

# *Montana Drought Monitoring in a Changing Climate*

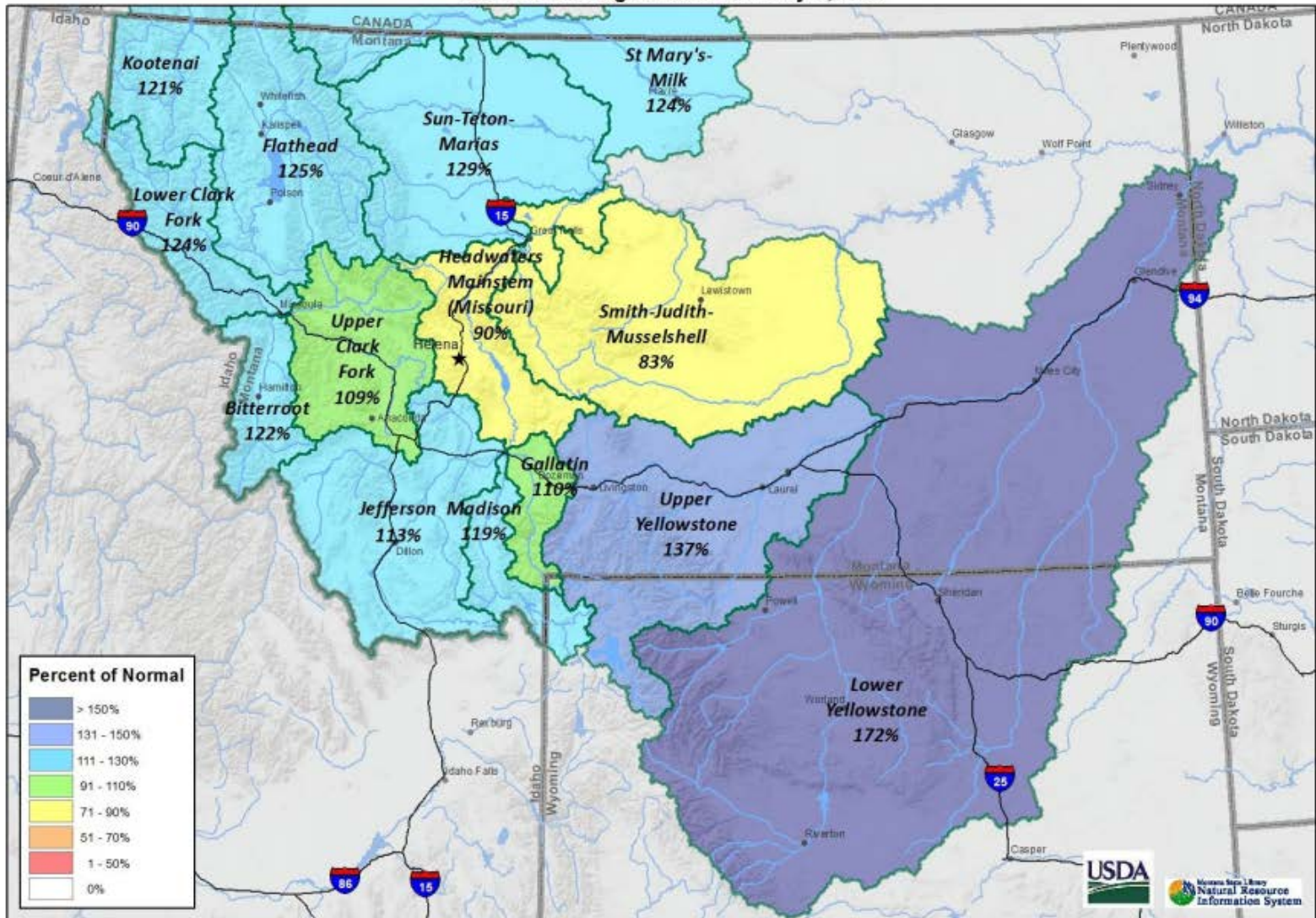


Missouri River below Fort Peck Dam

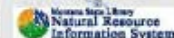
Commission for Environmental Cooperation  
Virtual Drought Summit  
September 30, 2020

