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RECLAMATION



# WY Conditions & Outlooks:

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

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March 21, 2024

# Presentation Outline

- **Current Conditions:** Overview
  - Drought, Temperature, Precipitation, Soils, Snow Water Equivalent (SWE)
  - Streamflows
  - Reservoir Levels
- **Outlooks:**
  - Temperature & Precipitation
  - Water Supply & Flood Risk
- **Highlight of the Month:**
  - An Overview of the NWS National Water Prediction Service
- **Questions**

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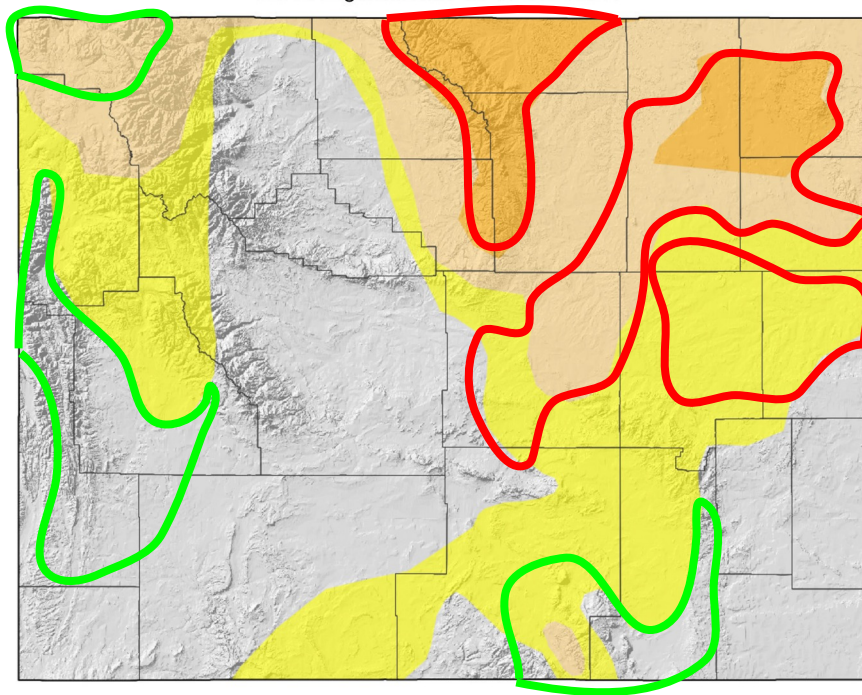
Extension

# Current Conditions

# US Drought Monitor for March 19, 2024

(Released Thursday, March 21st, 2024)  
Valid 8 a.m. EDT

US Drought Monitor for 19 Mar 2024



US Drought Monitor	
22.54%	D0 Abnormally Dry
2.66%	D1 Moderate Drought
0.29%	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:  
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

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

**Degradations** since the last webinar. Continued decline in conditions in the northwestern part of the state with some **Improvements** in the southcentral to southeast as well as in the west.

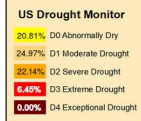
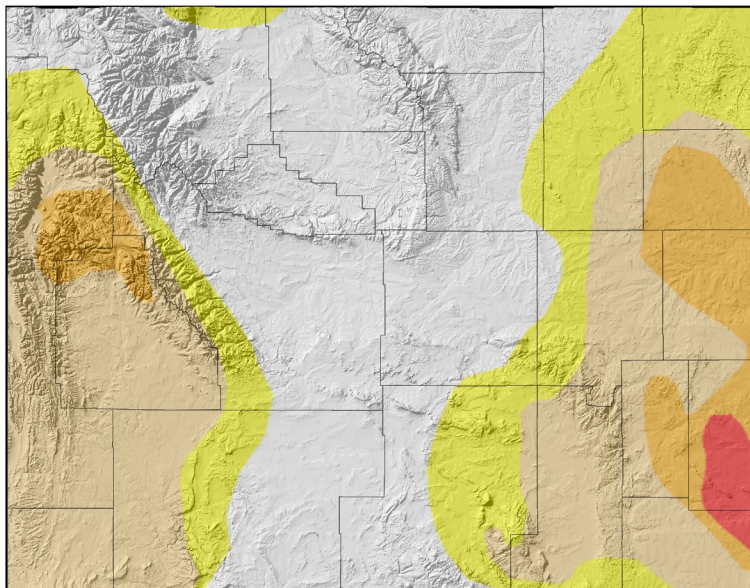
The U.S. Drought Monitor, is a weekly map of drought conditions produced jointly by the National Oceanic and Atmospheric Administration, the U.S. Department of Agriculture, and the National Drought Mitigation Center (NDMC) at the University of Nebraska-Lincoln. The U.S. Drought Monitor website is hosted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

Map Layout Created 21 Mar 2024 <http://www.wrds.uwyo.edu>



## One Year Ago

US Drought Monitor for 21 Mar 2023



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



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

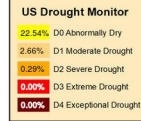
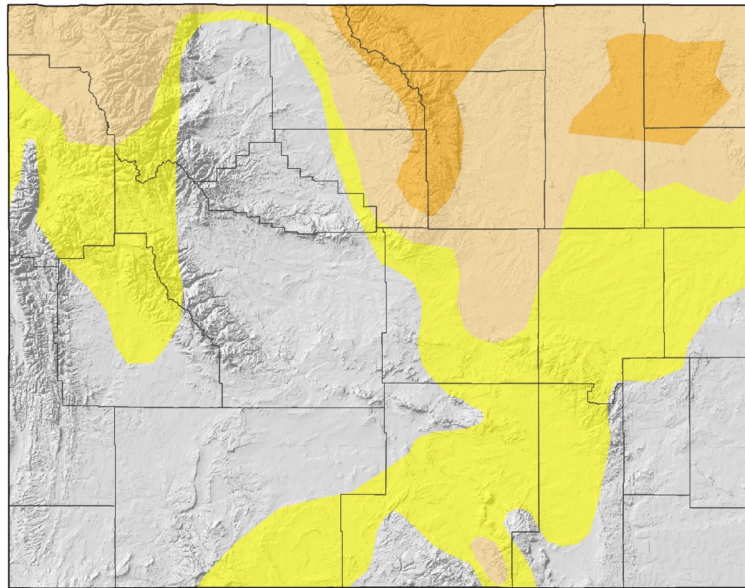


The U.S. Drought Monitor, is a weekly map of drought conditions produced jointly by the National Oceanic and Atmospheric Administration, the U.S. Department of Agriculture, and the National Drought Mitigation Center (NDMC) at the University of Nebraska-Lincoln. The U.S. Drought Monitor website is hosted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

Map Layout Created 23 Mar 2023 <http://www.wrds.uwyo.edu>

## Today

US Drought Monitor for 19 Mar 2024



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



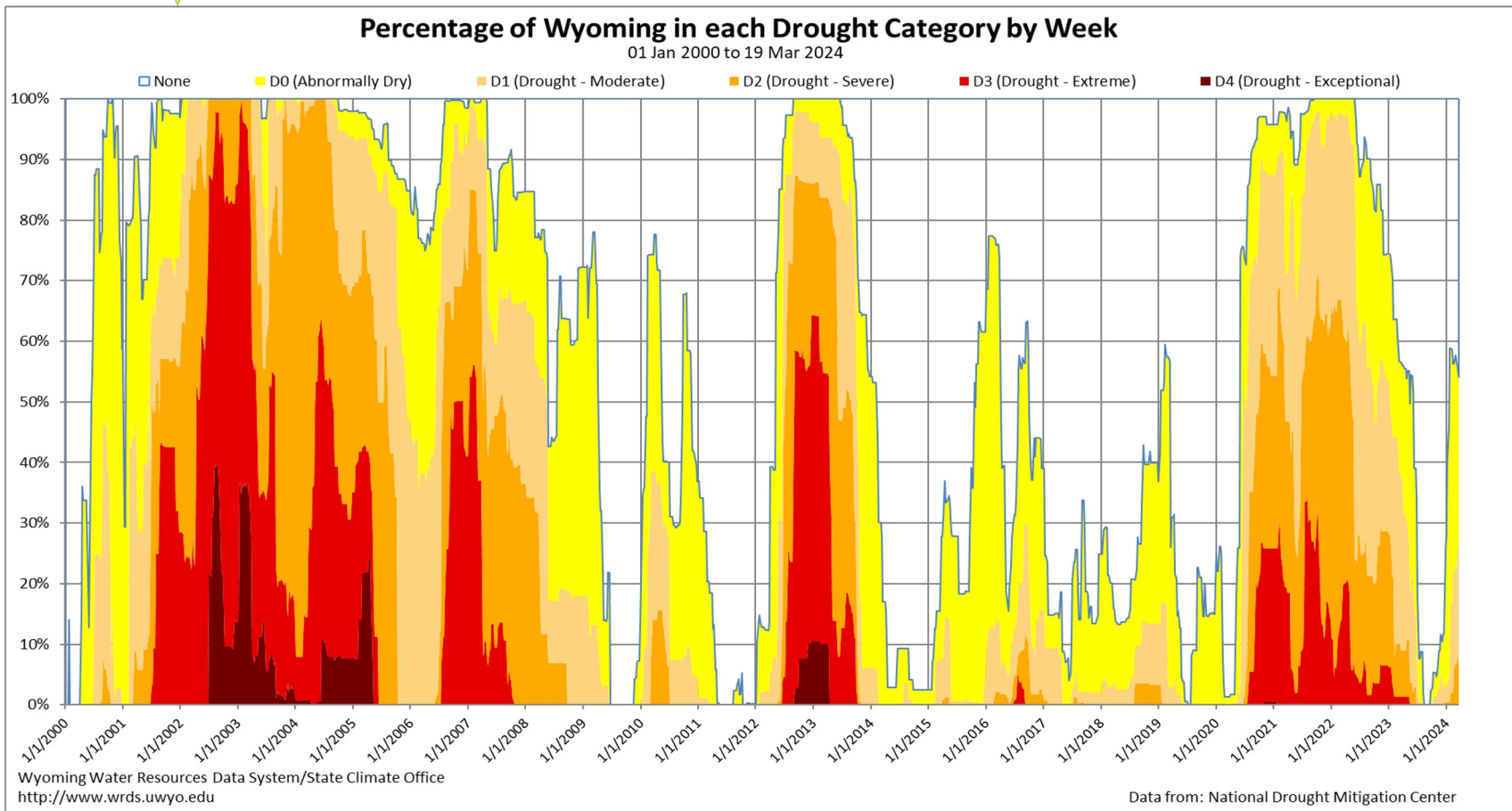
Map Layout Prepared by:  
Wyoming State Climate Office  
<http://www.wrds.uwyo.edu>



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 21 Mar 2024 <http://www.wrds.uwyo.edu>

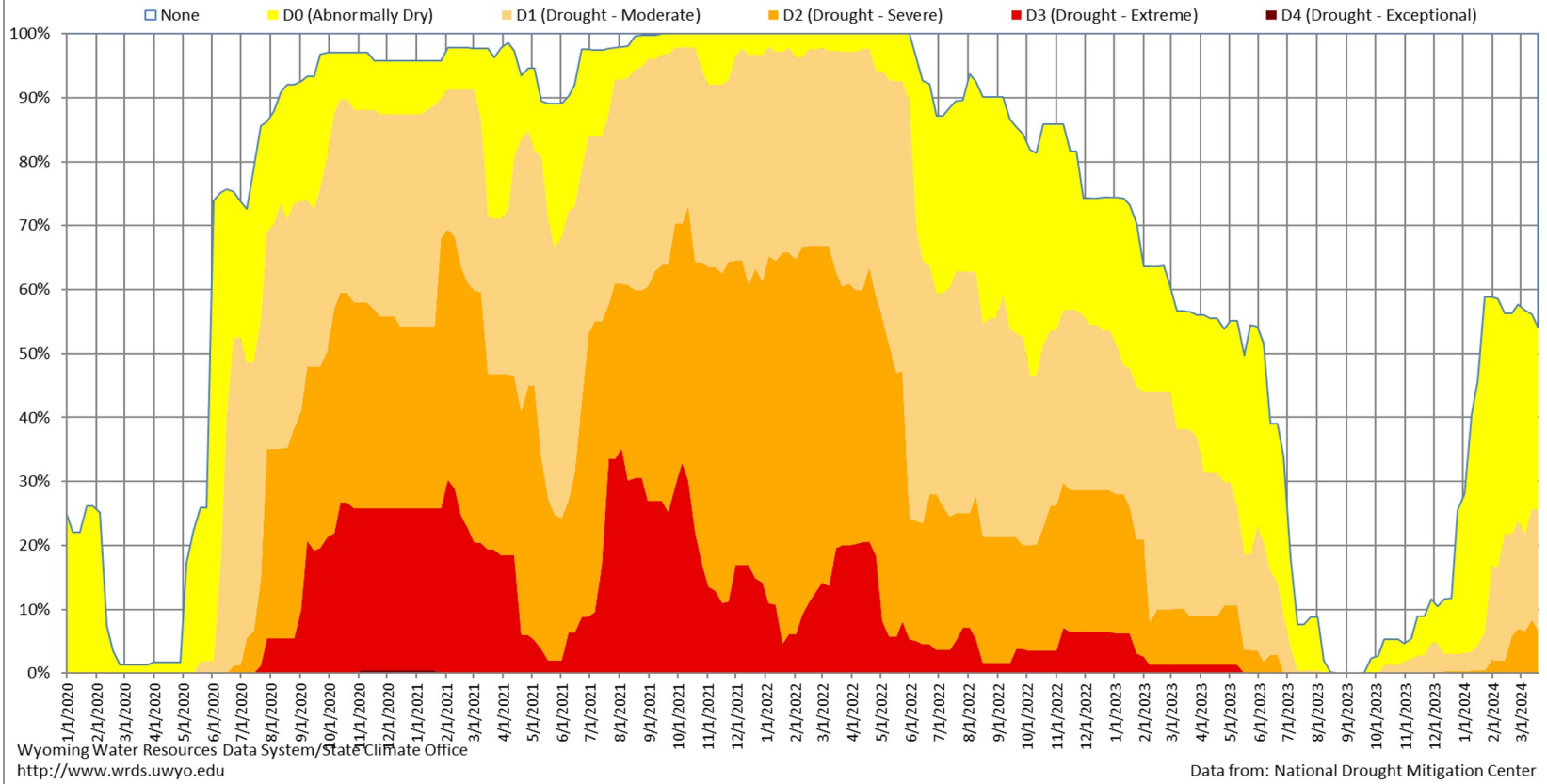
Wyoming Area Affected: 54.06% D0-D4 ; 25.52% D1-D4





## Percentage of Wyoming in each Drought Category by Week

01 Jan 2020 to 19 Mar 2024



45.94%

6.72%

# 14-Day Precipitation Percentile (07 Mar 2024 to 20 Mar 2024)

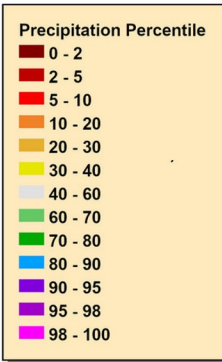
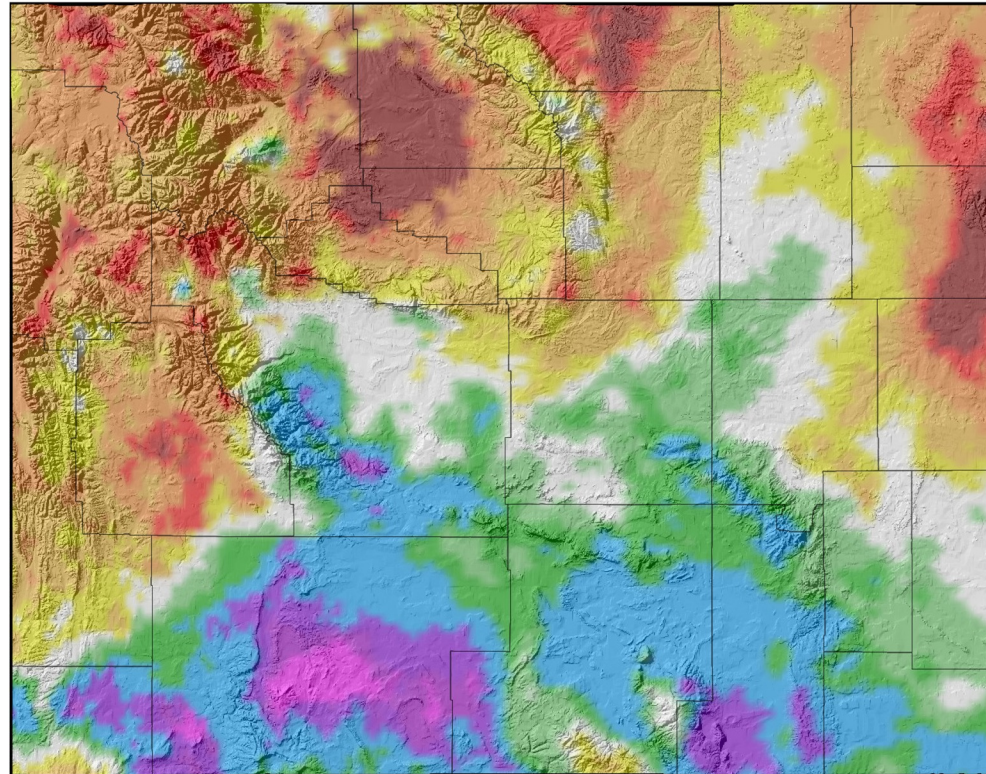
14-Day Precipitation (Percentile) for 07 Mar 2024 to 20 Mar 2024

