



WY Conditions & Outlooks:

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

March 17, 2022



Presentation Outline

- Current Conditions
- Outlooks
- How to Get Involved



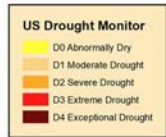
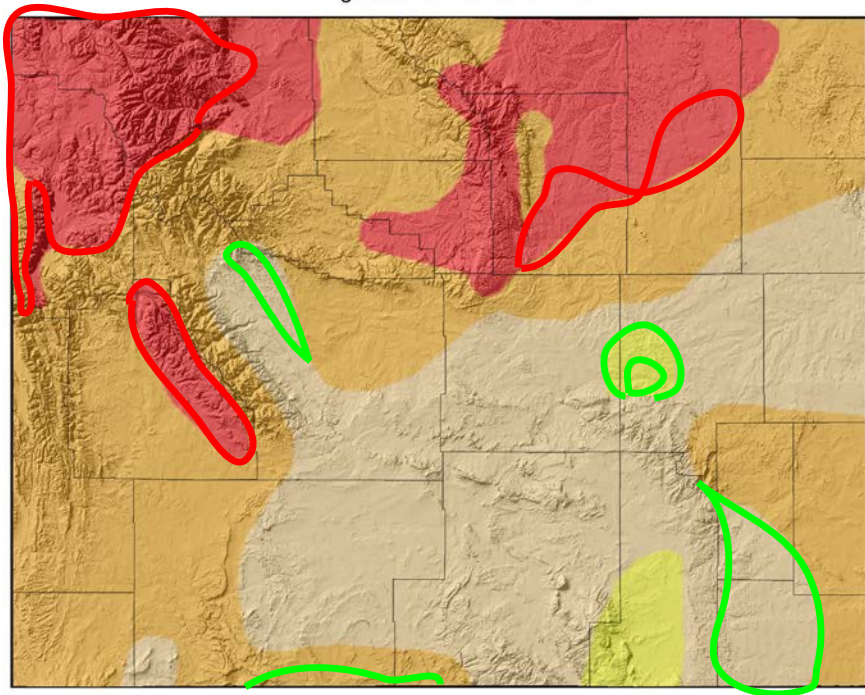
Current Conditions

US Drought Monitor for March 15, 2022

(Released Thursday, March 17, 2022)

Valid 8 a.m. EDT

US Drought Monitor for 15 Mar 2022



Map Created by:
National Drought Mitigation Center
<https://droughtmonitor.unl.edu>



Map Layout Prepared by:
Wyoming State Climate Office
<http://www.wrds.uwyo.edu>



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

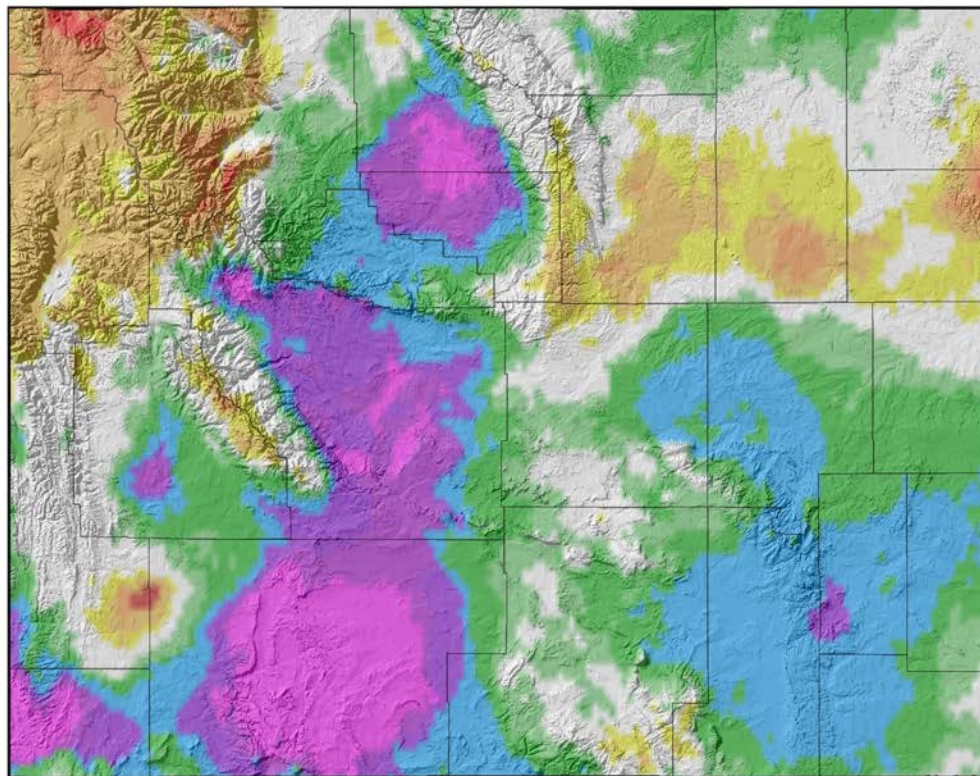
Improvements in the southeast and south central parts – with several **degradations** in the north and north central/northwest.

The U.S. Drought Monitor, is a weekly map of drought conditions produced jointly by the National Oceanic and Atmospheric Administration, the U.S. Department of Agriculture, and the National Drought Mitigation Center (NDMC) at the University of Nebraska-Lincoln. The U.S. Drought Monitor website is hosted and maintained by the NDMC. <http://droughtmonitor.unl.edu>

Map Layout Created 17 Mar 2022 <http://www.wrds.uwyo.edu>

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

14-Day Precipitation (Percentile) for 03 Mar 2022 to 16 Mar 2022



Precipitation Data
PRISM Climate Group
<http://prism.oregonstate.edu>



Map Prepared by:
Wyoming State Climate Office
<http://www.wrds.uwyo.edu>



Provisional data, subject to revision

Daily precipitation data from PRISM Climate Group, Copyright ©2021, PRISM Climate Group, Oregon State University, <http://prism.oregonstate.edu>
Map Created 17 Mar 2022 <http://www.wrds.uwyo.edu>
Daily percentiles created from PRISM daily precipitation grids

Above Median:

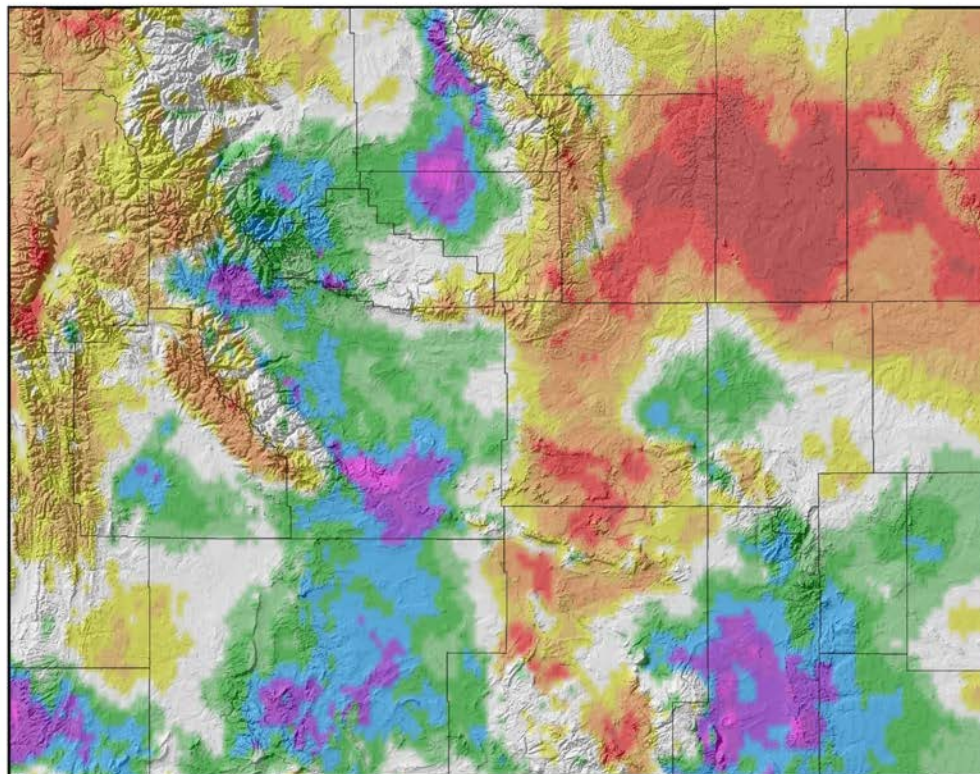
- Southern Bighorn Basin
- Fremont County
- Sweetwater/Uinta Counties
- Southeast

Below Median (Areas of Concern):

- Teton/Western Park Counties

90-Day Precipitation Percentile (17 Dec 2021 to 16 Mar 2022)

90-Day Precipitation (Percentile) for 17 Dec 2021 to 16 Mar 2022



Precipitation Data
PRISM Climate Group
<http://prism.oregonstate.edu>



Map Prepared by:
Wyoming State Climatology Office
<http://www.wrds.uwyo.edu>



Provisional data, subject to revision

Daily precipitation data from PRISM Climate Group, Copyright ©2021, PRISM Climate Group, Oregon State University, <http://prism.oregonstate.edu>
Map Created 17 Mar 2022 <http://www.wrds.uwyo.edu>
Daily percentiles created from PRISM daily precipitation grids

Above Median:

- Southern Big Horn County
- Southeast Park County
- Western Hot Springs County
- Sweetwater/Uinta Counties
- Southern Sublette County
- Fremont County
- Sublette County
- Albany/Laramie/Platte Counties

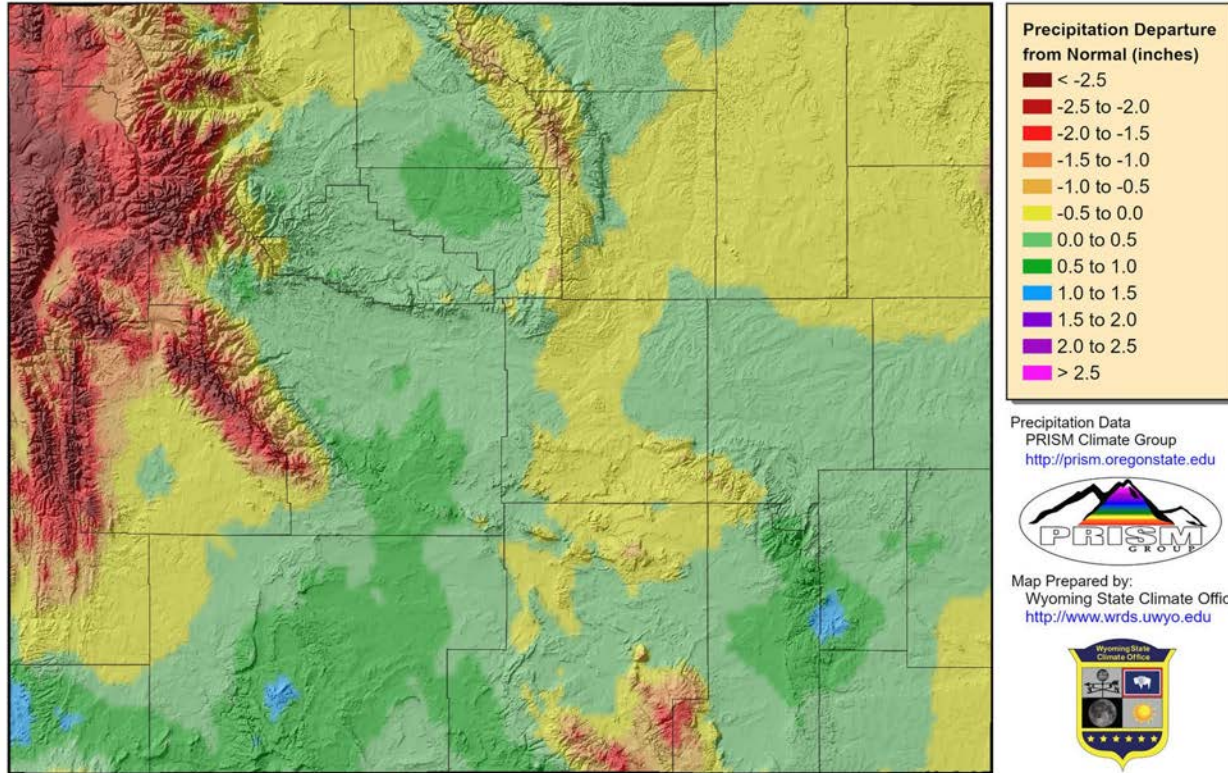
Below Median (Areas of Concern):

- Tetons
- West side of the Winds
- Southern Bighorns
- Northeast
- Central (Natrona/Carbon County Line)

30-Day Precipitation (Departure from Average)

(15 Feb 2022 to 16 Mar 2022)

30-Day Precipitation (Departure from 1991-2020 Average) for 15 Feb 2022 to 16 Mar 2022



Precipitation Data
PRISM Climate Group
<http://prism.oregonstate.edu>



Map Prepared by:
Wyoming State Climate Office
<http://www.wrds.uwyo.edu>



Provisional data, subject to revision

Monthly and Normal precipitation data from PRISM Climate Group, Copyright ©2021, PRISM Climate Group, Oregon State University, <http://prism.oregonstate.edu>
Map Created 17 Mar 2022 <http://www.wrds.uwyo.edu>
Precipitation totals created from PRISM daily precipitation grids

Below Average (Areas of Concern):

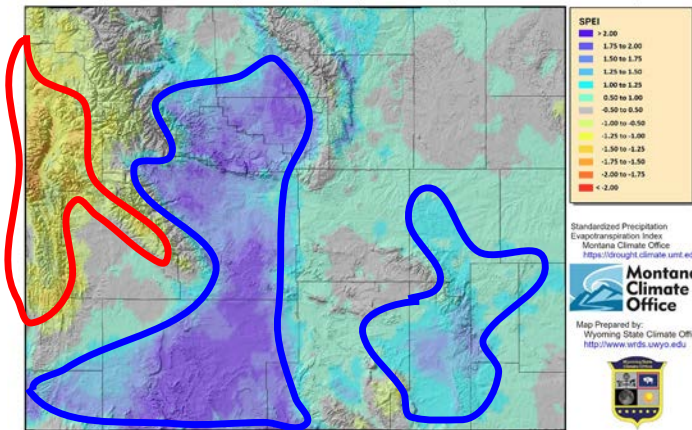
- Higher Elevations

Why is this a concern?

High Elevation Precipitation = Snowpack

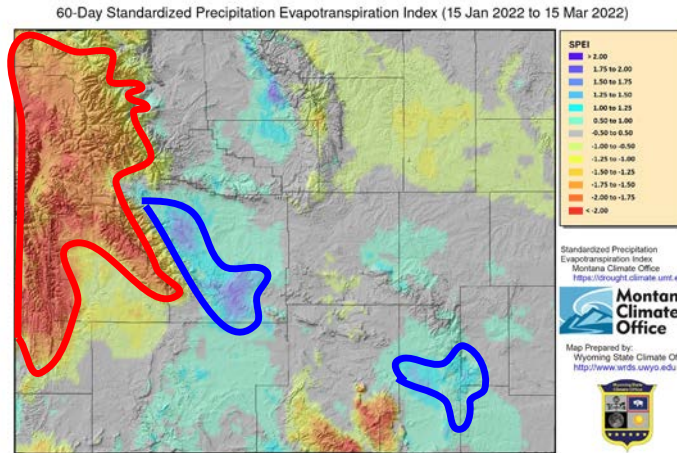
30-Day Standardized Precipitation Evapotranspiration Index (14 Feb 2022 to 15 Mar 2022)

30-Day
→



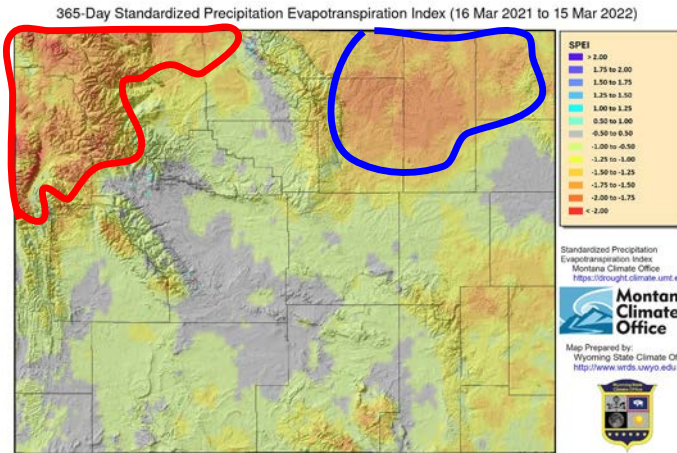
Standardized Precipitation Evapotranspiration Index Created by Montana Climate Office <https://drought.climate.umt.edu>
Map Created 17 Mar 2022 <http://www.wrds.uwyo.edu>

60-Day
→



Standardized Precipitation Evapotranspiration Index Created by Montana Climate Office <https://drought.climate.umt.edu>
Map Created 17 Mar 2022 <http://www.wrds.uwyo.edu>

1-Year
→



Standardized Precipitation Evapotranspiration Index Created by Montana Climate Office <https://drought.climate.umt.edu>
Map Created 17 Mar 2022 <http://www.wrds.uwyo.edu>

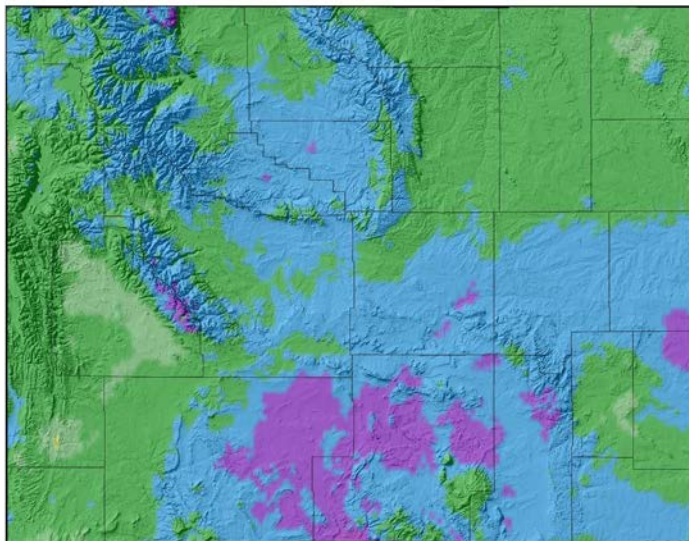
Standardized Precipitation Evapotranspiration Index (SPEI)