Michael Downey  
Montana DNRC, Water Planner

**Montana Data Collection Office  
Current Snow Water Equivalent  
Basin Percentage of Normal - May 1, 2017**



Note: Data includes SNOTEL and Snowcourse Measurements on May 1, 2017

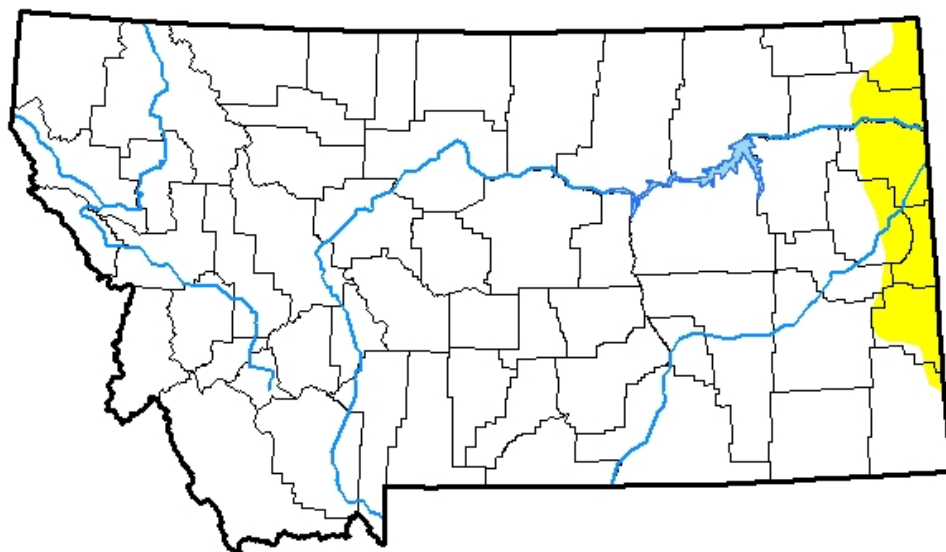


# U.S. Drought Monitor Montana

**May 23, 2017**  
(Released Thursday, May 25, 2017)  
Valid 8 a.m. EDT

*Drought Conditions (Percent Area)*

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	95.12	4.88	0.00	0.00	0.00	0.00
<b>Last Week</b> <i>05-16-2017</i>	98.45	1.55	0.00	0.00	0.00	0.00
<b>3 Months Ago</b> <i>02-21-2017</i>	82.26	17.74	2.73	0.00	0.00	0.00
<b>Start of Calendar Year</b> <i>01-03-2017</i>	74.25	25.75	4.87	0.00	0.00	0.00
<b>Start of Water Year</b> <i>09-27-2016</i>	55.14	44.86	25.49	5.86	0.33	0.00
<b>One Year Ago</b> <i>05-24-2016</i>	77.72	22.28	7.84	0.00	0.00	0.00



*Intensity:*

- 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. See accompanying text summary for forecast statements.*

