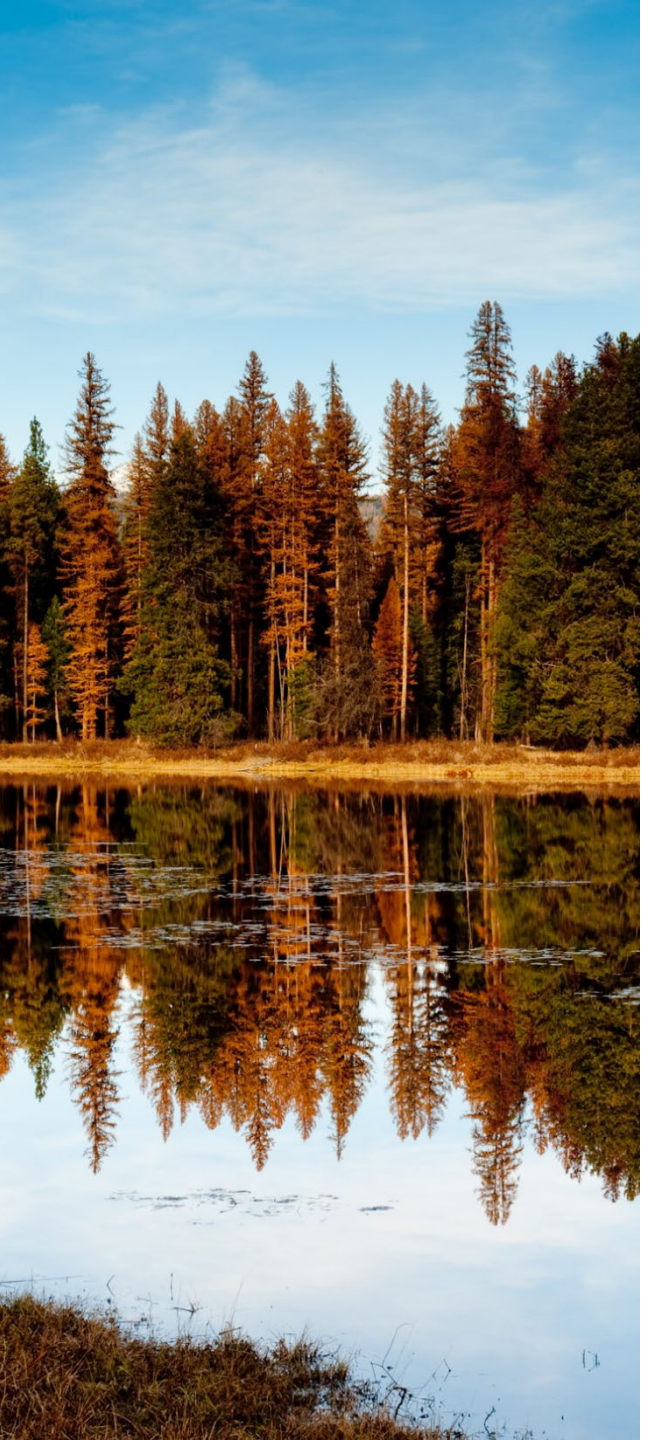
# DRAFT MONTANA DROUGHT MANAGEMENT PLAN

Cori Hach, Water Planning, Implementation, and Communications Bureau Chief



# STAKEHOLDER ENGAGEMENT 2020 - 2023

Interagency Drought Task Force

Regional Stakeholder Groups

Interviews (63 one-on-one)

Surveys (250 respondents)

Technical advisors (15 – 20 multi-disciplinary experts)

Reviewers (50+ people across state and federal agencies, universities, NGOs, tribes, and water-use sectors like health, municipal, and agricultural)

45-day public comment period – and Plan revision

THE VISION:

# Building Resilience

Modern, proactive plan that is accessible and actionable

Updated management framework and monitoring guidance and vulnerability assessment

Programs, policies, and actions to

reduce impacts through better response and preparedness

Web-based tools & resources

# Vulnerability Assessment

Vulnerabilities are the underlying causes of drought impacts.

## Vulnerability assessment

- Planning tool
- Informs development of response actions and adaptation strategies
- Allows for systematic comparisons across the state (counties, sectors)
- Supports local and state decision-making with data

**Impact**

*Added expenses from purchasing/transporting supplemental hay*

→

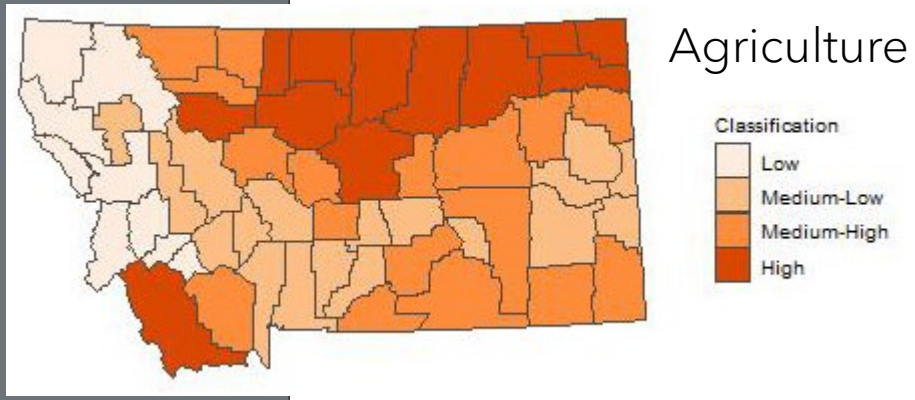
**Potential strategies**

- *Evaluate relief programs*
- *Enhance communication networks*
- *Broaden incentive programs*

# Vulnerability Assessment

**Scores**

Indicator data combined to produce vulnerability score (data: various economic, environmental, water use, population for each sector)




**Narratives**

63 one-on-one narratives and 250 survey responses; common themes identified

Ideas for responding and adapting

*…one thing, is to provide either emergency funding or emergency loans, zero interest loans, long term zero interest loans, like a 30-year loan that's easily affordable to pay back on crop ground, where you can drill wells, or put a pipeline in and some tanks because ECPs helping with range land, but if you have to cross BLM or state, they won't fund that portion of it. So if maybe there's a way to fill in some of the holes … that would be great. – Farmer/Rancher*

