



## ***Briefing Note***

# **Ontario: Solving the Microbead Problem**

### **Overview**

There is growing concern over the increasing accumulation of microplastics in marine environments. According to the National Oceanographic and Atmospheric Administration (NOAA), “plastics never really go away when they’re in rivers, oceans, or lakes. Instead, they can last decades, fragmenting over and over again into small pieces.”<sup>1</sup>

One significant source of microplastics is microbeads, a non-essential ingredient added to many consumer product formulations over the course of the last two decades. Plastic microbeads are common in personal care products such as exfoliants, lotions and toothpaste, but they are also present in some industrial and household cleaning products.

Typically measuring about 1mm or less in size, when products containing plastic microbeads are used and washed down the drain, the plastic is too small to be caught by wastewater treatment facilities, which are not designed to remove or treat microbeads. Instead, they are discharged directly into our lakes and rivers. Scientists have found millions of microbeads in just one square kilometre of parts of the Great Lakes. The highest concentration was found in Lake Ontario with counts of up to 1.1 million plastic particles per square kilometre.<sup>2</sup>

Microplastics often absorb dangerous pollutants such as PCBs and polycyclic aromatic hydrocarbons that are already present in the environment.<sup>3</sup> There is a concern that when fish, birds and other wildlife ingest these plastics, the harmful pollutants will accumulate in species low in the food chain and are passed on to larger predators, eventually contaminating the fish and wildlife species consumed by humans.

Marine species are unable to distinguish between food and microplastics, and therefore often end up indiscriminately feeding on microbeads. The NOAA estimates that plastic debris kills millions of birds and fish annually, in addition to 100,000 marine mammals.<sup>4</sup> A growing body of research points to the environmental damage being done in both lakes and rivers due to the accumulation of microbeads.

Public support for the elimination of microbeads is strong. An Environmental Defence petition directed at the Environment Minister and opposition critics garnered more than 4,000 signatures in under 48 hours. One of several Change.org petitions in Ontario has garnered over 22,000 signatures in two weeks.<sup>5</sup>

### **Other Jurisdictions are Moving Ahead**

While no Canadian jurisdiction has yet passed a law that would ban microbeads in products, there have been several successful measures introduced in the United States.

In 2014, Illinois became the first state to pass a ban. New Jersey and Indiana followed in 2015. Other U.S. Great Lake states such as New York, Michigan, Wisconsin and Minnesota are considering regulatory measures to ban microbeads, while western states like Colorado and California are also looking at a ban.

It is, however, noteworthy that the regulations in the U.S. range widely in scope and are likely to result in varying levels of success at preventing plastic microbeads from entering waterways. For example, the Illinois legislation includes a loophole that allows for the use of so-called 'biodegradable plastic' microbeads. It also includes an exemption for over-the-counter products and unnecessarily defers implementation. These regulatory loopholes will result in the ongoing release of microbeads into the environment.

### **The Problem with Biodegradable Plastic Microbeads**

Some companies are proposing to voluntarily replace synthetic plastic microbeads in their products with biodegradable plastic microbeads. There are dozens of different types of plastic that are characterized as "biodegradable" by industry,<sup>6</sup> but there is no reliable evidence supporting the accuracy of these claims<sup>7</sup> or proof that these products are safe for the environment, particularly under real-life aquatic conditions.

Some biodegradable plastics will only partially degrade, leaving residual fragments to linger in the environment posing serious consequences. Other types degrade into various components which include organic compounds, but also include inorganic compounds that remain toxic.<sup>8</sup> Others still take an indeterminate amount of time to degrade in a real-life marine environment (which is often cold and offers little sunlight) and are therefore ingested by wildlife while they are still whole, causing harm in the same way that synthetic microbeads do.

There is no generally accepted standard or test among scientists for what constitutes 'biodegradable' plastic, let alone reliable test data for performance under real-life conditions.<sup>9</sup> Treating biodegradable plastic as an acceptable alternative could leave the province on the hook for the cost and responsibility for creating (or evaluating) bioplastic standards and developing processes to ensure those standards are met.

The safest and most cost-effective approach is to prohibit the sale of any type of plastic microbeads (synthetic or biodegradable). Instead, companies can rely on one of the many safe alternatives already being widely used, including apricot pits, jojoba beads, walnut husk, ground pumice and oatmeal. The bottom line is that everyone, including companies, have to take responsibility for ensuring that plastics do not enter our waterways.

