



Moderate to strong cold signal strengthening to the southwest



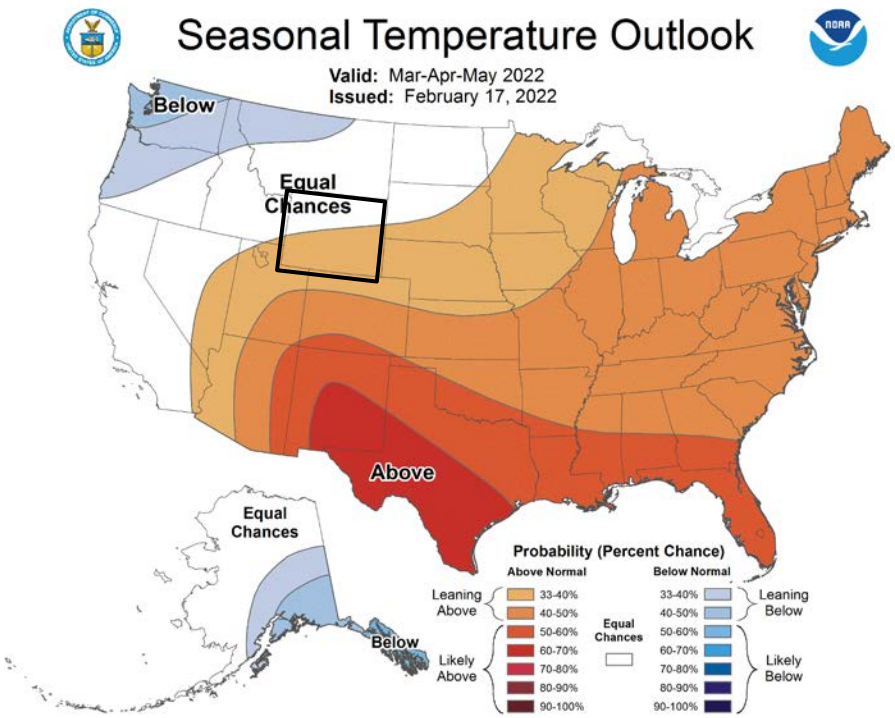
Weak Dry signal almost across the state.