## Management Recommendations

Water storage and delivery

Water policy

Funding

Drought and water supply monitoring

Human health

Community governance

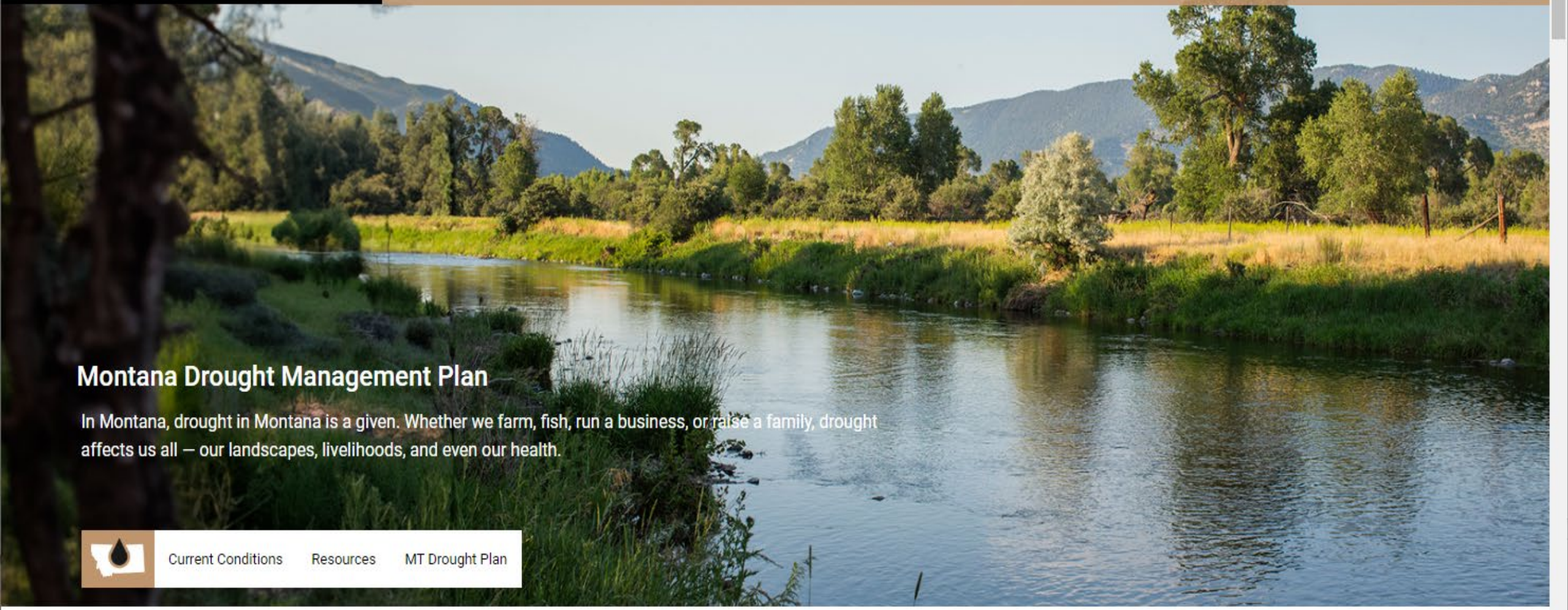
Agency coordination and partnerships

SEARCH

MONTANA
Drought Management

Home | Response Actions | Drought Vulnerablility | Resources | Monitoring | Living with Drought

Current Conditions | Resources | MT Drought



## Montana Drought Management Plan

In Montana, drought in Montana is a given. Whether we farm, fish, run a business, or raise a family, drought affects us all — our landscapes, livelihoods, and even our health.

Current Conditions | Resources | MT Drought Plan

# Welcome to Drought.mt.gov

Public Comment Period – June 19 – August 4

*Draft* Plan and Public Comment Form available at

# MTDroughtInfo.org

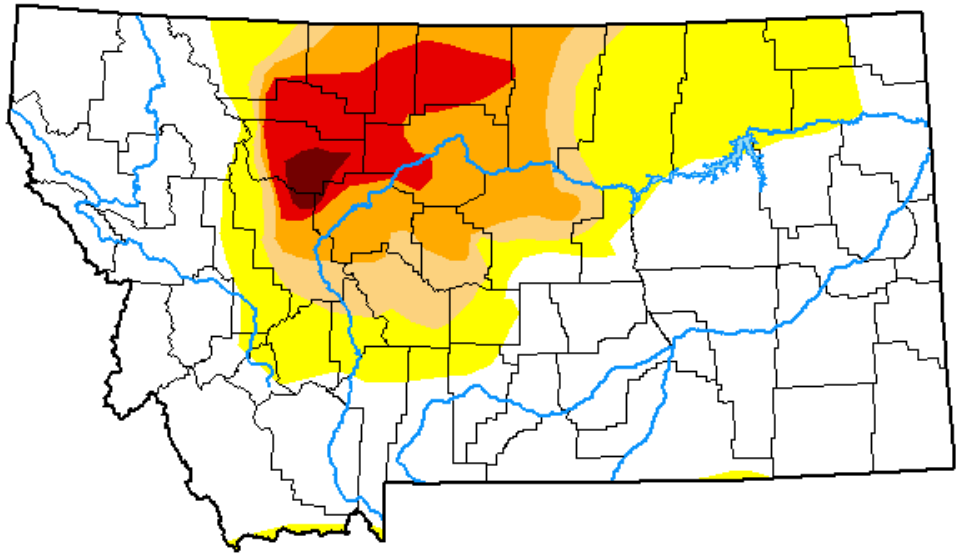
- Comments submitted by individuals and organizations
- Comment areas for each major section of Plan
- Lots to say?
  - Send letters to DNRCDroughtPlan@mt.gov

# Summer 2023 Water Supply & Drought Outlook

Michael Downey, DNRC Drought and Water Supply Coordinator

## *U.S. Drought Monitor*

# Montana



## July 19, 2022

***(Released Thursday, Jul. 21, 2022)***

**Valid 8 a.m. EDT**

*Drought Conditions (Percent Area)*

| | None | D0-D4 | D1-D4 | D2-D4 | D3-D4 | D4 |
|---|---|---|---|---|---|---|
| **Current** | 60.96 | 39.04 | 21.17 | 15.35 | 6.08 | 0.63 |
| **Last Week** *07-12-2022* | 60.19 | 39.81 | 26.51 | 15.35 | 6.45 | 3.01 |
| **3 Months Ago** *04-19-2022* | 9.43 | 90.57 | 85.40 | 82.52 | 50.41 | 0.00 |
| **Start of Calendar Year** *01-04-2022* | 7.36 | 92.64 | 89.33 | 86.35 | 53.93 | 13.87 |
| **Start of Water Year** *09-28-2021* | 0.00 | 100.00 | 100.00 | 100.00 | 65.68 | 21.91 |
| **One Year Ago** *07-20-2021* | 0.00 | 100.00 | 96.18 | 77.36 | 44.97 | 5.35 |

*Intensity:*

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

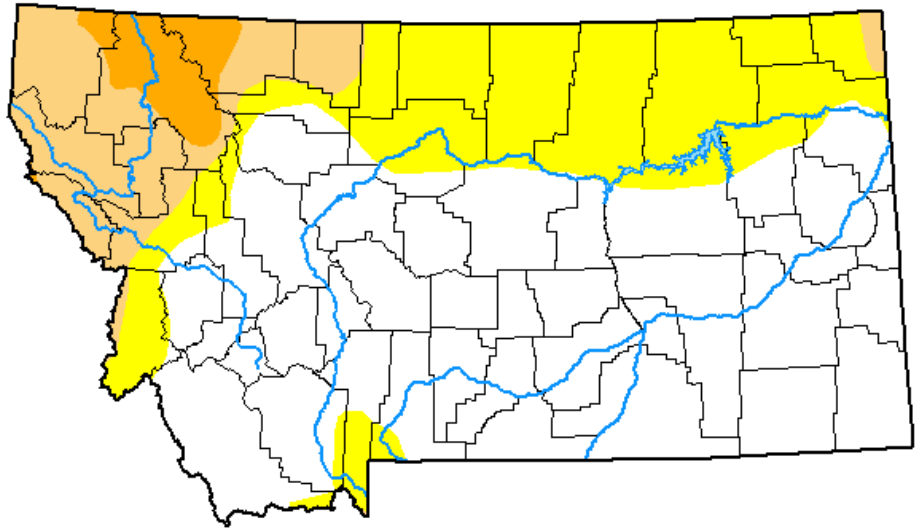
*The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to https://droughtmonitor.unl.edu/About.aspx*

