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Oceans, landfills and new ways to reduce plastic pollution: Solutions are not simple - by Steven Schleider

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This year, we'll throw away enough plastic to circle the earth four times. The average American throws away about 185 pounds of plastic. Collectively, we throw away 35 billion plastic water bottles annually. More than one million single-use plastic bags are used every minute. All of it goes to one of three places: the recycler; landfills which are overflowing and their numbers decreasing; and the ocean.

Every year, 1.4 billion pounds of trash enters the ocean - run-off pesticides, herbicides, detergents, oils, chemical fertilizers and untreated sewage.

According to the National Ocean Service, 80% of marine pollution comes from the land and includes anything purposely discarded or that flows into the ocean from sources like roads, farmland, industrial facilities, and residential and commercial buildings.

New York City has such a problem. During high rain and snowstorms, sewers become flooded with runoff. They, in turn, overcome the capacity of treatment plants, adding untreated wastewater to storm water, with that overflow depositing pollutants directly into our waterways. One of the reasons we've been a huge proponent of green roofs in the city because they absorb storm water that would otherwise flood the streets and sewers.

The Atlantic Ocean has a garbage patch with a density of 200,000 pieces of marine debris per square kilometer. Estimates are that the Great Pacific Garbage Patch contains 18 trillion pieces of plastic and 80,000 tons of garbage, 99% of which is plastic.

It doesn't look like 18 trillion single use plastic bags and soft drink bottles because the plastic has been reduced to microscopic, suspended particles. But it's there and doing extreme damage:

• An abundance of pollution creates ocean dead zones where marine life cannot survive.

• Because birds and sea mammals mistake plastic for food or unavoidably eat microscopic marine debris, according to UNESCO, "plastic debris causes the death of more than a million seabirds, as well as more than 100,000 marine mammals every year."

• Because debris requires oxygen to decompose, the ocean's oxygen levels decline, affecting marine animals.

• Humans who eat marine life are ingesting micro-plastics eaten by that marine life and can be exposed to health problems that include cancer and birth defects.

If not in the ocean, what about landfills and recyclers?

The problem of where to put plastic waste recently intensified when China decided not to be the "world's garbage dump" and stopped taking in the western world's plastic.

While recycling has become commonplace and is certainly a solution, we currently recover only 5% of plastics used while the profitability of recycling is declining.

The good news is that many organizations are working to not only decrease the amount of plastic that goes into our waterways (and landfills), but are also discovering new ways to use plastic. Old lore may say our streets are paved with gold, but how about streets paved with forms of recycled plastic added to or in lieu of crude oil-based asphalt?

So far, the new technologies, which make use of recycled plastic, are being used in Europe, Australia and Canada. One manufacturer, MacRebur, says asphalt manufacturers need make no modifications to use its additive to create higher road tensile strength and better cohesion which leads to longer lasting roads that take less money to maintain.

Plastic paving “stones” have been around for a while, but now there are pavers primarily made from recycled tires and plastic containers that are replacing concrete and clay. Adding to pavers, are recycled plastic and wood that can be used for decking, fencing and retaining walls. One company, ByFusion, has a mobile solution for replacing CMU (that would be a Concrete Masonry Unit; those that use cinders are called cinder block) with plastic bottle recyclables that don’t require glue or adhesives. At present, they can ony be used for small installations as they cannot hold as much weight as concrete.

H.L. Mencken said, “For every complex problem there is an answer that is clear, simple, and wrong.” In the case of decreasing ocean and landfill pollution by innovating new uses for plastics, the solutions are also not simple. But the reasons for them are clear and the direction is 100% right.

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