## Above Median:

- South

## Below Median (Areas of Concern):

- North
- Western



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



# 90-Day Precipitation Percentile (22 Dec 2023 to 20 Mar 2024)

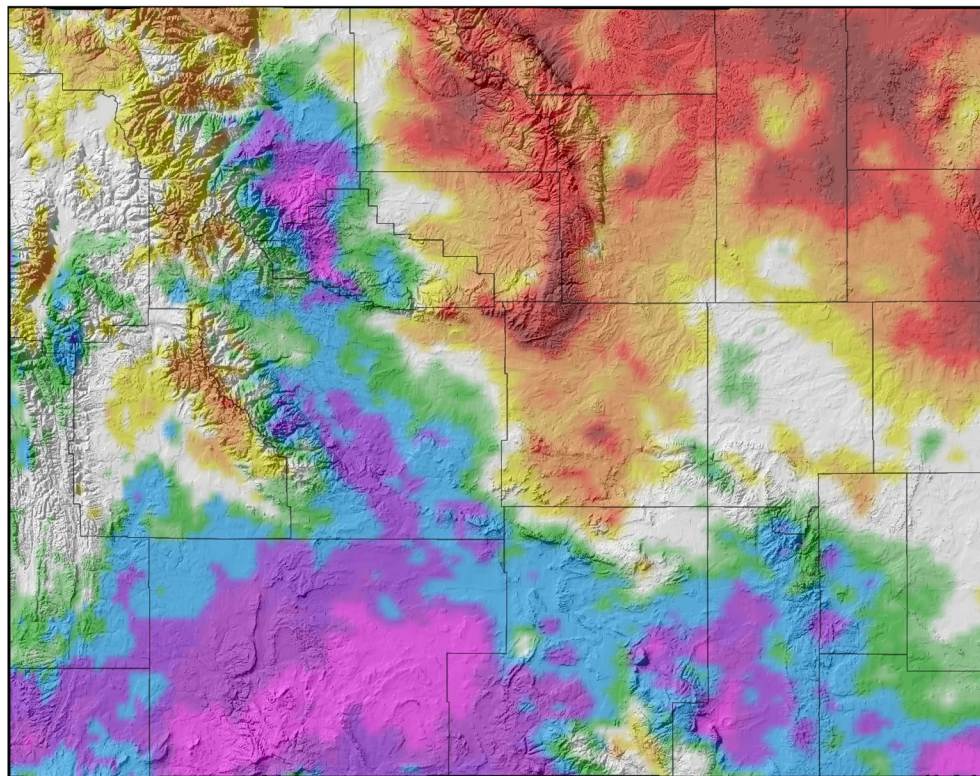
90-Day Precipitation (Percentile) for 22 Dec 2023 to 20 Mar 2024

## Above Median:

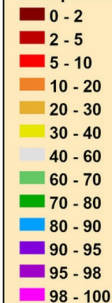
- South
- Fremont County
- Western Hot Springs County
- Southeastern Park County

## Below Median (Areas of Concern):

- Northeast quarter excepting some of Converse and southeastern Natrona Counties



### Precipitation Percentile



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

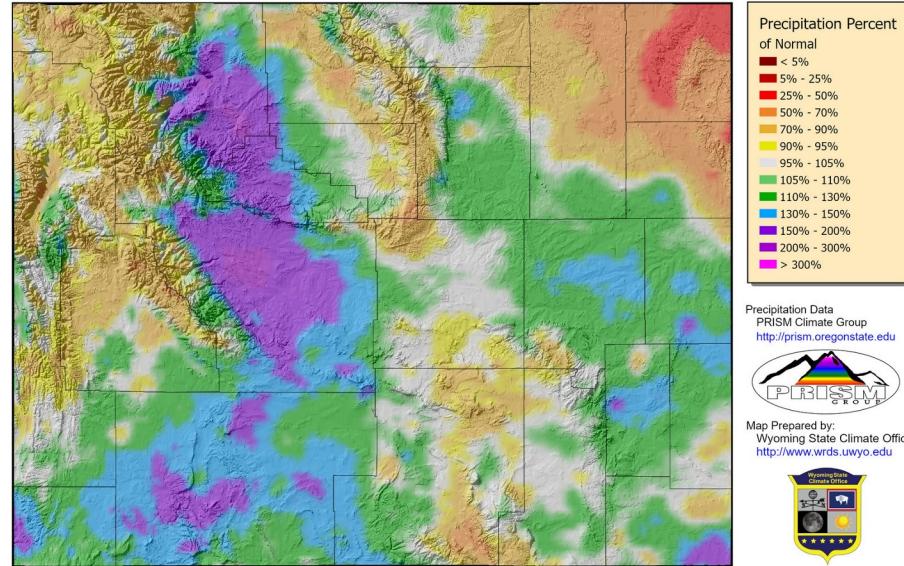
# “Year”-to-Date Precipitation (Percent of Average)

## Current Water Year

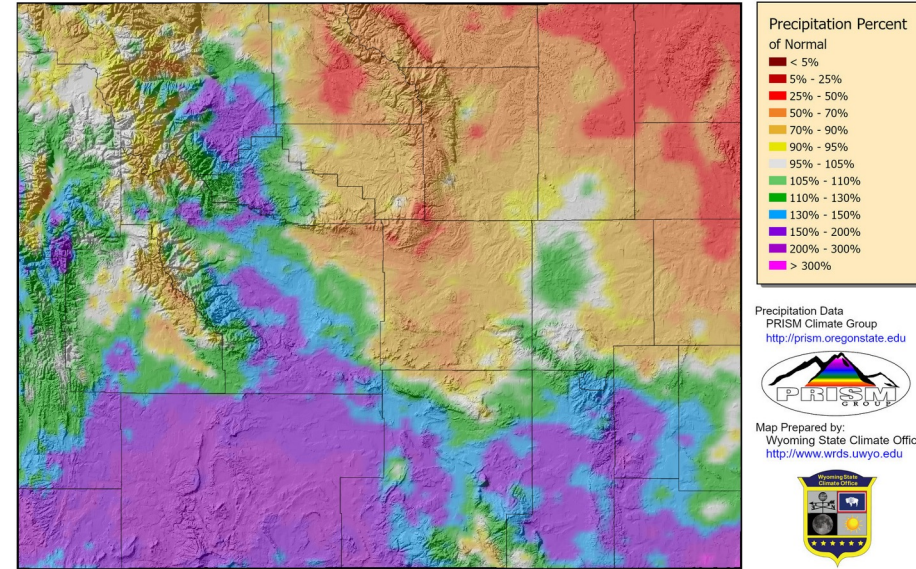
## Current Calendar Year

Water-Year Precipitation (Percent of 1991-2020 Average) for 01 Oct 2023 to 20 Mar 2024

Calendar-Year Precipitation (Percent of 1991-2020 Average) for 01 Jan 2024 to 20 Mar 2024



Provisional data, subject to revision



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 21 Mar 2024 <http://www.wrds.uwyo.edu>  
Daily averages created from PRISM daily precipitation grids

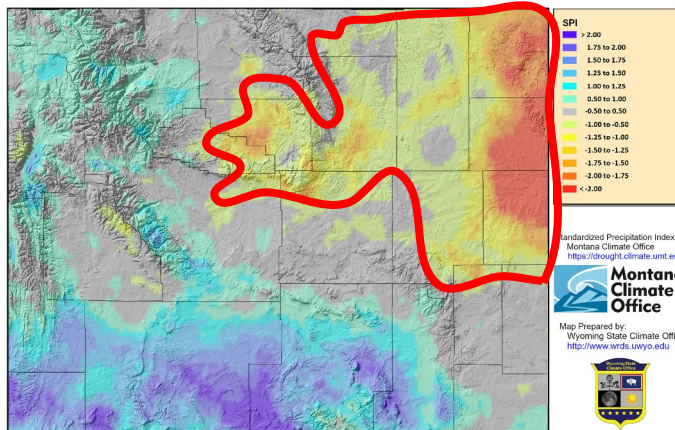
Monthly and Normal precipitation data from PRISM Climate Group, Copyright ©2024, PRISM Climate Group, Oregon State University, <http://prism.oregonstate.edu>  
Map Created 21 Mar 2024 <http://www.wrds.uwyo.edu>  
Daily averages created from PRISM daily precipitation grids

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

30-Day



Feb 19 - Mar 19



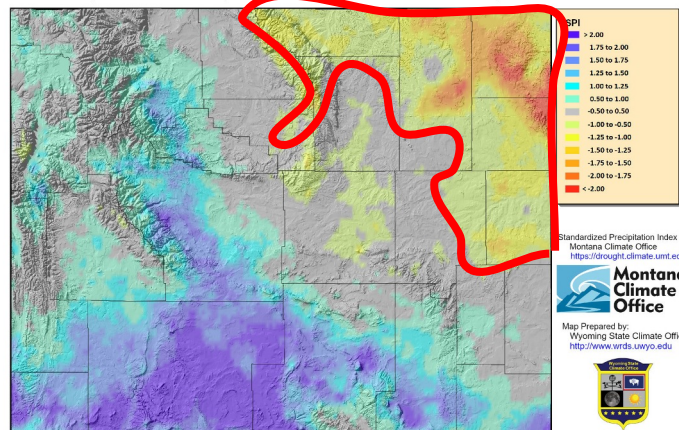
Provisional data, subject to revision

Standardized Precipitation Index Created by Montana Climate Office <https://drought.climate.umt.edu>  
Map Created 21 Mar 2024 <http://www.wrds.uwyo.edu>

60-Day



Jan 20 -  
Mar 19



Provisional data, subject to revision

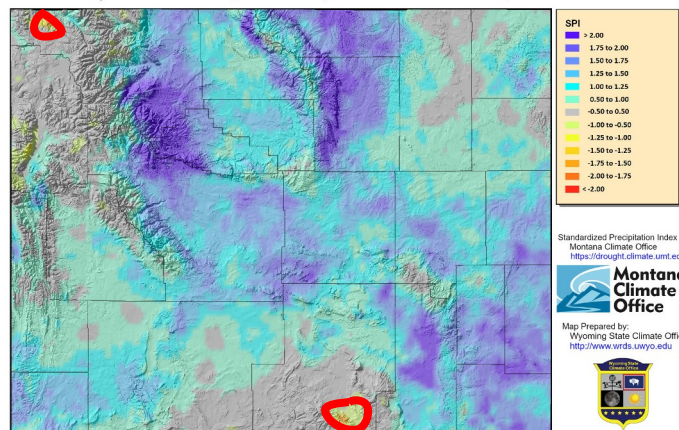
Standardized Precipitation Index Created by Montana Climate Office <https://drought.climate.umt.edu>  
Map Created 21 Mar 2024 <http://www.wrds.uwyo.edu>

# Standardized Precipitation Index (SPI)

**Short term:** South and west median to wet,  
northeast dry

**Long term:** Most of the state on the wet side –  
with the northwest and southcentral more around  
the median.

1-Year



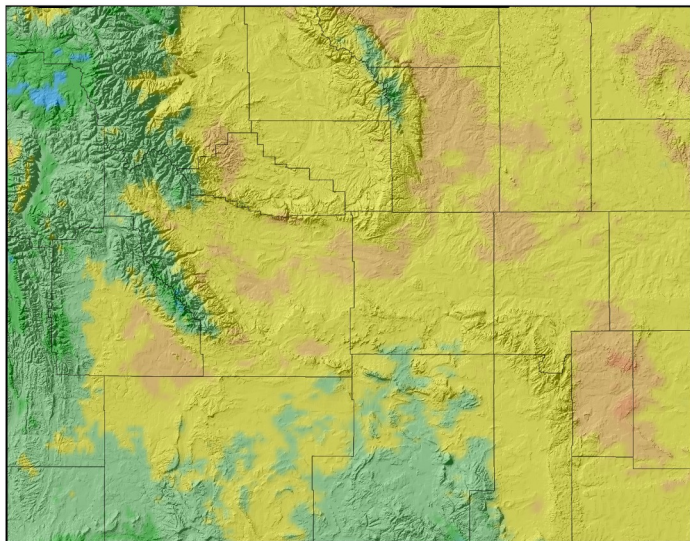
Provisional data, subject to revision

Standardized Precipitation Index Created by Montana Climate Office <https://drought.climate.umt.edu>  
Map Created 21 Mar 2024 <http://www.wrds.uwyo.edu>

# 14-Day Average Minimum Temperature (07 Mar to 20 Mar)

- Lows below freezing but approaching 32F in parts of SE
- Western Wyoming coolest except for BH and SM/SR

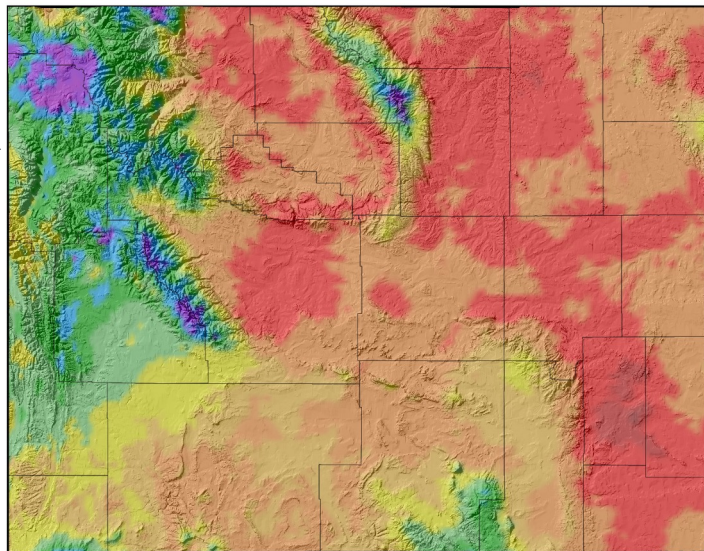
14-Day Average Minimum Temperature (Departure from 1991-2020 Average) for 07 Mar 2024 to 20 Mar 2024



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

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

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

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



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Daily Temperature data from PRISM Climate Group, Copyright ©2021, PRISM Climate Group, Oregon State University, <http://prism.oregonstate.edu>  
Map Created 21 Mar 2024 <http://www.wrds.uwyo.edu>  
Temperature averages created from PRISM daily temperature grids

# 14-Day Average Minimum Temperature Departure from Normal

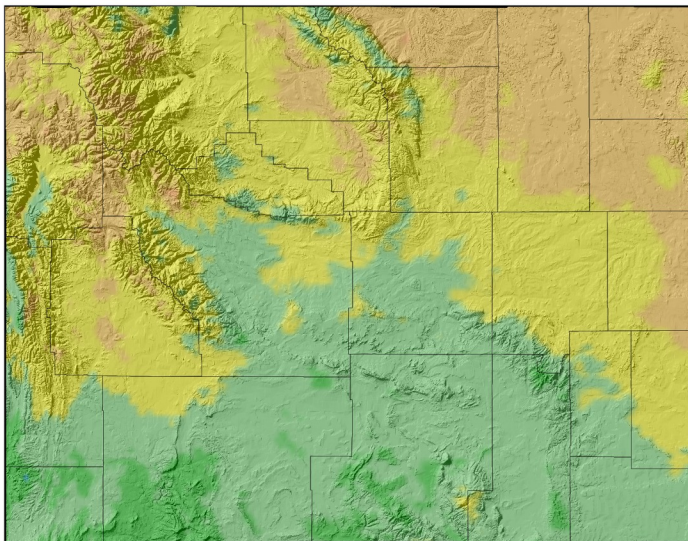
- West and southcentral up to 3F below average
- Far west and northwest as much as 6F below avg
- Remainder up to 3F above average with pockets approaching 6F above avg

# 14-Day Average **Maximum**

## Temperature (07 March to 20 March)

- Highs above 32F except for highest elevations
- East/Northeast Bighorn Basin warmest

14-Day Average Maximum Temperature (Departure from 1991-2020 Average) for 07 Mar 2024 to 20 Mar 2024



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

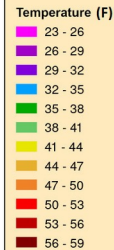
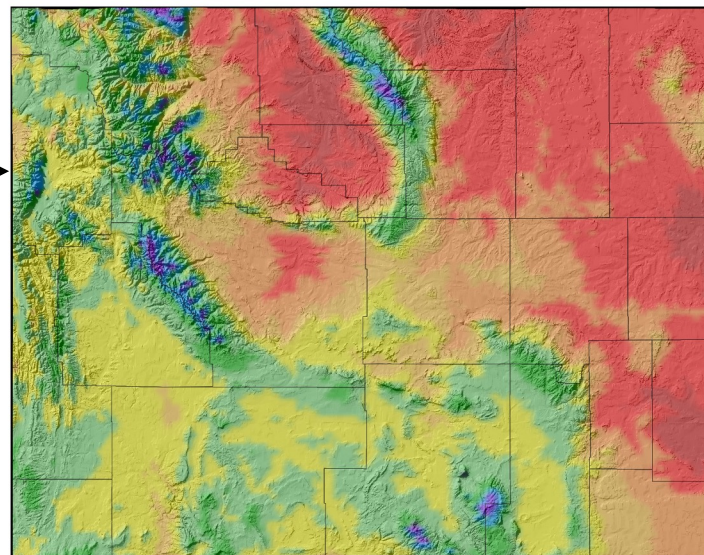


Map Prepared by:  
Wyoming State Climate Office  
<http://www.wrds.uwyo.edu>



Provisional data, subject to revision

14-Day Average Maximum Temperature for 07 Mar 2024 to 20 Mar 2024



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>  
Map Created 21 Mar 2024 <http://www.wrds.uwyo.edu>  
Temperature averages created from PRISM daily temperature grids