*Author:*
Brian Fuchs
National Drought Mitigation Center

**droughtmonitor.unl.edu**

## *U.S. Drought Monitor*

# Montana



## July 18, 2023

***(Released Thursday, Jul. 20, 2023)***

**Valid 8 a.m. EDT**

*Drought Conditions (Percent Area)*

| | None | D0-D4 | D1-D4 | D2-D4 | D3-D4 | D4 |
|---|---|---|---|---|---|---|
| **Current** | 60.16 | 39.84 | 14.63 | 3.54 | 0.00 | 0.00 |
| **Last Week** *07-11-2023* | 61.70 | 38.30 | 14.31 | 3.54 | 0.00 | 0.00 |
| **3 Months Ago** *04-18-2023* | 33.34 | 66.66 | 40.21 | 5.29 | 0.00 | 0.00 |
| **Start of Calendar Year** *01-03-2023* | 8.71 | 91.29 | 59.92 | 36.33 | 10.80 | 0.00 |
| **Start of Water Year** *09-27-2022* | 5.40 | 94.60 | 77.46 | 45.05 | 12.35 | 0.00 |
| **One Year Ago** *07-19-2022* | 60.96 | 39.04 | 21.17 | 15.35 | 6.08 | 0.63 |

*Intensity:*

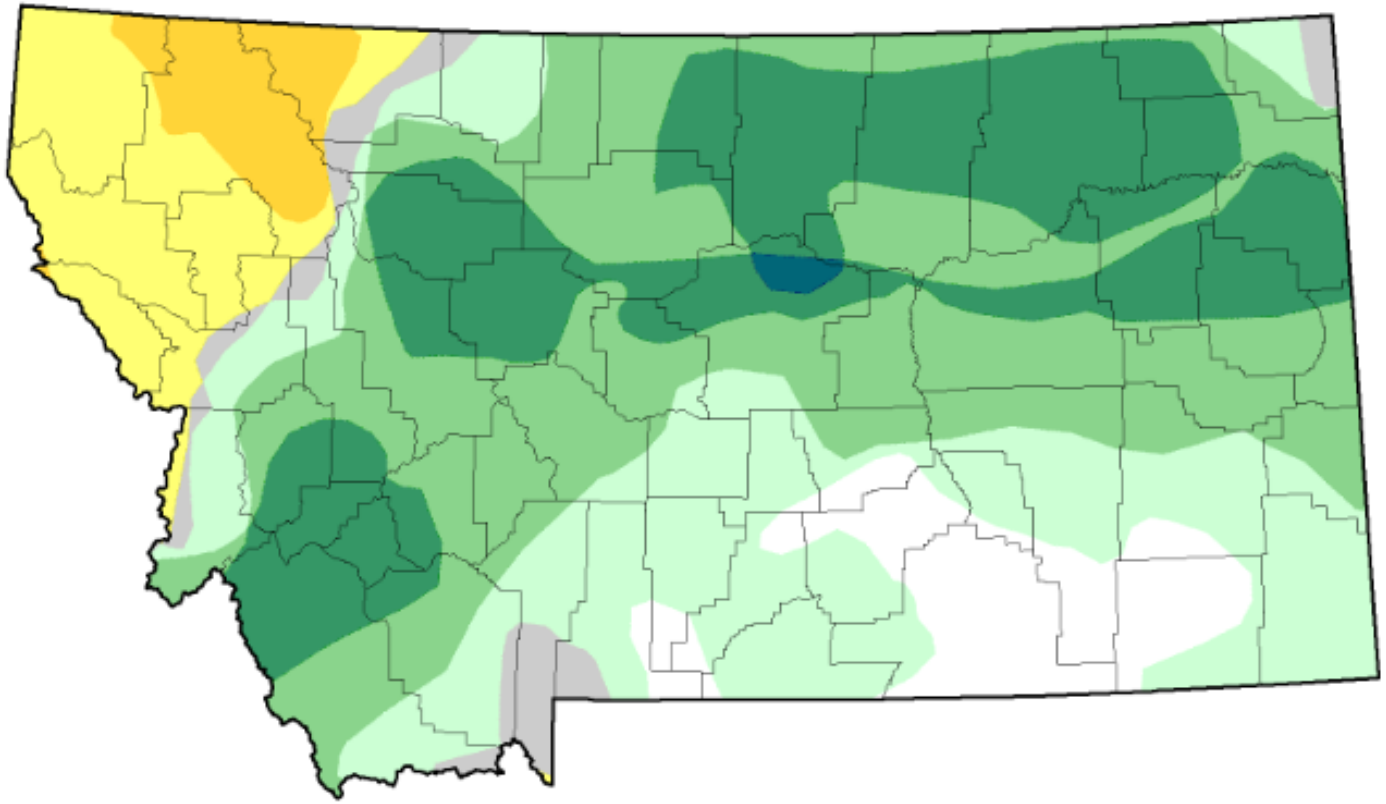
- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

*The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to https://droughtmonitor.unl.edu/About.aspx*

