



### Inside the Issue

## DROUGHT ACROSS NORTHLAND

The dry start to summer 2023 has led to widespread drought conditions. See drought info on p. 2

## BEACH HAZARDS AND SAFETY

With warm summer temps, hitting the lake can be a great way to beat the heat! Find beach safety tips on p. 3

## WET-BULB GLOBE TEMP

Learn more about Wet Bulb Globe Temperature (WBGT) and how it relates to heat stress on p. 3

Two of the most common pollutants in the US are ozone and particles.

Children, older adults and people with heart or lung disease have a greater risk.

Poor air quality can be hazardous.



## AIR QUALITY ALERTS

Wildfire smoke from Canada and periods of ozone has resulted in several Air Quality Alerts (AQA) being issued in the Northland this summer. These are created by state agencies and then relayed by the National Weather Service in Duluth. In Minnesota, they are created by the Minnesota Pollution Control Agency, and in Wisconsin, it is the WI Department of Natural Resources.



# NORTHLAND DROUGHT

As of the June 22nd, 2023 release of the Drought Monitor, moderate (D1) drought persists across much of the Northland, from the Brainerd Lakes to the Twin Ports and up the North Shore, and then sweeping southeast over the I-35 corridor and into northwest Wisconsin. Smaller areas of severe (D2) drought are affecting parts of east-central Minnesota and around the Twin Ports. Where there isn't drought classified, abnormally dry (D0) conditions persist or have expanded over much of the rest of the Northland. This is a wide expansion of drought from just several weeks ago when much of the area wasn't even in D0 classification.

Visit <https://www.weather.gov/wrn/summer-safety> for useful summer safety information you can share!

If you missed the live Skywarn classes during the spring, it's okay! We recorded the presentation and it's available for you to watch anytime. If you're from the Northland and want to register to be a spotter, or you just want to get a bit of refresher training, please check out the recorded version at [weather.gov/dlh/skywarn](https://www.weather.gov/dlh/skywarn)

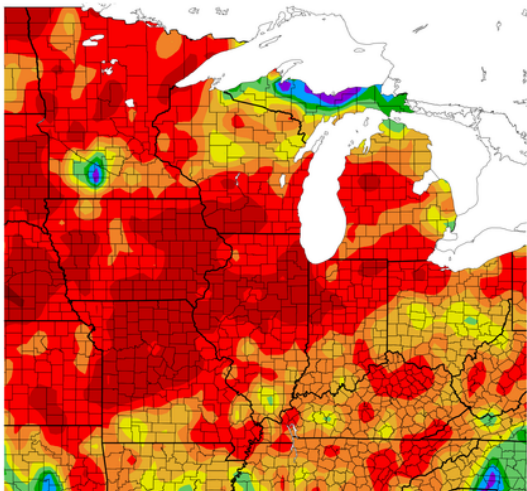
Rainfall has been very sparse during the month of June, which has led to very dry conditions when also accounting for the well below normal rainfall observed since early May. Since May 1, precipitation deficits run anywhere from 2 to 6 inches, with Duluth recording only 0.85 inches from May 1 to June 22. This is the lowest ever recorded precipitation for that time period at Duluth, and is 5.37 inches below the normal value of 6.22 inches. In the month of June alone, which is normally the wettest month of the year, precipitation deficits of 1 to 3 inches are already occurring, the worst of those are in northeast Minnesota extending into the South Shore of Lake Superior in northwest Wisconsin.

Rainfall in the last week, since June 22, ranging from 1 to 3 inches over a large portion of the Northland has helped reduce our rainfall deficit, but we will need several weeks of near to above normal precipitation to recover from this drought.

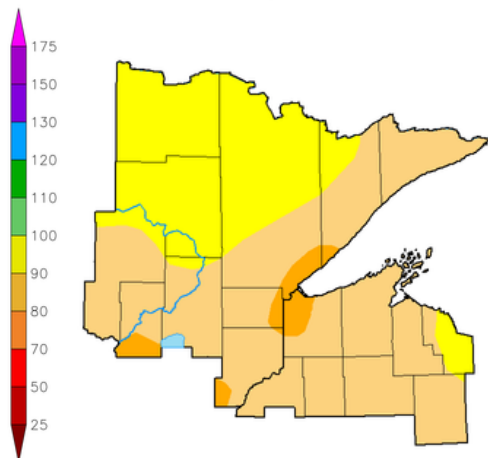
Impacts from this D0 to D2 drought include reduced streamflow, negative agricultural impacts, and increased fire danger. To monitor the latest drought conditions, visit [weather.gov/dlh/drought\\_page](https://www.weather.gov/dlh/drought_page).

