



ENVIRONMENT

## Plastic Microbeads From Body Wash Are Contaminating the Great Lakes

By Allison Elkin

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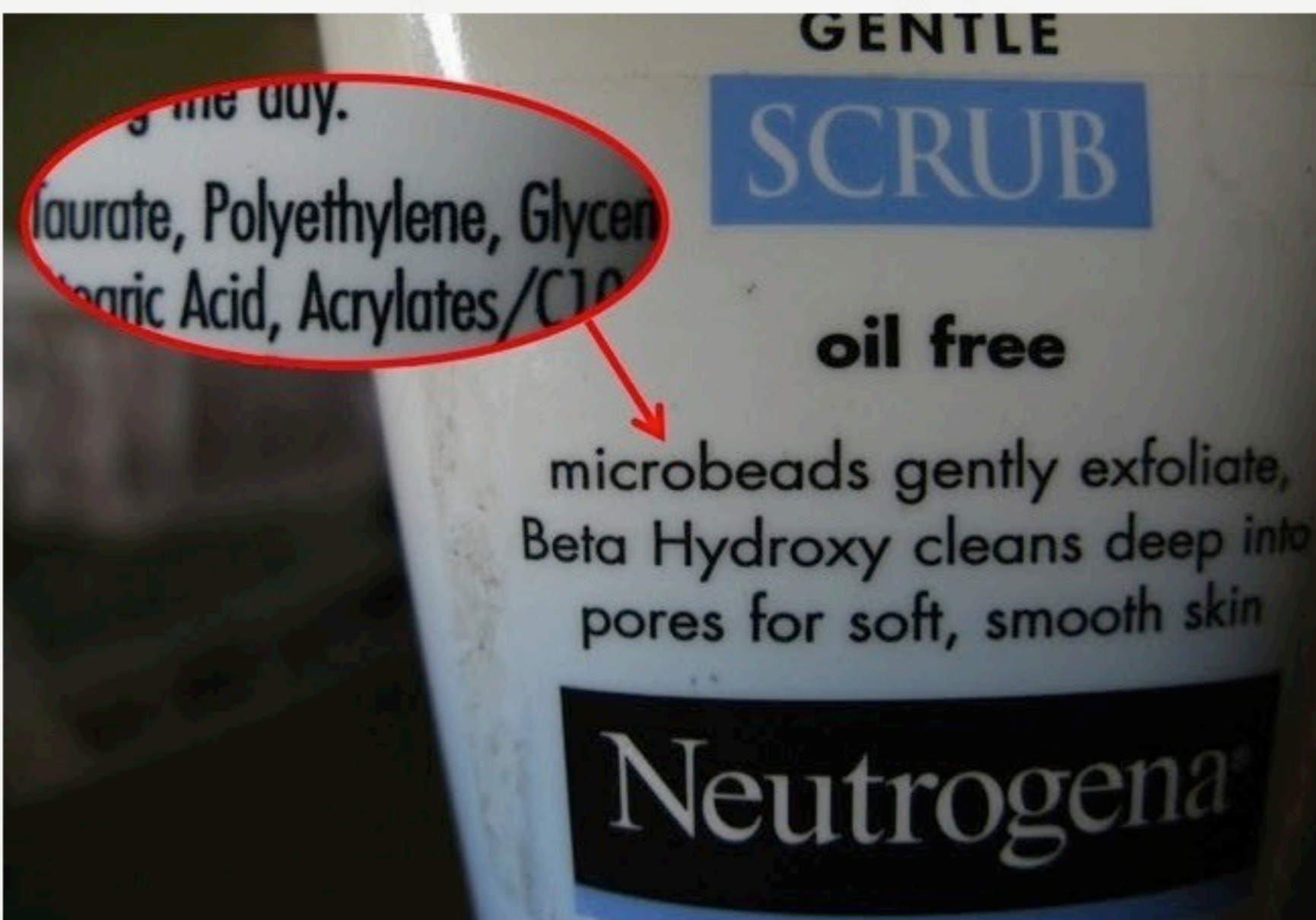
Microbeads can be found in body wash, hand soap, facial scrubs, and even toothpaste under ingredient names like polyethylene and polypropylene. Their purpose? To exfoliate skin. But once they wash down the drain, they soak in toxins and deliver them to the bodies of water where they end up.

