

Just as plastics are a common material used in many aspects of our lives, plastics are also a common component of marine debris. As plastic usage has increased over the years, so has the amount of plastic entering the municipal solid waste stream, more commonly called garbage or trash. Between 1960 and 2007, the amount of plastic in the total solid waste stream increased from 1 to 12%. Plastics are a pervasive environmental problem, but they are a material that can be managed and a resource that can be conserved. Reducing the plastic component of marine debris depends upon better management of this resource.

Plastics are a component of a broad range of marine debris, anything from nets and rope used for fishing to shopping bags and beverage bottles. In the land-based solid waste stream, the largest category of plastics are those used in containers and packaging, such as soft drink bottles, lids, and shampoo bottles. Plastics are also found in durable (e.g., appliances and furniture) and non-durable goods (e.g., diapers, trash bags, cups, and utensils). Inevitably, some of these goods end up in the ocean. Plastic pellets, or the raw materials used to create plastic products, are also a common marine debris item. These small resin spheres can be lost and carried into the aquatic environment at various stages throughout their creation, transport, and use.

Like all solid waste, the primary strategies for effectively managing plastics are reduce, reuse, and recycle. Source reduction (Reduce and Reuse) can occur by altering the design, manufacture, or use of plastic products and materials. For example, the weight of a 2-liter plastic soft drink bottle has been reduced from 68 grams to 51 grams since 1977, resulting in a 250 million pound decrease of plastic per year in the waste stream. Reusing items prevents waste as it delays or avoids an item's entry into the waste stream and potentially the ocean. Recycling plastics also prevents excess waste by turning materials that otherwise might become marine debris into valuable resources.

Strolling through the average supermarket, shoppers find literally hundreds (if not thousands) of items to make their lives easier. Individually wrapped snack cakes, plastic baggies to store sandwiches for lunch, unbreakable soda bottles, and disposable razors, diapers, and shampoo bottles. Unless specifically requested, even the bags we use to carry home our goods are often plastic.

To humans, these are items of comfort, if not necessity. But to marine animals, they can be a floating minefield.

We're treating the oceans like a trash bin: around 80 percent of marine litter originates on land, and most of that is plastic. Plastic that pollutes our oceans and waterways has severe impacts on our environment and our economy. Seabirds, whales, sea turtles and other marine life are eating marine plastic pollution and dying from choking, intestinal blockage and starvation. Scientists are investigating the long-term impacts of toxic pollutants absorbed, transported, and consumed by fish and other marine life, including the potential effects on human health.

Plastic--whether it be for a container, a wrapper, or the product itself--has become an everyday part of our lives. This isn't necessarily a bad thing--plastic is also the material diabetics

use for their disposable syringes; arthritic patients have for their replaced hips; and construction workers wear to protect their heads.

But when plastic reaches our waters, whether it be plastic bags or drifting fish nets, it poses a threat to the animals that depend on the oceans for food. To a sea turtle, a floating plastic bag looks like a jellyfish. And plastic pellets--the small hard pieces of plastic from which plastic products are made--look like fish eggs to seabirds. Drifting nets entangle birds, fish and mammals, making it difficult, if not impossible to move or eat. As our consumption of plastic mounts, so too does the danger to marine life.

Before the days of plastic, when fishermen dumped their trash overboard or lost a net, it consisted of natural materials--metal, cloth or paper that would either sink to the bottom or biodegrade quickly. But plastic remains floating on the surface, the same place where many genuine food sources lie--and can remain so for 400 years. Plastic is durable and strong--precisely the qualities that make it so dangerous if it reaches the ocean.

Plastic pollution affects every waterway, sea and ocean in the world. When we damage our water systems, we're putting our own well-being at risk. This pollution also has huge costs for taxpayers and local governments that must clean this trash off of beaches and streets to protect public health, prevent flooding from trash-blocked storm drains, and avoid lost tourism revenue from filthy beaches.

But how would a syringe that a diabetic uses make it into the ocean? If plastic objects make it into the main sewer system (say, by being flushed down the toilet, or carried by the rain into a street drain), and the water treatment plants are overwhelmed by excessive rain, then those floating objects can float right out to sea. This is precisely what happened on the New York and New Jersey beaches in 1988, when medical waste was floating up onshore. After an unusually dry spring, litter began accumulating on the streets and in storm sewers. When heavy rains arrived in mid-summer, they swept the streets clean and overloaded combined sewers. After floating out to sea, the debris was blown back onto the shores.

In a more direct route, boaters may dump their trash right into the sea. In the past, this has been the main cause of plastics in the ocean. In 1975, the National Academy of Sciences estimated that 14 billion pounds of garbage was being dumped into the ocean every year. That's more than 1.5 million pounds per hour. More than 85% of this trash was estimated to come from the world's merchant shipping fleet in the form of cargo-associated wastes. According to the Academy, the United States could be the source of approximately one third of this ocean pollution.

Fortunately, since the last day of 1988, it has been illegal for ships to dump plastics into the ocean. But that law is difficult to enforce, and cannot account for the thousands of miles of driftnets and other gear set by fishermen, which can ensnare and kill birds diving for the fish below, or come loose, only to be discovered later by an unfortunate humpback whale.

