

# 2021 - Fall Drought & Water Supply Update

Water Policy Interim Committee

October 12, 2021

Michael Downey – DNRC, Water Management Bureau



Powder River near Broadus – August 31, 2021



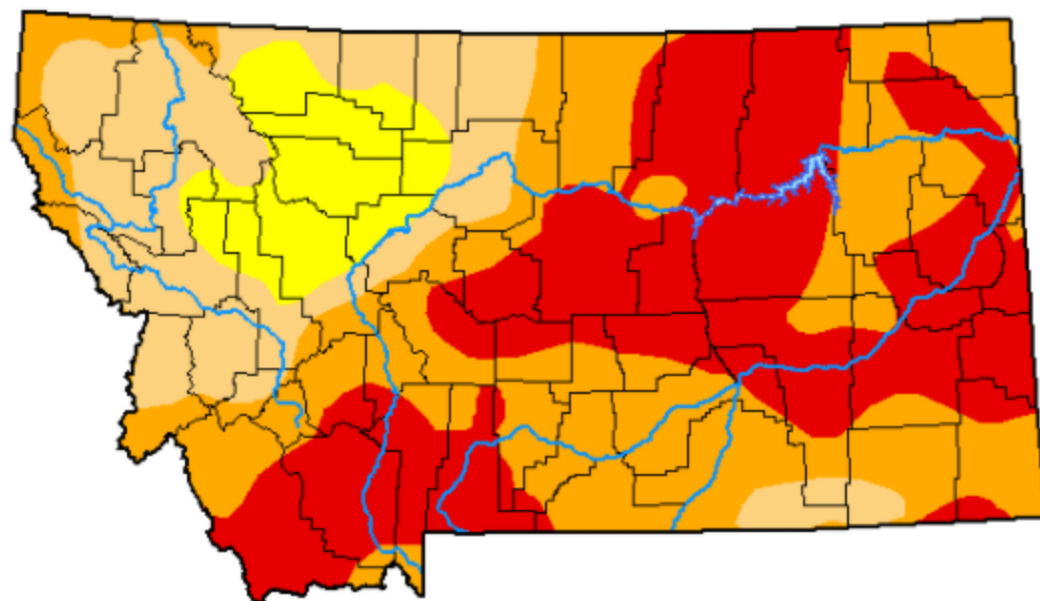
# U.S. Drought Monitor

## Montana

**July 13, 2021**  
 (Released Thursday, Jul. 15, 2021)  
 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	91.44	72.03	36.42	0.00
<b>Last Week</b> 07-06-2021	0.00	100.00	84.34	65.23	25.90	0.00
<b>3 Months Ago</b> 04-13-2021	13.53	86.47	44.64	18.74	8.46	0.00
<b>Start of Calendar Year</b> 12-29-2020	36.37	63.63	34.41	8.27	0.36	0.00
<b>Start of Water Year</b> 09-29-2020	11.86	88.14	40.59	4.22	0.02	0.00
<b>One Year Ago</b> 07-14-2020	64.67	35.33	8.65	2.17	0.00	0.00



### Intensity:

None	D2 Severe Drought
D0 Abnormally Dry	D3 Extreme Drought
D1 Moderate 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:

Adam Hartman  
 NOAA/NWS/NCEP/CPC



[droughtmonitor.unl.edu](https://droughtmonitor.unl.edu)

# U.S. Drought Monitor Montana

**September 28, 2021**  
(Released Thursday, Sep. 30, 2021)  
Valid 8 a.m. EDT

*Drought Conditions (Percent Area)*

	None	D0	D1	D2	D3	D4
<b>Current</b>	0.00	0.00	0.00	34.32	43.77	21.91
<b>Last Week</b> <i>09-21-2021</i>	0.00	0.00	1.30	33.52	44.81	20.37
<b>3 Months Ago</b> <i>06-29-2021</i>	7.49	14.10	17.45	41.02	19.94	0.00
<b>Start of Calendar Year</b> <i>12-29-2020</i>	36.37	29.22	26.14	7.91	0.36	0.00
<b>Start of Water Year</b> <i>09-29-2020</i>	11.86	47.55	36.37	4.20	0.02	0.00
<b>One Year Ago</b> <i>09-29-2020</i>	11.86	47.55	36.37	4.20	0.02	0.00

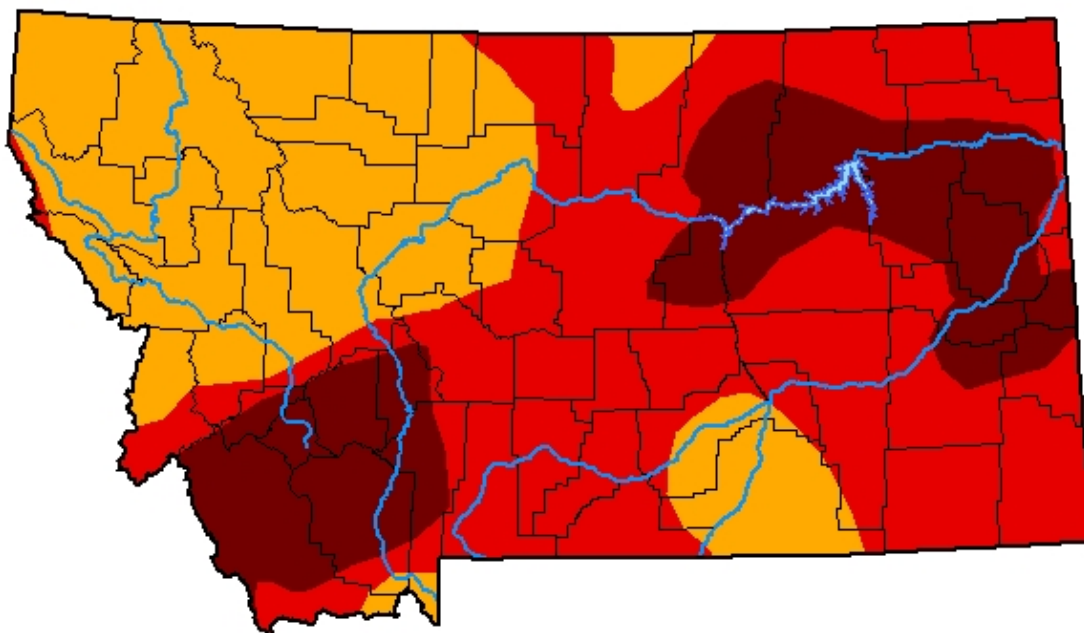
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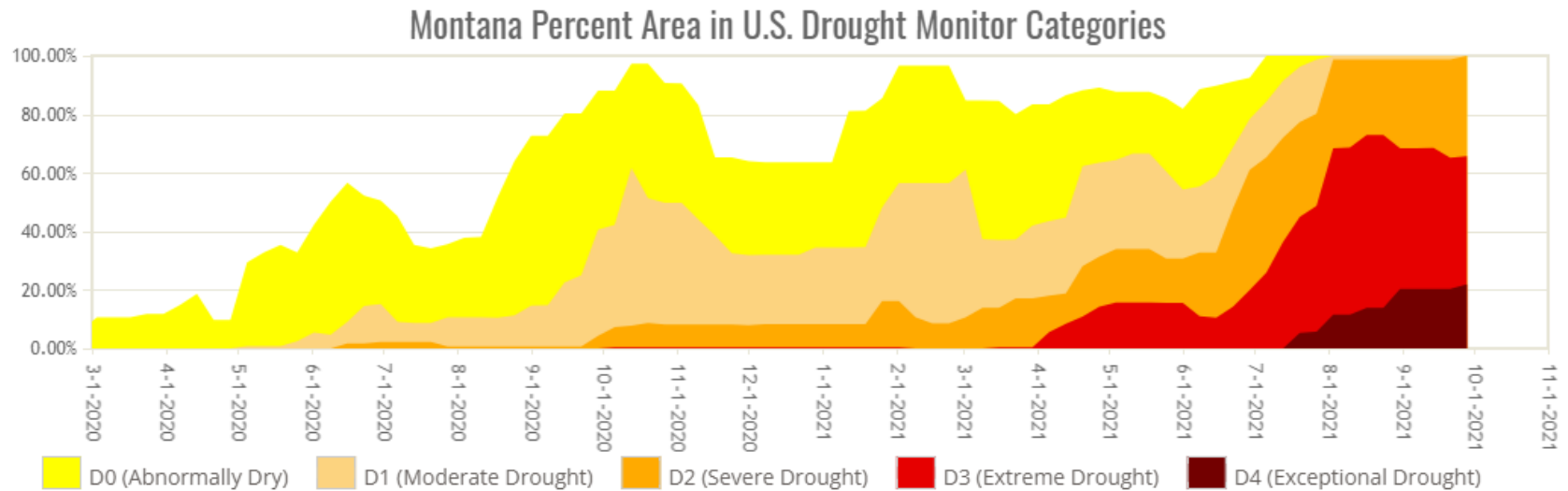
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## Author:

