Fuels and Fire Behavior Advisory

Northeastern Minnesota, Wisconsin, and Michigan

Date Advisory Takes Affect – *June 12, 2023*

Subject: The Great Lake states of MN, WI, and MI observe significantly elevated fire risk with long-term outlooks of warmer and dryer than normal weather.

Discussion: Since mid-spring 2023, the advisory area has experienced periods of increased fire risk. The past month has seen little to no rain, causing vegetation to dry out as rainfall deficits continues to grow. The area is facing a precipitation deficit of over 3 inches and USGS monitored streamflow stations are reporting low levels at the 90th percentile. Long-term forecasts describe warm and dry conditions throughout June.

In the advisory area, summer fire seasons are typically infrequent and short-lived. However, some of the largest wildfires have happened in mid to late summer. For instance, the Wilderness Trail Fire (MI-MIS) began on June 3rd and spread quickly while showing extreme fire behavior and burning nearly 2,400 acres of jack pine in one burn period. The main factors were low needle moisture in the pines, which continue to experience spring dip and may recover more slowly due to the overall dryness of the fire environment. Currently, suppressing and mopping up wildfires can require up to five times more energy and effort than usual.

Difference from normal conditions: Fire danger indices from both the Canadian Forest Fire Danger Rating System (CFFDRS) and National Fire Danger Rating System (NFDRS) have been reaching historic daily highs. Reports of high probabilities of ignition, rapid spread, crown fire initiation, and extreme fire behavior. Jack Pine, mixed hardwoods, spruce budworm pockets, peat, and green marsh grass are all burning easily, which is unusual for this time of year.

Concerns to Firefighters and the Public:

- Entire surface area, including leaves and grasses (which appear vibrant green), is available to burn.
- The effect of rainfall is short-lived. Resources must be aware of the long-term impact of drought and expect a rapid increase in the potential for fire behavior immediately after any rain event.
- Expect increasing ignitions from lightning in forest fuels. Human caused ignitions from fireworks and equipment are likely as grass fuels typical to human habitation are cured and receptive.
- Intensive monitoring and mop-up will be necessary to secure the fire line in lowland grasses where deep fires burn in layers of forest fuels and organic soils. Fires that smolder may cross non-mineral soil breaks and reignite on the other side.
- Water from the air (aircraft or rainfall) will do little other than slow the forward spread of fires.
- Existing build-up, hot and dry conditions, and an extended amount of summer remaining will bring a very high to extreme risk of large catastrophic fires to the advisory area.
- Extreme fire behavior, common under record setting conditions, will occur where fires, fuels, and weather elements (namely wind) align to create the worst conditions.

Mitigation Measures:

- Staff resources adequately to deal with increased fire occurrence and advanced fire behavior.
- Consider indirect and extended attack when making tactical decisions related to line placement and type.
- Discuss options locally, like mineral soil breaks using heavy equipment or indirect attack, to mitigate the amount of effort needed to create high levels of line security. Don’t underestimate the potential for holdovers in duff and organic soils.
- Ensure firefighters adequately assess potential fire behavior daily and have trigger points for when to disengage.
- Brief out of state area resources on current and expected fire behavior and familiarize them to the local fire environment.
- Discuss the limitations and mitigations for the use of lookouts in heavy timber and flat terrain.