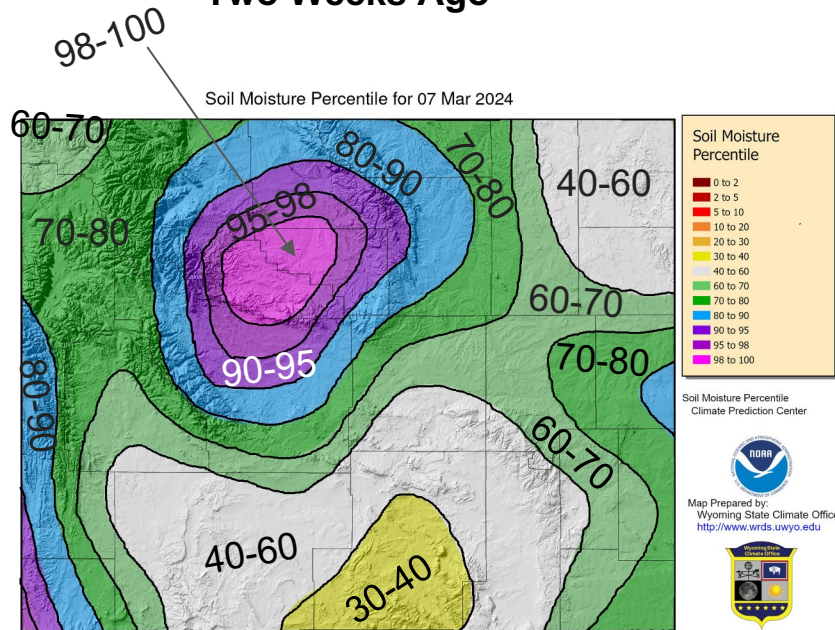
# 14- Day *Departure from Normal* Average **Maximum** Temperature

- Northeast and parts of northwest ~3-6F degrees above average
- South and central below average



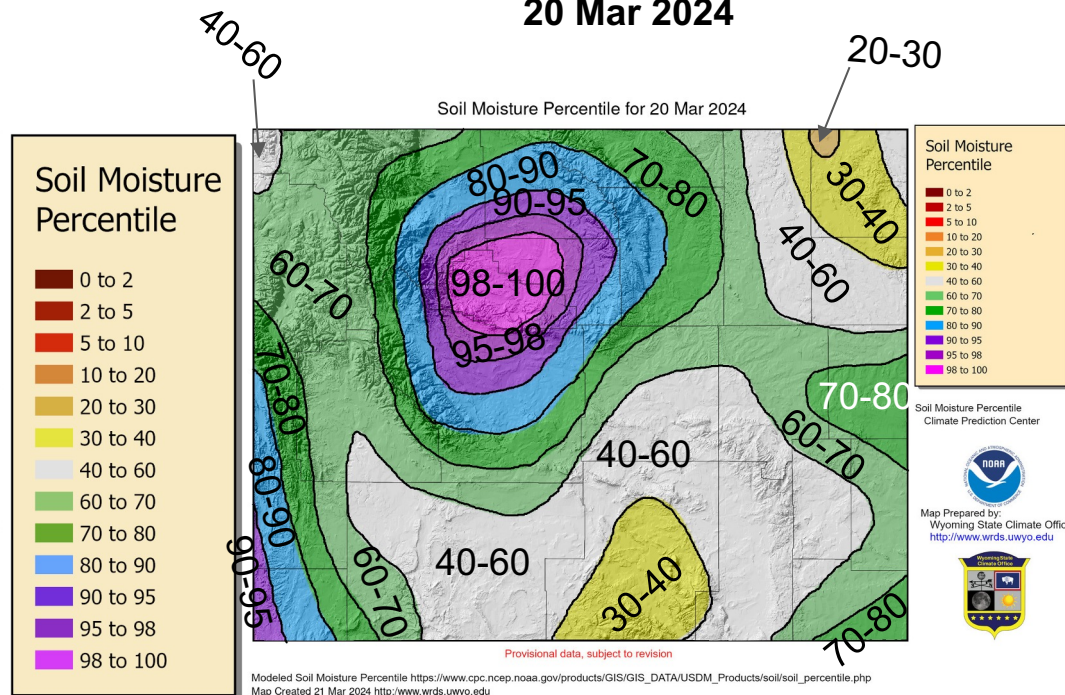
# Soil Moisture Percentile

**Two Weeks Ago**



Provisional data, subject to revision

**20 Mar 2024**



Provisional data, subject to revision

Generally status quo or a **decline** in conditions across the state, notable declines in northwest and northeast.

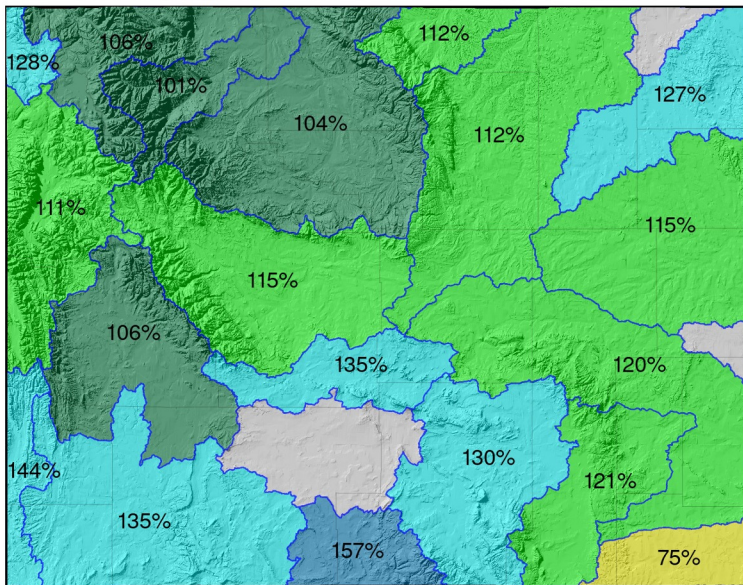
Modeled Soil Moisture Percentile [https://www.cpc.ncep.noaa.gov/products/GIS/GIS\\_DATA/USDM\\_Products/soil/soil\\_percentile.php](https://www.cpc.ncep.noaa.gov/products/GIS/GIS_DATA/USDM_Products/soil/soil_percentile.php)  
Map Created 08 Mar 2024 <http://www.wrds.uwyo.edu>

Modeled Soil Moisture Percentile [https://www.cpc.ncep.noaa.gov/products/GIS/GIS\\_DATA/USDM\\_Products/soil/soil\\_percentile.php](https://www.cpc.ncep.noaa.gov/products/GIS/GIS_DATA/USDM_Products/soil/soil_percentile.php)  
Map Created 21 Mar 2024 <http://www.wrds.uwyo.edu>

# Basin Snow Water Equivalent (SWE) % of Median

## 21 Mar 2023 (One Year Ago)

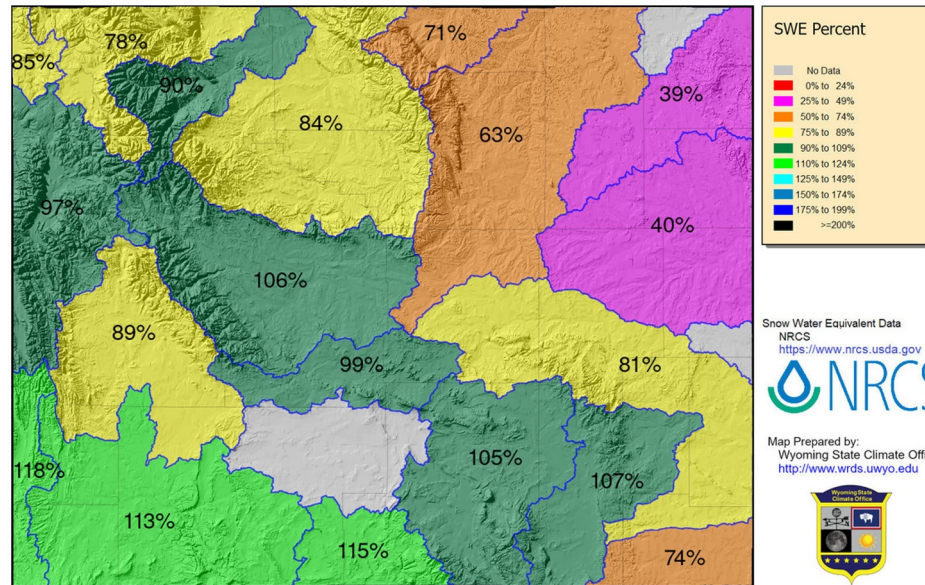
Snow Water Equivalent Percent of Median (1991-2020) 21 Mar 2023



Provisional data, subject to revision

## 21 Mar 2024

Snow Water Equivalent Percent of Median (1991-2020) 21 Mar 2024



Provisional data, subject to revision

Basin Snow Water Equivalent Data from Natural Resources Conservation Service Water and Climate Center <https://www.nrcs.usda.gov>  
Map created by Wyoming State Climate Office 11 Apr 2023

\* Percentages denoted by an asterisk represent data that may not provide a valid measure of conditions. This is most usually seen near the end of the snow season where normal values may be very low or the melt out curve is so steep that a slight variation in days may result in abnormally high or low percentages.

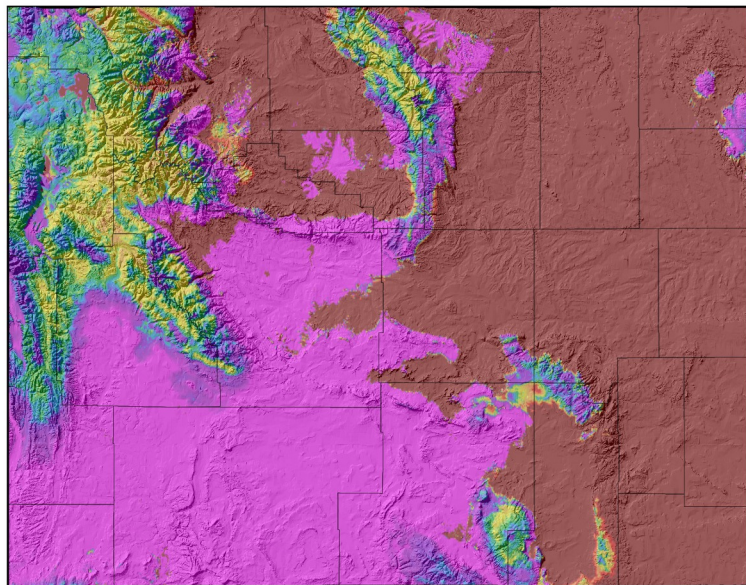
Basin Snow Water Equivalent Data from Natural Resources Conservation Service Water and Climate Center <https://www.nrcs.usda.gov>  
Map created by Wyoming State Climate Office 21 Mar 2024

\* Percentages denoted by an asterisk represent data that may not provide a valid measure of conditions. This is most usually seen near the end of the snow season where normal values may be very low or the melt out curve is so steep that a slight variation in days may result in abnormally high or low percentages.

# Snow Water Equivalent (SWE) % of Average

21 Mar 2023 (One Year Ago)

Snow Water Equivalent Percent of Average (2004-2020) for 21 Mar 2023



Provisional data, subject to revision



Snow Water Equivalent  
NOHRSC  
<https://doi.org/10.7265/N5TB14TC>

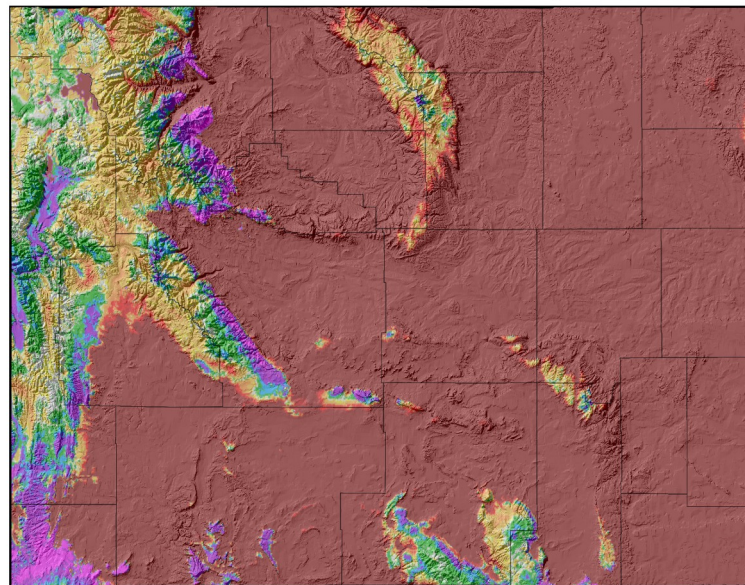


Map Prepared by:  
Wyoming State Climate Office  
<http://www.wrds.uwyo.edu>

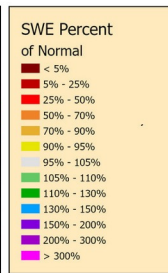


21 Mar 2024

Snow Water Equivalent Percent of Average (2004-2020) for 21 Mar 2024



Provisional data, subject to revision



Snow Water Equivalent  
NOHRSC  
<https://doi.org/10.7265/N5TB14TC>



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



Modelled Snow Water Equivalent from National Operational Hydrologic Remote Sensing Center. 2004. Snow Data Assimilation System (SNODAS) Data Products at NSIDC, Version 1. Boulder, Colorado USA. NSIDC: National Snow and Ice Data Center.  
doi: <https://doi.org/10.7265/N5TB14TC>.  
Daily Percentiles and Percentages created by Wyoming State Climate Office  
Map created 21 Mar 2023

Modelled Snow Water Equivalent from National Operational Hydrologic Remote Sensing Center. 2004. Snow Data Assimilation System (SNODAS) Data Products at NSIDC, Version 1. Boulder, Colorado USA. NSIDC: National Snow and Ice Data Center.  
doi: <https://doi.org/10.7265/N5TB14TC>.  
Daily Percentiles and Percentages created by Wyoming State Climate Office  
Map created 21 Mar 2024

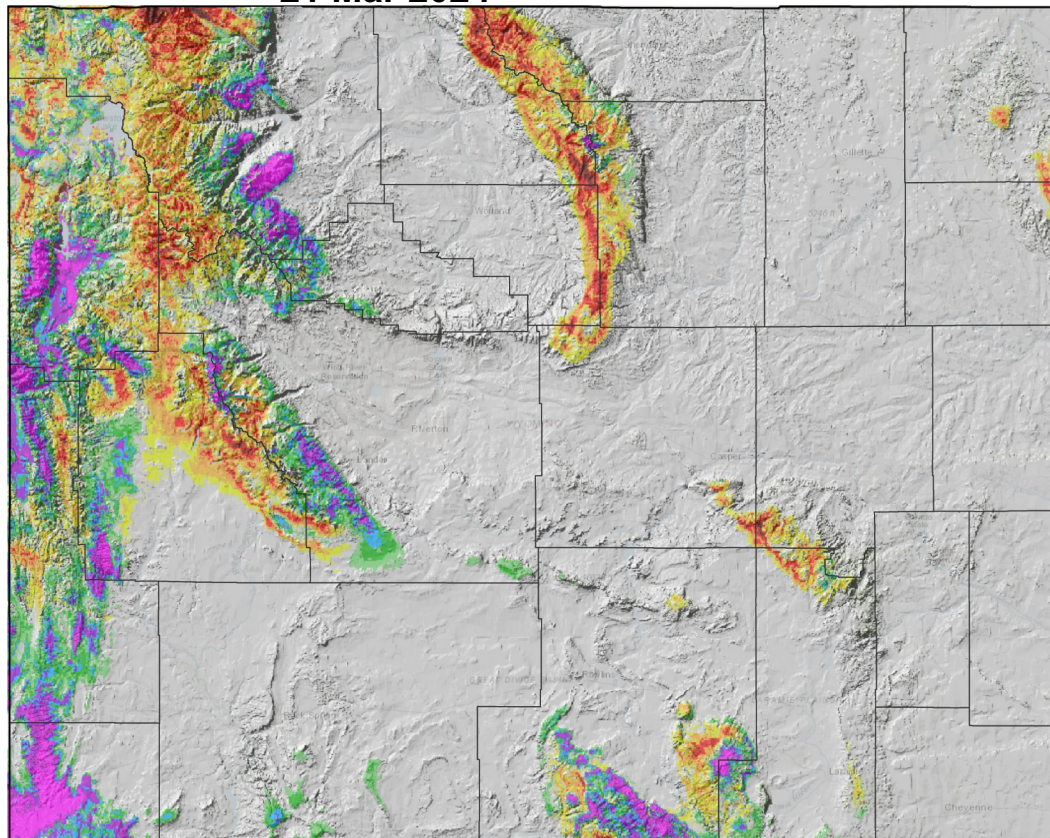
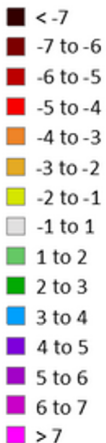


# Snow Water Equivalent (SWE) Departure from Median

21 Mar 2024

Snow Water Equivalent  
Departure from Median (inches)

21 Mar 2024



## Today's Snow Water Equivalent in Inches Compared to Historical Ranges

Red indicates current SWE value is **less** than this statistic  
Blue indicates current SWE value is **greater** than this statistic  
Purple indicates current SWE value is **equal** to this statistic  
Click Column Headers to Sort