http://bit.ly/3kq3LxA

Winter Outlook

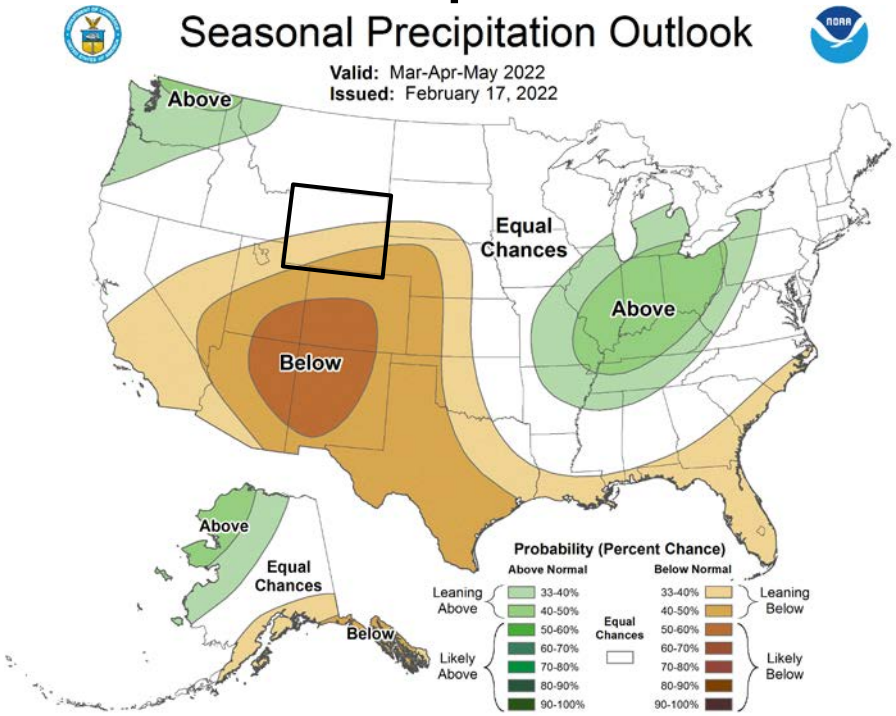
March 2022 - May 2022

Temperatures



Weak Warm Signal

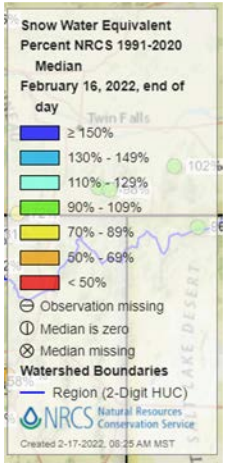
Precipitation

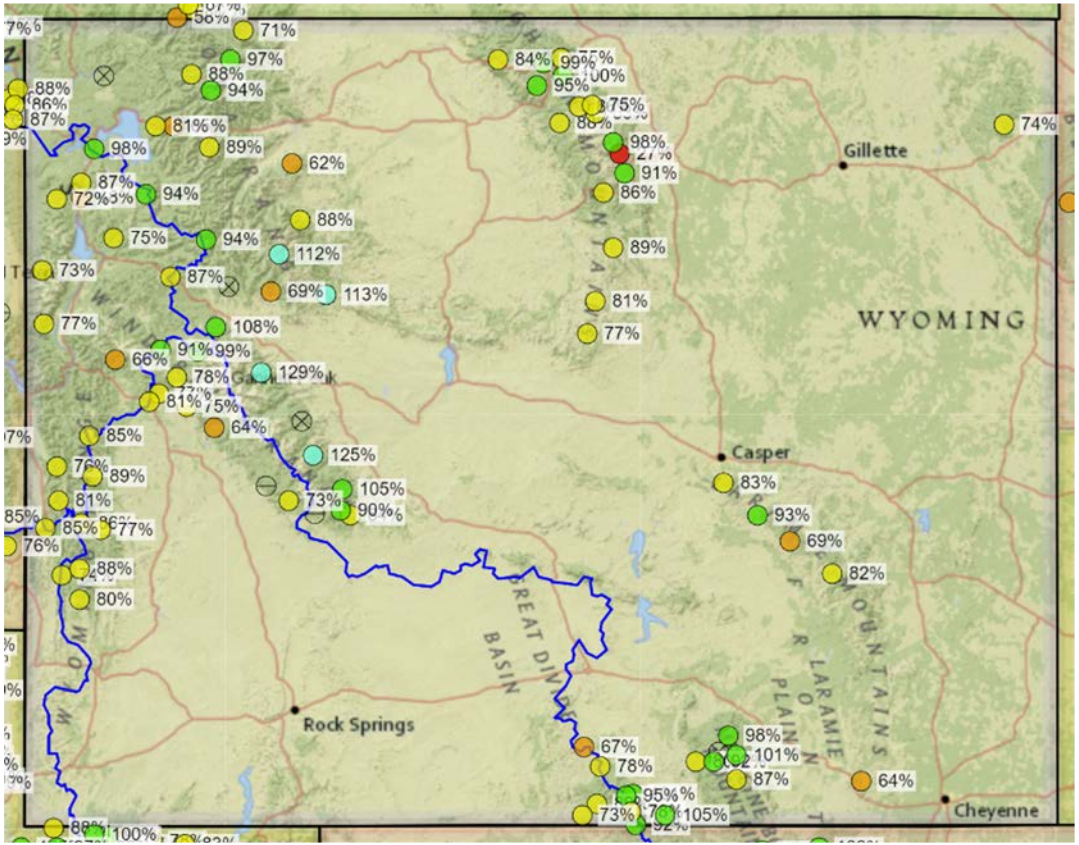


Weak to Moderate Dry Signal

http://bit.ly/3kw1WPF

Wyoming Snotel Snapshot Update



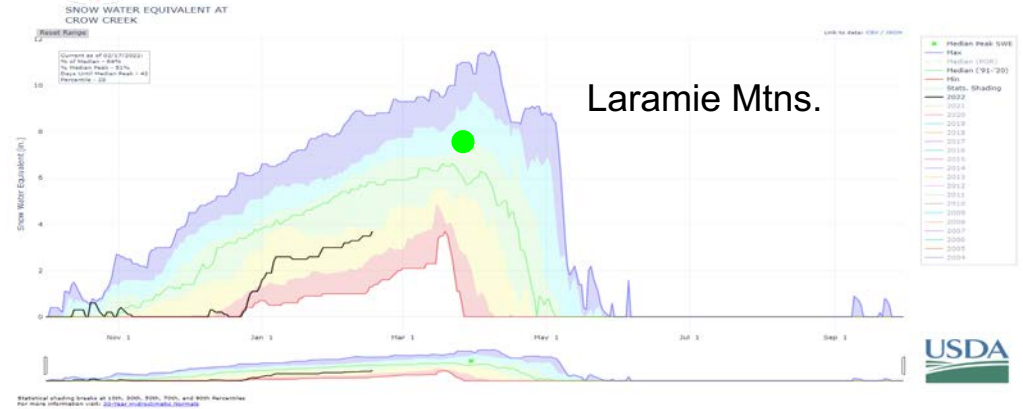