*Author:*

Brad Rippey  
U.S. Department of Agriculture



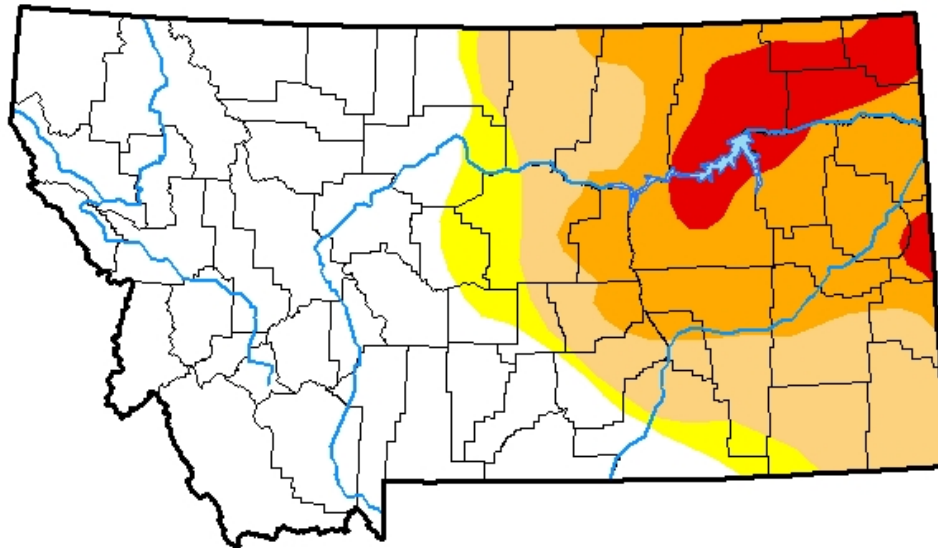
<http://droughtmonitor.unl.edu/>

# U.S. Drought Monitor Montana

**June 27, 2017**  
(Released Thursday, Jun. 29, 2017)  
Valid 8 a.m. EDT

*Drought Conditions (Percent Area)*

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	52.28	47.72	42.11	25.17	6.77	0.00
<b>Last Week</b> <i>06-20-2017</i>	56.31	43.69	27.11	12.34	6.37	0.00
<b>3 Months Ago</b> <i>03-28-2017</i>	86.71	13.29	1.11	0.00	0.00	0.00
<b>Start of Calendar Year</b> <i>01-03-2017</i>	74.25	25.75	4.87	0.00	0.00	0.00
<b>Start of Water Year</b> <i>09-27-2016</i>	55.14	44.86	25.49	5.86	0.33	0.00
<b>One Year Ago</b> <i>06-28-2016</i>	68.82	31.18	8.69	0.27	0.00	0.00



Intensity:

- 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. See accompanying text summary for forecast statements.*

Author:

Jessica Blunden  
NCEI/NOAA



<http://droughtmonitor.unl.edu/>

# U.S. Drought Monitor Montana

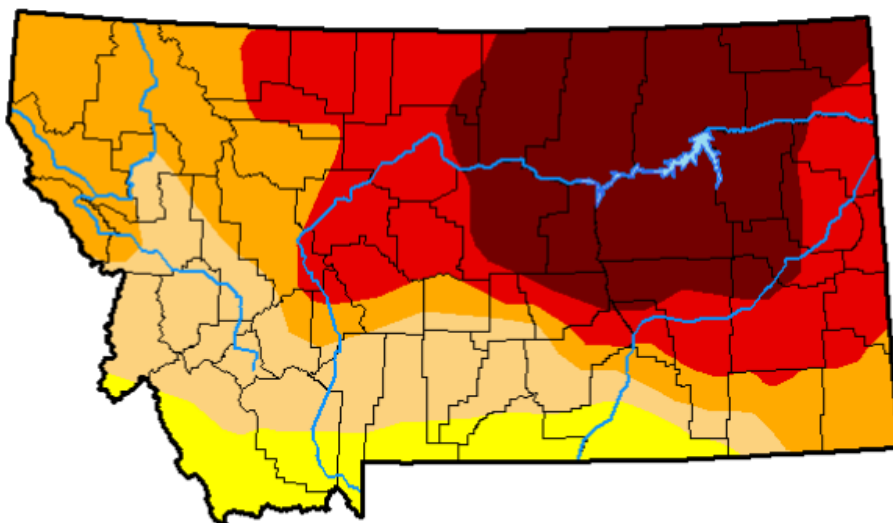
**September 12, 2017**

*(Released Thursday, Sep. 14, 2017)*

Valid 8 a.m. EDT

*Drought Conditions (Percent Area)*

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	0.00	100.00	91.22	73.02	49.86	25.97
<b>Last Week</b> <i>09-05-2017</i>	0.00	100.00	91.22	68.77	43.68	25.97
<b>3 Months Ago</b> <i>06-13-2017</i>	64.27	35.73	20.55	10.02	0.00	0.00
<b>Start of Calendar Year</b> <i>01-03-2017</i>	74.25	25.75	4.87	0.00	0.00	0.00
<b>Start of Water Year</b> <i>09-27-2016</i>	55.14	44.86	25.49	5.86	0.33	0.00
<b>One Year Ago</b> <i>09-13-2016</i>	54.61	45.39	20.91	6.86	0.35	0.00



Intensity:

- 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. See accompanying text summary for forecast statements.*