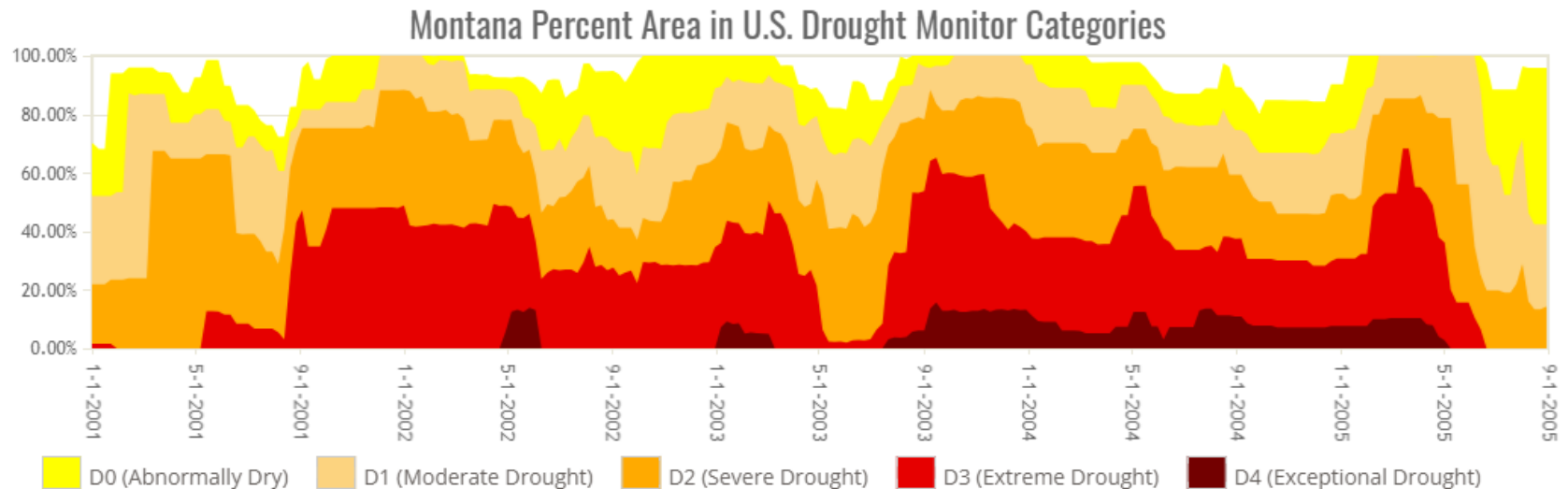
Brian Fuchs  
National Drought Mitigation Center



