

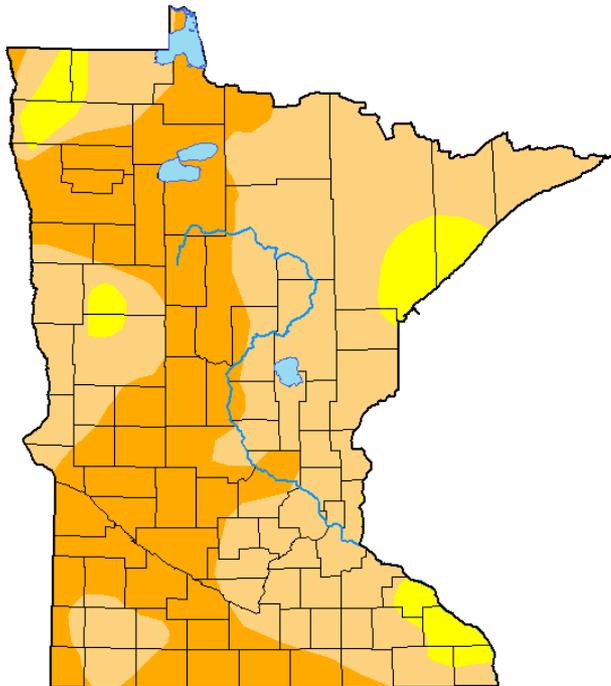


Drought Update and Planning to Sub-Committee on Water Policy

Jason B. Moeckel, Section Manager
Department of Natural Resources
Ecological and Water Resources

NEW - Weekly Drought Update

U.S. Drought Monitor Minnesota



July 6, 2021

(Released Thursday, Jul. 8, 2021)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	92.96	39.70	0.00	0.00
Last Week 06-29-2021	0.00	100.00	82.14	11.14	0.00	0.00
3 Months Ago 04-06-2021	14.86	85.14	33.59	2.96	0.11	0.00
Start of Calendar Year 12-29-2020	1.60	98.40	23.40	0.28	0.00	0.00
Start of Water Year 09-29-2020	54.95	45.05	8.39	0.00	0.00	0.00
One Year Ago 07-07-2020	53.20	46.80	24.25	5.80	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:

Deboran Bathke
National Drought Mitigation Center

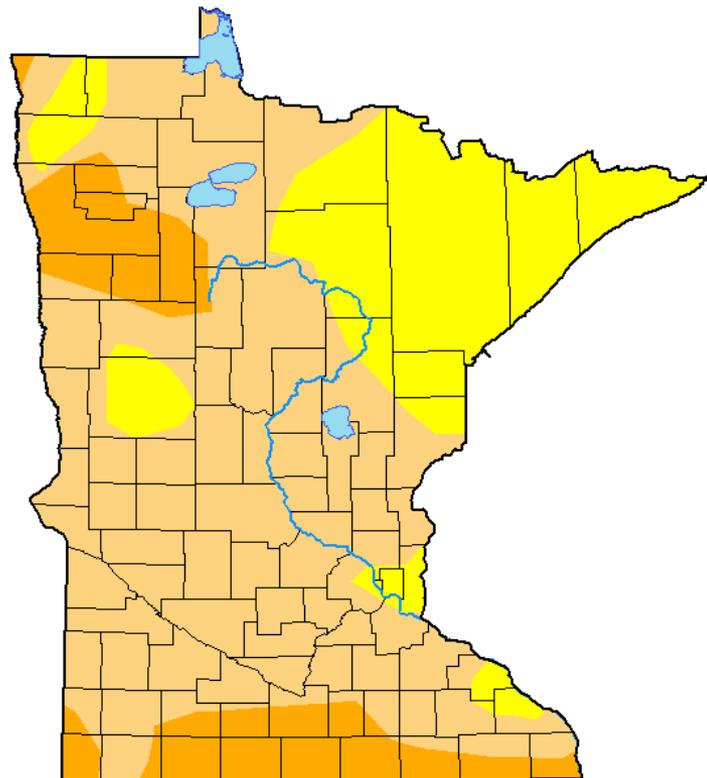


droughtmonitor.unl.edu

- **Drought Monitor** shows the entire state of MN is now abnormally dry to moderate drought
- **Stream flows** are low in Great Lakes basin, the St. Croix River basin, most of the Rainy River and parts of the Red River, and Upper Mississippi basins.
- **Fire Danger** is high over a majority of the state. Very high danger dominates the west central counties.
- **Lake Levels** – of 10 lakes throughout the state.

