

MICROPLASTICS IN THE GREAT LAKES

A Cities Initiative Fact Sheet



WHAT ARE MICROPLASTICS?

Microplastics are plastics that are **less than 5mm in diameter**. They enter our Great Lakes in two ways:

1. When larger plastic pieces enter the marine environment through rivers, beaches or other dumping at sea and are **subsequently broken into smaller pieces** by wind, waves and UV radiation; or
2. When plastic pieces already less than 5mm in diameter are manufactured and then added to **common consumer care products**, such as exfoliating body wash. These are then flushed down the drain and cannot be captured by wastewater treatment plants, so find their way into the Great Lakes. (A)

WHAT PRODUCTS TYPICALLY CONTAIN MICROPLASTICS?

Microplastics are found in many **common consumer products**, including toothpastes, deodorants, body washes, hand cleansers and facial exfoliate. You can tell if a product uses plastic microbeads if it contains **polyethylene** or **polypropylene**.



Microplastics range from less than 1mm to 5mm in diameter. Beads from personal products and broken down particles from larger pieces of plastic form this rendering of what can be found in the Great Lakes (B)



Beaches also have a concentration of microbeads, affecting shoreline habitat and species (C)

WHY ARE MICROPLASTICS A PROBLEM IN THE GREAT LAKES?

1. **They are present in huge numbers**
In 2012 and 2013, a pair of scientific studies by Dr. Sherri Mason, professor at SUNY Fredonia, and the 5 Gyres Institute recorded the plastic content of Lake Huron, Lake Erie and Lake Superior and discovered microplastics in greater concentrations in Lake Erie than in any other body of water on earth, with concentrations exceeding data collected in the Great Pacific Garbage Patch. (D)
2. **They have tremendous impacts on wildlife and humans**
 - Fish and birds ingest them: microplastics can cause internal blockage, dehydration and death in wildlife.
 - Ecosystem and habitat destruction: microplastics on beaches change the physical properties of beaches, such as heat retention and light reflection, which impacts organisms dependent on land temperature.
 - Super-concentrations and bioaccumulation of pollutants: microplastics absorb pollutants already in the water such as DDT, PAHs and PCBs. When ingested by wildlife, the plastics contain super-concentrations of these dangerous toxins. They become more concentrated as they bioaccumulate in the food chain. (E)

WHAT ARE COMPANIES DOING ABOUT MICROPLASTICS NOW?

Some companies have promised a **voluntary phase-out of plastic beads**. Others have made no commitments.

Promises to phase-out:

- Beiersdorf (no set date)
- Colgate-Palmolive (by end of 2014)
- Johnson & Johnson (by end of 2015)
- L'Oreal (no set date)
- Proctor & Gamble (by end of 2017)
- Unilever (by end of 2015) (F)



Microplastic beads and plastics particles found in the Great Lakes (G)

WHAT IS THE GREAT LAKES AND ST. LAWRENCE CITIES INITIATIVE DOING ABOUT MICROPLASTICS?

The Cities Initiative has written to USEPA and Environment Canada asking what the US and Canadian governments are doing and plan to do to prevent microplastics from entering the Great Lakes and to remove microplastics already in the Great Lakes.

The Cities Initiative has written all the major companies using microplastics in their products, asking for:

- Full disclosure of all products that contain microplastics.
- A commitment to completely phase-out all microplastic production by 2015 at the latest.

- Development and disclosure of plans to clean up existing microplastic pollution.

The Cities Initiative is asking its members:

- To help raise awareness amongst their residents and businesses of the threat posed by microplastics.
- To make a commitment to think twice before purchasing products containing microplastics.



Sport fisheries, commercial fisheries, municipal water intakes and many other usages can suffer from plastic pollution (H)

SOURCES AND LINKS

- A. 5 Gyres Institute, *Position Paper on Microplastics* (2013)
- B. Photos : Plastic Shore Movie
- C. Photo : City of Racine
- D. Eriksen, M. et al., *Microplastic Pollution in the Surface Waters of the Laurentian Great Lakes*. Mar. Pollut. Bull. (2013).
- E. 5 Gyres Institute, *Position Paper on Microplastics* (2013)
- F. Stiv Wilson, *Victory #3*, 5 Gyres Foundation (June 24, 2013)
Plastic Free Seas, *Microbeads*, accessed on Sept. 24, 2013
Plastic Soup Foundation, *Colgate-Palmolive, L'Oreal and Beiersdorf Halt Use of Micro Beads* (May 7, 2013)
- G. Photo: Treehugger.com
- H. Photo : Durham Region

ABOUT US

The Great Lakes and St. Lawrence Cities Initiative (www.glslcities.org) is a binational coalition of over 100 Mayors that works actively to advance the protection, restoration and promotion of the Great Lakes and St. Lawrence River basin.

To learn more about the Cities Initiative's work on microplastics, visit glslcities.org/initiatives/microplastics.cfm