



What is plastic doing to the ocean?

KS2

KS3

Ages 7-14 ⌚ 4 min read

Humans produce about 400 million tonnes of plastic per year. About 8–10 million tonnes of it ends up in the ocean annually — through rivers, drains, coastal littering, and direct dumping. This is roughly equivalent to a rubbish truck emptying into the ocean every minute. Unlike most natural materials, most plastics don't biodegrade — they photodegrade, breaking into smaller and smaller fragments over decades to centuries, never fully disappearing.

Where does it go?

Some plastic washes up on beaches. Some sinks to the seafloor. A significant amount is caught by ocean currents and concentrates in large rotating gyres — the most famous is the Great Pacific Garbage Patch, a soup of plastic debris (mostly tiny fragments rather than a visible solid island) spread across an area larger than France. Ocean currents distribute plastic to some of the most remote places on Earth: plastic has been found in the deepest ocean trenches and on the beaches of uninhabited Antarctic islands.

Most ocean plastic doesn't look like the bags and bottles you threw away. Over years in the ocean, UV light and wave action break plastic into fragments smaller than a grain of rice — microplastics. Think of a plastic bottle as a bath bomb: it doesn't disappear when it dissolves, it just becomes millions of tiny particles spread through the water. A beach that looks clean may have millions of microplastic particles per square metre. The ocean doesn't clean up plastic — it just makes it smaller and spreads it everywhere.

What does it do to wildlife?

Larger plastic items entangle and injure marine animals — sea turtles, seals, whales, seabirds. Bags are mistaken for jellyfish and eaten; bottle rings constrict necks and limbs. Ingested plastic fills animals' stomachs without providing nutrition, causing them to starve while feeling full. Seabirds feed microplastics to their chicks.

Microplastics are now found in the digestive systems of virtually every marine species

tested, from plankton to whales. And microplastics are in our own food and water too — humans ingest an estimated credit card's worth of microplastic per week.

Can it be cleaned up?

Large, visible debris can be collected — organisations like The Ocean Cleanup deploy systems to collect surface plastic. But microplastics are essentially impossible to remove at scale — they're too small, too dispersed, and too similar to plankton that forms the base of the food chain. Prevention is far more effective than cure. The solution is to stop plastic entering the ocean in the first place — through better waste management, reducing single-use plastic production, and improving recycling systems globally.