Drought Monitor Last Week

U.S. Drought Monitor Minnesota



June 22, 2021

(Released Thursday, Jun. 24, 2021)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	74.75	13.75	0.00	0.00
Last Week <i>06-15-2021</i>	0.00	100.00	55.70	5.07	0.00	0.00
3 Months Ago <i>03-23-2021</i>	0.00	100.00	41.21	0.89	0.00	0.00
Start of Calendar Year <i>12-29-2020</i>	1.60	98.40	23.40	0.28	0.00	0.00
Start of Water Year <i>09-29-2020</i>	54.95	45.05	8.39	0.00	0.00	0.00
One Year Ago <i>06-23-2020</i>	52.83	47.17	17.14	0.00	0.00	0.00

Intensity:

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

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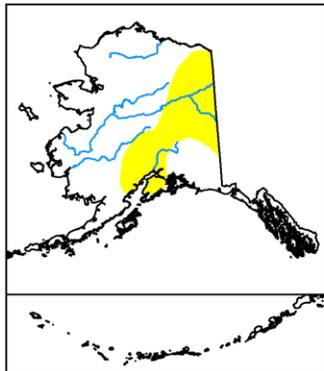
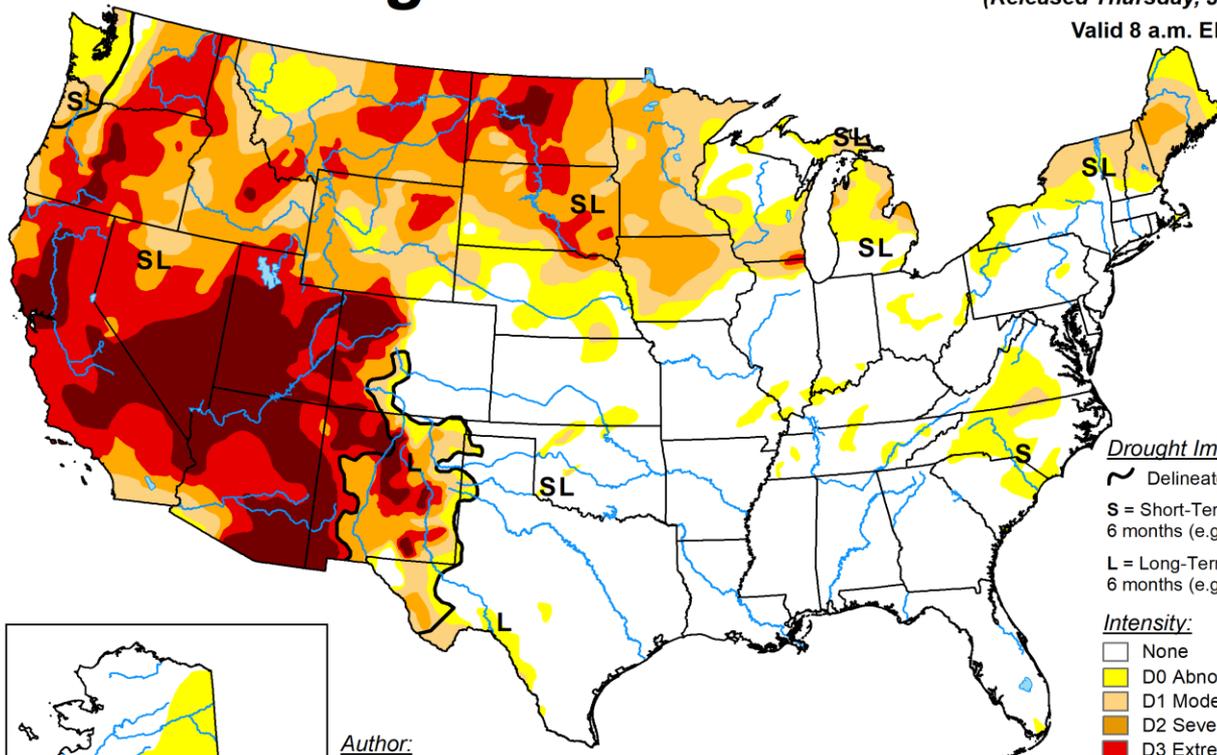
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U.S. Drought Monitor

