

Marine Debris (Ocean Trash) Background Information

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Marine Debris Talking Points

- Ocean trash is a major problem and many ocean animals are getting sick
- The amount of trash:
 - The world produces more than 200 billion lbs of plastic every year, and 10% of that ends up in the ocean (Greenpeace)
 - The U.S. alone consumes 50 billion disposable bottles of water every year.
 - California alone uses 27.5 billion plastic bags each year – enough to circle the earth over 348 times. This is equivalent to about 766 disposable plastic bags per person per year (Green Sangha)
- Plastic's long-term impact:
 - Plastic bags take between 20 and 1,000 years to break down in the environment. However, they never actually go away, they only break into smaller and smaller pieces, eventually turning into “plastic dust.” No living creature on earth can digest these pieces of plastic, so it never actually becomes part of the earth again or re-enters the life cycle
 - Toxic chemicals from plastics work their way up the food chain, becoming increasingly concentrated and affecting the health of marine life and potentially affecting humans when we eat seafood
- How does the debris end up the ocean?
 - 80% of marine debris comes from land sources. The debris come from our garbage and container trucks, spill out of trashcans, or are tossed carelessly and flow into our oceans through storm drains and watersheds
- The “Garbage Patch” versus “a dilute soup of ocean trash”
 - The information surrounding a garbage patch out in the North Pacific has become slightly exaggerated and terminology has led to numerous misconceptions
 - While not a “patch”, it is more a dilute soup of trash and ocean life that congregates in gyres (areas formed by converging ocean currents)
 - These gyres are a fluid system, shifting seasonally in size and shape. Plastic in the gyre concentrates towards the center. Most research has focused on the North Pacific, but there are 5 major oceanic gyres worldwide, with several smaller gyres in Alaska and Antarctica. There are studies to look at trash accumulating in the Atlantic gyre as well.
 - In the area of the North Pacific Gyre, the pieces of plastic outweigh the zooplankton by a factor of 6-1 (Captain Charles Moore, Algalita Foundation)

- What can we do to help?
 - While we can't clean up the microscopic plastic dust, we can cut it off at the source.
 - Always dispose your trash in the proper place. **Recycle** whenever possible.
 - Pick up trash on the beach, street or park. All trash can make its way to the ocean.
 - Get involved in local beach, park, or neighborhood clean-ups
 - Cut six-pack rings and plastic packing straps to ensure that no animals can get caught in them
 - Consumerism: Reuse, Refuse, Reduce, Recycle, Rethink
 - Plastic bags are one of the largest sources of trash in the ocean. **Refuse** the plastic bag, and bring your own reusable bag with you.
 - Use stainless steel water bottles rather than plastic water bottles
 - Bring a travel mug to the coffee shop
 - Buy in bulk to reduce the waste of excess packaging
 - Use reusable containers as alternatives to plastic bags used once for lunches
 - Don't release balloons into the air
 - Pack **waste-free lunches** for school and work. Statistics show that by doing this, each person can save an Average of \$250.00 and prevent 67 lbs of trash from reaching a landfill or the ocean for every 9-month school year.
 - **Spread the word:** Tell others what you've learned about keeping our oceans safer and free from trash. **Together** we can get a lot more done.

From the California Coastal Commission (<http://www.coastal.ca.gov/publiced/marinedebris.html>)

The Problem with Marine Debris

Millions of Californians enjoy the state's coastline and waterways every day. However, many of those people are unaware how their daily activities, from driving a car, to not properly disposing of their garbage, or even throwing a cigarette butt on the ground, can impact the plants and animals off our shores. This debris can harm or kill beach organisms. Pollution also makes using the beach less enjoyable for humans. Solving our water pollution problems requires everyone's involvement.



How Does Trash Become Marine Debris?

Look around the next time you walk down the street. When it rains, trash on sidewalks and streets accumulates in the gutter and is swept into your city's storm drain system. Most storm drain systems discharge directly into the nearest waterway, which eventually flows to the ocean. Trash may also be dumped directly into the ocean by recreational and commercial boaters, and it is often left on the beach by beach-goers.