Shorter-term wetness, longer-term dryness

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

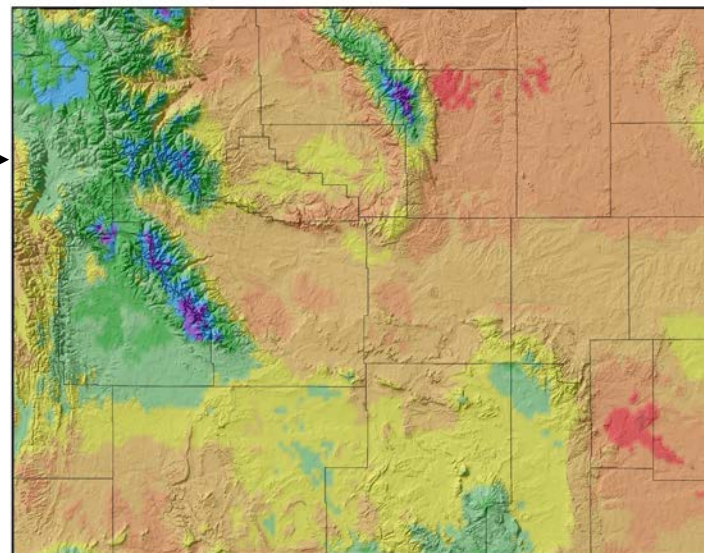
- Lows well below freezing statewide
- Warmest in NW and SE plains

14-Day Average Minimum Temperature (Departure from 1991-2020 Average) for 03 Mar 2022 to 16 Mar 2022



Temperature Data
PRISM Climate Group
<http://prism.oregonstate.edu>

Map Prepared by:
Wyoming State Climate Office
<http://www.wrds.uwyo.edu>



Temperature Data
PRISM Climate Group
<http://prism.oregonstate.edu>

Map Prepared by:
Wyoming State Climate Office
<http://www.wrds.uwyo.edu>

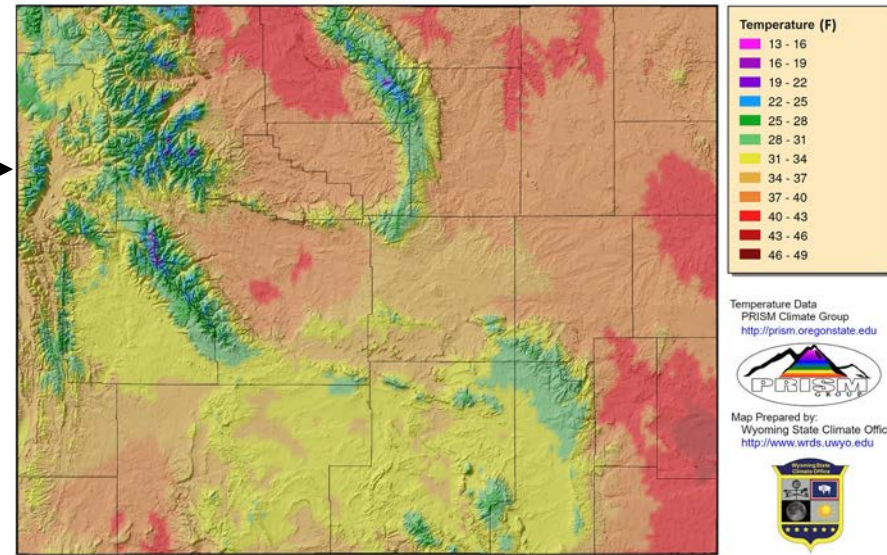
Daily Temperature data from PRISM Climate Group, Copyright ©2021, PRISM Climate Group, Oregon State University, <http://prism.oregonstate.edu>
Map Created 17 Mar 2022 <http://www.wrds.uwyo.edu>
Temperature averages created from PRISM daily temperature grids

14-Day *Departure from Normal* Average Minimum Temperature

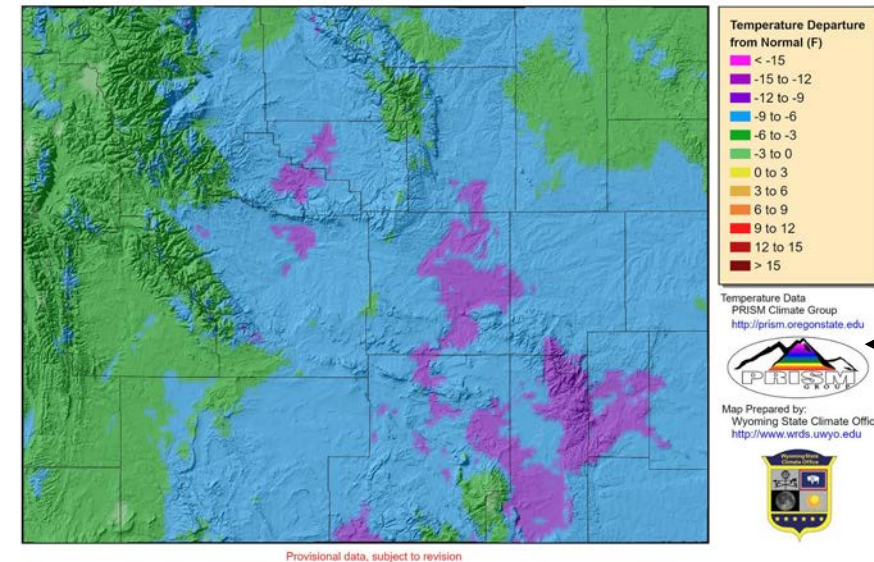
- Below normal statewide
- Isolated areas 0F-3F below average
- South central Wyoming 9F-12F below average
- 3F-6F elsewhere

14-Day Average **Maximum** Temperature (03 Mar to 16 Mar)

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



14-Day Average Maximum Temperature (Departure from 1991-2020 Average) for 03 Mar 2022 to 16 Mar 2022



14- Day *Departure from Normal* Average **Maximum** Temperature

- Below average statewide
- Western quarter, far northeast 3F-6F below
- Remainder 6F-12F below

Provisional data, subject to revision

Daily Temperature data from PRISM Climate Group, Copyright ©2021, PRISM Climate Group, Oregon State University, <http://prism.oregonstate.edu>
Map Created 17 Mar 2022 <http://www.wrds.uwyo.edu>
Temperature averages created from PRISM daily temperature grids

30-Day Average Mean Temperature (Departure from Average)

(16 Feb 2022 to 16 Mar 2022)

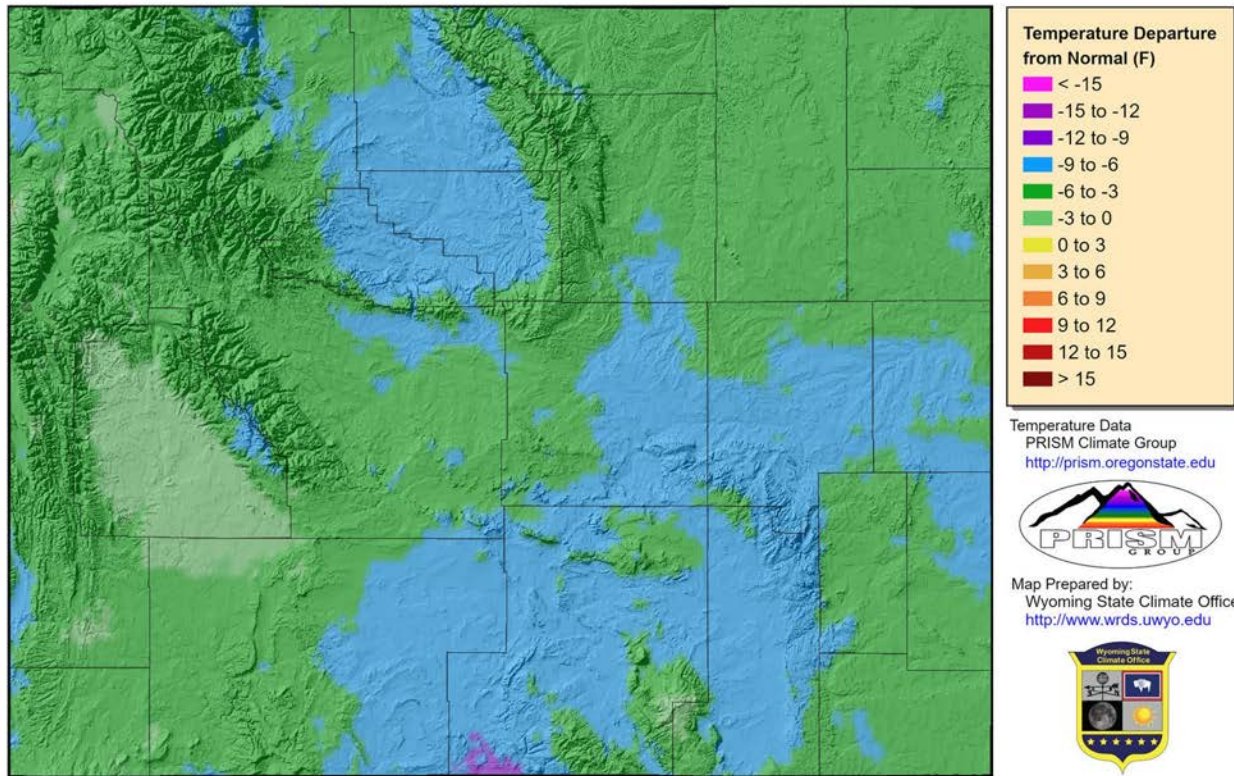
30-Day Average Mean Temperature (Departure from 1991-2020 Average) for 15 Feb 2022 to 16 Mar 2022

Above Average:

- No where

6F - 9F Below Average:

- Bighorn Basin
- South Central Wyoming
- East Central Wyoming



Temperature Data
PRISM Climate Group
<http://prism.oregonstate.edu>



Map Prepared by:
Wyoming State Climate Office
<http://www.wrds.uwyo.edu>



Provisional data, subject to revision

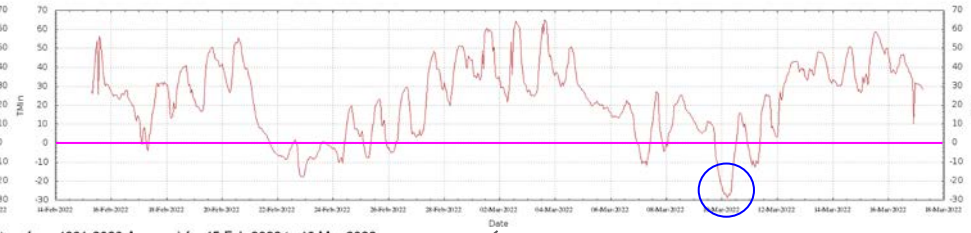
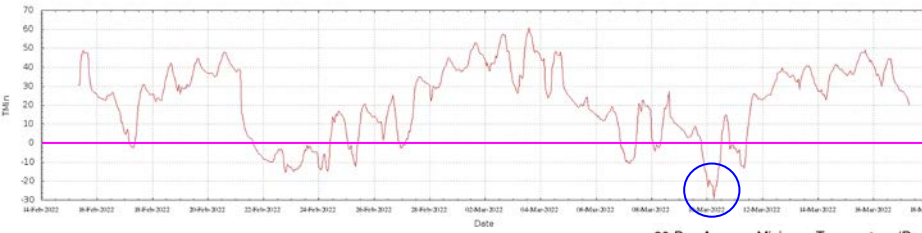


Hourly Minimum Air Temperatures

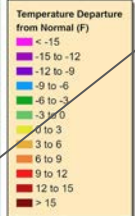
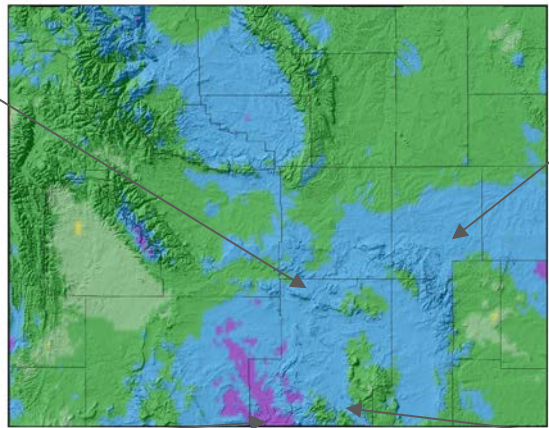
(15 Feb 2022 - 17 Mar 2022)

Devil's Gate

Douglas



30-Day Average Minimum Temperature (Departure from 1991-2020 Average) for 15 Feb 2022 to 16 Mar 2022



Temperature Data
PRISM Climate Group
<http://climate.prismclimate.com>

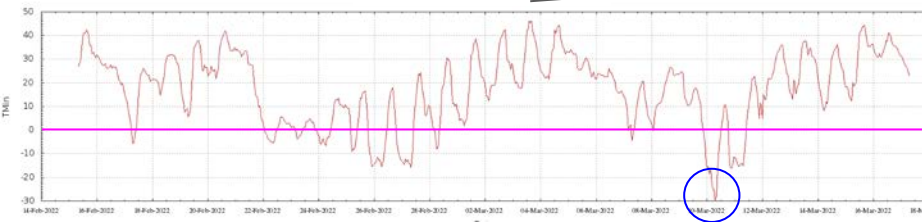


Map Prepared by:
Wyoming State Climate Office
<http://www.wyo.wyo.edu>



Baggs

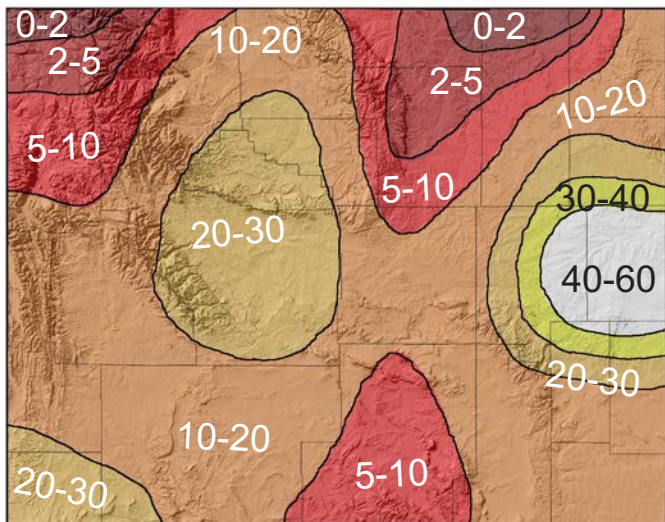
Encampment



Soil Moisture Percentile

Two Weeks Ago
03 Mar 2022

Soil Moisture Percentile for 03 Mar 2022



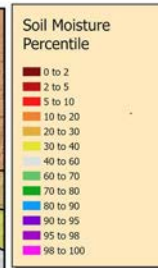
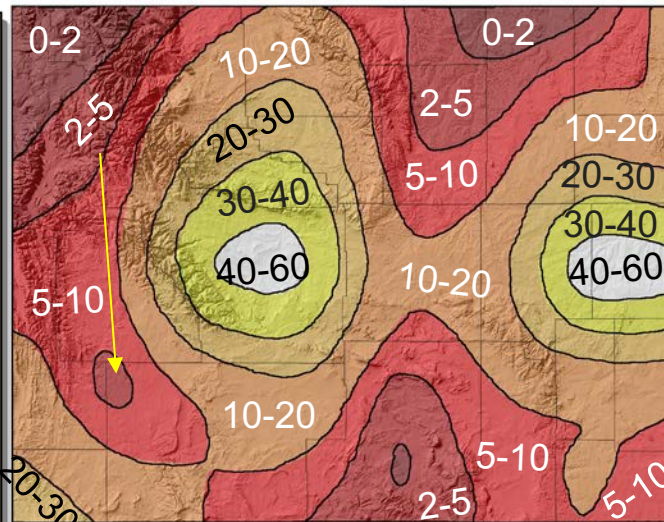
Soil Moisture Percentile
Climate Prediction Center



Provisional data, subject to revision

16 Mar 2022

Soil Moisture Percentile for 16 Mar 2022



Soil Moisture Percentile
Climate Prediction Center



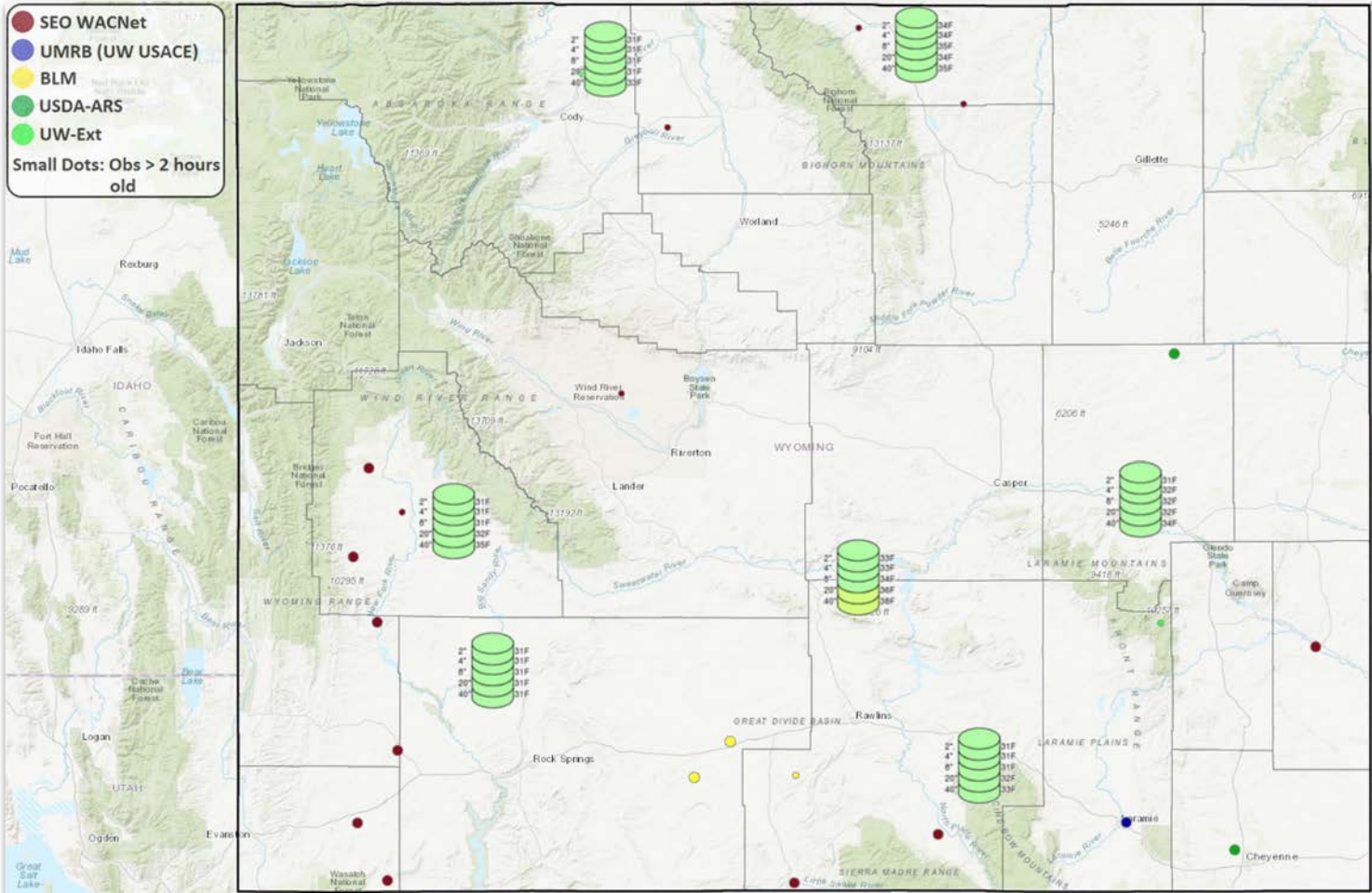
Provisional data, subject to revision

Modeled Soil Moisture Percentile https://www.cpc.ncep.noaa.gov/products/GIS/GIS_DATA/USDM_Products/soil/soil_percentile.php
Map Created 17 Mar 2022 <http://www.wrds.uwyo.edu>

Conditions deteriorating in South and West.
Improvement in Fremont and Hot Springs Counties.