Basin Click to View Chart	Date	Today SWE (inches)	Today SWE % of Median	Minimum SWE (in)	10th Percentile (inches)	30th Percentile Inches	Median (inches)	70th Percentile (inches)	90th Percentile (inches)	Maximum (inches)	Last Year SWE (inches)	Last Year SWE % of Median
<a href="#">Belle Fourche</a>	21 Mar 2024	2.47	39	2.47	3.71	4.99	6.27	6.91	8.34	10.00	8.00	128
<a href="#">Bighorn</a>	21 Mar 2024	7.72	84	6.34	7.61	8.50	9.23	10.09	11.45	14.19	9.60	104
<a href="#">Cheyenne</a>	21 Mar 2024	2.75	40	2.95	4.07	5.36	6.85	7.51	8.75	10.00	7.95	116
<a href="#">Laramie</a>	21 Mar 2024	13.63	107	9.35	10.47	12.40	12.71	14.66	17.71	23.60	15.13	119
<a href="#">Little Snake</a>	21 Mar 2024	20.77	115	11.95	14.10	16.51	18.01	20.60	23.45	28.35	28.35	157
<a href="#">Lower Green</a>	21 Mar 2024	12.67	114	7.72	9.43	10.55	11.09	13.10	14.92	17.29	14.89	134
<a href="#">Lower North Platte</a>	21 Mar 2024	8.00	81	6.40	7.47	9.22	9.85	11.78	13.12	17.12	11.78	120
<a href="#">Madison</a>	21 Mar 2024	17.38	85	9.40	14.70	17.80	20.35	24.75	27.80	38.05	26.00	128
<a href="#">Powder</a>	21 Mar 2024	5.19	63	5.31	7.09	7.61	8.26	9.25	10.49	12.89	9.21	112
<a href="#">Shoshone</a>	21 Mar 2024	14.02	90	9.77	11.95	13.89	15.63	18.07	22.81	27.23	15.62	100
<a href="#">Snake</a>	21 Mar 2024	18.95	97	11.61	14.30	17.04	19.53	21.71	27.46	32.27	21.61	111
<a href="#">South Platte</a>	21 Mar 2024	4.80	74	3.00	4.24	5.11	6.50	6.99	7.98	10.00	4.90	75
<a href="#">Sweetwater</a>	21 Mar 2024	12.10	99	8.17	8.86	9.98	12.27	14.55	16.44	22.97	16.63	136
<a href="#">Tongue</a>	21 Mar 2024	6.55	70	5.21	8.23	9.23	9.39	10.82	12.62	15.30	10.53	112
<a href="#">Upper Bear</a>	21 Mar 2024	16.63	114	9.78	11.54	13.86	14.63	18.39	22.96	30.08	21.10	144
<a href="#">Upper Green</a>	21 Mar 2024	12.77	88	8.69	11.32	13.40	14.43	15.75	22.72	27.66	15.34	106
<a href="#">Upper North Platte</a>	21 Mar 2024	20.69	105	15.32	16.22	18.64	19.78	22.81	26.18	31.63	25.50	129
<a href="#">Wind</a>	21 Mar 2024	11.84	106	7.58	9.14	10.41	11.12	12.51	14.96	20.39	12.78	115
<a href="#">Yellowstone</a>	21 Mar 2024	15.15	78	11.72	14.24	17.12	19.42	21.62	26.64	33.21	20.57	106

Data from Natural Resources Conservation Service SnoTel Network

## 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

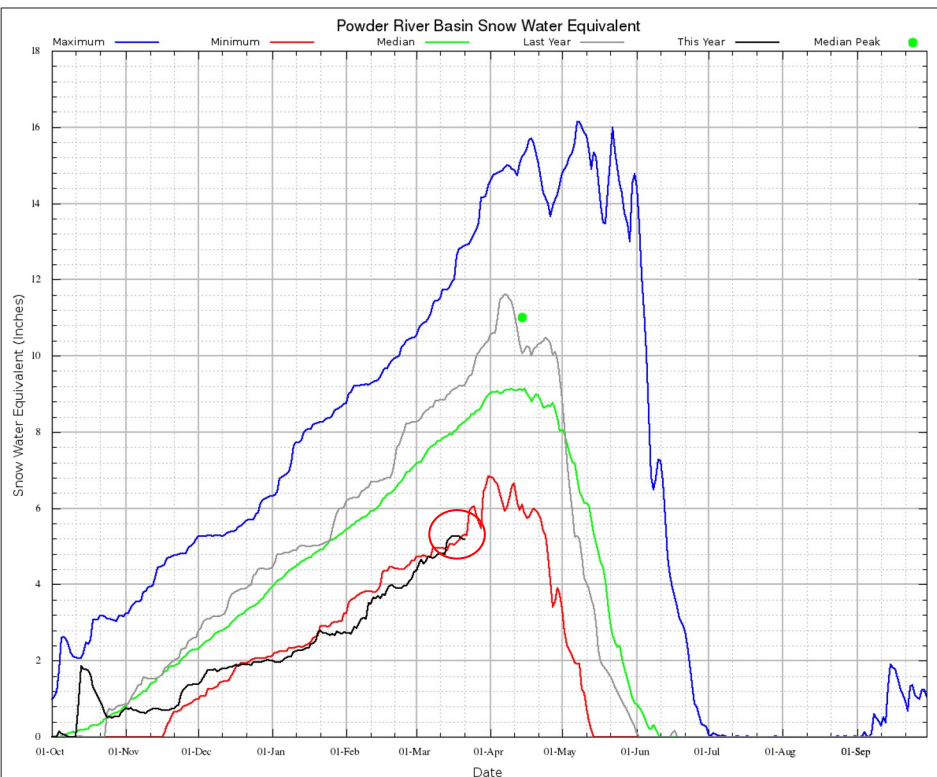
**Click Column Headers to Sort**

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
<a href="#">Belle Fourche</a>	06 Mar 2024	3.40	-22	-3.7	48%	29 Mar	7.10	2.47	03 May
<a href="#">Bighorn</a>	18 Mar 2024	7.77	-37	-4.0	66%	24 Apr	11.77	7.72	21 Jun
<a href="#">Cheyenne</a>	06 Mar 2024	3.90	-22	-3.6	52%	29 Mar	7.55	2.75	01 May
<a href="#">Laramie</a>	16 Mar 2024	13.71	-33	-2.6	84%	18 Apr	16.31	13.63	13 Jun
<a href="#">Little Snake</a>	19 Mar 2024	20.95	-18	0.4	102%	06 Apr	20.50	20.77	19 Jun
<a href="#">Lower Green</a>	21 Mar 2024	12.67	-18	-0.9	93%	08 Apr	13.58	12.67	13 Jun
<a href="#">Lower North Platte</a>	19 Mar 2024	8.05	-26	-5.0	62%	14 Apr	13.05	8.00	29 May
<a href="#">Madison</a>	18 Mar 2024	17.50	-27	-6.2	74%	14 Apr	23.75	17.38	25 Jun
<a href="#">Powder</a>	18 Mar 2024	5.27	-27	-5.7	48%	14 Apr	11.01	5.19	10 Jun
<a href="#">Shoshone</a>	16 Mar 2024	14.25	-39	-3.8	79%	24 Apr	18.08	14.02	29 Jun
<a href="#">Snake</a>	16 Mar 2024	19.05	-27	-1.8	91%	12 Apr	20.85	18.95	30 Jun
<a href="#">South Platte</a>	19 Mar 2024	4.90	-10	-1.7	74%	29 Mar	6.60	4.80	26 Apr
<a href="#">Sweetwater</a>	18 Mar 2024	12.40	-33	-2.8	81%	20 Apr	15.25	12.10	06 Jun
<a href="#">Tongue</a>	16 Mar 2024	6.89	-43	-6.5	51%	28 Apr	13.38	6.55	09 Jun
<a href="#">Upper Bear</a>	16 Mar 2024	17.10	-24	-0.7	96%	09 Apr	17.81	16.63	16 Jun
<a href="#">Upper Green</a>	16 Mar 2024	12.96	-26	-3.0	81%	11 Apr	15.96	12.77	19 Jun
<a href="#">Upper North Platte</a>	19 Mar 2024	20.80	-28	-3.8	84%	16 Apr	24.63	20.69	28 Jun
<a href="#">Wind</a>	18 Mar 2024	11.92	-35	-2.2	84%	22 Apr	14.11	11.84	26 Jun
<a href="#">Yellowstone</a>	16 Mar 2024	15.38	-39	-6.7	70%	24 Apr	22.12	15.15	02 Jul

Data from Natural Resources Conservation Service SnoTel Network

# Basin Snow Water Equivalent (SWE) % of Median

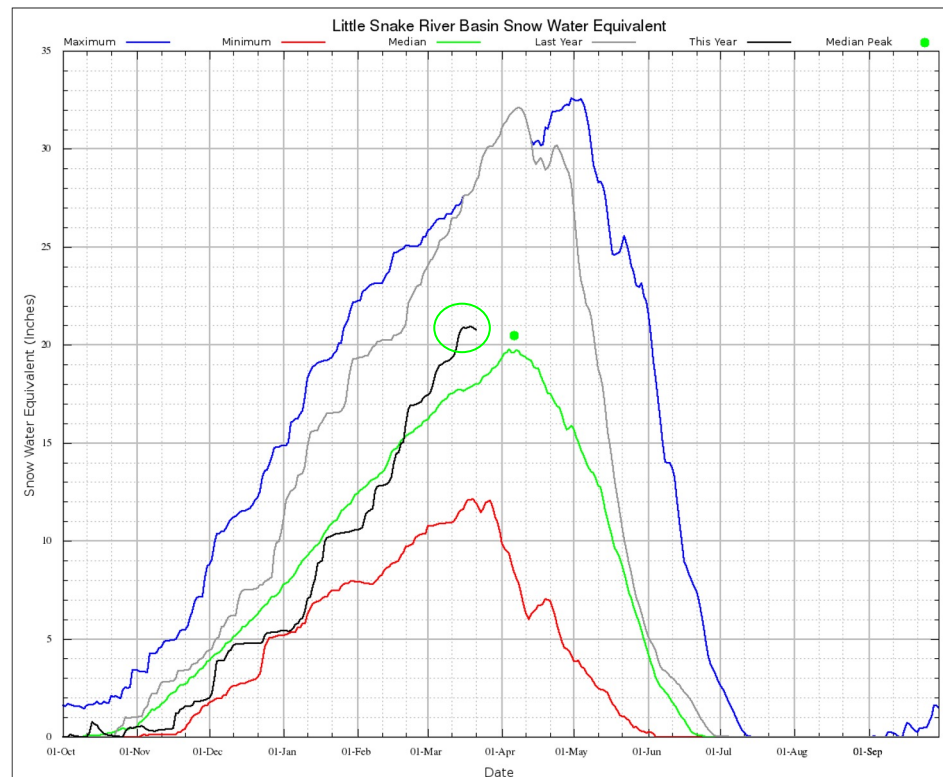
## Powder River Basin



Produced by the Wyoming Water Resources Data System/State Climate Office <http://www.wrds.uwyo.edu>  
Data Source: Natural Resources Conservation Service

Updated: 21 Mar 2024

## Little Snake River Basin



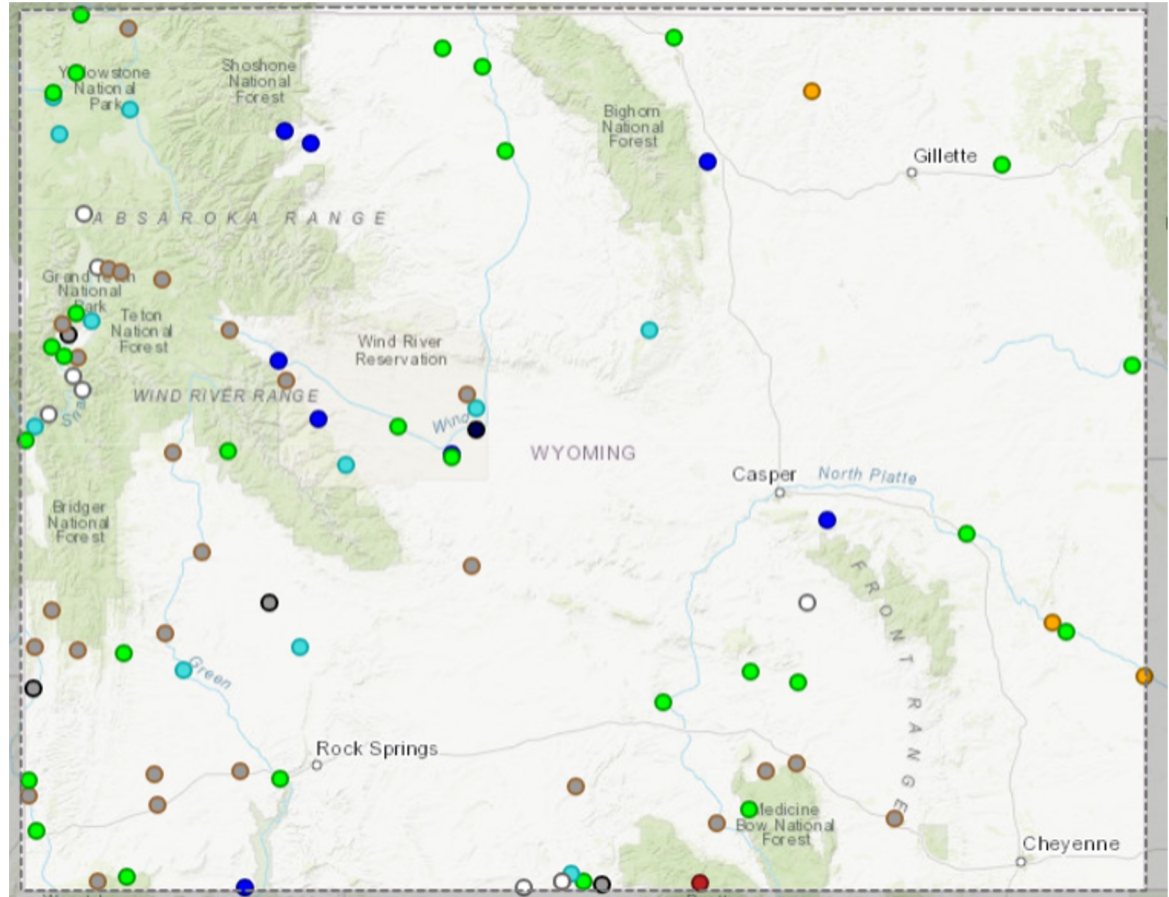
Produced by the Wyoming Water Resources Data System/State Climate Office <http://www.wrds.uwyo.edu>  
Data Source: Natural Resources Conservation Service

Updated: 21 Mar 2024

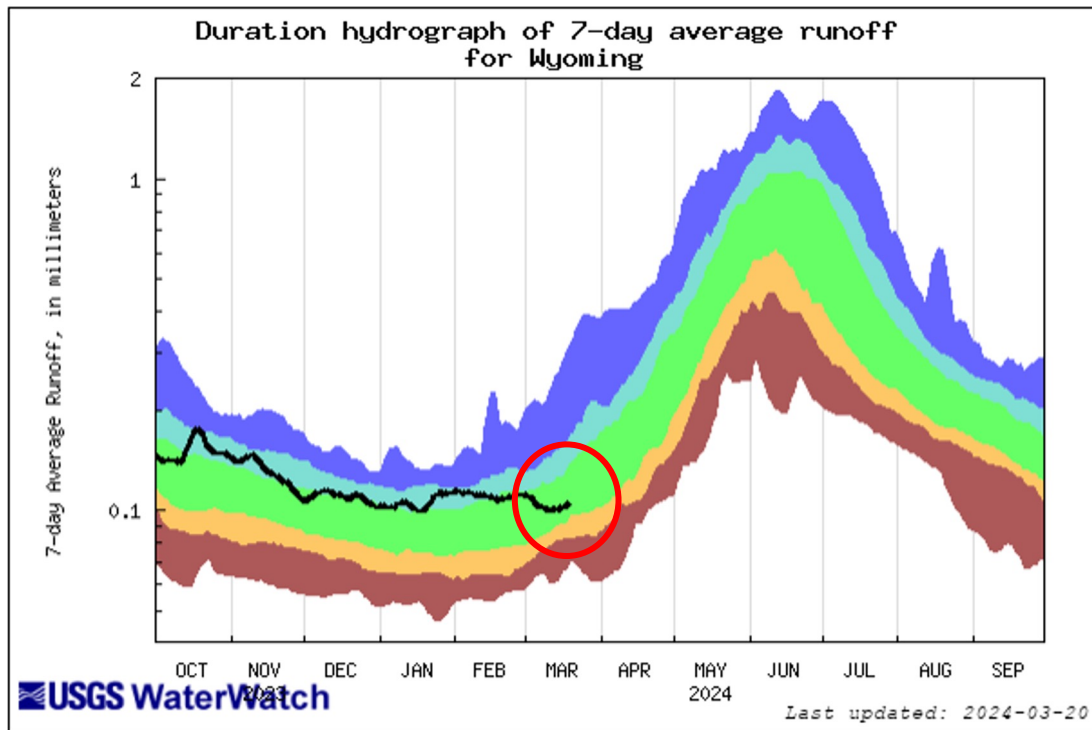
## Streamflow Status

### Streamflow: Status

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



# WY Duration Hydrograph of 7-day runoff



## Early Spring Streamflow

- Most sites are reporting (23 sites in ice)
- Time of baseflow transition to early runoff (limited water supply)
- Below normal with a grain of salt.