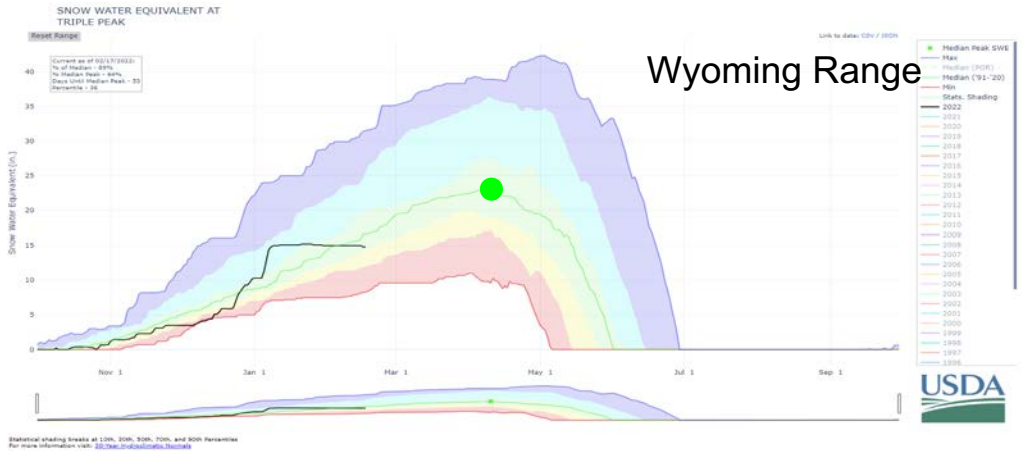
Snotel Sites - (Snow Telemetry) - are monitoring stations measuring snowpack, precipitation, temperature & other climate conditions.

- State-wide there was a slight drop relative to the median.
- Eastern parts of the state gained some ground, western basins lost some ground. Most significant losses probably in the the Green River basin

