

Marine Debris:

A visible Threat to Our Waterways and Shorelines



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Recycling, responsible trash handling and cleaning up the beaches are a few ways to keep our ocean from getting trashed.

WHEN WE PICTURE New Hampshire's 18-mile coastline, few of us probably envision a shoreline littered with more than 39,000 cigarette butts protruding from the sand amidst soda cans, bottles, plastic bags and other refuse. Unfortunately, that's how many cigarette butts were collected in just one day last year when nearly 1,000 volunteers from across the state participated in the Ocean Conservancy's annual International Coastal Cleanup.

The cigarette butts were among 66,233 pieces of marine debris collected from New Hampshire's beaches that day, and the combined weight of this garbage totaled over 6,000 pounds. Nationally,

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cleanup efforts that day produced nearly 1.3 million cigarette butts, part of the 3.7 million pieces of debris found in waterways and along shorelines across the United States and its territories.

From Butts to Bottles

Marine debris is one of the largest and most visible forms of water pollution affecting our oceans and coastline. It is classified as anything found in a marine environment that does not naturally occur there, typically manufactured or processed solid waste material that can enter the water or wash up on our shores from a variety of different and often hard to track sources.

According to the Ocean Conservancy, the top
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BY KAREN FINOGLE



A busy day for sunbathers means an equally busy day for those who clean up after them. Just a few hours' work yields bags and bags of beach trash. This year's International Coastal Cleanup is Sept. 21.



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10 marine debris items that wash up on New Hampshire's shoreline are:

- 1: cigarettes/cigarette filters
- 2: bags/food wrappers
- 3: caps, lids
- 4: beverage cans
- 5: rope
- 6: plastic cups, plates, forks, knives or spoons
- 7: glass bottles
- 8: straws or stirrers
- 9: cigar tips
- 10: plastic beverage bottles.

Other items commonly found include fishing line, fishing nets, six-pack rings, diapers, tires and syringes.

The most common marine debris item is also the smallest. Cigarette butts account for nearly 60 percent of the waste found on New Hampshire's shores each year and are the No. 1 debris item worldwide. The N.H. Coastal Program, a division of New Hampshire's Office of State Planning, works in tandem with the Ocean Conservancy to monitor the debris found on our beaches.

"The data that is derived every year from the international cleanup is put into a compilation of how much debris is being picked up and what categories it all falls into. We're looking for trends," says Mary Power, executive secretary of

the N.H. Coastal Program. "The debris we pick up most often are cigarette butts because people think of it as such a small item and so easily discarded, but cumulatively it's a big problem."

Everlasting Plastics

Cigarette butts have a huge impact because they are not biodegradable. The filters are made of cellulose acetate, a form of plastic and can harm species that ingest them. The non-biodegradable nature of cigarette filters points to the overriding cause for a majority of marine debris: plastic.

Sherry Godlewski, of the N.H. Department of Environmental Services, is part of the department's "Green Team," a volunteer group of employees who sponsor a beach site each year at the annual coastal cleanup. She works with school children to collect and report on debris found at Hampton Beach.

"We find a lot of plastic items, because again, plastic doesn't biodegrade," says Godlewski. "Every year is a little bit different but plastic is the No. 1 type of product that we find washing up on the beach at Hampton."

Since plastic was invented in 1936, it has found its way into every facet of our life, now accounting for 89 percent of all trash. More than 80 percent of this trash comes from residential sources. Because plastic is not biodegradable, trash dumped by irresponsible consumers could remain in our environment for hundreds of years. Although many types of plastic are recyclable, large quantities are still finding their way into our waterways and onto our beaches – as evidenced by the types of debris being collected and monitored by the Ocean Conservancy and its volunteers.

Everyday Litter

Since plastic accounts for most of our trash and originates in residential areas, it's no great surprise that land-based activities are the biggest contributors to marine debris. According to the "New Hampshire 2001 International Coastal Cleanup Summary Report" produced by the Ocean Conservancy, "The majority of debris found in the U.S. during the 2001 ICC was caused by recreational and shoreline activities, such as: going to the beach, picnics, sports and games, festivals, as well as litter washed from streets, parking lots and storm drains."

