WY Conditions & Outlooks:

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

May 15, 2025

The University of Wyoming is an equal opportunity/affirmative action institution.

Presentation Outline

- **Current Conditions:** Overview
  - Drought, Temperature, Precipitation, Soil Moisture, and Snow Water Equivalent
  - Streamflows
  - Reservoir Levels
  - Water Calls & Allocations
- **Outlooks:**
  - Temperature & Precipitation
  - Water Supply & Flood Potential
- **Highlight of the Month:**
  - VegDRI
- **Questions**

Current Conditions

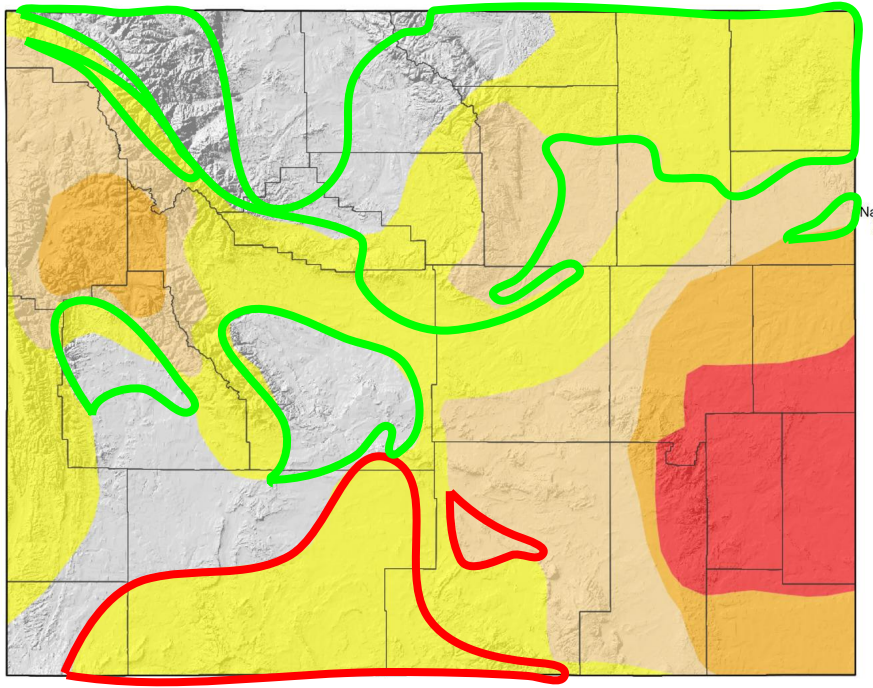
US Drought Monitor for May 13th, 2025

(Released Thursday, May 15th, 2025)

Valid 8 a.m. EDT

Drought Level	Percentile
None	>30.01
D0 (Abnormally Dry)	20.01 to 30
D1 (Moderate Drought)	10.01 to 20
D2 (Severe Drought)	5.01 to 10
D3 (Extreme Drought)	2.01 to 5
D4 (Exceptional Drought)	0 to 2

US Drought Monitor for 13 May 2025



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

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

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 15 May 2025 https://www.wrds.uwyo.edu

How are Drought categories assigned?
https://youtu.be/45MQ1GB-uTc

Improvements in much of the state (northern ½ to ⅓) thanks to continuing moisture across the region. Degradations in the south central and southwest which has missed some of the precip and where stream conditions have worsened.

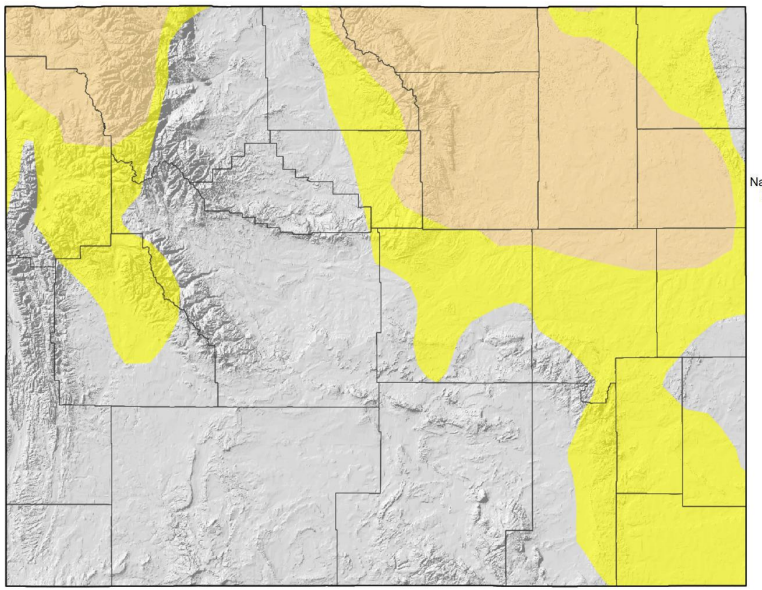
https://droughtmonitor.unl.edu

droughtmonitor.unl.edu

WRDS
Water Resources Data System

One Year Ago

US Drought Monitor for 14 May 2024



US Drought Monitor
- 26.14% D0 Abnormally Dry
- 19.99% D1 Moderate Drought
- 0.00% D2 Severe Drought
- 0.00% D3 Extreme Drought
- 0.00% D4 Exceptional Drought

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

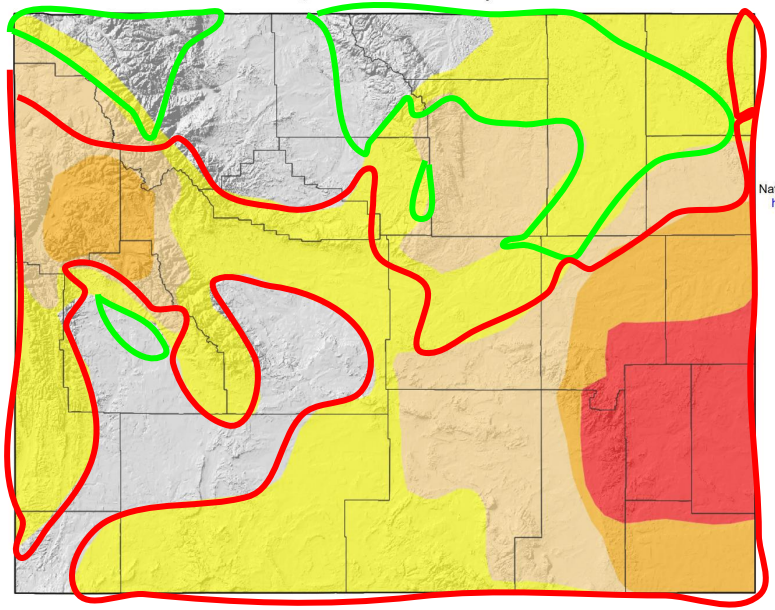
Map Layout Prepared by:
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Map Layout Created 16 May 2024 http:/www.wrds.uwyo.edu

Today

US Drought Monitor for 13 May 2025



US Drought Monitor
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

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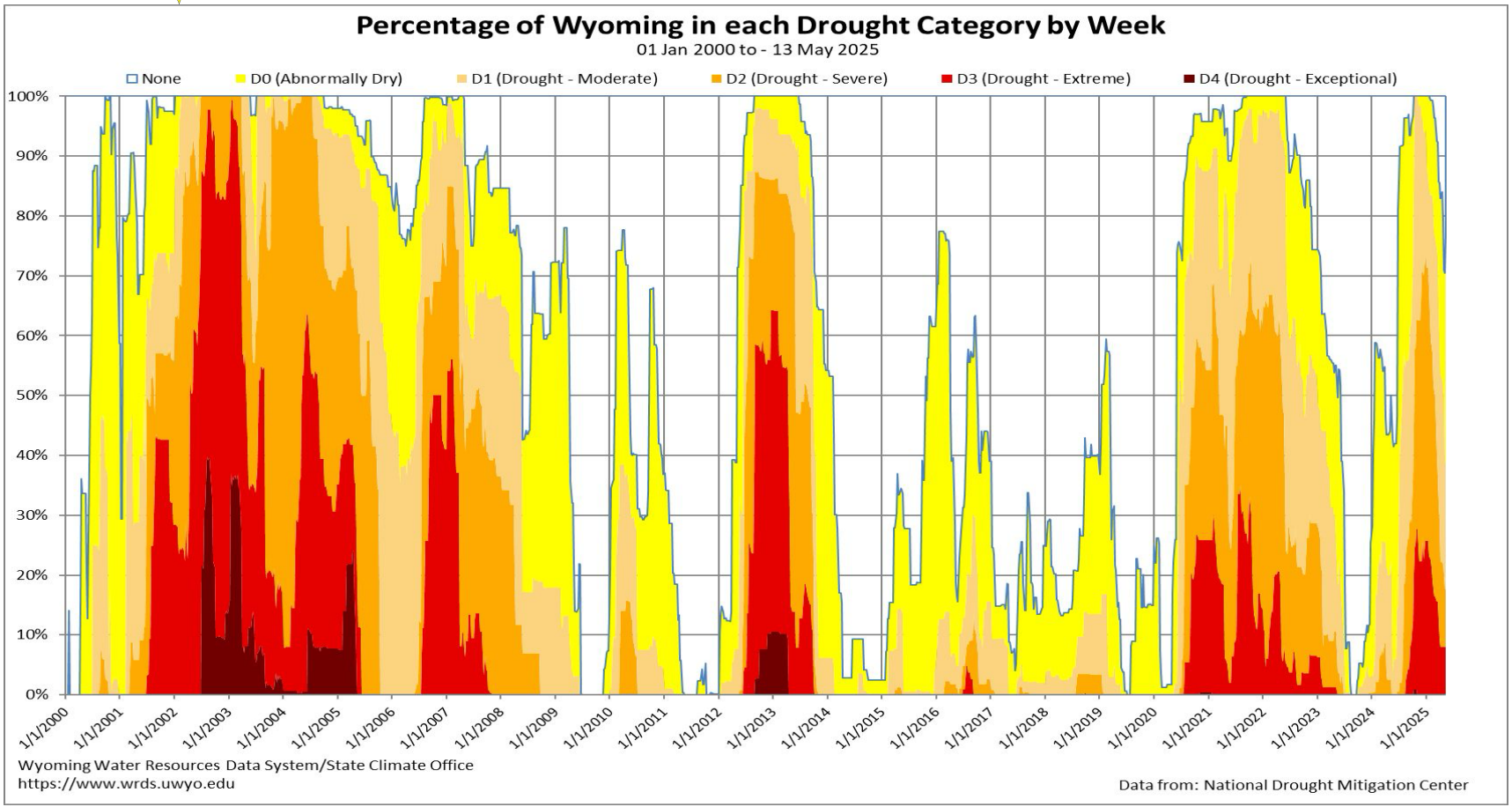
Map Layout Created 15 May 2025 https://www.wrds.uwyo.edu

https://droughtmonitor.unl.edu

droughtmonitor.unl.edu

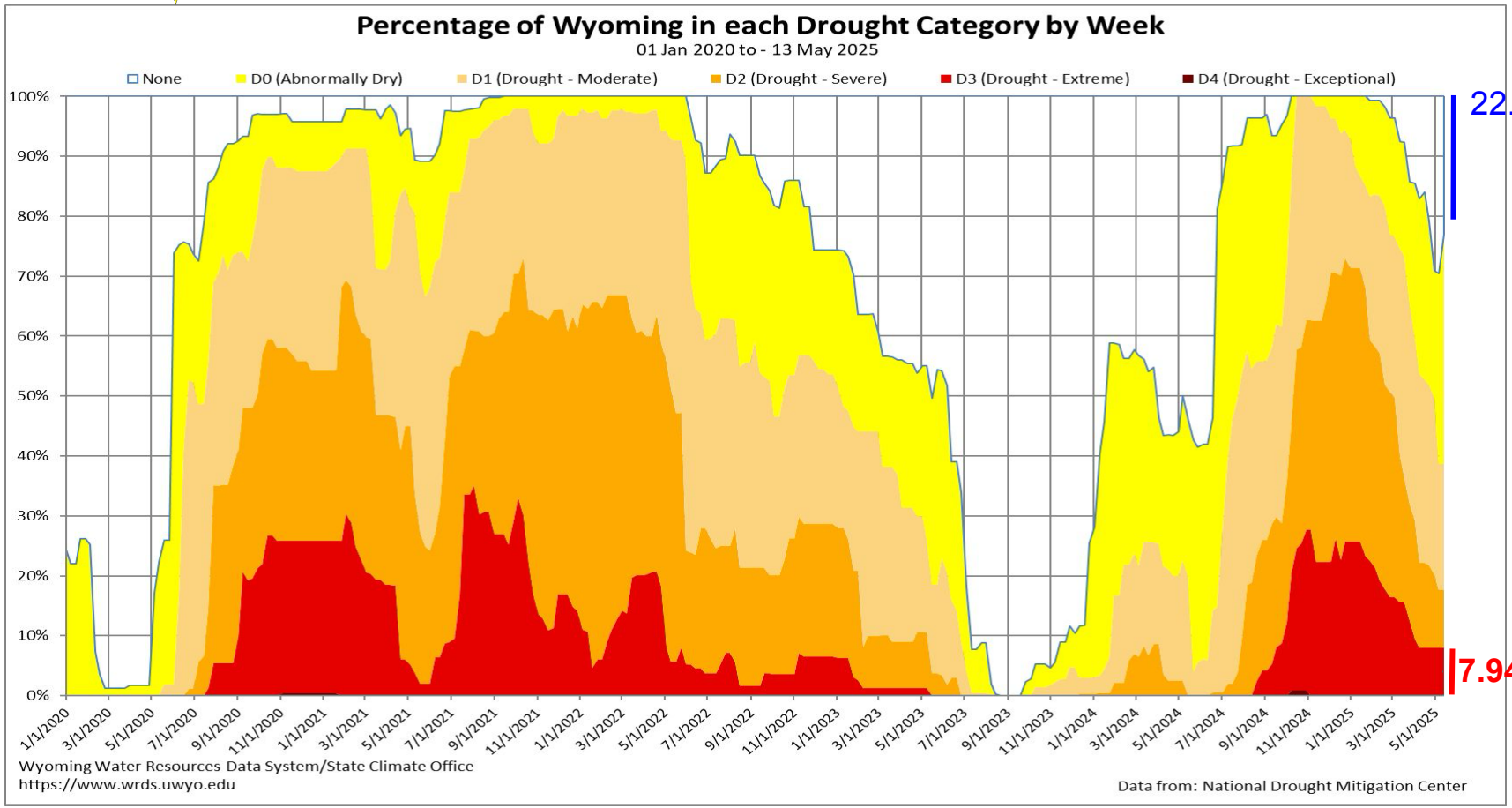
WRDS Water Resources Data System

Wyoming Area Affected: 77.07% D0-D4 ; 38.61% D1-D4



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

WRDS
Water Resources Data System



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

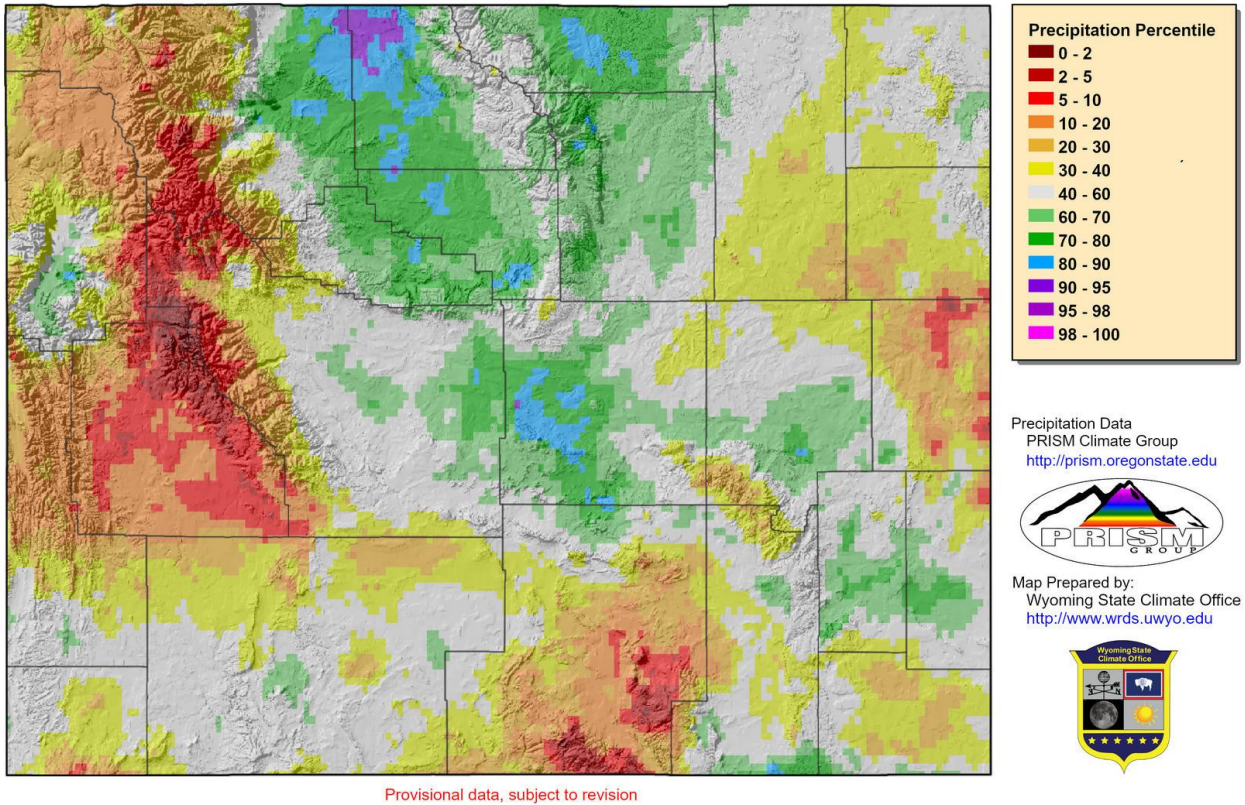
14-Day Precipitation Percentile (01 May 2025 to 14 May 2025)

Above Median:

- Central/North Central WY
- Northeast
- Scattered Southeast

Below Median (*Areas of Concern*):

- West Central and Northwest
- South Central
- Far East Central



Daily precipitation data from PRISM Climate Group, Copyright ©2021, PRISM Climate Group, Oregon State University, http://prism.oregonstate.edu
Map Created 15 May 2025 https:/www.wrds.uwyo.edu
Daily percentiles created from PRISM daily precipitation grids

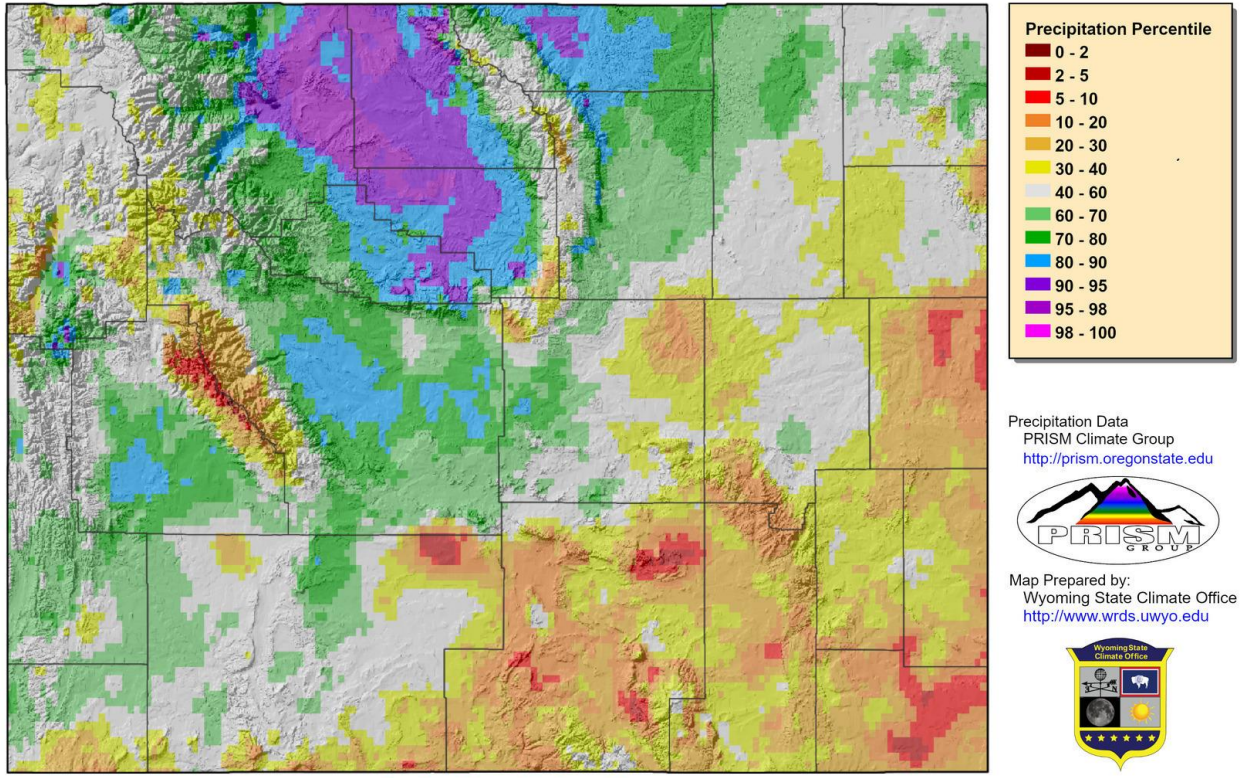
90-Day Precipitation Percentile (14 Feb 2025 to 14 May 2025)

At or Above Median:

- North Central
- Upper Green
- Wind River Basin

Below Median (*Areas of Concern*):

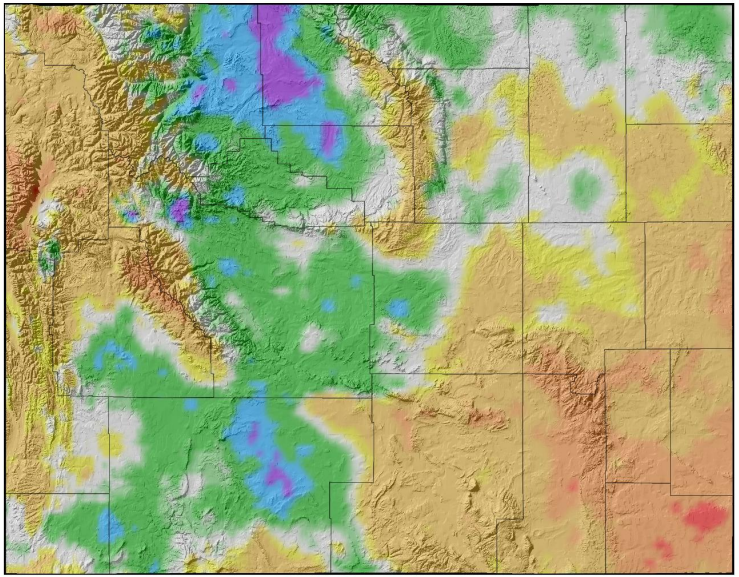
- Winds
- Southeast



“Year”-to-Date Precipitation (Percent of Average)

Current Water Year

Water-Year Precipitation (Percent of 1991-2020 Average) for 01 Oct 2024 to 14 May 2025



Precipitation Percent of Normal
- < 5%
- 5% - 25%
- 25% - 50%
- 50% - 70%
- 70% - 90%
- 90% - 95%
- 95% - 105%
- 105% - 110%
- 110% - 130%
- 130% - 150%
- 150% - 200%
- 200% - 300%
- > 300%