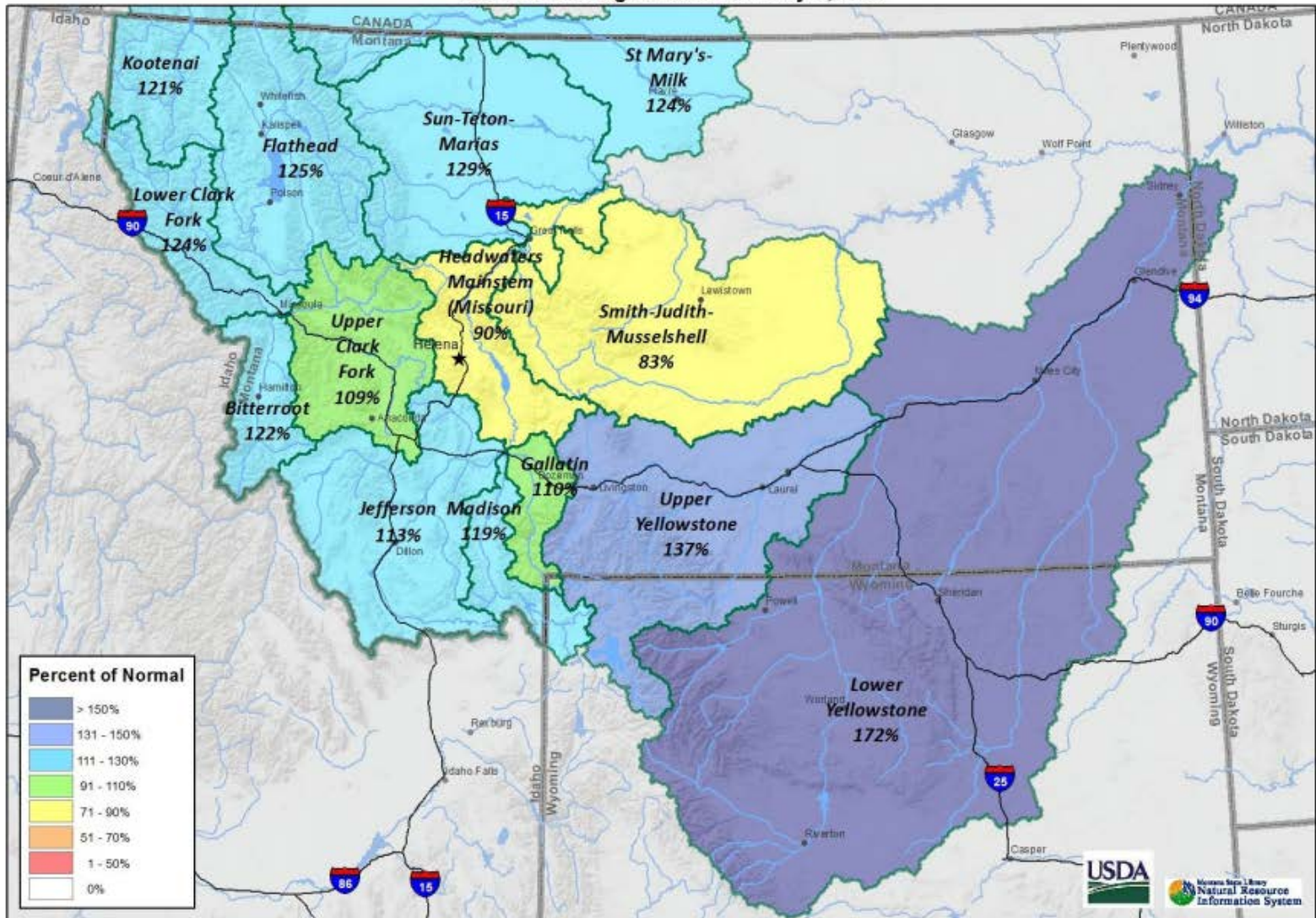
Author:

Richard Tinker  
CPC/NOAA/NWS/NCEP

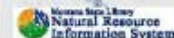


<http://droughtmonitor.unl.edu/>

**Montana Data Collection Office  
Current Snow Water Equivalent  
Basin Percentage of Normal - May 1, 2017**

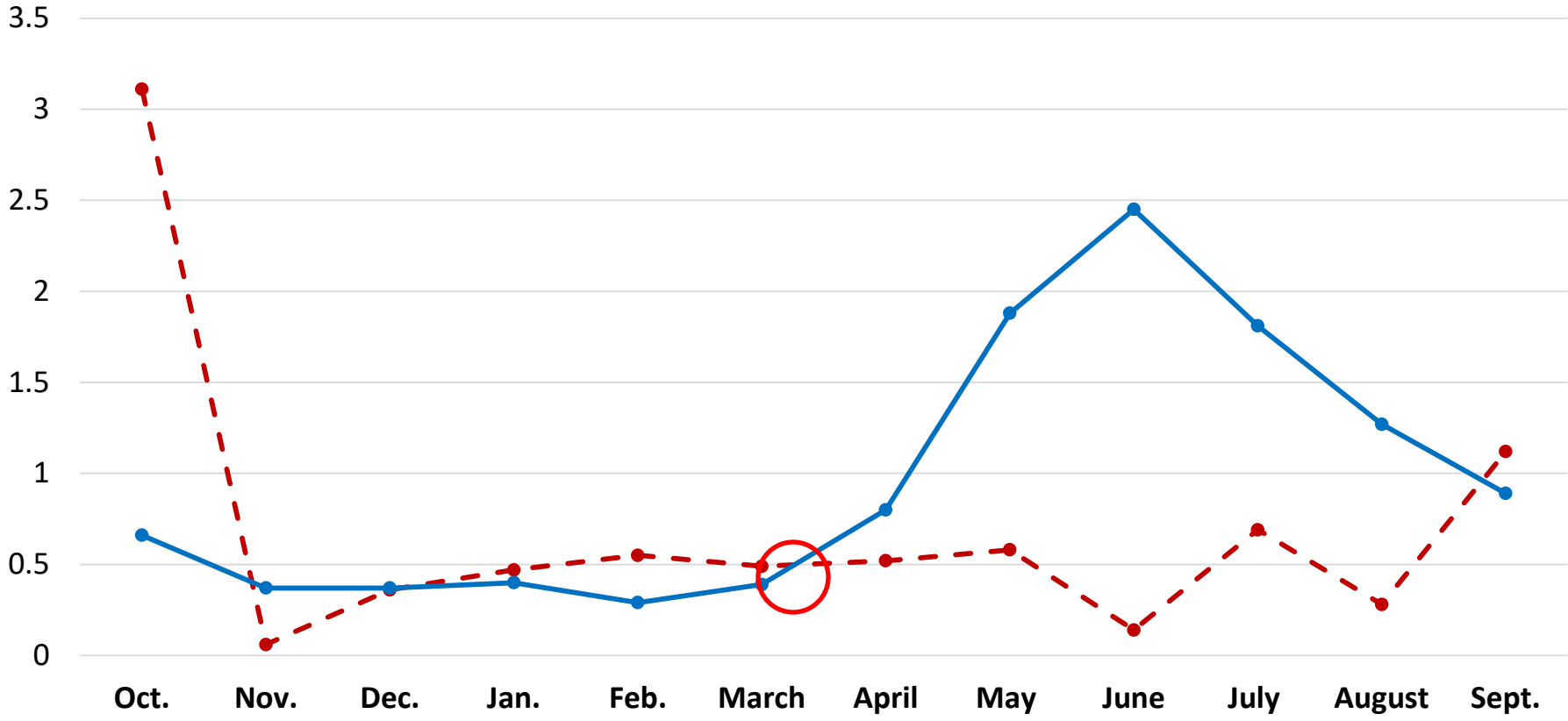


Note: Data includes SNOTEL and Snowcourse Measurements on May 1, 2017



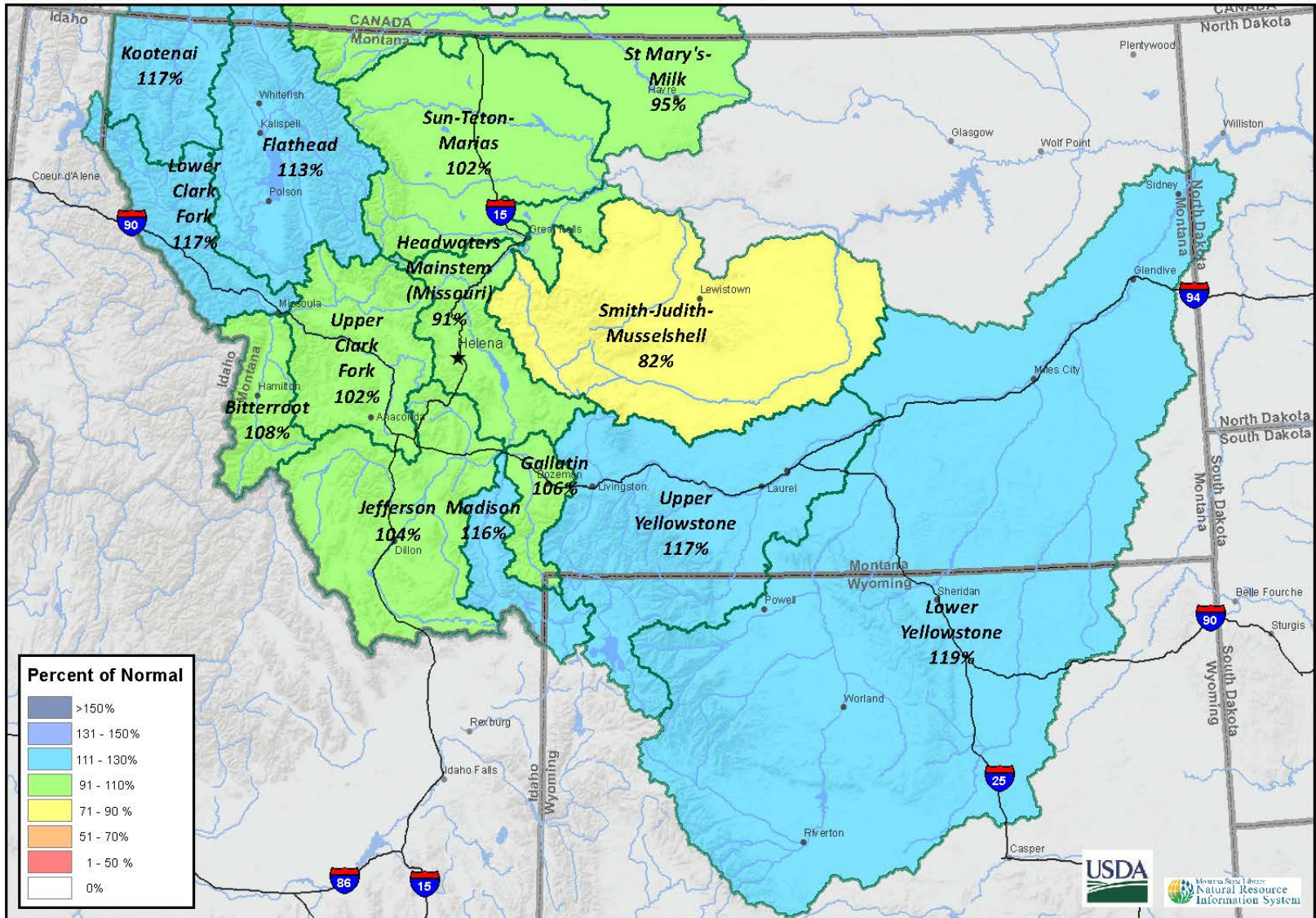
# Glasgow Airport, MT

2017 Water Year Precipitation vs. Average Water Year Precipitation



2017 Precip. 8.37"      Average Precip. 11.58"

Montana Data Collection Office  
 Water Year to Date Precipitation  
 Basin Percentage of Normal - September 1, 2017





# Innovations in Montana Drought Management

- Weekly analysis of drought conditions across the state
- Weekly consultation with the U.S. Drought Monitor
- Development of Regional Drought Indicators Dashboard
- Development of the Montana Drought Impacts Reporter
- Currently updating the Montana Drought Management Plan  
Plan emphasis on the evaluation of drought risk, drought sensitivity and drought adaptation

