When they embarked on a two-year survey of the Great Lakes’ open waters, researchers expected to find a fair amount of plastics. But the sheer amount of the pollution, and the size of the plastic particles that were found, is what caught the attention of State University of New York Professor Sherri Mason and her research group. Their findings have, in turn, piqued the interest of state legislators.

As of April, bills had been introduced in five Great Lakes states to ban the manufacture and sale of cosmetics and personal-care products (facial scrubs, body washes and toothpastes, for example) that contain plastic “microbeads”: very small particles (less than 1 millimeter) that are too small to be captured by wastewater systems and that end up in the Great Lakes.

Those microbeads accounted for the highest count of plastic pollution found in the recent study of the Great Lakes system. The findings differ from what researchers have found in the world’s oceans, where larger plastic particles account for a greater proportion of plastic pollution.

Mason’s work has also unearthed just how much plastic is present in the Great Lakes. In 2012, she surveyed lakes Superior, Huron and Erie; levels of plastic pollution were found to be particularly high in Lake Erie — as much as 460,000 plastic particles per square kilometer.

“That is comparable to the highest counts we find in the ocean,” Mason said on a recent web seminar organized by the Alliance for the Great Lakes.

A year later, a survey of the open waters of lakes Michigan and Ontario found even higher concentrations of plastic particles in parts of Lake Ontario (1.1 million particles per kilometer), where water from all of the other Great Lakes eventually flows.

A closer study of the particles, too, helped Mason discover one of the pollution sources — cosmetics and personal care products that include microbeads (they are labeled as polyethylene on the list of ingredients).

Illinois’ SB 2727, passed by the Senate and moving toward passage in the House as of April, would institute a manufacturing ban on these products in 2018 and prohibit their sale a year later. The bill reflects a compromise reached between environmental and business groups.

Some manufacturers have already begun to phase out the use of these plastic microbeads, and some legislators envision a shorter period of time before their state bans would take effect. Proposals in Michigan and New York, for example, would prohibit the sale of these products in 2016.

As state lawmakers consider instituting these new bans, researchers continue to study the potential impact of these small plastic particles.

“Organisms will eat the plastics thinking it’s a food, and there are consequences associated with that,” Mason said. Another concern is that these plastic microbeads act as sponges for toxins, which, as a result, enter the Great Lakes and get consumed by fish.