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

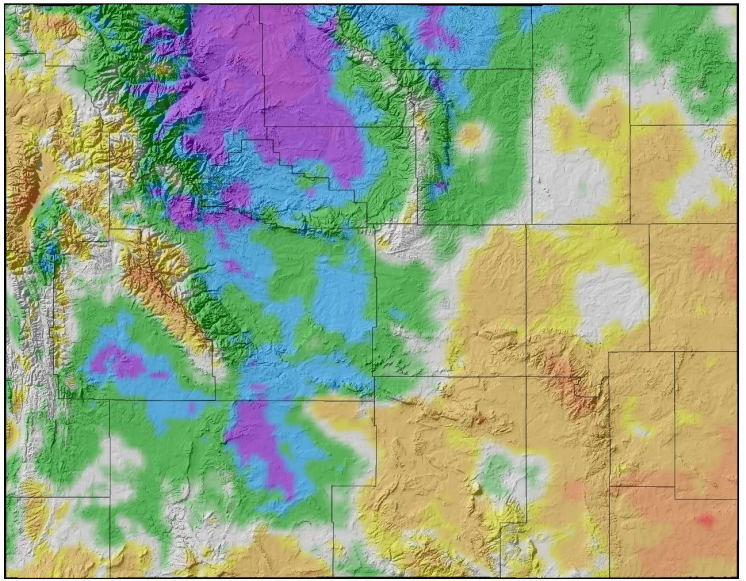
Map Prepared by:
Wyoming State Climate Office
http://www.wrds.uwyo.edu

Provisional data, subject to revision

Monthly and Normal precipitation data from PRISM Climate Group, Copyright ©2024, PRISM Climate Group, Oregon State University, http://prism.oregonstate.edu
Map Created 15 May 2025 https://www.wrds.uwyo.edu
Daily averages created from PRISM daily precipitation grids

Current Calendar Year

Calendar-Year Precipitation (Percent of 1991-2020 Average) for 01 Jan 2025 to 14 May 2025



Precipitation Percent of Normal
- < 5%
- 5% - 25%
- 25% - 50%
- 50% - 70%
- 70% - 90%
- 90% - 95%
- 95% - 105%
- 105% - 110%
- 110% - 130%
- 130% - 150%
- 150% - 200%
- 200% - 300%
- > 300%

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

Map Prepared by:
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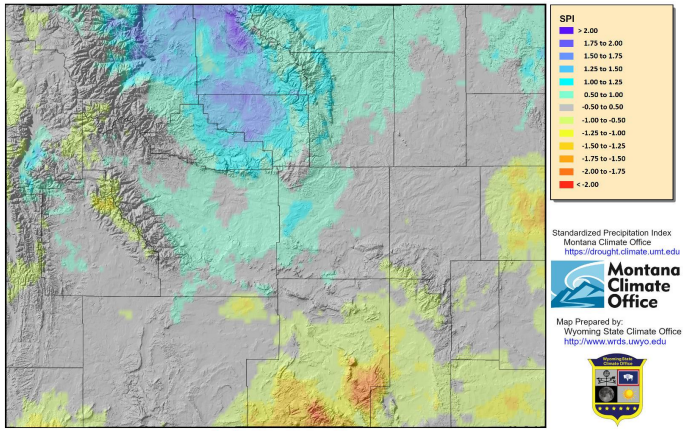
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Monthly and Normal precipitation data from PRISM Climate Group, Copyright ©2024, PRISM Climate Group, Oregon State University, http://prism.oregonstate.edu
Map Created 15 May 2025 https://www.wrds.uwyo.edu
Daily averages created from PRISM daily precipitation grids

Note: a water year is October 1 through September 30 of the following year.

WRDS Water Resources Data System

30-Day Standardized Precipitation Index (14 Apr 2025 to 13 May 2025)



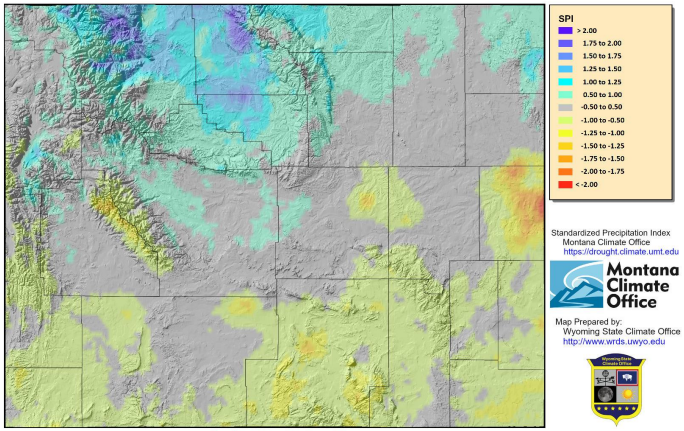
Provisional data, subject to revision

Standardized Precipitation Index Created by Montana Climate Office https://drought.climate.umt.edu
Map Created 15 May 2025 https://www.wrds.uwyo.edu

30-Day →

Apr 14 - 13 May

60-Day Standardized Precipitation Index (15 Mar 2025 to 13 May 2025)



Provisional data, subject to revision

Standardized Precipitation Index Created by Montana Climate Office https://drought.climate.umt.edu
Map Created 15 May 2025 https://www.wrds.uwyo.edu

60-Day →

Mar 15 - May 13

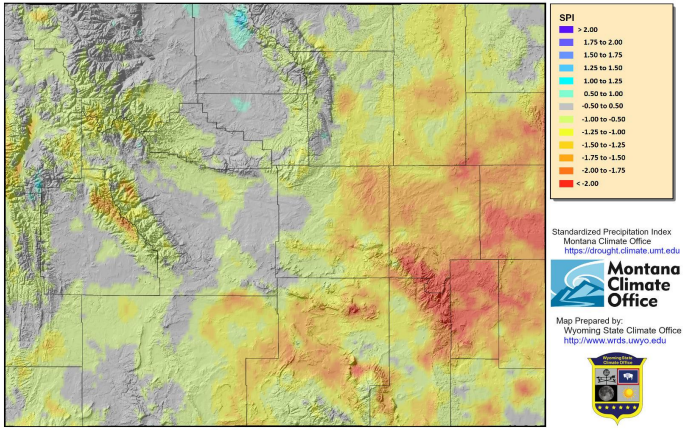
Standardized Precipitation Index (SPI)

Short term: Wet in the north central/northeast Drier in the south, especially Carbon County in the 30-day.

Long term: Dry in east extending through southcentral WY and the northwest

1-Year →

365-Day Standardized Precipitation Index (14 May 2024 to 13 May 2025)



Provisional data, subject to revision

Standardized Precipitation Index Created by Montana Climate Office https://drought.climate.umt.edu
Map Created 15 May 2025 https://www.wrds.uwyo.edu

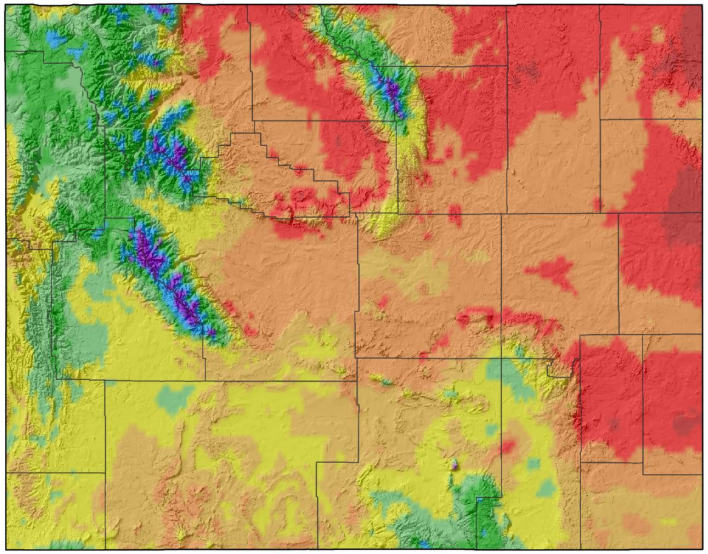
https://drought.climate.umt.edu

WRDS Water Resources Data System

14-Day Average Minimum Temperature (01 May to 14 May)

- Lower elevations above freezing, higher elevations still <32F
- Warmest in northern and eastern plains, Bighorn Basin

14-Day Average Minimum Temperature for 01 May 2025 to 14 May 2025



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

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

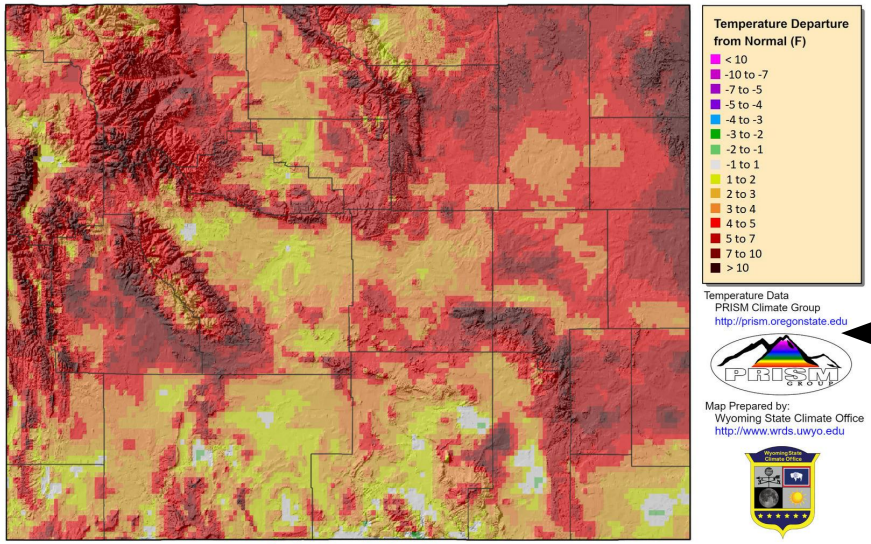
Provisional data, subject to revision

Daily Temperature data from PRISM Climate Group, Copyright ©2021, PRISM Climate Group, Oregon State University, http://prism.oregonstate.edu
Temperature averages created from PRISM daily temperature grids
Map Created 15 May 2025 08:26, Wyoming State Climate Office https://www.wrds.uwyo.edu

14-Day *Departure from* Normal Average Minimum Temperature

- Above normal statewide
- Few exceptions in the south where it was about normal

14-Day Minimum Temperature (Departure from 1991-2020 Normal) for 01 May 2025 to 14 May 2025



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

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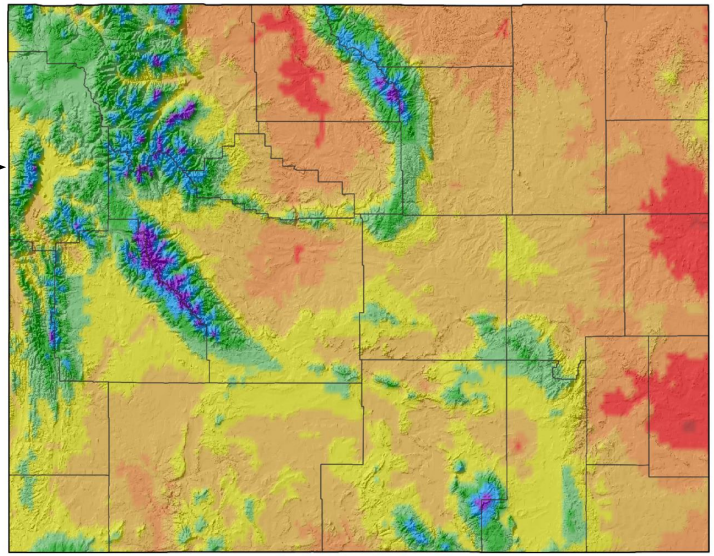
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Map Created 15 May 2025 Wyoming State Climate Office https://www.wrds.uwyo.edu
Daily departures created from PRISM daily precipitation grids

14-Day Average Maximum Temperature (01 May to 14 May)

- All of Wyoming saw highs above 32F
- Warmest in northern and eastern plains

14-Day Average Maxmimum Temperature for 01 May 2025 to 14 May 2025



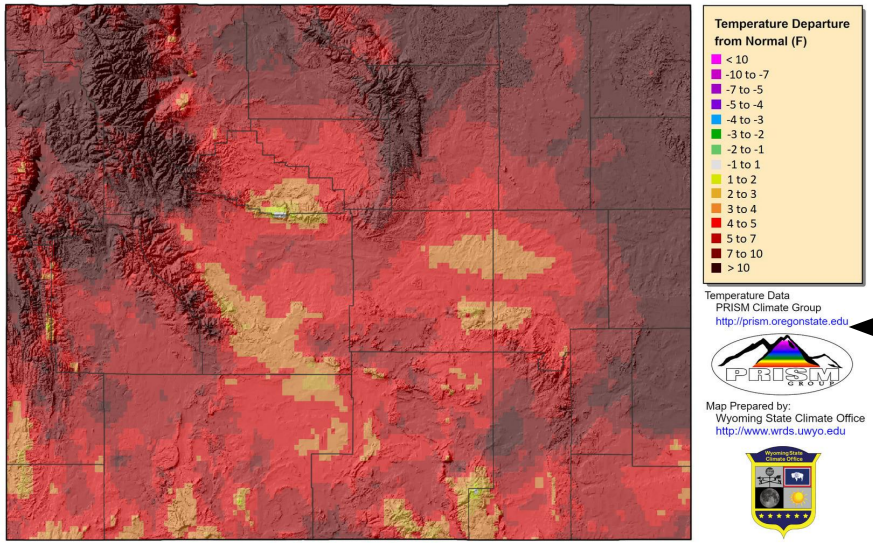
Provisional data, subject to revision

Daily Temperature data from PRISM Climate Group, Copyright ©2021, PRISM Climate Group, Oregon State University, http://prism.oregonstate.edu
Temperature averages created from PRISM daily temperature grids
Map Created 15 May 2025 08:27, Wyoming State Climate Office https://www.wrds.uwyo.edu

14- Day *Departure from* Normal Average Maximum Temperature

- East, north, and west > 10F above normal
- Central Wyoming smallest departures from normal but still up to 4F above.

14-Day Maximum Temperature (Departure from 1991-2020 Normal) for 01 May 2025 to 14 May 2025

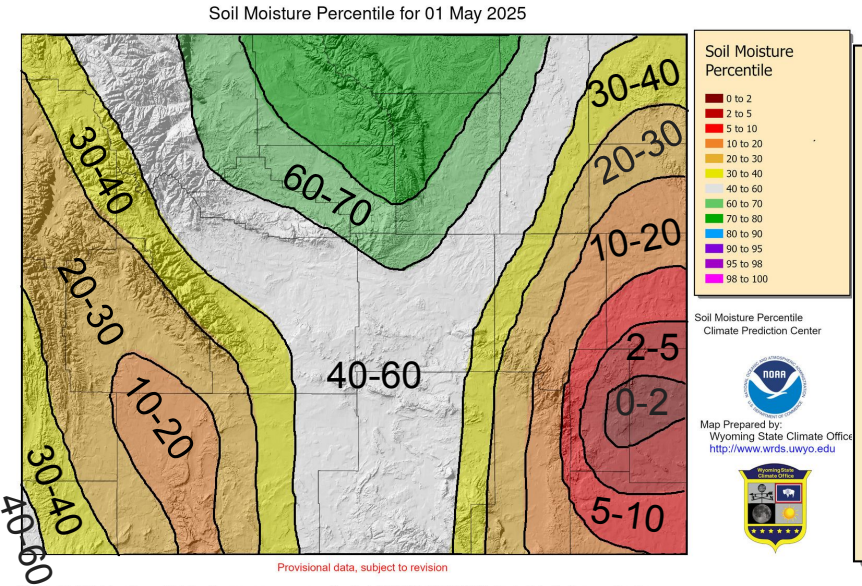


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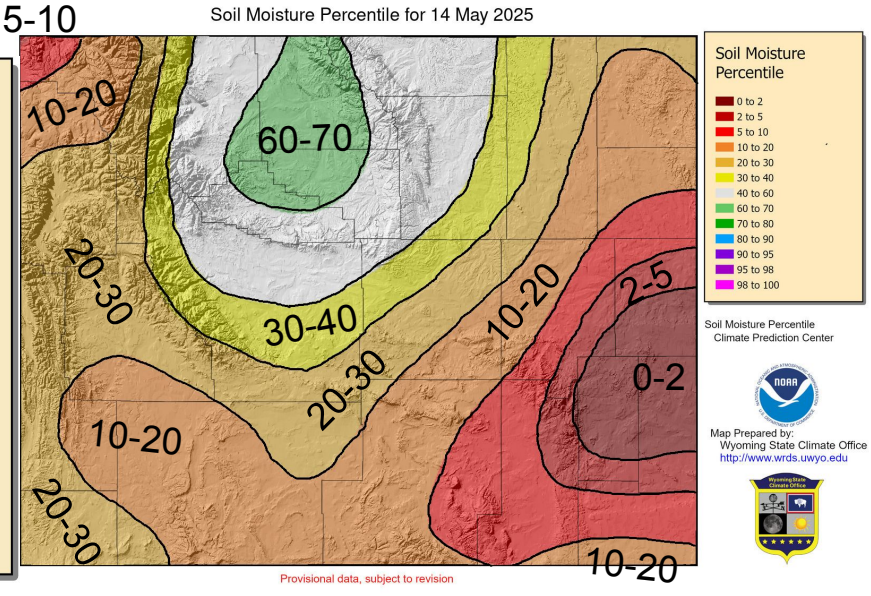
Soil Moisture Percentile

~Two Weeks Ago



Modeled Soil Moisture Percentile https://www.cpc.ncep.noaa.gov/products/GIS/GIS_DATA/USDM_Products/soil/soil_percentile.php
Map Created 02 May 2025 http://www.wrds.uwyo.edu

14 May 2025

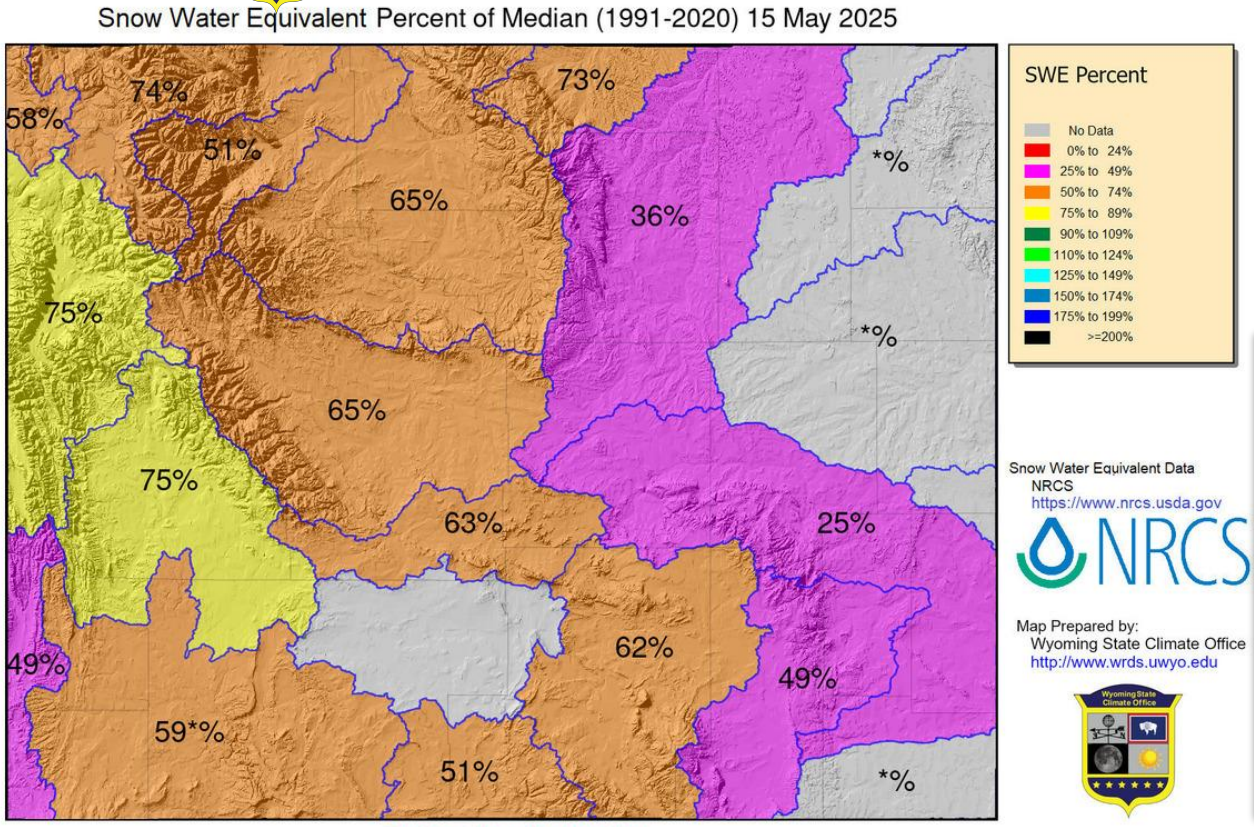


Modeled Soil Moisture Percentile https://www.cpc.ncep.noaa.gov/products/GIS/GIS_DATA/USDM_Products/soil/soil_percentile.php
Map Created 15 May 2025 http://www.wrds.uwyo.edu

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

Degradations across much of Wyoming

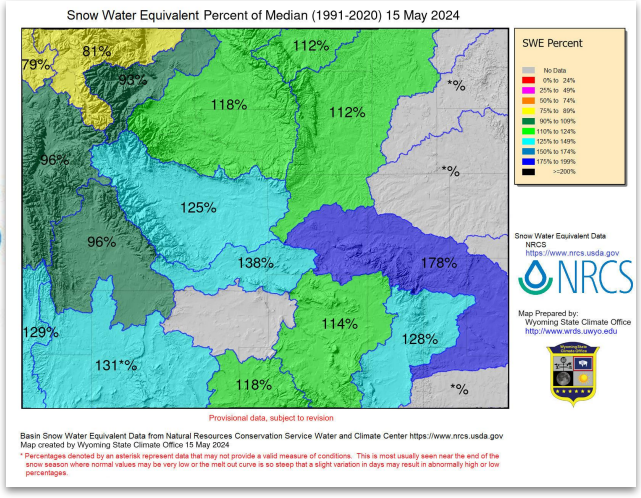
Basin Snow Water Equivalent - Percent of Median



2025 — 15 May

2024

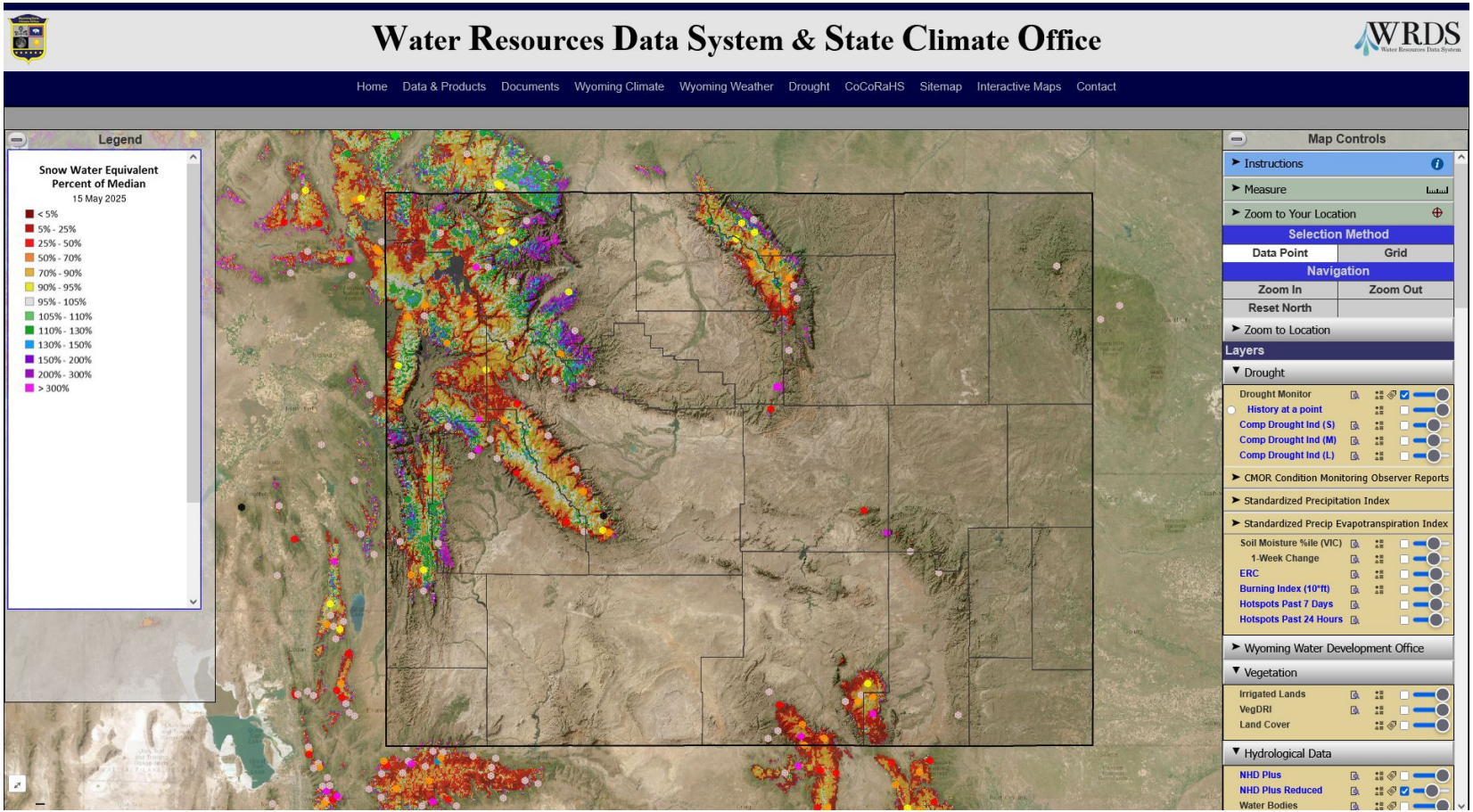
One Year Ago



All basins have a lower percent of median snowpack today than on this date last year.

