

## Education Prompts Changes to Reduce Microplastics in the Great Lakes

Microplastics, pharmaceuticals and personal-care products (PPCPs) that enter the Great Lakes can have devastating impacts. Informing and engaging stakeholders about the issue can prompt them to make behavior changes that will reduce the amount of these substances entering aquatic systems. Once engaged, these same stakeholders can reach out to elected officials to pass legislation that will bolster efforts to protect our waters.

### NYSG Responds

Microplastics are minute plastic beads typically used as scrubbing agents or exfoliants in personal care products. They are often brightly colored and can be seen suspended in body washes, facial scrubs and toothpastes. As these products are used, microbeads are rinsed off and go directly into the drain. Although some particles are captured through water treatment systems, many are not. Sewage treatment overflows can also dump these microbeads directly into the ecosystem.

Products with polyethylene or polypropylene in the ingredient label contain microplastics.

New York Sea Grant (NYSG)'s focus on microplastics is an offshoot of an award-winning collaboration by NYSG and three other Sea Grant programs that developed an extension and outreach program concerning the impacts of (PPCPs) on water quality to more than one million Great Lakes residents.

The production of a factsheet on microplastics and efforts to directly educate more than 5,000 educators, students and stakeholders across New York state helped increase awareness of this issue. Most stakeholders were unaware of the presence of microplastics or their ecosystem impacts.

Thousands of other citizens have learned about this issue through print and social media. Ultimately,

*This NYSG factsheet on microplastics may help influence changes in Great Lakes consumer behavior in reducing their use of microplastics (on penny below. Photos: NYSG, 5gyres.org*



### Plastic Microbeads in the Great Lakes

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For years people have worried about the environmental impacts from plastics left behind in the oceans and Great Lakes. Pictures of birds tangled in six-pack rings or turtles choking on plastic bags have documented the danger of discarded plastics that linger in the environment. Recently, attention has turned to the Great Lakes and small plastic particles and microbeads that have been found there. Some plastic particles result from the breakdowns of larger plastic items, but others are small plastic spheres known as microbeads.

These minute plastic beads are typically used as scrubbing agents or exfoliants in personal care products. They are often brightly colored and can be seen suspended in the body washes, facial scrubs and toothpastes that contain them. As these products are used by consumers, microbeads are rinsed off and go directly down the drain with water that eventually makes its way to water treatment plants. Although some of the particles are captured through treatment, many are not and sewage treatment overflows can also dump these microbeads directly into the ecosystem.

Although harmless in appearance, microbeads have the potential to cause environmental damage. Some of the microbeads are about the size of certain fish eggs, so these small plastic particles can be ingested by Great Lakes fish and other aquatic organisms. Once eaten the plastic material could deplete these organisms of nutrients supplied by food or possibly get lodged in their stomachs or digestive systems. Additionally, plastics absorb toxins, such as polychlorinated biphenyls (PCBs), making these harmful substances more readily available within the food web. These toxins remain in fish where they can move up the food chain, as smaller fish are eaten by larger predators.

State legislators responded with the introduction of legislation to ban the production and sale of products containing microplastics.

Effective education and outreach can inform stakeholders about issues such as the impact of microplastics in aquatic environments and result in positive behavioral change and legislative action to protect fragile ecosystems.

### The Sea Grant Focus Area for this project is Healthy New York Coastal Ecosystems and Habitats

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