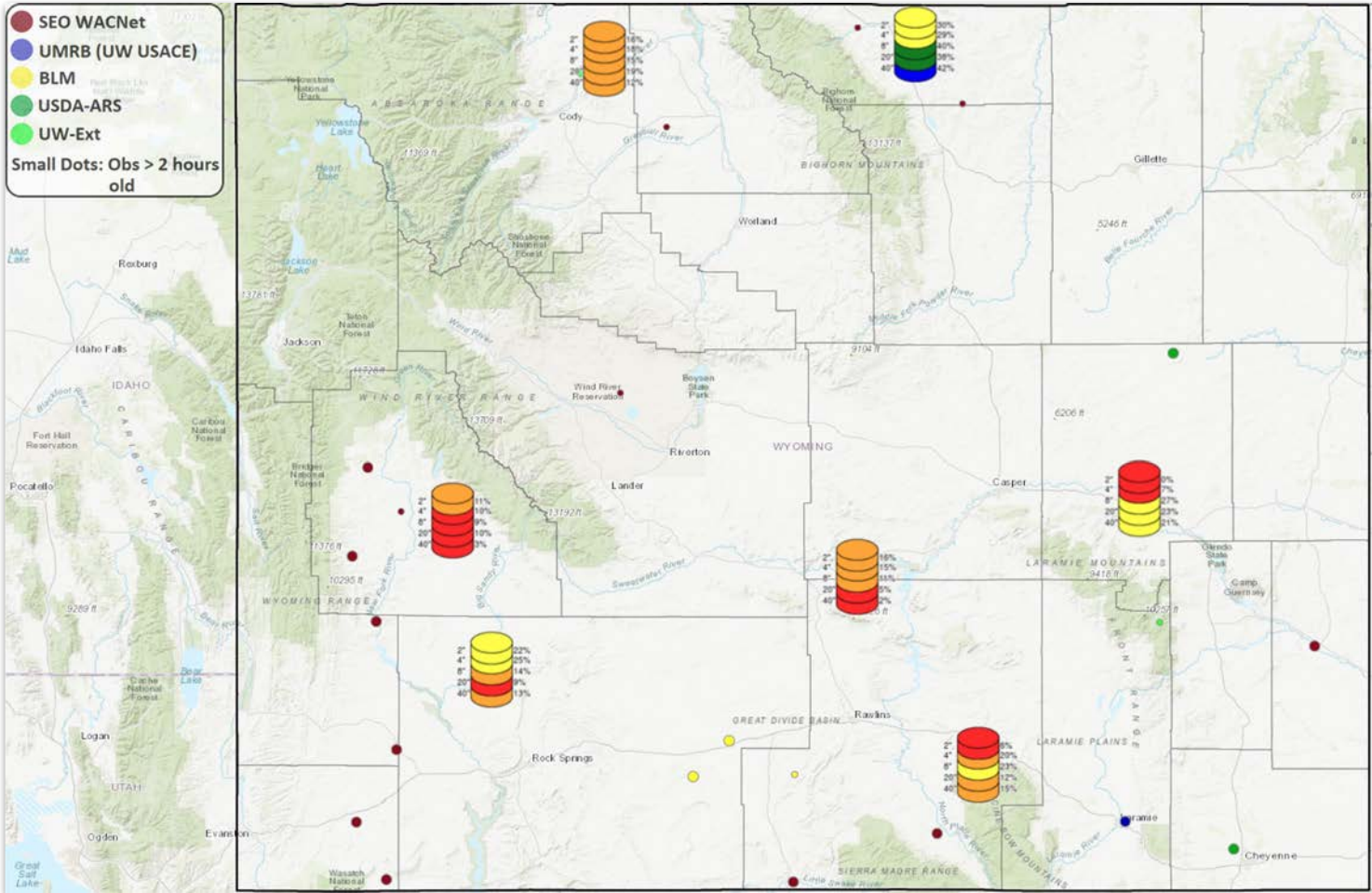


Soil Temperatures at 0700, 17 Mar 2022



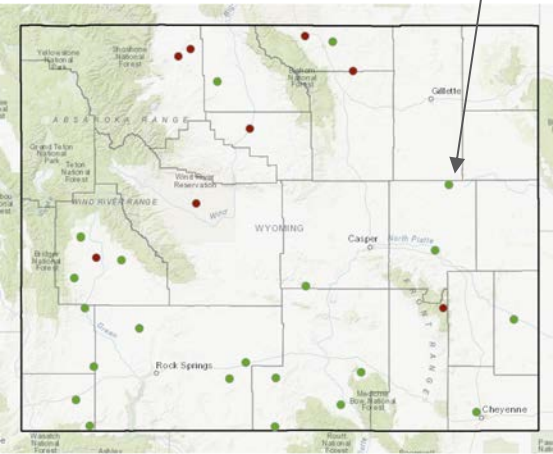


Soil Moisture at 0700, 17 Mar 2022

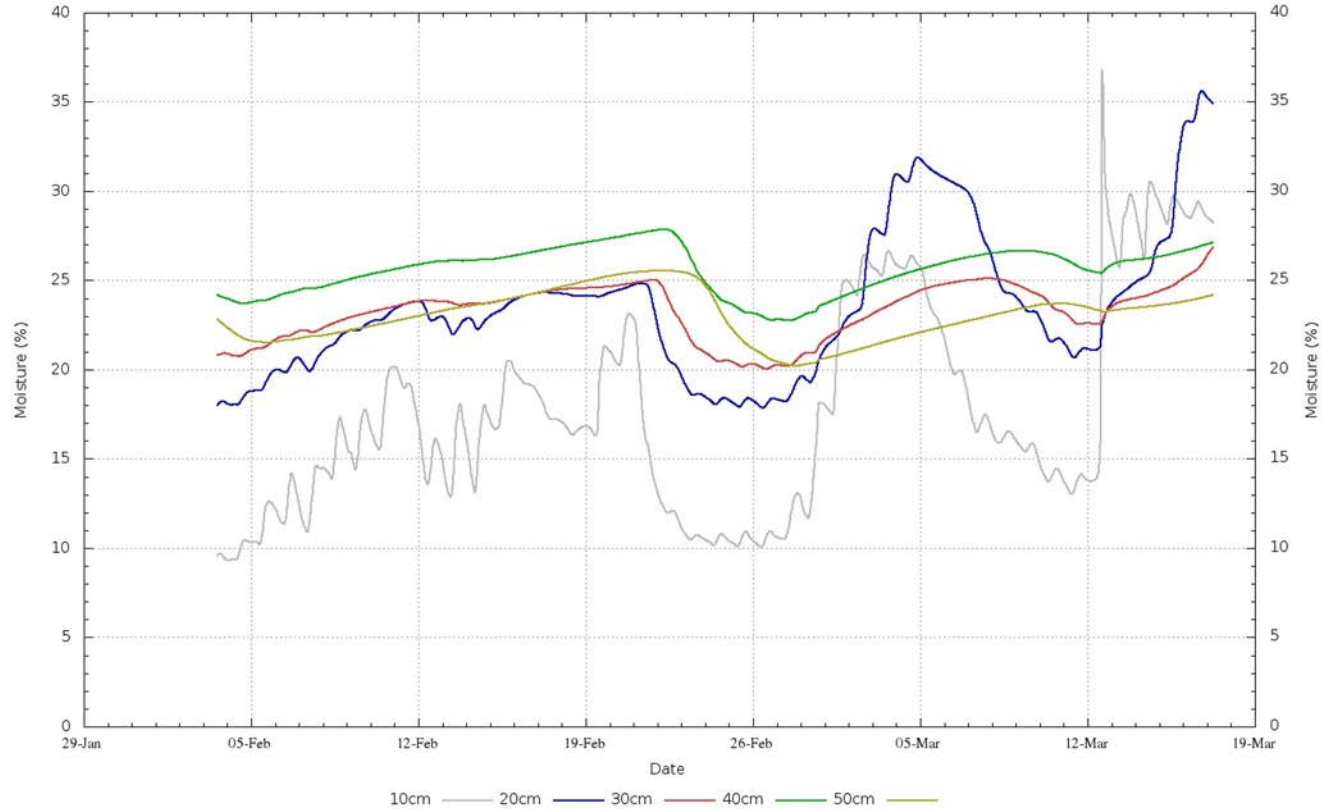




Soil Moisture at Thunder Basin Grasslands

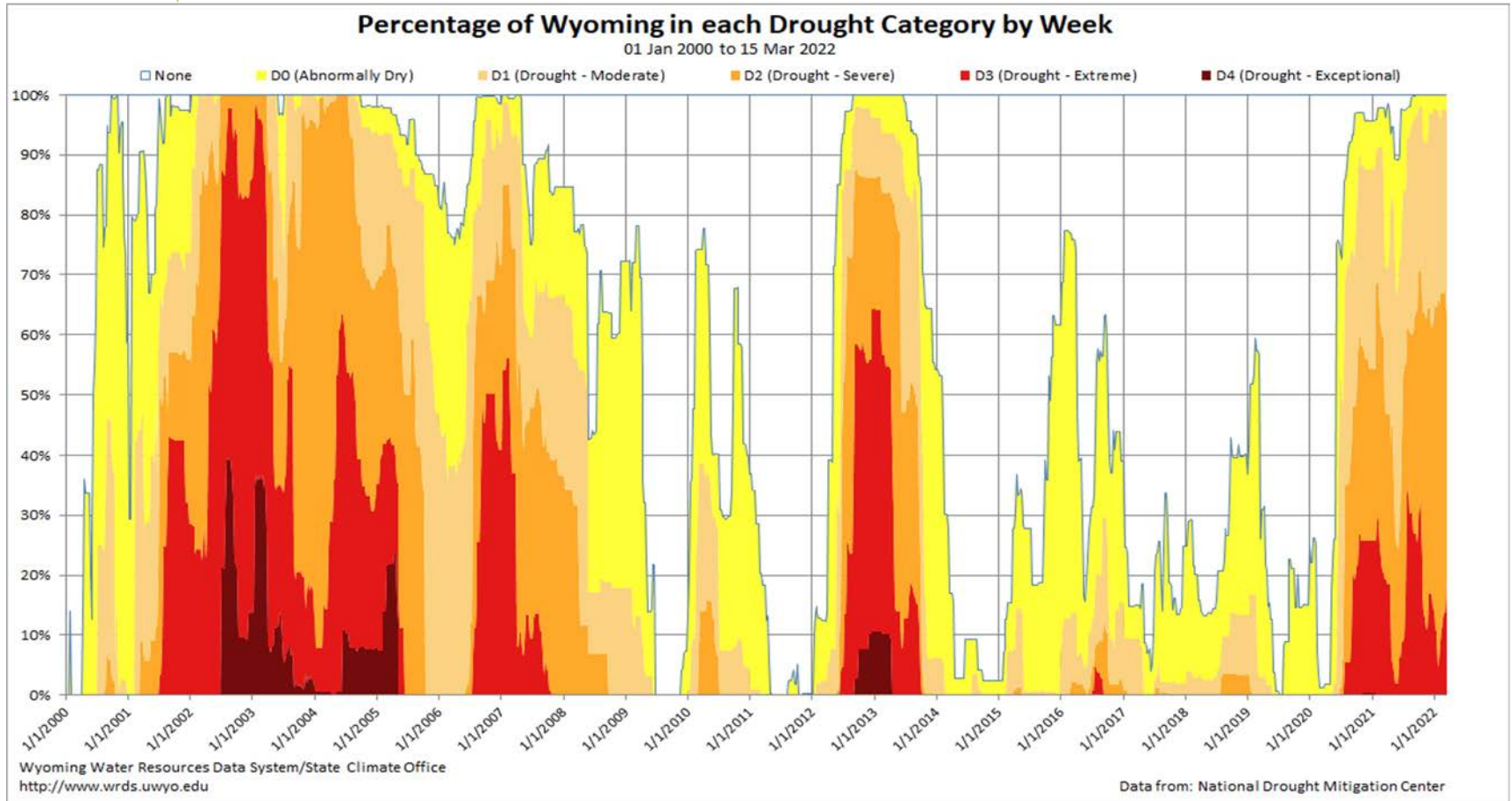


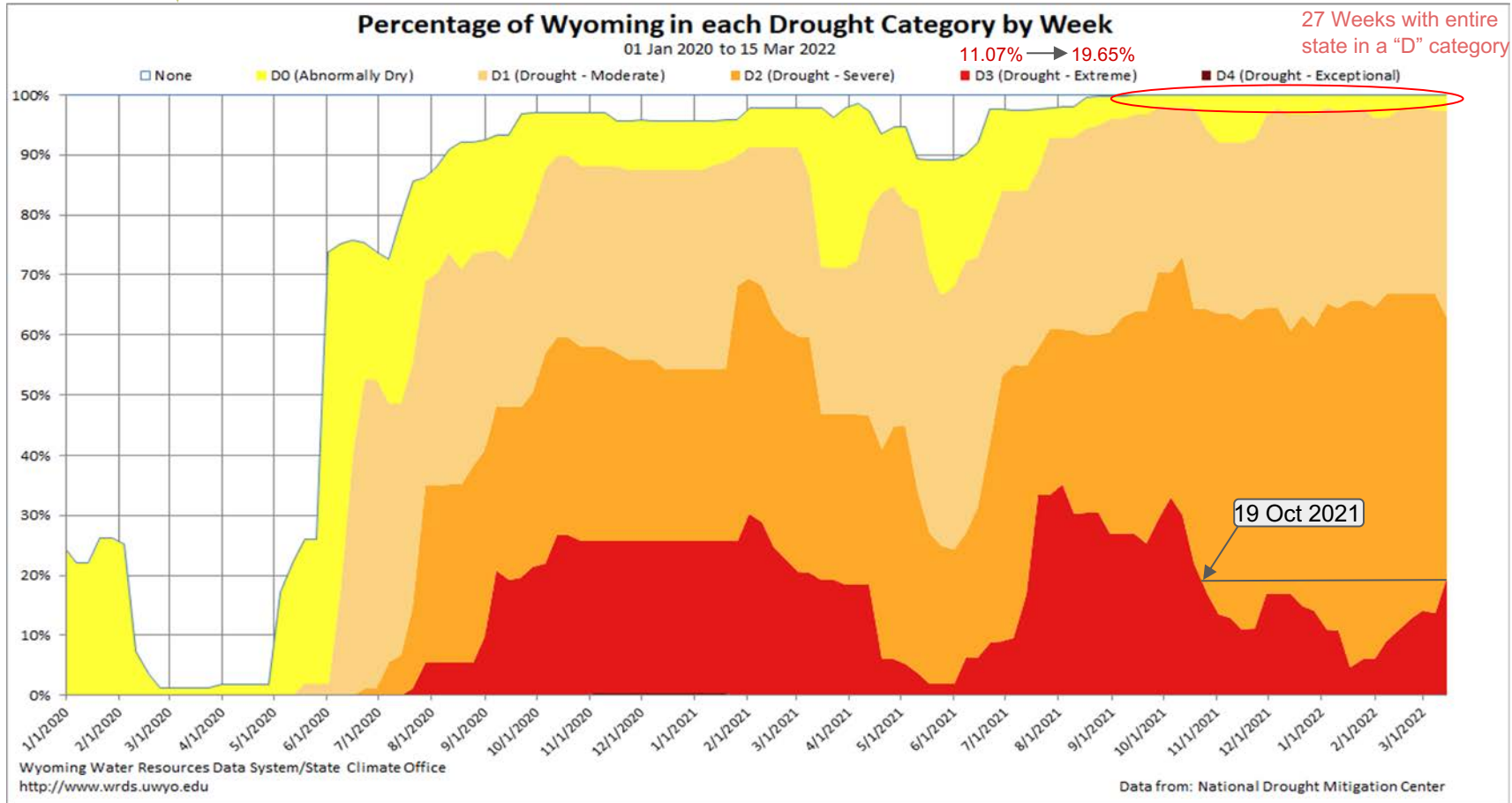
Thunder Basin Grasslands - 2022-03-17 06:00:00 (Created Thu Mar 17 07:05:01 MDT 2022)



