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Disturbingly little known about microbeads, plastics in the Great Lakes

Date: March 24, 2015

Source: University of Waterloo

Summary: A New Democratic Party Member of Parliament is calling on the Canadian government to list microbeads, tiny plastic flakes used in cosmetics, as a potential toxic substance. Health Canada claims the beads are safe for use as an additive, but this MP says they pose a danger to the aquatic environment. Researchers are warning that microbeads and plastic debris of all sizes could be a bigger environmental problem for the Great Lakes than previously thought.

FULL STORY

New Democratic Party Member of Parliament Megan Leslie is calling on the Canadian government to list microbeads, tiny plastic flakes used in cosmetics, as a potential toxic substance. Health Canada claims the beads are safe for use as an additive, but Leslie says they pose a danger to the aquatic environment.

Researchers at the University of Waterloo are warning that microbeads and plastic debris of all sizes could be a bigger environmental problem for the Great Lakes than previously thought.

"We know more and more about ocean plastics, but, paradoxically, we have little information on the distribution and fate of plastic debris in the Great Lakes, the world's largest freshwater resource," says Philippe Van Cappellen, Canada Excellence Research Chair and professor of Earth and Environmental Sciences in the Faculty of Science.

A review article by Van Cappellen and fellow researchers from Waterloo's Ecohydrology Research Group appears as an open source publication in this month's issue of the *Journal of Great Lakes Research*.

The article combines surveys from university research studies and ground-based observations by volunteer beach clean-up groups to yield the first comprehensive assessment of the plastics problem in the Great Lakes.

Plastics can range enormously in size from large drums and cigarette filters to microscopic plastic beads found in facial scrubs and body washes, and plastic fibres washed from synthetic clothing in everyday laundry.

Larger pieces also break down through mechanical abrasion into smaller pieces that persist in the environment, potentially for thousands of years. These microplastics act like sponges for certain pollutants and are easily ingested by aquatic organisms, including fish and shellfish, which may ultimately end up on our plates.

"Survey any stream or river in the Great Lakes region and there is a good chance you will find plastic debris, including microbeads or microplastics," said first author Alex Driedger, a graduate student in the Ecohydrology Research Group.

Microplastic particles flushed down the drain are so tiny they end up bypassing wastewater treatment. Microbeads have been found in water released from six out of seven wastewater treatment plants in New York State. Neither Canadian nor American wastewater treatment plants are required to monitor plastics in their discharge, so the true extent of plastics loading is currently unknown.

The study found Lake Erie has the highest concentration of plastic debris among all the Great Lakes -- higher even than Lake Geneva, which has more than three times the surrounding population density. In fact, results show that certain areas of the Great Lakes have suspended plastics concentrations as high as those found in the so-called garbage patches accumulating within large oceanic gyres.

"Canada needs to step up to the plate and take action," says Van Cappellen who is also a member of the Water Institute. "Both the Europeans and Americans are proposing legislation to deal with the problem. Canada should follow their lead."

Story Source:

The above post is reprinted from materials provided by **University of Waterloo**. *Note: Materials may be edited for content and length.*

Journal Reference:

1. Alexander G.J. Driedger, Hans H. Dürr, Kristen Mitchell, Philippe Van Cappellen. **Plastic debris in the Laurentian Great Lakes: A review**. *Journal of Great Lakes Research*, 2015; 41 (1): 9 DOI: 10.1016/j.jglr.2014.12.020

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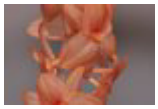

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