Explanation - Percentile classes							
lowest-5th percentile	6-9	10-24	25-75	76-90	91-94	95th percentile - highest	Runoff
Severe hydrologic drought	Moderate hydrologic drought	Below normal	Normal	Above normal	Much above normal		

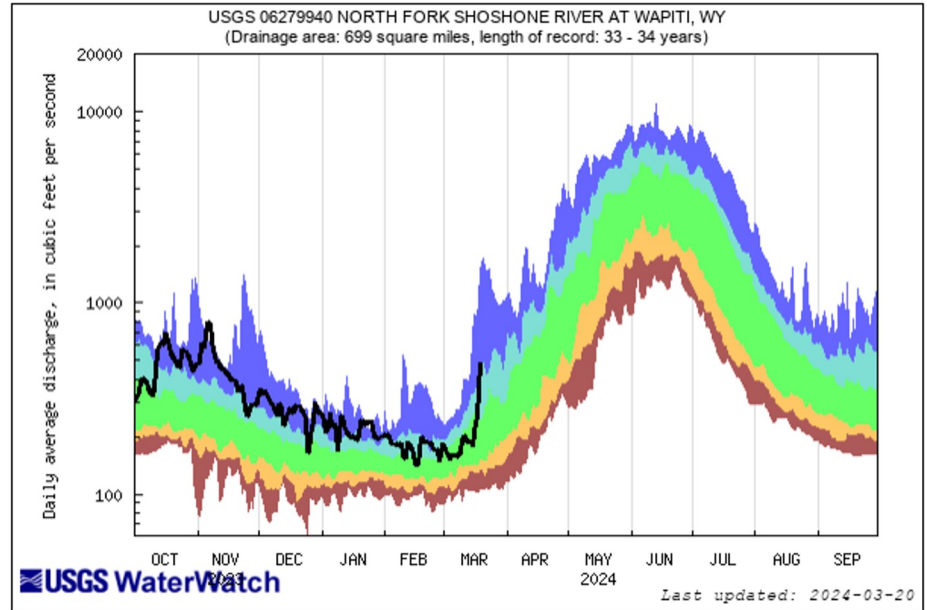
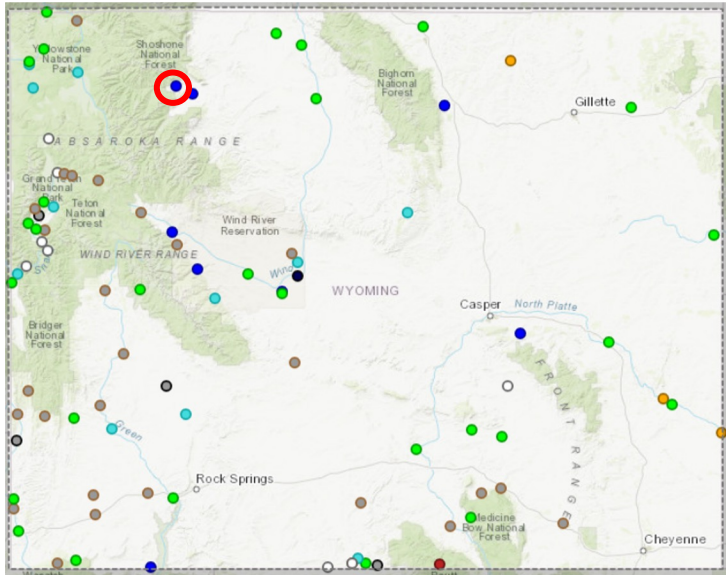
<https://dashboard.waterdata.usgs.gov/>

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

# North Fork Shoshone, at Wapiti, WY

Last updated March 21, 2024

## Select WY Streamflows



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

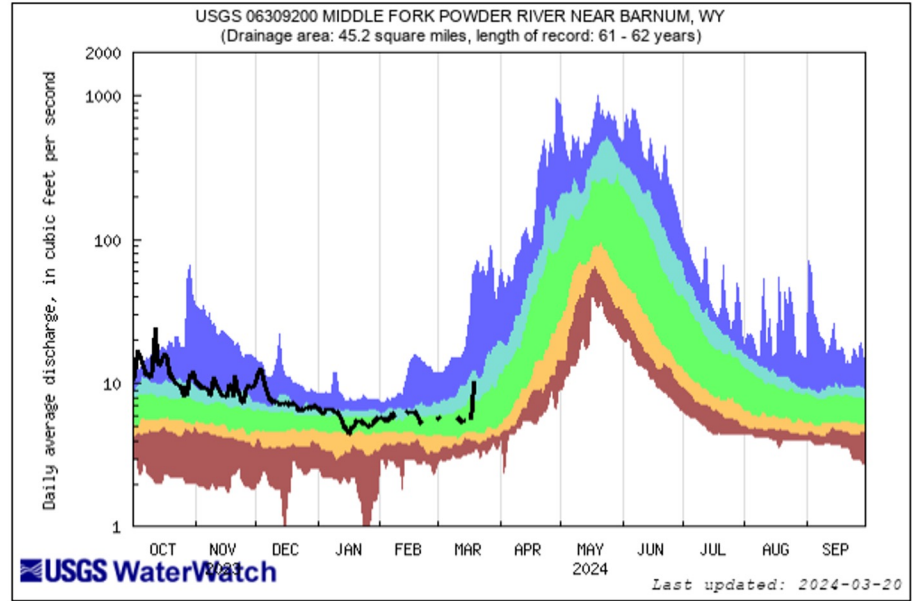
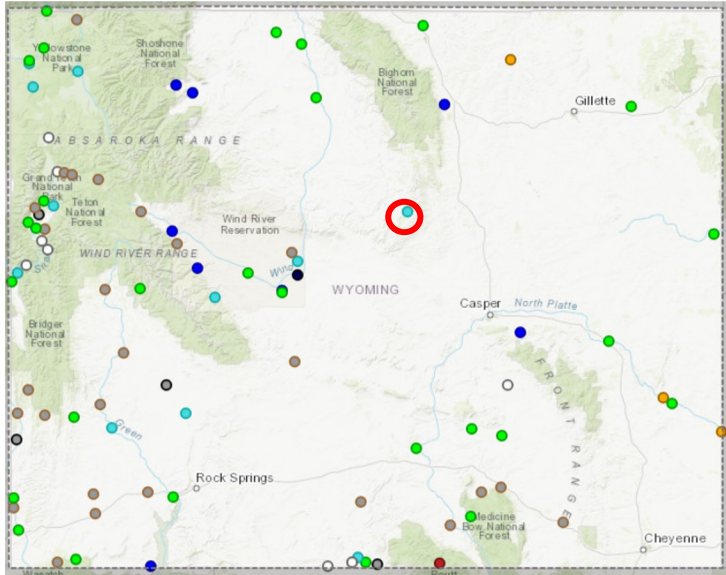
<https://waterdata.usgs.gov/>

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

# Middle Fork Powder River, Near Barum, WY

Last updated March 21, 2024

## Select WY Streamflows



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

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

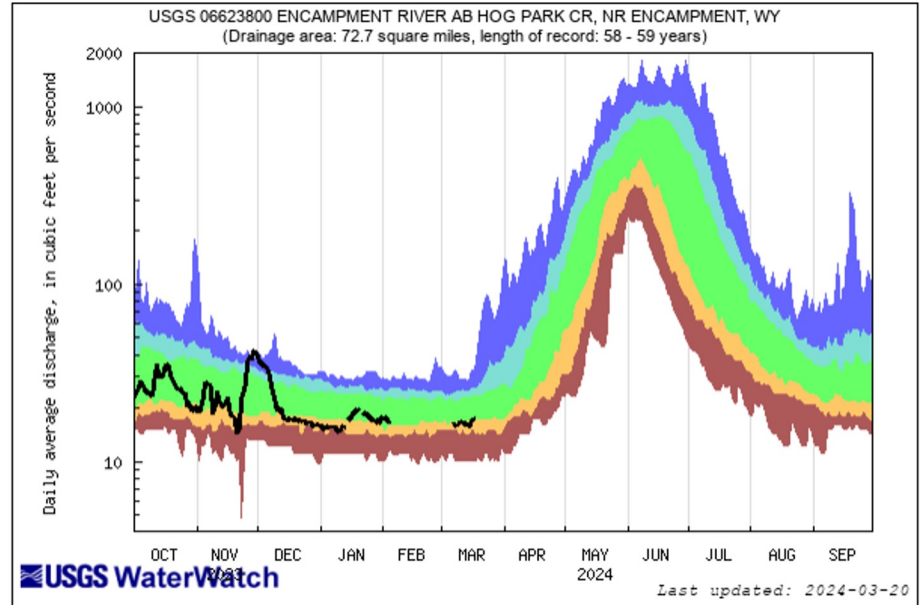
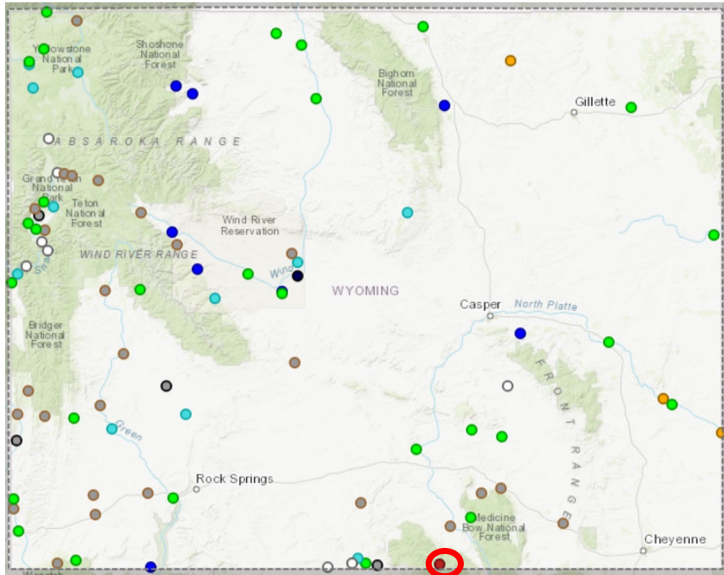
Explanation - Percentile classes						
lowest-10th percentile	5	10-24	25-75	76-90	95	90th percentile - highest
Much below Normal	Below normal	Normal	Above normal	Much above normal		Flow



# Encampment River ab Hog Park, Nr Encampment, WY

Last updated March 21, 2024

## Select WY Streamflows



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

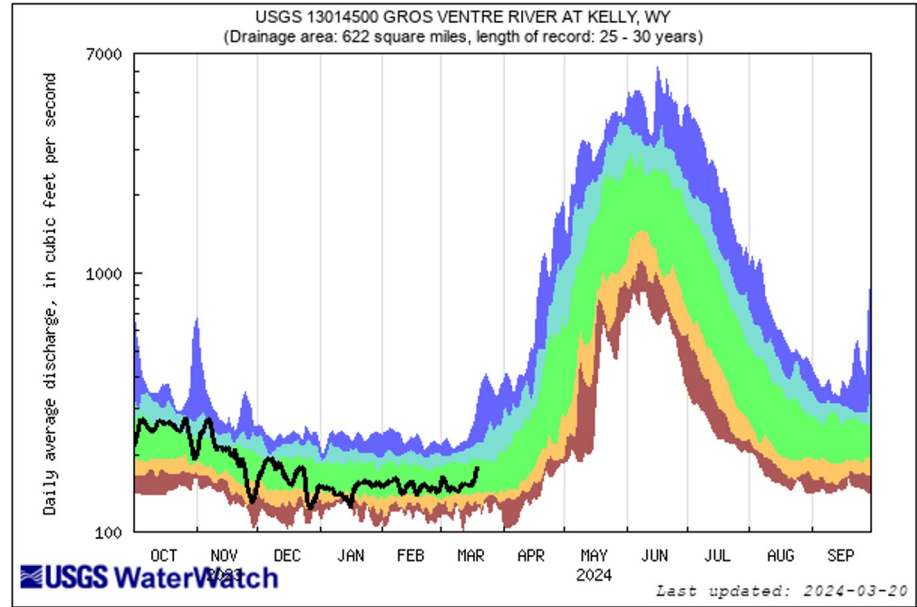
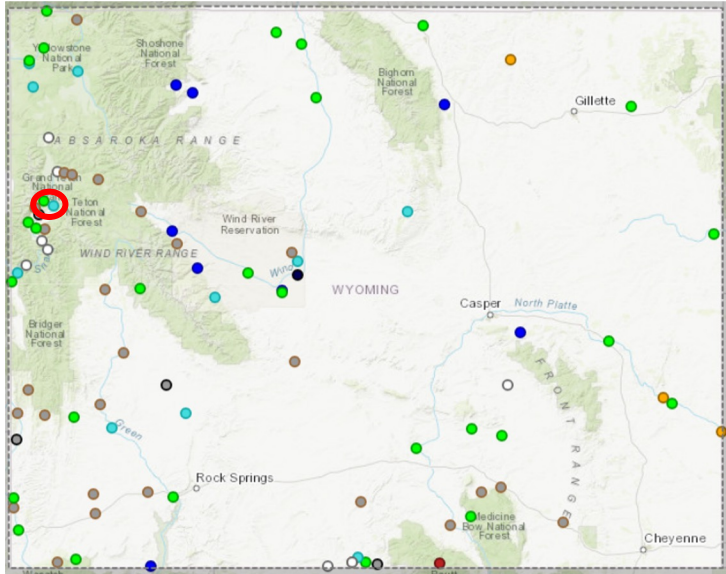
<https://waterdata.usgs.gov/>

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

# Gros Ventre River, at Kelly, WY

Last updated March 21, 2024

## Select WY Streamflows



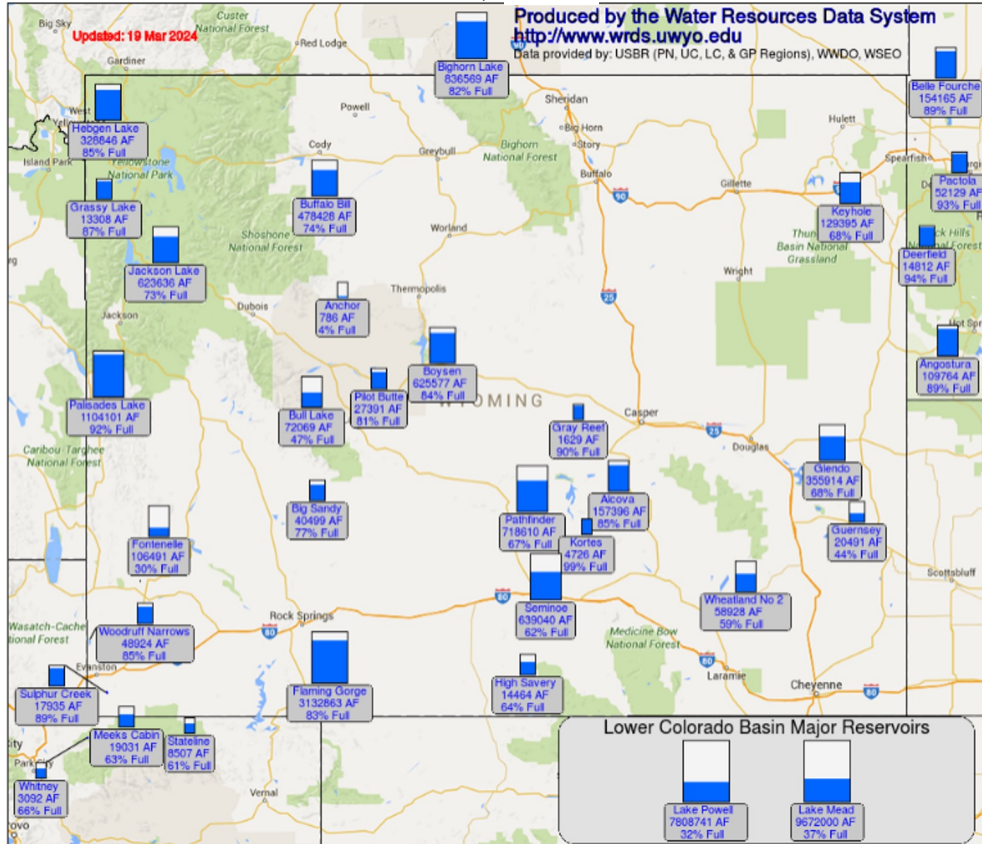
<https://dashboard.waterdata.usgs.gov/>

<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

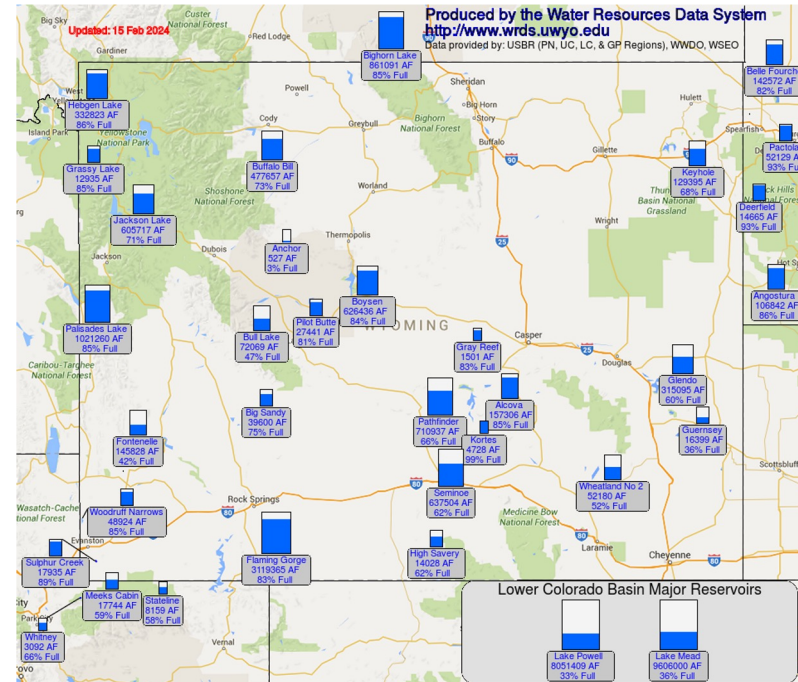
# WY Reservoirs

March 21, 2024



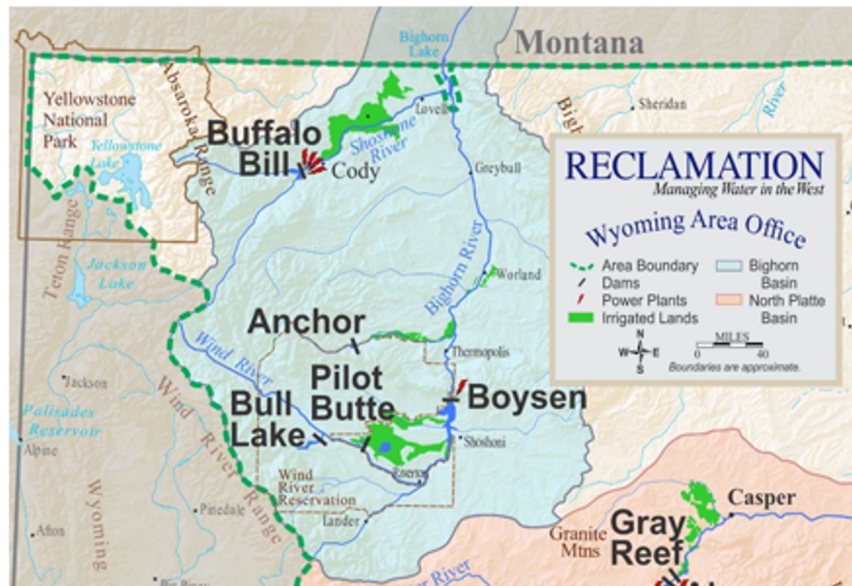
- Mostly minor changes from last month
- Most major reservoirs are 60-80% full
- Fontenelle is being lowered, - 46% since Nov
- Palisades has increased + 30% since Nov