https://bit.ly/2ON67uT

Wyoming Snotel Snapshot Update



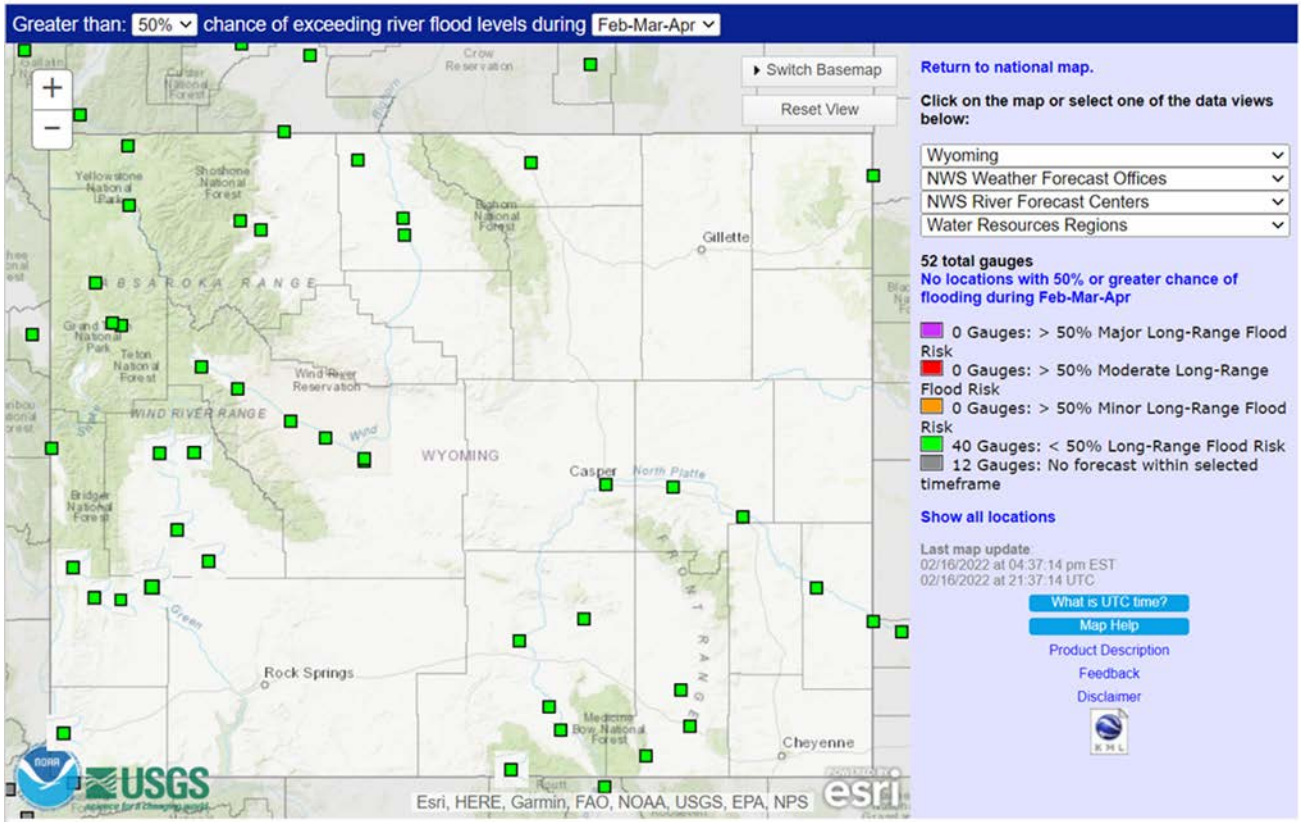


- Laramie Mountains started the year poorly.
- Snows have kept pace with, but have remained below median.

- Western mountains benefited more consistently from the heavy snows of December and early January. Accumulation has essentially stopped since then.
- Conditions have dropped below the medians due to lack of accumulation since December.

https://bit.ly/2ON67uT

Missouri River Basin (Wyoming) Flood Potential Update



No riverine flooding is expected through mid-April.

This graphic depicts the NWS river forecast locations, colored by the highest flood category expected during the next 90-days. All Wyoming stations are projected to stay below Flood Stage (i.e. green dots).

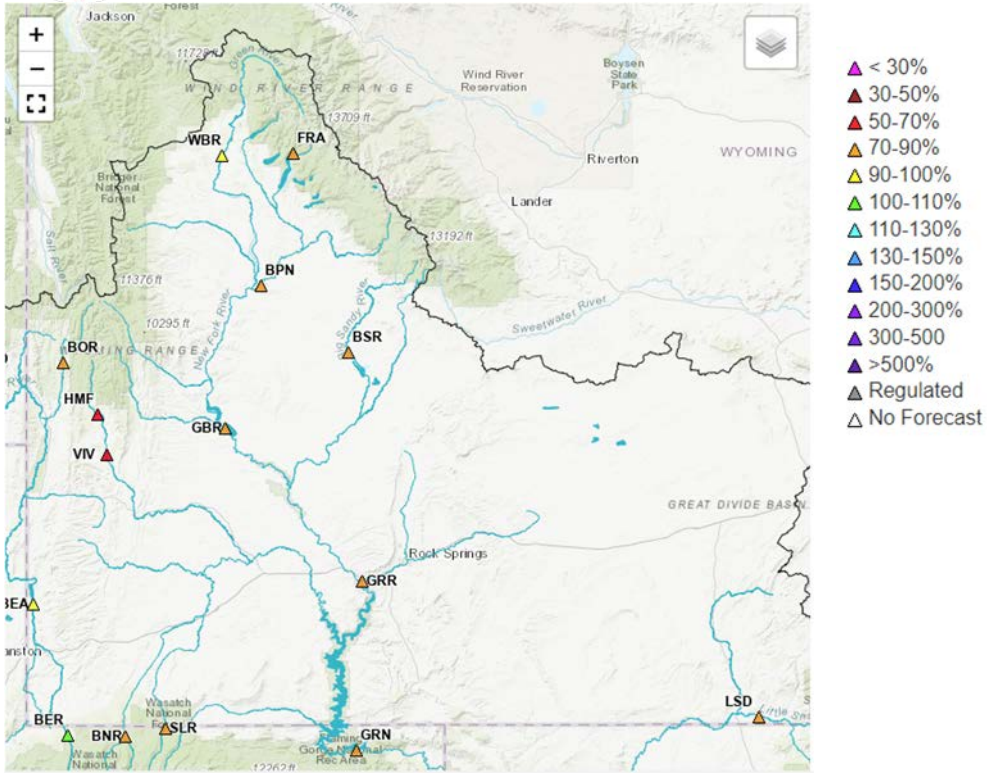
Please note that river ice action **is NOT accounted** for in our river forecast model.

