

Flotsam & Jetsam: A Little Litter Goes a Long Way

Lesson Time : 60 minutes

Grade Level : 8-12

Vocabulary: marine debris, biodegradable, entanglement

Summary

Using data from the International Coastal Cleanup, identify sources of marine debris and impacts of this debris on wildlife.

Objectives

- Recognize the most common types of marine debris.
- Calculate (using percentages) the impact of certain debris in relation to overall totals.
- Identify the marine species most likely to be entangled in debris.

Introduction

Debris in the marine environment sure is a sad sight. Not only does it spoil the scenery, but it also has the potential of causing serious harm to animals who make the ocean their home. Picture those glorious vacation posters of tropical beaches. Now add to that image some plastic six-pack rings and empty beer bottles strewn across the sunbathed sand. Not your idea of paradise, is it? Perhaps you've seen enough garbage on the beach closest to where you live, or at your family's favorite vacation destination. It is disturbing to think that we have littered such beautiful places, but it is even more disturbing to think about the birds, fish, and mammals who become entangled in old fishing nets, trapped and unable to move or find food. Plastics are particularly hazardous to marine life because they do not biodegrade, and they float on the surface where many other food sources are found. Sea turtles have been known to swallow plastic bags, mistaking them for jellyfish, and then starve. Ultimately, we are responsible for it all.

Marine debris is a worldwide problem. The garbage that ends up in the marine environment comes from various sources, and due to prevailing winds and ocean currents, it can end up very far away from its original source. Land sources are responsible for 70% of the trash, and most of that is washed off streets, down storm drains, and flows directly into our waterways. Beachgoers who leave their trash behind are also part of the problem. Ocean sources of marine debris include commercial fishing, recreational fishing and boating, cargo vessels, cruise ships, and offshore petroleum rigs, to name a few. Ocean dumping is very difficult to regulate, and laws were only

established as recently as 1973 (to prohibit the practice of ocean dumping in general) and 1987 (to specifically prohibit the dumping of plastic trash within the U.S. Exclusive Economic Zone).

There are many environmental organizations that have elevated the problem of marine debris in the public's collective conscience. The International Coastal Cleanup is an award-winning program coordinated by the Ocean Conservancy, a recognized leader on marine debris outreach and education. During this annual event, held on the third Saturday in September, people all over the world join and clean the shores of our oceans. Valuable information on the amounts and types of debris found is collected during the cleanup process, and this information is used to affect positive change on all levels – from educating the individual to instigating legislative reform.

Data Activity

Before doing some calculations using the Cleanup Results, ask your students to guess the 10 most commonly found trash items on beaches around the world. For your answer, go to the annual report. For visual impact, you may want to create your own garbage bag containing numbered examples from the top ten list and ask students to pull them out one at a time.

Review the results.

- What type of debris contributed most to the list? What percentage of the total was comprised by this debris item?
- In 2024, volunteers removed debris from 15,304 miles of shoreline and waterways and collected 7.5 million pounds of debris. How many pounds of debris were collected per mile during the cleanup in 2024?
- The average school bus weighs 15,860 pounds. If 7.5 million pounds of debris were collected in 2024, this figure is equivalent to how many school buses in weight? Keep in mind that it takes a lot of cigarette butts, plastic pieces, bottles, and cans to equal the weight of one school bus! And think of the labor required to haul all that stuff away!

Global and Local Perspectives

Which countries or regions are the largest contributors to marine debris, and why?

How can local communities take action to reduce marine debris in their own waters?

What role do international agreements and policies play in addressing marine debris?

This lesson was written by staff educators at the Bridge Ocean Education Resource Center in collaboration with Virginia Sea Grant. If reusing, presenting, or adapting this lesson please credit the Bridge Ocean Education Resource Center and include the URL below.

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