

STORY
1

The Ocean Cleanup





Not everyone knows this, but every year about 300 million tonnes of plastic are dumped in the ocean. The plastic is very bad for many animals that live in the sea. Turtles can get caught in the rubbish. White plastic bags look like jellyfish, so whales often eat the bags. Some whales have died because of this. We need to think about what will happen to these animals if we don't clean up the oceans.

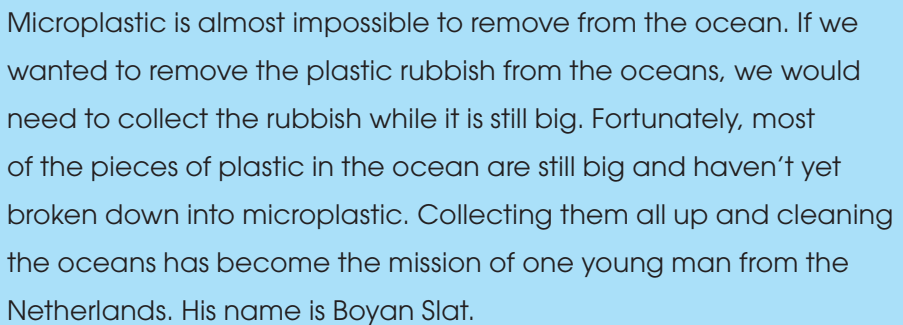


All around the world, the ocean currents move the plastic out to sea and the rubbish collects in five huge areas. The biggest area is the Great Pacific Garbage Patch. It is made up of the Western Garbage Patch near Japan and the Eastern Garbage Patch near Hawaii and California.

Plastic isn't biodegradable, which means the plastic will not go away by itself. Many plastics, for example, simply break into smaller and smaller pieces. These pieces are called microplastics. They are less than five millimetres in size, like grains of rice.

Microplastics are hard to see. They don't appear in satellite photos, so satellite photos don't show a giant patch of rubbish. Some parts of the Great Pacific Garbage Patch are more like a cloudy soup of microplastics than a giant island of plastic.





When Boyan Slat was sixteen, he went on a trip to Greece with his family. On this trip, he went scuba diving. While he was diving, he was shocked to see so much plastic floating in the water – there was more plastic than fish. After doing some research, he was even more shocked to learn that, up until then, no-one had seriously tried to solve the problem. He asked the question, 'Why don't we just clean it up?' Then, he decided to actually do something about it.





For a school project, he spent six months researching plastic pollution in the oceans. He discovered that the traditional way of cleaning up plastic from the ocean was to use boats and nets. This method was expensive and harmful to sea life. Sea animals got caught in the nets. It also took a long time. If this method continued to be used, it would take thousands of years and billions of dollars to clean up the oceans.

After a year of trying out many different methods, Boyan had an idea: instead of going after the plastics, we can let the plastics come to us. He decided to use the power of the ocean currents, wind and waves to catch and clean up the plastic.

Boyan continued working on his project and gave a talk about it in 2012. The talk became famous all over the world and in 2013 The Ocean Cleanup project was born.

1. A c-shaped floater catches pieces of plastic that are more than one centimetre.

3. A boat comes and takes the plastic for recycling.

2. The floater is pushed by wind and waves and collects the plastic.

A team of one hundred scientists and engineers studied the problem. Their solution was to create a giant c-shaped 'floater', six hundred metres long, that would float on the surface of the ocean and collect plastic rubbish. When there was enough plastic, a boat would come to take the plastic back to land. The plastic would then be recycled and used to make products like phones, plastic chairs or sunglasses.



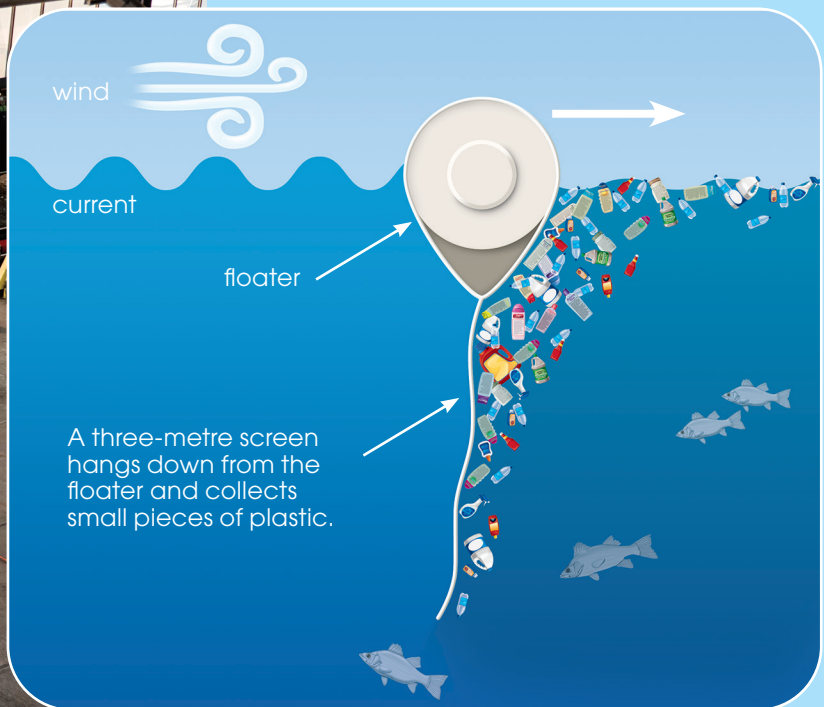
The first Ocean Cleanup system leaving San Francisco for the Pacific in September 2018.

The Ocean Cleanup experimented with different systems to make sure the floater collected the plastic. If the floater and the plastic moved at the same speed, the floater wouldn't catch anything. They discovered that both the plastic rubbish and the floater move with the current. But the wind and waves only move the floater, which sits above the water. The plastic is mainly under the water, and the wind and waves don't make it move. So the floater moves faster than the plastic, and is able to collect the rubbish.




A three-metre screen hangs down from the floater and collects the smaller pieces of plastic that are under the water. As it is a screen and not a net, fish and other marine animals don't get trapped in it. They can just swim under it.

The collection of the plastic by the floater is totally powered by natural forces: the currents, wind and waves. The system also has electronic parts that are powered by solar energy. These include lights and sensors. Sensors in the collecting system send a signal to shore when it is full and a boat comes to collect the plastic.



The first Ocean Cleanup system left San Francisco for the Pacific in September 2018. Boyan and his team hope to set up more systems like it over the next few years. They hope not only to remove 90% of ocean plastic pollution by 2040, but also to make a profit by recycling and selling the plastic they collect.

The world is facing many environmental problems, but people like Boyan Slat, his team of engineers and the thousands of young people who contributed to the project give us all hope that positive solutions can be found.

A satellite image of the Earth showing the Pacific Ocean. The coastline of North America is visible on the right side. Numerous small blue dots are scattered across the ocean surface, representing the locations of 60 Ocean Cleanup systems. The text is overlaid on the right side of the image.

The dots on this image show the 60 Cleanup systems Boyan Slat hopes to set up.