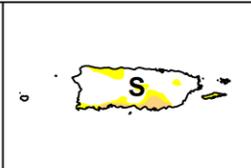
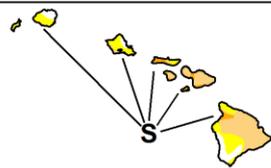
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Author:
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Drought Impact Types:

- ~ Delineates dominant impacts
- S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)
- L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

Intensity:

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

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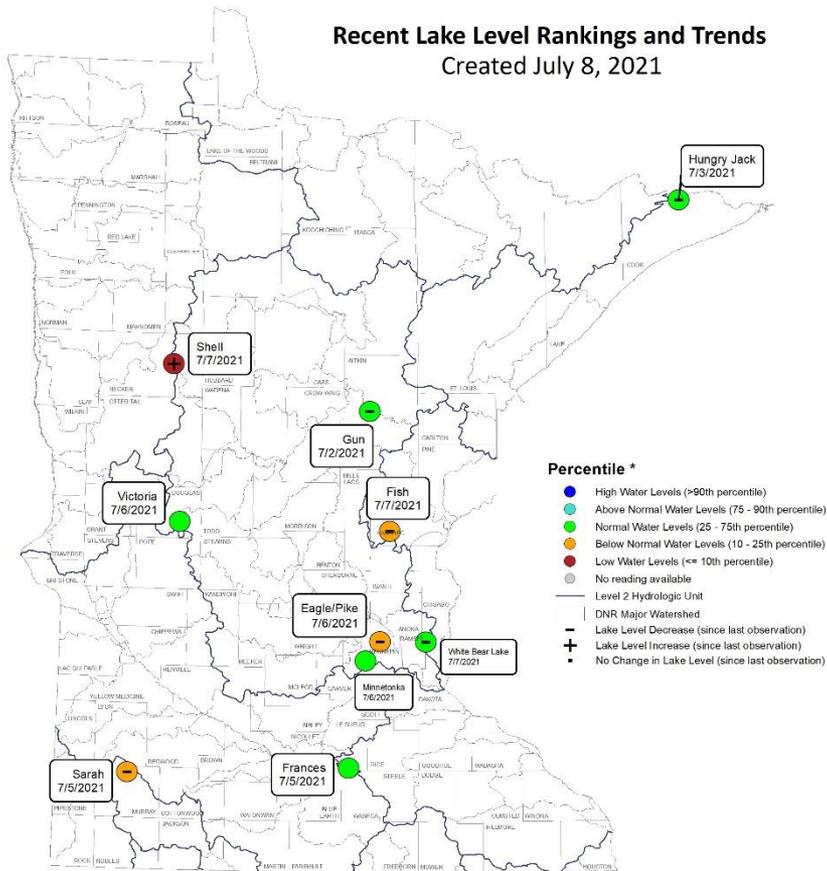


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Lake and River Level Trends

Surface Water: Lake Levels

Recent Lake Level Rankings and Trends Created July 8, 2021



Source data from: MN DNR Lake Level Minnesota Monitoring Program.
 Percentile ranking based on last reported reading for the current month compared to all historical reported levels in the record.