Recent research has found that the Great Lakes in particular — 20 percent of the world's surface fresh water — are hugely affected by microbeads. They border eight states and one Canadian province, and connect to many rivers that run throughout North America.

"The Great Lakes are our national treasure, even a bi-national treasure," says Nancy Goucher, the Water Program manager at Environmental Defence in Toronto. "We have an obligation, a duty to protect them for future generations."

In 2012 and 2013, a study led by Sherri Mason at SUNY (State University of New York) Fredonia and California's 5 Gyres Institute found a higher concentration of microplastics in one of the Great Lakes than other studies had previously found in the ocean.

"We found more plastics in Lake Erie than any of the oceanic sampling that we've done in the last four years totaling some 50,000 miles," says Anna Cummins, executive director of 5 Gyres Institute, which battles plastic pollution. "So this one sample in Lake Erie, we found roughly 1,600 particles, and on further examination, we traced many of them back to the microbeads that you find in personal care products."



One of the microbead ingredients found in personal care products. Photo via 5 Gyres

Lake Ontario and Lake Michigan are currently being surveyed for microbeads, which have been found to be in all the Great Lakes, though data hasn't yet been published for those two bodies of water.

Once the little blue microbeads from blackhead-clearing scrub wash down the drain, they enter the water system. They don't dissolve; instead, they begin to absorb toxins from pollutants like pesticides, oil, and flame-retardants. Why? Plastics repel water and are made of fat — and in simple terms, that's what many pollutants are attracted to.

"If you ask me, as a plastic pollution activist, if I would prefer a milk jug in a lake or the equivalent amount of plastic in a milk jug [in plastic] dust in a lake, I would say milk jug every time," says Stiv Wilson, associate director of 5 Gyres. "[That's] because by volume, microbeads have a much bigger surface area to absorb these toxins than a milk jug does... that's what increases their threat."

And it doesn't stop there. The beads resemble fish eggs, which many aquatic species feed on. That means they're entering the food chain.

"Say a small fish eats a bunch of microbeads, then a large fish eats a smaller fish," Cummins says. "By the time you get to the larger fish that humans consume, they basically have the sum total of the whole contaminants from that whole food chain."

Some companies already make products with natural alternatives to microbeads, like sea salt, coconut husks, and apricot shells. But companies that use microbeads are fighting any efforts to ban them. And they're fighting dirty.

The state of Illinois, which borders Lake Michigan, passed legislation to ban future production of products with microbeads. However, it left a major loophole in the bill — an allowance for biodegradable plastics. That's a problem, because while that may sound eco-friendly, those plastics won't break down in the Great Lakes. They need to be in a very specific type of environment.

"In order for that stuff to biodegrade, what you need is an industrial composting facility," Wilson says. "That is, you need an environment of moisture, oxygen, 120 degrees Fahrenheit, and it needs to be constantly filled... There's no place on earth where you have all those factors at the same time."



Plastic debris found in the Great Lakes. Photo via 5 Gyres

Both New York and California have had bills introduced on banning microplastics in personal care products; there hasn't been any action in Canada. Over the week of August 17, a bill negotiated by 5 Gyres was defeated by one vote in California. And while the state borders an ocean instead of the Great Lakes, legislation there can be a model for other states and Canada.

"I was just talking to the attorney general's office... they want to allow for biodegradable plastics in the New York legislation," Mason says. "So basically the attorney general's office said, 'We'll allow that, but you have to verify that they biodegrade and we have to certify the process...' The industry kind of turned around and said, 'Oh, never mind.' But in Illinois, they are allowing."

These biodegradable plastics are often marketed as being made out of plant material. But whatever plastic is made out of, it's still the same chemical composition: hydrocarbon. "If you start with plants, or you start with petroleum, or you start with ethylene, or natural gas, it's still chemically exactly the same thing," Mason says. "So the fact that it's derived from plants is irrelevant, it's that the end product is still plastic that does not biodegrade."

So why are companies so intent on keeping microbeads in their products?

Under a microscope, it's apparent that a plastic microbead is far less coarse than an equivalent product made from an apricot shell. According to 5 Gyres, a coarser product is likely going to be more effective at exfoliating and removing dead skin cells — which could mean the consumer uses it less often.