Extended and seasonal forecast trends for temperature and precipitation can be found from NOAA's Climate Prediction Center at: <https://www.cpc.ncep.noaa.gov/>.

Percent of Normal Precipitation (%)  
3/24/2023 – 6/21/2023



U.S. Drought Monitor  
Duluth, MN WFO



June 20, 2023  
(Released Thursday, Jun. 22, 2023)  
Valid 8 a.m. EDT

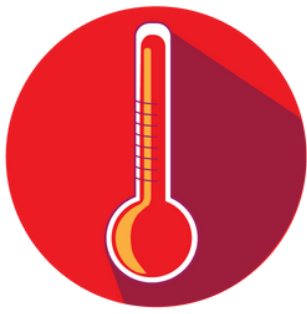
	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	83.09	4.28	0.00	0.00
Last Week	7.73	92.27	25.11	0.38	0.00	0.00
3 Months Ago	97.41	2.59	0.00	0.00	0.00	0.00
Start of Calendar Year	64.70	35.30	0.99	0.00	0.00	0.00
Start of Water Year	71.95	28.05	11.27	2.57	0.00	0.00
One Year Ago	97.91	2.09	0.00	0.00	0.00	0.00

**Intensity:**  
 None (White)      D2 Severe Drought (Orange)  
 D0 Abnormally Dry (Yellow)      D3 Extreme Drought (Red)  
 D1 Moderate Drought (Light Orange)      D4 Exceptional Drought (Dark Red)

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>

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Visit

<https://www.weather.gov/safety/heat>

for useful heat safety information you can share!

## WBGT: WHAT IS IT? HOW DOES IT RELATE TO HEAT INDEX?

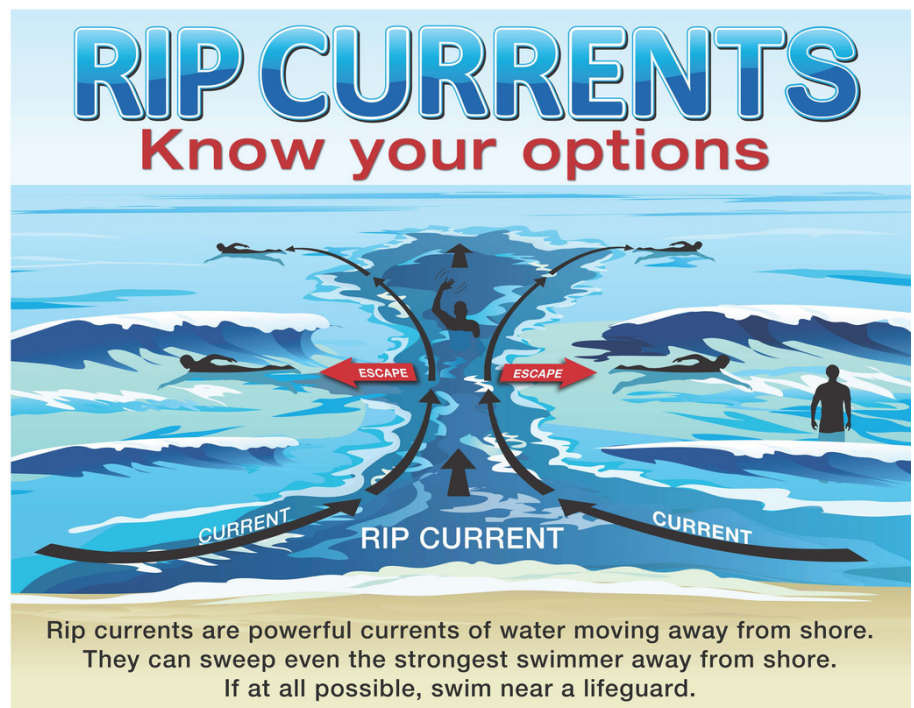
Wet Bulb Globe Temperature (WBGT) is a parameter used by the NWS, OSHA, and other groups, such as marathon organizers, to assess the potential for heat stress due to warm temperatures. WBGT estimates the effect of temperature, relative humidity, wind, and solar radiation on humans.