# Regional Drought Indicators Dashboard

Introduction

MT Mesonet ▾

SNOTEL ▾

Precipitation ▾

Temperature ▾

Soil Moisture ▾

Vegetation ▾

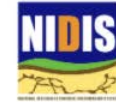
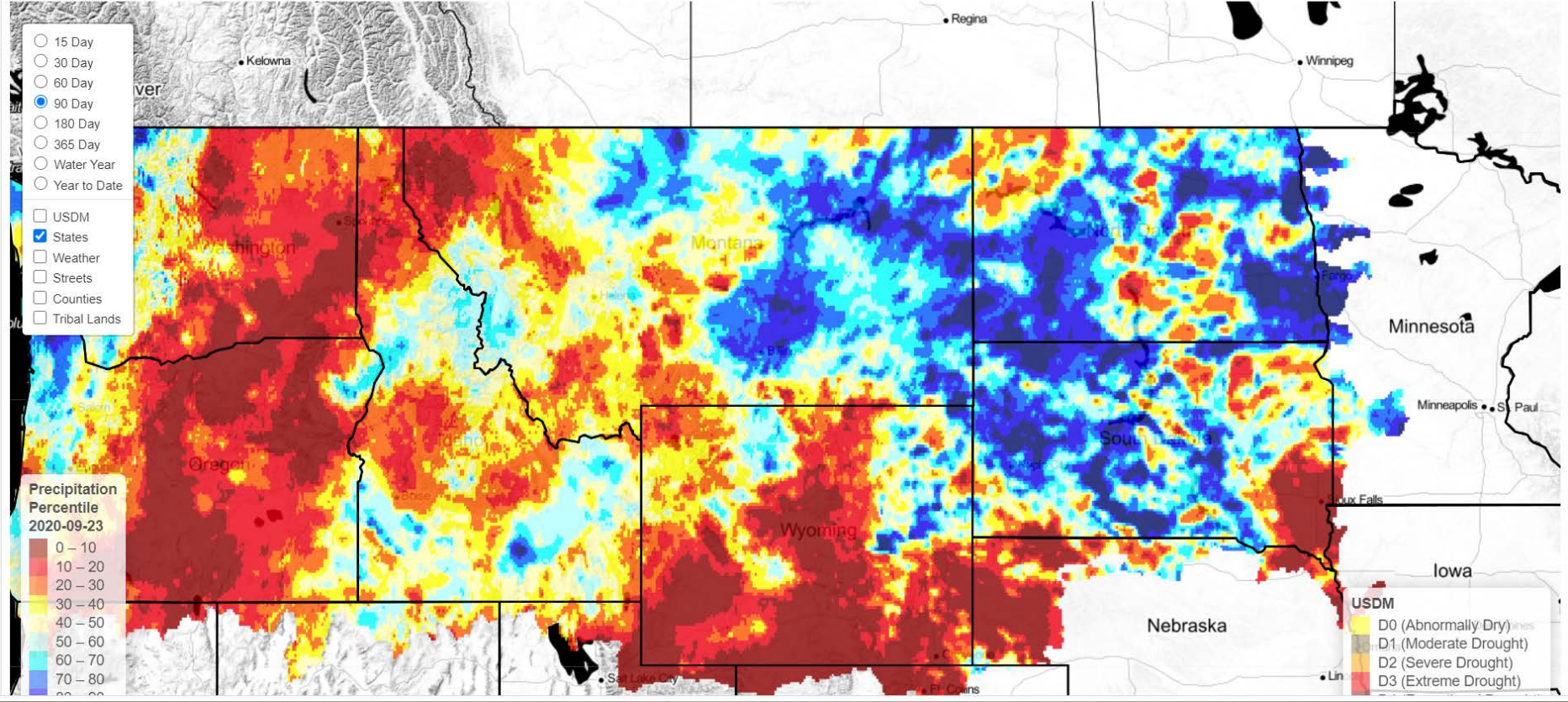
Drought Metrics ▾

MCO GitHub

Gridded Data Counties Watersheds Tribal Lands

- 15 Day
- 30 Day
- 60 Day
- 90 Day
- 180 Day
- 365 Day
- Water Year
- Year to Date

- USDM
- States
- Weather
- Streets
- Counties
- Tribal Lands



# MT Drought Impact Reporter

- Report on moisture conditions in your area with a simple questionnaire
  - Anyone can submit a report anytime
- Released July 2017
  - Live/ongoing, submit reports as conditions change
  - New release April 2020
- 156 responses to date in water year 2020

**Submit reports: [dnrc.drought.gov](https://dnrc.drought.gov)**

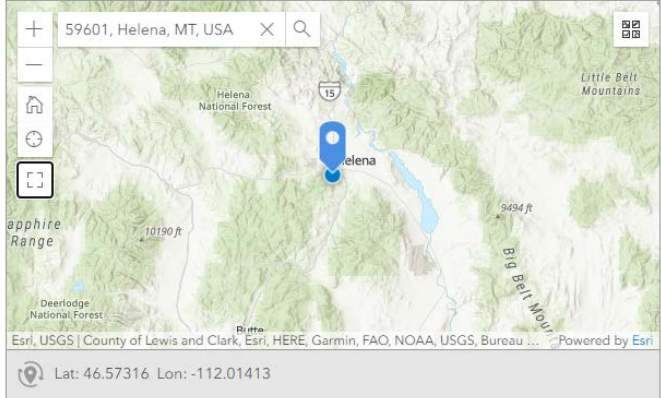
## Drought Impact Reporter

### Introduction

*Drought can affect wildfire, agriculture production, tourism, wildlife and many other areas important to Montana. The Governor's Drought and Water Supply Advisory Committee has put together a very short questionnaire for reporting local drought impacts. The information gathered will be used to investigate trends and impacts and will help inform potential responses in times of drought. This questionnaire may be completed more than once to report impacts in another location or to report changing conditions. Information on wet conditions is helpful too, so please submit reports anytime of year, wet or dry.*

### Where are you?\*

Please click and drag the map to place the marker at the location of your observation. Click on the compass icon to select your current location.



