

is meant to be used just once then thrown away. Items like the sandwich bags that hold your lunch, the ketchup packets at your favorite fast-food restaurant, and the packaging of just about anything you buy online are all driving up the total amount of plastic waste we produce.

It's the plastic we use once and toss away, experts say, that is putting the environment in crisis.

Asia's Trash Problem

In your town, workers probably pick up garbage regularly and cart it off to a landfill. But imagine if the trash in your neighborhood were never collected. All that garbage would pile up.

In some countries—particularly certain island nations in Asia—that's a fact of life. They don't have reliable trash

collection or properly maintained landfills. Instead, people leave their garbage in heaps on the ground or dump it into local waterways, where it eventually is swept out to sea. Experts estimate that 9 million tons of plastic end up in our oceans each year.

To make matters worse, people in these largely poor Asian nations have started using more single-serve packets of things like condiments, detergent, and shampoo. Many of them can't afford to buy bigger sizes. All that nonrecyclable plastic packaging only adds to the problem.

In the Philippines, for example, some rivers are now so clogged with trash that people can hop across the water on piles of discarded plastic rather than cross by bridge.

When plastic waste ends up in the ocean, the results are often tragic. Last year, rescuers found a sick pilot whale near the shore of southern Thailand. It couldn't swim. In fact, it could hardly breathe.

Later, as veterinarians tended to the animal, it vomited five plastic grocery bags. The whale died shortly after. Tests eventually revealed that it had more than 17 pounds of plastic in its stomach, including another 80 or so plastic bags.

That's just one example of how plastic can be deadly to animals. Nearly 700 ocean species—from zooplankton and fish to sea turtles and dolphins—have been harmed by plastic. That damage ranges from eating it to getting stuck in it. For example, some animals get trapped in plastic six-pack drink holders. Others, including many bird species, suffocate inside plastic grocery bags.

And, of course, many sea creatures—like the pilot whale—eat plastic. In the ocean, the material gets broken down by sunlight, waves, and heat, resulting in pieces that are often tinier than a pinkie fingernail. Those bits, called microplastics, become coated with algae over time, making them smell like food to many sea creatures. They stuff themselves with it, to the point that they don't have room left in their stomachs for any actual food. They die from starvation as a result.

Ecosystem at Risk

Eating plastic hurts animals in other ways too. The **toxins** in the material can seriously affect their behavior and digestion, and the ecosystem as a whole, says Matthew Savoca, a scientist who studies the effects of plastic on marine life.

"It affects not just the individual animals that eat plastic, but the animals that eat those animals," he says.

By 2050, we'll have created 13 billion tons of plastic waste.

FIRST PERSON

Spreading the Word About Plastic's Dangers

A California teen tells why she decided to take action to protect aquatic life

BY SHELBY O'NEIL, 17, AS TOLD TO NELL DURFEE

I've always loved the ocean. In seventh grade, I started volunteering at the Monterey Bay Aquarium in California. I was upset to learn that many sea animals eat plastic trash, thinking it's food.

I decided to do something to educate people about this problem. In 2017, I founded Jr Ocean Guardians as part of my work with the Girl Scouts. We hold presentations at schools to teach kids about plastic waste.

I wanted to reach businesses too. I decided that if I learned of a company that used a lot of plastic, I'd send it an email urging it to cut back. *What's the worst that could happen if they don't respond?* I thought.

One day, I saw a commercial for a health-care company. People in the ad were using plastic straws. I googled the contact info of the

company and emailed its president. I told him how plastic can harm the environment and asked him to consider using more sustainable options.

I was so excited when he wrote back to me. He said he had been thinking about reducing plastic waste. After reading my letter, he made sure that the company cut its use of plastic straws, drink stirrers, and cup lids in half.

I kept going. Whenever I heard of businesses using plastic, I'd send an email. One of the biggest companies I wrote to was Alaska Airlines. A company representative wrote back and told me the airline was switching from plastic to paper stirrers on all of its 1,200 daily flights.

I always tell people: Everyone can make a change. Look for small things you can do, because they add up.

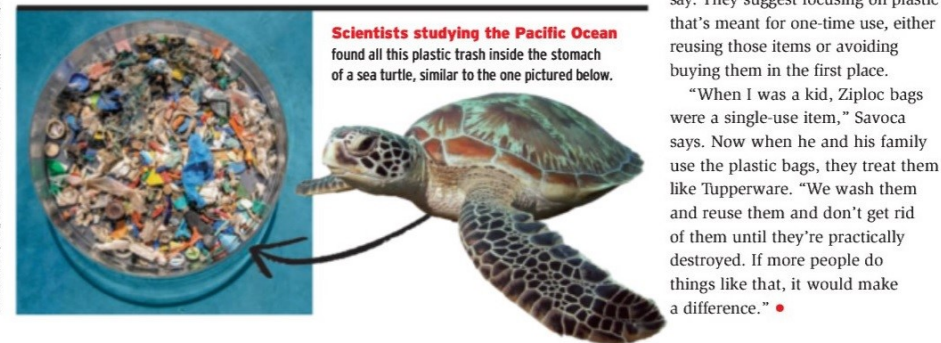


How Countries Are Cutting Down on Plastic

These are just a few of the many nations taking steps to reduce different types of plastic waste.



MONTEREY BAY AQUARIUM/KEIFER JOHNSON



Scientists studying the Pacific Ocean found all this plastic trash inside the stomach of a sea turtle, similar to the one pictured below.

Many people are trying to help solve the world's plastic crisis. In the U.S., for example, plastic grocery bags are now banned or taxed in some cities, including Seattle and Washington, D.C. And there is a nationwide movement to encourage people to stop using so many plastic drinking straws. Some countries are taking even bolder steps (see "How Countries Are Cutting Down on Plastic," above).

Several global companies, including Starbucks and Hilton Hotels, recently announced plans to reduce or eliminate their use of plastic straws. And in the spring of 2018, Alaska Airlines switched from plastic stirrers to paper ones on its flights, thanks in part to one teen's letter (see "Spreading the Word About Plastic's Dangers," facing page).

What's more, in 2017 the U.S. and 192 other countries passed the United Nations Clean Seas agreement. The pact is a formal declaration of those countries' intention to stop polluting the oceans with plastic waste.

How to Make a Difference

Experts say such steps are promising—as long as the efforts ultimately include funding and the **manpower** to help developing countries manage their plastic trash.

"We need to develop waste-collection systems around the world that are capable of managing the waste that is being generated," Siegler says. "That's the key issue."

Individuals also have an important role to play, experts say. They suggest focusing on plastic that's meant for one-time use, either reusing those items or avoiding buying them in the first place.

"When I was a kid, Ziploc bags were a single-use item," Savoca says. Now when he and his family use the plastic bags, they treat them like Tupperware. "We wash them and reuse them and don't get rid of them until they're practically destroyed. If more people do things like that, it would make a difference." ●