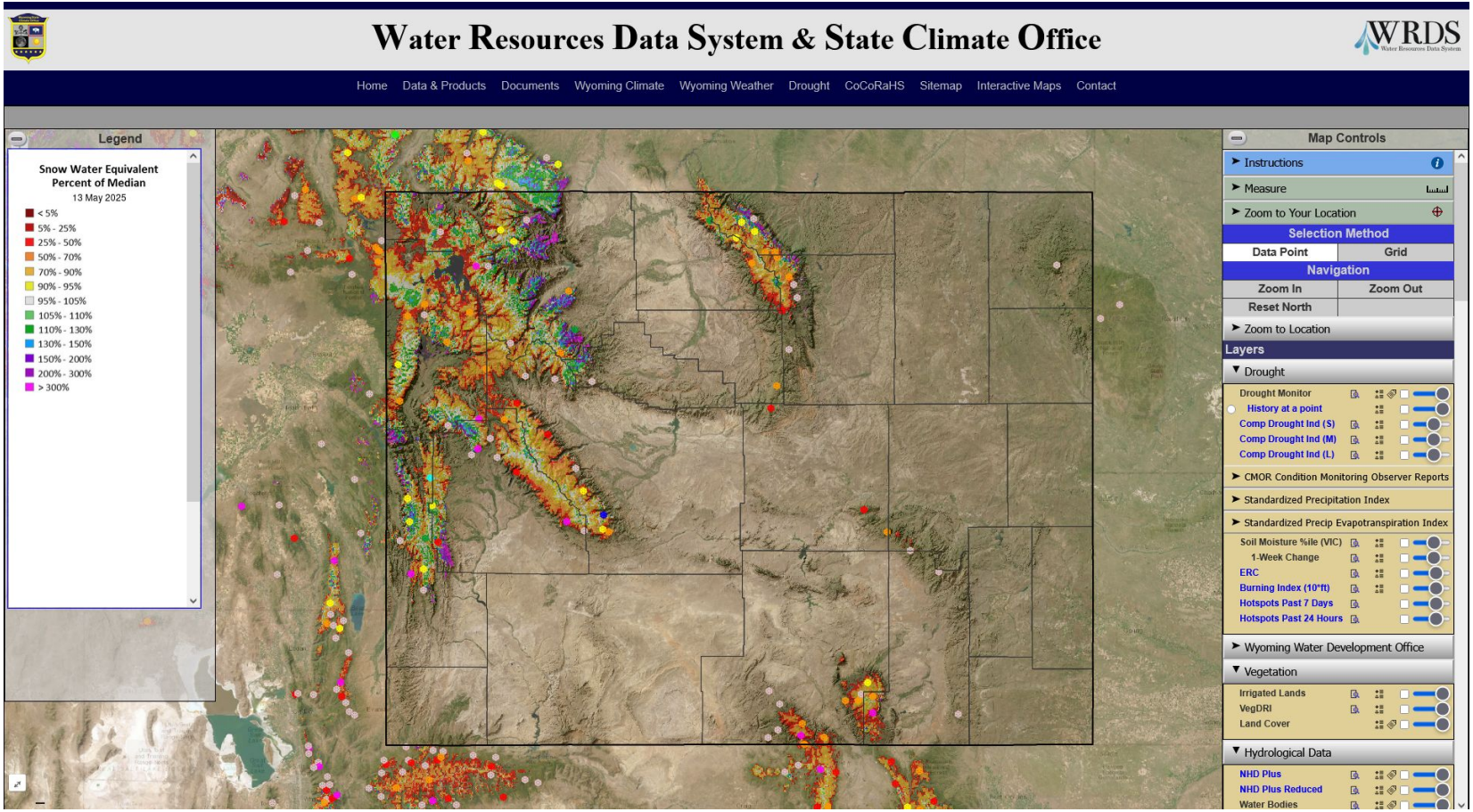
https://www.wrds.uwyo.edu/wrds/nrcs/snowmap/snowmap.html

Snow Water Equivalent - Percent of Median - 15 May 2025



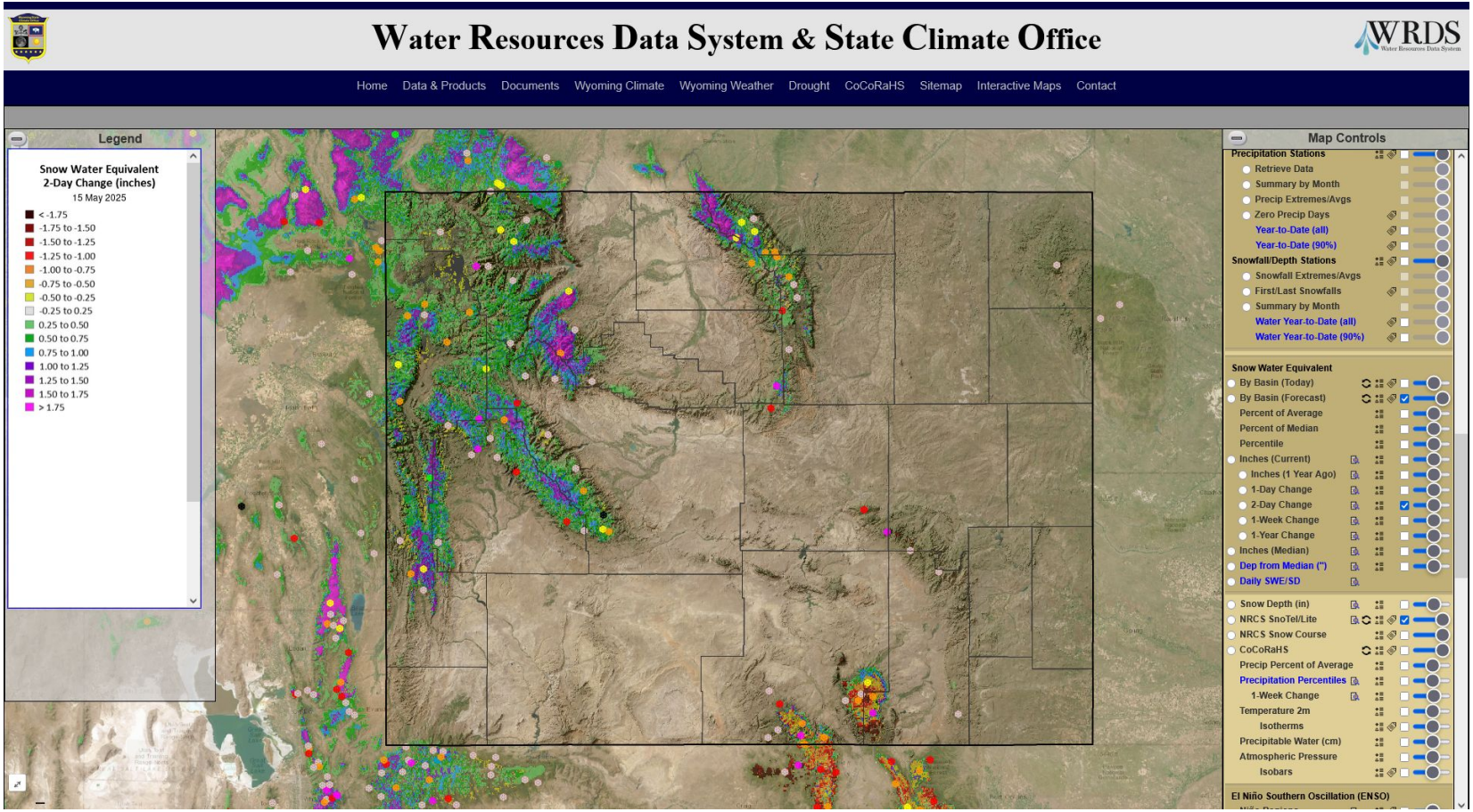
https://www.wrds.uwyo.edu/wace/wacehome.html

Snow Water Equivalent - Percent of Median - 13 May 2025



https://www.wrds.uwyo.edu/wace/wacehome.html

Snow Water Equivalent - Percent of Median 2-Day Change (13 to 15 May 2025



https://www.wrds.uwyo.edu/wace/wacehome.html

Basin Snow Pack Status - 15 May 2025

Peak Snow Water Equivalent Dates and Totals by Basin With Meltout Dates

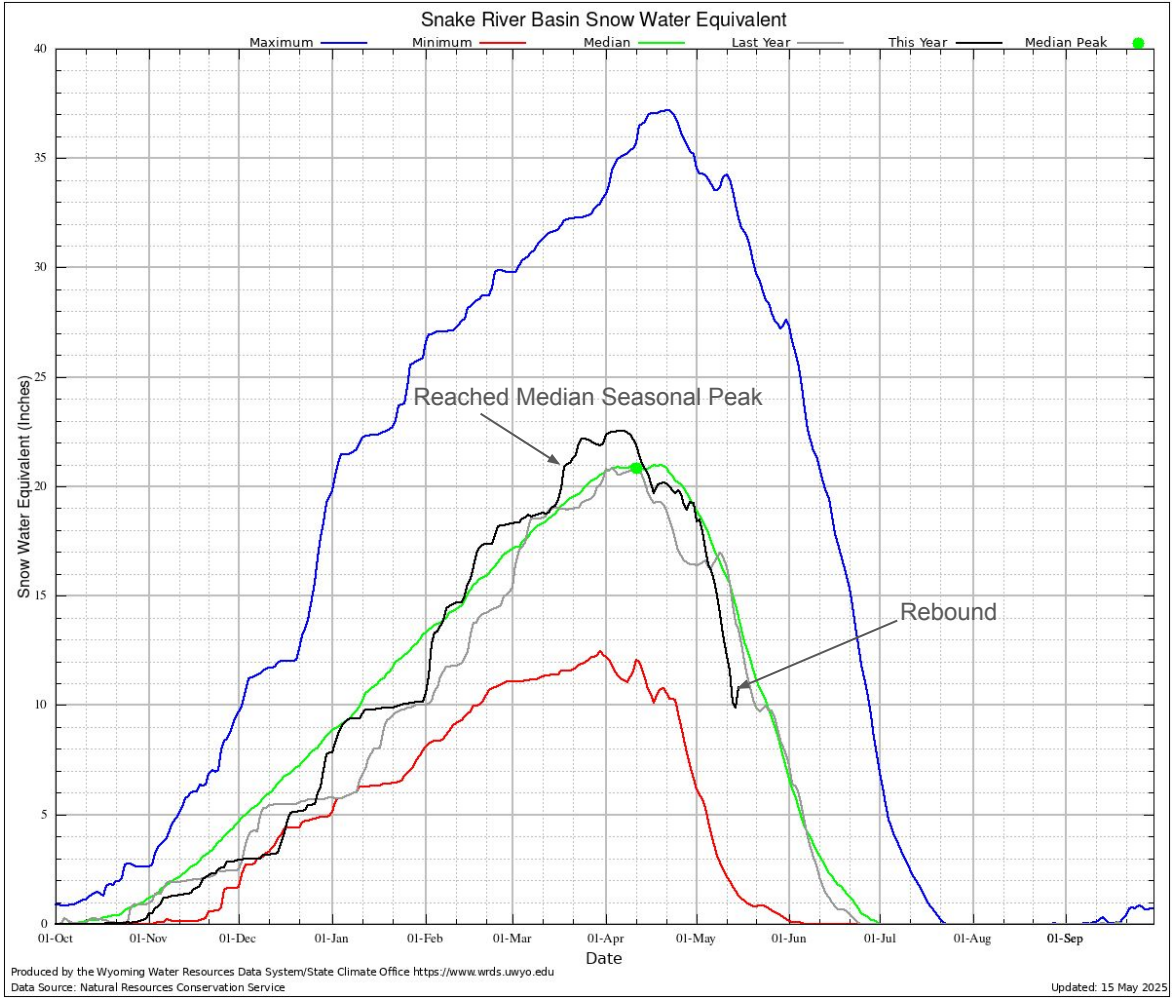
This year's "to-date" peak snow water equivalent (SWE) compared to median.
Red indicates **earlier** peak date or **lower** SWE compared to median
Blue indicates **later** peak date or **higher** SWE compared to median
Click Column Headers to Sort

Basin Click to View Chart	This Year Peak Date	This Year Peak SWE (inches)	Days Early/Late	Peak SWE Dif (inches)	Percent of Median Peak SWE	Median Peak Date	Median Peak SWE (inches)	Current SWE	Median Meltout Date
Belle Fourche	25 Mar 2025	5.20	-3	-1.7	76%	28 Mar IMG	6.87 IMG	0.05	01 May IMG
Bighorn	06 Apr 2025	10.68	-18	-1.1	91%	24 Apr IMG	11.74 IMG	5.38	21 Jun IMG
Cheyenne	11 Mar 2025	4.90	-17	-2.6	65%	28 Mar IMG	7.50 IMG	0.10	01 May IMG
Laramie	07 Apr 2025	13.41	-8	-2.5	84%	15 Apr IMG	15.90 IMG	4.61	13 Jun IMG
Little Snake	07 Apr 2025	18.48	1	-2.4	88%	06 Apr IMG	20.90 IMG	5.54	20 Jun IMG
Lower Green	06 Apr 2025	12.80	-2	-1.0	92%	08 Apr IMG	13.84 IMG	2.84	13 Jun IMG
Lower North Platte	06 Apr 2025	9.25	-8	-3.5	73%	14 Apr IMG	12.75 IMG	1.05	29 May IMG
Madison	09 Apr 2025	19.62	-5	-2.2	90%	14 Apr IMG	21.80 IMG	8.44	25 Jun IMG
Powder	07 Apr 2025	7.61	-7	-3.0	72%	14 Apr IMG	10.61 IMG	1.94	10 Jun IMG
Shoshone	25 Mar 2025	17.17	-30	-0.9	95%	24 Apr IMG	18.08 IMG	8.72	29 Jun IMG
Snake	06 Apr 2025	22.55	-5	1.7	108%	11 Apr IMG	20.85 IMG	9.87	29 Jun IMG
South Platte	20 Mar 2025	3.30	-12	-3.3	50%	01 Apr IMG	6.60 IMG	0.00	26 Apr IMG
Sweetwater	25 Mar 2025	13.47	-24	-1.6	90%	18 Apr IMG	15.03 IMG	5.47	06 Jun IMG
Tongue	02 May 2025	12.14	4	-1.2	91%	28 Apr IMG	13.30 IMG	6.60	09 Jun IMG
Upper Bear	06 Apr 2025	16.40	-3	-1.4	92%	09 Apr IMG	17.81 IMG	3.90	15 Jun IMG
Upper Green	07 Apr 2025	16.47	-4	0.5	103%	11 Apr IMG	15.96 IMG	5.14	19 Jun IMG
Upper North Platte	06 Apr 2025	21.98	-10	-2.4	90%	16 Apr IMG	24.35 IMG	10.95	28 Jun IMG
Wind	07 Apr 2025	13.24	-13	-0.7	95%	20 Apr IMG	13.97 IMG	6.39	25 Jun IMG
Yellowstone	30 Apr 2025	21.12	7	0.3	102%	23 Apr IMG	20.79 IMG	13.91	01 Jul IMG

Data from Natural Resources Conservation Service SnoTel Network

https://www.wrds.uwyo.edu/Snow/BasinPeakSWE.html

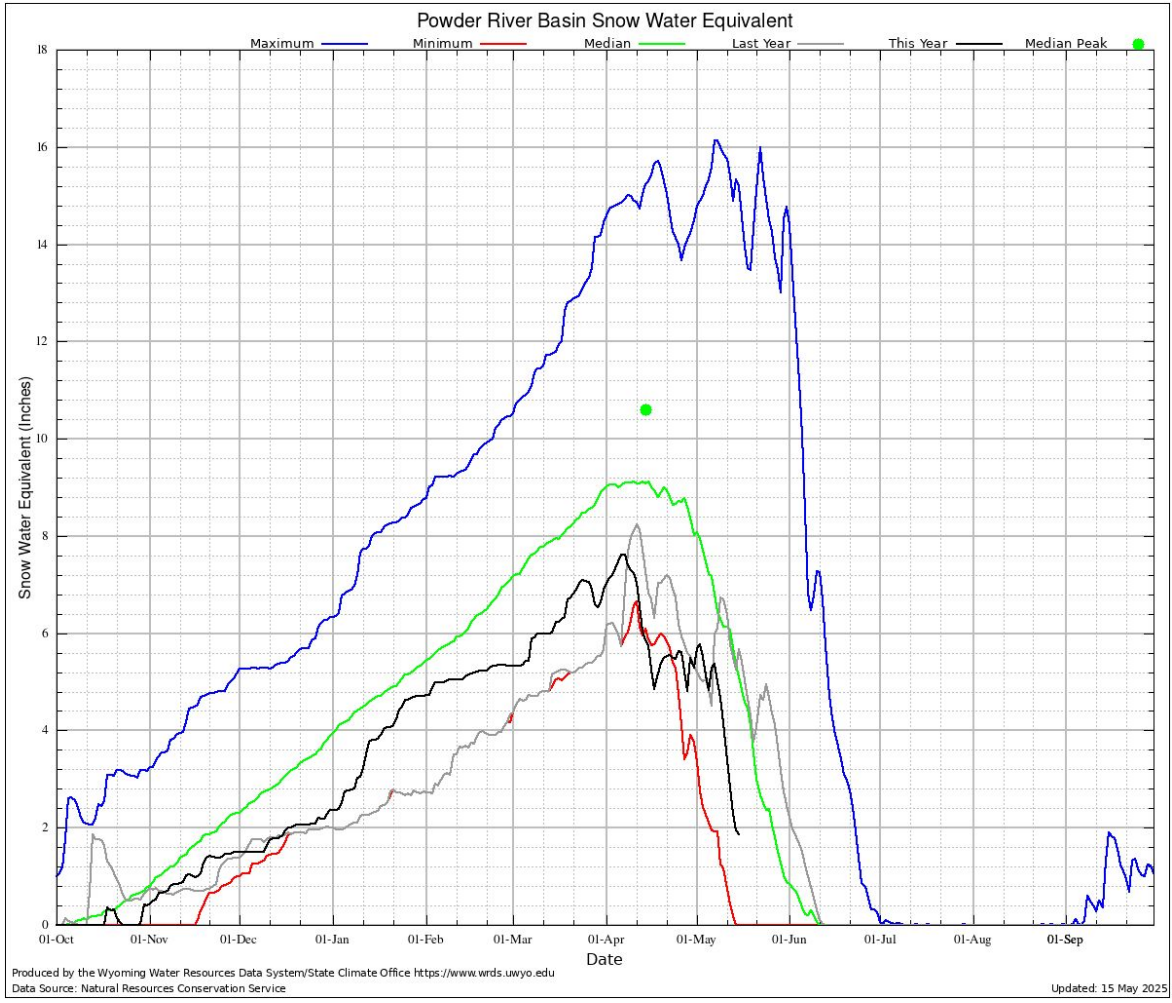
Snake River Basin Snow Water Equivalent



Reached 100% of Median Seasonal Peak SWE 18 March. This was 24 days earlier than the median date of 11 April. Peaked on 06 April and currently just over median.

https://www.wrds.uwyo.edu/Snow/BasinPeakSWE.html

Powder River Basin Snow Water Equivalent



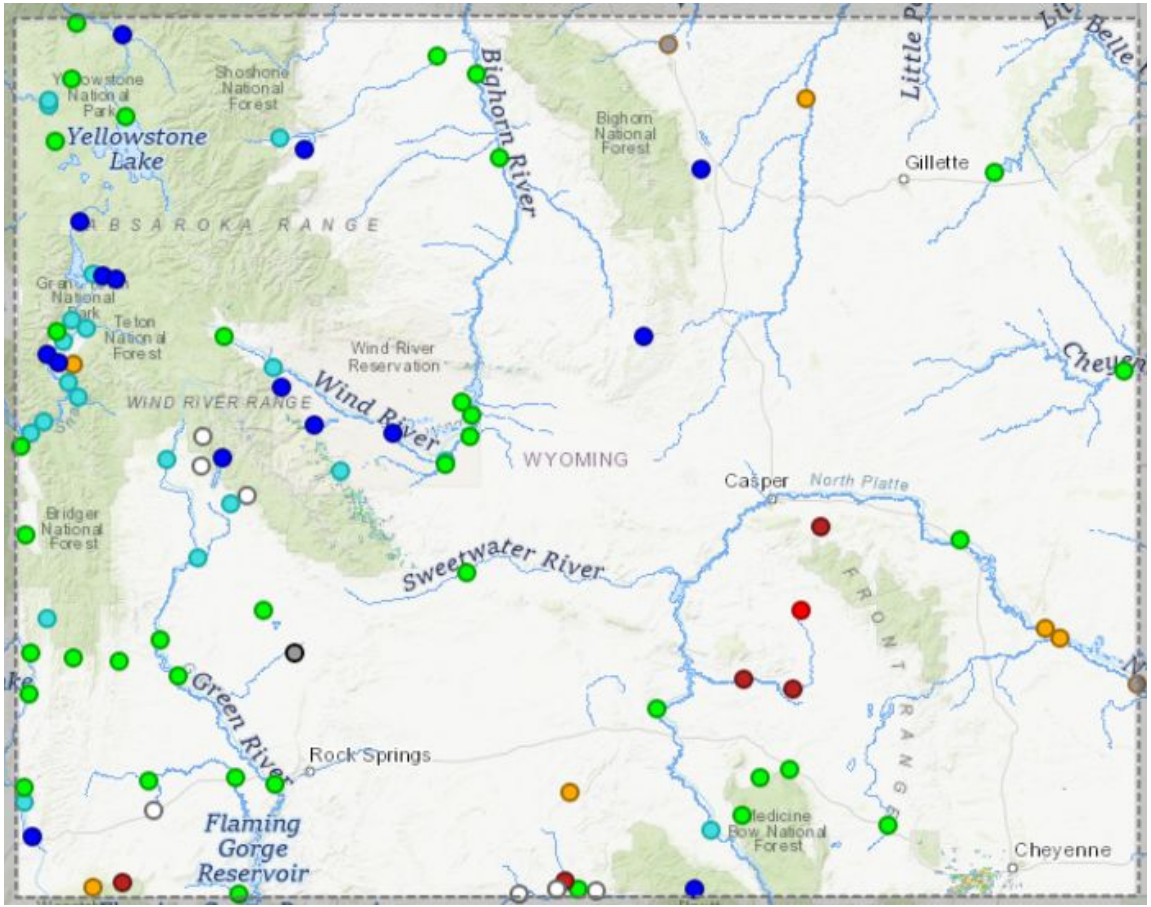
https://www.wrds.uwyo.edu/Snow/BasinPeakSWE.html

