Lake-effect snow not falling; water levels are

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Photo

Ice now sits on Lake Michigan, blocking evaporation. But this much-needed barrier came late because of a mild autumn. (Tribune photo by Stephanie Sinclair)

Unusually pleasant winter weather is evaporating hope that Great Lakes water levels will rise, something boaters and shippers had desperately wanted after drought and easy winters pushed the lakes to their lowest point in 35 years.

As Chicagoans can attest--and many are celebrating--there has been scant snowfall in the western end of the Great Lakes basin. As everyone in Buffalo knows--and most are cursing--there has been a tremendous amount of lake-effect snow dumped on the eastern end of the basin.

That means the unusually warm and ice-free lakes are losing millions of gallons of water to evaporation that won't be replaced by the melting of snow in spring, a major source of the lakes' water.

"It's quite likely that we're seeing the amount of snow that has fallen this year as a bad thing," said Roger Gauthier, a hydrologist with the U.S. Army Corps of Engineers in Detroit.

"At least half [of the lake-effect snowfall] is going to be lost into the atmosphere. It will evaporate right off of the snowpack and drift to the eastern seaboard."

The Great Lakes began dropping four years ago, and they have reached levels that are now just a foot above the record low set in March 1964.

The levels were already so low last year that barges were forced to lighten their loads, and many boat ramps were inaccessible.

On the plus side, the low levels have created expansive beaches around the lakes as the waters have receded like a slow tide.

Since 1997, levels in Lakes Michigan and Huron have dropped by more than 40 inches and remain 14 inches below average. Lake Superior is more than 6 inches below average, while Lake Erie is 4 inches under the norm. At only 1 inch below its average level, Lake Ontario has lost the least amount of water.

For all of the lakes, there won't be a real turnaround this year unless a source of precipitation comes from someplace other than the lakes themselves, hydrologists and meteorologists say.

So far, that's not in the forecast, with only a smattering of snow anticipated over the next week in the area

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west of the lakes and little but lake-effect snow expected to fall to the east.

Capable of falling in huge amounts, lake-effect snow occurs when cold, dry air from outside the region mixes with moisture evaporating from the lakes.

The uncommonly mild fall enjoyed by the Midwest stymied the greatest barrier to evaporation, the freezing of the lakes. Lake Erie, the shallowest of the lakes, is usually frozen by late December, but only now are its bays and inlets becoming glazed with a solid sheet of ice.

The wetter-than-average September and October were not enough to offset the problems caused by the lack of ice cover in subsequent months.

"The lack of ice cover is really just the kiss of death for the lakes," said Brent Lofgren, a physical scientist for the Great Lakes Environmental Research Laboratory.

The lack of ice gets the blame for Buffalo's miserable winter too, because as soon as the lakes are covered with ice, lake-effect snow can't be produced.

Since late December, most of the Midwest has been under a strong Arctic system, Lofgren said. The air that has come with the system has been exceptionally dry, and no significant storm fronts have moved in from the south to meet it.

The result is a northern snowpack made almost entirely of lake-effect snow, incapable of replenishing the source from which it sprang.

At this point, even if there is an increase in snowfall through January and February and heavy rains in the spring, there may be no relief for the low lake levels, Gauthier said.

"2002 was forecast to show some improvements, but if we continue in what has just occurred here in the last two weeks we may not get that improvement," Gauthier said.

Diminished lake levels carry a significant cost, experts say.

Helen Brohl, executive director of the U.S. Great Lakes Shipping Association, said that for every inch of water Lake Michigan loses, a cargo ship must reduce its load by 90 to 115 metric tons. Per barge, that means a loss of between $22,000 and $28,000--costs that are typically passed on to the consumer--for every inch the water drops.

Loads of iron ore, coal and grain that must cross the Great Lakes have been lightened by as much as 8 percent since November.

"With every drop [in the water level] you lose your ability to operate," Brohl said.

The decrease in water supplies also affects the amount of hydroelectric power that can be generated.

In New York, power plants on the Niagara and St. Lawrence Rivers depend on water that moves from Lakes Michigan, Huron and Erie.

"Ultimately, hydroelectric power will be affected," said Connie Cullen of the New York Power Authority. "There is a lag, but the water supply now could impact [power] production in the future."

In Michigan, half of the municipal boat launches have been closed because they sit entirely out of the water, Gauthier said.

"There is a huge downside to the lack of snow," he said. "And many of the big losses are economic."

Less dramatic is the long-term effect on the lake's ecosystem, said Daniel Injerd, chief of the Lake Michigan management section of the Illinois Department of Natural Resources.

"The lakes have had this fluctuation of around 5 1/2 feet, and the aquatic system seems to have adjusted to that," he said. In the short term, he said, there probably will be benefits to some areas and drawbacks to others.

"What the net result is I don't think we really know."

Though the overall effects, both economic and environmental, may not be entirely known, the possibility

that the lakes will not gain back some of the lost water this year is troubling, experts agree.

But alterations in human consumption aren't likely to have a major impact one way or the other. The amount of water people take from the lake is minute compared with what Mother Nature takes, Gauthier said.