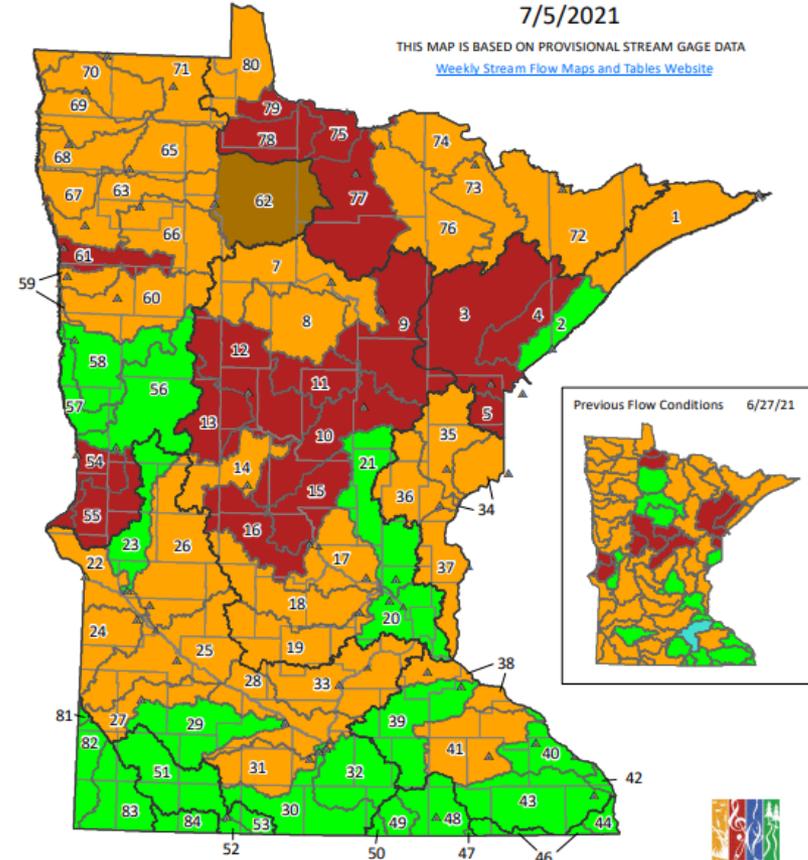
For more information, contact csd.gsnr@state.mn.us



Minnesota Weekly Stream Flow Report

7/5/2021

THIS MAP IS BASED ON PROVISIONAL STREAM GAGE DATA
[Weekly Stream Flow Maps and Tables Website](#)



Drought in Minnesota

Major droughts:

1911-1914

1934-1937

1954-1961

1976-1977

1987-1988

2011-2013



1936 photo near Appleton, MN
Minnesota Historical Society

Types of Drought

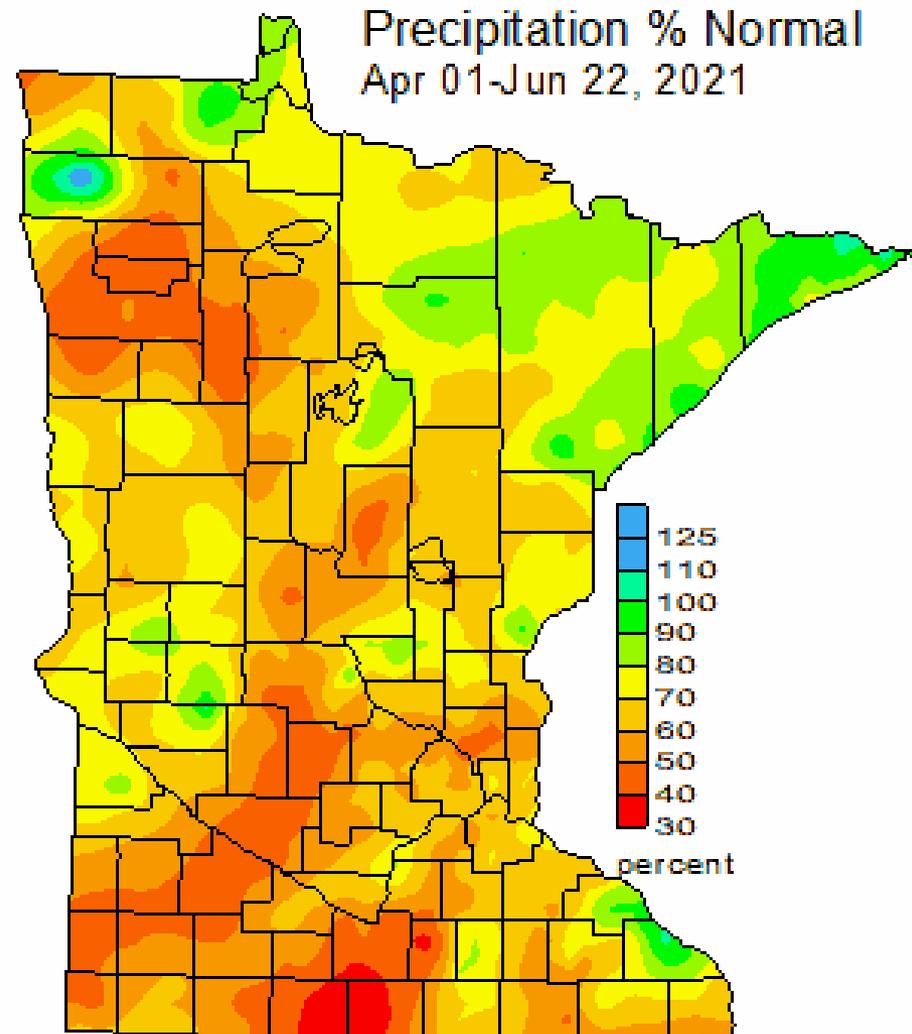


- **Meteorological drought** All droughts start off as meteorological drought
- **Agricultural drought** Reduced crop survival and productivity
- **Hydrological drought** Reduced water in streams, lakes, and reservoirs
- **Socio-economic drought**

Mississippi River at Clearwater Sept. 2013

Precipitation

- On average June is Minnesota's wettest month.
- Precipitation over the past month has run from 10% of average to 75% of average across most of Minnesota.
- The driest areas have been across north central Minnesota where very little rain has fallen in the past month.



Statewide Drought Plan

Minnesota Statutes [103G.293](#)

- The DNR commissioner shall **establish a plan** to respond to drought-related emergencies and to prepare a statewide framework for drought response.
- The plan must consider **metropolitan water supply** plans of the Metropolitan Council.
- The plan must provide a framework for implementing drought response actions in a **staged approach** related to decreasing levels of flows.
- **Permits must provide conditions** on water appropriation consistent with the drought response plan.

Watch vs. Warning Phase

DROUGHT WATCH PHASE

- A significant portion of the watershed is “**Abnormally Dry**” or in a “**Moderate Drought**”.



DROUGHT WARNING PHASE

- A significant portion of the watershed (see map) is in a “**Severe Drought**”, or for public water suppliers using the Mississippi River, the average daily flow at the USGS gage near Anoka is at or below 2000 cfs for five consecutive days.

Drought Plan Matrix

Drought Phases	State & Federal Actions	Water User & Supplier Actions
Non-drought phase	Monitor GW, SW, precip & quality	WSPs, alternate supplies, efficiency
Watch phase	Inform Drought Task Force (DTF), public awareness, monitoring	Monitor potential conflicts, share conservation info & request voluntary action
Warning phase	Convene DTF, notify water suppliers, increase public awareness, MI R. low flow	Implement water use restrictions, conserve, 50% above Jan., MI R. plan
Restrictive phase	Notify water suppliers, focus on river flows, cont. drought aware	Allocation restrictions, 25% above Jan., conserve, min. non-essential
Emergency phase	Advise Governor, implement Emergency Plan, engage USACE	Mandatory water use restrictions, Jan. levels, follow M.S. priorities, alternate water sources

State Drought Task Force

- Is convened in the Warning Phase
- Purpose is to provide coordination and communication between agencies and institutions affected by drought AND to provide a central source for the news media.
- In case of more localized drought conditions, the Director of DNR EWR may bring appropriate parties together on a Regional Drought Task Force for the same purpose.



MEMBERS

State: DNR, Agriculture, BWSR, Health, Public Safety, Transportation, EQB/Planning, PCA, UMN, Metropolitan Council

Federal: National Weather Service, North Central River Forecast Center, Corps of Engineers, USDA, USGS

Other: American Waterworks Association, Association of MN Counties, Hospitality MN

Mississippi River Low Flow Management Plan

Low-Flow Operating Principles

1. Trigger Flows
2. Reservoir Operating Bands
3. Ramping Rates
4. St. Anthony Falls Upper Pool



Target Audiences

- Water Appropriation Permit Holders
 - Water Supply
 - Livestock Production
 - Farming, golf courses, nursery
 - Energy
 - Commercial, Industrial, Institutional
- Local, state, and federal governments
- Tribal governments
- Legislators
- Media Outlets



Key Communication Channels

- Direct emails
- GovDelivery
- News Releases
- Social Media
- Radio PSA
- Weekly Drought Updates
- New Drought Portal webpage
- Info Center – summary sheet
- Newsletters to organizations
- Presentations





Questions?

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