National Hydrologic Assessment will be issued 17 March

[NWS Long Range River Flood Outlooks]

[NOAA U.S. Spring Outlook & Flood Risk]

Colorado River Basin (Wyoming) Flood Potential Update



Seasonal (April through July) water supply forecasts in Wyoming and the Colorado River Basin range from approximately 66% to 94% of average.

Seasonal peak flows are roughly linearly correlated with seasonal streamflow volumes.

Flooding potential is currently low, but can change depending on the future snow accumulation and weather.

Peak flow forecasts will begin to be issued in March.

www.cbrfc.noaa.gov

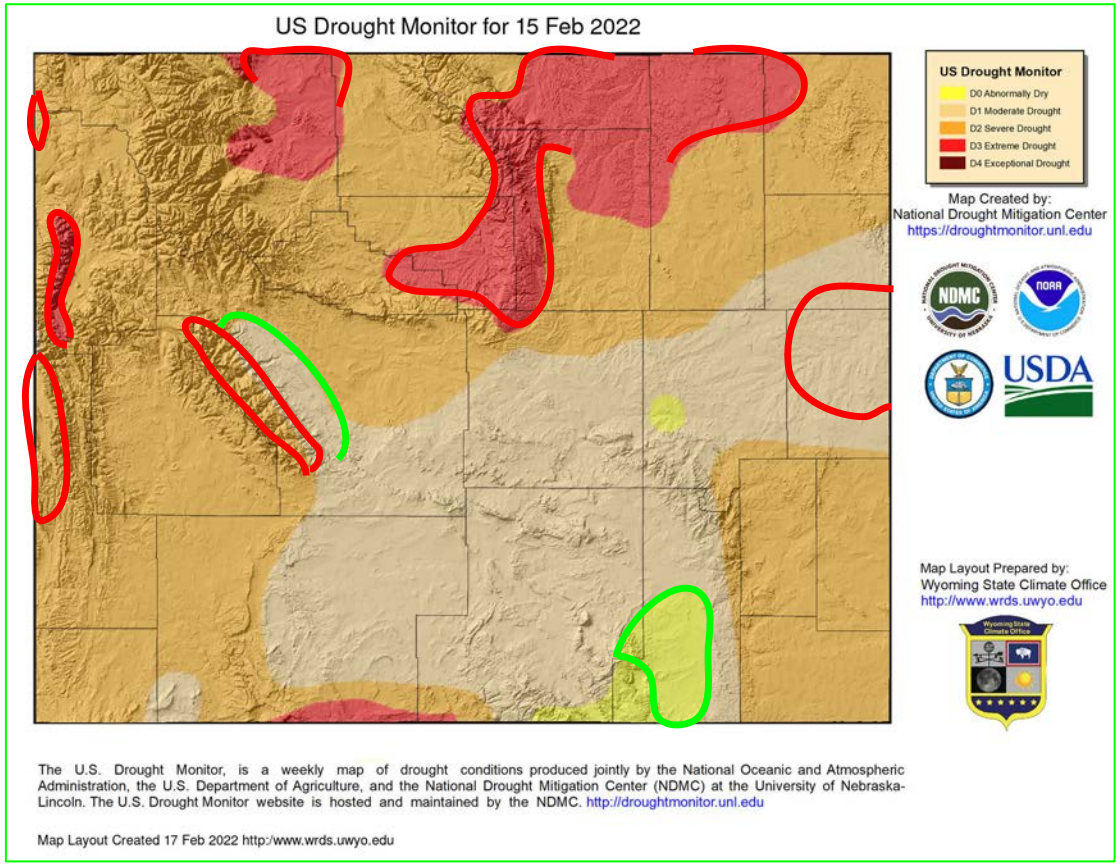
How to get involved ...

US Drought Monitor for February 15, 2022

(Released Thursday, February 17, 2022)

Valid 8 a.m. EDT

Drought Level	Percentile
None	>30
D0 (Abnormally Dry)	21 to 30
D1 (Moderate Drought)	11 to 20
D2 (Severe Drought)	6 to 10
D3 (Extreme Drought)	3 to 5
D4 (Exceptional Drought)	0 to 2



Improvements in the southeast but also several degradations in the north, east, and west.

