

## Microplastics in the Great Lakes and St. Lawrence Region

### Background

Microplastics are created when larger plastic pieces enter the marine environment and are subsequently broken into particles of less than 5mm in diameter by wind, waves and solar radiation. Microbeads, on the other hand, are plastic pieces manufactured to be less than 5mm in diameter and added to common consumer care products as exfoliants. These ingredients will be listed on products as polyethylene or polypropylene. Microbeads can pass through wastewater treatment plants and are deposited in the Great Lakes, rivers, and oceans.



### Why are microbeads harmful to the environment?

- Microbeads have high surface area to efficiently absorb toxins found in marine and fresh water environments (such as PCB, PAH, and DDT).<sup>1</sup>
- They can be ingested by birds and fish as they are mistaken for food, which can cause internal blockage, dehydration and death.<sup>2</sup>
- These toxins may not only harm the animals that ingest them, but work their way up the food chain, with the potential to affect the communities that eat and interact with wildlife in the region.<sup>3</sup>
- The abundance of microplastics is staggering, which exacerbates the problems listed above.<sup>4</sup>
- Research is still new, so future harm is still relatively unknown.

### Do alternatives exist?

- Before microplastics were invented, natural, readily available alternatives such as ground almonds, oatmeal and pumice were used as exfoliants.

### Industry Initiatives

- Several manufacturers have made voluntary commitments to phase microbeads from their products, a move that is supported by international trade associations
  - Beiersdorf (by the end of 2015)
  - Colgate-Palmolive (by the end of 2014)
  - Johnson & Johnson (by the end of 2017, phase 1 by the end of 2015)
  - L'Oreal (by the end of 2017)
    - Biotherm (2014)
    - Body Shop (2015)
  - Proctor & Gamble (March 2016)
  - Unilever (January 2015)

<sup>1</sup> Endo *et al.* (2005) "Concentration of polychlorinated biphenyls (PCBs) in beached resin pellets: variability among individual particles and regional differences" *Mar. Pollut. Bull.* 50, 1103e1114.

<sup>2</sup> Gregory (2009) "Environmental implications of plastic debris in marine settings: entanglement, ingestion, smothering, hanger-on, hitch-hiking and alien invasions" *Philos. Trans. R. Soc.* 364, 2013–2025.

<sup>3</sup> Koelmans *et al.* (2014) "Leaching of plastic additives to marine organisms" *Environ. Pollut.* 187, 49e54.

<sup>4</sup> Corcoran *et al.* (2015) "Hidden plastics of Lake Ontario Canada and their potential preservation in the sediment record" *Environ. Pollut.* 204: 17-25; Eriksen *et al.* (2013) "Microplastic Pollution in the Surface Waters of the Laurentian Great Lakes" *Mar. Pollut. Bull.*

## Legislative Action

<b>Unites States of America</b>	
Minnesota	Bill to ban microbeads passed by the House and Senate; awaits signature from Governor Mark Dayton.
Wisconsin	Bill to ban microbeads passed by House and Senate; awaits signature from Governor Scott Walker.
Michigan	Bill to ban microbeads introduced in February by state Senators Steve Bieda (D) and Rebekah Warren (D).
Ohio	No current legislative action.
Pennsylvania	No current legislative action.
New York	Two bills proposed – one passed the House and the other passed the Senate. Both bills will need approval in both legislative bodies in order to go into effect.
Illinois	Banned microbeads.
Indiana	Banned microbeads.
House of Representatives	Rep. Frank Pallone (D-NJ) introduced H.R. 1321, the “ <i>Microbead-Free Waters Act of 2015</i> ” on Friday, May 1st. The bill has gone to committee and received testimony.
Senate	Senators Debbie Stabenow (D-MI) and Gary Peters (D-MI) introduced S. 1424: <i>Microbead-Free Waters Act of 2015</i> . The Bill was referred to committee on May 21st, 2015. The bill is co-sponsored by Senators Kirsten Gillibrand (D-NY), Rob Portman (R-OH) and Mark Kirk (R-IL).
<b>Canada</b>	
Ontario	MPP Marie-France Lalonde introduced the “ <i>Microbead Elimination and Monitoring Act</i> ” (Bill 75).
Quebec	A petition from a Montreal high school student has allowed the issue to gain some traction at the legislative level, particularly with MNA Maryse Gaudreault.
Federal	Toronto MP John McKay introduced Bill C-680, which would ban the use of microbeads.
<b>Cities Initiative Member Cities</b>	
Town of the Blue Mountains, ON	Passed a resolution banning the use of microbeads-laced products in its municipal operations in 2014.
City of Traverse City, MI	Passed a resolution explaining the microbeads issue and urging its citizens to make careful consumer choices in 2014.