*Author:*
Richard Tinker
CPC/NOAA/NWS/NCEP

**droughtmonitor.unl.edu**

# U.S. Drought Monitor Class Change - Montana
26 Week

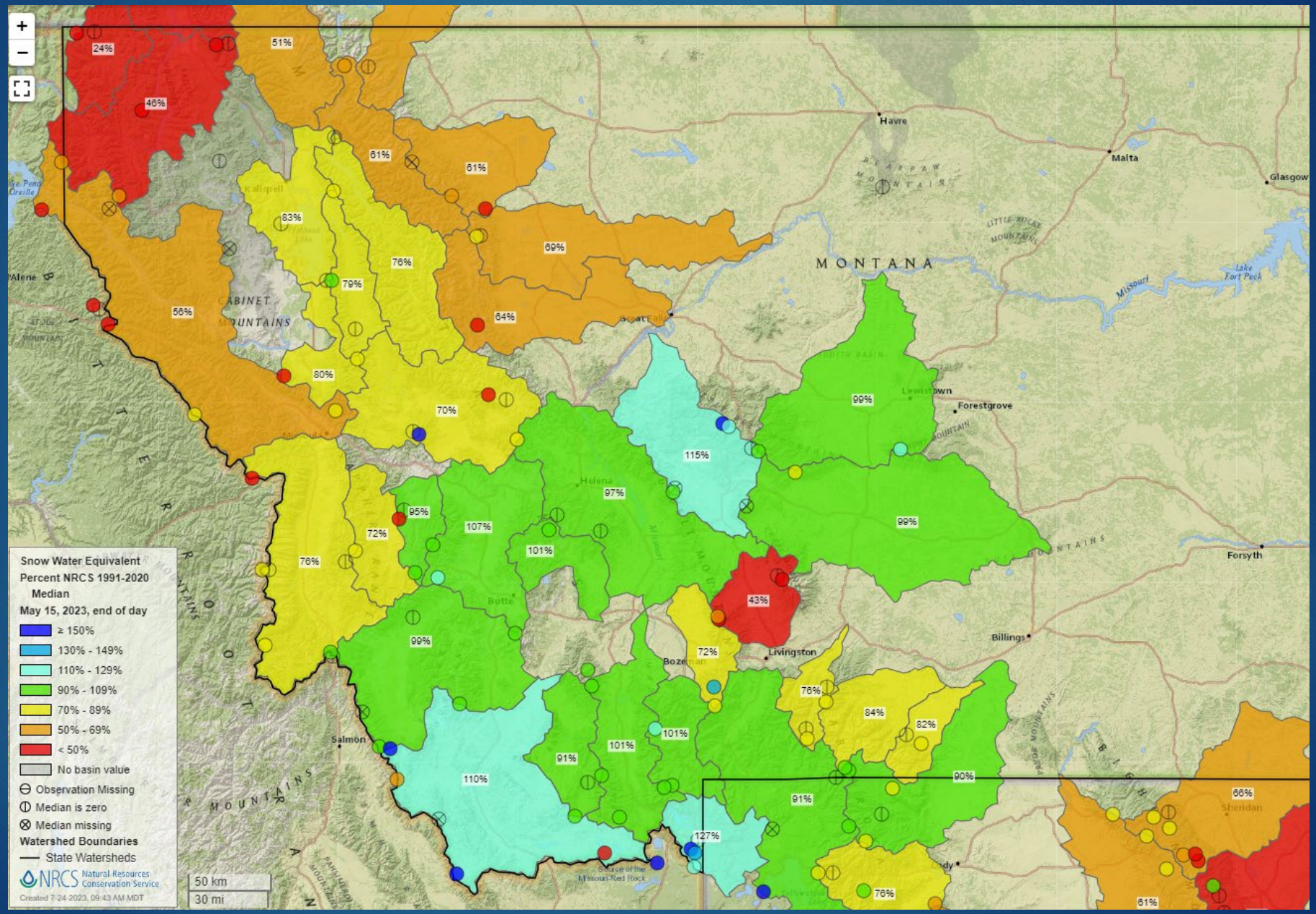


July 18, 2023
compared to
January 17, 2023

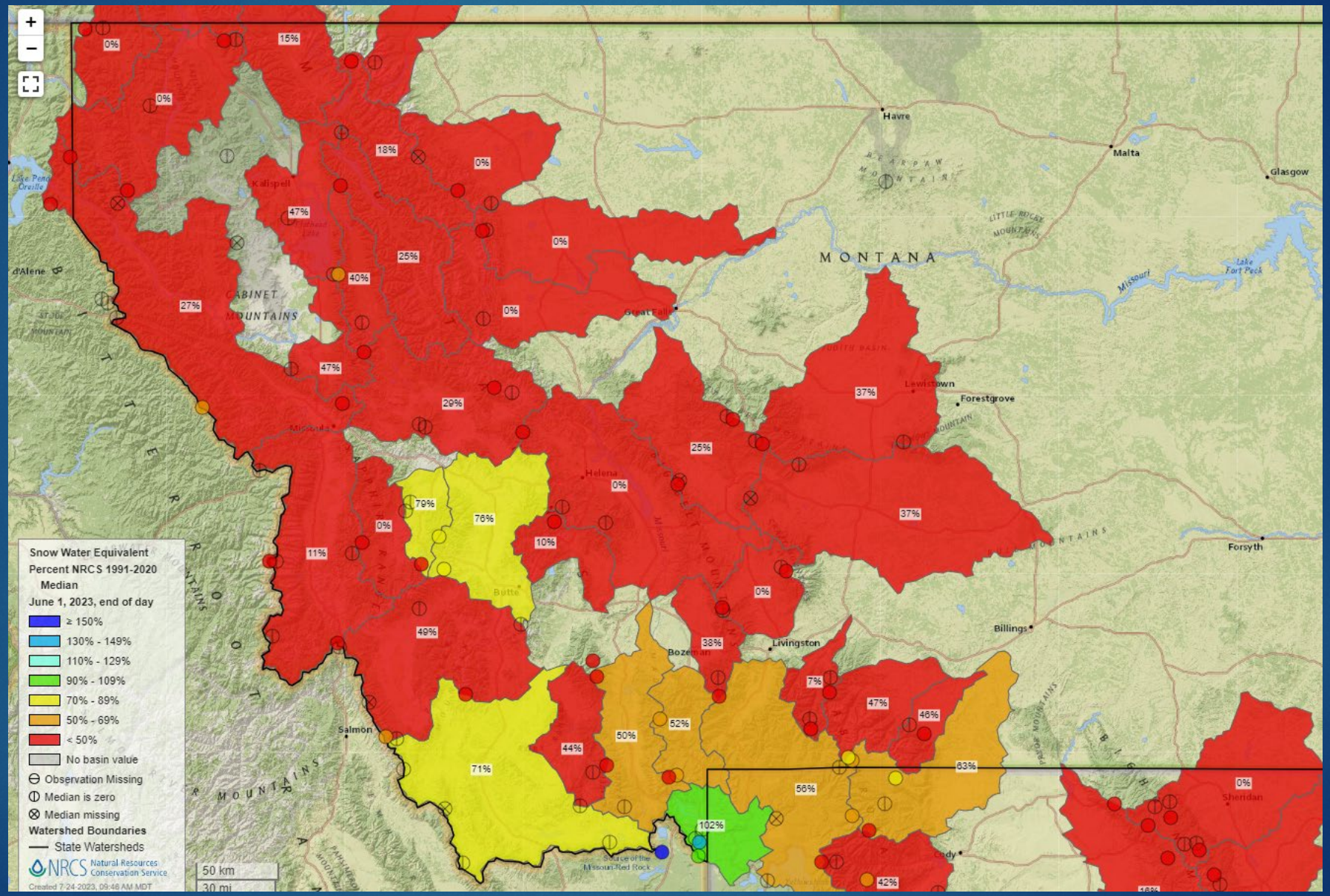
droughtmonitor.unl.edu

- 5 Class Degradation
- 4 Class Degradation
- 3 Class Degradation
- 2 Class Degradation
- 1 Class Degradation
- No Change
- 1 Class Improvement
- 2 Class Improvement
- 3 Class Improvement
- 4 Class Improvement
- 5 Class Improvement