https://droughtmonitor.unl.edu

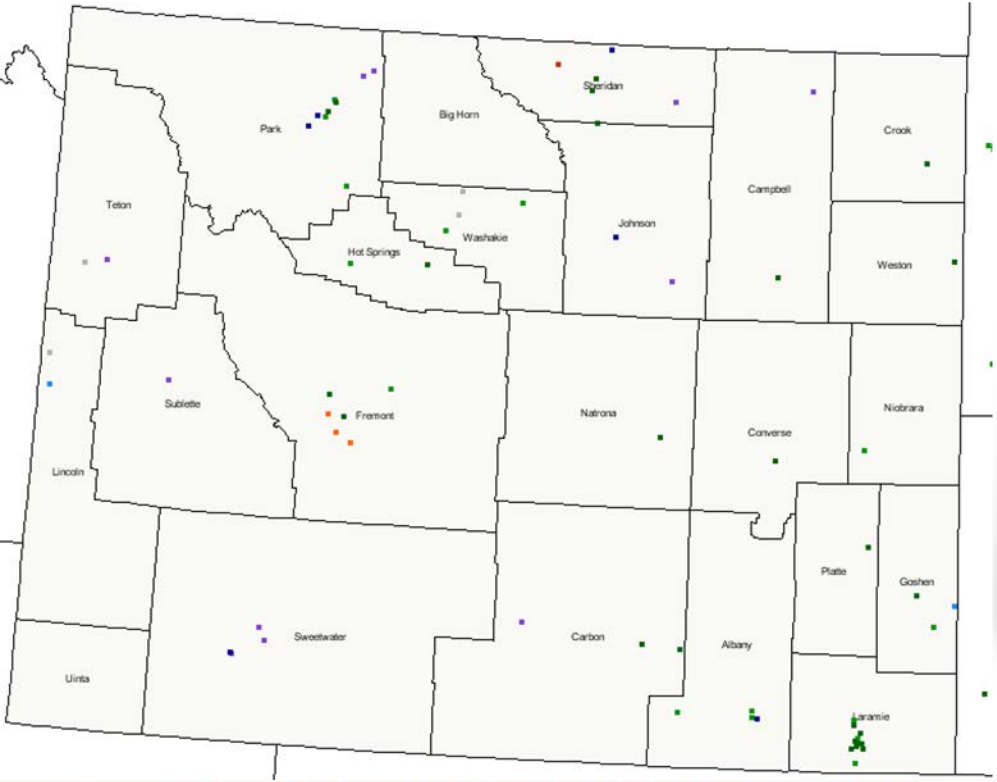
droughtmonitor.unl.edu

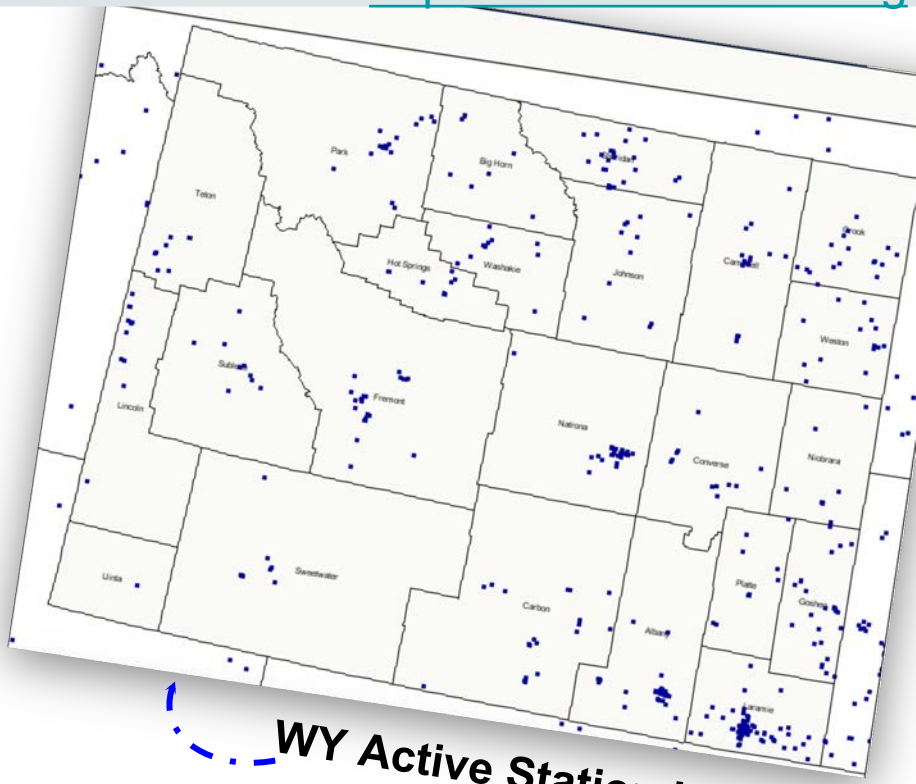
USDA Northern Plains Climate Hub
U.S. DEPARTMENT OF AGRICULTURE
University of Wyoming Extension