Current Streamflow Conditions

Streamflow Status

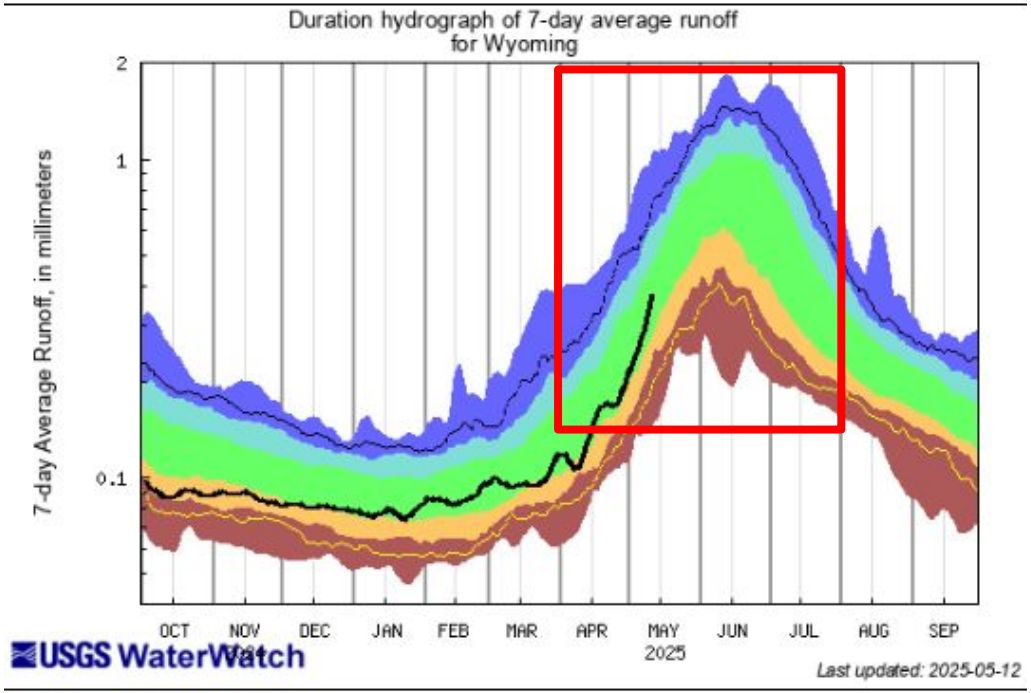
Streamflow: Status

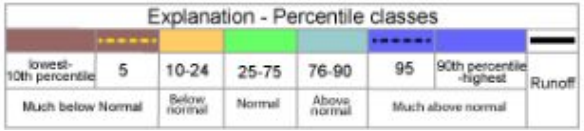
Above flood stage	
All-time high for this day	100th percentile (maximum)
Much above normal	>90th percentile
Above normal	76th – 90th percentile
Normal	25th – 75th percentile
Below normal	10th – 24th percentile
Much below normal	<10th percentile
All-time low for this day	0th percentile (minimum)
Not flowing	
Not ranked	
Measurement flag	
Recent measurement unavailable	



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

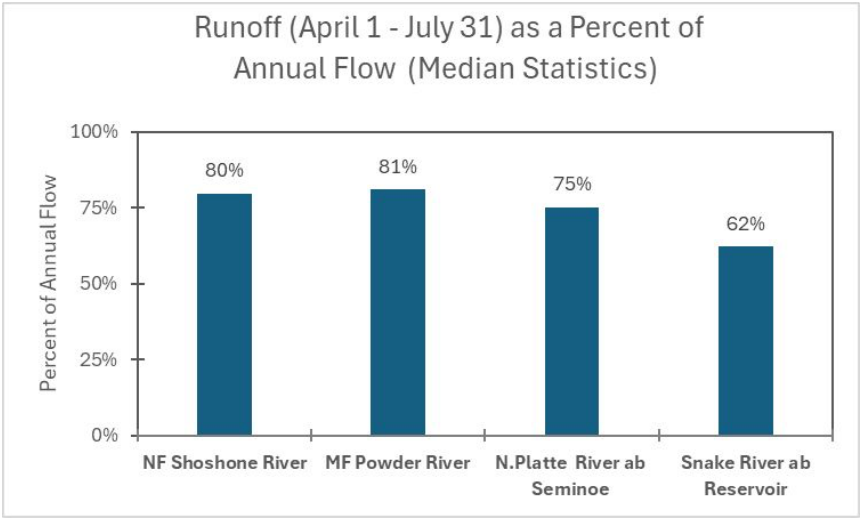
Significance of Runoff: April 1- July 31



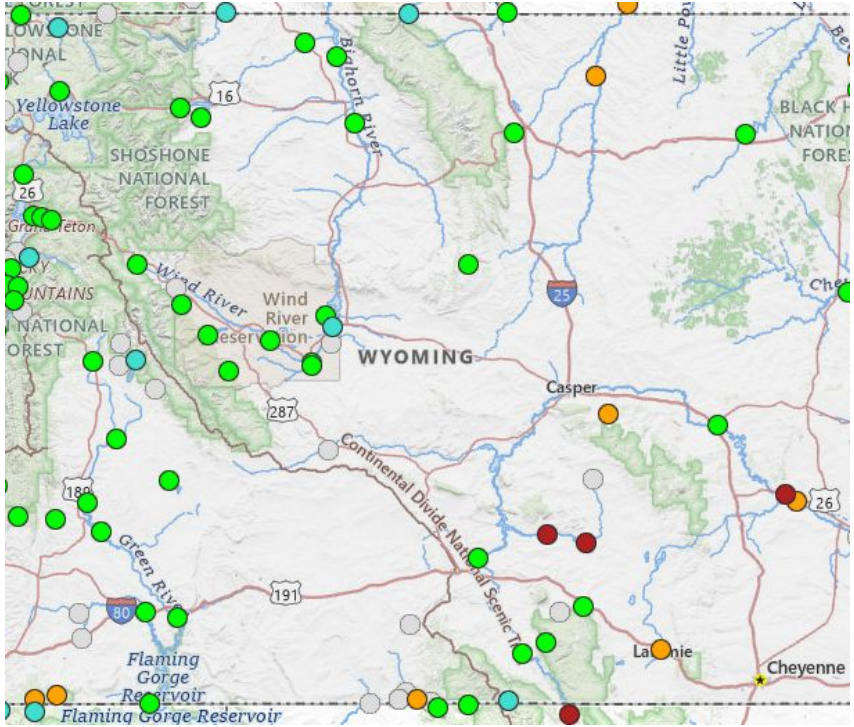


https://waterwatch.usgs.gov/

- Majority of the annual volume in a short period of time.
- If runoff volume is below “average” then the annual flow is likely to follow.



Streamflows Since Early April



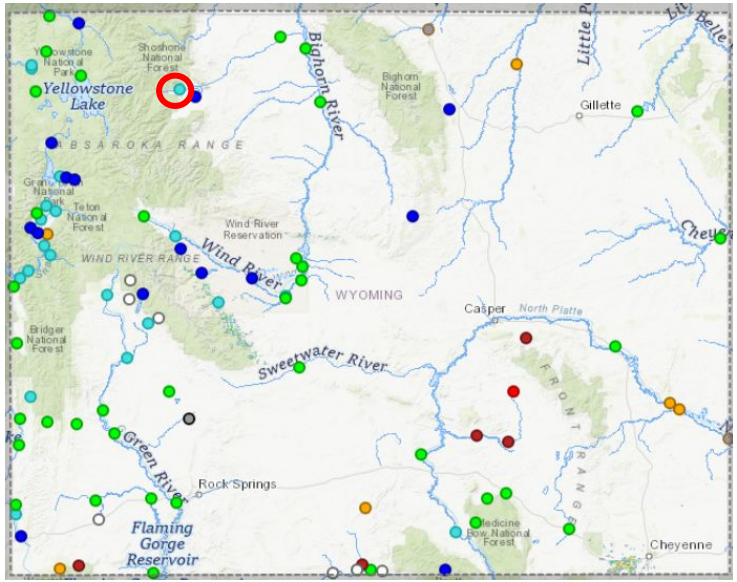
Explanation - Percentile classes							
Low	<10	10-24	25-75	76-90	>90	High	Not-ranked
	Much below normal	Below normal	Normal	Above normal	Much above normal		

28- Day Average Flows

- “Normal” sites are a mixed bag of above/below the median.
- Sporadic above normal in the Northwest
- Low flows in the Southeast (moderate - extreme drought).

https://waterwatch.usgs.gov/

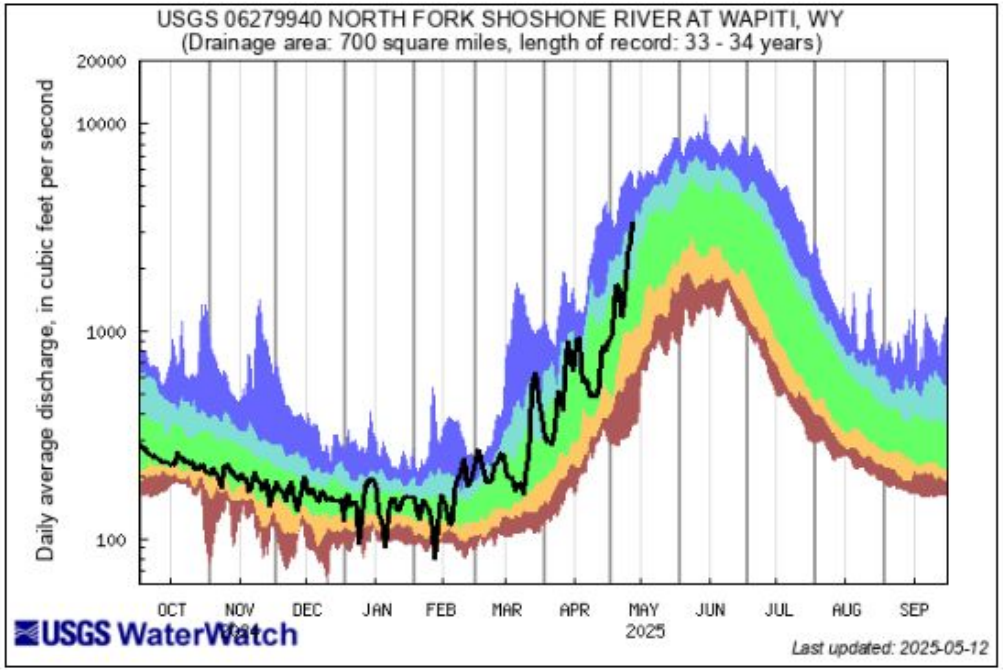
Select WY Streamflows

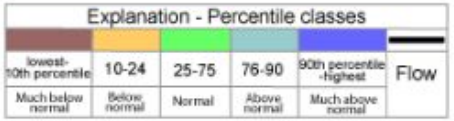


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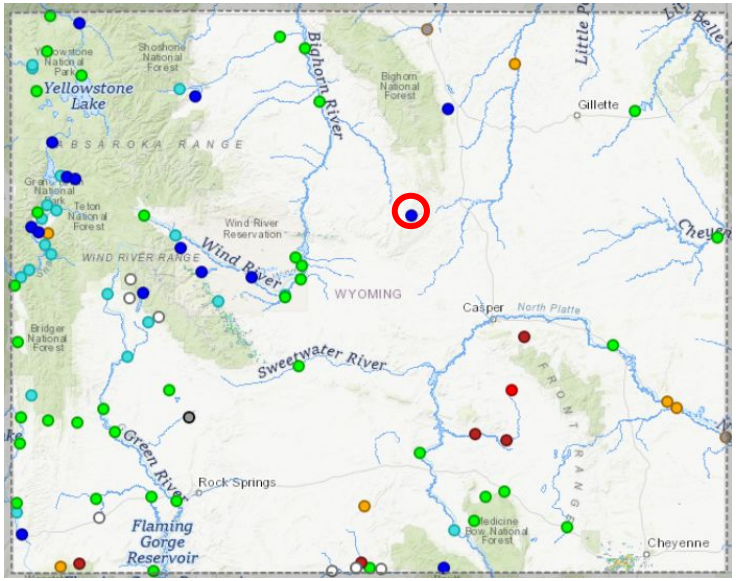
https://waterwatch.usgs.gov/