### **The Problem with Exempted Uses**

There should be no exemption for any product containing microbeads that are discharged down the drain or otherwise end up in our waterways. This includes personal care products such as cleansers, toothpaste, and lotions, but also commercial and industrial cleaners. Exemptions are unnecessary because there are no essential products, including prescription medications, for which synthetic plastic microbeads are a vital ingredient.<sup>10</sup>

### **Why a Swift Ban is Necessary**

Microbeads are a relatively new phenomenon, but the problems associated with their discharge into our waterways are mounting with alarming speed. Using estimates from California, it's safe to assume that tens of millions of microbeads reach Ontario's lakes and rivers *each day*.<sup>11</sup> Many companies are promising to voluntarily phase-out the use of synthetic plastic microbeads over the next two to five years. But the Anglo-Dutch multinational Unilever, which makes a wide range of personal care products, has shown that much swifter

action is possible by entirely eliminating microbeads from its product lines in 2015. This affirms that Ontario could implement a ban quickly, if it sought to do so.

## Industry is Getting On-Board

Several other major personal care product companies have announced support for a ban, while simultaneously committing to the voluntary phase-out of synthetic microbeads. The Canadian Cosmetic Toiletry and Fragrance Association (CCTFA) maintains that a ban is necessary to level the domestic playing field and prevent imports containing microbeads. The key will be to ensure that industry does not simply switch to another form of plastic microbeads (e.g. biodegradable) and that they accept a reasonable timeframe for a ban.

## Bill 75 – *Microbead Elimination and Monitoring Act*

The introduction of Bill 75 is a commendable step in the right direction, but the bill has some key gaps and shortcomings that will need to be addressed before this proposed legislation becomes law:

- Focusing solely on the *manufacture* of microbeads is insufficient because it will not prohibit the *import and sale* of products containing microbeads in Ontario.
- The bill would permit the use of biodegradable plastic microbeads which, in many respects, are just as problematic for the marine environment as synthetic plastic microbeads.
- The bill defines microbeads as less than 1mm in diameter, but the bill should use a definition that is consistent with the scientific literature, which defines microbeads as 5mm or less.
- There is no monetary fine for violations in the bill. A daily monetary penalty for a breach of the Act would establish an effective deterrent.
- The bill establishes a microbead monitoring program. While monitoring will be important, even more pressing is an overall provincial strategy for microplastics pollution reduction in our marine environment.

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<sup>1</sup> <http://marinedebris.noaa.gov/types-and-sources-solutions/states-consider-plastic-microbead-bans>

<sup>2</sup> <http://www.watershedcouncil.org/learn/microbeads-in-the-great-lakes/>

<sup>3</sup> <http://pubs.acs.org/doi/abs/10.1021/es303700s?prevSearch=rochman&searchHistoryKey>

<sup>4</sup> <http://coastalcare.org/2009/11/plastic-pollution/>

<sup>5</sup> [https://www.change.org/p/environment-canada-protect-our-waters-enforce-ban-on-plastic-microbeads?hc\\_location=ufi](https://www.change.org/p/environment-canada-protect-our-waters-enforce-ban-on-plastic-microbeads?hc_location=ufi)

<sup>6</sup> <http://products.bpiworld.org/>

<sup>7</sup> <http://www.sustainableplastics.org/spotlight/biodegradable-plastics-true-or-false-good-or-bad>

<sup>8</sup> <http://www.bpiworld.org/resources/Documents/Narayan%20Bioplastics%20Article%202009.pdf>

<sup>9</sup> <http://www.astm.org/DATABASE.CART/WITHDRAWN/D7081.htm>

<sup>10</sup> A limited number of other products, including some industrial inks and coatings, also contain microbeads. Manufacturers should be required to provide evidence that the microbeads in these products do not end up in the ecosystem during the lifetime of their use, in order to be excluded from a ban.

<sup>11</sup> [http://conbio.org/images/content\\_policy/03.24.15\\_Microbead\\_Brief\\_Statement.pdf](http://conbio.org/images/content_policy/03.24.15_Microbead_Brief_Statement.pdf)