



Photo: NOAA

Plastic Marine Debris

Plastic debris is the most abundant type of marine debris in our ocean, waterways, and Great Lakes. The word “plastic” is used to describe a collection of synthetic or manmade organic compounds (polymers), often derived from petroleum. Plastic polymers can be altered to come in many shapes, sizes, colors, and densities.

Plastic marine debris found in our ocean or waterways is often consumer items such as food wrappers, plastic beverage bottles, plastic bottle caps, plastic/foam carryout containers, drinking straws, and grocery bags. Plastic marine debris also includes items such as lost/discarded fishing gear or plastic sheeting. All of these plastic items can enter the marine environment in a variety of ways, including ineffective or improper waste management, intentional or accidental dumping or littering, or through stormwater runoff. Once in the environment, plastics will remain there indefinitely, which is why preventing these items from entering our waters in the first place is especially important.

Common Types of Plastic

| Resin Code | Name | Product Examples |
|------------|---|---|
| | Polyethylene Terephthalate (PETE, PET) | Plastic bottles, food jars, ovenable and microwavable food trays, textiles (polyester), monofilament, carpet, and films. |
| | High-Density Polyethylene (HDPE) | Bottles (beverage, detergent, shampoo), bags, cereal box liners, extruded pipe, and wire and cable covering. |
| | Polyvinyl Chloride (PVC) | Packaging (clamshells, shrink wrap), pipes, siding, window frames, fencing, flooring, and medical products (blood bags, tubing). |
| | Low Density Polyethylene (LDPE) | Bags (produce, dry cleaning, newspaper, and garbage bags), squeeze bottles, container lids, shrink wrap, toys, coatings for milk cartons and beverage cups, and wire and cable coverings. |
| | Polypropylene (PP) | Yogurt and other food containers, medicine bottles, straws, bottle caps, fibers, appliances, and carpeting. |
| | Extruded and Expanded Polystyrene (PS) | CD cases, yogurt containers, cups, plates, bowls, cutlery, hinged takeout containers (clamshells), electronic housings, building insulation, coat hangers, medical products, packing peanuts and other packaging foam, foamed coolers, and egg cartons. |
| | Other is a resin different than the six listed above, or made from a combination of resins. | Three- and five-gallon reusable water bottles, glasses (lenses), some citrus juice and ketchup bottles, oven-baking bags, and custom packaging. |

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Lifespan

If plastics never really go away, why don't we see more large plastic debris items in the ocean? There are several reasons. Since plastics have different densities, not all plastic debris remains at the surface and some items sink very quickly. Plastics can also break apart into smaller and smaller pieces, called "microplastics" (plastics < 5mm in size). Most commonly used plastics can break into these small pieces, but may never fully degrade in marine environments with colder temperatures and reduced sunlight. Even plastics labeled as "bio-based" or "biodegradable" that may break down in industrial composting facilities, are not designed to quickly degrade in ordinary compost piles, soil, or in the marine environment. Therefore, plastics of all types have the potential to remain in the marine environment indefinitely.

Impacts

The health of marine ecosystems are strongly affected by marine debris. Plastic marine debris can damage habitats, entangle wildlife, cause injury via ingestion, impair vessel engines, create navigation hazards, inflict economic loss, and transport non-native species. Researchers are actively examining the physical and chemical effects of ingesting microplastics on organisms and how those chemicals may travel through the food web. Though we know marine debris can impact individual organisms, it is still not clear how it affects populations and communities. This is a data gap that researchers are beginning to explore.



How YOU can help!

The best way to prevent plastic debris from entering the ocean and Great Lakes is to stop debris from entering the them in the first place.

REMEMBER

that our land and sea are connected.

REDUCE

the amount of waste you produce.

REUSE

items when you can. Choose reusable items over disposable ones.

RECYCLE

as much as possible! Bottles, cans, cell phones, ink cartridges, and many other items can be recycled.

REFUSE

unnecessary single-use items, like plastic straws or cutlery when possible.

GET INVOLVED

and participate in local cleanups in your area.

DISPOSE OF WASTE PROPERLY

no matter where you are.