North Fork Shoshone River, at Wapiti, WY





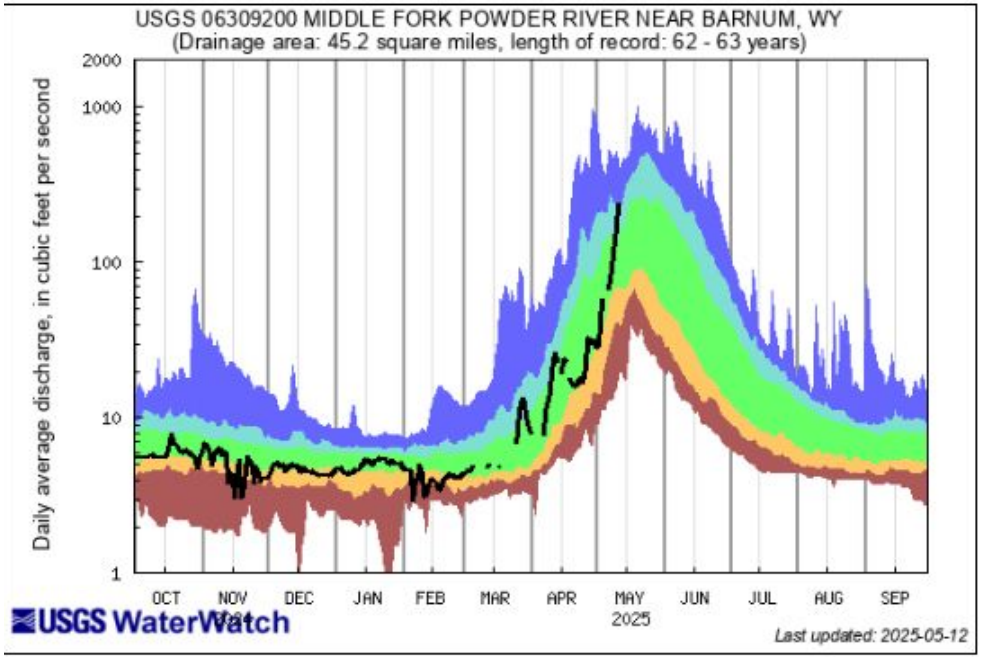
Select WY Streamflows

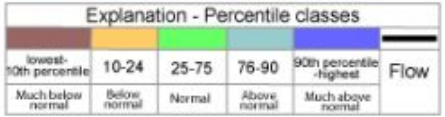


https://dashboard.waterdata.usgs.gov/

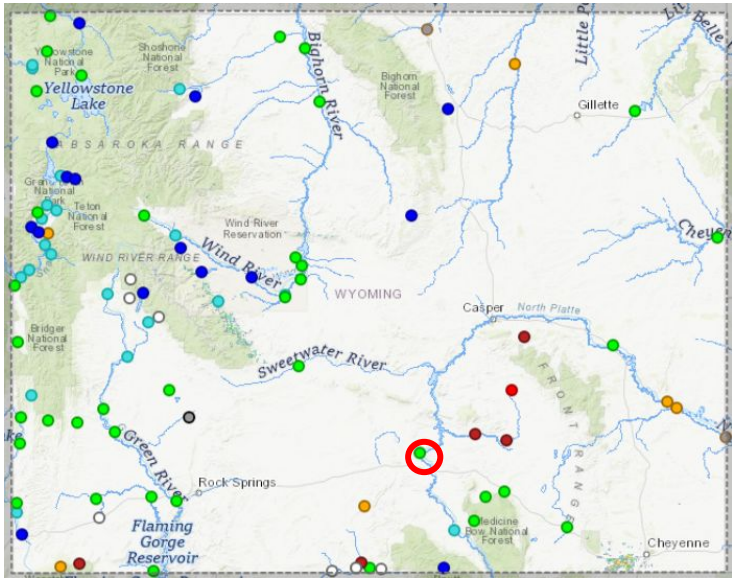
https://waterwatch.usgs.gov/

Middle Fork Powder River, near Barnum, WY





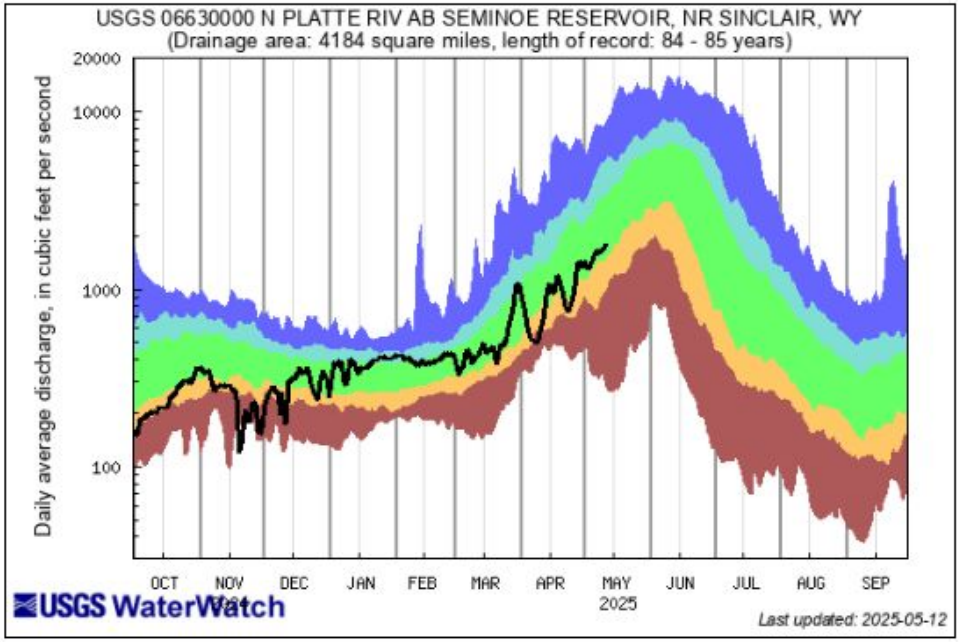
Select WY Streamflows

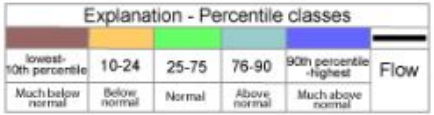


https://dashboard.waterdata.usgs.gov/

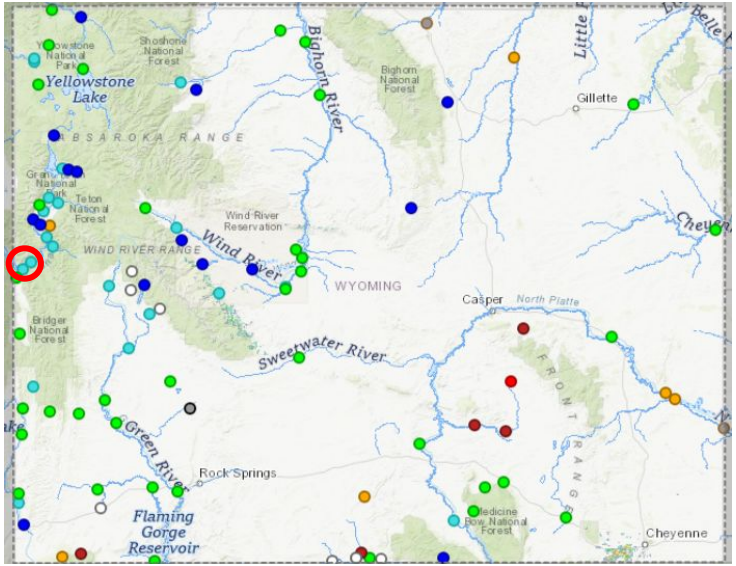
https://waterwatch.usgs.gov/

North Platte River above Seminoe Res, near Sinclair, WY





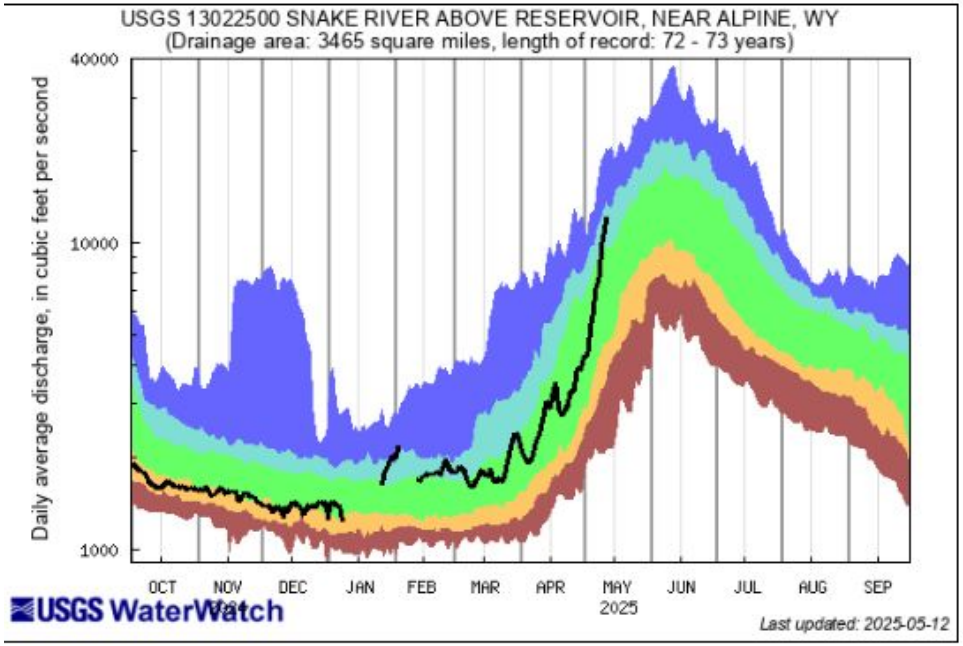
Select WY Streamflows



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

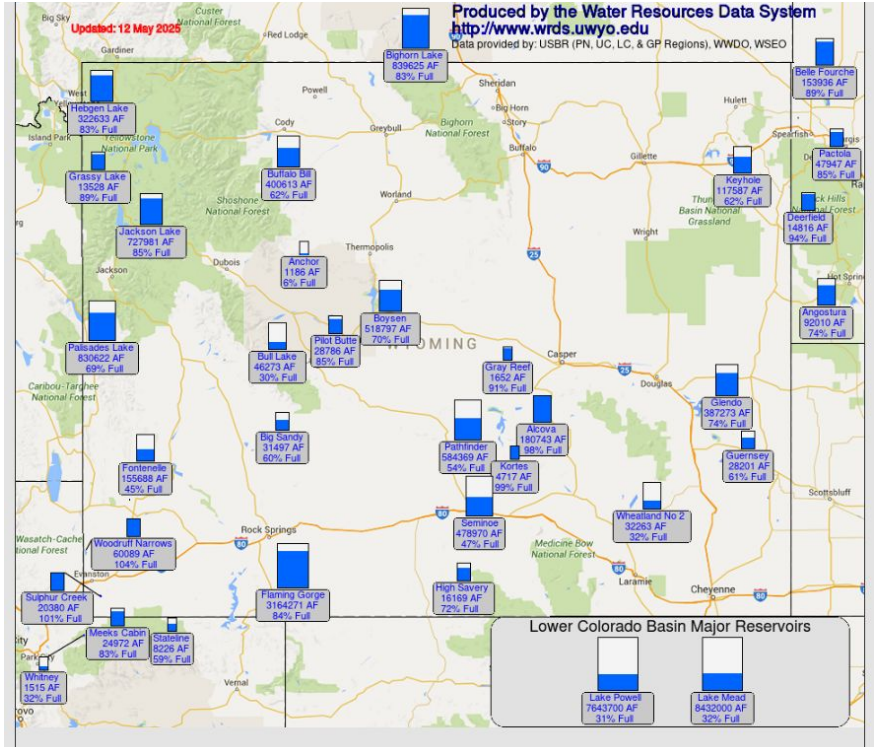
https://waterwatch.usgs.gov/

Snake River above Reservoir, near Alpine, WY





Wyoming Reservoirs

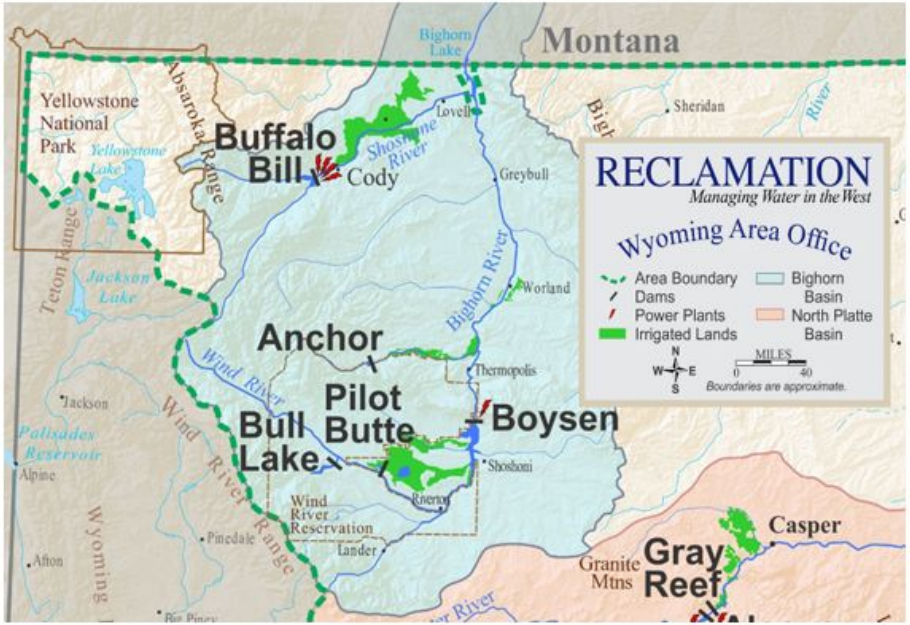


Reservoir Storage

- Mostly minor increases in storage.
- Most major reservoirs are ~ 50-80% full.
- Fontenelle is the exception (45%)

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

Current Reservoir Conditions: Bighorn System

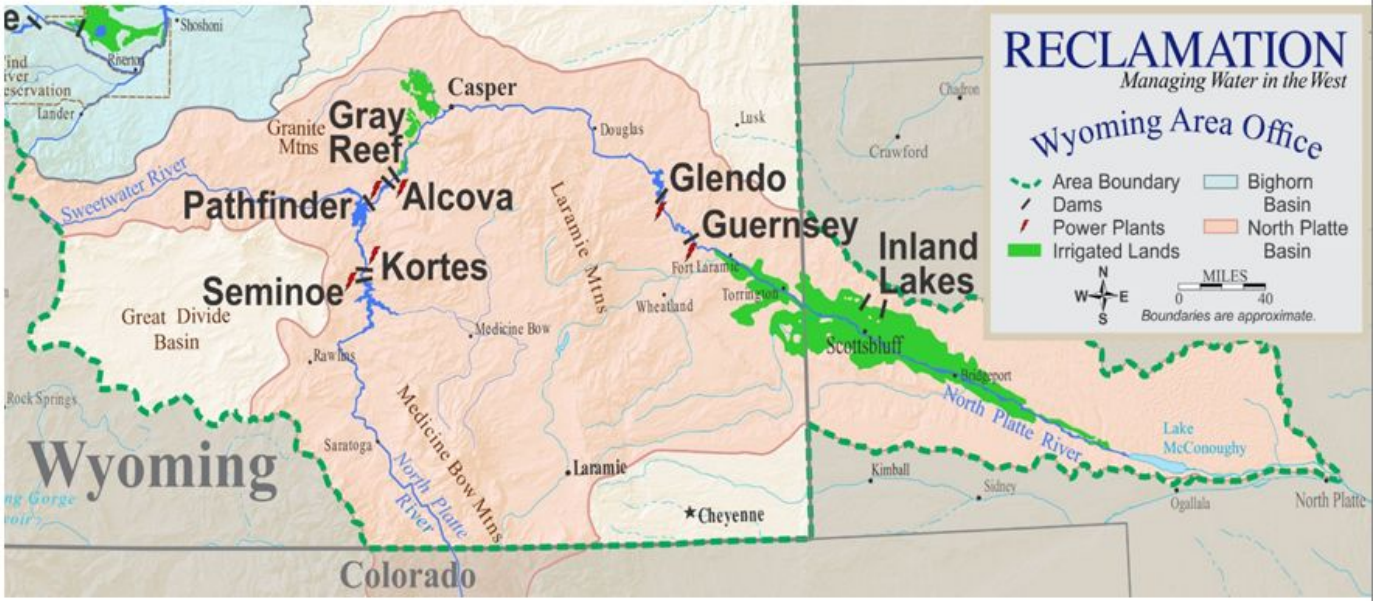


Bighorn System (May 13th**):**

Reservoir	Content	Capacity	% of Full	% of Avg	Releases
Bull Lake	49,200	152,500	32%	62%	40 cfs
Boysen	525,600	741,600	71%	102%	1100 cfs
Buffalo Bill	414,400	646,600	64%	105%	1250 cfs

— BUREAU OF —
RECLAMATION

Current Reservoir Conditions: North Platte System



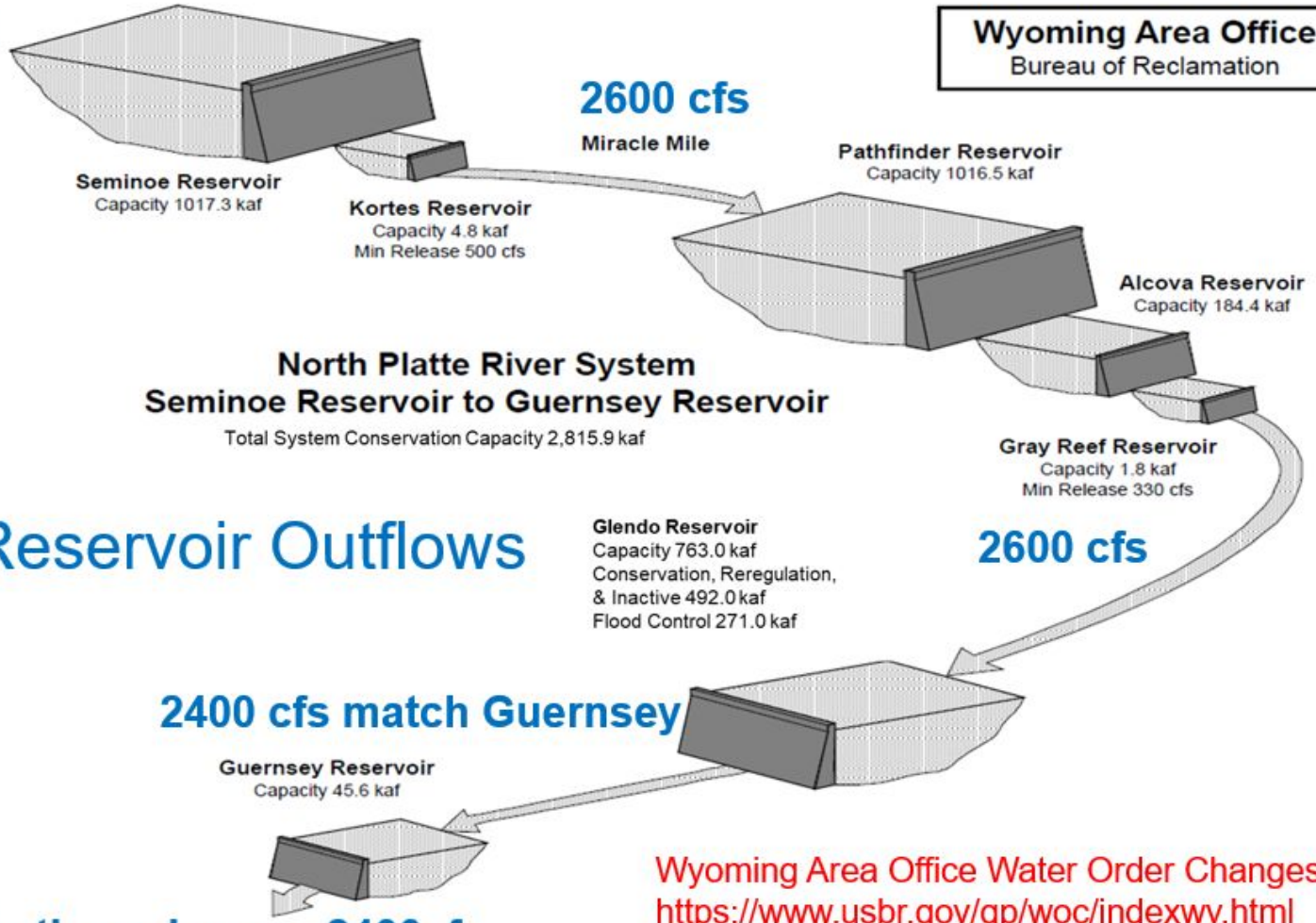
North Platte System (May 13th):

Reservoir	Content	Capacity	% of Full	% of Avg
Seminoe	477,200	1,017,300	47%	85%
Pathfinder	584,700	1,070,000	55%	87%
Glendo	386,400	492,000	79%	84%

— BUREAU OF —
RECLAMATION

Wyoming Area Office
Bureau of Reclamation

Current Reservoir Outflows



Wyoming Area Office Water Order Changes –
https://www.usbr.gov/gp/woc/indexwy.html

WY SEO Divisions and Superintendents

Contact information for calls and administration

Division 3

Joshua Fredrickson, 856-0747

Division 2

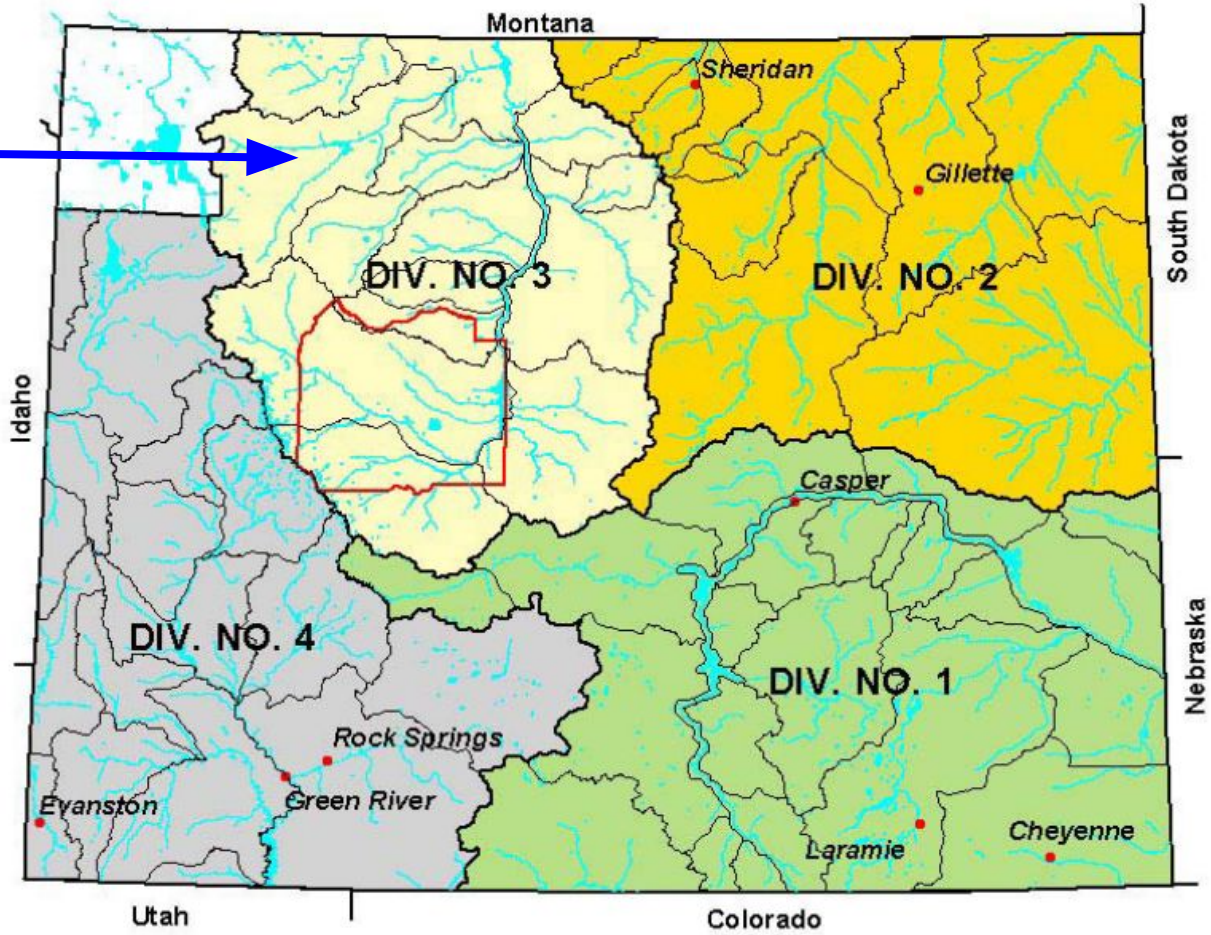
David Schroeder, 674-7012

Division 4

Kevin Payne, 279-3441

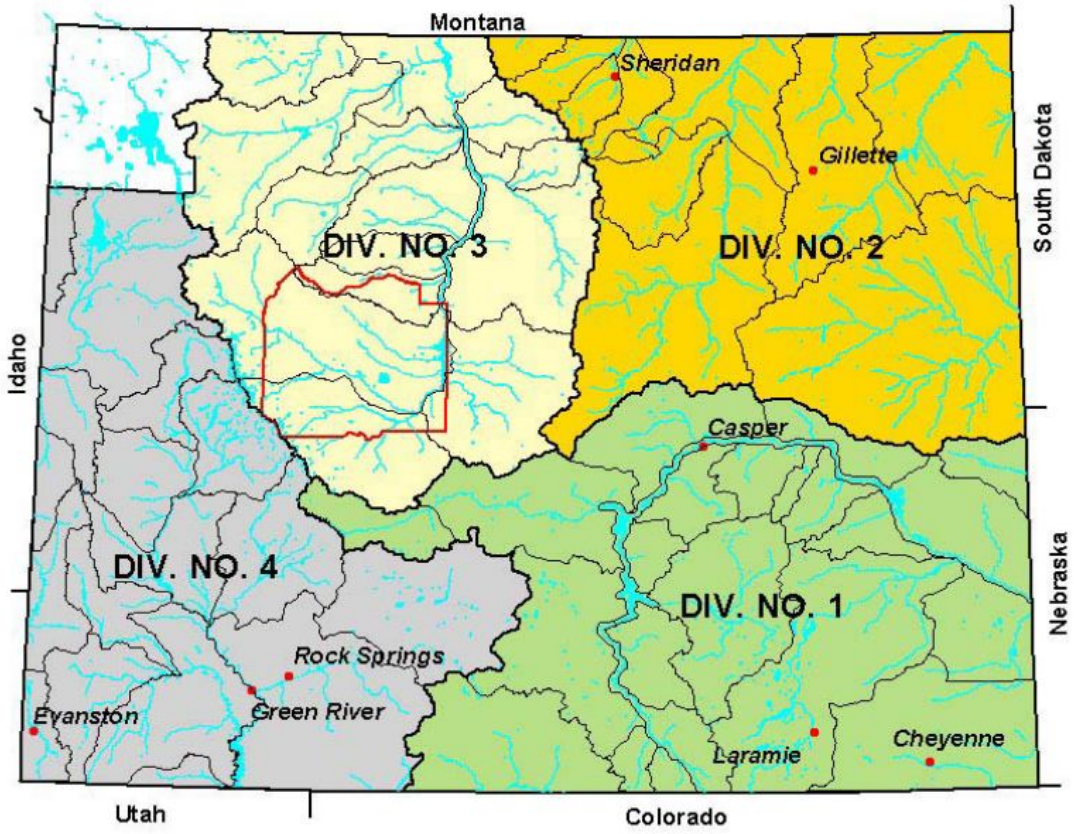
Division 1

Josh Deberard, 532-1272



WY SEO Divisions and Superintendents

Contact information for calls and administration



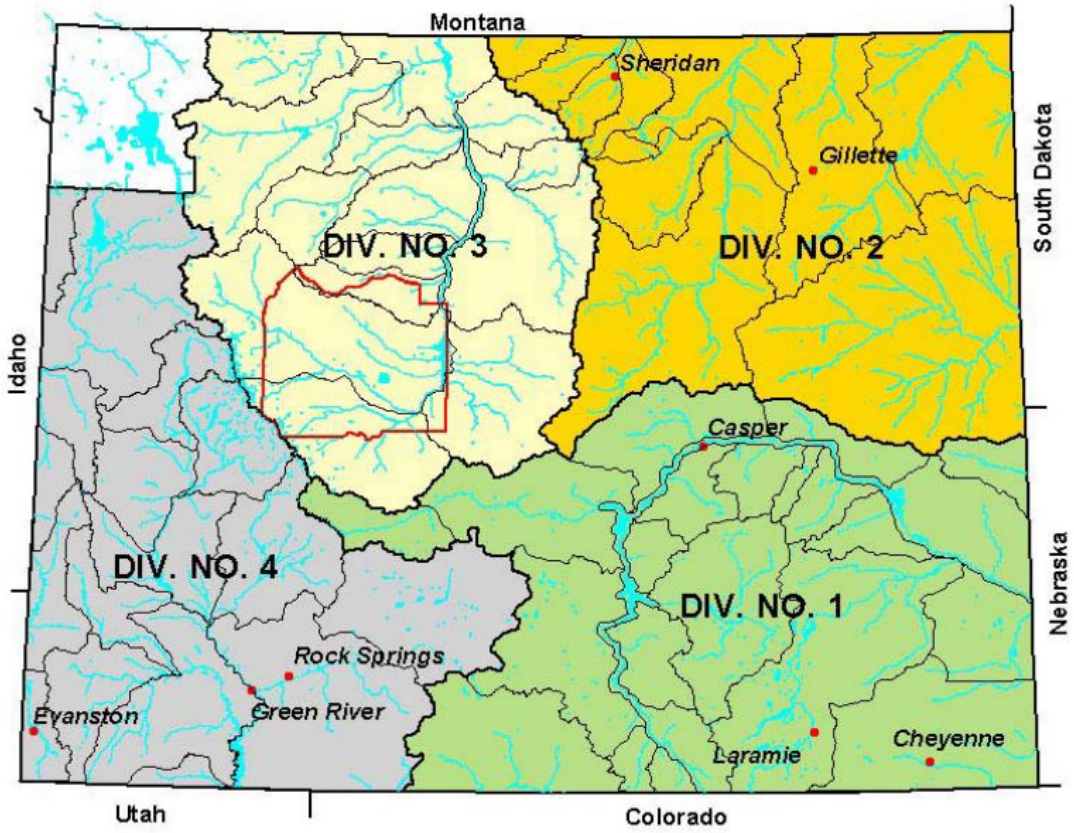
As of May 14:

Streams in **Division 1** under regulation are:

- Little Laramie River: regulated to 1875 and 1881; and 1897
- Laramie River: regulated to 1875 and 1881; and 1879
- **Bear Creek: regulated to 1891**
- **Horseshoe Creek: regulated to 1879 and 1890**
- **South Spring Creek/and Heather Creek: regulated to 1880 and 1885**
- **Pass Creek: regulated to 1884**