## Montana in Drought – May 2020 to Present



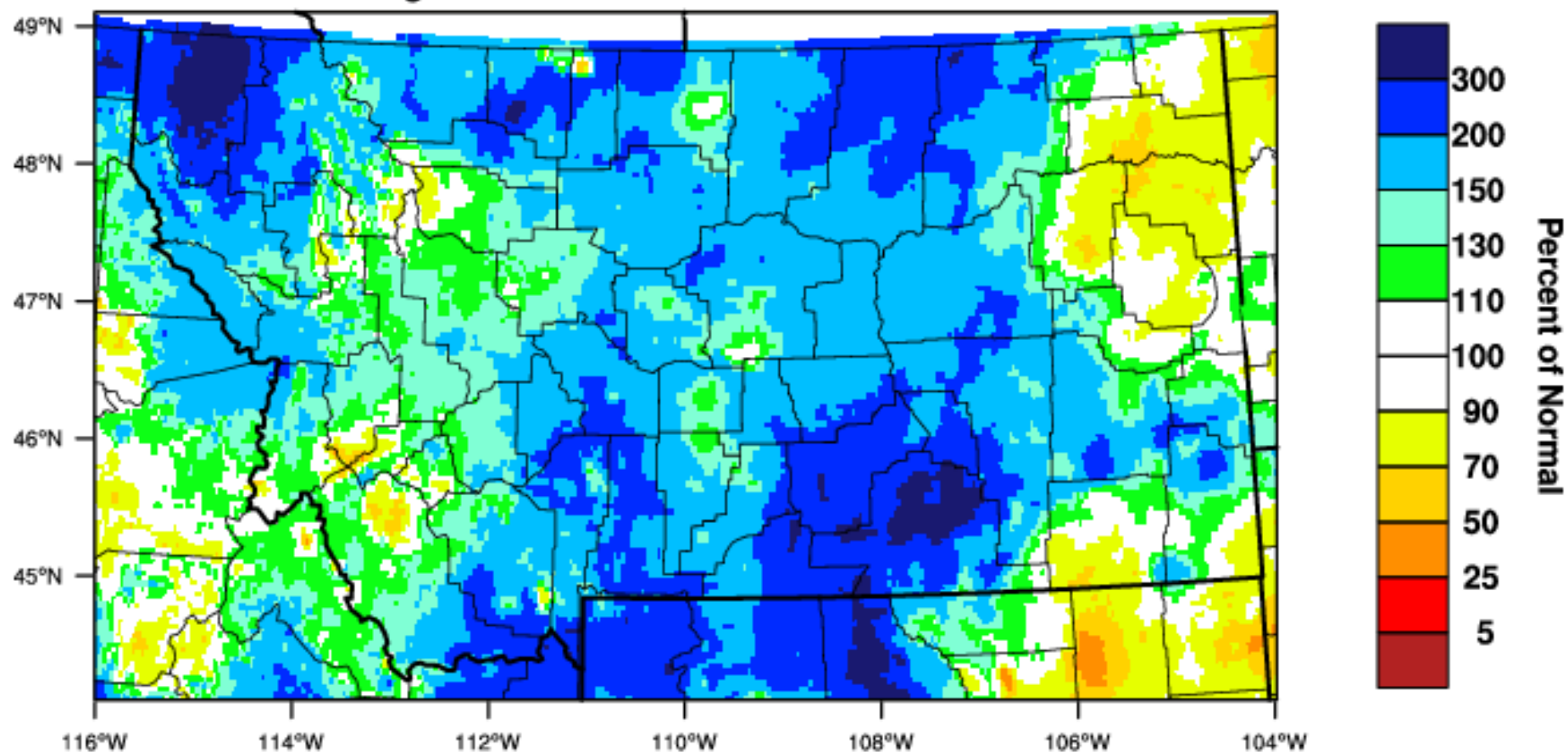
## Montana Drought 2001 to 2005





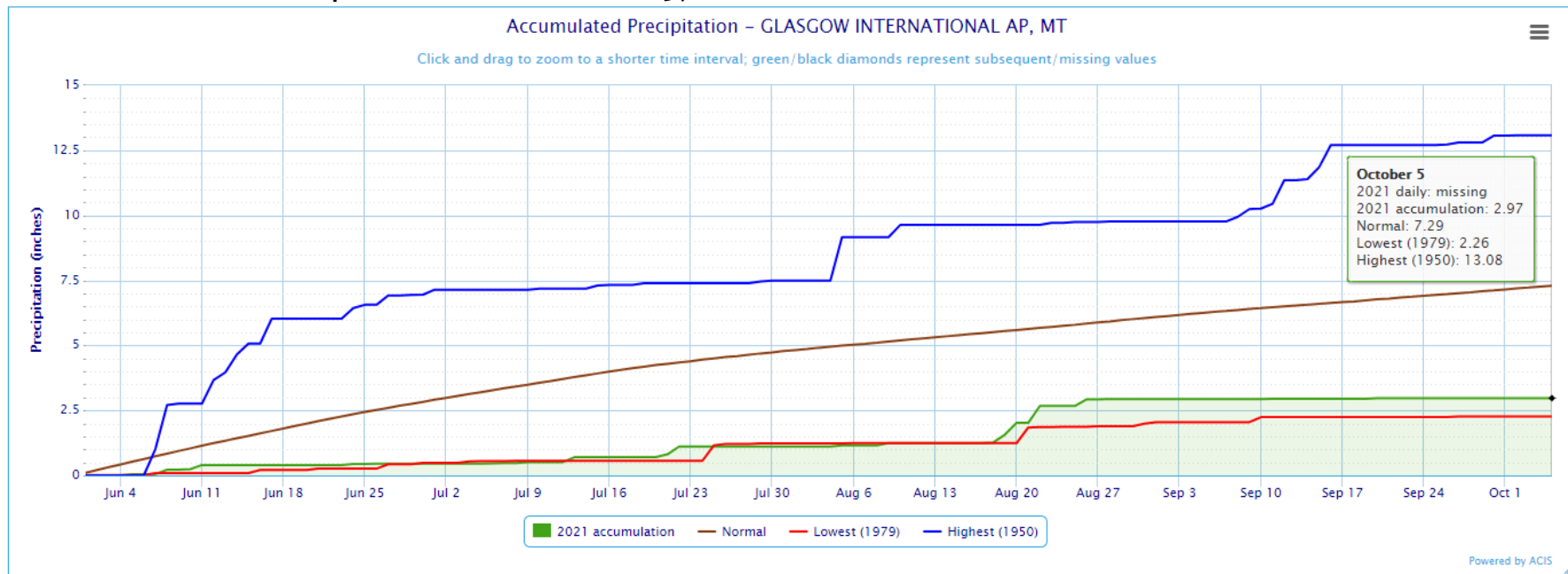
## Montana - Precipitation

August 2021 Percent of 1981-2010 Normal

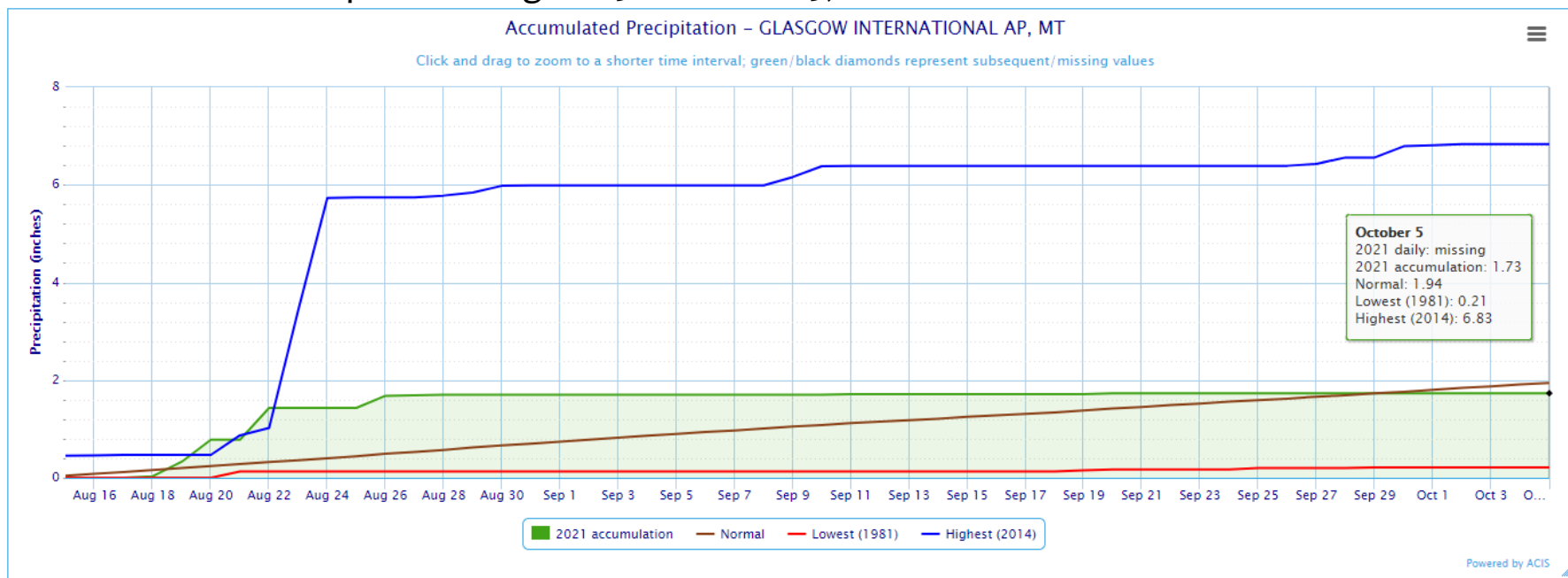


WestWide Drought Tracker, U Idaho/WRCC Data Source: PRISM (Prelim), created 5 SEP 2021