The most effective way to stop plastic pollution in our oceans is to make sure it never reaches the water in the first place. We all need to do our fair share to stop plastic pollution: individuals need to recycle and never litter, but producers of single use plastic packaging need to do more too. We need producers to design packaging so that it is fully recyclable, and so there is less waste. We also need producers to help cover the costs of keeping their products out of the ocean.

Holding plastic producers accountable. Many states hold producers of materials like paint and carpet responsible for recovering and recycling their product after it is used. Producers of plastic packaging should be required to find innovative ways to design better packaging that can be more fully recovered for recycling or reuse, and they should help cover the costs required to keep plastic out of the environment.

Leading international action. NRDC's oceans and waste experts are working directly with international leaders and organizations such as the UN Environment Program to help establish international guidelines for curbing plastic pollution. We're also bringing government agencies and organizations together at the international level to showcase solutions.

Look for alternative materials or avoid excessive packaging when deciding on purchases. Use paper bags, milk and juice in cardboard, and cloth diapers. Insist on paper bags and glass bottles. Educate others about the problem of marine debris, enhancing "voluntary compliance through awareness." Get involved. Locate or start cleaning up our oceans.

Cut disposable plastics out of your routine. Simple alternatives include bringing your own bag to the store, choosing reusable items wherever possible, and purchasing plastic with recycled content. Recycle. When you need to use plastic, be sure that you recycle it after you've reused it. Each piece of plastic recycled is one less piece of waste that could end up in our oceans.

Take Responsibility. Whether you represent yourself, a business, or a government, know how much you are contributing to the problem of plastic pollution.

- Conduct a waste audit and share the information.
- Set specific goals to reduce or eliminate your plastic waste generation. Clean up your beach. Many organizations host clean-up days where you can volunteer to pick up trash at your local beach. A few hours of your time can make a big difference.

Another solution is the Ocean Cleanup. Last year, Deep Sea News reviewed the Ocean Cleanup project. The brain child of Boyan Slat, he claimed that his design could clean the ocean of plastic in 10 years. At the time the project was just a concept. It was a concept that we found had serious potential problems. As is explained in the technical review, we still think it has a lot of problems.

We can all agree here, we WANT to see plastic in the ocean cleaned up. But it isn't an easy job and right now there isn't a catch-all solution. Therefore, I've assembled a list of organizations that are actively trying to reduce ocean plastic, and suggestions on how you can help facilitate positive change. Because ocean plastic is a big problem that needs a big solution, and we need to work together on multiple fronts to solve it.

ORGANIZATIONS THAT ARE HELPING REDUCE OCEAN ARE 5gyres,beat the microbead,and the north sea foundation. These organizations have waged an awesome and successful war against ocean plastic and in particular the terrible microbead. Microbeads are the little pieces of plastic that cosmetic companies put in their products for some extra scrubbiness. But once you wash your face, these microbeads go straight into waterways because they can't be removed from wastewater*. Working together, 5 Gyres, Beat the Microbead (part of the Plastic Soup Foundation) and The North Sea Foundation has successfully convinced Unilever, The Body Shop, L'Oreal, Colgate-Palmolive, and Johnson & Johnson to all stop using microbeads in their products. These organizations are also working with lawmakers to enact microplastic bans in the US, Canada and Europe. Keep up the good work you banishers of microplastics!

You can also stop using cosmetics with plastic microbeads, but make sure you dispose of them properly. **THINGS YOU CAN DO TO CURB OCEAN PLASTIC; GET INVOLVED LOCALLY**, Does your town/city/state recycle? Do they have a plastic bag ban? Is there a ban on microbeads? No? Then get on it people! You can find ways to help make these plastic reducing initiatives a reality in your area and in your country.

An idea that I like a lot is the **STORM WATER DEBRIS NETS**; I'll admit, I am particularly enamored with this idea and I REALLY want it to work. By adding nets to the outlets of storm drains, a lot of plastic can be captured before it potentially gets to the ocean (which is also why Baltimore's water wheel is SO awesome!). But this solution also has its problems, as the nets need to be emptied and maintained. That costs manpower and money. Money many municipalities don't have right now. I really wish they did. And even if the array doesn't work, it would be wonderful if the plastic collection technology that results from ocean cleanup project could be adapted to filter plastics from storm water runoff.

I have created this prose to inform people that it's not too late to protect our ocean from being a devastating ocean. I have been inspired by the devastating flood that has been occurring on the 30th March 2013 in my country, Mauritius. The country has survived the worst day ever in its history. After [the torrential rainfall of the 13th February 2013](#), Mauritians never thought that there could be worst. Today, the country is crying the death of 11 persons who have paid for the incompetencies of authorities with their lives. Several of them have drowned in the muddy waters either in the Caudan pedestrian underpass or in the underground parking of the Harbour Front building (Mac Do Port Louis). Rivers and canals going through the capital have over flooded the roads, leaving them not only unsafe but also impossible to use. In several regions, the level of water has nearly reached the roof, sometimes even forcing people to climb on top of their houses. Bref, during these two days, the country was in a deplorable state. While some will argue by saying that we should not put the blame on others, rather than blaming ourselves by polluting our sea, river, drain,(our ocean).