WY SEO Divisions and Superintendents

Contact information for calls and administration



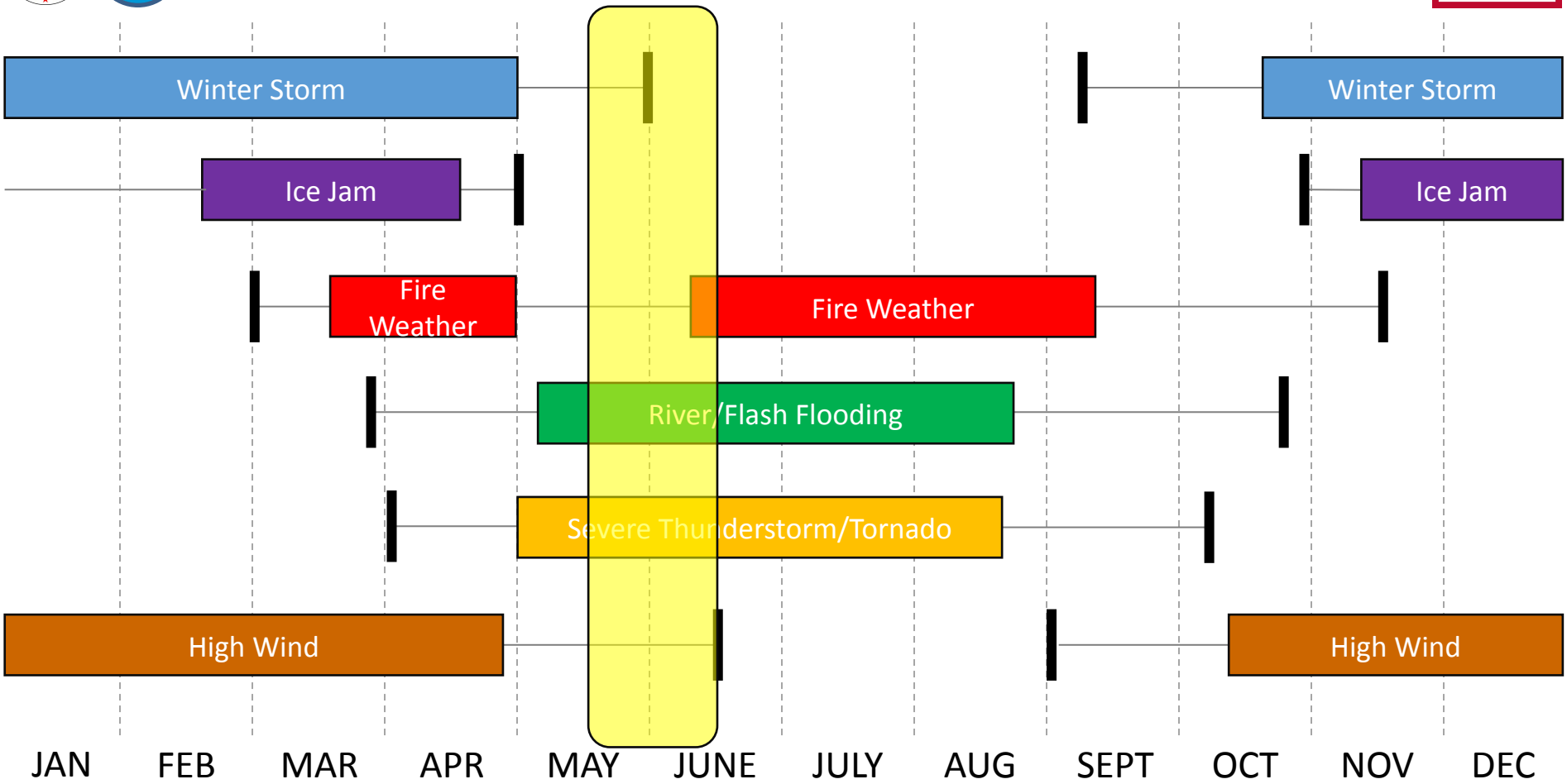
As of May 14:

Streams in **Division 3** under regulation are:

- Gooseberry Creek: regulated to 1907 **and 1906**
- **Greybull River: regulated to 1894**
- **Bennett - Little Rock Creek: regulated to 1900**

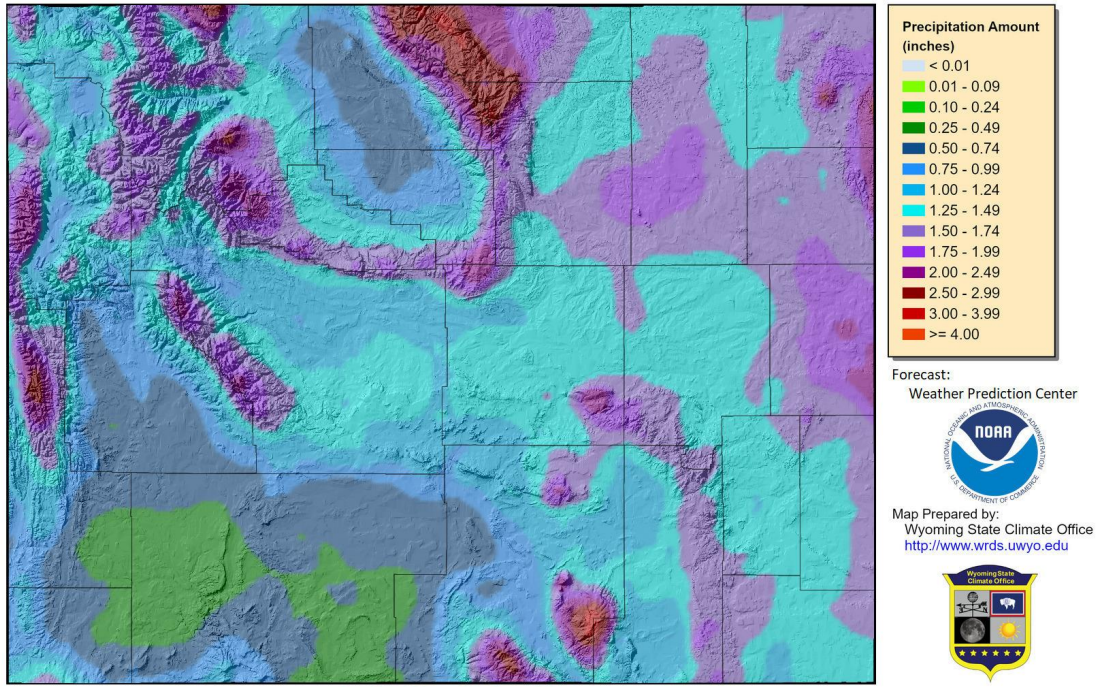
Weather Info & Forecasts

NWS Wyoming - Typical Hazard Calendar



7-Day Total Precipitation Forecast

(May 14 - May 20)



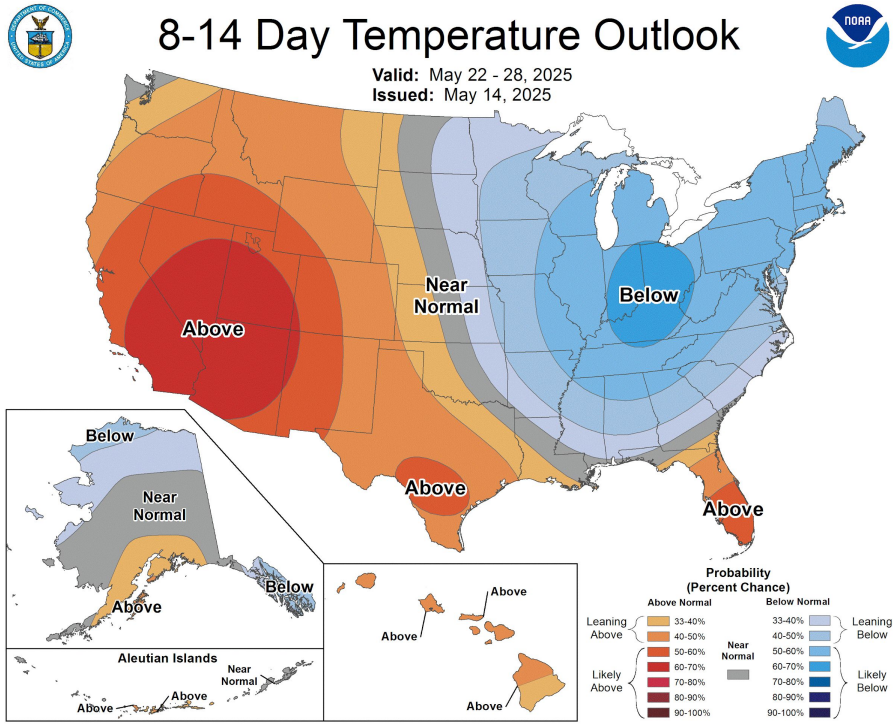
The Quantitative Precipitation Forecast shows the liquid amount of forecasted precipitation over the next 7 days
The Forecast is created by the National Weather Service Weather Prediction Center
Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, National Centers for Environmental Prediction, and Weather Prediction Center - https://www.wpc.ncep.noaa.gov
Map Layout Created 14 May 2025 https://www.wrds.uwyo.edu

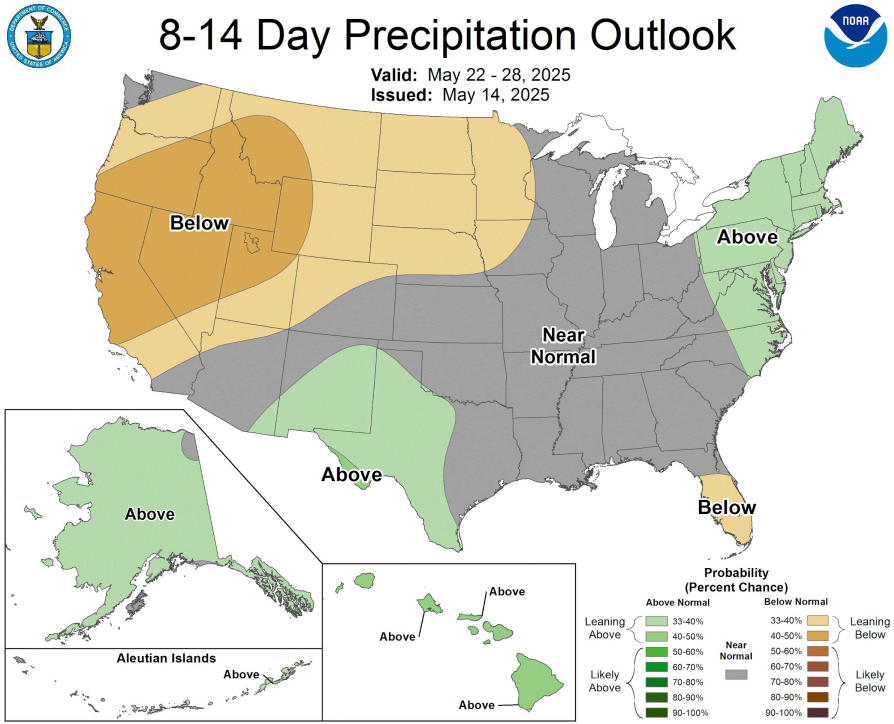
- A portion of this precipitation fell yesterday (Wednesday)
- Active & wet pattern continues all week with scattered showers and Tstorms most days
- Sunday and Monday will bring another weather system with widespread rain and mountain snow
  - 0.5” to 1.0” for many low elevations

https://bit.ly/7_dayQPForecast

8-14 Day Outlooks
(May 22 - 28)

https://bit.ly/CPC8_14Day





- Likely above normal temperatures
- Interactive Version: cpc.ncep.noaa.gov/products/predictions/814day/interactive/index.php

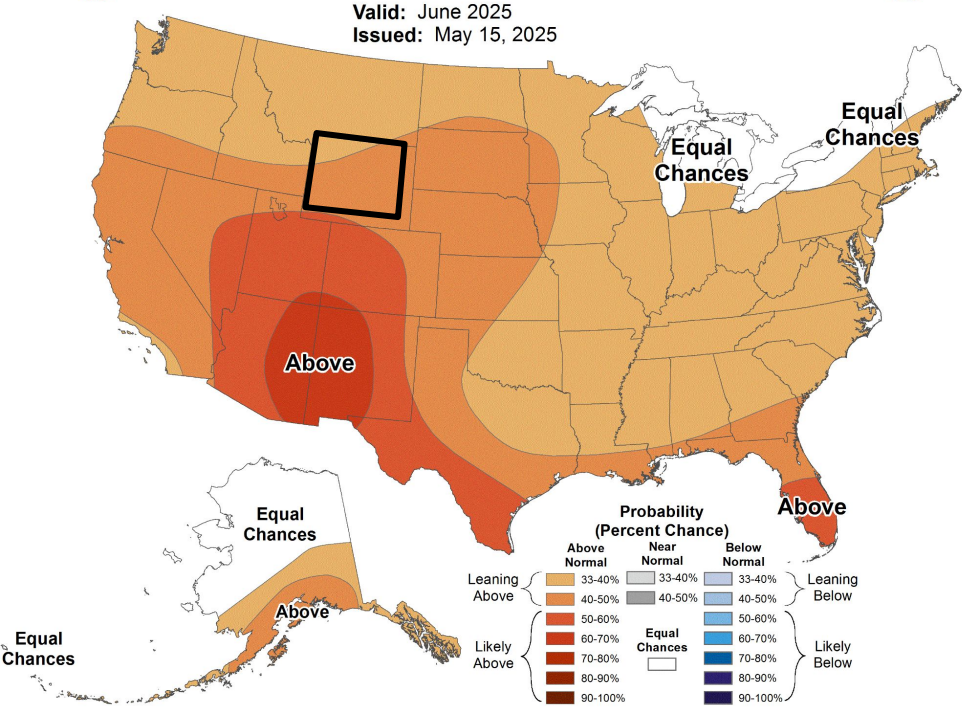
- Slight lean towards drier than average conditions

1-Month Outlooks

cpc.ncep.noaa.gov/products/predictions/30day/

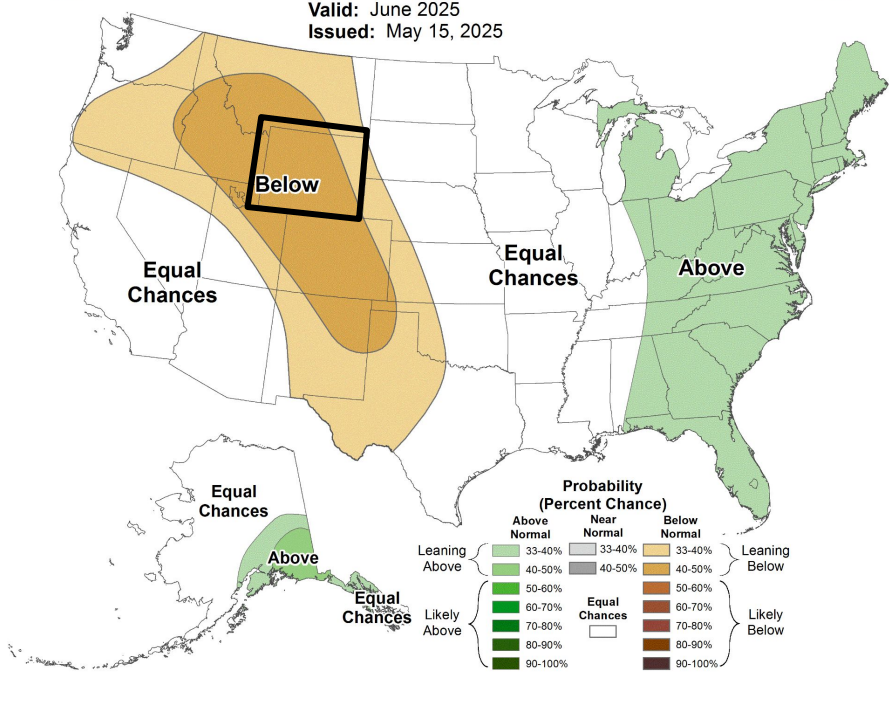
(Jun)

Monthly Temperature Outlook



- Lean toward above normal statewide

Monthly Precipitation Outlook

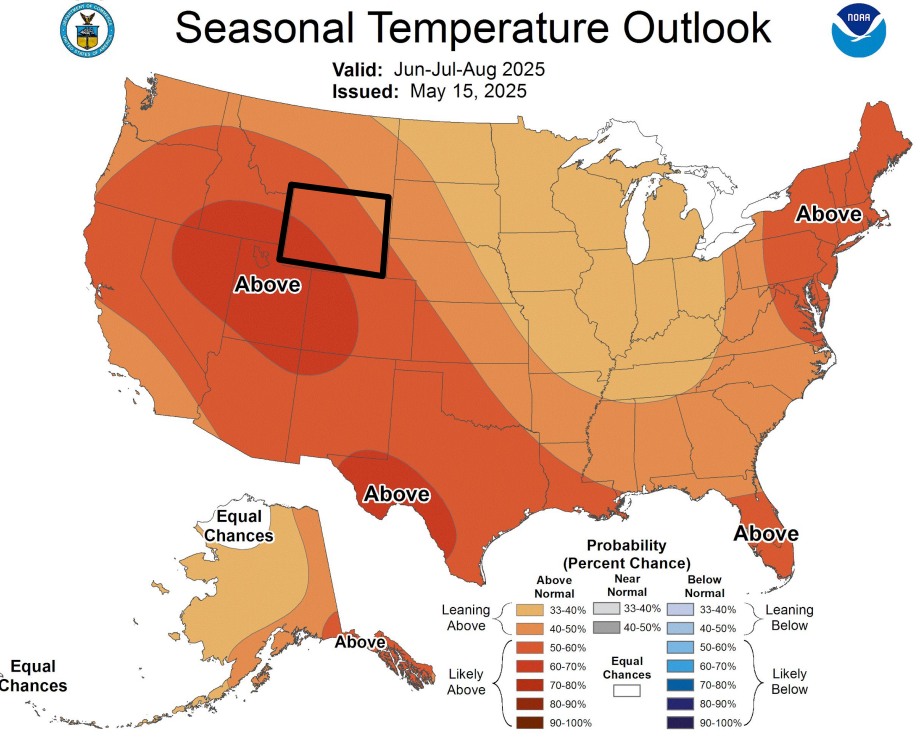


- Slight lean toward drier for most of state

Summer Outlook

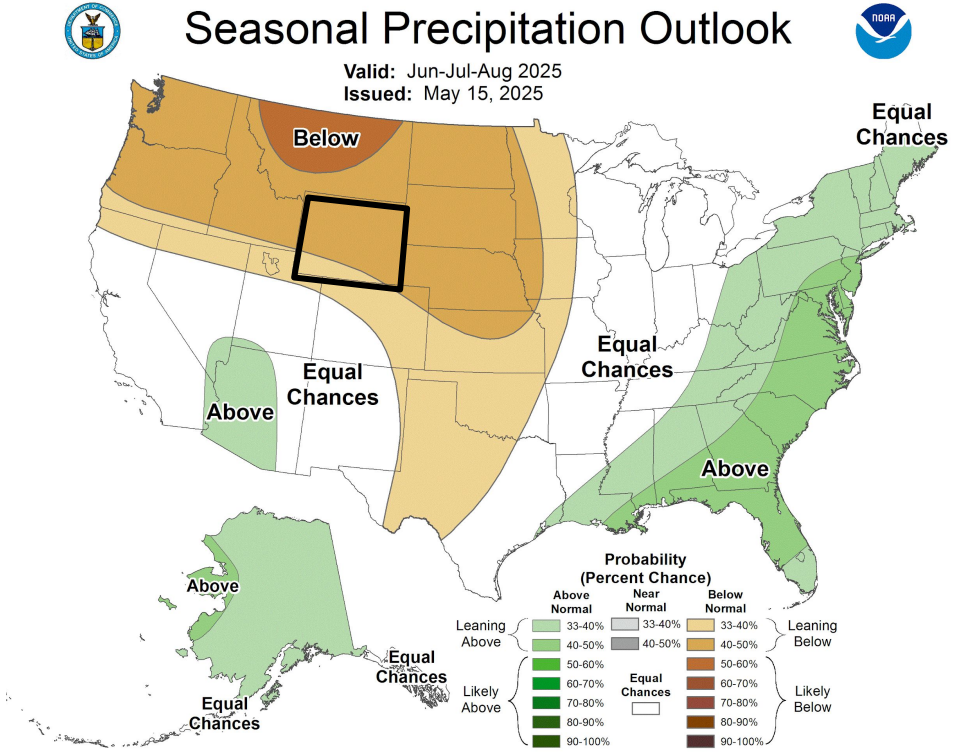
https://bit.ly/CPC_Seasonal

(Jun-Jul-Aug)



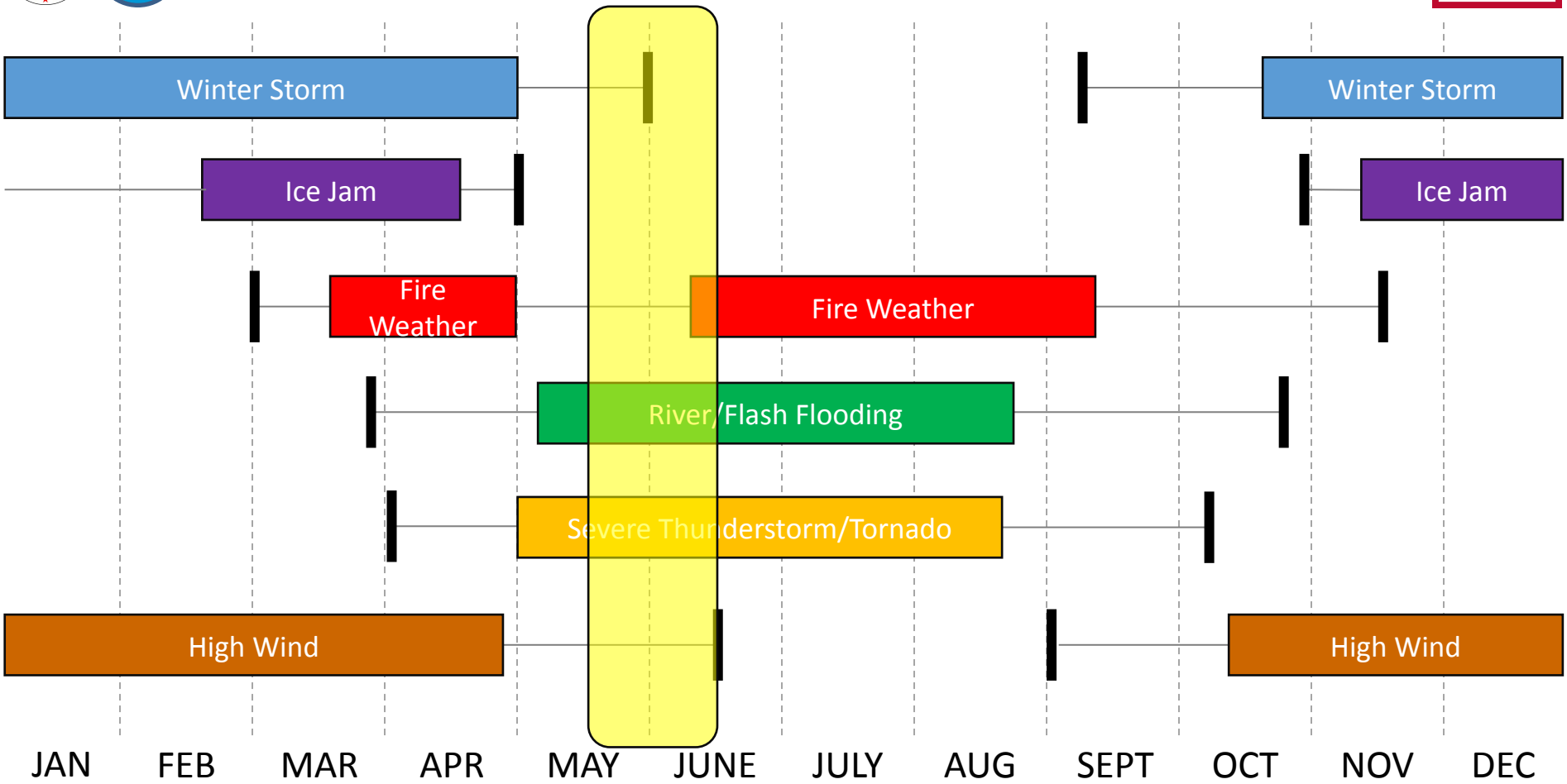
- Likely above normal temps, with highest confidence in the southwest

(Jun-Jul-Aug)