Esri, USGS | County of Lewis and Clark, Esri, HERE, Garmin, FAO, NOAA, USGS, Bureau ... Powered by Esri

Lat: 46.57316 Lon: -112.01413

### Select your county: ▼

County:\*

-Please Select-

# Montana Drought Impacts (Water Year 2020)

- Overview
- Primary Sector
- Positive Reports
- Crop/Range Condition
- Crop Production
- Livestock Production
- Planting/Harvest Status
- Water Supply
- Habitat
- Recreation
- Industry
- Health
- Fire
- Notes/Photos
- Additional Functionality

## How Dry or Wet is It?

Drought can affect wildfire, agriculture production, tourism, wildlife and many other areas important to Montana. The Montana Governor's Drought and Water Supply Advisory Committee provides the [Drought Impact Reporter - a live, ongoing questionnaire for reporting local drought impacts](#).

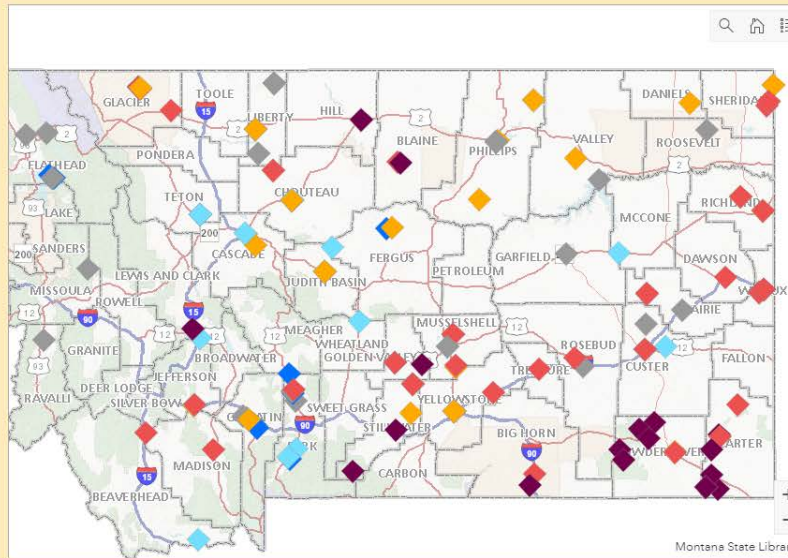
Explore the results of the Montana Drought Impact Reporter for the current water year (Oct. 1 to Sept. 31) by navigating through the various tabs. A map of all the results is located in the Primary Impact Type tab. There are also tabs with maps for each primary impact type and for crop and range conditions. A map with more functionality and a link to download a spreadsheet of the data is available under the last tab ("Additional Functionality").

Maps are updated daily. When a new report is received through the questionnaire it is automatically added to the maps.

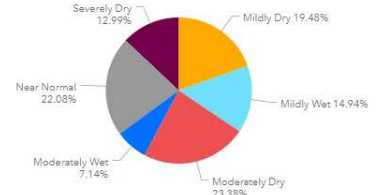
For more information visit [Montana Department of Natural Resources & Conservation Drought Management](#) or Montana State Library [Drought Status Maps](#).

## How dry or wet is it?

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



## How Wet or Dry is it?



How Wet or Dry is it? Crop Conditions Range Conditions

1 of 12

9/1/2020 - Carter County

drought 2.jpg



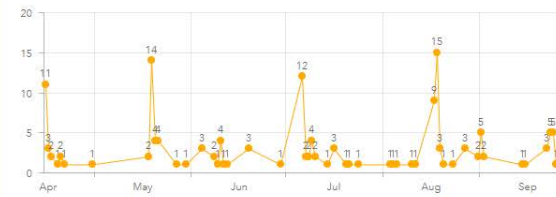
Primary impact is to range land. We produce cattle and the rains this year have been minimal at best in our location. Some areas have benefitted from large rains in our same county. Grasshoppers have been rampant and have severely impacted forage for the summer as well as winter grazing. We rely on our own well as well as reservoirs and they are going dry.

Number of Reports within the last 10 days

# 15

Reports in last 10 days

Number of Reports by Date



Reports by Date Reports by Primary Sector Reports by County

# Key Features of Impacts Reporter

- How wet or dry is it?
- Rate crop/range conditions
- Planting/harvest status and date
- Drought impacts for 7 sectors: Crop, Livestock, Water Supply Habitat, Recreation, Industry, Health, Fire
- Positive reports (e.g more green, more water than usual)
- Descriptions and photos



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