CoCoRaHS Mapping System

https://www.cocorahs.org

February 17, 2022:
24-hour precip as of ~ 7 am



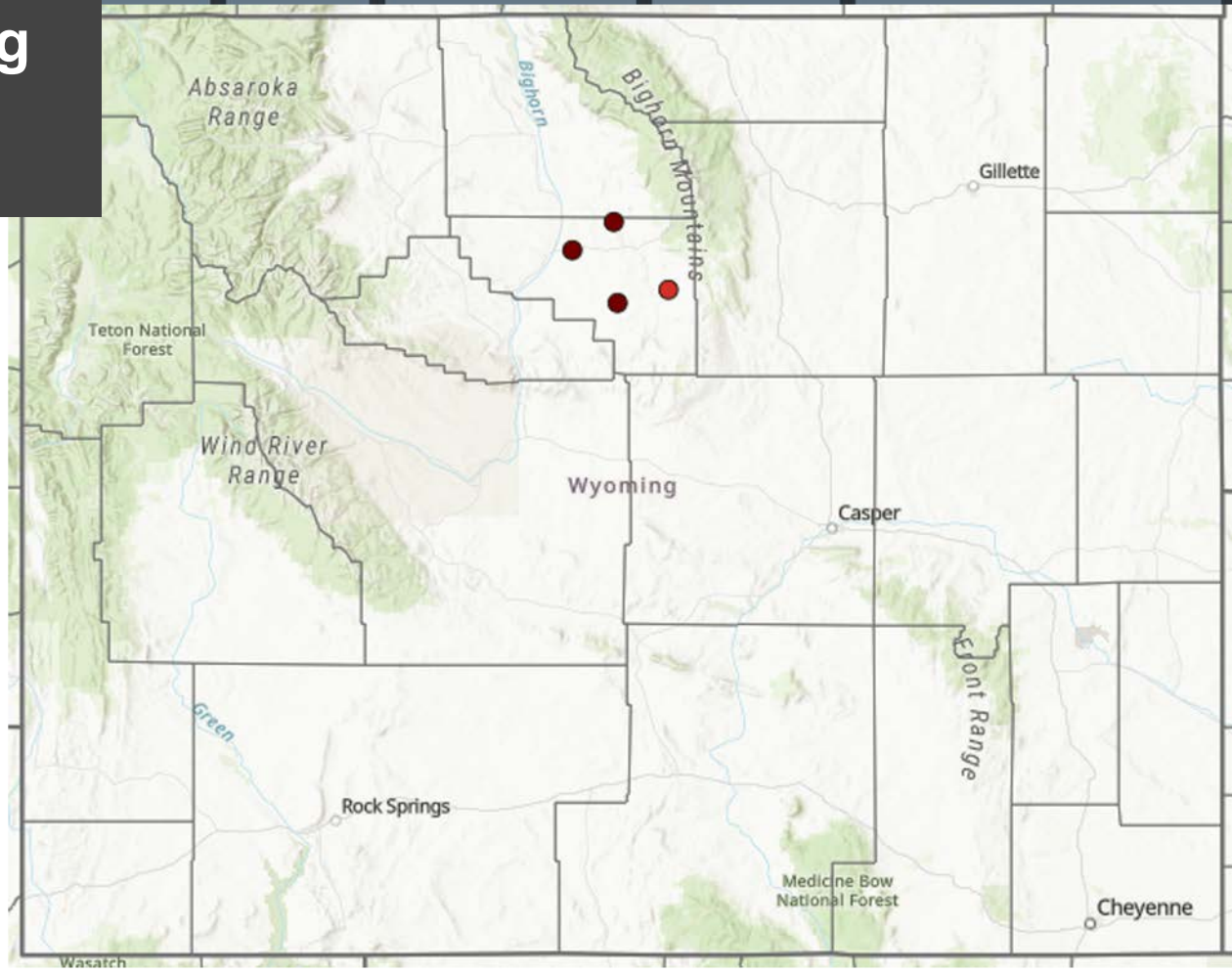


WY Active Station Locations

Condition Monitoring Observer Reports

https://bit.ly/CMOReports

- Severely Dry
- Moderately Dry
- Mildly Dry
- Near Normal
- Mildly Wet
- Moderately Wet
- Severely Wet