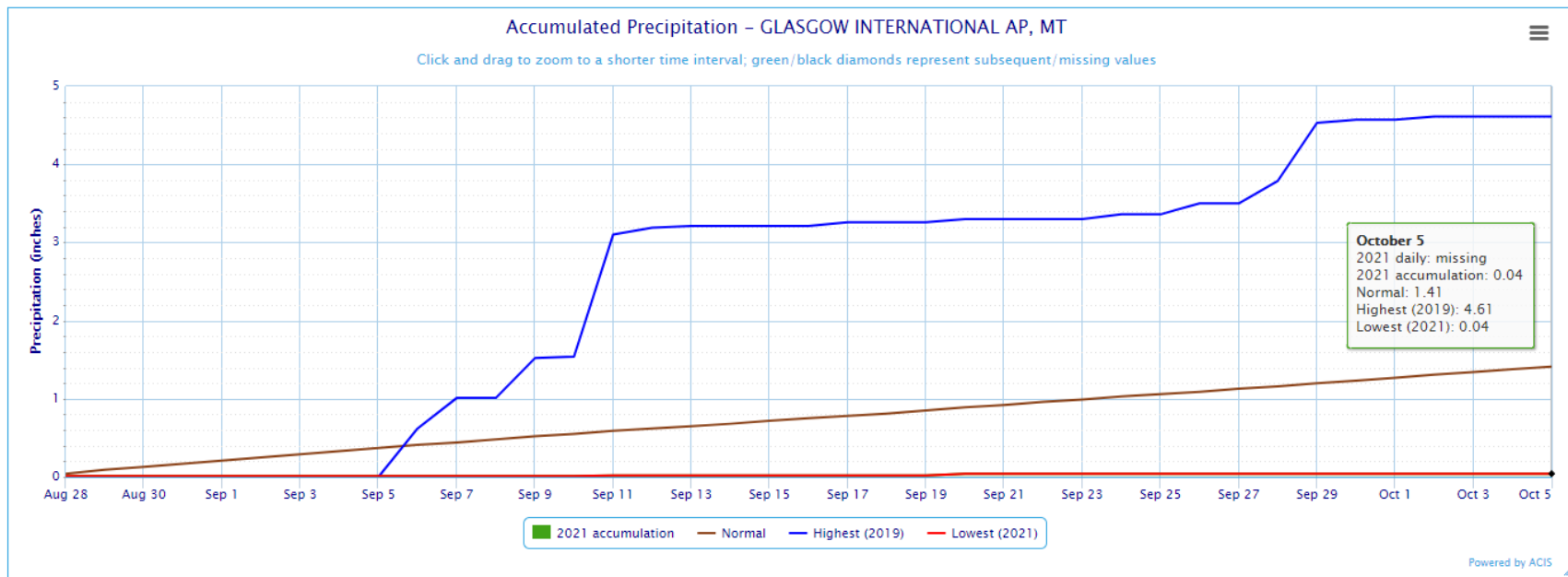
# Accumulated Precipitation June 1 – Oct 5, 2021



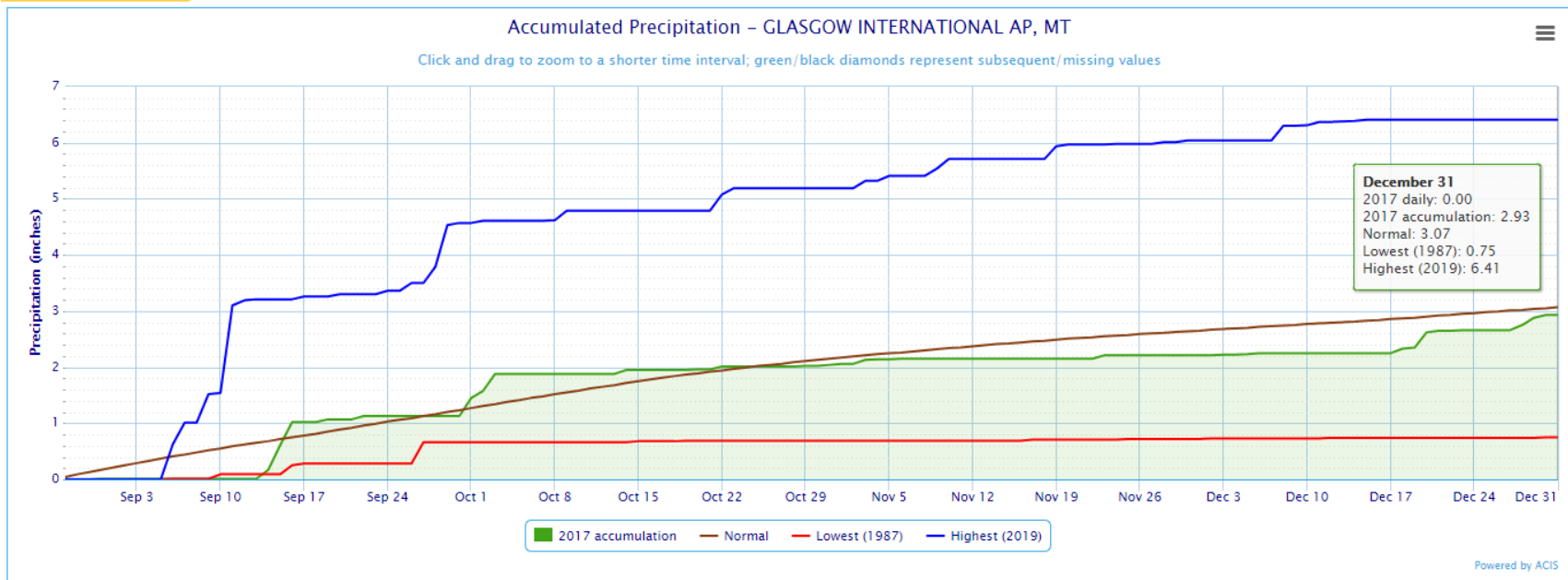
## Accumulated Precipitation August 15 – October 5, 2021



