

Cleaning clothes dirties oceans

It's easy to pollute coastal areas, even for people who live far from the beach. All it takes are a washing machine and polyester clothes.

Polyester is everywhere: The plastic fabric can be used to make fleeces, shirts, pants, furniture and blankets. It's synthetic, which means it's created from chemicals in a lab to resemble something natural. Scientists recently found that polyester clothes shed plastic fibers while in the washing machine. During the rinse cycle, these microscopic threads wash down the drain, zip through water treatment plants and end up on the coasts.

This variety of plastic pollution is emerging all over the world, according to Mark Browne, an environmental scientist at University College Dublin in Ireland. In a recent study, he and his team collected samples from the shores of six continents. The samples taken from coasts near big cities had the most pollution from plastic fibers, but the scientists found the contamination in every habitat.

After finding the plastic threads, Browne and his colleagues went looking for the source. Previous studies had shown that wee bits of plastic show up near where water exits treatment plants. With that in mind, Browne went further back in the water-treatment process and took a close look at laundry.

The researchers got to work, repeatedly cleaning synthetic clothes and blankets in washing machines. After each cycle, they rinsed thoroughly and studied the outflow of water for plastic threads. They found that "a single garment can produce greater than 1,900 fibres per wash," according to a study published on September 6. Fleece was the biggest source of the threads.

Polyester fibers aren't the only tiny polluters. In a study published in November 2010, Portuguese researchers reported finding tiny plastic pellets in every sample of sand taken from two beaches. These kinds of small plastic balls give a rough texture to products like skin cleaners and paint removers.

Even though they're very small, the bits can cause trouble in a watery habitat. "In the ocean, plastics act like a sponge" that can absorb other toxic pollutants, Anthony Andrady told *Science News*. Andrady, who did not work on the new studies, is an expert on polymers at North Carolina State University in Raleigh. Polymers are materials, including plastic, made from long chains of molecules bonded to each other.

The scientific evidence for plastic pollution could point to big problems down the road. "I think these findings are a big deal," Henry Carson, a marine ecologist at the University of Hawaii at Hilo, told *Science News*. Marine ecologists study the sea and how the life forms that live there interact with each other and their environment.

"These tiny pieces have the potential not only to get inside tissues of mussels and other animals," he said, "but to actually move into their cells. That's pretty frightening."

POWER WORDS (adapted from the New Oxford American Dictionary and the American Chemical Society)

polyester A synthetic material used chiefly to make fabrics.

habitat The natural home or environment of an animal.

cell The smallest structural and functional unit of an organism.

ecology A branch of biology that deals with the relations of organisms to one another and to their physical surroundings.



You can't see it, but plastic pollution mixes with the sand on coasts around the world. The tiny, human-made threads come from polyester clothing that's been through the wash. Credit: Bryan Bell, National Park Service

materials science An area of science that studies the relationship between a material's structure and properties. Chemists who work in the field study how different combinations of molecules and materials result in different properties.