Feb 15, 2024





# Current Reservoir Conditions: Bighorn System



## As of March 20, Bighorn System:

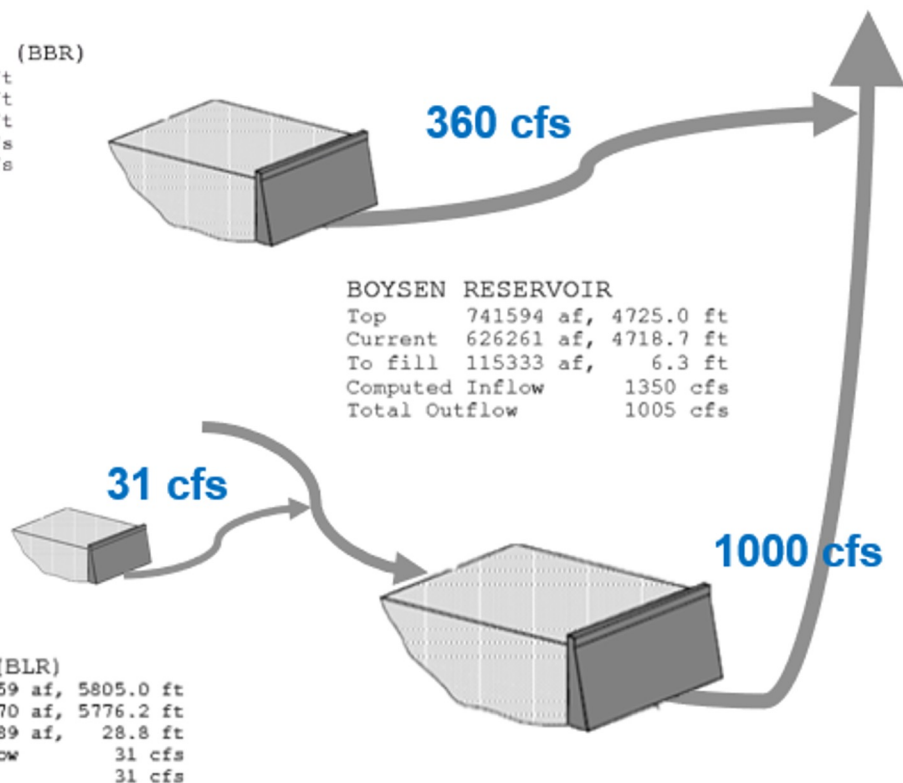
<u>Reservoir</u>	<u>Content</u>	<u>Capacity</u>	<u>% of Full</u>	<u>% of Avg</u>
Bull Lake	72,069	152,500	47%	93%
Buffalo Bill	479,359	646,600	74%	113%
Boysen	626,261	741,600	84%	112%



— BUREAU OF —  
RECLAMATION

BUFFALO BILL RESERVOIR (BBR)  
Top 644126 af, 5393.5 ft  
Current 442365 af, 5366.4 ft  
To fill 201761 af, 27.1 ft  
Computed Inflow 184 cfs  
Total Outflow 358 cfs

**Buffalo Bill Flush: April 9 – 11**  
**Flush: up to 5,000cfs**  
**After flush: 1,000 cfs**



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



— BUREAU OF —  
RECLAMATION

# Current Reservoir Conditions: North Platte System



## As of March 20, North Platte System:

Reservoir	Content (AF)	Capacity	% of Full	% of Avg
Seminole	639,300	1,017,300	63%	120%
Pathfinder	718,400	1,070,000	67%	121%
Glendo	357,100	492,000	72%	98%
Guernsey	20,600	45,600	45%	115%



BUREAU OF  
RECLAMATION

Wyoming Area Office  
Bureau of Reclamation

Seminole Reservoir  
Capacity 1017.3 kaf

530 cfs

Miracle Mile

Kortes Reservoir  
Capacity 4.8 kaf  
Min Release 500 cfs

Pathfinder Reservoir  
Capacity 1016.5 kaf

Alcova Reservoir  
Capacity 184.4 kaf

North Platte River System  
Seminole Reservoir to Guernsey Reservoir

Total System Conservation Capacity 2,815.9 kaf

Gray Reef Reservoir  
Capacity 1.8 kaf  
Min Release 330 cfs

Glendo Reservoir  
Capacity 763.0 kaf  
Conservation, Reregulation,  
& Inactive 492.0 kaf  
Flood Control 271.0 kaf

March 25 – April 3  
Flush: 500- 4,000cfs  
After flush 500 cfs

Guernsey Reservoir  
Capacity 45.6 kaf

25 cfs

0 cfs

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

USDA



— BUREAU OF —  
RECLAMATION

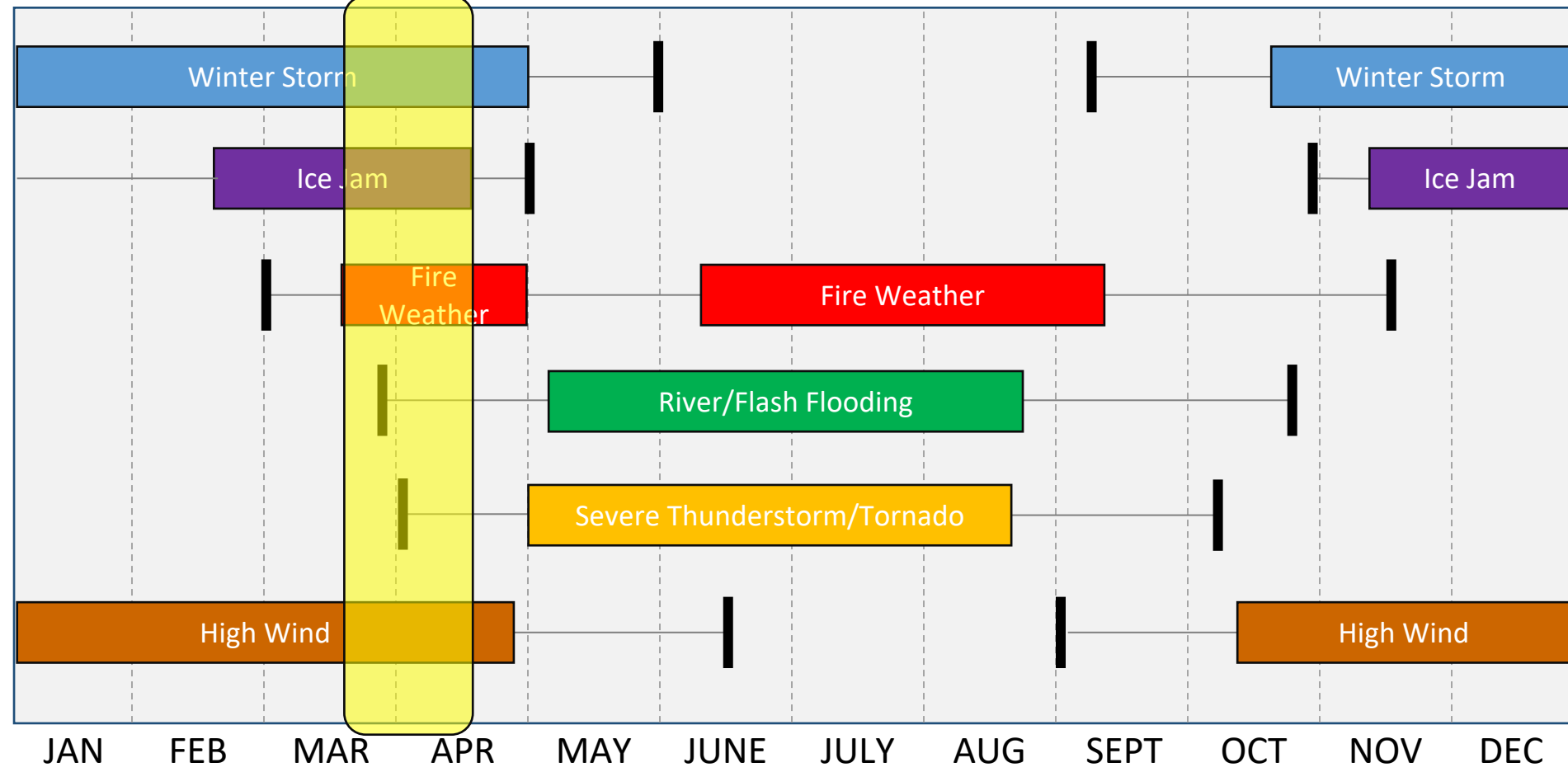


# Weather Info & Forecasts





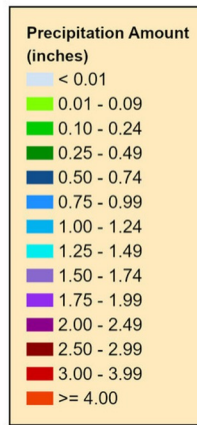
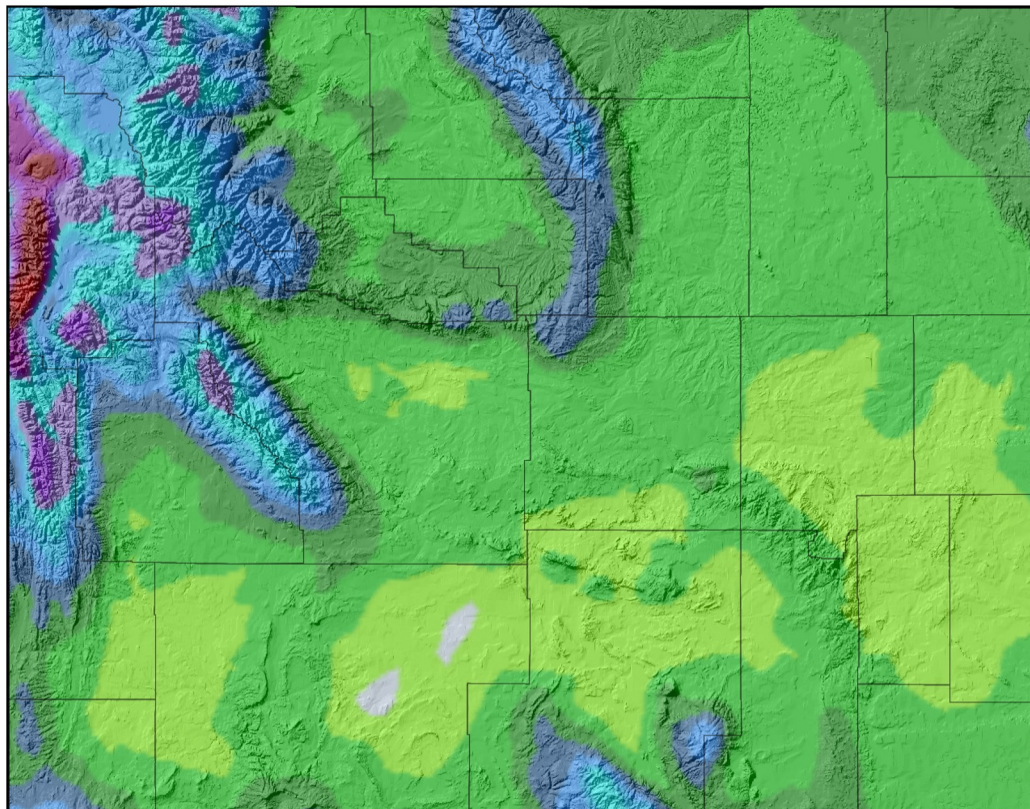
# NWS Wyoming Typical Hazard Calendar





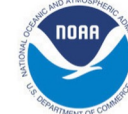
# 7-Day Total Precipitation Forecast

(Mar 21 - Mar 28)



- Multiple rounds of light to moderate mountain snow in the west
- Higher peaks in the west could see heavy snow
- Periods of light snow elsewhere

Forecast:  
Weather Prediction Center



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



Provisional data, subject to revision

[https://bit.ly/7\\_dayQPFforecast](https://bit.ly/7_dayQPFforecast)



# 8-14 Day Outlooks (Mar 28 - Apr 3)

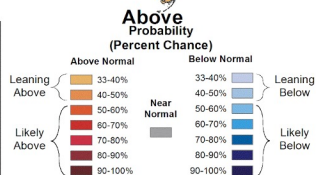
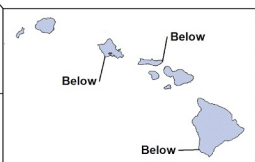
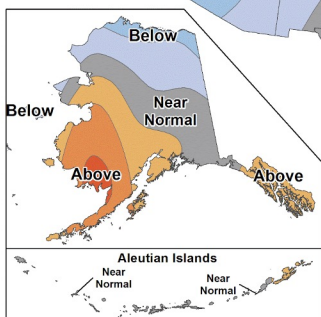
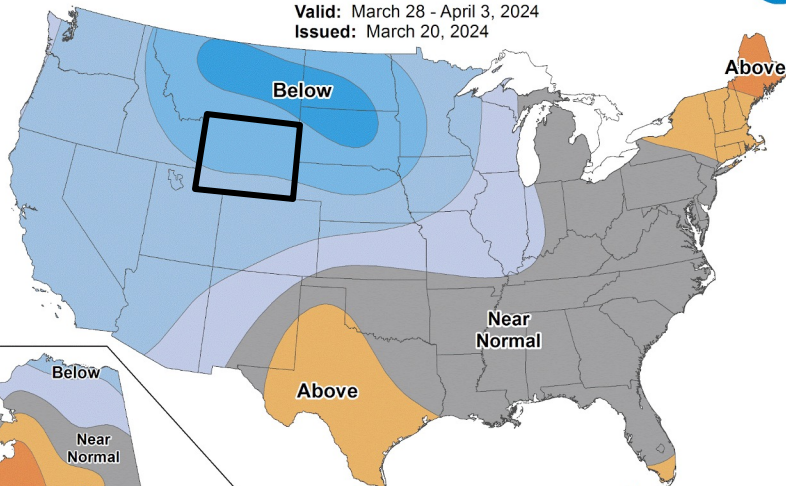
[https://bit.ly/CPC8\\_14Day](https://bit.ly/CPC8_14Day)



## 8-14 Day Temperature Outlook



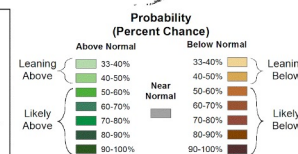
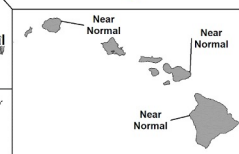
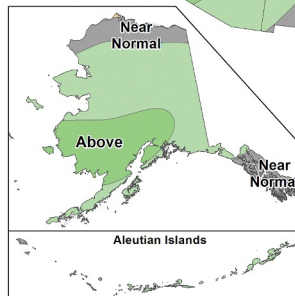
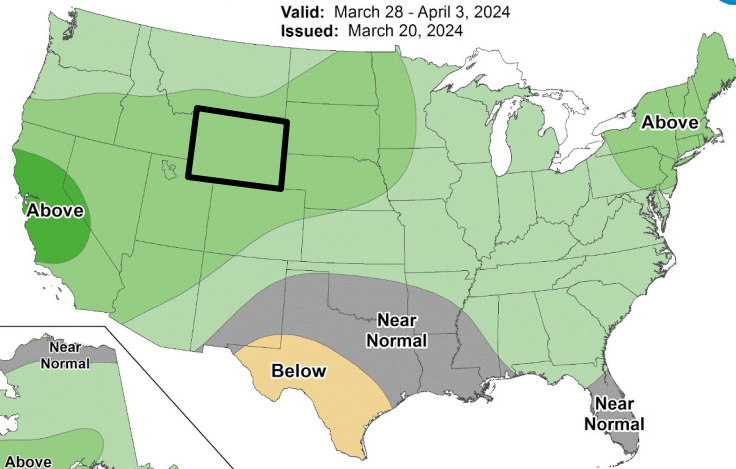
Valid: March 28 - April 3, 2024  
Issued: March 20, 2024