Gradually Increasing
30th-40th Percentile

Wyoming Area Affected: 100% D0-D4 ; 97.33% D1-D4

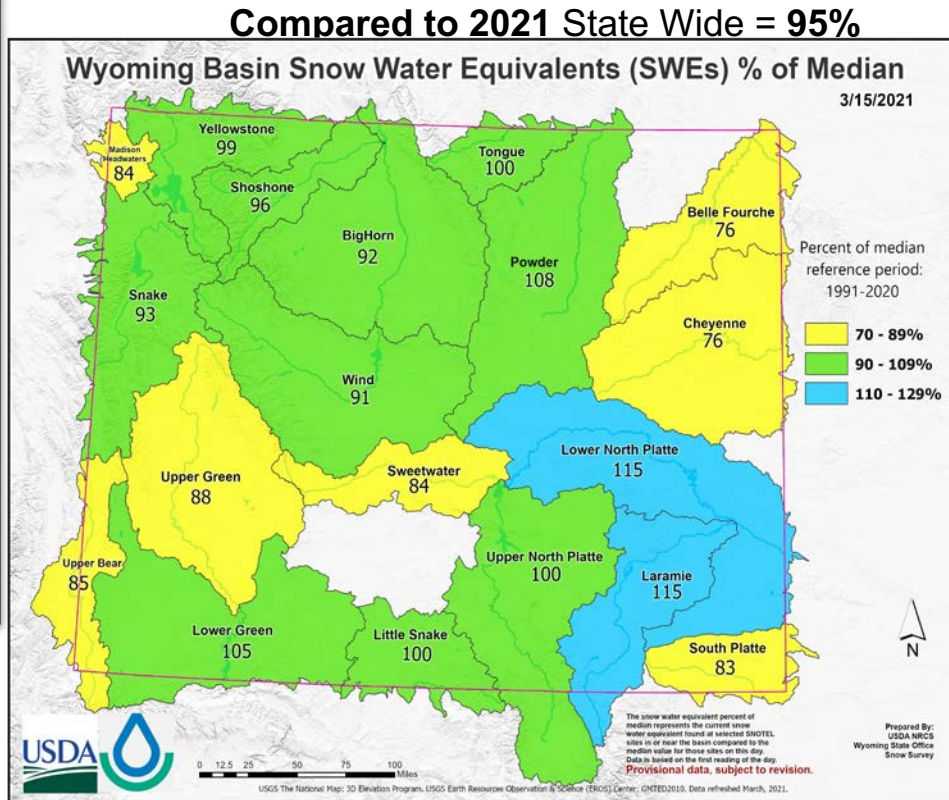
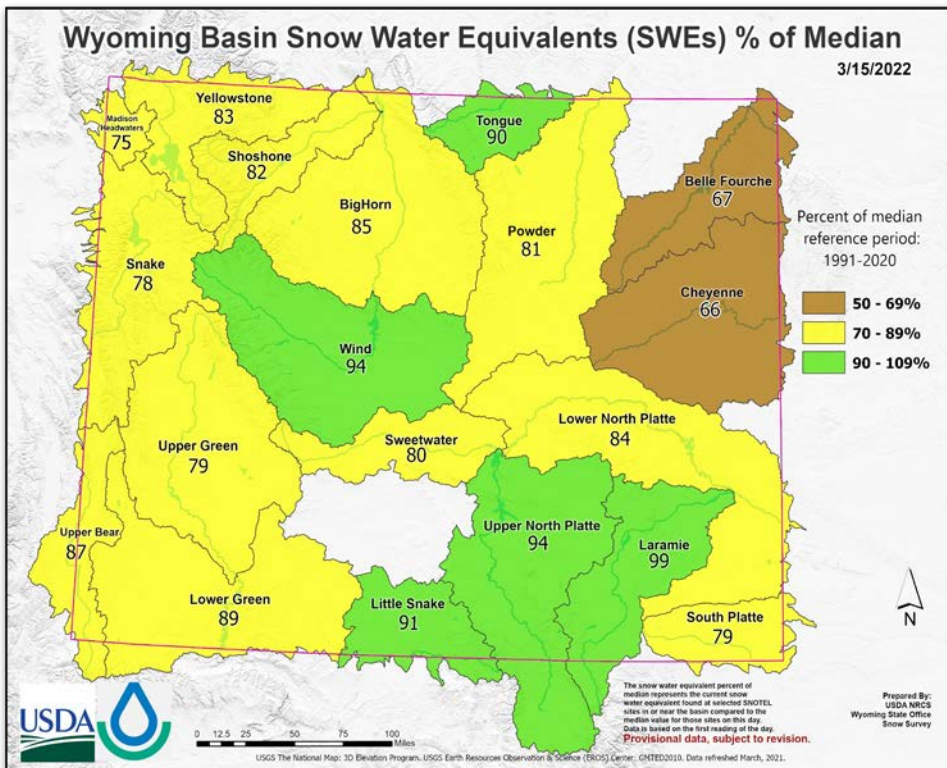




SWEs % Median



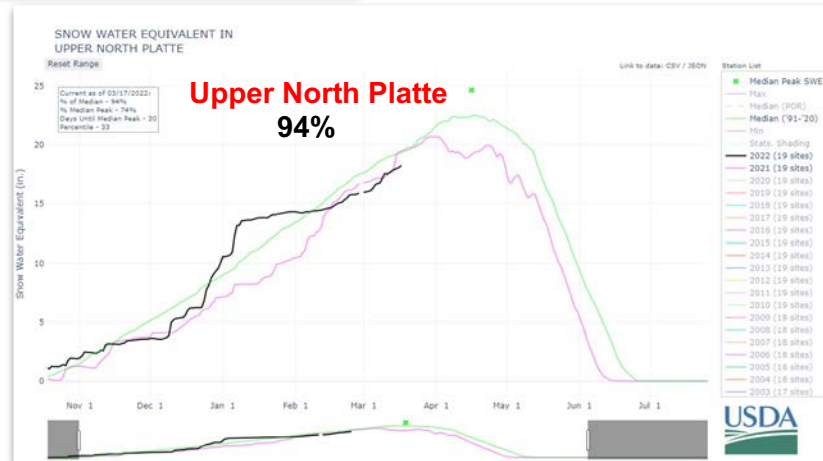
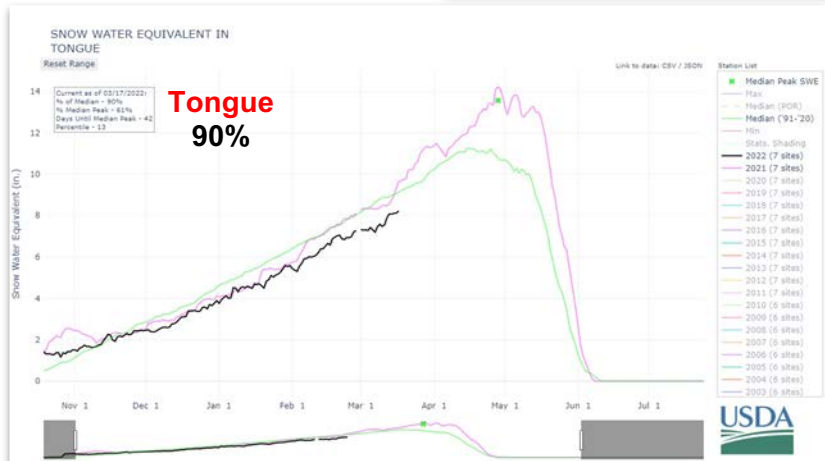
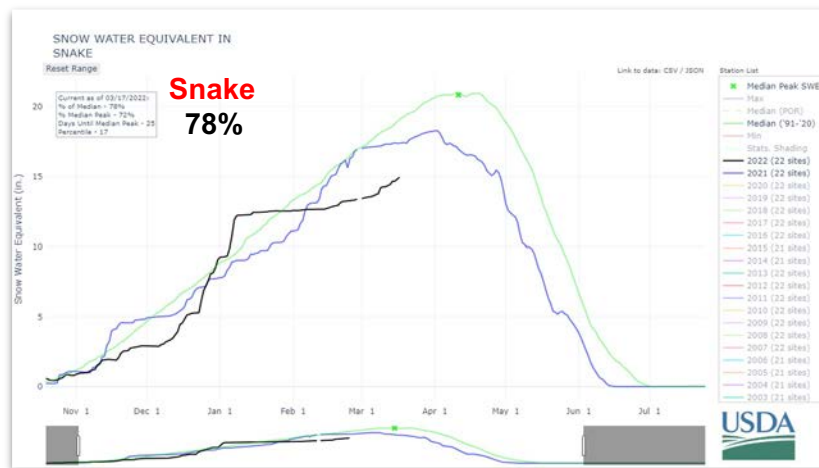
<https://www.nrcs.usda.gov/wps/portal/wcc/home/>



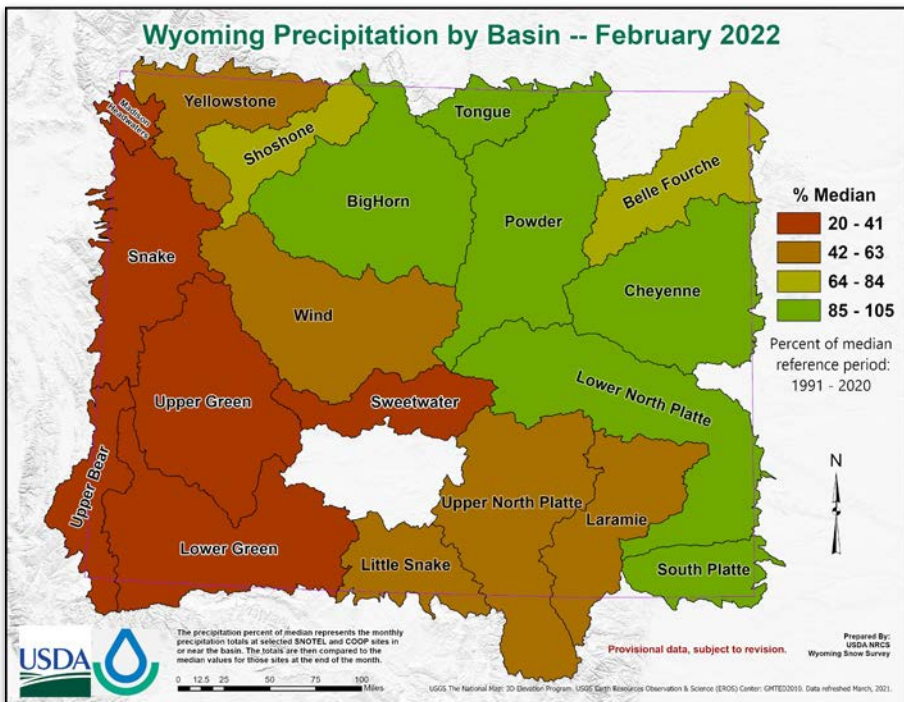
March 15, 2022 State Wide = 83%



SWEs for Select Basins

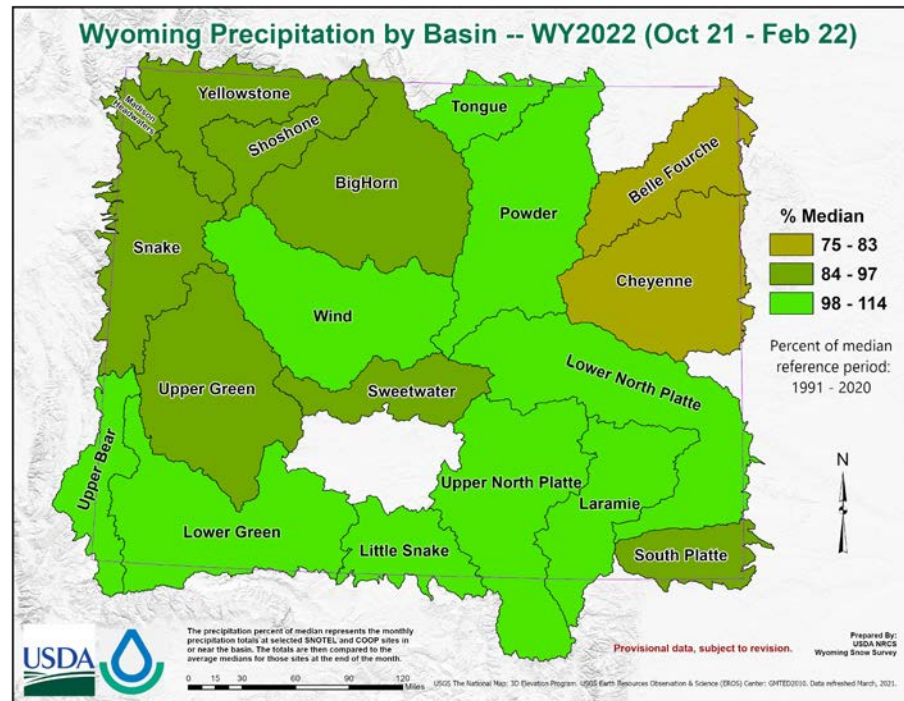


Basin Precipitation

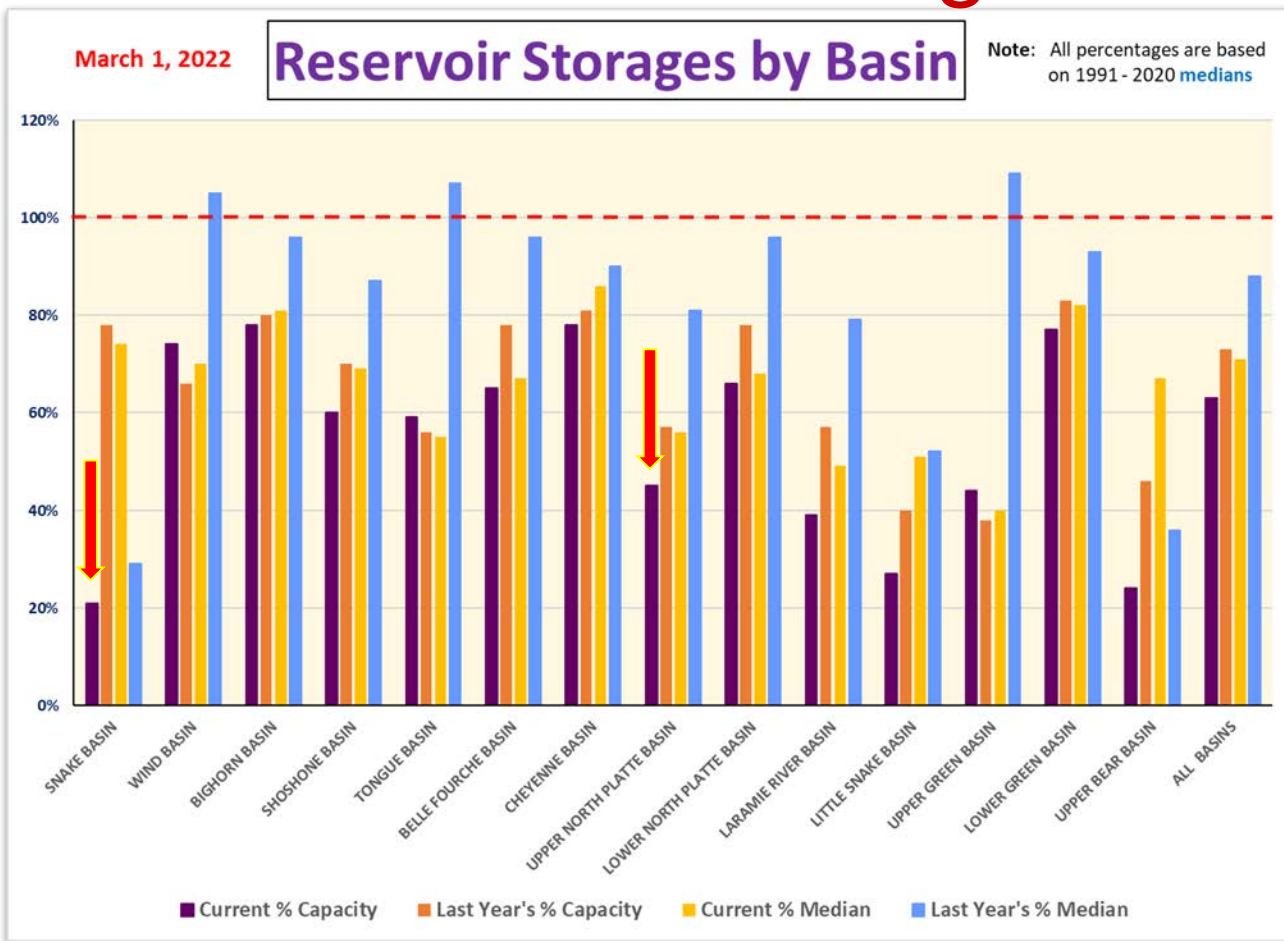


February 2022

WY2022



Reservoir Storages



Water Supply Highlights



- Wyoming snowpack and/or snow water equivalents (SWEs) were **below** median by late February.
- Precipitation totals across Wyoming for January were **below** median. Water year precipitation totals continued to be near normal to **above** median.
- Overall reservoir storages for late February continue to be **below** median.
- Stream flow snowmelt volumes during April through July across Wyoming are forecasted to be generally **below** median.