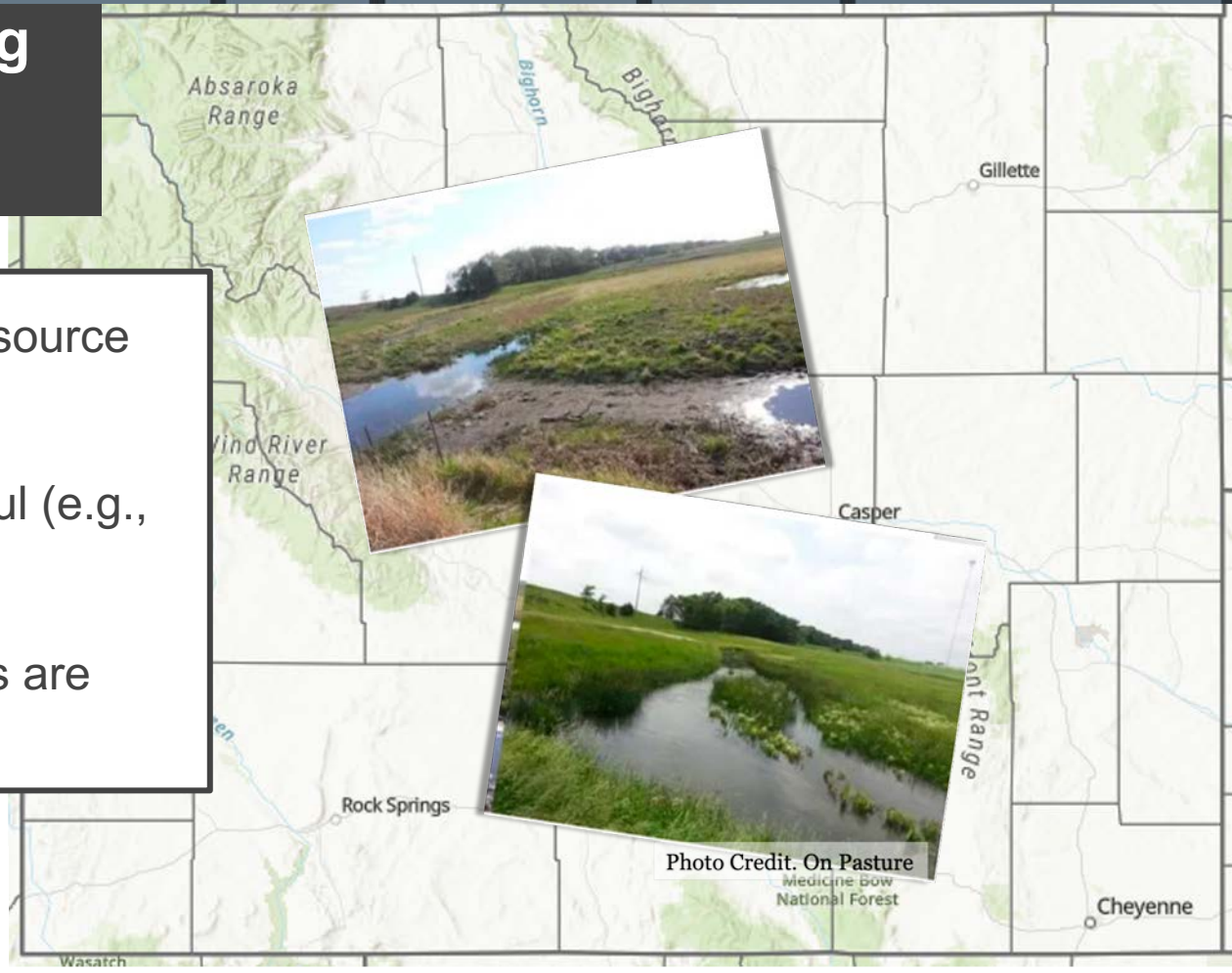


USDA Northern Plains Climate Hub
U.S. DEPARTMENT OF AGRICULTURE
University of Wyoming Extension

Condition Monitoring Observer Reports

https://bit.ly/CMOReports

- Comparison photos → resource conditions
- Regular reporting is helpful (e.g., monthly)
- ***Note:*** Reports and photos are available to the public.



Tony Bergantino
WRDS & State Climate Office
antonius@uwyo.edu

Tony Anderson
National Weather Service
Cheyenne
tony.anderson@noaa.gov

Scott Whiteman
USGS
whiteman@usgs.gov

Windy Kelley
USDA NPCH & UW-Extension
wkelley1@uwyo.edu

Jim Fahey
USDA NRCS
james.fahey@usda.gov

WY Drought Info & Resources
https://drought.wyo.gov

CoCoRaHS
https://www.cocorahs.org

Condition Monitoring Observer Reports (CMOR)
https://bit.ly/CMOReports

Thank you! Questions?