## 8-14 Day Precipitation Outlook



Valid: March 28 - April 3, 2024  
Issued: March 20, 2024



- Leaning to below normal temperatures

- Leaning toward above normal precipitation

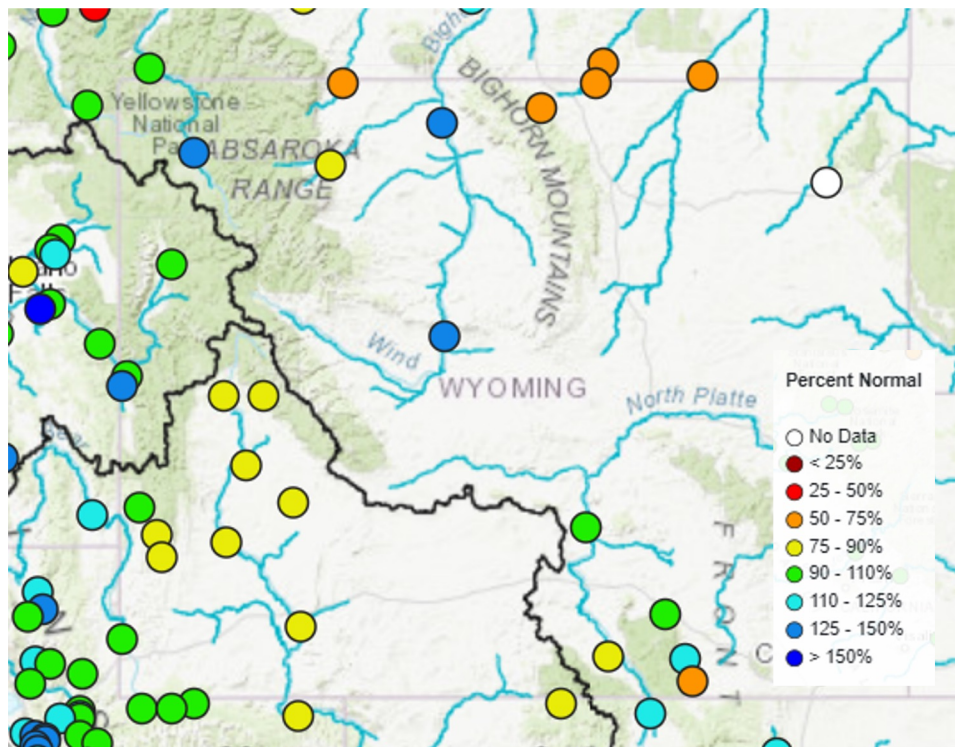






# Wyoming Water Supply Outlook: 2024

As of March 1st, 2024



**Seasonal snowmelt-driven runoff volumes are forecast to vary from near-normal (greens and blues) to below normal (oranges and yellows)**

This graphic depicts the NWS water supply outlook locations, colored by the percent of seasonal volumetric normal. Forecast points within the Colorado River Basin in southwest Wyoming span **April - July**. Other points span **April - September**.



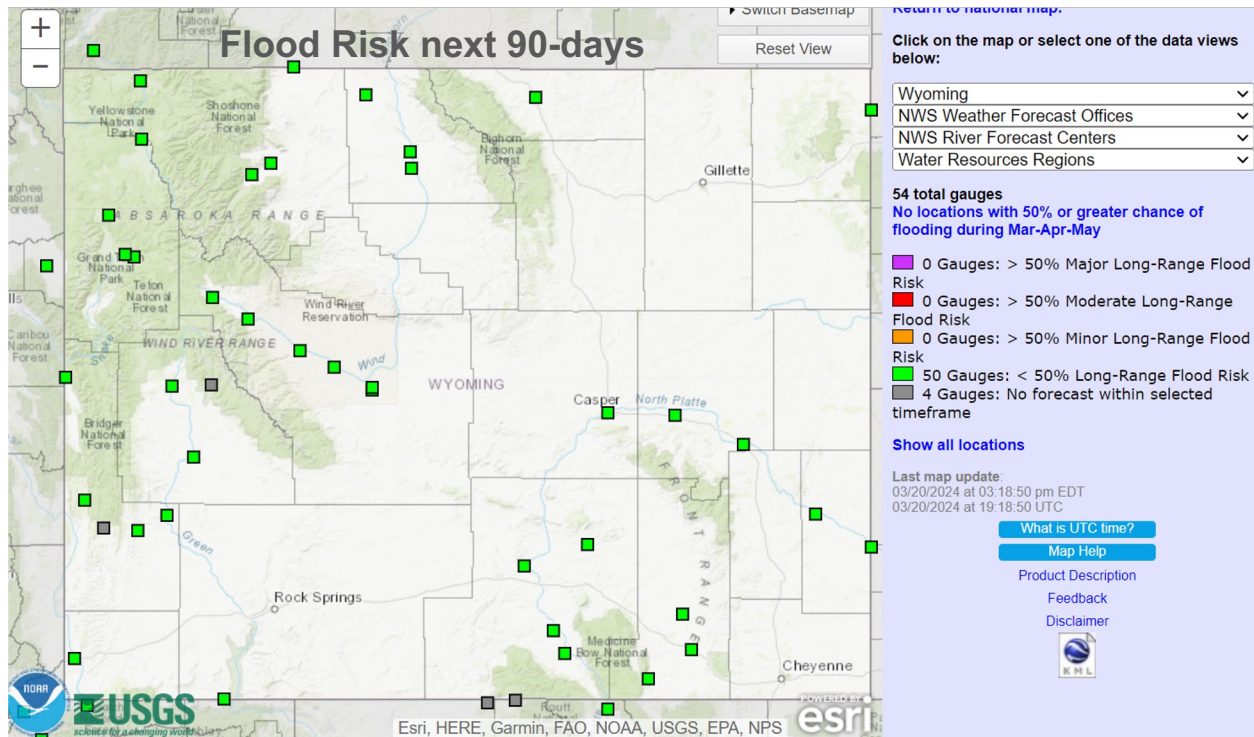
# Wyoming Flood Potential Now through mid-June

**No flooding is expected through mid-June.**

This graphic depicts NWS forecast locations over Wyoming. All gages are currently projected to stay below flood stage through March (green squares).

Note that river ice action is NOT accounted for in our river forecast model.

The National Hydrologic Assessment was issued this morning, 21 March 2024.  
<https://www.noaa.gov/news-release/spring-outlook-warmer-for-most-of-us-wetter-in-southeast>





# Highlight of the Month: An Overview of the NWS National Water Prediction Service (NWPS)

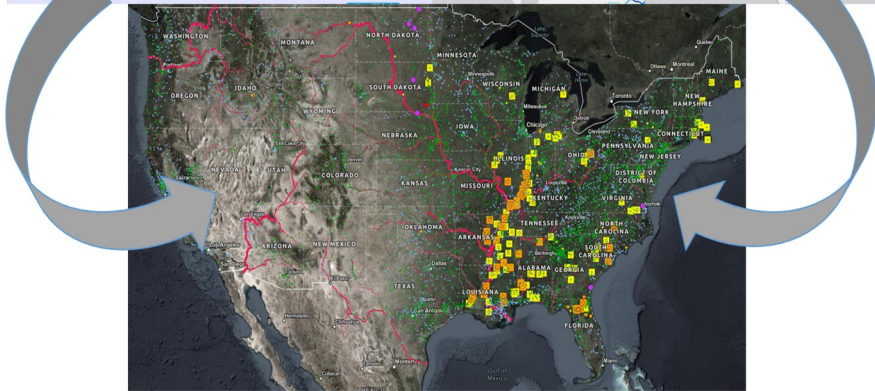
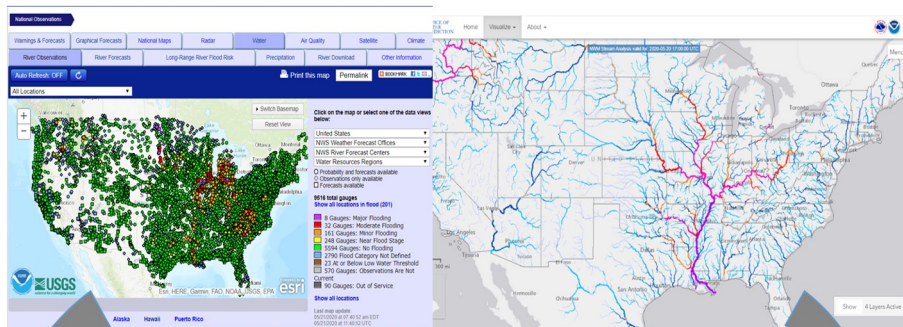




# Modernizing Hydrologic Web Dissemination

[water.weather.gov](http://water.weather.gov)

[water.noaa.gov](http://water.noaa.gov)



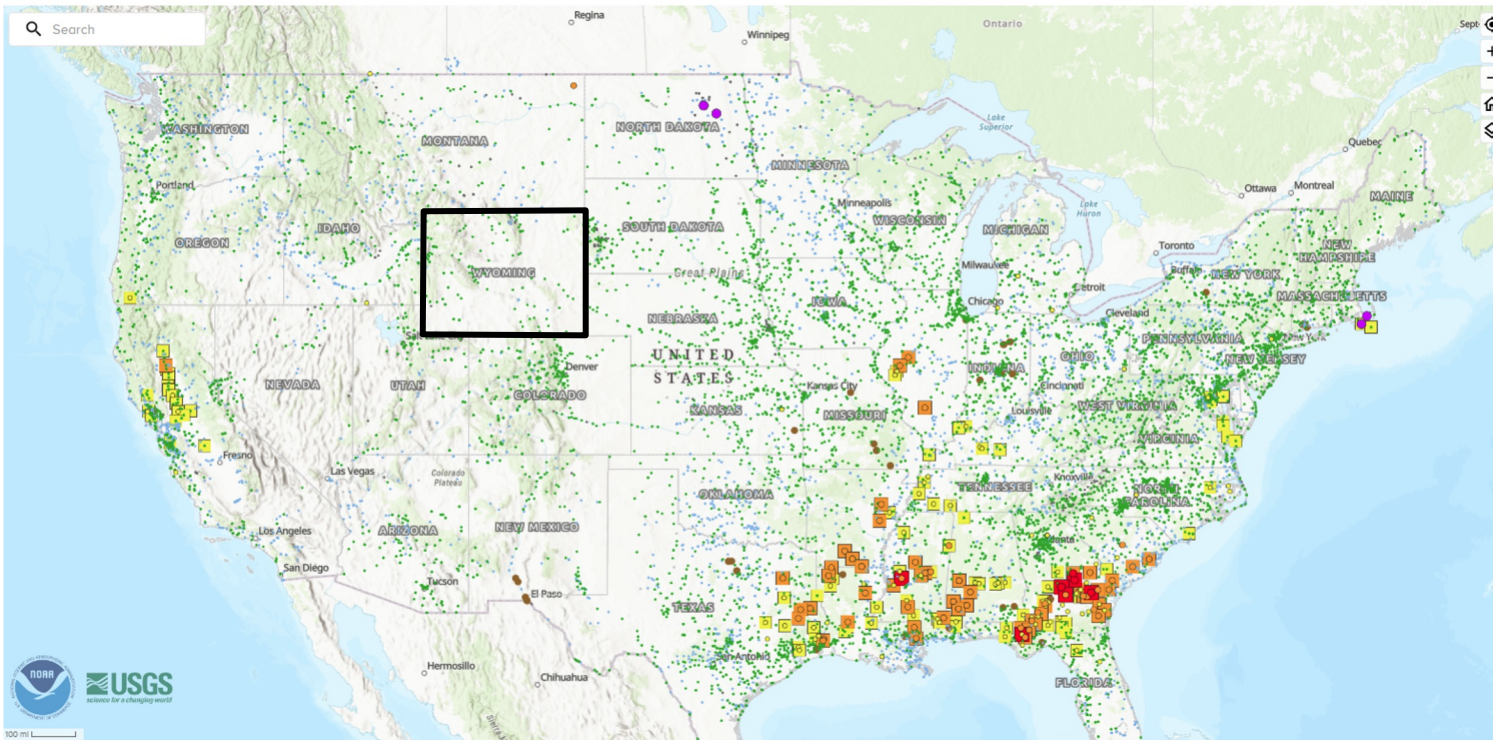
[water.noaa.gov](http://water.noaa.gov)

- The legacy Advanced Hydrologic Prediction Service (AHPS) webpage will soon be replaced with a new interface, the National Water Prediction Service (NWPS).
  - Hosted on a scalable Cloud infrastructure
  - Mobile friendly interface
  - Geospatial & API driven data services
- This is currently planned for March 27th, 2024
- A preview site is currently available at:
  - [preview.water.noaa.gov](http://preview.water.noaa.gov)
- Additional resources at:
  - [NWPS Fact Sheet](#)

[water.noaa.gov/state/wy](http://water.noaa.gov/state/wy)  
(March 27th, 2024)



Available March 27, 2024: [water.noaa.gov/state/wy](https://water.noaa.gov/state/wy)



### Map

Topographic

### Layers

▼ River Gauge

Observations & Forecasts  
 Long Range Flood Outlook

CATEGORIES	OBSERVATION	FORECAST
Major Flood	8	0
Moderate Flood	9	13
Minor Flood	121	127
Action	179	206
No Flood	10499	0
Flood Category Not Defined	4046	0
Low Water Threshold	55	0
Data Not Current	349	0
Out of Service	309	0

Limit by boundary  
 Only display Partner FIM Gauges

> Hazards

> Precipitation Estimate  
 Enabled

> National Water Model

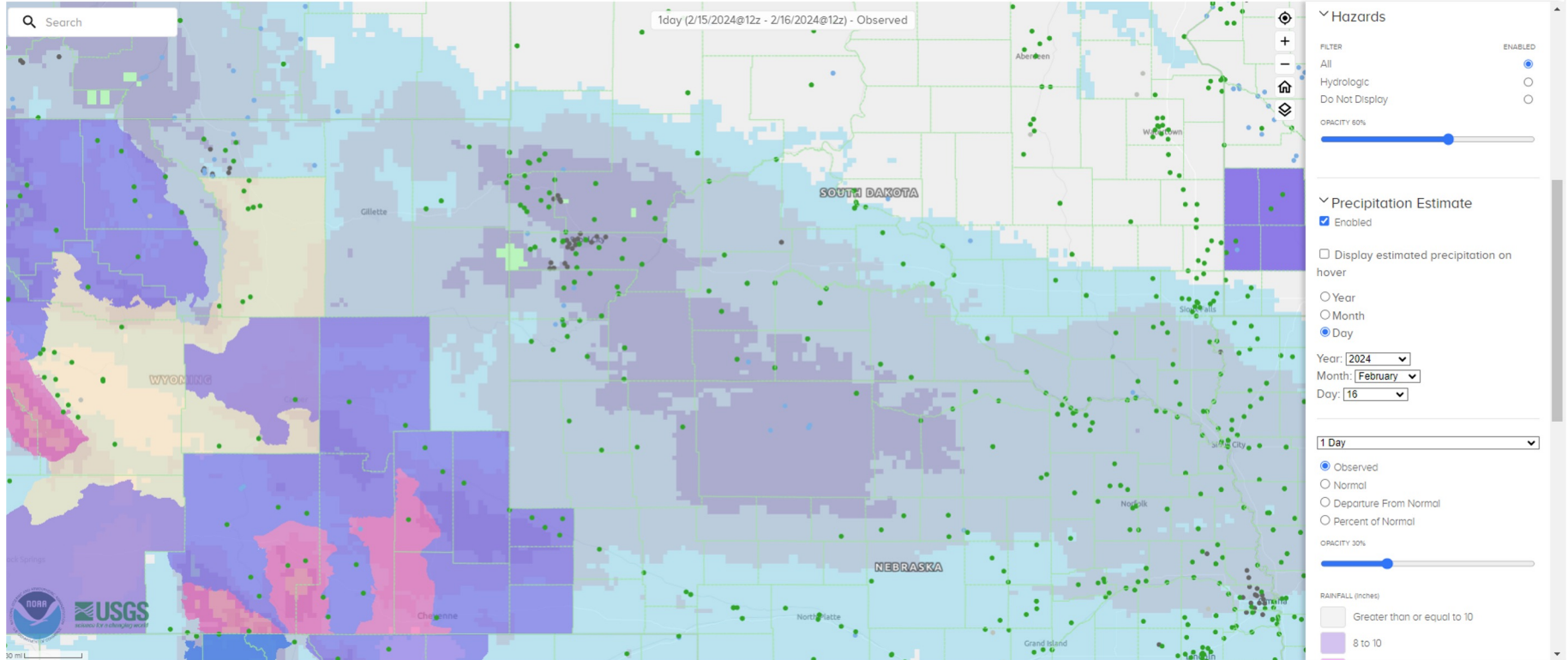
> Flood Inundation  Enabled



Available March 27, 2024: [water.noaa.gov/state/wy](https://water.noaa.gov/state/wy)

National Water Prediction Service  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