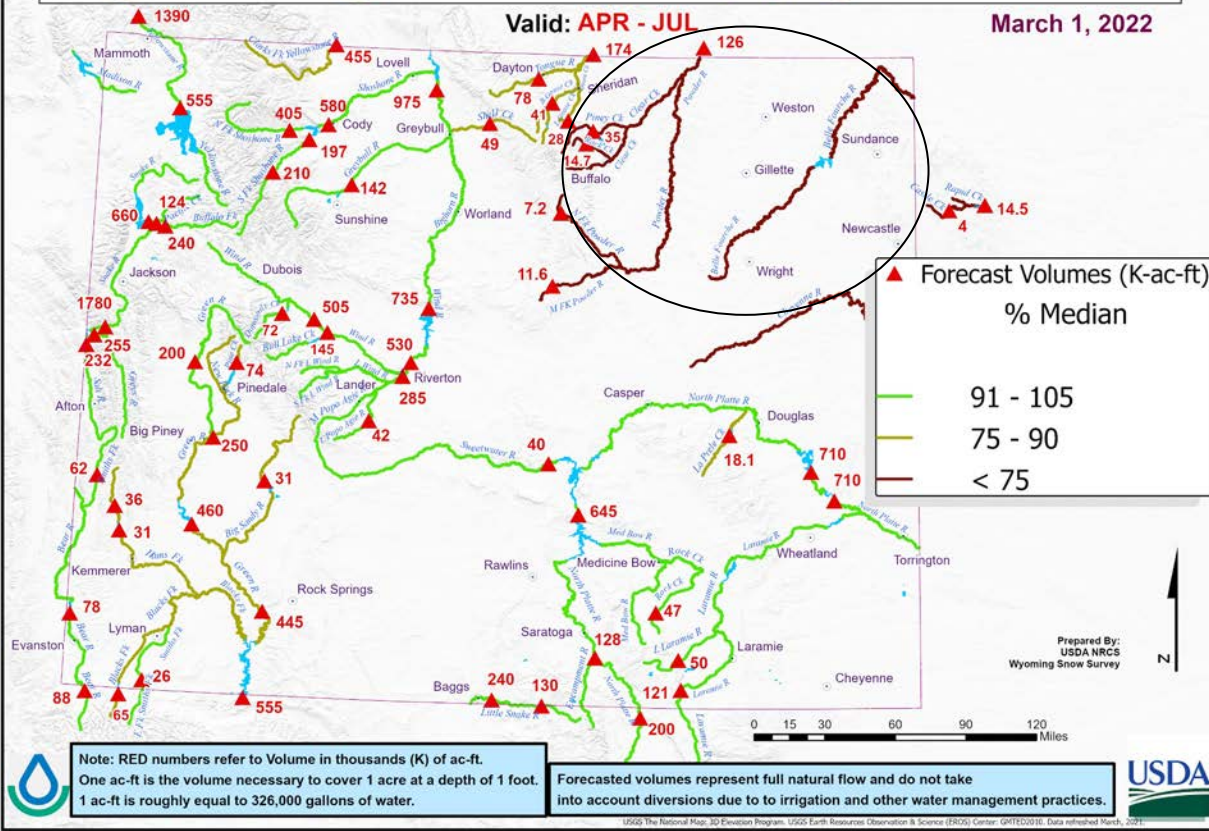
Water Supply Outlook



Wyoming Water Supply Outlook

Valid: APR - JUL

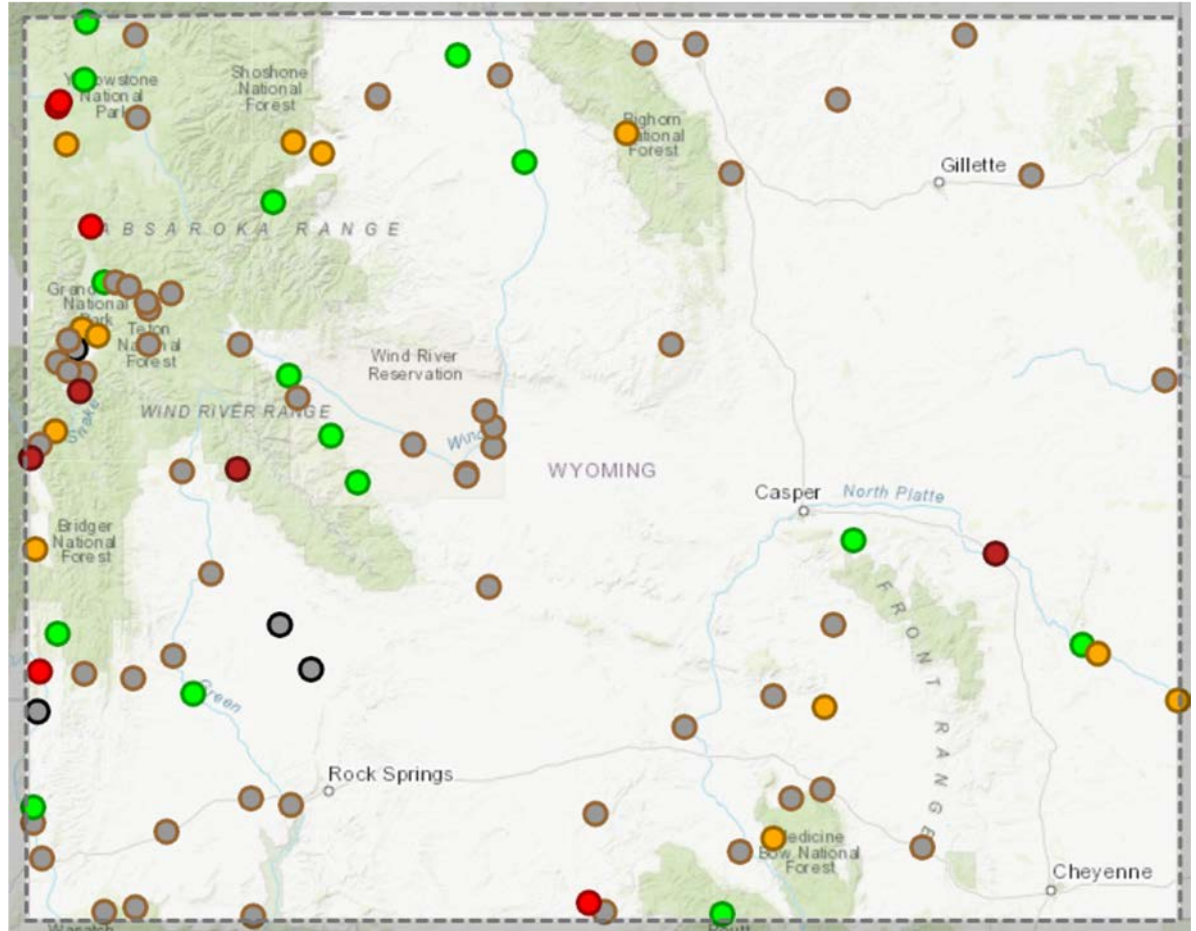
March 1, 2022



Streamflow Status

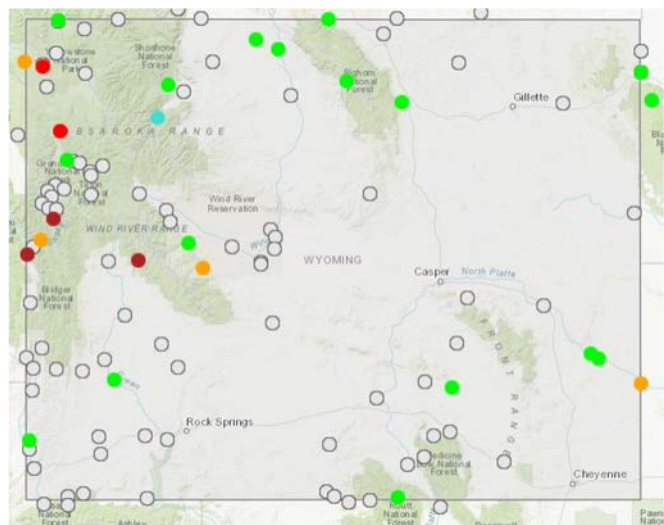
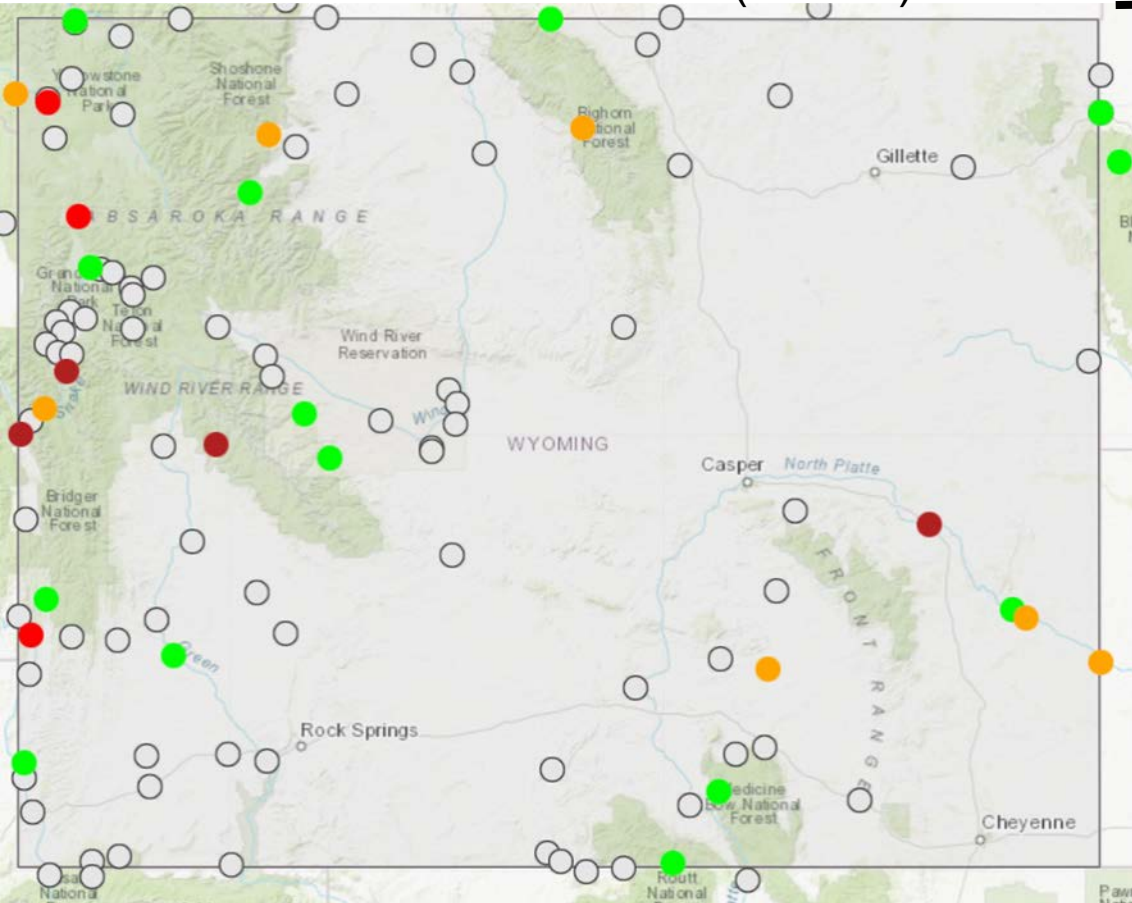
Streamflow: Status ✕

- Above flood stage
- All-time high for this day (maximum)
- Much above normal >90th percentile
- Above normal 76th – 90th percentile
- Normal 25th – 75th percentile
- Below normal 10th – 24th percentile
- Much below normal <10th percentile
- All-time low for this day (minimum)
- Not flowing
- Not ranked
- Measurement flag
- Recent measurement unavailable



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

Feb 16

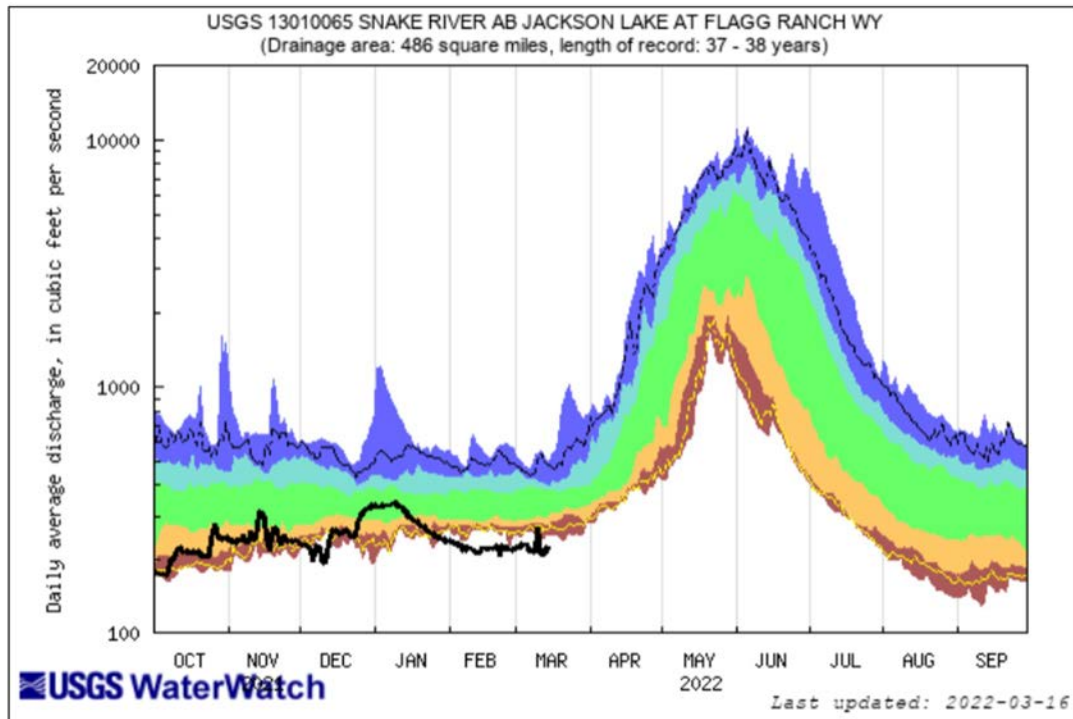
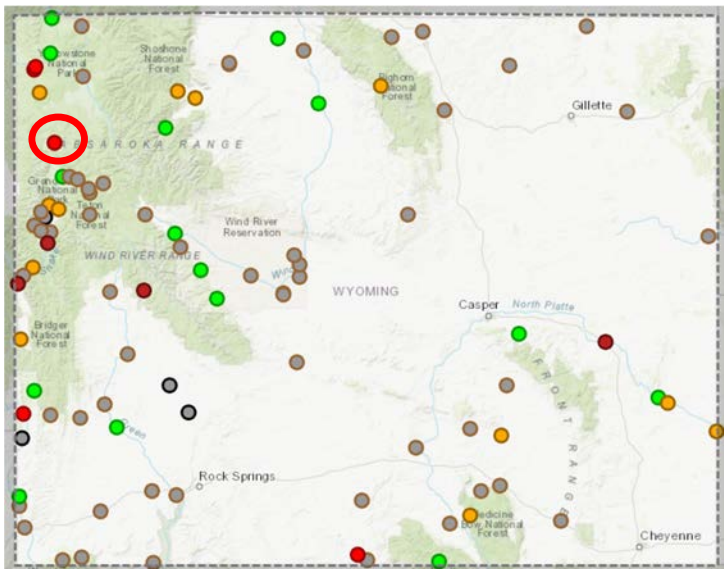


Explanation - Percentile classes

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

- Majority of sites are in ice

Select WY Streamflows



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

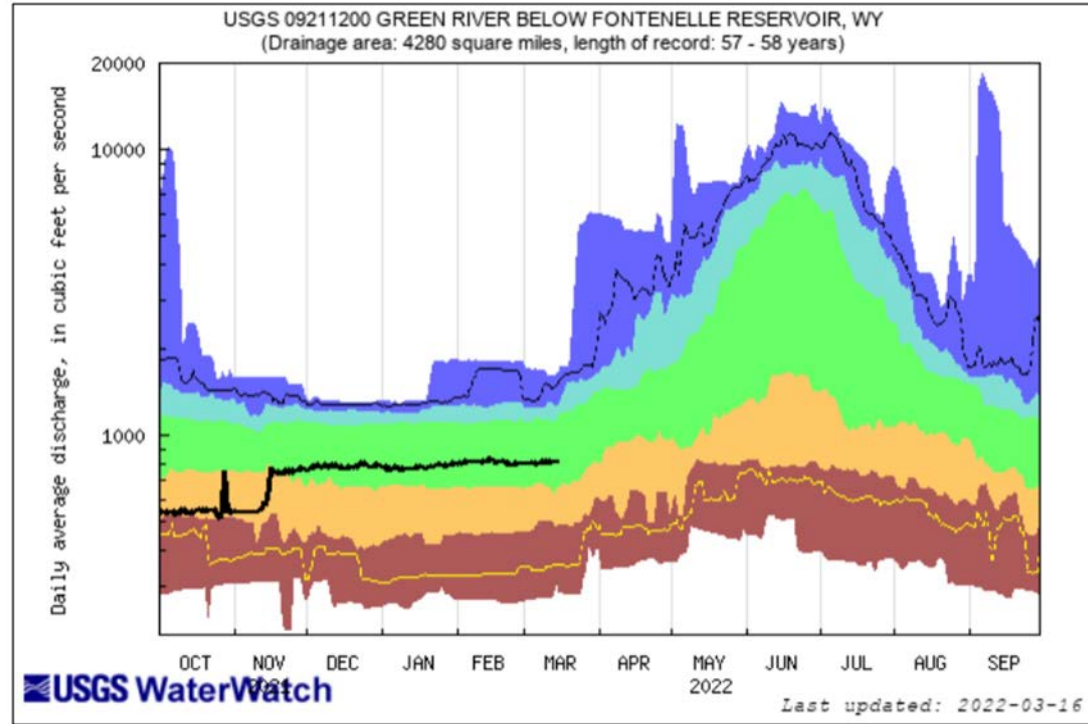
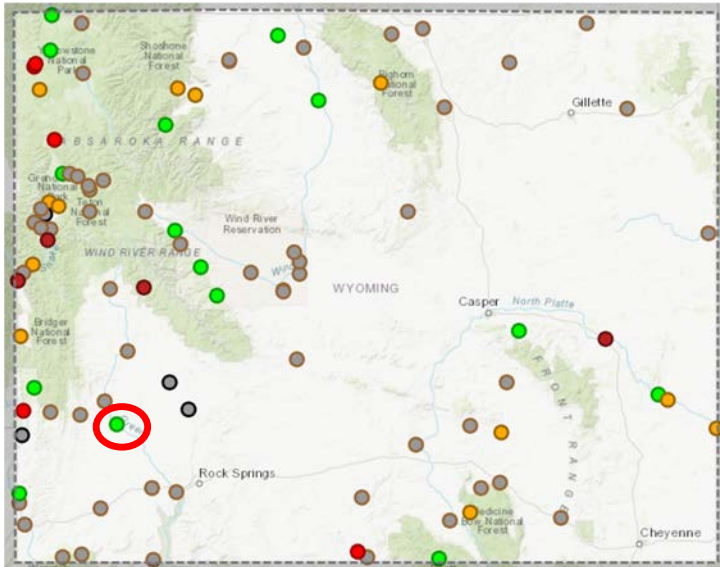
<https://waterdata.usgs.gov/>