Cigarette filters, beverage bottles, cans, caps, lids and straws have lived at the top of the debris list for over a decade. If people stopped littering these everyday items, beaches and shorelines could become more than 50 percent cleaner than they currently are.

Litter can also arrive on the shoreline from inland areas. Verna DeLauer, outreach coordinator for the N.H. Coastal Program, notes that “creeks, rivers, streams and storm water systems carry land-based trash to shorelines, coastal areas, and into the ocean. Many sources, especially after a rain, travel via storm drain, like litter, motor oil, pet wastes and fertilizer leaves.”

DeLauer also points out that antiquated sewage systems can become overwhelmed during heavy rainstorms, and may release raw and untreated sewage, in addition to street run-off, into the nearest waterway.

Ocean-Going Garbage

Some debris that washes up on our shores does originate from the ocean, specifically from recreational or commercial vessels. Roughly 6.5 percent of the debris collected and monitored last year in the United States and New Hampshire came from ocean-based sources. Many of the items collected included monofilament fishing line, fishing nets, lures, ropes, traps, buoys, strapping bands and plastic tarps.

Thirty years ago, ocean-based vessels were a greater source of marine debris. In 1975 alone, it was estimated that ships dumped an average of 14 billion pounds of garbage into the ocean.

These alarming statistics helped to propel the creation of the MARPOL Act, an international treaty that created guidelines for preventing pollution from ships. Annex 5 of the MARPOL Act specifically addresses the disposal of garbage into the ocean and bans all dumping of plastics. In 1987, the U.S. created the Marine Plastic Pollution Research and Control Act to implement and enforce Annex 5. Violators can face fines of up to \$500,000 and six years in jail. As of March 2002, 107 countries have ratified Annex 5. MARPOL has greatly reduced the amount of trash originating from ships, yet debris is still washing up on shores and threatening wildlife.

Hazards for People and Wildlife

By its very nature, marine debris is an eyesore. It detracts from the natural beauty of beaches and waterfronts, but more importantly threatens the health and safety of humans and animals. Other floating debris is often a sign of other water quality problems; in extreme cases it can disable boats, leaving boaters stranded. Children’s feet can be injured by broken glass and sharp objects on the shore. Dirty syringes, drug vials, used diapers and hospital needles can spread disease to those who unknowingly are exposed to these items. The Ocean Conservancy reports that in 2000, beaches were closed or posted health advi-

sories against swimming more than 11,270 times nationwide.

Wildlife can become entangled in marine debris, or ingest it, often with harmful effects. The U.S. Marine Mammal Commission reported that debris ingestion, entanglement, or both affect 43 percent of marine mammals worldwide. Seabirds frequently eat small pieces of plastic debris, including cigarette butts, mistaking the debris for food. These birds will often feed bits of plastic to their young, and many animals are unable to regurgitate the items once they are swallowed.

Sea turtles commonly mistake floating plastic bags for jellyfish. Once ingested, if the bag remains trapped in the stomach, it will give the



animal a false sense of fullness and lead to a slow starvation. Many marine animals can also fall victim to metal or glass objects that can perforate the stomach or small intestines, and other items can become lodged in their windpipes and cause suffocation.

Monofilament fishing line, strapping bands, discarded nets and six-pack rings are the leading culprits for the entanglement of marine life. These items can trap animals, hinder movement, inflict injury or cause suffocation. Animals with debris wrapped around a limb often suffer lack of circulation and sometimes a long and painful journey to amputation as the animal grows. Wounds inflicted from marine debris can lead to deadly bacterial infections, and trailing debris often hinders an animal’s movements, making it an easier target for predators. Seabirds have been found trapped in debris they selected as nesting sites, and sand-dwelling or air-breathing animals have drowned from being trapped beneath heavy pieces of plastic debris.

How You Can Help

The presence of marine debris and its ill effects on our environment may seem overwhelming, but the solution is simple: Don’t litter.

The Ocean Conservancy reports: “Discarding

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Marine debris can take on many forms and cause many problems, from fishing gear to litter. Hypodermic needles can cause injury – or worse – and fishing line can harm motors and ruin a good day of fishing.



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our trash into proper receptacles, whether at the beach, on a boat or on a city street, may be the single most effective change we can make in the effort to eliminate marine debris.” You can also make a positive impact by purchasing products with less packaging, reusing food and beverage containers whenever possible, and ensuring that every recyclable item in your household makes it to the recycling center in your community.

