

# What does an iceless Lake Superior portend?

February 19 2024, by Jana Hollingsworth, Star Tribune

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From Duluth, Lake Superior is a colossal expanse of blue this week with no otherworldly ice shards smashed against the shore or colorful fish houses decorating stretches of white.

At about 2%, the amount of ice on the lake is the lowest it has been at

this point in recorded history, a phenomenon that is true for the Great Lakes as a whole.

It's a disappointing winter without the icy lunar landscape that the Park Point beach is known for this time of year, said Jake Kapsner, who lives on the sandspit.

"I absolutely love being able to get out on the ice," he said, both on the lake and bay sides of the point. "If you caught the bay at the right time, you could skate for miles."

But not this year. The Great Lakes crossed a threshold, NOAA's Great Lakes Environmental Research Laboratory reported recently, with mid-February ice levels the lowest they've been since the federal agency began keeping records in 1973.

The average ice cover on Lake Superior this time of year is 40%.

A longer shipping season aside, this year's strange winter has been bad for an economy that relies on snow and ice, and it won't be good for lake ecology, either.

Combined with record-breaking mild air temperatures of a snowless El Nino winter, Lake Superior is expected to warm at the surface much more quickly this year than typical, creating conditions for coastal erosion and fertile ground for harmful algal, or [algae blooms](#) and invasive species that kill native fish. And as the days get longer with more sun shining on the deep, iceless lake, the chances of ice formation grow slimmer. It isn't freezing because it hasn't had the chance to cool to that point.

"The [water temperature](#) is a master controlling variable of everything," said Bob Sterner, director of the University of Minnesota Duluth's Large

## Lakes Observatory (LLO.)

It affects how the water moves, how materials cycle through the lake, how fast organisms grow and predator-prey interactions, he said. Anecdotally, the observatory's research has shown that [mild winters](#) mean algae blooms for Lake Superior.

The unsightly blue-green blooms are not truly algae but a type of bacteria that thrives in warm, nutrient-rich water that can be harmful to pets and humans. It's best to avoid skin contact with blooms, Sterner said, but "we have no reason to say the lake water is toxic when there's a bloom in Lake Superior proper."

After the mild winter and [heavy rains](#) of 2018, blooms on Lake Superior that resembled "melted crayon green" spanned from Duluth and Superior to the Apostle Islands, but typically such blooms are smaller and short-lived, he said.

Toxicity, however, has been found in blooms inside the St. Louis River estuary. (Those who spot an algae bloom on Lake Superior are encouraged to call their local Department of Natural Resources.)

Peter Birschbach is a graduate student in UMD's Water Resources Science program studying the importance of ice to algae bloom cycles. He and other researchers typically reach project sites on the St. Louis River and its bays via snowmobile. This year, some of the sites are inaccessible even on foot.

With lots of ice last year and plenty of blooms in the river during the subsequent summer, "we're really curious about this upcoming season and what we're going to see," Birschbach said.

A warmer lake also is bad news for some [native fish](#) that depend on cold

water temperatures to thrive. Warmer water typically means smaller numbers of cisco, a fish important for commercial anglers and other fish that eat them. It also allows invasive species like sea lamprey to grow bigger and kill more lake trout and other fish.

When Lake Superior stays cold longer, either through ice or a winter with intense snowmelt, "it pushes the lake back to what it naturally should be: very cold," said Cory Goldsworthy, Lake Superior Fisheries Supervisor for the Minnesota Department of Natural Resources.

The lake's deep and cold reserves have kept many of the [invasive species](#) found in other Great Lakes from establishing a foothold, but that could change, he said.

Lake Superior ice cover peaked at about 20% last year and 80% in 2022, but it was short-lived.

Jay Austin, a professor and researcher with the LLO, said a more meaningful measure of ice intensity is duration, such as in 2014 when ice largely covered the lake in February and most of March.

Along with its effects on ecology, the lack of ice is altering northland culture. It's not been safe to visit the ice caves near Bayfield for almost a decade and there's been little chance to ice fish, walk or ski on the lake this year.

"Ice is part of what defines where we live," Austin said. "And that sense of place is changing as we encounter more and more of these warm winters."

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Citation: What does an iceless Lake Superior portend? (2024, February 19) retrieved 21 June

2024 from <https://phys.org/news/2024-02-iceless-lake-superior-portend.html>

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