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

Green River below Fontenelle Reservoir, WY

Last updated Mar 16, 2022

Select WY Streamflows



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

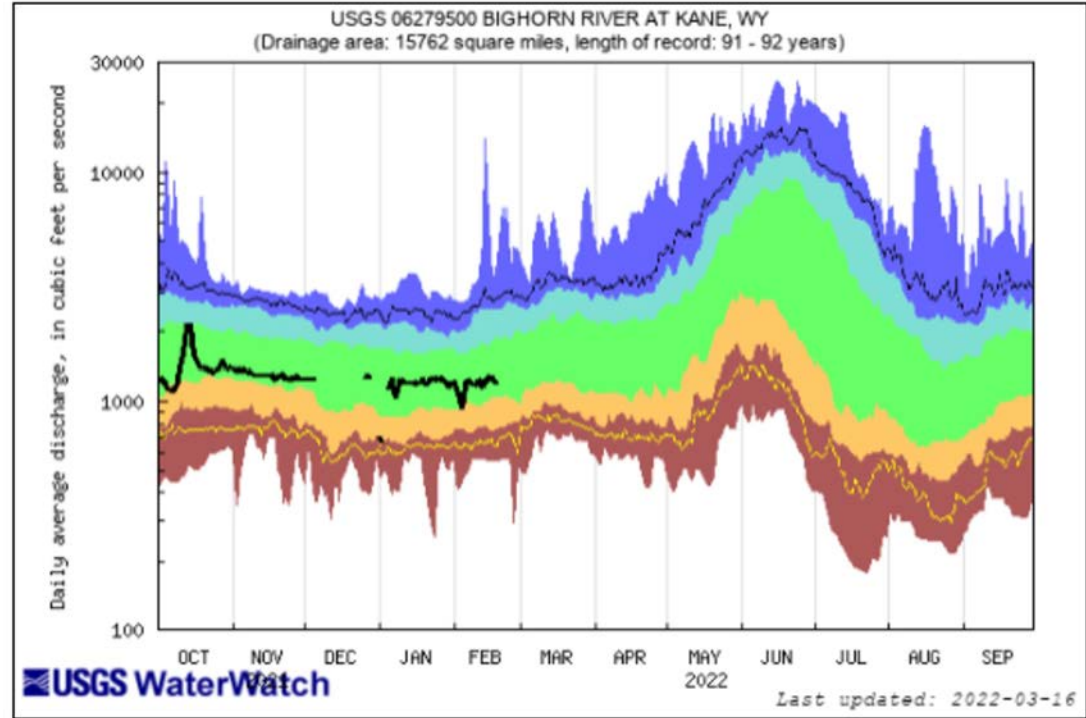
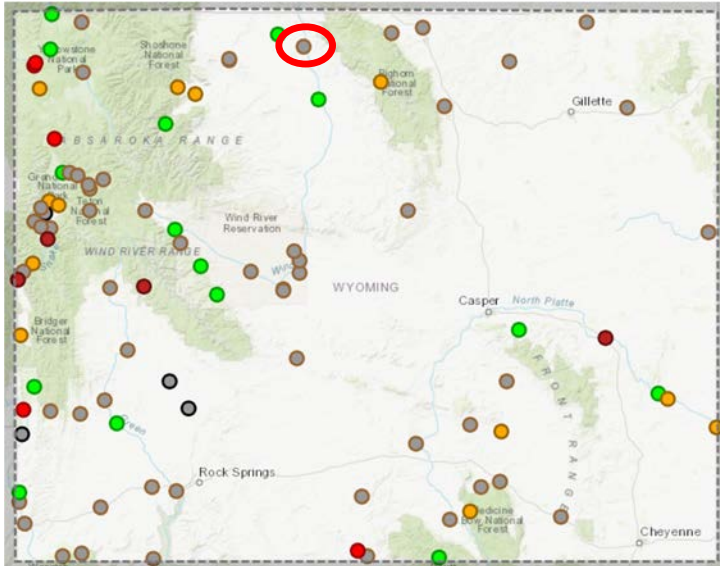
<https://waterdata.usgs.gov/>

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

Bighorn River at Kane, WY

Last updated Mar 16, 2022

Select WY Streamflows

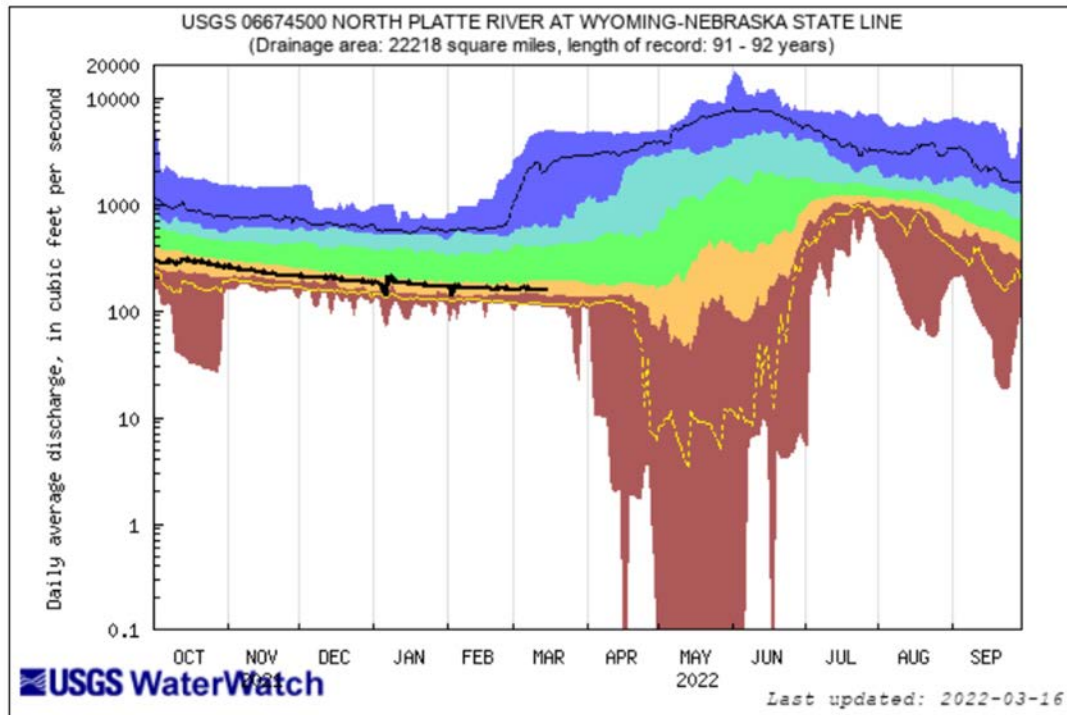
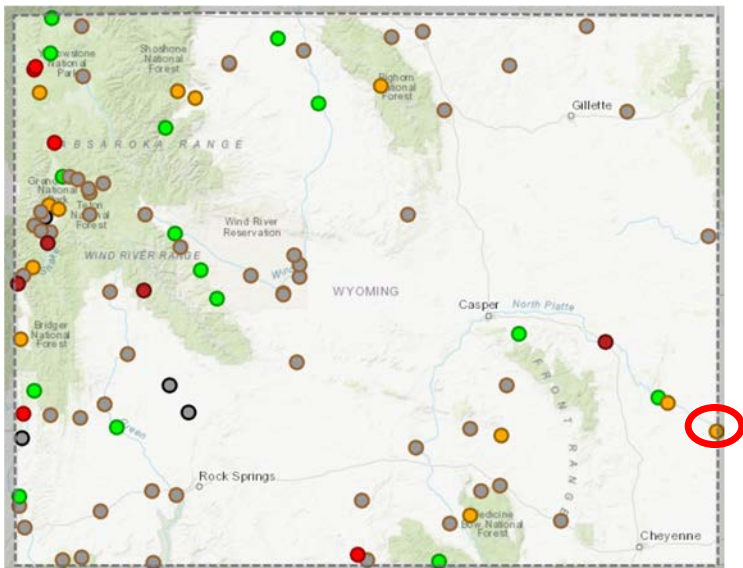


<https://dashboard.waterdata.usgs.gov/>

<https://waterdata.usgs.gov/>

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lowest-10th percentile	5	10-24	25-75	76-90	95	90th percentile - highest
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Select WY Streamflows



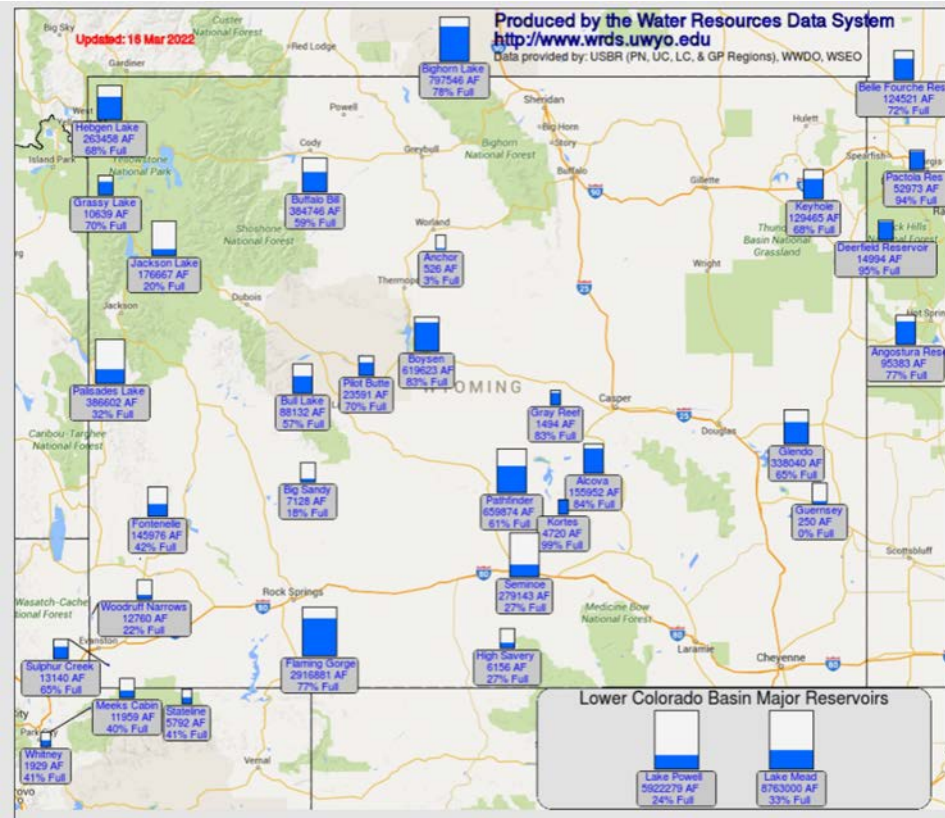
<https://dashboard.waterdata.usgs.gov/>

<https://waterdata.usgs.gov/>

Explanation - Percentile classes						
lowest-10th percentile	5	10-24	25-75	76-90	95	90th percentile - highest
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WY Reservoirs (Updated 3/16/22)

March 16, 2022

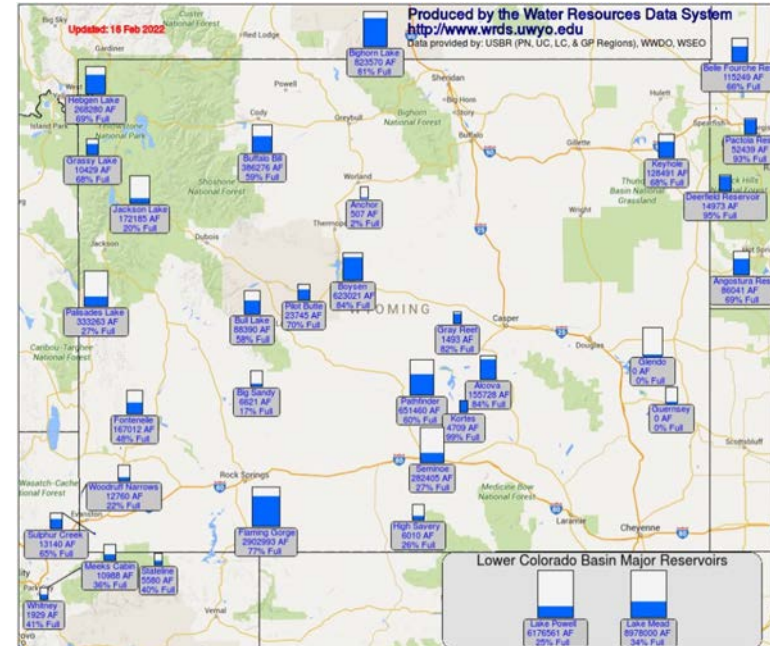


http://www.wrds.uwyo.edu/surface_water/teacups.html

Compared to February

- No significant changes

February 16, 2022



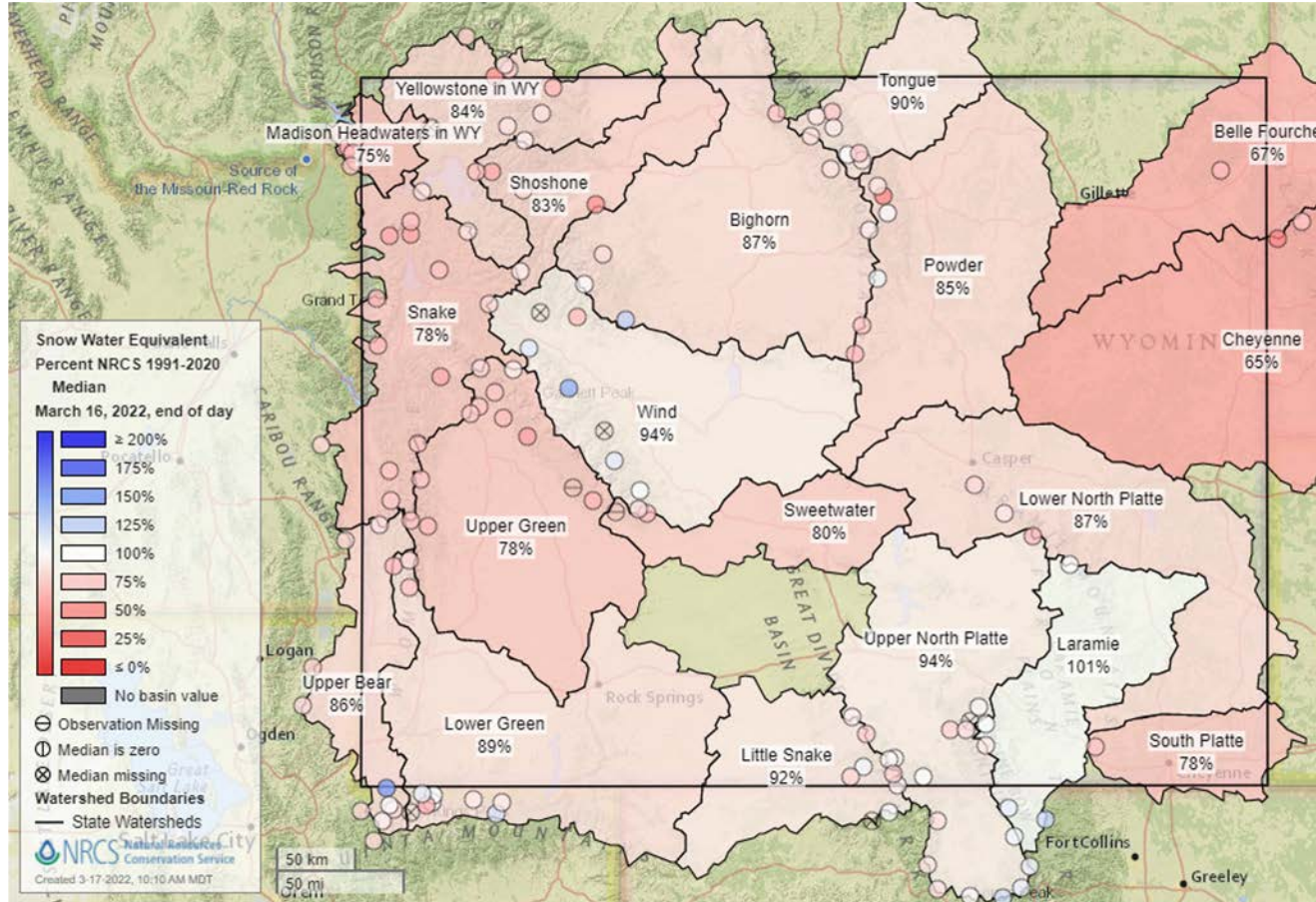


Forecasts & Outlooks



Wyoming Snowpack Overview

End-of-Day March 16



*SNOTEL Sites (filled dots on map) are monitoring stations measuring snowpack, precipitation, temperature & other climate conditions.

- Overall snowpack remains below median
- Biggest absolute deficits are in the higher elevation western ranges
- Southeastern areas gained some ground since last month, western basins lost some ground.

