



Amidst oil spills, earthquakes, epidemics and climate change controversies, why should you care about plastics, and why should you support and contribute to Plastic Free Ocean?

Fact: Dangerous and excessive uses of plastics, and improper handling and limited recycling of plastic waste have created the most serious, pervasive and immediate global threats to human health, wildlife and the environment.

The facts show that plastics have quite literally become a “global oil spill” – a spill that permeates every ocean and tidal zone on the planet and that is made even more dangerous by the harmful compounds used in the formulations of petroleum-based plastic products.

Fact: Hundreds of scientific studies directly link compounds that migrate from plastic containers into foods, and that make their way back into the food chain from plastic breakdown in the environment to:

- Many forms of cancer
- Diabetes
- Cardiovascular disease
- Premature maturation in girls with dangerous lifetime health effects
- Feminization of boys and other developmental problems
- Reproductive and sexual function problems in both men and women
- Osteopenia
- Neurological disorders including ADD, ADHD and autism

Fact: By ingestion, entanglement, strangulation, suffocation or toxic buildup, plastic waste and breakdown byproducts kill more sea birds, turtles, seals, sea lions, dolphins, whales and other marine animals worldwide than any other non-natural cause – more than 2,000,000 marine creatures per year according to scientists.

Unproven, but very likely: Powerful estrogen-like compounds from plastic breakdown widely distributed in ocean and tidal environments are reducing reproduction rates at the bottom of the food chain and in forage fish, and possibly even in predator species. Feminization resulting from exposure to plastic-source compounds has already been *proved* in a number of species including human males.

Why and how are these things happening?

Fact: Annual world plastic production is over 200 million tons of which half is used for disposable items and packaging that are discarded within a year. As much as 10% of this plastic waste eventually finds its way into ocean and tidal zone environments.

Fact: The most optimistic estimate of overall average recycling of all plastic water, milk and beverage bottles is only 32%. This includes deposit bottles.

Fact: 500 billion to 1.2 trillion plastic bags are used per year. Less than 1% is recycled. Plastic bags are one of the most ubiquitous forms of water-borne waste.

Fact: 90% of floating marine waste is plastic and about 80% of this litter comes from land sources.

Fact: An average of 46,000 pieces of plastic debris floats on or near the surface of every square mile of ocean. In the most concentrated areas this figure exceeds 1 million pieces.

Fact: All oceanic plastic eventually breaks down into particles small enough to be ingested by almost every marine organism from krill to the great Blue Whale.

Fact: Plastic particles and microplastics are so dense and ubiquitous that in many areas of the ocean they outweigh plankton – sometimes by as much as 30 to 1.

Fact: Plastic is directly or indirectly ingested by all marine animals, and bio-accumulates and concentrates as it moves up the food chain to most living things including humans. Styrene and other plastic-source toxins are already at measurable and increasing levels in every human being.

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Plastic in the ocean is a global oil spill that is made worse by the toxic, carcinogenic and endocrine-disrupting chemical compounds that are used in the formulations of petroleum-based plastics which make them even more dangerous to wildlife and human health. This global spill concentrates in the five major ocean gyres and in tidal zones worldwide where it is broken down by sun, wind and wave action into tiny particles that are circulated into every nook and cranny of the marine world that covers more than 70% of the Earth's surface.

Plastic Free Ocean has a comprehensive plan to address the threats at every level – to build awareness, educate consumers and businesses, pursue *smart and effective* political action, sponsor coordinated research among key disciplines, and develop a model program to clean up and reprocess plastic waste that is recoverable from ocean and tidal environments.

Anyone who cares about cancer, heart disease, diabetes, osteoporosis, autism, reproductive and sexual dysfunction problems, water quality, wildlife or the environment at large should consider putting their charitable contributions where they can do the most good – right at the root cause of many of these problems.

Unlike many other issues, the problems with plastics are 100% caused by human action and can be 100% resolved by human action.

Plastics pose the greatest threat when they reach the ocean where their breakdown byproducts become inescapable – a soup of tiny ingestible particles, a variety of toxins and carcinogens, and estrogen-like compounds (xenoestrogens) against which no living thing has any defense.

The accumulation and breakdown of plastic waste in the world's ocean and tidal zone environments is an incredibly important and urgent cause that is getting very little effective action. Working together, we can change that.

Sources of plastic pollution can be directly addressed. Although coordinated research among marine science, waste management, recycling and materials science disciplines is needed, substantial clean up of recoverable plastic waste is accomplishable.

Simultaneous with efforts to clean up the world's ocean and tidal environments, we must reduce water-borne plastic. We currently put plastic into the ocean at a far greater rate than it could possibly be removed. The problem starts in the factories and in the shopping carts. To stem the tide of plastic waste, we must change consumer preferences, buying habits and behaviors, and also the packaging practices of thousands of companies.

We have identified systems that can collect plastic waste where it is densest and most accessible, and technology that can reprocess unsorted mixed plastics into durable products that are economically profitable and environmentally safe.

The missing resource is funding for education, research and political action, and especially for implementing a model clean up and reprocessing operation that can be replicated by governmental agencies and private organizations around the world. *The required technologies have been identified and practical methods have been developed. What is needed now is funding.*

Plastic Free Ocean is a 501(c)3 public charity that relies on personal contributions and corporate sponsorships.

Plastic Free Ocean's global mission:

- Sponsor coordinated research, and develop and implement model programs required to clean up the millions of tons of recoverable plastic waste that already pollute the world's ocean and tidal environments.
- Assist the worldwide deployment of technology that can process mixed, unsorted plastics of all types.
- Educate consumers (with special focus on children K-12), businesses and institutions to reduce dangerous, excessive and unnecessary uses of plastics, improve waste handling practices and increase recycling efforts.
- Promote safe and economically practical alternatives to conventional plastics in all non-durable uses.
- Organize and lobby for *smart and effective* political action.

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