Trashing California's Beaches

Californians love their coast and ocean — nine out of ten will visit the beach at least once this year. When they arrive at the beach, they are finding a lot more than sand and surf. During a recent summer, Orange County collected enough garbage from six miles of beach to fill ten garbage trucks full of trash every week, at a cost to taxpayers of \$350,000. Other California counties spend even more.

In 1975, the National Academy of Sciences estimated that ocean-based sources, such as cargo ships and cruise liners, dumped 14 billion pounds of garbage into the ocean. In 1988, the U.S. signed onto MARPOL Annex V, joining 64 other countries that signed the international protocol that regulates ocean dumping and made it illegal to dump plastic into the ocean. Laws like MARPOL have reduced the amount of trash on our beaches and in our ocean. Even so, plastic pollution is still a major problem. A recent study found an average of 334,271 pieces of plastic per square mile in the North Pacific Central Gyre, which serves as a natural eddy system to concentrate material.¹ Results of more than 10 years of volunteer beach cleanup data indicate that 60 to 80 percent of beach debris comes from land-based sources. And debris in the marine environment means hazards for animals and humans. Plastic marine debris affects at least 267 species worldwide, including 86 percent of all sea turtle species, 44 percent of all sea bird species, and 43 percent of marine mammal species.²

¹ Moore, C. J., S. L. Moore, M. K. Leecaster, and S. B. Weisberg, 2001. A comparison of plastic and plankton in the North Pacific Central Gyre. In: *Marine Pollution Bulletin* 42, 1297-1300.

² Laist, D. W., 1997. Impacts of marine debris: entanglement of marine life in marine debris including a comprehensive list of species with entanglement and ingestion records. In: Coe, J. M. and D. B. Rogers (Eds.), *Marine Debris -- Sources, Impacts and Solutions*. Springer-Verlag, New York, pp. 99-139

How Marine Debris Harms Wildlife

Entanglement

Common items like fishing line, strapping bands and six-pack rings can hamper the mobility of marine animals. Once entangled, animals have trouble eating, breathing or swimming, all of which can have fatal results. Plastics take hundreds of years to breakdown and may continue to trap and kill animals year after year.

Ingestion

Birds, fish and mammals often mistake plastic for food. Some birds even feed it to their young. With plastic filling their stomachs, animals have a false feeling of being full, and may die of starvation. Sea turtles mistake plastic bags for jellyfish, one of their favorite foods. Even gray whales have been found dead with plastic bags and sheeting in their stomachs.

Glass

Glass can be recycled to make new glass, insulation, and asphalt. In 1993, we recycled more than 600 tons of glass, sustaining 4,320 jobs.

Plastic

Almost 90 percent of floating marine debris is plastic. Due to its durability, buoyancy, and ability to accumulate and concentrate toxins present in the ocean, plastic is especially harmful to marine life.

One type of plastic debris found all over the world are plastic pellets, or "nurdles," which are the raw material transported to plastics manufacturing facilities to be melted into products such as disposable forks and bottles, computer monitors, toys, etc. To learn about (and perhaps participate in) a study of these pellets' accumulation of organic pollutants from sea water, visit [International Pellet Watch](#).

How Marine Debris Harms People

Beachgoers can cut themselves on glass and metal left on the beach. Marine debris also endangers the safety and livelihood of fishermen and recreational boaters. Nets and monofilament fishing line can obstruct propellers and plastic sheeting and bags can block cooling intakes. Such damage is hazardous and costly in terms of repair and lost fishing time. In one Oregon port, a survey revealed that 58 percent of fishermen had experienced equipment damage due to marine debris. Their average repair cost was \$2,725.

How Does Reducing, Reusing, and Recycling Help?

Use Less Stuff

Many of our pollution problems are really problems of misplaced resources. For every item we recycle or reuse, that's one less piece of trash that can become a part of the marine debris cycle threatening people and wildlife.