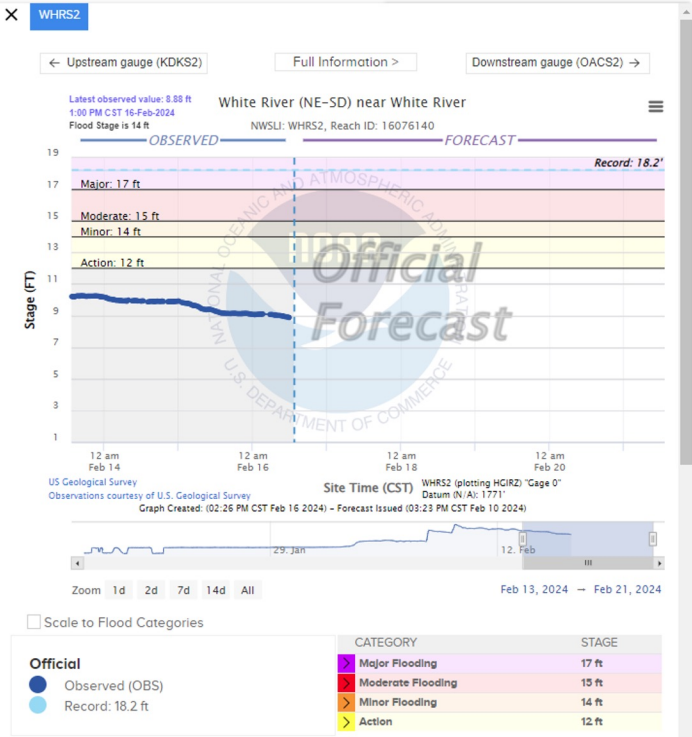
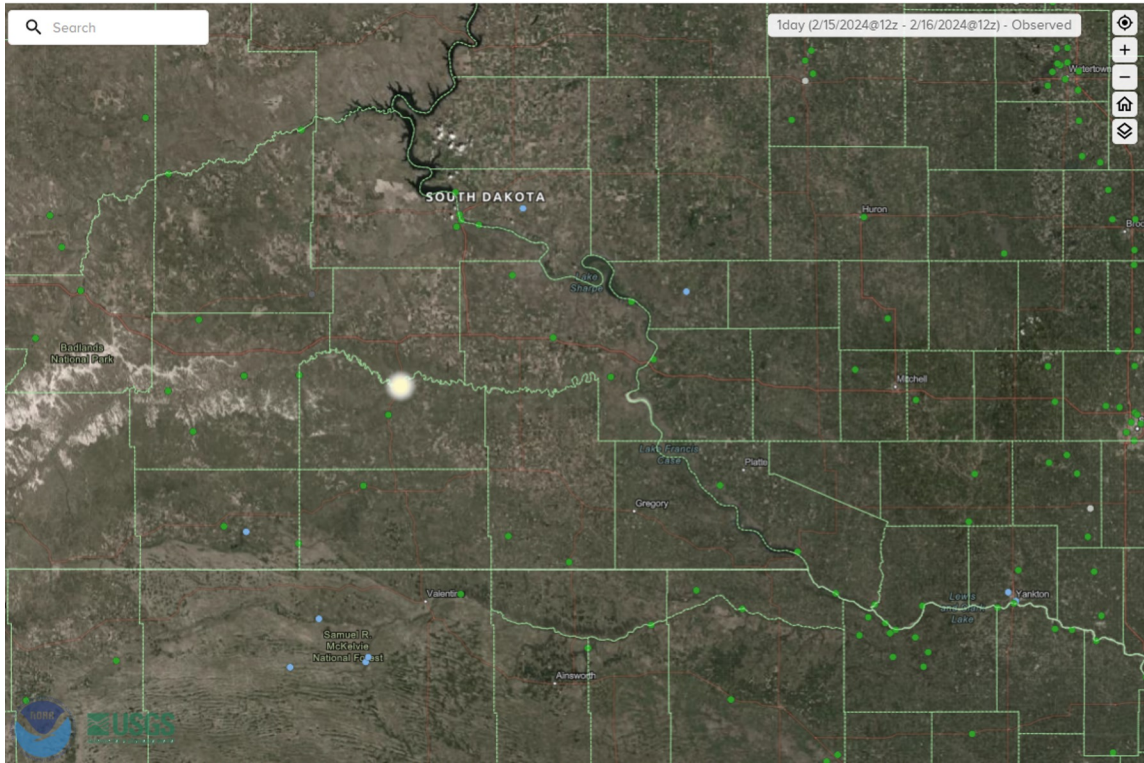
Home NWC Operations More Water Information About Explore NWS Weather



[preview.water.noaa.gov](https://preview.water.noaa.gov)



# Available March 27, 2024: [water.noaa.gov/state/wy](https://water.noaa.gov/state/wy)



Reliability of the Forecast:



# Available March 27, 2024: [water.noaa.gov/state/wy](https://water.noaa.gov/state/wy)

MBTFC / UNR / OAC52

## White River (NE-SD) near Oacoma

Last updated: Feb 8, 2024, 12:05 PM MST

No watches, warnings or advisories are in effect for this area.

White River near Oacoma

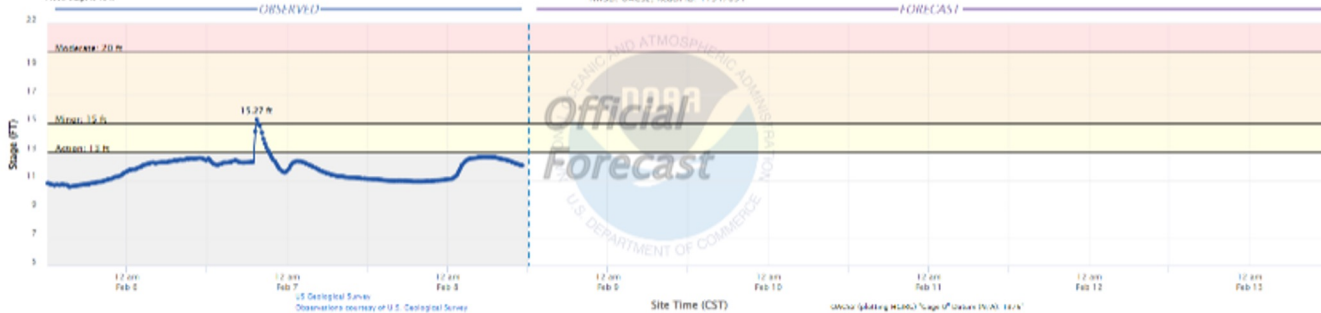
National Water Model Guidance

← UPSTREAM GAUGE (NWSID)

Downstream gauge unavailable

Latest observed value: 12.05 ft  
12:15 PM CST 6 Feb 2024  
Flow Stage is 12 ft

White River (NE-SD) near Oacoma  
NWSID: OAC52, Reach ID: 11547854



zoom 1d 2d 7d 14d All

Feb 5, 2024 - Feb 13, 2024

Scale to Flood Categories

- Official
- Observed (ORS)
- Record: 25 ft

CATEGORY	STAGE
Major Flooding	25 ft
Moderate Flooding	20 ft
Minor Flooding	15 ft
Action	12 ft



# Available March 27, 2024: [water.noaa.gov/state/wy](https://water.noaa.gov/state/wy)

Reliability of the Forecast:

**NOTE:** Forecasts are issued as needed during times of high water, but are not routinely available.

River forecasts for this location take into account past and future precipitation. The stages/flows that will occur may be different if future rainfall is different than forecast.

Gauge reading may be affected by ice.

## Flood Impacts

31 ft Water reaches Highway 42.

25 ft Major Flood Stage. Extensive flooding along the White River with inundation of structures and roads.

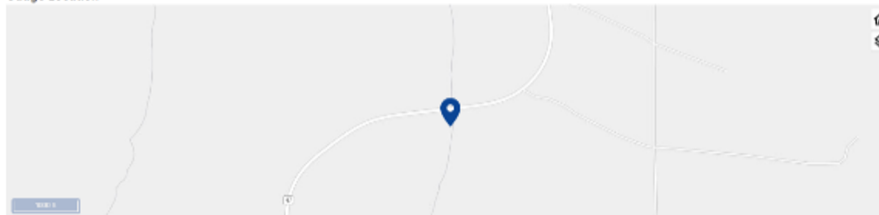
25 ft Moderate flooding along the south bank of the White River. Flooding of agricultural land downstream from the bridge along the north bank of the river.

[SHOW MORE FLOOD IMPACTS](#)

## Gauge Info

Coordinates	43.2811 -88.5585
RFC	MBRFC
State	ID
WFO	UNR
County	Lyon
Data Provider	
US Geologic Survey	USGS-NWIS: Records of the United States
USGS	0649200
COE	W0424

## Gauge Location



- Display DACS2 marker
- Display FEMA's National Flood Hazard Layers

## Recent Crests

11.64 ft on 10-16-2021  
11.53 ft on 03-22-2021  
12.46 ft on 05-19-2020  
17.02 ft on 03-02-2020  
20.63 ft on 03-25-2019

[SHOW ALL](#)

## Historic Crests

25.02 ft on 03-16-2011  
24.87 ft on 03-19-2019  
24.70 ft on 03-04-1994  
24.44 ft on 03-15-2001  
23.84 ft on 02-20-1997

[SHOW ALL](#)

† Preliminary values subject to further review.  
\* Gauge dates changed during this year.



# Available March 27, 2024: [water.noaa.gov/state/wy](https://water.noaa.gov/state/wy)

Gauge Photos

Photo 1 of 11

Probability Information

Photo 1 of 3

Weekly Chance of Exceeding Levels

About this graph

[Stage]

Weekly chance of exceeding River Stage on the WHE #1 at GACOMA SD 95W  
 Forecast for the period: 01/27/2024 - 03/20/2024  
 This is a conditional simulation based on the current conditions as of 03/22/2024

Date	>= 90%	75-90%	50-75%	25-50%	10-25%
03/27	0.5	0.5	0.5	0.5	0.5
03/28	0.5	0.5	0.5	0.5	0.5
03/29	0.5	0.5	0.5	0.5	0.5
03/30	0.5	0.5	0.5	0.5	0.5
03/31	0.5	0.5	0.5	0.5	0.5
04/01	0.5	0.5	0.5	0.5	0.5
04/02	0.5	0.5	0.5	0.5	0.5
04/03	0.5	0.5	0.5	0.5	0.5
04/04	0.5	0.5	0.5	0.5	0.5
04/05	0.5	0.5	0.5	0.5	0.5
04/06	0.5	0.5	0.5	0.5	0.5
04/07	0.5	0.5	0.5	0.5	0.5
04/08	0.5	0.5	0.5	0.5	0.5
04/09	0.5	0.5	0.5	0.5	0.5
04/10	0.5	0.5	0.5	0.5	0.5
04/11	0.5	0.5	0.5	0.5	0.5
04/12	0.5	0.5	0.5	0.5	0.5
04/13	0.5	0.5	0.5	0.5	0.5

Looking upstream

Unique Local Info

How low could the river get?

Collaborative Agencies

The National Weather Service prepares its forecasts and other services in collaboration with agencies like the US Geological Survey, US Bureau of Reclamation, US Army Corps of Engineers, Natural Resource Conservation Service, National Park Service, ALEKI Users Group



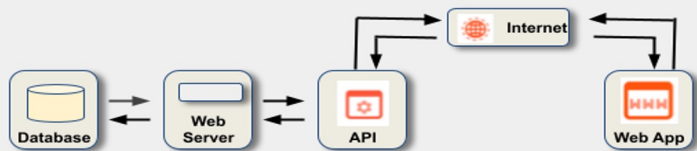
Available March 27, 2024: [water.noaa.gov/state/wy](https://water.noaa.gov/state/wy)

## Application Programming Interface (API)



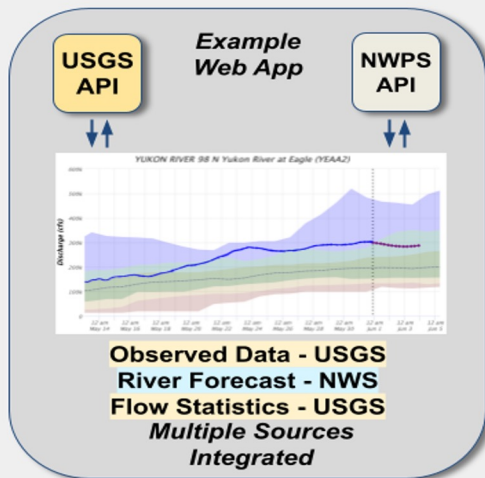
## GIS REST Services in Cloud

API: A collection of web services whose input parameters and output formats are well-documented, allowing systems to integrate NWS water data.



The new **National Water Prediction System (NWPS)** is the **NWS water Web App** driven by our own **API (Preview Here)**

Core Partners and Third Party Web Apps can leverage the NWPS - API to integrate forecast data into **your** decision support tools.



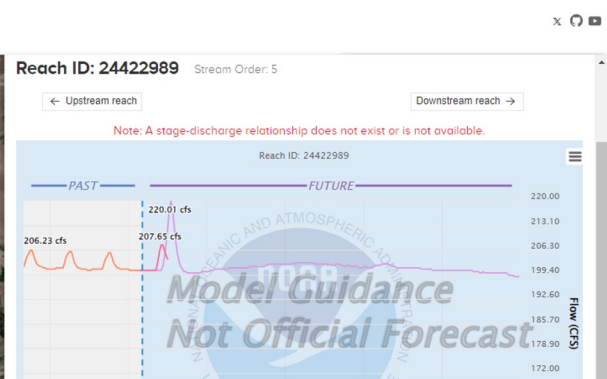
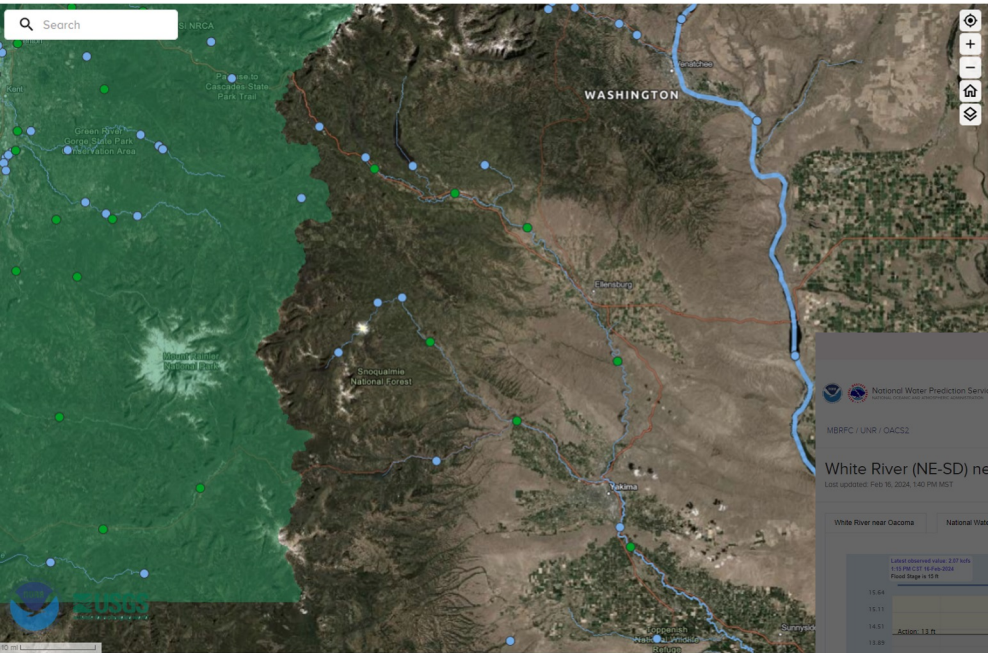
Permanent URL:  
<https://api.water.noaa.gov/nwps/v1/docs/>

<https://www.weather.gov/gis/cloudgiswebservices>





# Available March 27, 2024: [water.noaa.gov/state/wy](https://water.noaa.gov/state/wy)



This experimental website SHOULD NOT be used for decision making. [CLICK HERE](#) to learn more about the website.

MBRFC / UNR / OAC52

## White River (NE-SD) near Oacoma

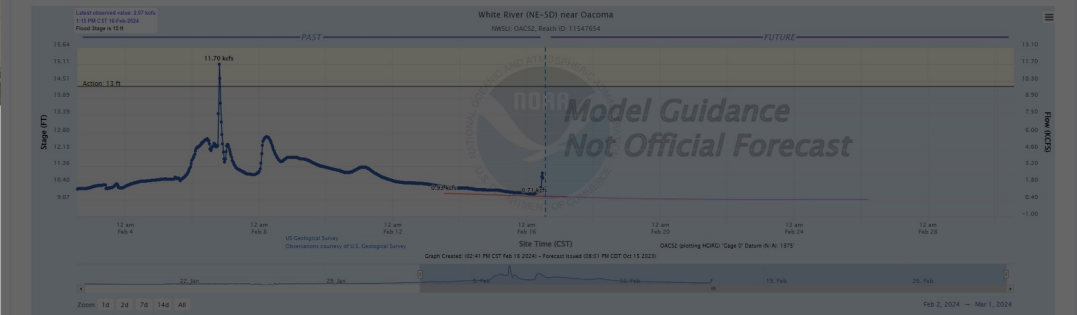
Last updated: Feb 16, 2024, 1:40 PM MST

White River near Oacoma      National Water Model Guidance

**National Water Model Hydrograph**

Official NWS streamflow forecasts are produced by NWS hydrologic forecasters for river gauge locations using hydrologic models which are calibrated to that location. This process considers additional guidance and information, including local expertise and experience, to produce the best forecast possible. The NWM output provides supplemental guidance to NWS forecasters and should not be considered an official NWS river forecast.

CLOSE



<https://water.noaa.gov/about/nwm>



— BUREAU OF —  
RECLAMATION



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**Get Involved!**  
Submit a *Condition Monitoring  
Observer Report*



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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!**