



Marine Debris Effect on Marine Life and Their Habitat

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Marine Debris

Marine debris originates from a large range of causes. Materials that are illegally disposed of and that are incorrectly transferred or deposited may become aquatic waste. Plastics, glass, metal, paper, fabric, rubber and wood are the most widespread marine debris. Plastic is what comes to mind when one speaks about sea pollution. Plastic bags are able to enclose and suffocate marine mammals, whales, seabirds and sea turtles. Marine debris is a rising global concern that is wreaking havoc on the atmosphere and the economy. It obstructs navigation, entangles birds, pollutes beaches, and much more. Of the two beaches surveyed Orchard Beach in Bronx Ny and Long Beach in Stratford CT, the most common found marine debris was cigarette butts, food wrappers and plastic bottle/caps.

Beach	Location	Date	# of Trash	Most Common Litter
Orchard Beach	Bronx	3/07/21	17	Bottles, Caps, Cigarette butts
Orchard Beach	Bronx	3/13/21	28	Bottles, Caps, Cigarette Butts
Long Beach	Stratford	3/20/21	32	Wrappings, Cigarette Butts
Long Beach	Stratford	3/27/21	23	Wrappings, Cigarette Butts, Bottles, Caps,

Figure 1: Data collected over the month of march at Orchard and Long Beach

Bottles, Caps, Wrappings and Cigarette Butts effect on Marine Life

Suffocation, malnutrition, and drowning can occur when fish, seabirds, sea turtles, and marine mammals become entangled in or consume plastic debris. Although it is predicted that plastics take hundreds of years to completely decompose, some of them break down even faster into small fragments, which end up in the seafood we consume. Cigarette butts contain a number of hazardous chemicals that can leach into the atmosphere, particularly in marine environments. The pollutants that the butts leach into the atmosphere may have significant consequences for the animals that live there. Cigarette butts in water have been found to be poisonous to fish, water fleas, and aquatic bacteria in studies. Evidence suggests the aquatic populations are harmful to smoked cigarette filters with some residual nicotine at quantities as low as one butt per liter of water.

Marine litter and its effect on habitat

When debris builds up, habitat composition may be altered, light levels of underlying waters may be decreased, and oxygen levels may be drained. This improvements can jeopardize open water and benthic ecosystems' capacity to sustain aquatic life. Coral reef destruction has the ability to jeopardize the survival of a wide range of invertebrates, fish, and vertebrates that depend on this finite resource, including many vulnerable and endangered species.



Long Term Effects of Marine Litter

The bulk of garbage that joins the ocean does not decompose but stays in the water for several years. If it degrades, it consumes oxygen, lowering oxygen levels in the atmosphere. When this occurs, aquatic species such as turtles, whales, dolphins, sharks, and penguins have a lower risk of survival. Many various toxic chemicals can be contained in agricultural and industrial waste, posing a significant danger to aquatic life. Pesticides and other chemicals in them may accumulate in the fatty tissue of animals, causing their reproductive systems to collapse.



References

Tobacco-Free Life. "Marine Life and Cigarettes: How Cigarette Butt Litter Harms Ocean Life." *Tobacco-Free Life*, 28 July 2016, tobaccofreelife.org/resources/marine-life-cigarettes-pollution/#:~:text=With%20so%20many%20toxic%20chemicals,it%20adversely%20affects%20marine%20life.&text=Studies%20have%20shown%20that%20cigarette,water%20fleas%20and%20marine%20bacteria.

"Plastic Pollution Affects Sea Life Throughout the Ocean." *The Pew Charitable Trusts*, 24 Sept. 2018, www.pewtrusts.org/en/research-and-analysis/articles/2018/09/24/plastic-pollution-affects-sea-life-throughout-the-ocean#:~:text=Fish%2C%20seabirds%2C%20sea%20turtles%2C,suffocation%2C%20starvation%2C%20and%20drowning.&text=Plastic%20waste%20kills%20up%20to,their%20stomachs%2C%20sometimes%20causing%20starvation.