Once trash has been identified, SeaClear will use ROVs like this one to collect the rubbish and carry it to a collection ship | Photo source SeaClear

AUTONOMOUS DRONES AND VEHICLES COLLECT RUBBISH FROM OCEAN FLOOR

SCIENCE

A consortium is developing an autonomous system designed to troll the ocean seabed and collect rubbish

Spotted: It is estimated that the oceans contain around 26-66 million tonnes of waste. But, while most of the news focus on the waste near coastlines and in areas such as the Great Pacific Garbage Patch, approximately 94 per cent of this waste is actually located on the seafloor. This is why the European Union-funded SeaClear project is focussing on cleaning up the ocean floor.

The project plans to use autonomous vehicles to find and collect litter from the seabed, focusing on coastal areas where waste inflow concentrates. The system will consist of drones and remote-operated vehicles (ROVs) which will use AI-based algorithms to map, identify, classify and collect litter, using a combined suction-gripper manipulator.

The project also includes an unmanned surface vessel that serves as a “mothership”. The ROVs are tethered to the mothership, which supplies power and computation. SeaClear’s objective is to

operate the entire system without remote human intervention.

SeaClear claims that, when fully operational, the system, “aims to detect and classify underwater litter with 80% success rate, and collect it with a 90% success rate; all this at 70% reduced cost compared to divers.” A prototype was tested this past spring in the Port of Hamburg and along the coast of Dubrovnik, Croatia.

As awareness grows of the perilous state of our ocean ecosystems, we have seen an increasing number of initiatives aimed at cleaning up the oceans. These have included a robot crab designed to pick up ocean trash and a water drone that collects harbour rubbish.

Written By: Lisa Magloff

This innovation is brought to you by Plastic Odyssey, an expedition across 3 continents that will reach areas most affected by plastic pollution and develop local solutions. Click here to learn more.

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Takeaway:

SeaClear is supported by a consortium, which involves eight European partners, including a supplier of hardware for the platform; an experienced marine system integrator; and four academic institutions with complementary expertise in underwater and aerial robotics, sensing, mapping and control. The project is funded by an EU-funded Horizon 2020 research and innovation grant. If successful, the SeaClear project could point to a new approach to cleaning the oceans. It may be possible to eventually have a whole army of autonomous machines trolling the oceans for trash.