

Microbeads: a Macro Problem

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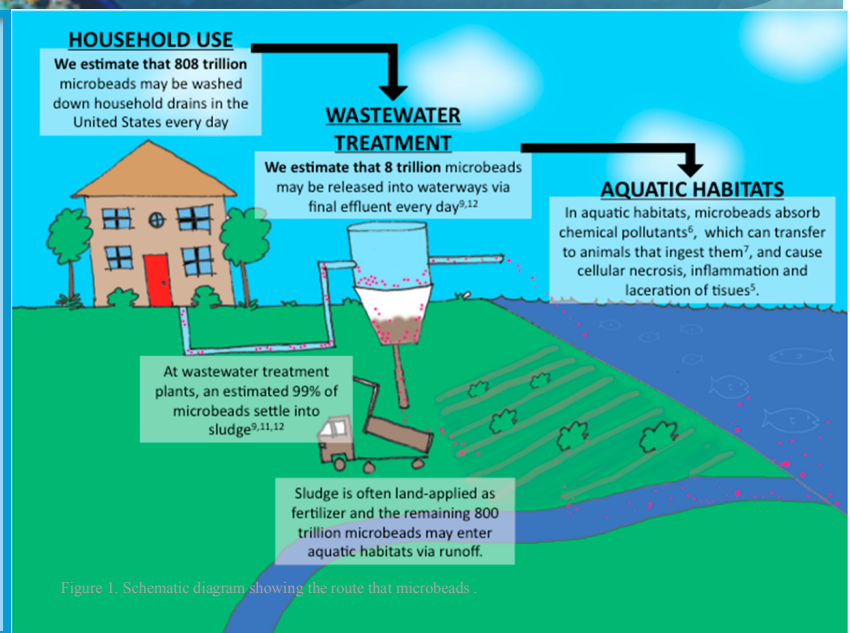
Executive Summary: Microbeads are commonly seen in products such as face washes, abrasive scrubbers, cleaning supplies, and cosmetics, and are disposed of down the drain where they enter aquatic habitats as they are too small to be caught by our waste water treatment facilities. Microbeads have many potential short term and long term effects on Canada's marine ecosystem, and if not seriously considered by personal care products and other industrial and medical companies to ban them, we will see detrimental effects to our waters and our own health.

What is a Microbead?

Plastic fragments made up of synthetic polymers ranging from 1um to 5mm.

How Do We Use Them?

Most commonly in face washes, body washes, cosmetics, and natural exfoliating materials, but also used in medicinal and industrial applications.



Microbead pollution affects the health of everyone:

- Microbeads are disposed of down the drain, and are not caught in our waste water treatment facilities. Therefore, they go straight to our oceans and lakes.
- Microbeads are ingested by marine organisms such as fish, mussels, and zooplankton, who accumulate the plastic internally and transfer it across the food-web to other aquatic species.
- Microbeads can absorb pollutants and desorb them in organisms, transferring it up the food web until humans consume the contaminated species.

Did You Know? Annual microbead volumes by individual members of CCTFA (Canadian Cosmetic, Toiletry, and Fragrance Association) ranged from 30 kg/year to 68,000 kg/year.

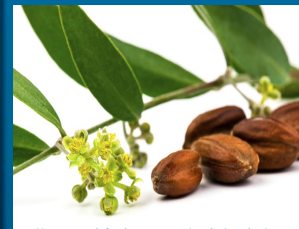


Canada's Policy Options and Recommendations:

- Ban all **synthetic and biodegradable** microbeads. Many biodegradable plastics only partially degrade, or may degrade into inorganic compounds that are toxic. Others do not degrade in time before a marine organism mistakes it for food.
- Ban microbeads **smaller than 1mm** as opposed to the traditionally proposed 5mm.
- A **complete ban** agreement across all countries is necessary to even the competition and prevent imported products containing microbeads. This **includes banning manufacturing, import and sale** of products with microbeads.
- Companies should also be subject to monetary **fines for violation** of the policy.
- Immediate **awareness** (ex. A labeling scheme) of products that do not contain microbeads so consumers can be conscious of products being bought.

Natural Alternatives to Microbeads:

- Bamboo Powder
- Cellulose
- Rice exfoliant
- Jojoba esters/beads



Policy Implications for Canada:

With a complete ban of microbeads, we can reduce the projected release of plastics into the marine environment. As well, we can reduce plastic concentration on beaches, shorelines, in the middle of oceans, and in gyres. Figure 1 shows the projected cumulative marine debris release up to 2025. Figure 2 shows the concentration of plastic debris in surface waters of the world's oceans. Both of these numbers have the potential to decline with strict policy. A reduction in microplastic marine debris will also allow aquatic organisms to consume less harmful plastic pollution, leading to healthier marine life and human health through pollution-free fish consumption.

Figure 1: Environment Canada

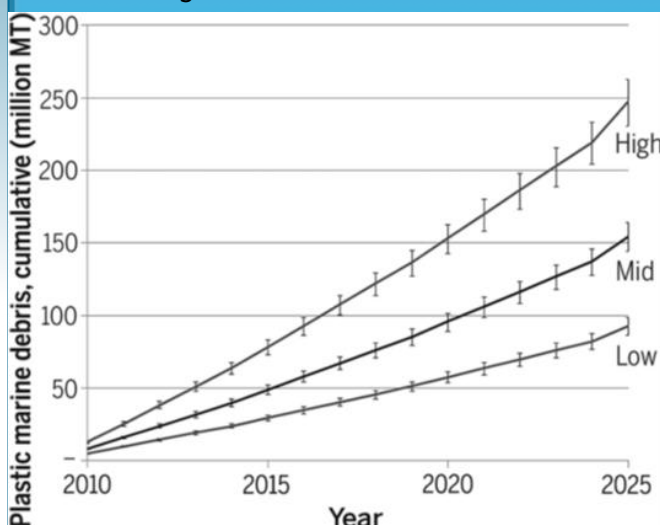
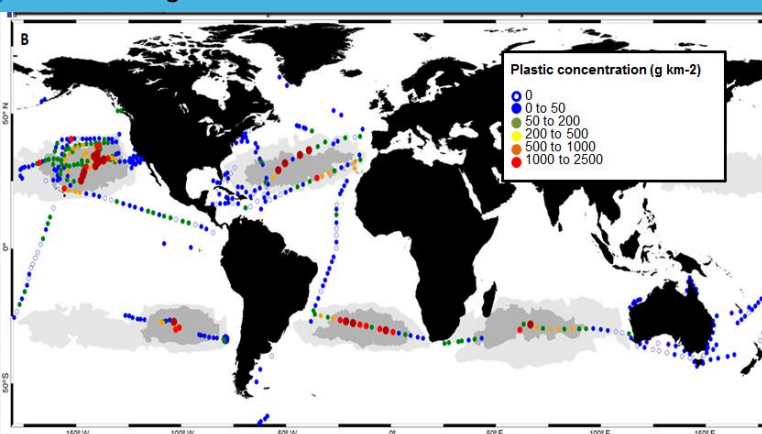


Figure 2: Environment Canada



References

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