"The whole reason they like plastic microbeads is because they are less effective, and so the consumption of those products [with plastic microbeads] is greater because you use them every day," Wilson says. "And that's what they don't want to lose; that's what they're trying to protect. If they use a natural alternative, they're going to decrease their market share by six out of seven days, or at least I think that's what they fear."



Microplastics up-close. Photo via 5 Gyres

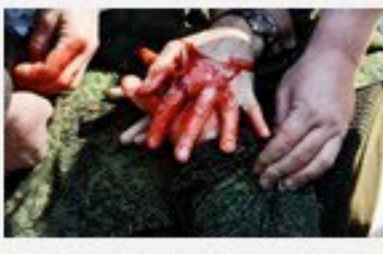
While 5 Gyres has been focusing mainly on state legislation that would ban the harmful microbeads, The Great Lakes and St. Lawrence Cities Initiative (GLSLC), a coalition of 114 Canadian and American cities, has been targeting the companies that make the products. They wrote to 11 of these companies with varied results — some said they were already in the process of phasing out microbeads, while others completely ignored the letters. Colgate-Palmolive agreed to remove them by the end of this year; Procter & Gamble said 2017. Some, such as L'Oréal and Johnson & Johnson, haven't given a date.

"[The companies] said the biggest problem is working through the Food & Drug Administration regulatory process because it takes some time to get approval for changing the products," says David Ullrich, executive director of GLSLC. "None of them said that it was a financial issue."

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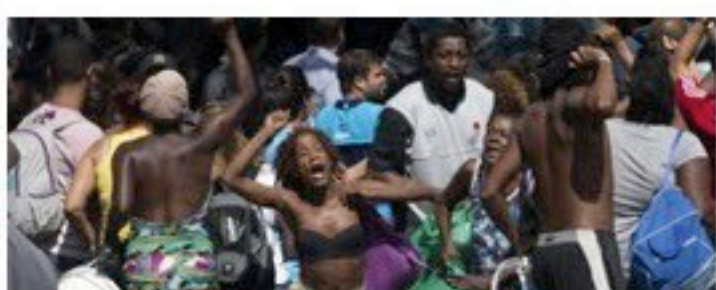
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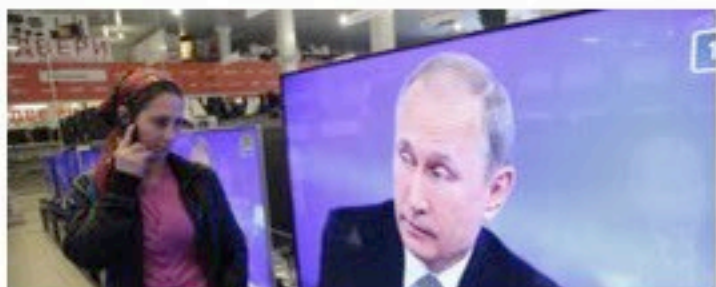
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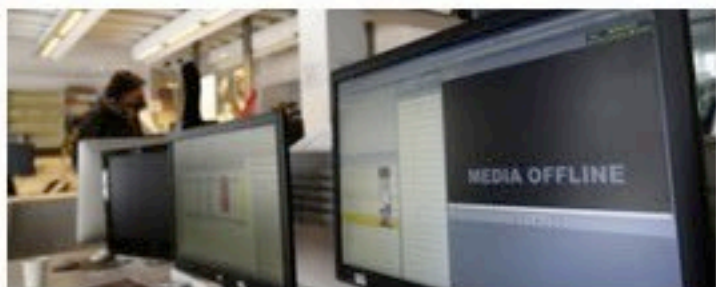
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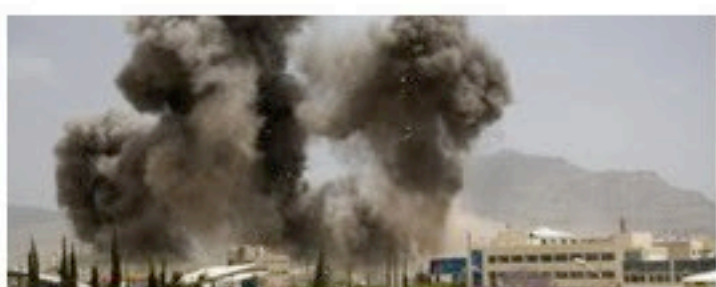
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