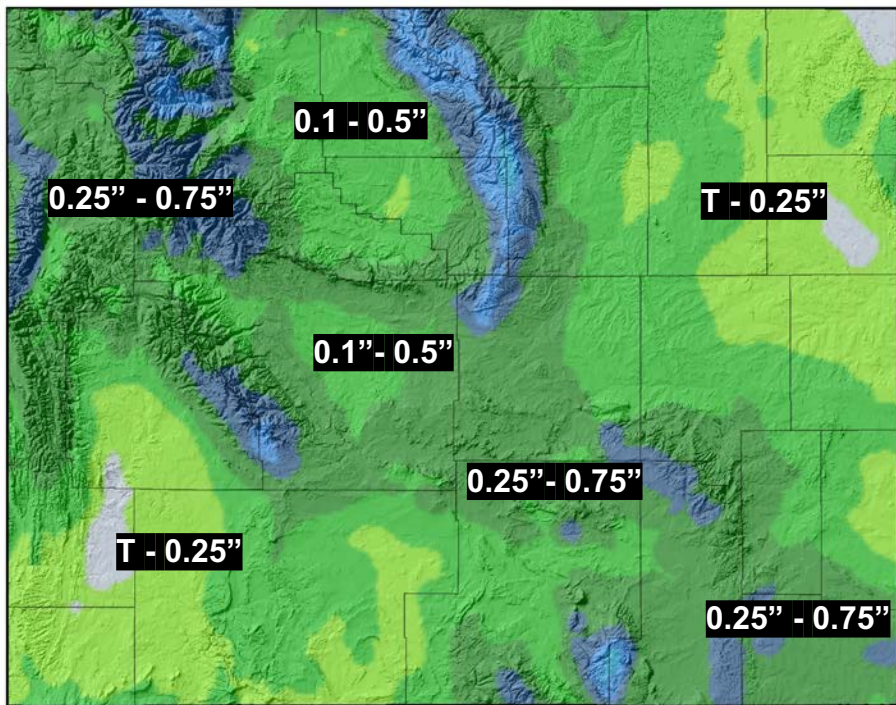
<https://bit.ly/WYSnowpackOverview>



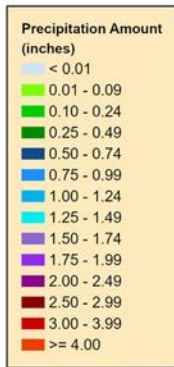
7-Day Total Precipitation Forecast

Mar 17 - Mar 24

7-Day Quantitative Precipitation Forecast 17 Mar 2022



Provisional data, subject to revision



Forecast:
Weather Prediction Cen



Map Prepared by:
Wyoming State Climate
<http://www.wrds.uwyo.edu>



Note: Forecast includes
“Melted Down Equivalent” Snow

- Sunday 3/20 - Monday 3/21 likely a wet period for the state
- Moderate snow likely in the mountains
- Still a fairly dry forecast in northeast and southwest
- Highest amounts of moisture headed for northwest to southeast portion of the state



6-10 Day Temp & Precip Outlooks

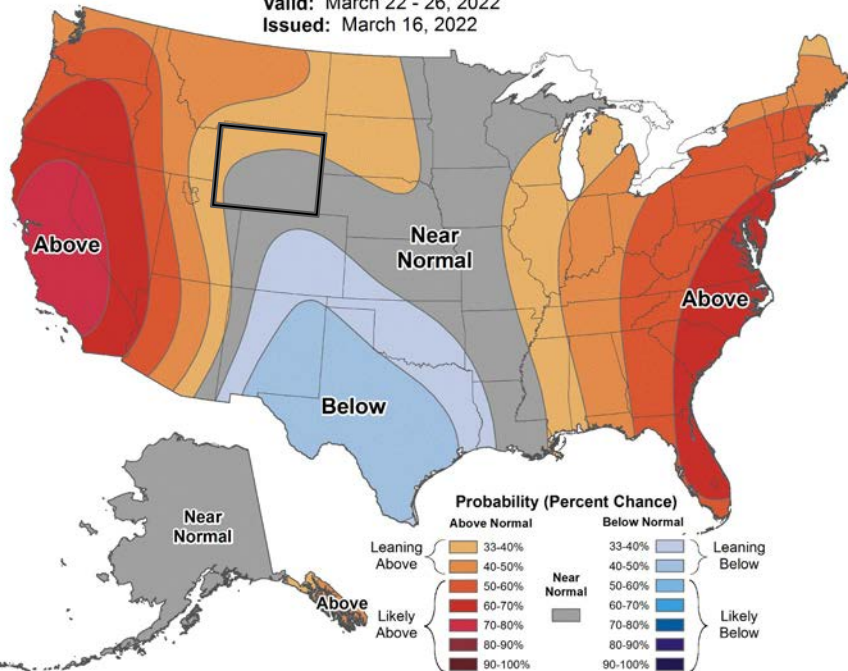
Mar 22 - Mar 26



6-10 Day Temperature Outlook



Valid: March 22 - 26, 2022
Issued: March 16, 2022



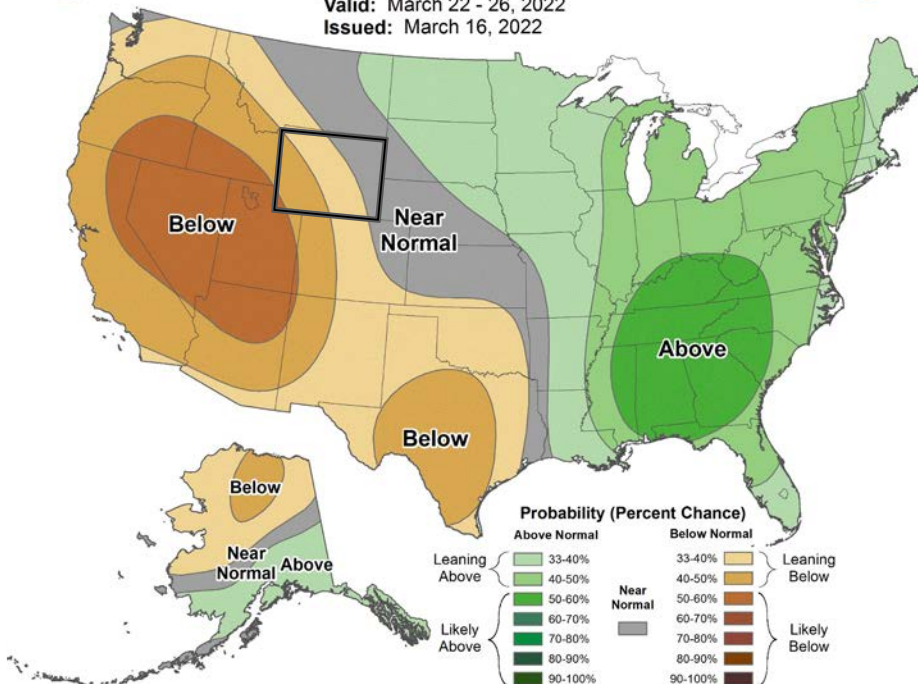
Near normal is best
bet for most



6-10 Day Precipitation Outlook



Valid: March 22 - 26, 2022
Issued: March 16, 2022



Leaning drier than normal
in western half

https://bit.ly/CPC6_10Day



8-14 Day Temp & Precip Outlooks

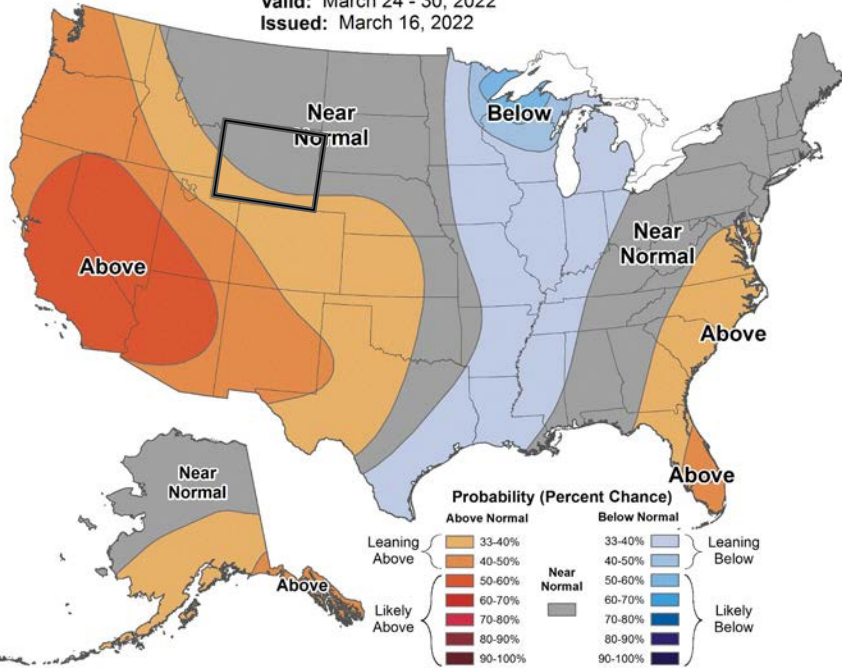
Mar 24 - Mar 30



8-14 Day Temperature Outlook



Valid: March 24 - 30, 2022
Issued: March 16, 2022



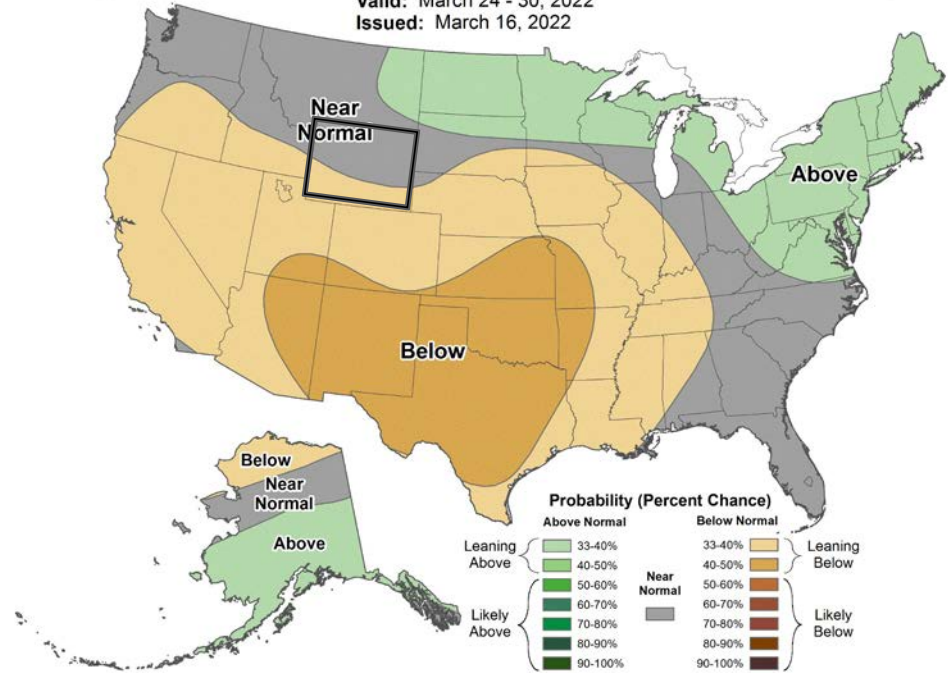
Again, near normal for most, save for far south



8-14 Day Precipitation Outlook



Valid: March 24 - 30, 2022
Issued: March 16, 2022



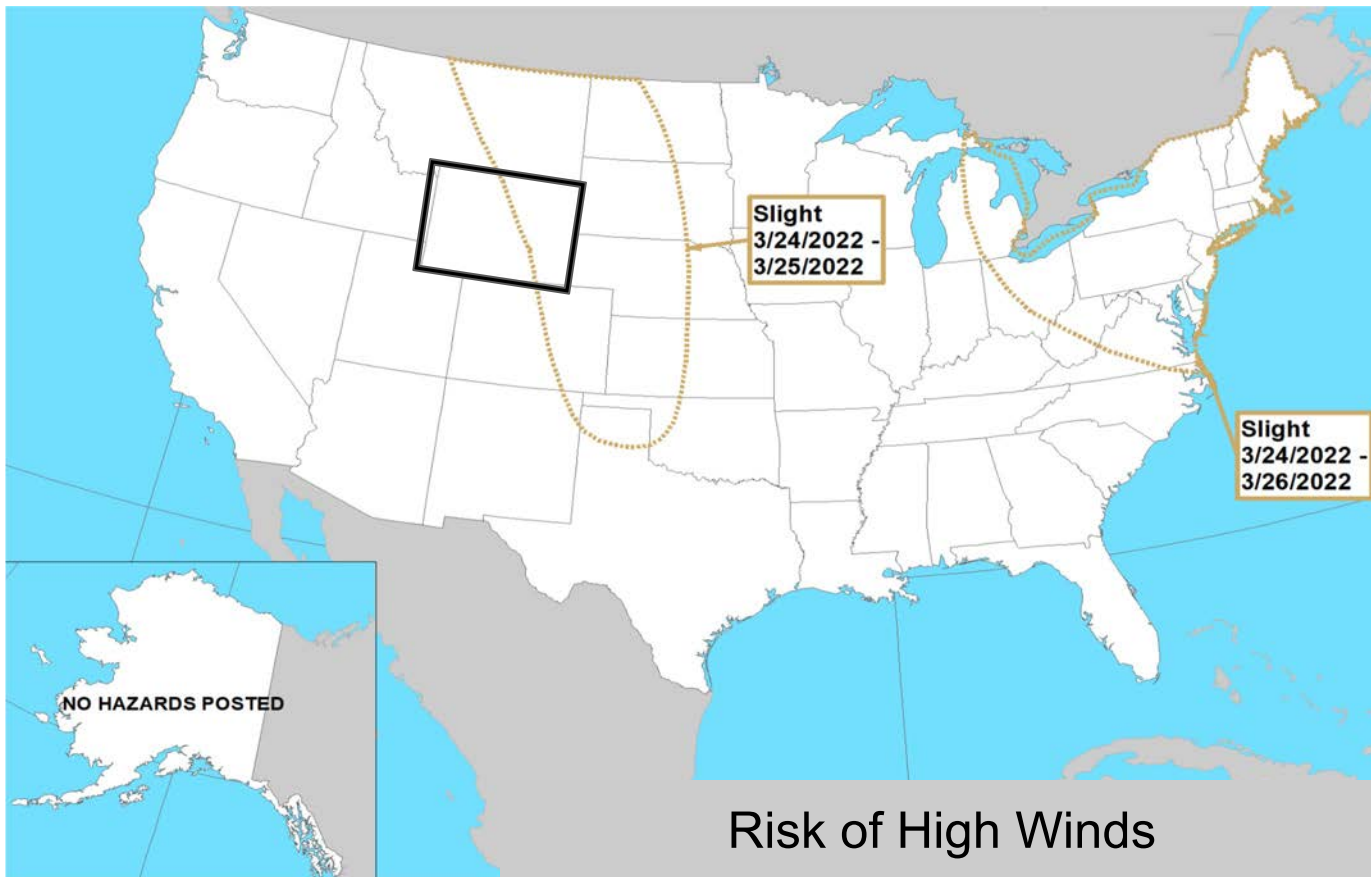
Slight dry signal in southern tier

https://bit.ly/CPC8_14Day



8-14 Day Hazard Outlook

Mar 22 - Mar 30





Spring Temp & Precip Outlook

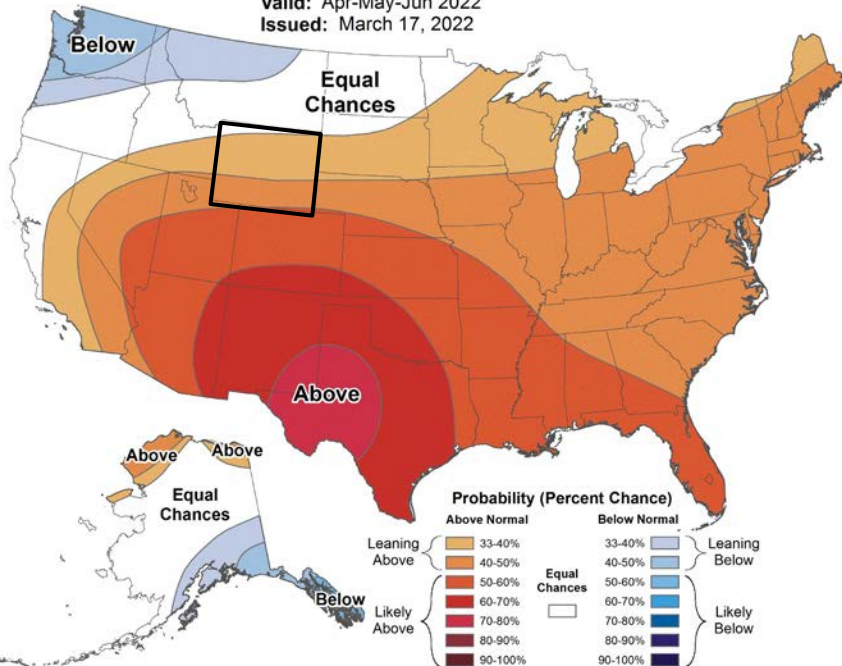
April - June 2022



Seasonal Temperature Outlook



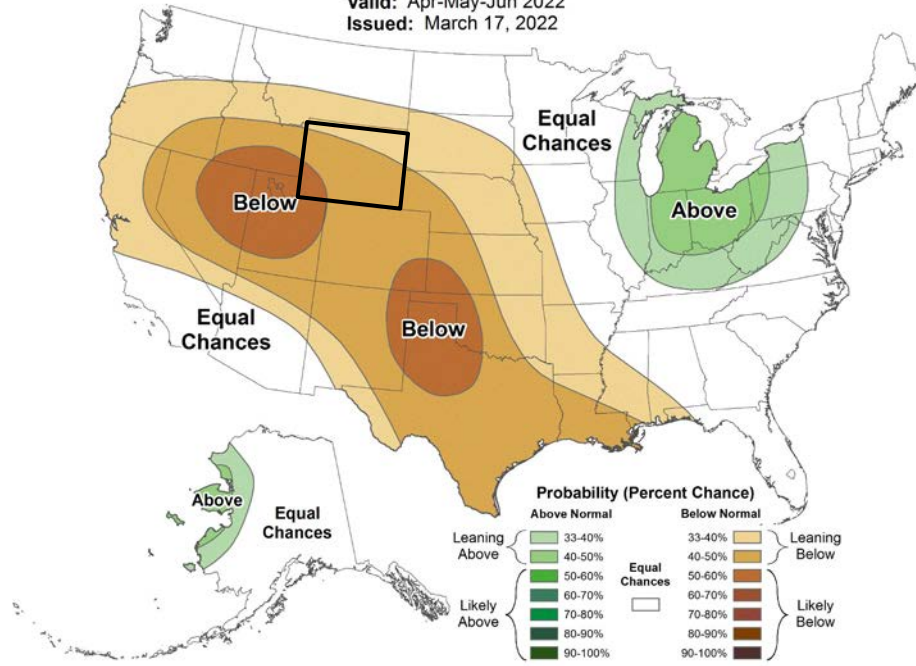
Valid: Apr-May-Jun 2022
Issued: March 17, 2022