WBGT differs from the traditional Heat Index in a couple of ways. Heat Index measures what the temperature "feels-like" to the human body when relative humidity is combined with air temp. However, the air temperature used for Heat Index is measured in the shade. WBGT uses a temperature measured in the sun. Heat Index also doesn't account for wind, cloud cover, and sun angle.

# BEACH HAZARDS AND SAFETY

With summer heat in full swing across the Northland, one great way to find relief from the heat is to go swimming in Lake Superior! When swimming in Lake Superior, it's important to be aware of rip currents and know what to do if you find yourself trapped in one. The National Weather Service in Duluth creates forecasts for the beaches of Minnesota and Wisconsin Points during the warm season. This product, called the Surf Zone Forecast, is issued daily in the early morning hours and highlights dangerous swimming conditions around the Twin Ports.

The Surf Zone Forecast has 3 levels of swim risk: Low, Moderate, and High. A low risk means that large waves and dangerous currents are not expected. When the swim risk is moderate, breaking waves are expected with rip currents possible. Caution should be used if swimming. Once swim risk gets to High, rip currents are expected with large waves. Make sure to avoid swimming as conditions can be life-threatening. So far in 2023, 46 fatalities have occurred across the U.S. within the surf zone. Of those 46 deaths, 41 were associated with rip currents. See the graphic below for tips on how to survive a rip current:



Learn more about rip currents and rip current safety at: <https://www.weather.gov/safety/ripcurrent>

## [PARKPOINTBEACH.ORG](https://www.parkpointbeach.org)

This excellent online resource is maintained by the City of Duluth and is a partnership between the Duluth Parks and Recreation Dept., Duluth Fire Dept., Duluth YMCA, MN Dept. of Health, and the National Weather Service in Duluth. Current beach conditions and the Surf Zone Forecast from our office in Duluth can be found on this website.

# WEATHER READY NATION AMBASSADORS

The National Weather Service office in Duluth, Minnesota is calling on community organizations and agencies to become Weather-Ready Nation (WRN) Ambassadors. WRN Ambassadors help in spreading WRN messages and building community resilience to extreme weather.

This goal requires more than just the National Weather Service.

It requires the entire community, its government, organizations and businesses to provide information for better decision making, and innovative partnerships across all segments of society. Everyone should be involved in the effort to move people and society, toward heeding warnings, taking action, and influencing their circles of family, friends, and social network to act appropriately.

As a WRN Ambassador, you will serve as a leader in your community. You will inspire others to be better informed and prepared, helping to minimize or even avoid the impacts of these natural disasters.

To officially be recognized as a WRN Ambassador, an organization must commit to:

- Promoting Weather-Ready Nation messages and themes to their stakeholders;
- Engaging with National Weather Service Duluth personnel on potential collaboration opportunities;
- Sharing their success stories of preparedness and resiliency;
- Serving as an example by educating employees on workplace preparedness.

Together, we will inform and empower communities, businesses, and people to make pre-event decisions that can be life-saving and prevent or limit devastating economic losses. We are a nation of many communities, and it is only through connected communities that we will achieve this goal.

To apply to become a WRN Ambassador, visit <https://www.weather.gov/wrn/amb-tou>



## AMBASSADOR VISITS

This year, our office is planning on visiting with some of our Weather-Ready Nation Ambassadors in person! If you are interested in scheduling an in-person meeting, please feel free to contact us at any or all of the email addresses below.

Weather-Ready Nation Ambassador Liaisons:  
Linda Engebretson - linda.engebretson@noaa.gov  
Woodrow Unruh - woodrow.unruh@noaa.gov

Warning Coordination Meteorologist:  
Joe Moore - joseph.moore@noaa.gov