Everything we use in our daily lives is made from natural resources such as trees, petroleum, sand, water, soil, and metals, many of which are non-renewable.

By throwing these materials into our landfills, we drastically reduce the remaining supply of non-renewable natural resources.

Metal

Nearly 75% of all metal is used just once. Recycling steel reduces air and water pollution and requires 70% less energy than producing it from raw materials.

Be Part of the Solution

The debris that we collect from our beaches is a symptom of a much larger water pollution problem that is caused by everyday people doing every day things. Rain scours oil from parking lots, fertilizer from lawns, pet droppings from sidewalks and other contaminants from "nonpoint" sources and transports this toxic stew down storm drains and over land into the ocean. These toxins are poisoning marine life and our water sources. We can all be part of the solution by recycling used motor oil and repairing car leaks, picking up after our pets and switching to non-toxic products and improve other everyday practices to help keep our waterways clear and clean.

How Can I Help?

- Reduce, reuse and recycle at home, work and school.
- Buy products made from recycled materials with little or no packaging.
- Keep storm drains clean - they drain to beaches.
- Keep cigarette butts off streets and beaches.
- Properly dispose of fishing lines, nets and hooks.

Paper

Waste paper can be turned into raw material for new paper and paper products. Every 2,000 pounds of paper recycled saves 17 trees.

From the California Coastal Commission (<http://www.coastal.ca.gov/publiced/marinedebris.html>)

Ten Easy Ways to Reduce Your Plastic Footprint



- 1. Carry reusable cloth bags with you when you go shopping.**
Keep a few in your purse, car, or briefcase and use them instead of plastic shopping bags. At some grocery stores, you will actually get a discount for bringing your own bag.
- 2. Avoid buying bottled water.**
Carry a stainless steel water bottle with you, use water fountains, or drink from the tap. In the U.S., tap water is regulated much more than bottled water. It is perfectly tasty and healthy.
- 3. Bring your coffee mug to work and to the coffee shop.**
A reusable thermos or coffee mug is easy to transport and durable. Using one will help cut down on Styrofoam cups and plastic lids.
- 4. Use wax paper bags and aluminum foil instead of Ziploc bags and plastic wrap.**
Aluminum foil and wax paper are recyclable and can also add more protection to your food than plastic wrap. Also consider storing leftovers in a bowl with a plate over it instead of using plastic wrap.
- 5. Don't use straws or plastic lids on your take-out beverages.**
Most of the time you don't really need a lid or a straw, especially if you are staying in a restaurant to eat. Straws were the third most common item found last year during the International Coastal Cleanup and can choke seabirds and other marine animals.
- 6. Resist the urge to wrap your produce in plastic.**
Most produce, like a bunch of bananas or a head of broccoli, is already bundled. If you plan on washing your fruits and veggies when you get home, there is no need to put them in individual plastic bags.
- 7. Use a bar of soap instead of liquid soap that comes in a plastic bottle.**
This is one of the easiest ways to reduce your plastic footprint. Bars of soap are often less expensive, last longer, and work just as well for washing your hands and body.
- 8. Avoid using plastic utensils.**
Bring your own with you to work if you often take out food. If you need to buy disposable utensils for an event, look for biodegradable alternatives made out of potato or corn starch. These can easily be composted.
- 9. Choose products made out of natural fibers and recyclable materials and avoid excess plastic or Styrofoam packaging.**
Spread the word by telling your retailer about your preference for recyclable and compostable materials. Make an effort to recycle all plastic products and packaging when you do buy them. Styrofoam peanuts and take-out containers should be totally avoided

since there are many recyclable alternatives. Styrofoam is not recyclable and takes thousands of years to break down in a landfill.

10. If you see plastic litter on the street, in a creek or pond, please pick it up.

Plastic is harmful to animals and can choke or kill them. When plastic starts to break down, it releases harmful toxins that pollute waterways. Do your part to help care for our watersheds.

The Watershed Project - www.thewatershedproject.org/tenways.html

The Watershed Project is a 501(c)3 nonprofit organization. We rely on your support.

