**Autumn anomaly: Deepest Great Lakes' levels rising**

By Keith Matheny, Detroit Free Press staff writer

*But the cooler surface water temperatures are just one factor in this fall’s rising lake levels, an expert said.*

As leaves are falling, the deepest of the Great Lakes' water levels are rising. And that almost never happens.

The Midwest's brutal winter of 2012-13 is still impacting the Great Lakes — two seasons later. And it's contributing to water levels rising in the fall on Lake Superior and connected Lakes Michigan and Huron, something they've only done a handful of times in a century and a half or more.

"It is extremely rare for it to happen," said Drew Gronewold, hydrologist at the National Oceanic and Atmospheric Administration's Great Lakes Environmental Research Laboratory in Ann Arbor.

The shallower Great Lakes, Erie and Ontario, as well as Lake St. Clair, are doing their more typical slow decline in lake levels as autumn takes hold. But Lake Superior's depths rose almost a half-inch from Aug. 1 to Oct. 1; Lakes Michigan and Huron rose almost 2 full inches. Averages calculated by the U.S. Army Corps of Engineers going back to 1918 show Superior's levels typically drop more than an inch from August to October; Michigan-Huron usually drops almost 5 inches.

Those measurements may not seem like much. But keep in mind how vast the lakes are. Lake Superior alone has 3 quadrillion gallons of water — that's 3 million *billion* gallons. Three with 15 zeroes behind it. Spread out, Superior would cover North and South America in a foot of water. Its surface area is the size of Maine. Lakes Michigan and Huron hold about 2 quadrillion gallons.

All Great Lakes are above their long-term average depths for the first time since the 1990s. It's a remarkable turnaround from record-low water levels on Lakes Michigan and Huron as recently as January 2013.

"The rate of water level rise over the past two years on the Great Lakes is one of the most rapid rises we have ever seen — which is pretty amazing, because we have records going back to the mid-1800s," Gronewold said.

The water's not just unusually deeper; it's colder as well. Last winter was the snowiest — and one of the coldest — ever around the Great Lakes. It led to some of the widest-spread, longest-lasting Great Lakes ice cover ever — Lake Superior wasn't ice-free until June. And that had ongoing effects throughout the summer and into fall.

Lakes Superior and Michigan are about 6 degrees colder this fall than they were last year. Lake Superior on Wednesday had surface temperatures of 46.6 degrees, down nearly 3 degrees from its long-term average. Lake Michigan was down a degree from its long-term average, at 56.8 degrees; Lake Huron is down almost 1.5 degrees from its average temperature of nearly 55 degrees for mid-October.

But the cooler surface water temperatures are just one factor in this fall's rising lake levels, Gronewold said. It involves a complex set of contributing factors that includes a rainy spring; heavy snow-pack and high water content in the snow; ground saturation, and less lake evaporation and more rain over the past several months.

Colder water temperatures could affect weather going forward, said Michael Notaro, an assistant professor at the University of Wisconsin's Center for Climatic Research.

It's "likely the cold waters will lead to earlier ice development," he said. "Cool waters are not favorable for lake-effect snow, especially once extensive ice forms. The cool waters might also reduce evaporation, keeping water levels higher."

Is the corner turned on low Great Lakes water levels? Stay tuned.