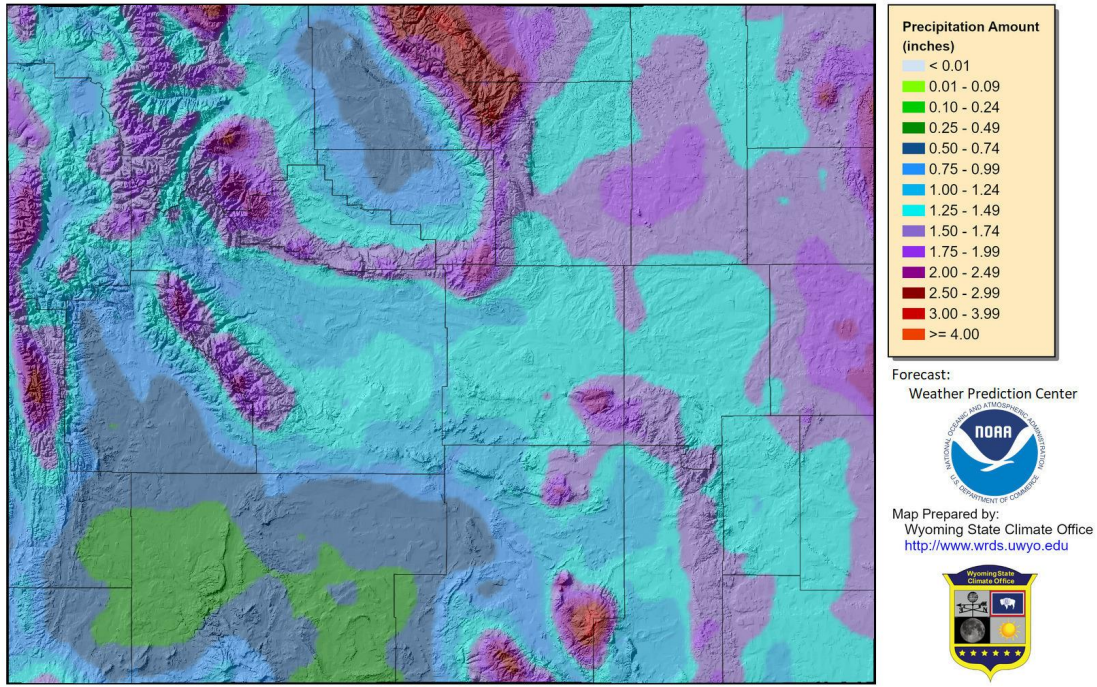
- Lean toward drier than average, especially in the north

NWS Wyoming - Typical Hazard Calendar



7-Day Total Precipitation Forecast

(May 14 - May 20)



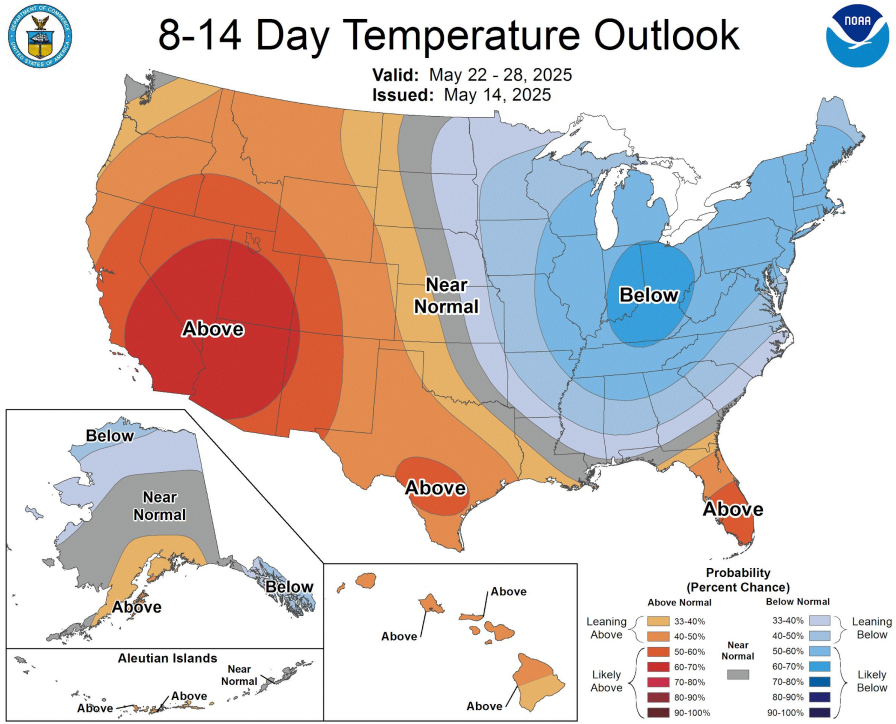
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The Forecast is created by the National Weather Service Weather Prediction Center
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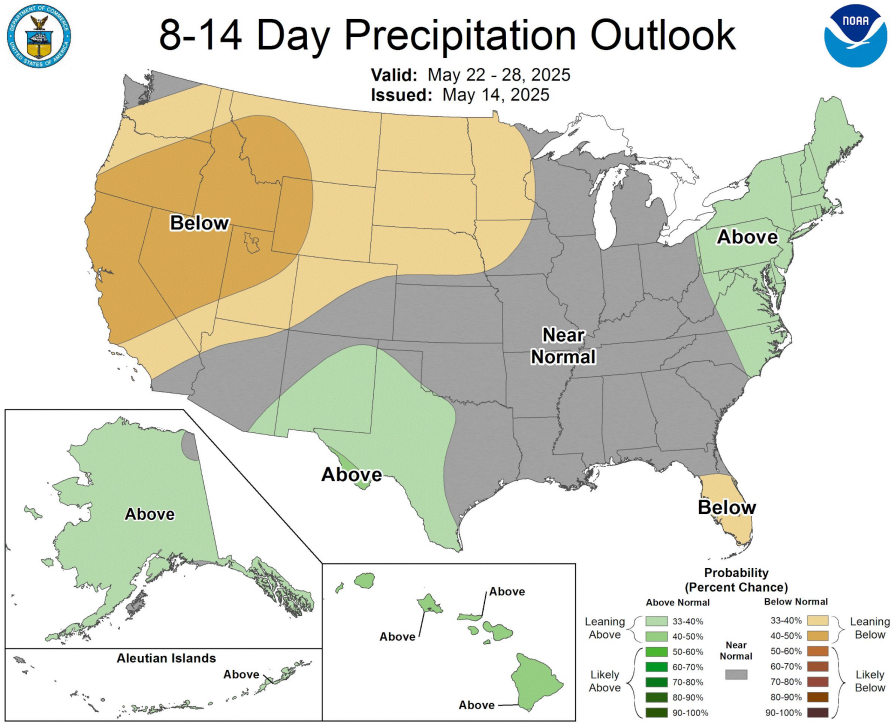
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(May 22 - 28)

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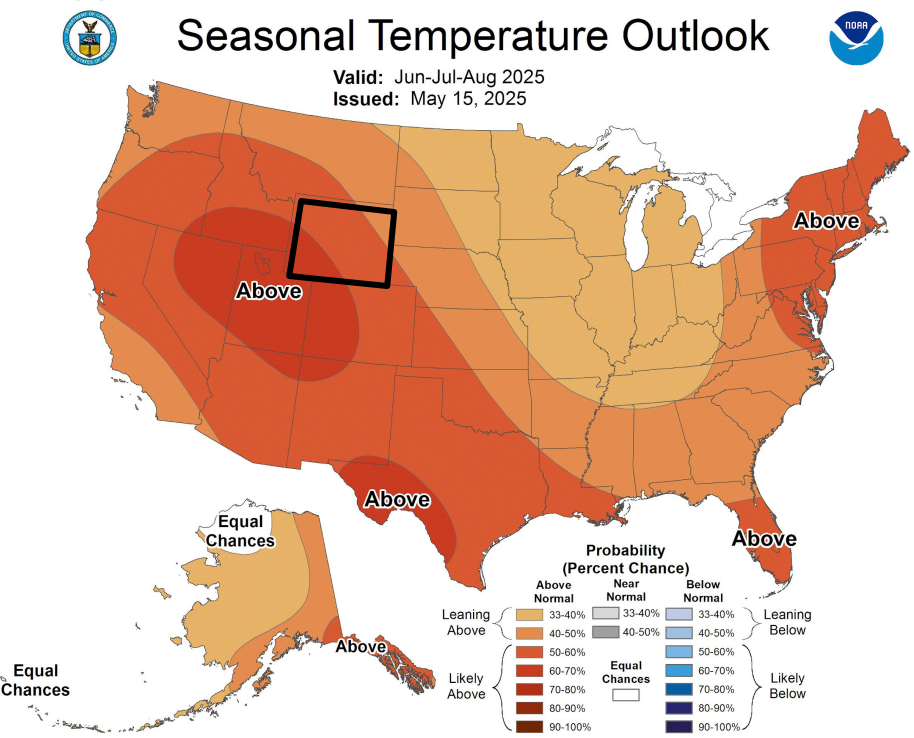
- Likely above normal temperatures
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- Slight lean towards drier than average conditions

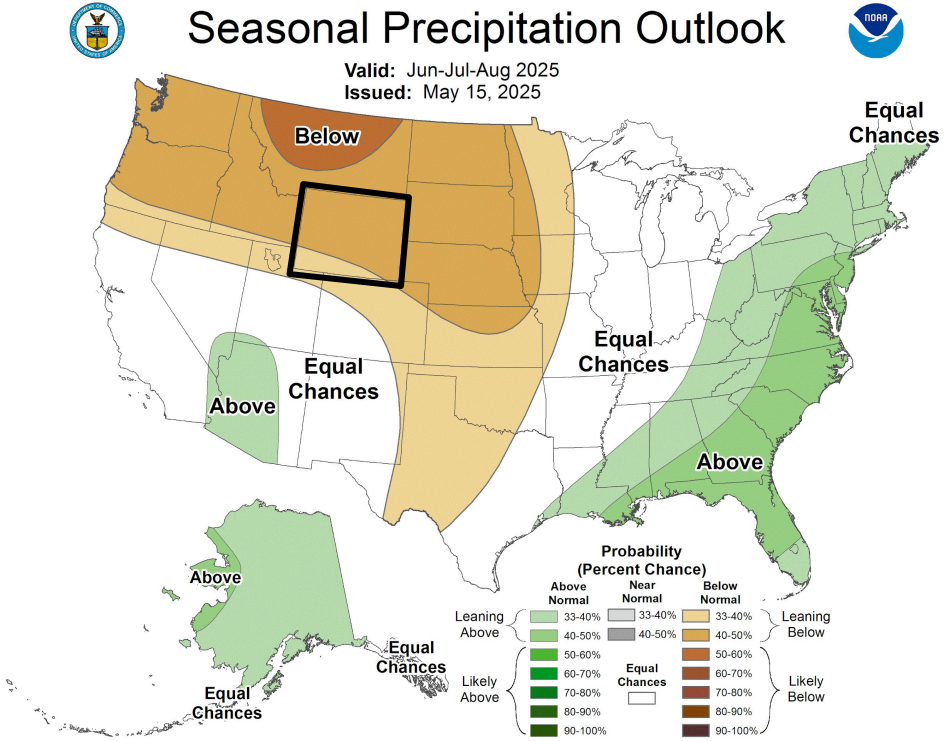
1-Month Outlooks

(Jun)

cpc.ncep.noaa.gov/products/predictions/30day/



- Lean toward above normal statewide

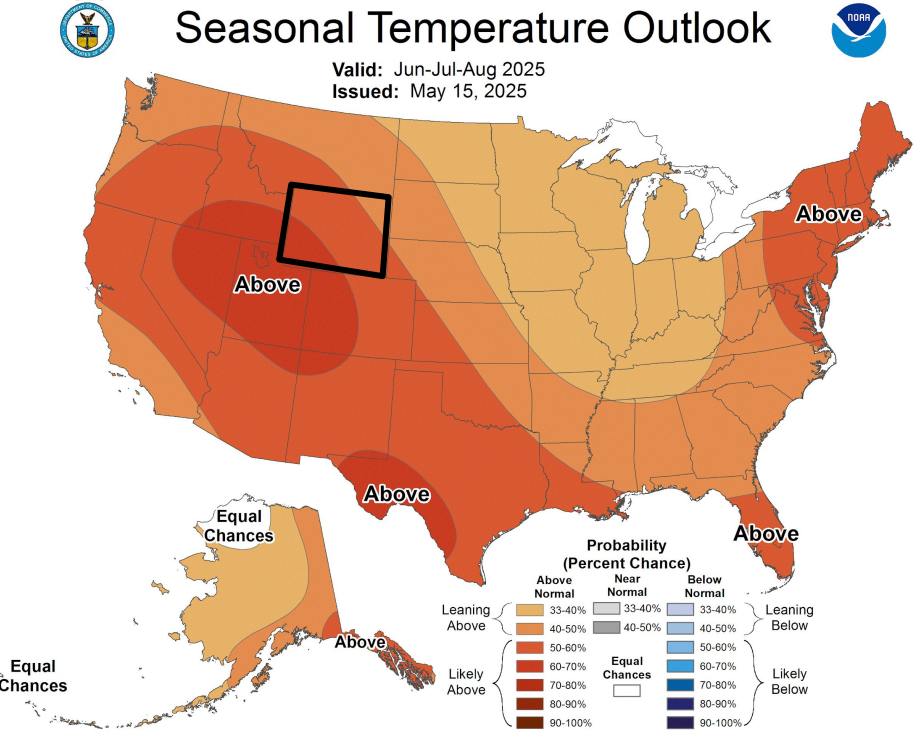


- Slight lean toward drier for most of state

Summer Outlook

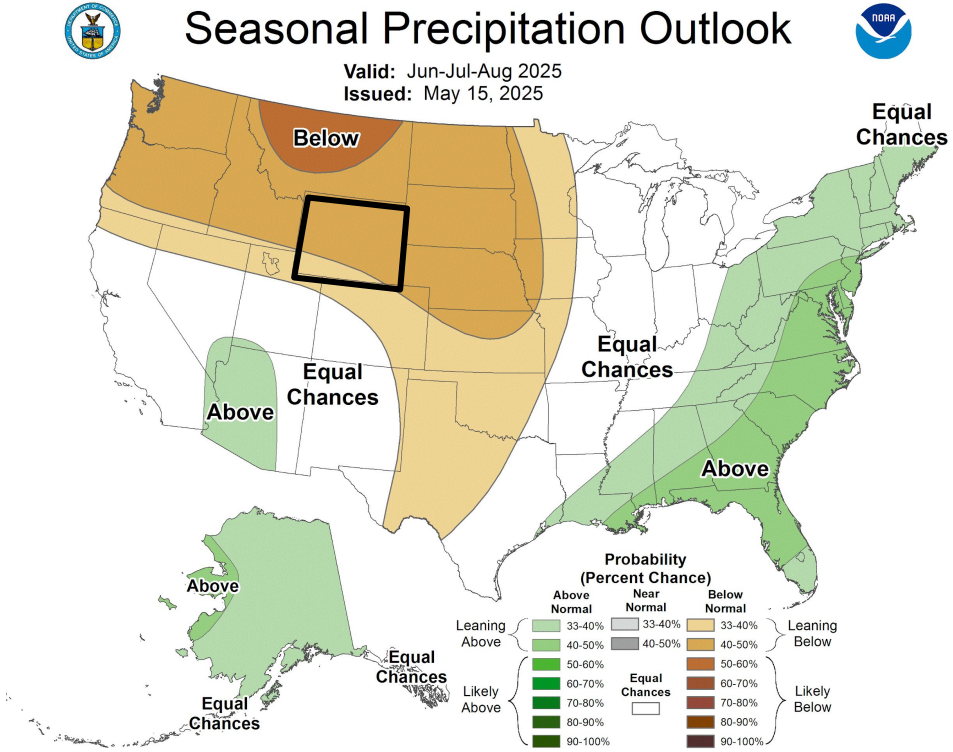
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(Jun-Jul-Aug)



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(Jun-Jul-Aug)

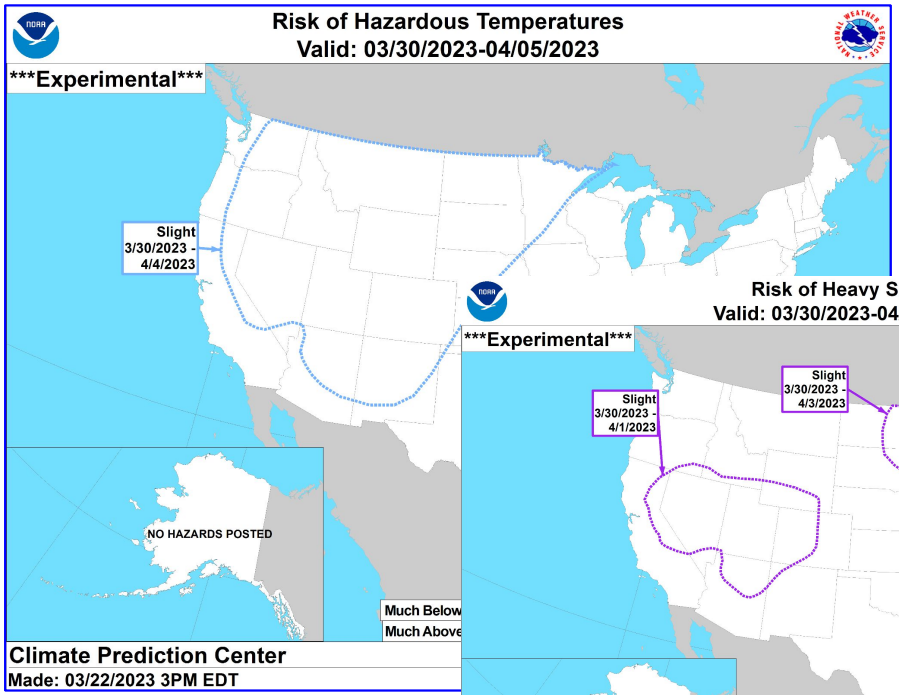


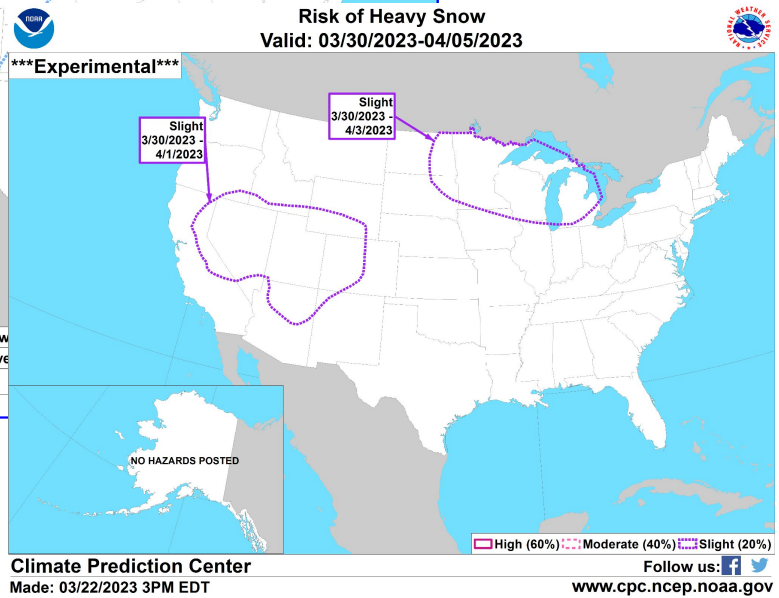
- Lean toward drier than average, especially in the north

NWS Climate Prediction Center

8-14 Long Range Hazard Outlook

CPC Link: https://bit.ly/3zFP82z



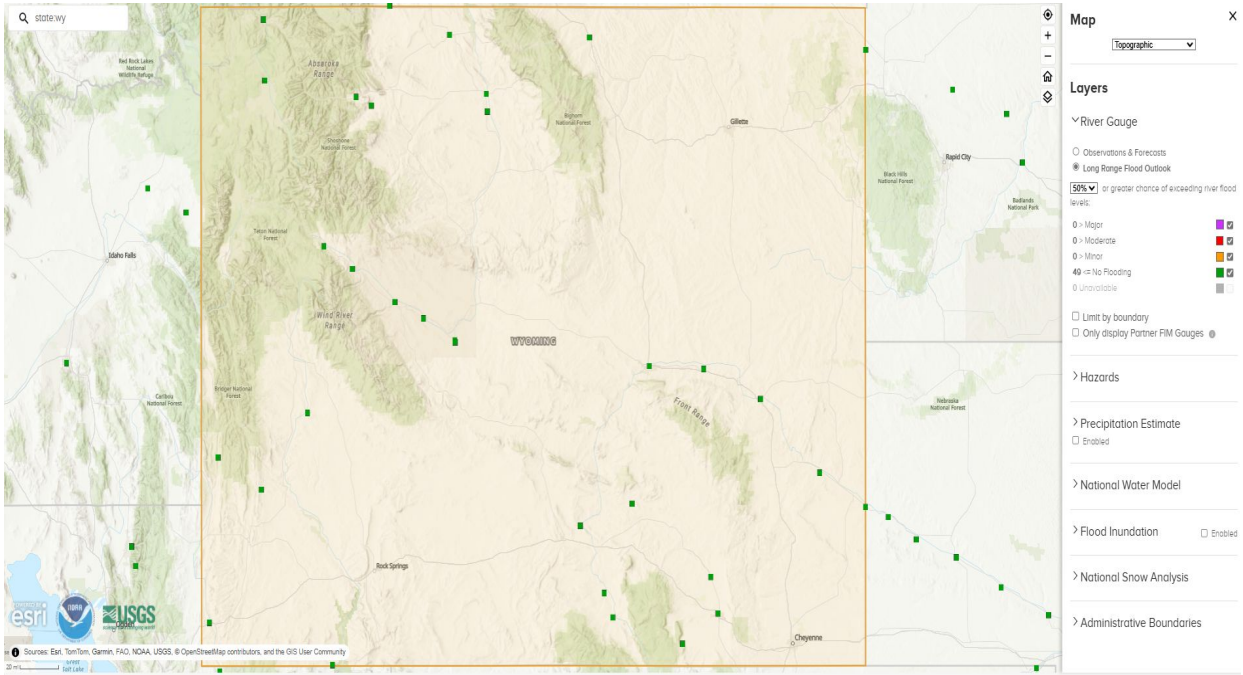


Risk & Confidence of cold temperatures is Slight across Wyoming through the beginning of April.

Risk of Heavy Snow amounts is Slight across southern Wyoming

Wyoming Flood Potential Update

Valid May-June-July



No riverine flooding is expected through late June

This graphic depicts the NWS river forecast locations, colored by the highest flood category expected during the next 90-days.

No station in Wyoming has a greater than 50% chance of flooding in the next 90 days.

