ENVIRONMENT

Toxic forever chemicals detected in Lake Ontario, all other Great Lakes

Southwick Beach on Lake Ontario. N. Scott Trimble, strimble@syracuse.com, 2023 file

Michael Hawthorne - Tribune News Service

Toxic forever chemicals are on the rise in Lake Michigan, an alarming finding that reflects how the Great Lakes — including Lake Ontario in Upstate New York — act like sponges soaking up pollution from near and far.

Rain and contaminated air are major sources of the contamination detected by a team of researchers from Indiana University and Canada's top environmental agency. So are discharges from sewage treatment plants and industries.

The new study found airborne concentrations of PFAS — per- and polyfluoroalkyl substances — are much higher near Chicago and other urban areas than at rural monitoring stations in northern Michigan and Upstate New York. Previous research recorded similar patterns for flame retardants and other toxic chemicals.

But unlike many other contaminants, PFAS in rain were consistent throughout the Great Lakes region, likely because the chemicals are so widespread in the environment.

Levels detected in rain were the same near Chicago and at Sleeping Bear Dunes National Lakeshore, 223 miles northeast across Lake Michigan near Traverse City.

As the most comprehensive tracking of PFAS in the lakes to date, the study provides another example of how it is impossible to avoid exposure to the chemicals — some of which build up in human blood, cause cancer and other diseases and take years to leave the body.

“We need to take a broader approach to control sources releasing PFAS into the atmosphere and into bodies of water,” Marta Venier, an environmental chemist at Indiana University and co-author of the study, said in an interview. “Eventually that pollution ends up in the lakes.”

PFAS are called forever chemicals because their bonds of carbon and fluorine are nearly impossible to break — a quality that makes them attractive to manufacturers of products resistant to grease, heat, stains and water. But for decades 3M, DuPont and other PFAS makers hid from government regulators and the public what the corporations knew about the health risks.

In April, President Joe Biden’s administration required every U.S. water utility to begin routinely testing for several PFAS in drinking water. Any utility that exceeds newly adopted federal limits will get five years to overhaul treatment plants to filter the compounds out of tap water.

Based on limited testing conducted by the U.S. Environmental Protection Agency and some states, thousands of utilities face expensive upgrades to their treatment plants. For now, though, it appears Chicago and other Illinois communities that depend on Lake Michigan for drinking water will not be required to do anything other than test for the chemicals.

Testing by the Chicago Department of Water Management and the Illinois EPA detected forever chemicals in treated Lake Michigan water but at levels below the new federal standards.

All told the Great Lakes provide drinking water to more than 40 million people in the United States and Canada, including 6.6 million in Illinois.

The new study found all of the lakes are contaminated with two PFAS that initially drew attention from scientists and regulators: perfluorooctane sulfonic acid (PFOS), used by 3M for decades to make Scotchgard stain repellent, and perfluorooctanoic acid (PFOA), sold to DuPont by 3M to manufacture Teflon coatings for cookware, clothing and wiring.

PFOS and PFOA no longer are made in the United States. Chemical manufacturers claimed other versions containing fewer carbon-fluorine bonds would be safer, but their own studies found the alternatives are just as dangerous, if not more so.

Levels of two alternative PFAS, known as PFBA and PFBS, are increasing in Lake Michigan and Lake Superior, the Indiana University and Canadian researchers found. PFOS, the original Scotchgard chemical, also is on the rise in the two lakes.

Lake Ontario had the highest PFAS concentrations, likely because it is downstream from the other Great Lakes. The chemicals also are flushing out of Lake Ontario more rapidly because it empties into the St. Lawrence Seaway.

Venier said she welcomes the Biden administration's drinking water regulations for PFOA, PFOS and a handful of other forever chemicals. At the same time, she noted, industry has put some 15,000 PFAS into the marketplace during the past half-century and federal regulators have continued to approve new versions.

"We know enough about these chemicals," Venier said. "It's a matter of how much is enough to decide to stop putting more of them into our environment."

Michael Hawthorne writes for the Chicago Tribune.