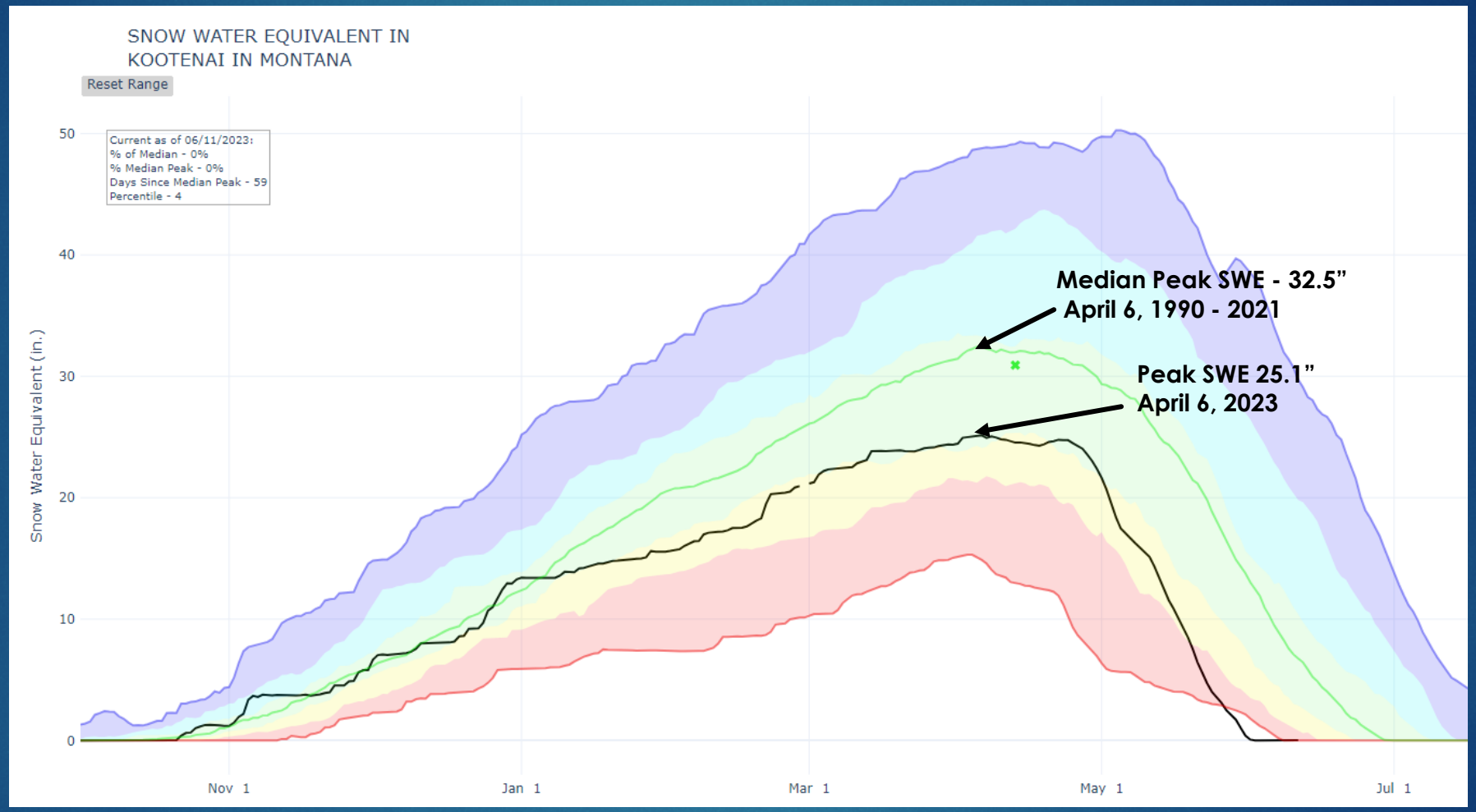
# Snow Water Equivalent by basin May 15, 2023



# Snow Water Equivalent by basin June 1, 2023

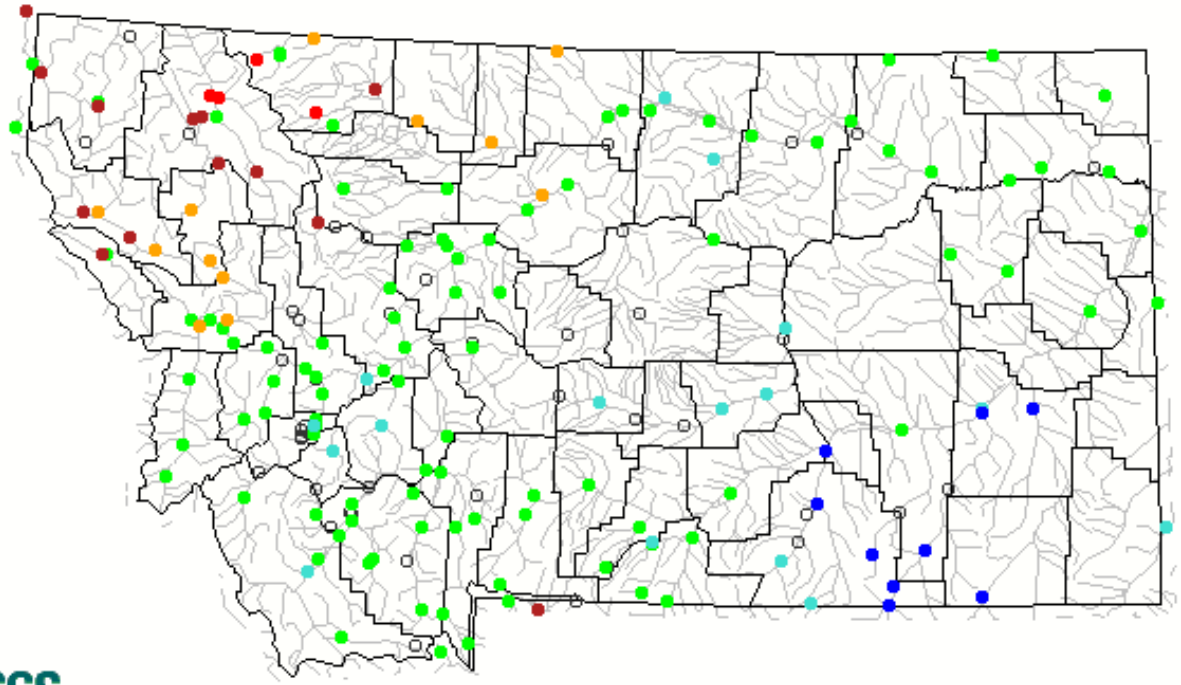


# Snow Water Equivalent – Kootenai Basin June 15, 2023




June 2, 2023: SWE = 0 / June 2, Median SWE = 12.5"