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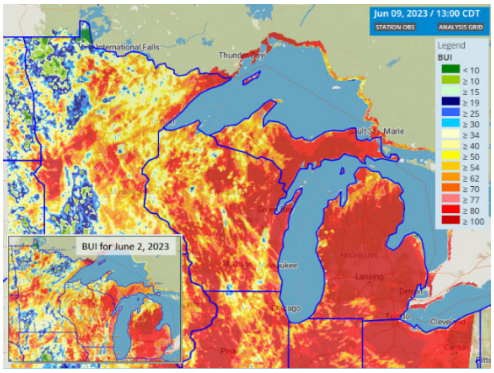
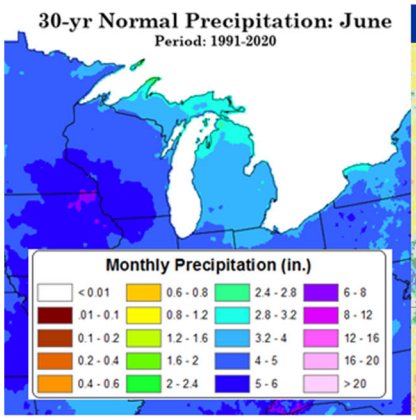
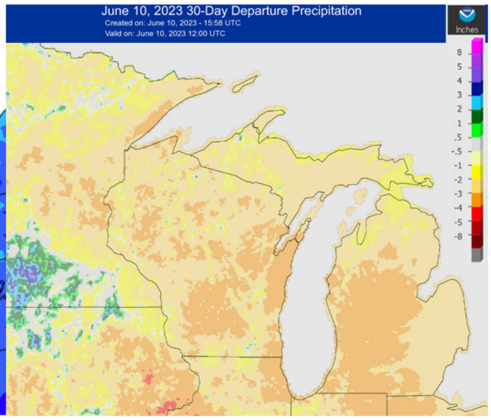
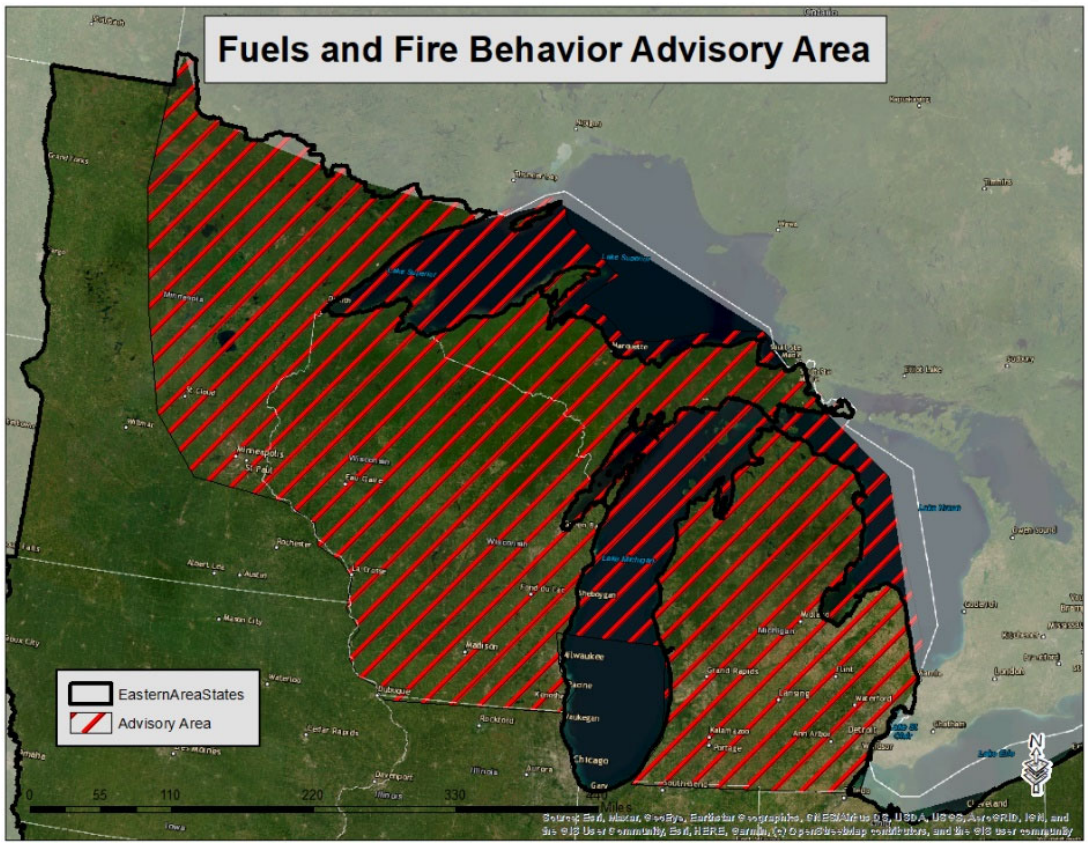
On June 9, 2023, the Build Up Index (BUI) was observed across the advisory area to range between 80 and 100. BUI is like the NFDRS Energy Release Component (ERC) and combines the current DMC and DC to estimate potential heat release in heavier fuels. It serves as a longer-term indicator of fire danger and fuel availability.







June is usually the wettest month of summer in the advisory area. However, there are currently deficits of over three inches. This, along with the long-term hot and dry outlooks, are crucial factors in evaluating the fire environment and fire behavior potential.



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