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Our Blue World: The major hazards to our marine life

Our Blue World
Heidi Pearson Whale Center of New England

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Pollution of our seas is arguably the biggest threat to marine life around the planet.

A major source of marine pollution comes in the form of plastic garbage, much of which converges in the Great Pacific Garbage Patch that I mentioned in my last column.

Wherever it occurs in the ocean, plastic is a major hazard to marine life. Plastic may lead to animal mortality from the outside, through entangling or suffocating an animal. Plastic may also threaten an animal from the inside by building up in an animal's stomach as the animal mistakes plastic for food.

To a sea turtle, a plastic bag floating in the water looks like a nice, big jellyfish — one of its favorite foods. However, a sea turtle has no way of digesting plastic. That plastic bag will remain inside the animal for the rest of its life, blocking its digestive system. Seabirds such as albatross will also mistake bits of plastic debris for food and even regurgitate the plastic to their chicks. This poses a double whammy, as neither the parent nor chick gets fed.

If an animal continues to ingest pieces of plastic throughout its life, its stomach may eventually fill up so much that there is no room left for food. Additionally, this accumulation of plastic will make the animal feel full when it really is not. Both of these things can eventually lead to starvation. While the plastic is interred in the stomach, toxins may also leak out into the bloodstream, posing additional health risks to the animal.

While plastic is certainly a major risk to marine life, smaller forms of invisible pollution such as PCBs and DDTs may actually be more deadly.

Even though the manufacture of PCBs was banned in the U.S. in 1979, this deadly chemical is still showing up in the tissues of marine animals off our coastline today. Long-lived animals such as dolphins and whales are particularly susceptible because they bioaccumulate toxins. This means that the toxins keep building up inside an animal's body, usually in its blubber or fat layer.

Marine mammals are at the top of the food chain, so all toxins eventually funnel up to them. For example, if a killer whale eats a seal which has eaten a large fish which in turn has eaten a small fish, the killer whale will absorb all toxins present in the small fish, large fish, and the seal. As killer whales may live to be 60 years old, all of these toxins will continue to accumulate in their bodies for all of those years.

The effects of marine pollution on marine mammals are not fully understood. However, a recent scientific study based out of the Woods Hole Oceanographic Institute reported that Atlantic white-sided dolphins (which are found off our shores) have very high levels of PCBs, which may cause severe problems to the brain and central nervous system. PCBs may also disrupt the endocrine system of animals such as polar bears, causing females to develop masculine traits. This could have severe implications for this species already threatened by global warming.

The good news is that we can take small actions now to stop garbage and pollutants from entering the sea. It's simple — reduce, re-use, recycle, and refresh.

I've mentioned some of these ideas before, but they bear repeating.

Reduce the number of plastic bags floating around by bringing your own cloth shopping bags to the grocery store. Use re-usable water bottles and coffee cups. Recycle paper, plastic, metal, aluminum, glass, and cardboard.

Finally, refresh yourself on a sunny Saturday morning by organizing a neighborhood beach cleanup.

Heidi Pearson, PhD, is assistant director and stranding coordinator with the The Whale Center of New England, which is based on Harbor Loop, Gloucester. For more information, go to www.whalecenter.org.