# 14 Day Average Streamflow as Compared to Historical Average, July 23, 2023



USGS

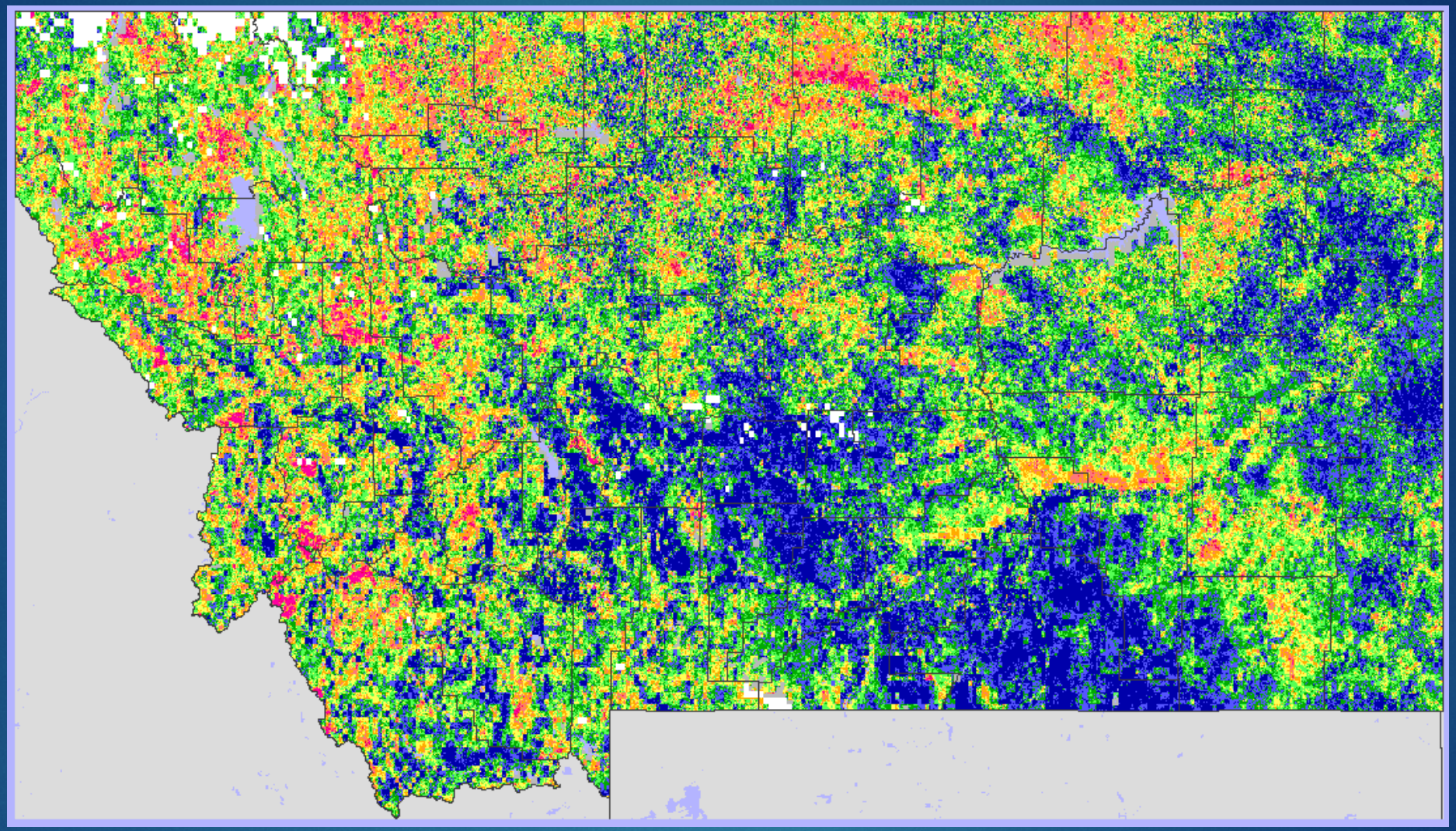
Search USGS streamgage

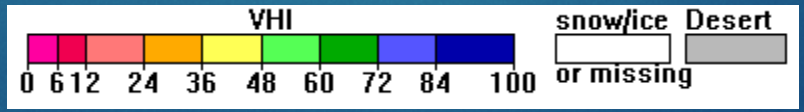
**Choose a data retrieval option and select a location on the map**

○ **List of all stations** ◉ **Single station** ○ **Nearest stations**

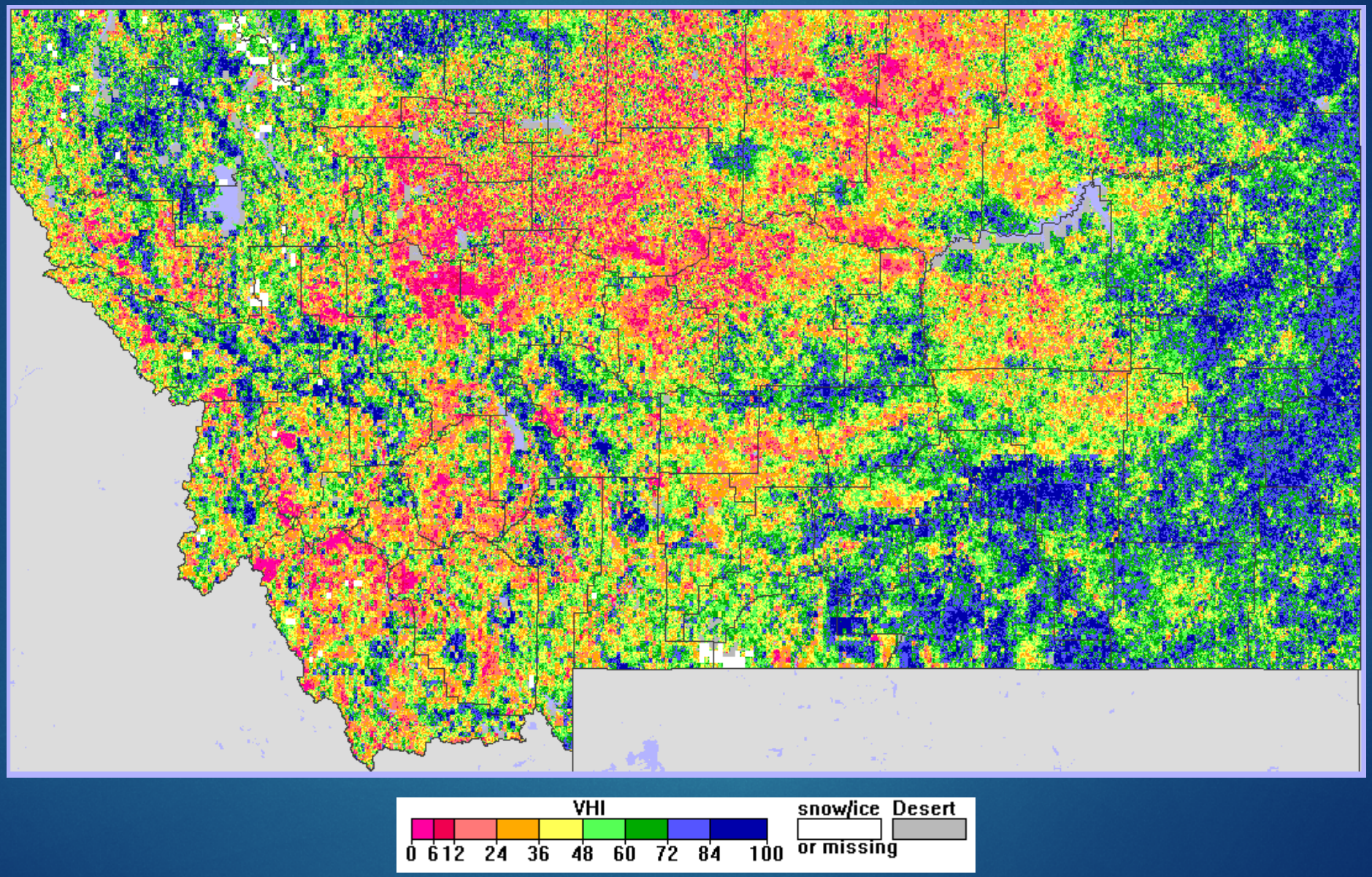
| Explanation - Percentile classes | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| Low | <10 | 10-24 | 25-75 | 76-90 | >90 | High | Not-ranked |
| | Much below normal | Below normal | Normal | Above normal | Much above normal | | |

