From trash to treasure: The Ocean Cleanup story continues

Boyan Slat, now 26, was just a teenager when he first pitched his idea of a global ocean cleanup of plastic litter and established the non-profit foundation, The Ocean Cleanup. Today he is CEO of a team of more than 90. Our author, Alice Amundsen first met him in 2016 when Gard invited him to speak at its Summer Seminar. Gard has been supporting and following the Ocean Clean-up ever since.

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The Great Pacific Garbage Patch is the largest accumulation of trash in the world. Currently three times the size of France, it is floating around in international waters, 1,000 miles off the nearest shoreline, in no-man's land. No-one actually "owns" the problem, and for decades it has just continued to grow.

The Ocean Cleanup The Great Pacific Garbage Patch

However, eight years ago, a Dutch teenager decided he would take on the challenge. Aged just 18years old, Boyan Slat first presented his idea during a Ted Talk in 2012, and it quickly went viral. Through crowd funding he was able to raise the money he needed to get the idea off the ground. Together with a team of scientists, he set up an expedition to the Patch to map the problem, using 30 boats, this was later followed by an aerial study by an aircraft. Back in the Netherlands, hundreds of scale model tests were carried out; a prototype deployed in the North Sea; and after years of experimentation, the world's first ocean cleanup trial was launched from San Francisco Bay in September 2018. See our earlier Gard Insight for further details.

The basic idea is to let the forces of nature collect the plastic and bring it to a floating barrier, where it becomes sufficiently concentrated to be extracted onto a ship. After a long and difficult journey, he and his foundation, The Ocean Cleanup, are now starting to see the fruits of their efforts.

There were high hopes for the first version of the system, also known as Wilson. And while the cleaning system seemed to do the trick – some 2,000 kg of plastics were captured during the first two months of operation – a lot of the garbage also drifted back out. Problems culminated in December 2018, when Wilson broke in two and had to be towed to shore for repairs.

The Ocean Cleanup

Plastic captured by System 001/B in October 2019

Slat and his team had to go back to the drawing board. Within six months they had deployed a new version of the system, and before too long, it became clear that this one would work better. It was capturing and retaining debris from microscopic plastic fragments to giant fishing nets. There were still several issues to be ironed out but nevertheless, they had made significant progress enabling them to move to the next stage of development.

Though recovering mountains of trash from the oceans creates new challenges – what to do with it all?

The Ocean Cleanup

Plastic debris from the Great Pacific Garbage Patch stored in big bags before transportation

After several years of development, The Ocean Cleanup have found a way of turning the pollution of yesterday into the cleanup of tomorrow. The foundation is recycling the plastic garbage into sustainable products for sale and using 100% of the proceeds

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to fund future ocean cleaning.

However, recycling this kind of plastic has never been done before – it has travelled thousands of miles by sea; and has been floating around for many years, weathered and broken down by the sun, wind and sea. In fact, there was doubt whether it could be recycled at all due to its complex structure after so much exposure. Just like the system which captured it, the ocean plastic was subjected to a lot of experimentation. The result is the creation of a new material or granulate .

The Ocean Cleanup

Granulate created from the catch from the Great Pacific Garbage Patch, the base material for The Ocean Cleanup sunglasses

From the granulate, they have launched their first product – sunglasses. The foundation hopes to inspire others to do the same, highlighting that plastic is not a bad material in itself – it just must be used in a responsible way.

The Ocean Cleanup

The Ocean Cleanup sunglasses made with recycled plastic certified from The Great Pacific Garbage Patch

Slat says, “This is our first attempt at producing a product and we plan to improve with each line; but what we’ve been able to accomplish with these sunglasses I hope will already raise the bar of what it means for a product to be sustainable”. It is estimated that from the sale proceeds of just one pair of sunglasses they can clean an area equivalent to **24 football fields of the Great Pacific Garbage Patch** .

So what’s next?The Ocean Cleanup has applied the insight gathered from the first tests to refine the cleaning system and additional prototype testing has already been carried out in the North Sea. The aim is to launch System 002 in the Great Pacific Garbage Patch later this year. If all goes to plan and the funding initiative works, the prototype will be scaled-up to a full fleet of cleanup systems in the Pacific, with the intention to expand the cleanup operation to the other four ocean garbage patches. The ambition is to remove 90% of the floating plastic from the five oceanic gyres by 2040.

The Ocean Cleanup

The five ocean gyres, where currents converge forming a vortex in which plastic circulates

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To achieve this goal, The Ocean Cleanup acknowledges that it is not enough to only clean up what they refer to as “legacy pollution”; they are also working on a solution to close the tap of *new* plastic entering the oceans via rivers. According to the foundation, 80 per cent of ocean plastic pollution stems from just 1,000 rivers, or about 1 per cent of all rivers, around the world. Their solution comes in the form of the Interceptor, a solar-powered cleanup system within a barge structure. See our earlier Insight for details. Within five years from scale-up, the foundation’s goal is to work together with governments and the private sector to tackle the plastic pollution problem in the world’s 1,000 most polluting rivers.

The Ocean Cleanup

River waste is guided by a barrier towards the opening of the Interceptor and enters the system

The natural current of the river carries the plastic debris, via a floating barrier that is fixed to shore, onto the conveyor belt inside the Interceptor. The conveyor belt then delivers the waste to a shuttle, that automatically distributes the plastic across six dumpsters, stored on a floating pontoon inside the barge. So far, The Ocean Cleanup has deployed three prototype Interceptors, on the Cengkareng Drain in Jakarta, Indonesia; the river Klang in Klang, Malaysia; and the Rio Ozama in Santo Domingo, Dominican Republic. A fourth Interceptor is waiting for assembly and deployment in Vietnam. In December 2020, The Ocean Cleanup went into partnership with Konecranes to series produce the third generation of Interceptors in Malaysia. Further information is available on The Ocean Cleanup website .

The Ocean Cleanup’s goals are a good fit with Gard’s corporate mission to enable sustainable maritime development together with our key stakeholders. We use the United Nations Sustainable Development Goals (SDGs) as our framework for defining our ambitions and targets for running a sustainable business. Reducing plastic pollution is vital to achieving some of the SDGs, such as SDG 13 on climate action and SDG 14 on life below water. Gard has supported the work of The Ocean Cleanup ever since Boyan Slat spoke at Gard’s Summer Seminar in 2016, providing P&I insurance for The Ocean Cleanup systems and Interceptors.

Boyan Slat visiting Gard’s HQ in Arendal for a fireside chat about how the oceans will clean themselves at the Summer Seminar in June 2016

Marianne Bruun Mackrill, underwriter for the Ocean Clean-up vessels and our author, Alice Amundsen modeling the Ocean Clean-up sunglasses.

You can learn more about Gard’s commitment to sustainable business in our sustainability report .

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