## Accumulated Precipitation August 28 – October 5, 2021



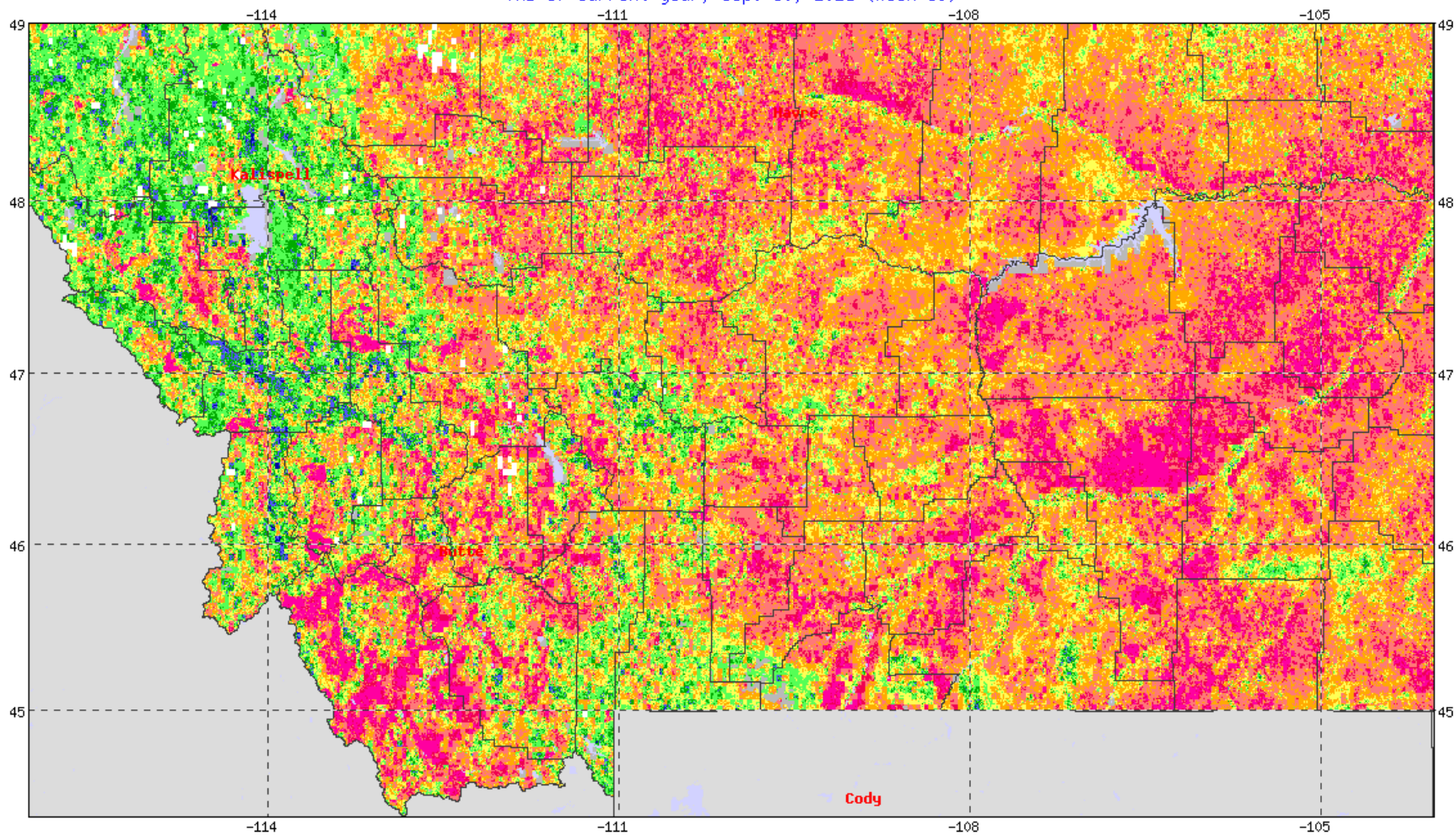
## Accumulated Precipitation August 28 – December 31, 2017



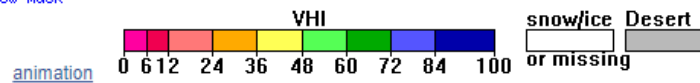
# Vegetative Health Index – September 30, 2021

United States, 27: Montana, Vegetation Health Index (VHI): Current Week and One Year Ago  
VHI of current year

VHI of current year, Sep. 30, 2021 (week 39)



VIIRS-VH, Zoom Level=7 (1.2 km), tiles=24,missing snow mask

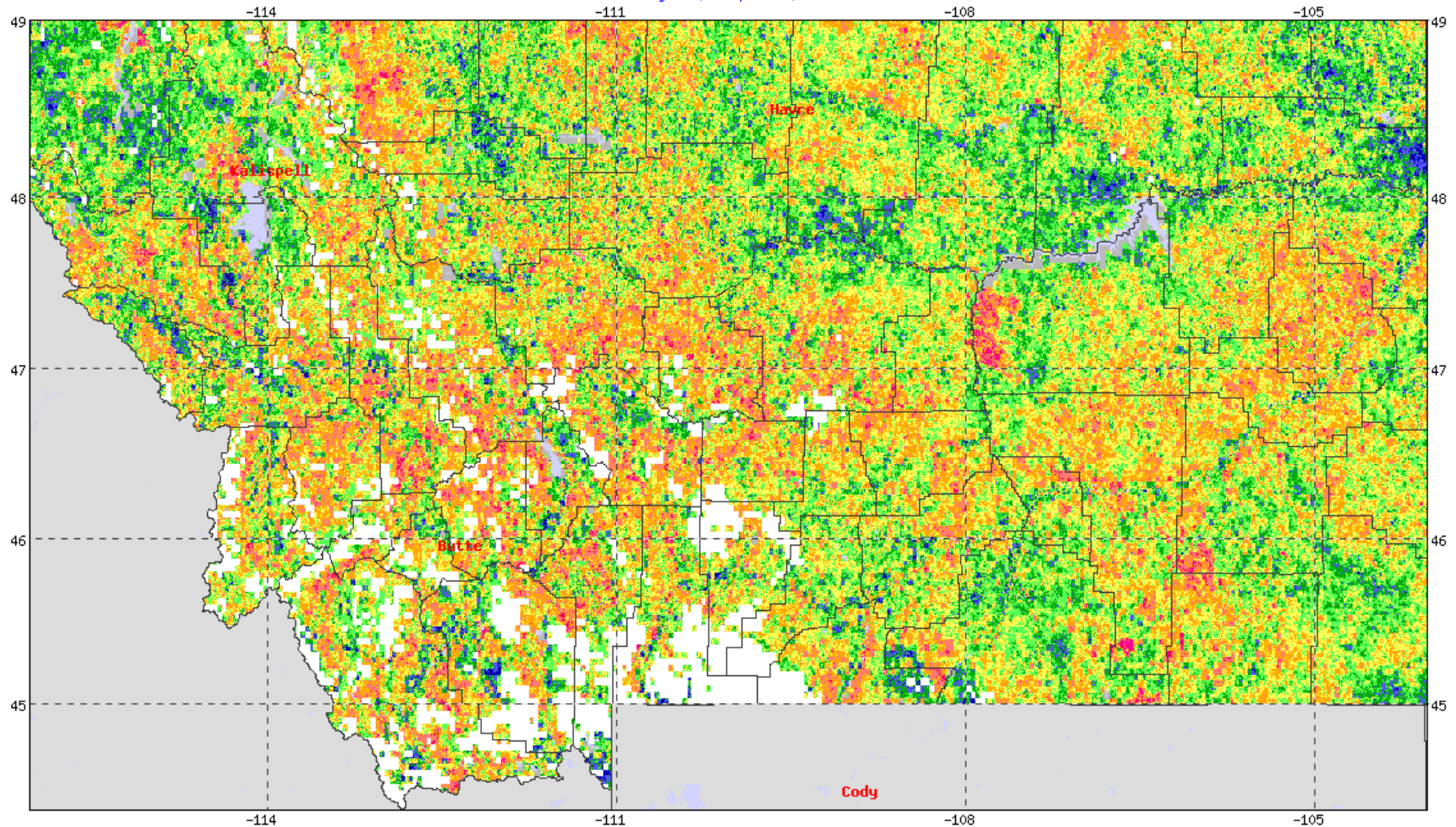




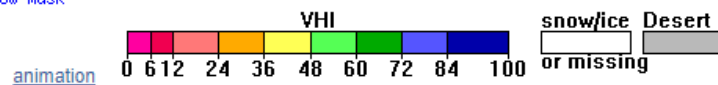
# Vegetative Health Index – September 30, 2017