The N.H. Coastal Program, in cooperation with the Ocean Conservancy, also offers several programs that enable you to have an immediate and direct impact on eliminating marine debris. The flagship program is the annual Coastal Cleanup.

2002 International Coastal Cleanup: Sept. 21.

For information,
call 603-271-2155.

15th Annual New Hampshire Coastal Cleanup

In 1986, the Ocean Conservancy launched the first International Coastal Cleanup, the oldest and largest volunteer effort of its kind. Since its inception, 4.7 million volunteers have been mobilized in 55 U.S. states and territories and 118 countries worldwide. The mission of the cleanup is to inform people about marine debris; remove debris from shorelines, waterways, and beaches; and collect information on the amount and type of

debris to reduce debris and enhance the marine environment.

The N.H. Coastal Program began participating in the annual International Coastal Cleanup in 1988. Over 1,000 volunteers have turned out each year to clean 25 sites along the Atlantic shore and Great Bay. They collect the debris and fill out data cards on what debris is found. Forty-two items are grouped into five debris-producing activities: recreational and beach-going activities; smoking-related activities; ocean and waterway activities; activities associated with legal or illegal dumping; and activities resulting from improper disposal or handling of medical or personal hygiene materials. This information is crucial in determining trends and tracing debris back to its source. Agencies like the N.H. Coastal Program use this data to develop public awareness programs.


“The amount of trash collected each year is rising, despite efforts,” says DeLauer of the Coastal Program. “So really the question is: How do you get people to ultimately change their behavior and feel like this is an important thing to do and actually do it?”

Part of that answer may be found in our youngest citizens. As part of the annual cleanup, the N.H. Coastal Program sponsors a special “kids only” cleanup day where students from area schools visit four sites along Hampton Beach collecting debris and learning about its origins and effects. More than 600 students, from second grade to high school, are already registered for the 2002 cleanup.

Sherry Godlewski has worked with schoolchildren on the cleanup for several years. She says that most of the kids love the experience and are excited to be making a difference. The children are often very surprised by what they find.

“They think that people are more conscious, so they are surprised to find a lot of soda bottles or things that people could have just thrown away in the right place or recycled in the right place,” says Godlewski.

That thought is echoed by Mary Power of the N.H. Coastal Program. “These kids will never forget the experience. If they’re out there picking up trash, they’re less likely to trash it themselves.” Maybe they’ll pass the same thinking onto their parents.

The 2002 Coastal Cleanup for the public is scheduled for September 21 from 11 a.m. to 2 p.m. To join, contact Verna DeLauer at 603-271-2155 or email her at vdelaue@osp.state.nh.us. 



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Earn a Marine Debris Degree!

It's easy to get involved. Sign up for any of N.H. Coastal Program's seven programs listed below to receive your Marine Debris Degree. You'll receive a marine debris activity guide and a one-year subscription to the N.H. Coastal Program's newsletter, "Tidelines."

- **Annual Coastal Cleanup:** Join thousands of volunteers on September 21, 2002, to clean one of New Hampshire's sandy beaches and help collect vital data for pollution prevention.
- **Adopt-a-Beach:** Pick a beach to clean at least twice a year.
- **Beach Buddies Presentation:** This one-hour program teaches your group the causes of marine debris and how to prevent it through a slideshow, games and experiments.
- **Traveling Exhibits:** Choose a tabletop exhibit to be housed in your classroom or library for one month or less. Choose from: Introduction to the N.H. Coastal Pro-

gram; Introduction to Marine Debris; or Introduction to the Gulf of Maine.

- **Coastweeks Art Contest:** Help to brighten the N.H. Coastal Program's Coastweeks poster and brochure with artwork that exemplifies a clean coast.
- **Teacher Workshops:** A N.H. Coastal Program staff member will provide an in-school teachers' workshop to enhance the curriculum.
- **Storm Drain Stenciling:** For a hands-on/minds-on environmental activity to take to the community, try storm drain stenciling for a memorable lesson on water resources and civic life.

For more information on these programs, please contact Verna DeLauer at 603-271-2155 or email vdelaue@osp.state.nh.us or visit www.state.nh.us/coastal.

