

# Great Lakes have most ice in decades thanks to bitter winter

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This winter's frigid temperatures have produced the largest amount of ice cover on the Great Lakes in at least 25 years.

Roughly 60 percent of the lakes are now under a cover of [ice](#), according to the Great Lakes Environmental Research Laboratory in Ann Arbor, Mich.

The ice cover could help lake levels this summer, but that is far from certain. And biologists are keeping a close eye on northern Lake Superior in the hope that an ice bridge will link Ontario to Isle Royale.

The island is the home to a struggling gray wolf population in desperate need of new genetic stock - and more wolves.

One possible effect of so much ice this winter is that come summer the "lake effect" in cities like Milwaukee, Chicago and Duluth could be even cooler.

The ice cover this winter is a stark contrast to last winter, when the five lakes had only 38 percent cover, according to the research laboratory, which tracks ice conditions on the lakes. The long-term average of the lakes is about 50 percent, according to George Leshkevich, a scientist with the laboratory which is part of the National Oceanic and Atmospheric Administration.

Of all of the lakes, Lake Michigan currently has the smallest amount of ice - about 38 percent. But Lake Erie is almost entirely covered. Leshkevich says Erie often gets the most ice because it is the shallowest of the Great Lakes.

To the north, 57 percent of Lake Superior is covered with ice. As the deepest of the Great Lakes, Leshkevich said, Lake Superior takes more sustained cold air to freeze, and because it produces considerable wave action from prevailing

westerly winds, ice is slower to form.

With record low water levels on Lake Michigan and Lake Erie, the massive amount of ice could have a beneficial effect by slowing evaporation from the lake, but other factors could limit the effect.

Last February, the U.S. Army Corps of Engineers reported that Lake Michigan and Lake Erie hit their lowest recorded levels. Last summer, the Milwaukee Journal Sentinel reported on 14 years of below-average water levels on the lakes.

But the relationship between ice cover, evaporation and [water levels](#) is complex.

Researcher Jay Austin of the University of Minnesota-Duluth says that the ice "acts like a giant piece of plastic" over the lake. That means water can't evaporate as readily from sunlight.

Austin says that this season's cold weather in late fall and early winter, combined with the relatively warmer water, creates conditions that are "tremendously evaporative."

"Lake smoke" in cities like Milwaukee and Duluth can often be seen rising from the lake. That's evaporation, Austin says.

"So to get to all of this ice, there had to be a lot of evaporation in the first place," Austin said.

In his research, Austin has found that in years of extensive [ice cover](#) has meant that lakes take much longer to warm the next summer. That could mean cooler lake side temperatures in the spring and summer of 2014

Satellite maps show northern Lake Superior socked in with ice.

On Isle Royale, as late as last Thursday, wolf

researcher Rolf Peterson of Michigan Tech said by email that he could still see gaps in the ice and it was premature to say a bridge had formed.

Biologists hope that will happen - the last time was 2008. If ice from Ontario stretches to the island, it could mean the introduction of new wolves, which could help boost the population and diversify the gene pool.

The last time a wolf migrated across the ice was 1997.

The wolf population on the island dropped from 16 in 2011 to eight in 2013.

In their post from the island on Jan. 12, researchers from Michigan Tech tracking the wolf and moose population on the island wrote:

"If climate projections are accurate, only one or two more ice bridges are likely before the [lake](#) is expected to be perpetually free of any significant ice formation (by 2040).

"Ice bridges are important because they represent the possibility that a wolf can migrate from Canada and infuse the population with new genetic material - this appears vital for the population's vitality.'

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