United States, 27: Montana, Vegetation Health Index (VHI): Current Week and One Year Ago  
VHI of current year

VHI of current year, Sep. 30, 2017 (week 39)



VIIRS-VH, Zoom Level=7 (1.2 km), tiles=24,missing snow mask



# MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

WATER RESOURCES DIVISION - STATE WATER PROJECTS BUREAU

**August 31, 2021**

All Contents in Acre-Feet

RESERVOIR	TOTAL CAPACITY <small>(includes)</small>	CONTENTS								
	Full Pool	YR AVERAGE	Last Year	Last Month	PRESENT	% CAPACITY	%AVERAGE	READING DATE	COMMENTS	
	Contents	1990- 2020	8/31/2020	7/31/2021	8/31/2021	8/31/2021	for August			
		for August								
Clark Fork Basin										
E.F. ROCK CREEK	16,040	6,048	8,110	5,832	4,668	29	77	8/31/2021	elev.= 6,019.5 ft	
NEVADA CREEK	11,207	5,818	6,101	7,948	4,642	41	80	8/30/2021	elev.= 4,594.86 ft	
W.F. BITTERROOT	32,362	16,641	19,615	27,339	14,253	44	86	8/27/2021	elev.= 4,689.44 ft	
Lower Missouri Basin										
ACKLEY	6,722	3,503	4,014	3,801	2,952	44	84	9/1/2021	elev.= 4,300.75 ft (1,951 AF)	
BAIR	7,300	3,356	3,799	3,188	2,129	29	63	8/31/2021	elev.= 5,296.2 ft	
DEADMAN'S BASIN	75,968	40,520	54,691	39,292	33,972	45	84	8/31/2021	elev.= 3,898.2 ft (30,222 AF)	
FRENCHMAN	2,777	1,827	1,404	1,139	1,556	56	85	8/30/2021	elev.= 2,262.3 ft	
MARTINSDALE	23,348	10,819	15,839	11,624	9,175	39	85	8/31/2021	elev.= 4,761.0 ft	
N.F.K. SMITH RIVER	11,406	5,780	7,780	6,157	3,837	34	66	8/31/2021	elev.= 5,459.67 ft	
YELLOWWATER	3,842	1,868	3,333	1,911	1,719	45	92	9/1/2021	elev.= 3,111.75 ft	
Upper Missouri Basin										
MIDDLE CREEK	10,184	6,605	6,788	7,843	7,031	69	106	8/24/2021	elev.= 6,706.57 ft	
NILAN	10,992	6,371	4,870	6,558	5,566	51	87	8/31/2021	elev.= 4,429.9 ft (4,666 AF)	
RUBY RIVER	37,612	16,149	18,664	18,021	11,805	31	73	8/31/2021	elev.= 5,357.3 ft	
WILLOW CREEK	18,000	10,272	7,762	4,092	3,114	17	30	8/30/2021	elev.= 4,708 ft	
Yellowstone Basin										
COONEY	28,230	18,175	18,865	21,061	16,257	58	89	8/31/2021	elev.= 4,234.9 ft (16,167 AF)	
COTTONWOOD	1,900	776	765	373	113	6	15	8/26/2021	elev.= 5,085.78 ft	
TONGUE RIVER	79,071	47,920	43,775	65,129	49,991	63	104	8/31/2021	elev.= 3,419.4 ft	

\* Note: Reservoir contents include dead storage at the following:

Ackley	1001 AF	**	** O&M slope storage table does not include dead storage (so dead storage has to be added into the storage from the table)						
Cooney	90 AF	**	Tongue River 711 AF (O&M storage table includes dead storage)						
Deadman's	3750 AF	**	W. F. Bitterroot 656 AF (O&M storage table includes dead storage)						
Nilan	900 AF	**	Willow Creek 269 AF (O&M storage table includes dead storage)						

\* Note: Cooney capacity reflects capacity after 1982 dam rehabilitation; prior capacity was 24,195 A.F. Average storage shown is for post rehabilitation data.

\* Note: Middle Creek capacity reflects capacity after 1993 dam rehabilitation; prior capacity was 8,027 A.F. Average storage shown is for post rehabilitation data.

\* Note: Nevada Creek Reservoir Capacity reflects live storage capacity survey conducted in year 2000. Prior live storage capacity documented as 12,723 AF.

\* Note: Tongue River capacity reflects capacity after 1999 dam rehabilitation; prior capacity was 68,040 A.F. Average storage is post rehabilitation data.

\* Note: Frenchman Reservoir capacity tables updated based on aerial survey; prior capacity was 3752 A.F. Average shown is from 2008 forward.