Seasonal Precipitation Outlook



Valid: Apr-May-Jun 2022
Issued: March 17, 2022



Warm signal, especially
in the south

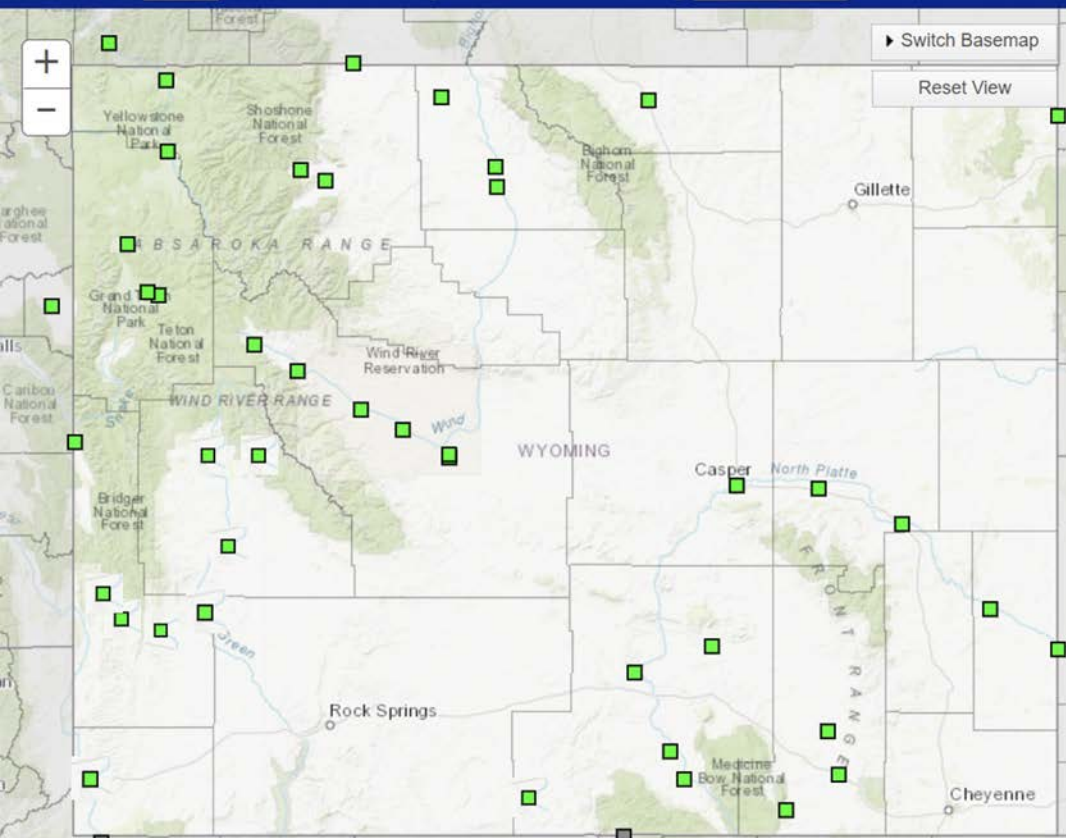
Solid lean toward drier
than normal

https://bit.ly/CPC_Seasonal



Wyoming Flood Potential Update: March - April - May 2022

Greater than: chance of exceeding river flood levels during



[Return to national map.](#)

Click on the map or select one of the below:

- Wyoming
- NWS Weather Forecast Offices
- NWS River Forecast Centers
- Water Resources Regions

52 total gauges
No locations with 50% or greater chance of flooding during Mar-Apr-May

- 0 Gauges: > 50% Major Long-Term Risk
- 0 Gauges: > 50% Moderate Flood Risk
- 0 Gauges: > 50% Minor Long-Term Risk
- 40 Gauges: < 50% Long-Term Risk
- 12 Gauges: No forecast with timeframe

[Show all locations](#)

Last map update:
03/16/2022 at 02:52:50 pm EDT
03/16/2022 at 18:52:50 UTC

[What is UTC time?](#)

[Map Help](#)

[Product Description](#)

[Feedback](#)

[Disclaimer](#)

No riverine flooding is expected through early-June.

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.

NOAA issued U.S. Spring Outlook this morning.



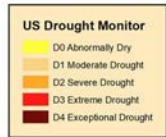
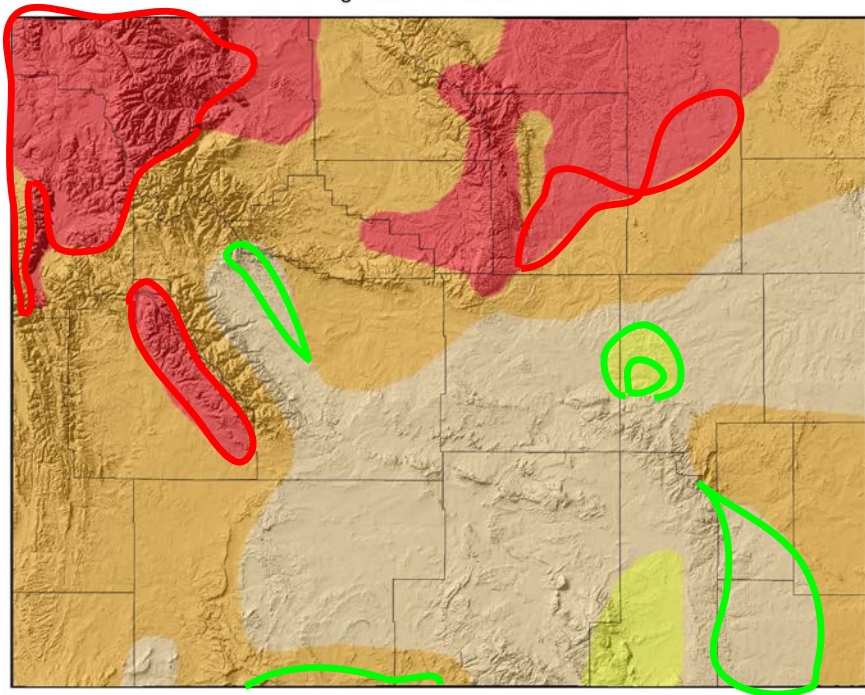
How to get involved ...

US Drought Monitor for March 15, 2022

(Released Thursday, March 17, 2022)

Valid 8 a.m. EDT

US Drought Monitor for 15 Mar 2022



Map Created by:
National Drought Mitigation Center
<https://droughtmonitor.unl.edu>



Map Layout Prepared by:
Wyoming State Climate Office
<http://www.wrds.uwyo.edu>



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 and south central parts – with several **degradations** in the north and north central/northwest.

The U.S. Drought Monitor, is a weekly map of drought conditions produced jointly by the National Oceanic and Atmospheric Administration, the U.S. Department of Agriculture, and the National Drought Mitigation Center (NDMC) at the University of Nebraska-Lincoln. The U.S. Drought Monitor website is hosted and maintained by the NDMC. <http://droughtmonitor.unl.edu>

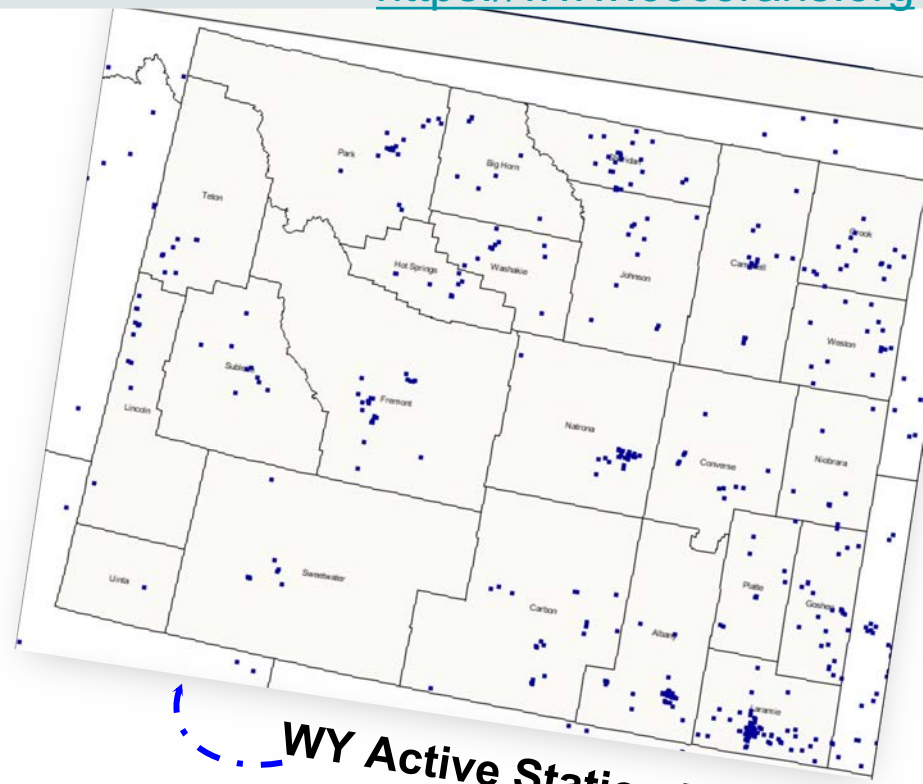
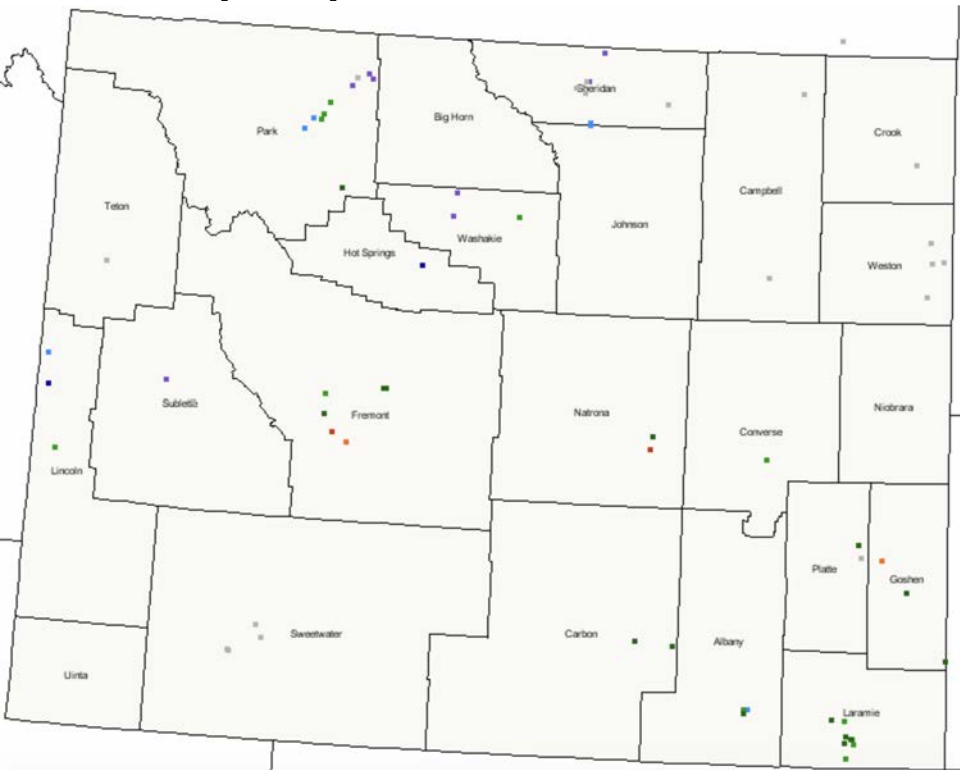
Map Layout Created 17 Mar 2022 <http://www.wrds.uwyo.edu>



CoCoRaHS Mapping System

<https://www.cocorahs.org>

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



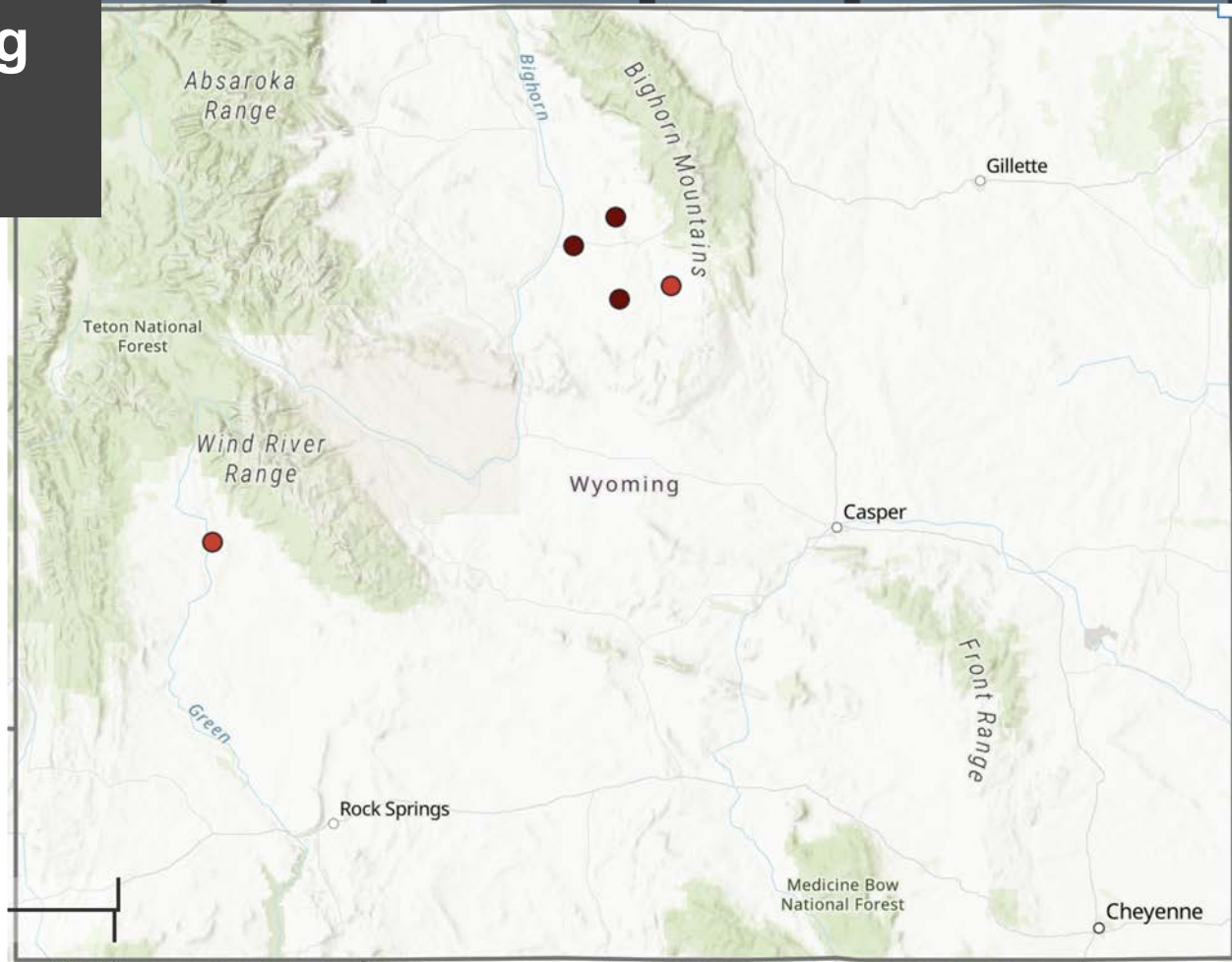
WY Active Station Locations



Condition Monitoring Observer Reports

<https://bit.ly/CMOReports>

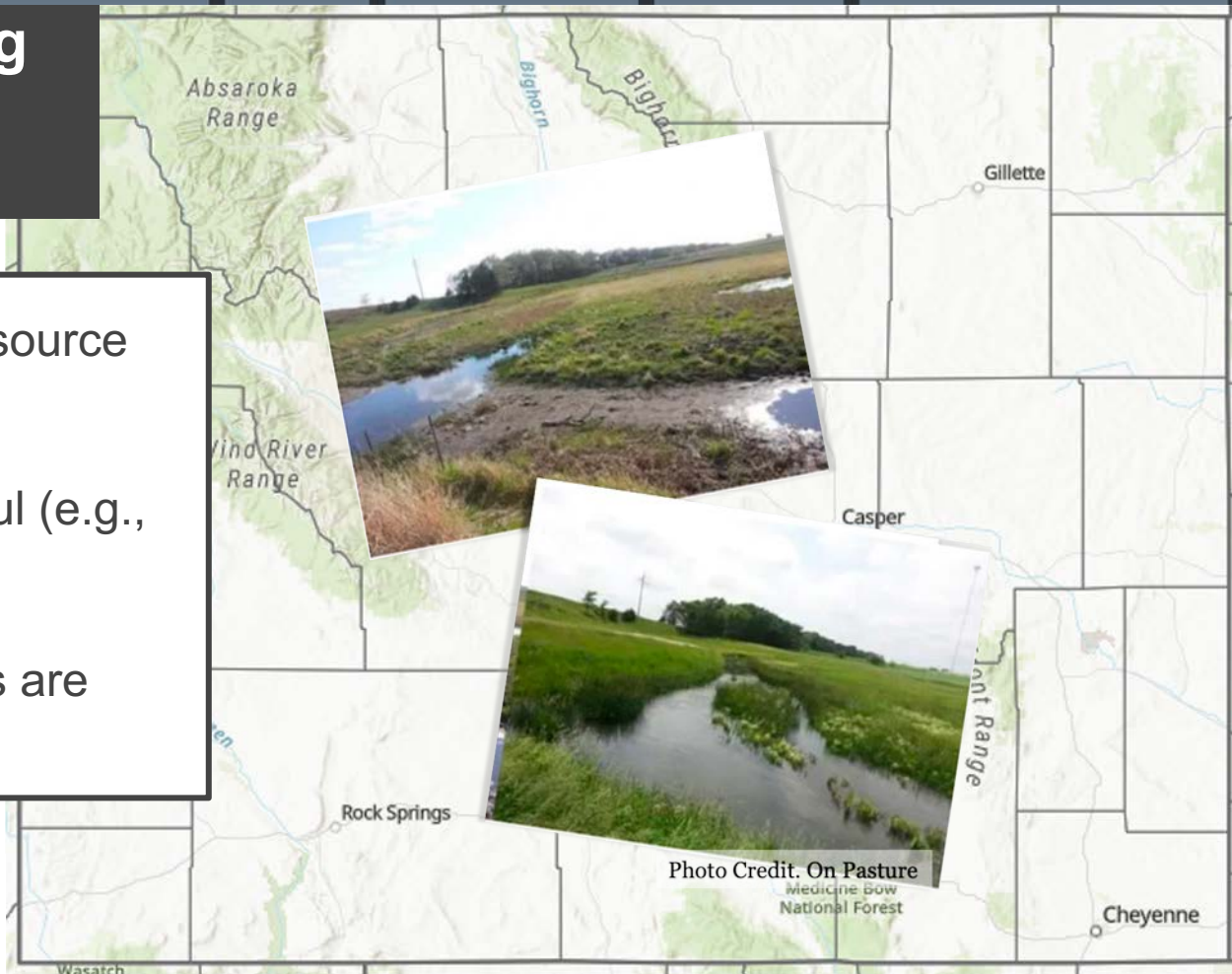
- Severely Dry
- Moderately Dry
- Mildly Dry
- Near Normal
- Mildly Wet
- Moderately Wet
- Severely Wet



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.





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WY Drought Info & Resources

<https://drought.wyo.gov>

CoCoRaHS

<https://www.cocorahs.org>

Condition Monitoring Observer Reports (CMOR)

<https://bit.ly/CMORreports>

Thank you! Questions?