# Vegetative Health Index – July 15, 2023

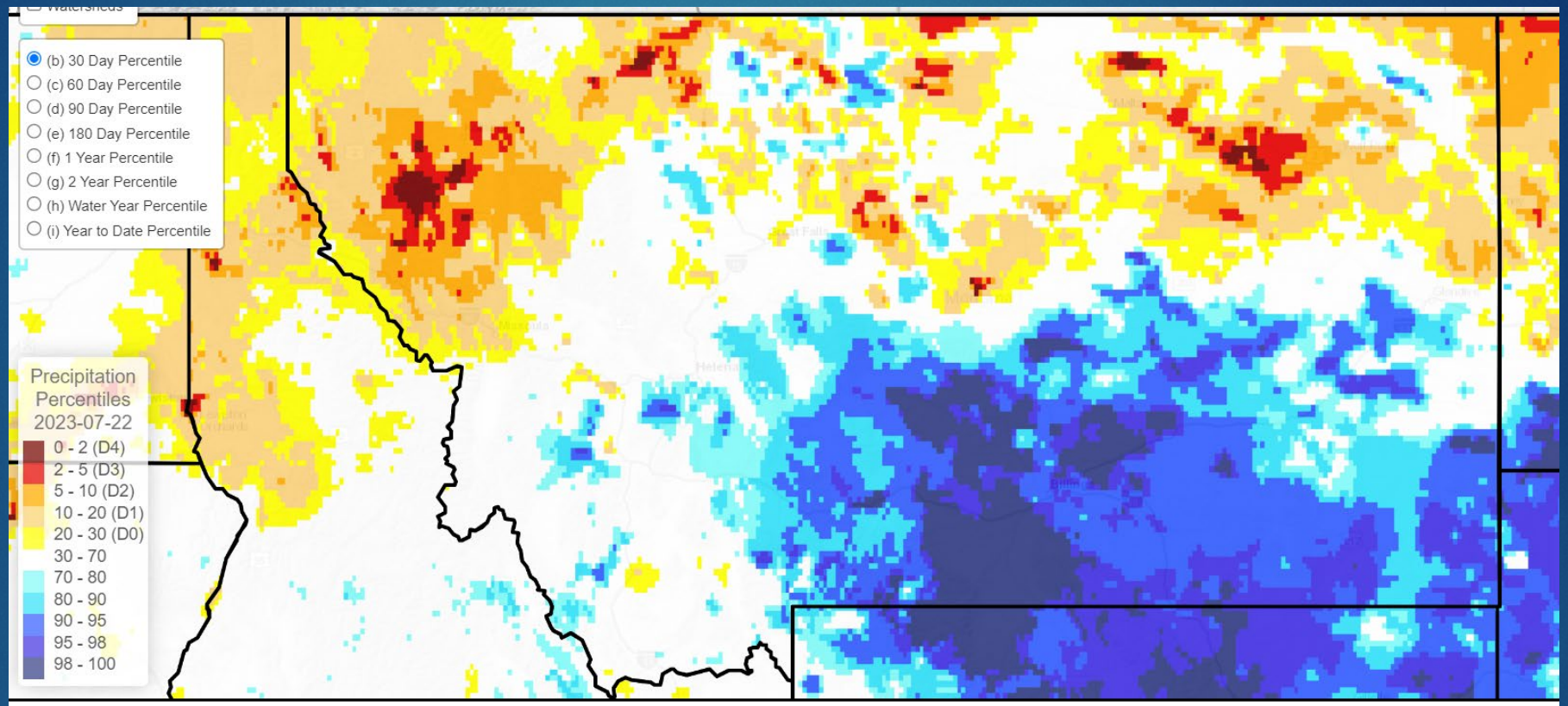




# Vegetative Health Index – July 15, 2022



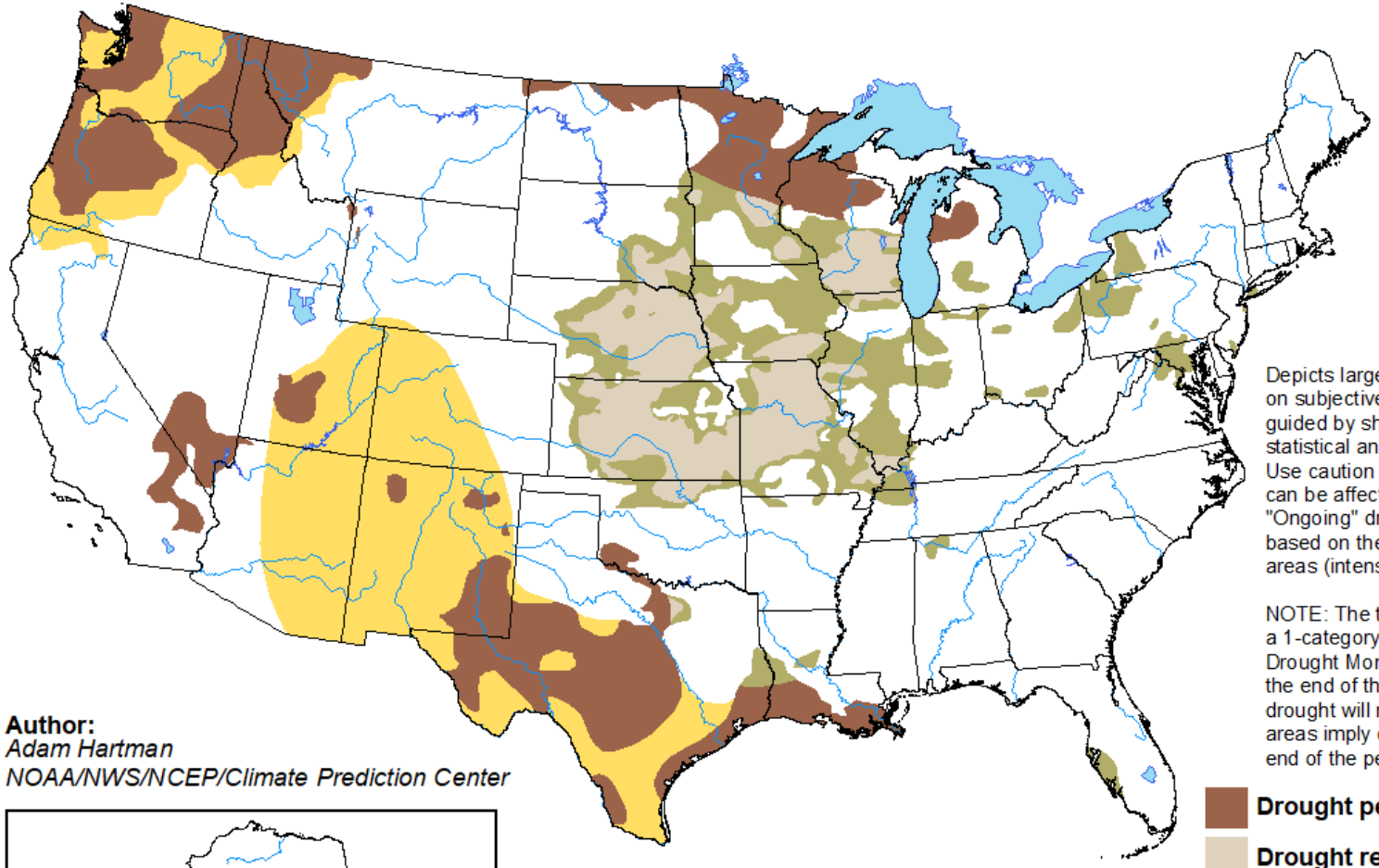
# 30 Day Precipitation Percentiles



# U.S. Seasonal Drought Outlook

## Drought Tendency During the Valid Period

*Valid for July 20 - October 31, 2023*
*Released July 20*

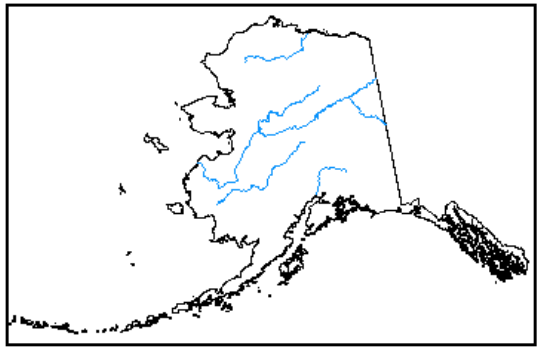


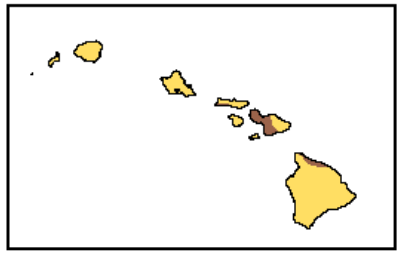
Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

- **Drought persists**
- **Drought remains but improves**
- **Drought removal likely**
- **Drought development likely**

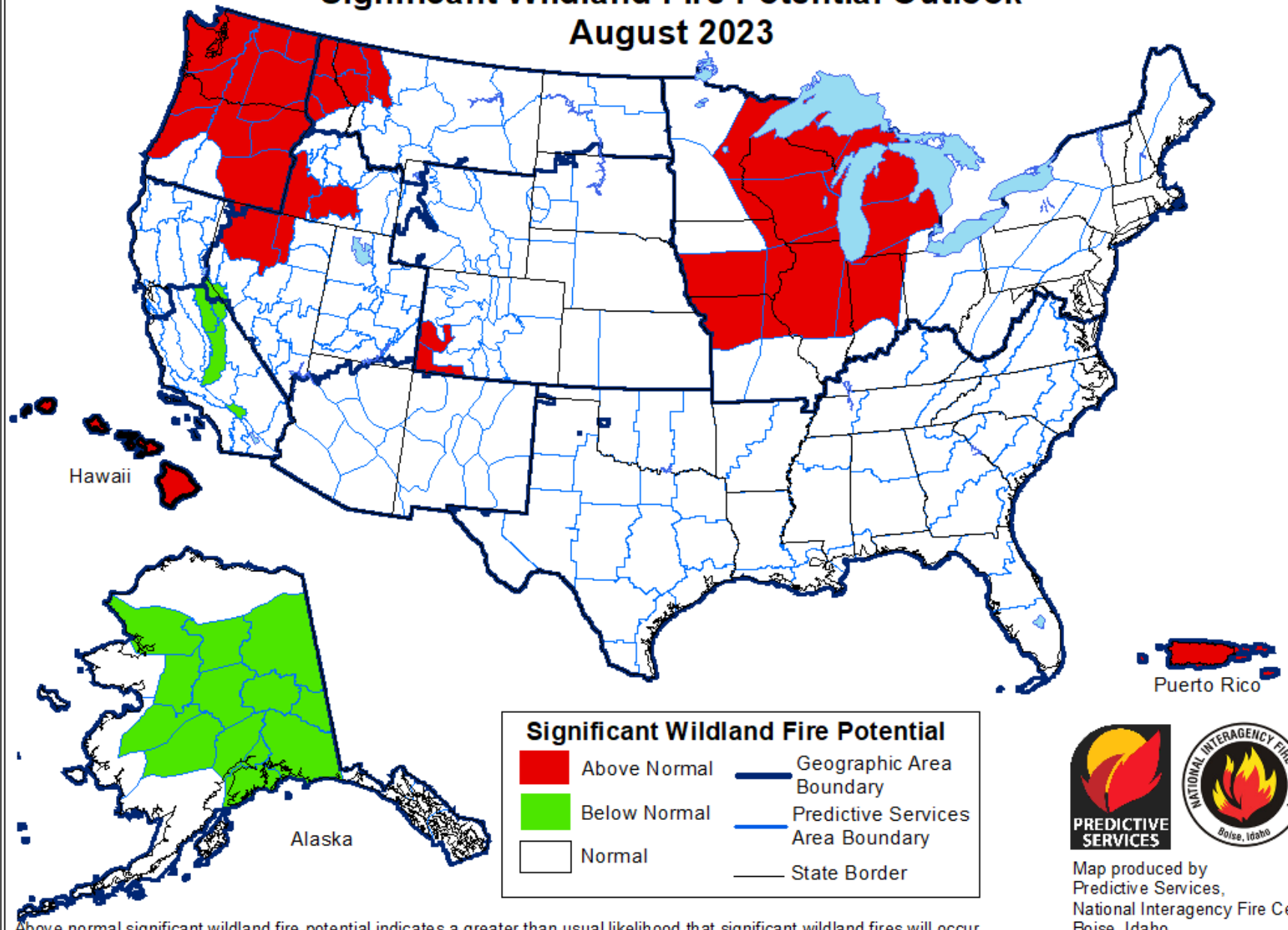

**Author:**
*Adam Hartman*
*NOAA/NWS/NCEP/Climate Prediction Center*



**http://go.usa.gov/3eZ73**

# Significant Wildland Fire Potential Outlook
## August 2023




Above normal significant wildland fire potential indicates a greater than usual likelihood that significant wildland fires will occur. Significant wildland fires should be expected at typical times and intervals during normal significant wildland fire potential conditions. Significant wildland fires are still possible but less likely than usual during forecasted below normal periods.

Map produced by
Predictive Services,
National Interagency Fire Center
Boise, Idaho
Issued July 1, 2023
Next issuance August 1, 2023

# Questions/Comments?

Contact Information:
Michael Downey
mdowney2@mt.gov
406-444-9748

UMRB Drought Indicators Website //drought.climate.umt.edu

Montana Drought Plan Web Portal //mtdroughtinfo.org

Ross Creek, Michael Downey