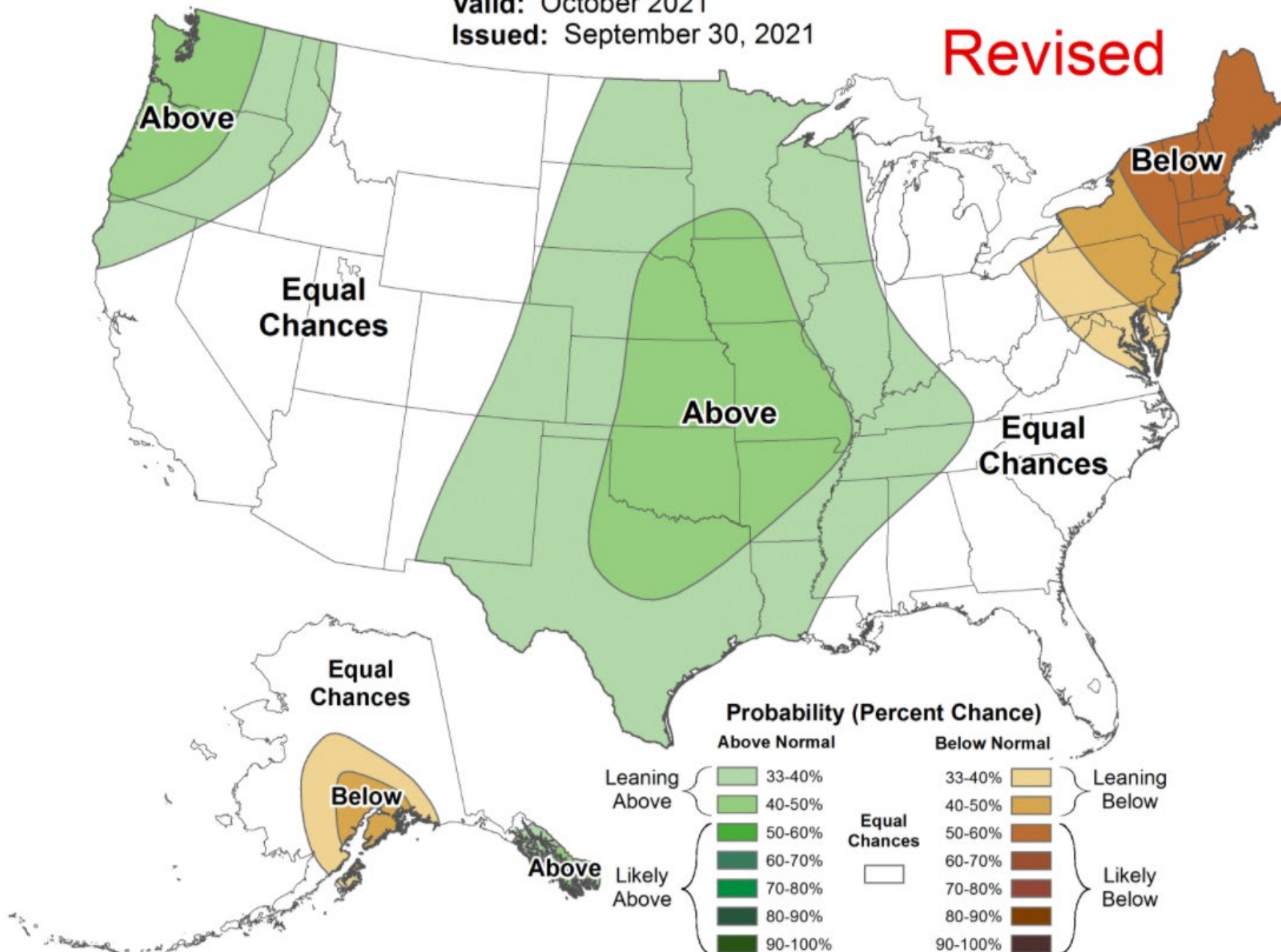
# Monthly Precipitation Outlook



Valid: October 2021

Issued: September 30, 2021

**Revised**



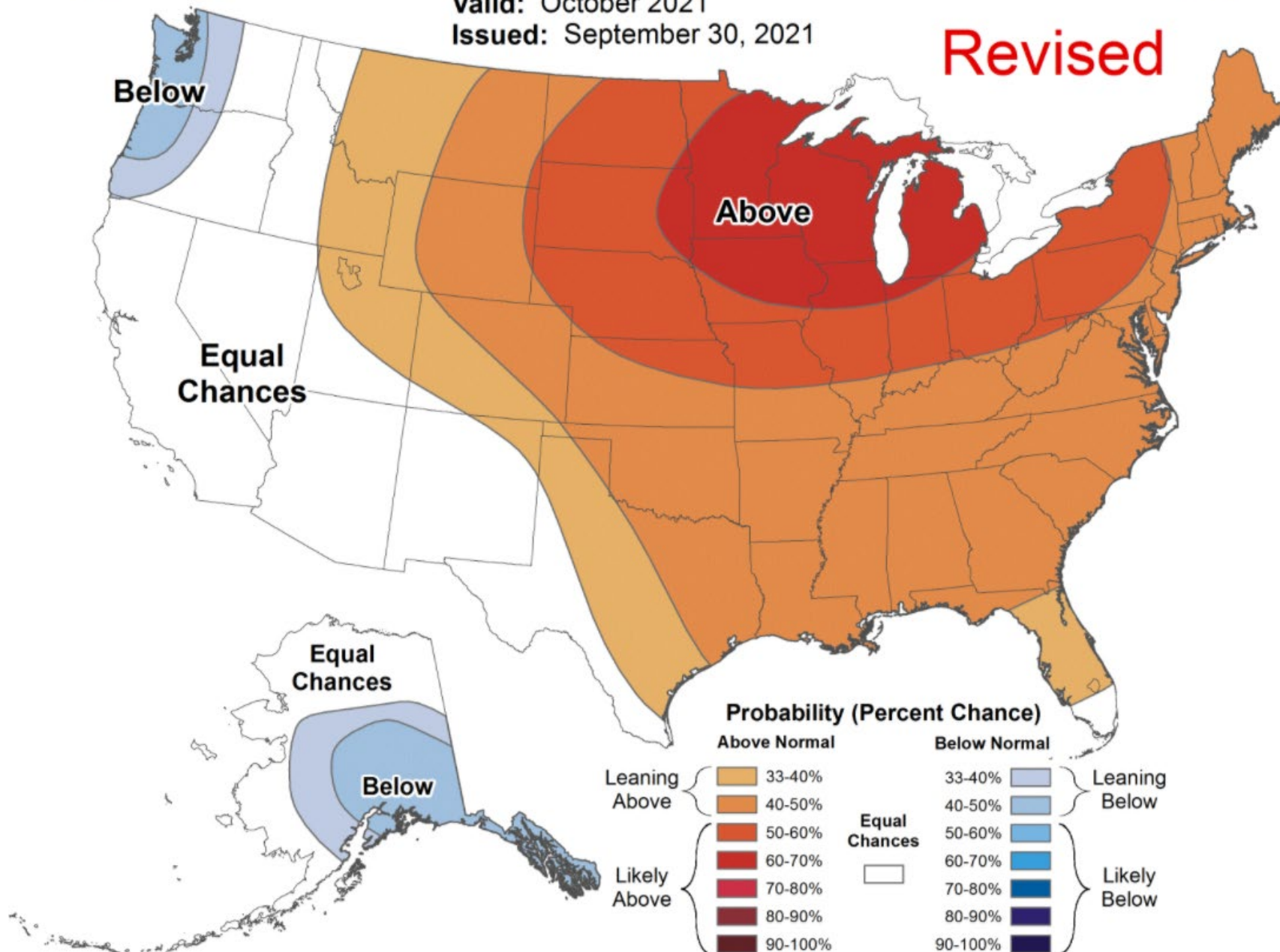


# Monthly Temperature Outlook

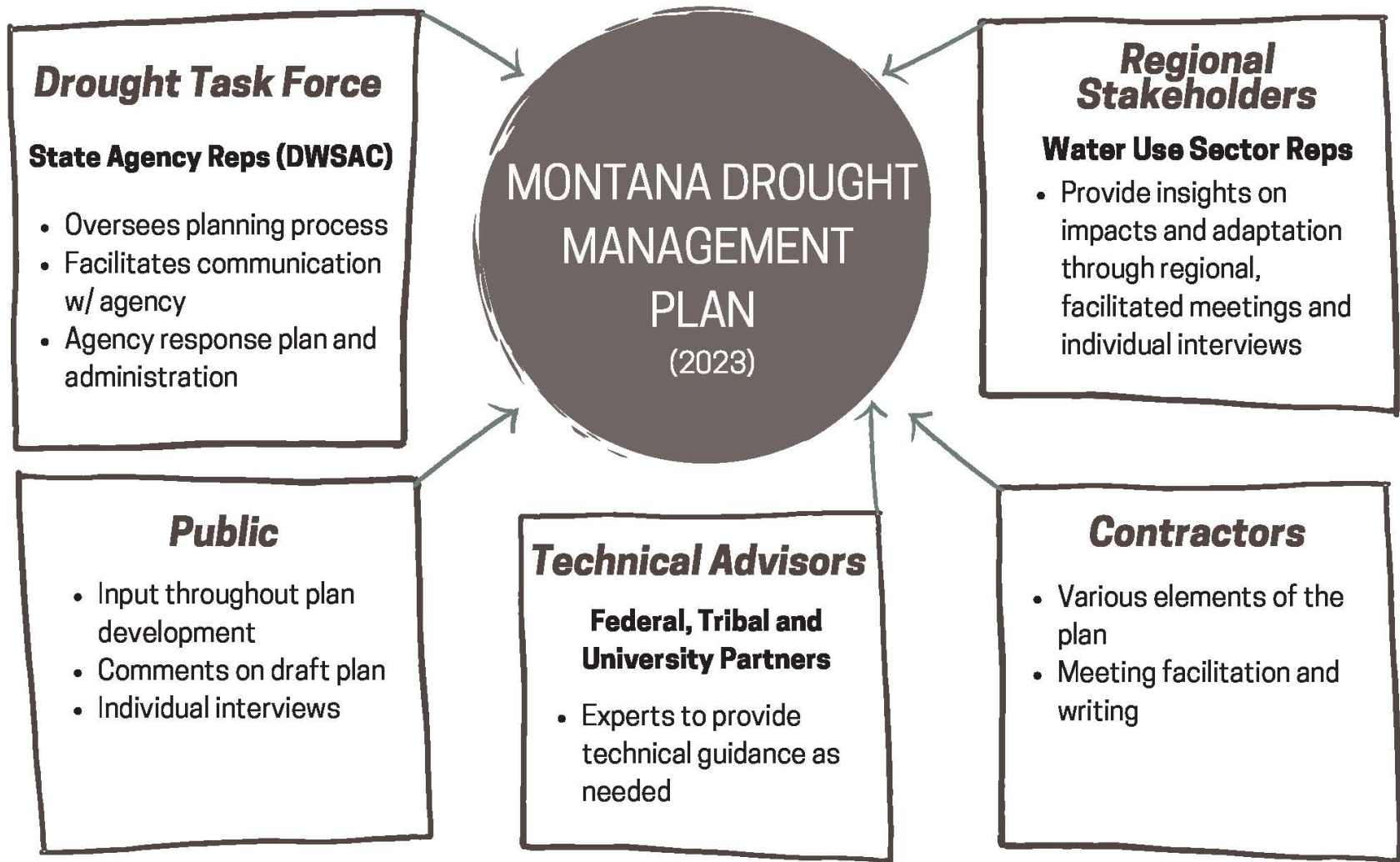


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**Revised**







Montana Drought Management  
Planning Overview

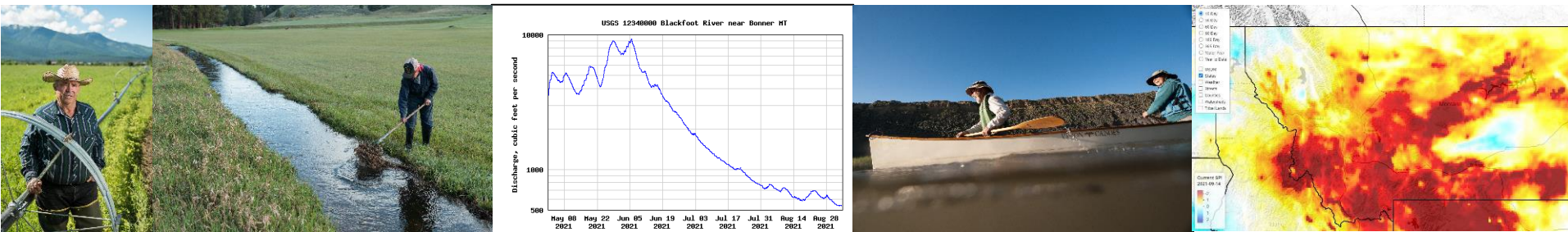
# Montana Drought Plan Update - Goals

**Develop a modern, progressive plan** that improves and formalizes drought monitoring, preparedness and response across Montana.

**Integrate robust stakeholder input** to ensure the plan is relevant and informative for the public, resource managers and policy makers.

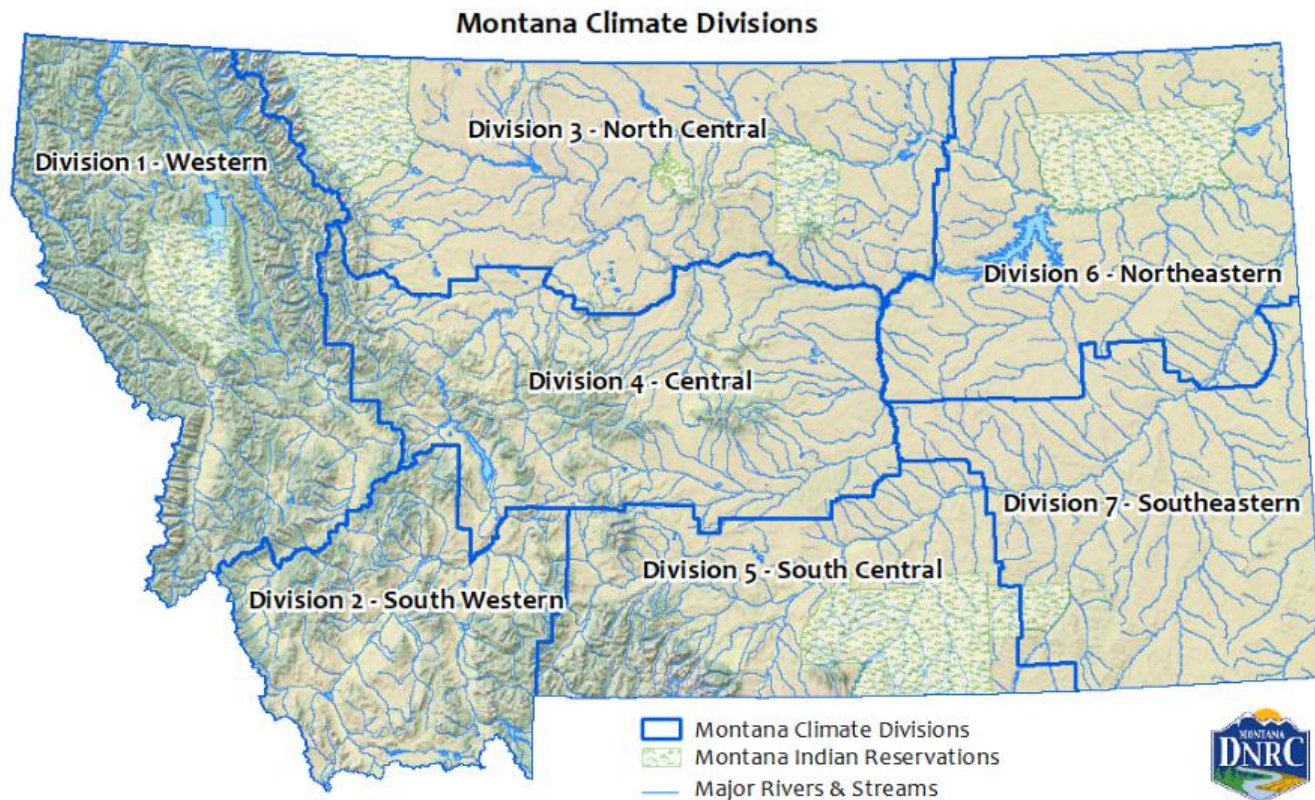
**Collaborate across agencies and institutions to create** a comprehensive plan that is representative of drought management efforts and programs statewide.

**Identify and develop actionable recommendations** for new statewide policies, programs, and actions to lessen the impacts of future droughts.



Collect information and data through regional stakeholder meetings and individual interviews on:

- drought sensitivity, risk and drought impacts
- develop state and regional drought response measures and adaptation solutions







# Questions/Comments?

<http://dnrc.mt.gov/divisions/water/drought-management>

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