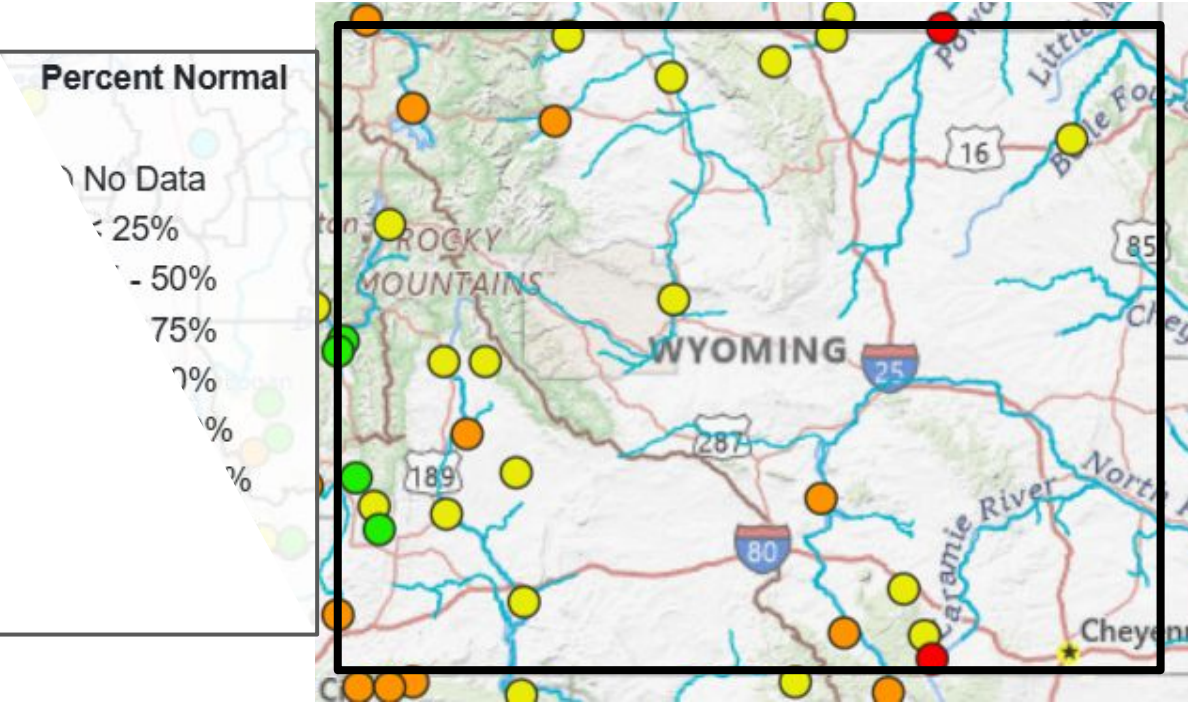
No stations show a chance of flooding > 5%

https://www.weather.gov/owp/2024NHA#:~:text=The%20National%20Hydrologic%20Assessment%20is,flood%20potential%2C%20and%20water%20supply.

water.weather.gov

Wyoming Water Supply Outlook

Valid April-September



https://www.cbrfc.noaa.gov/wsup/graph/west/map/esp_map.html

April thru September runoff volumes appears to be near-to-below normal.

This graphic depicts the NWS water supply outlook locations, colored by the percent of April-thru-September volumetric normal. Many Wyoming stations are projected to see near normal (greens) to lower-than-normal volumes this season (yellows and oranges).

Forecast valid 1 May 2025.

**Please note that the Colorado River basin colors reflect April-thru-July percent-of-normals.*

Highlight of the Month:

VegDRI

Vegetation Drought Response Index (VegDRI)

Tsegaye Tadesse, PhD

Research Professor of Applied Climate and Remote Sensing

Geospatial Coordinator

NATIONAL DROUGHT MITIGATION CENTER

UNIVERSITY OF NEBRASKA

WY Conditions & Outlooks:

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

15th May 2025

Acknowledgement

This work is supported by the VegDRI Team, funded by the USGS and RMA-USDA

Research Team:

Tsegaye Tadesse, Geospatial Coordinator, NDMC, UNL

Brian Wardlow, Director, CALMIT, UNL

Jesslyn Brown - U.S. Geological Survey (USGS)

Mark Svoboda, Director, NDMC, UNL

Michael Hayes, NDMC, UNL

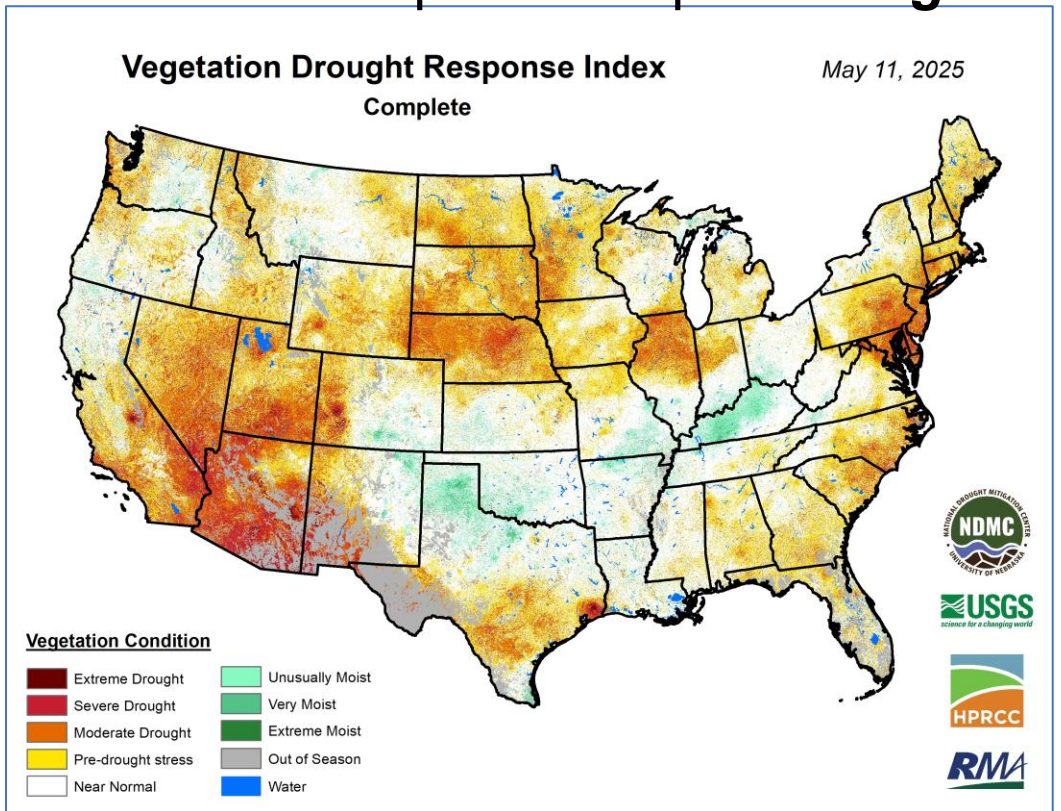
NDMC, HPRCC, and CALMIT staff

What is VegDRI?

VegDRI is a 'hybrid' drought index that integrates:

- satellite-based observations of vegetation conditions
- climate-based drought index data
- biophysical characteristics of the environment

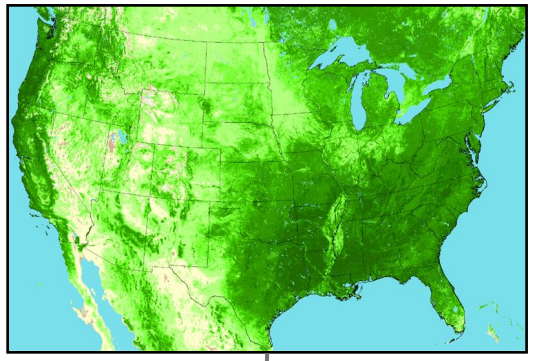
to produce 1-km spatial resolution maps that depict ***drought-related vegetation stress.***



VegDRI website:
https://vegdri.unl.edu/

VegDRI – A Hybrid-Based Approach

Remote Sensing Component



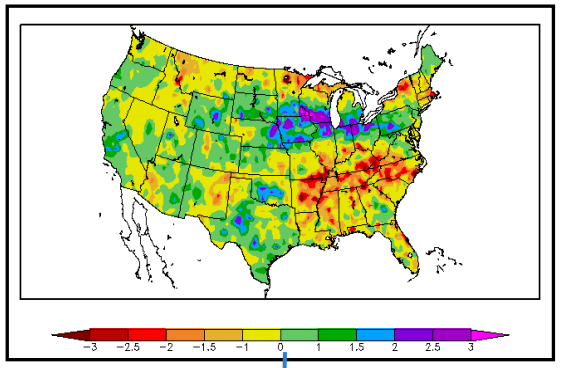
Role: Spatially detailed information about vegetation patterns and conditions acquired from Satellite-derived (AVHRR/MODIS/VIIRS) NDVI data.

Inputs:

1) Percent Annual Seasonal Greenness (PASG)
2) Start of Season Anomaly (SOSA)

+

Climate Component



Role: Coarser-scale geographic patterns of dryness.

Inputs:

1) Standardized Precipitation Index (SPI)
2) self-calibrated Palmer Drought Severity Index (PDSI)

+

Biophysical Component

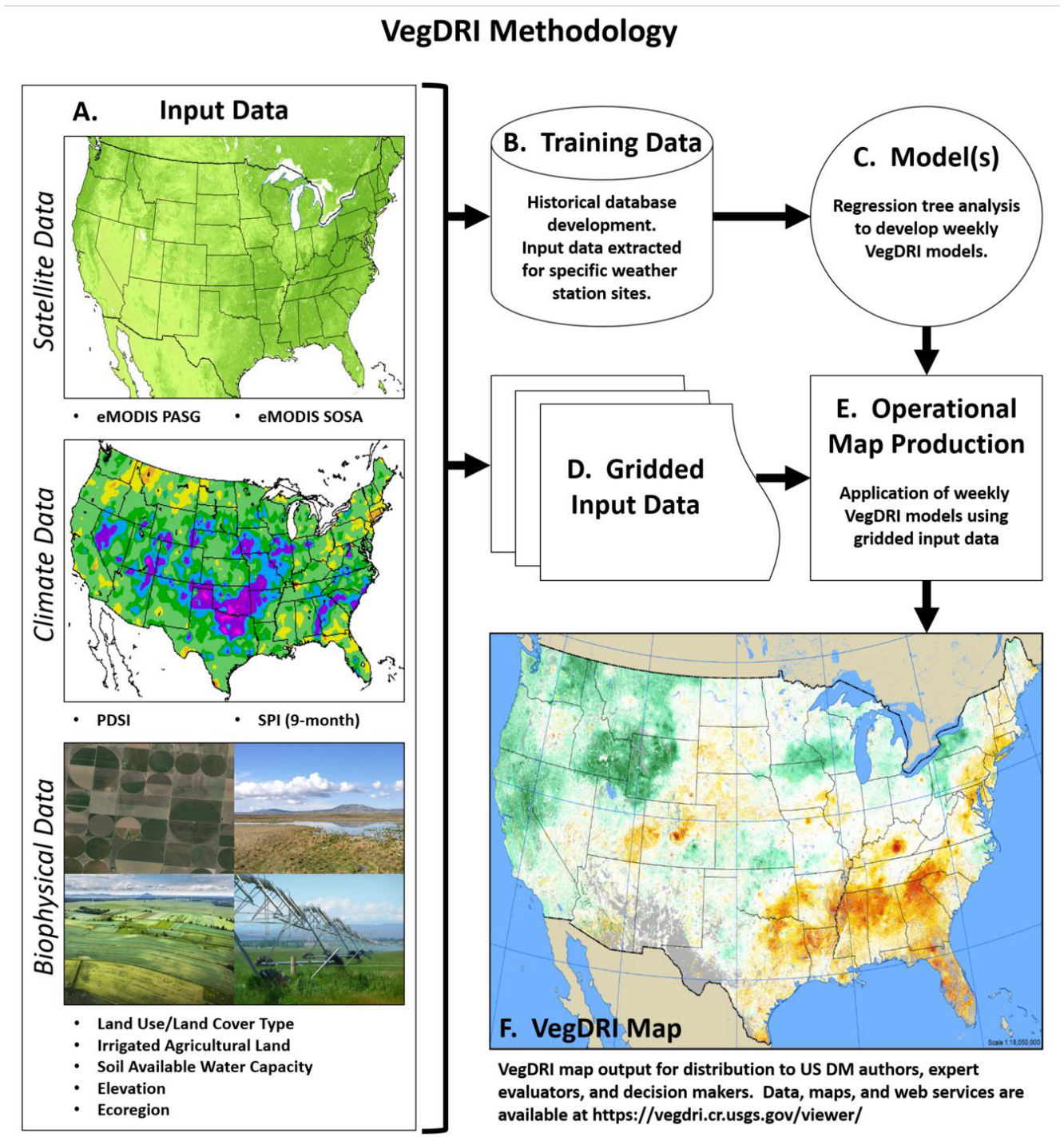


Role: Environmental characteristics that influence climate-vegetation interactions.

Inputs:

1) land use/cover type
2) soil characteristics
3) elevation
4) ecological setting
5) irrigated ag. land

VegDRI Methodology



Evaluation of VegDRI

We used quantitative and qualitative methods to evaluate the VegDRI before it became operational in 2009:

- Conducting ***quantitative*** statistical analyses of crop yields during drought years.
- Gathering ***qualitative*** feedback from users and experts through multiple workshops.

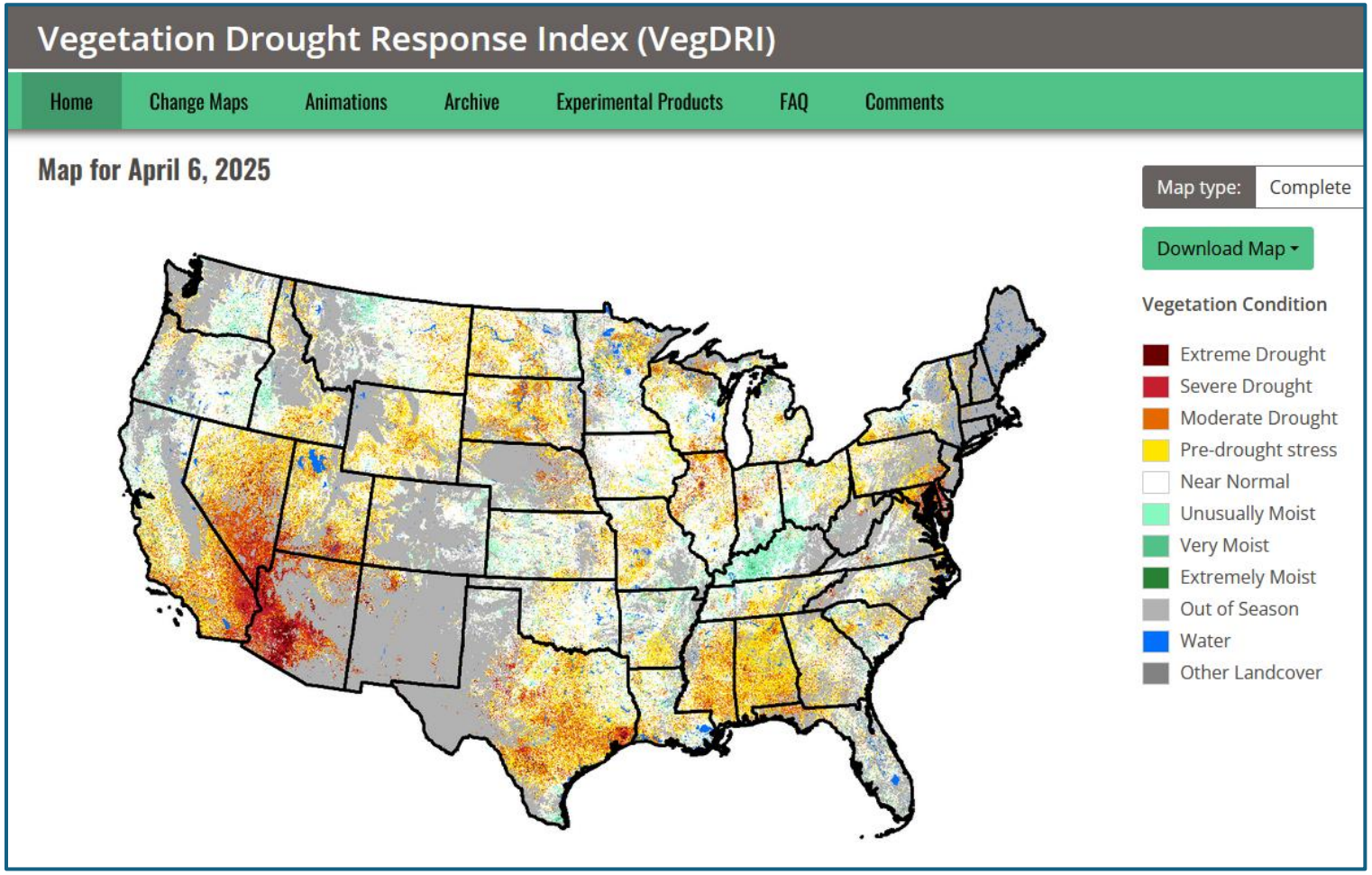






VegDRI website: https://vegdri.unl.edu/

VegDRI Website – *Interfacing with Decision Makers*



VegDRI website: https://vegdri.unl.edu

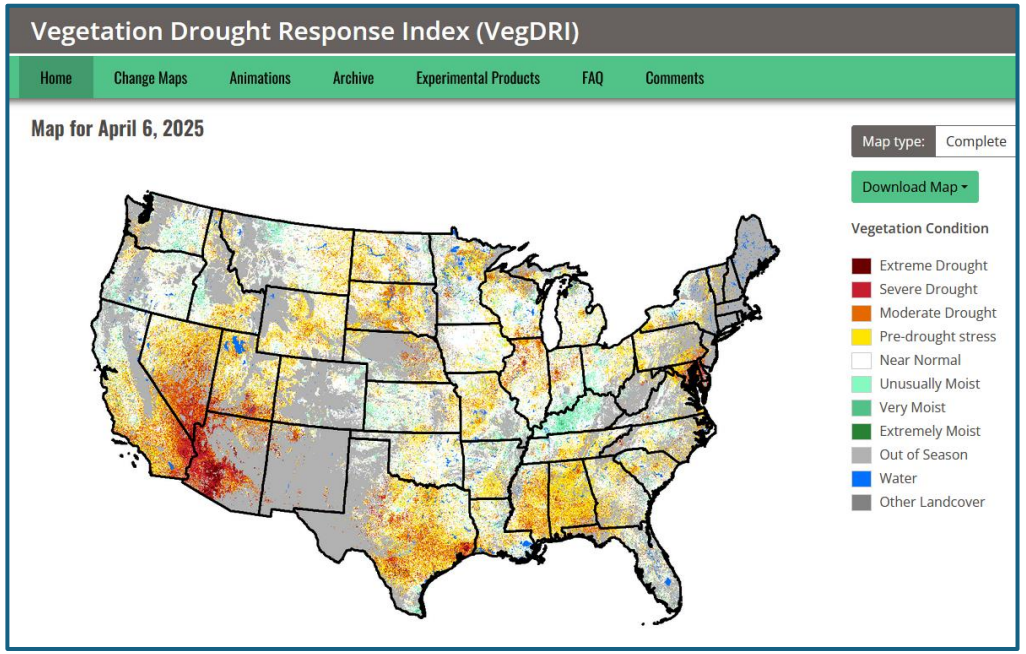
Goals:

1) distribute a suite of value-added VegDRI products,
2) communicate VegDRI-related activities and updates to the general public, and
3) actively engage decision makers to assess utility of the VegDRI information and identify potential applications.

- **Partnership w/ USGS + HPRCC+NASA+USDA**
- **~36+ year archive back to 1989**
- **Augment *in situ* observations**
- **Hybrid indicator combines satellite, biophysical, and climate indicators together to detect *vegetation stress***
- **Weekly (MODIS/VIIRS) & bi-weekly (AVHRR) production over the contiguous U.S.**
- **Value-added products:**
  - **National, state, and sub-state maps**
  - **Change maps**
  - **Area statistics**
  - **Animations**

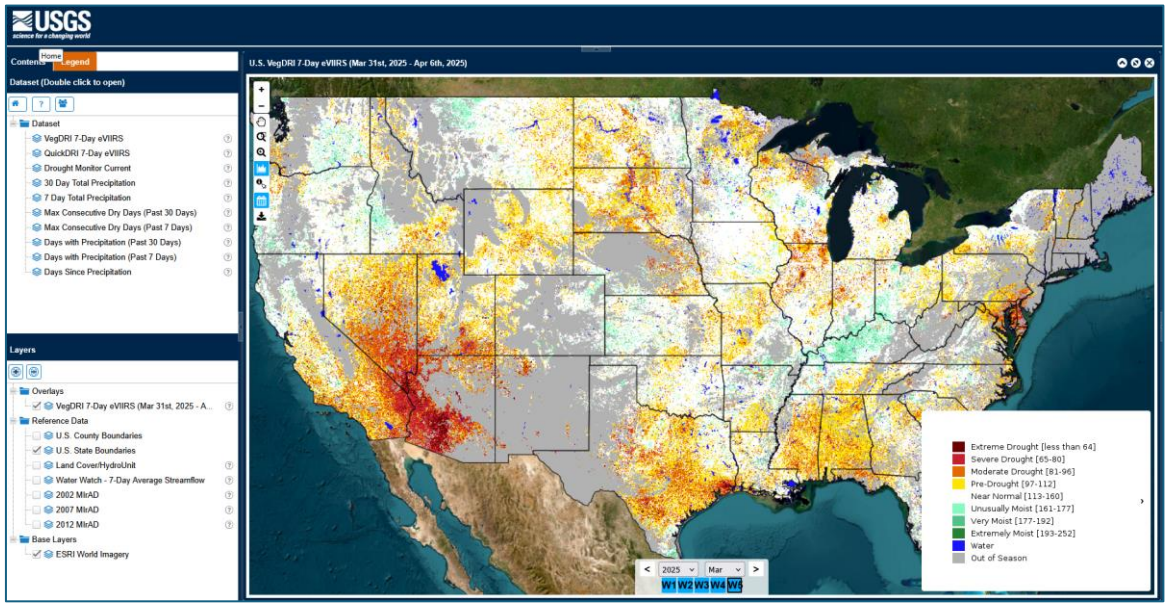
Distribution of VegDRI Information

NDMC VegDRI Webpage



https://vegdri.unl.edu

USGS EROS Drought Viewer



https://vegdri.cr.usgs.gov/viewer/

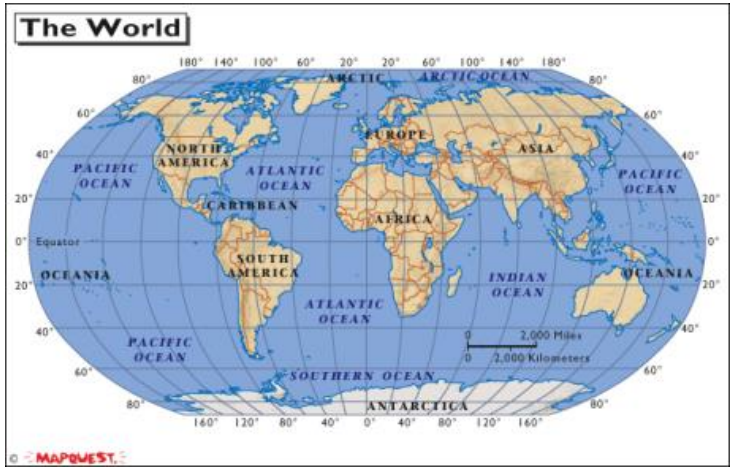


NIDIS Drought Portal Map Viewer

https://www.drought.gov/data-maps-tools/vegetation-drought-response-index-vegdri

International Interest in VegDRI Concept

- **Canada** – seamless U.S.-Canada coverage for the North American Drought Monitor
- Mexico
- Czech Republic
- Indian Agricultural Research Institute
- China
- Ethiopia and the Greater Horn of Africa
- South Korea
- Slovakia



VegDRI - Summary

- Integrating satellite-based vegetation index (VI) metrics, climate data, and other biophysical information enhances our understanding of drought-related vegetation stress with high-resolution insights at local to national levels.
- A 1-km^2 VegDRI map is produced weekly year-round for the CONUS, providing more detailed information than traditional drought maps like the USDM.
- This near-real-time VegDRI map is available on the NDMC, USGS websites, and NIDIS portal, providing timely data to agricultural producers and decision-makers for effective drought planning and mitigation.

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The Wyoming Conditions Monitoring Team (WCMT) organized and hosted this webinar. The WCMT is a collaborative effort of state, federal, tribal, and university partners that monitor conditions & impacts throughout the state on a weekly basis – and communicate this information to the U.S. Drought Monitor among others.

Learn more at:
https://drought.wyo.gov

Thank you!

The University of Wyoming is an equal opportunity/affirmative action institution.