*Horizon-2020-funded project **SeaClear** - SEarch, identificAtion, and Collection of marine LittEr with Autonomous Robots*

Clean oceans
thanks to robots and AI

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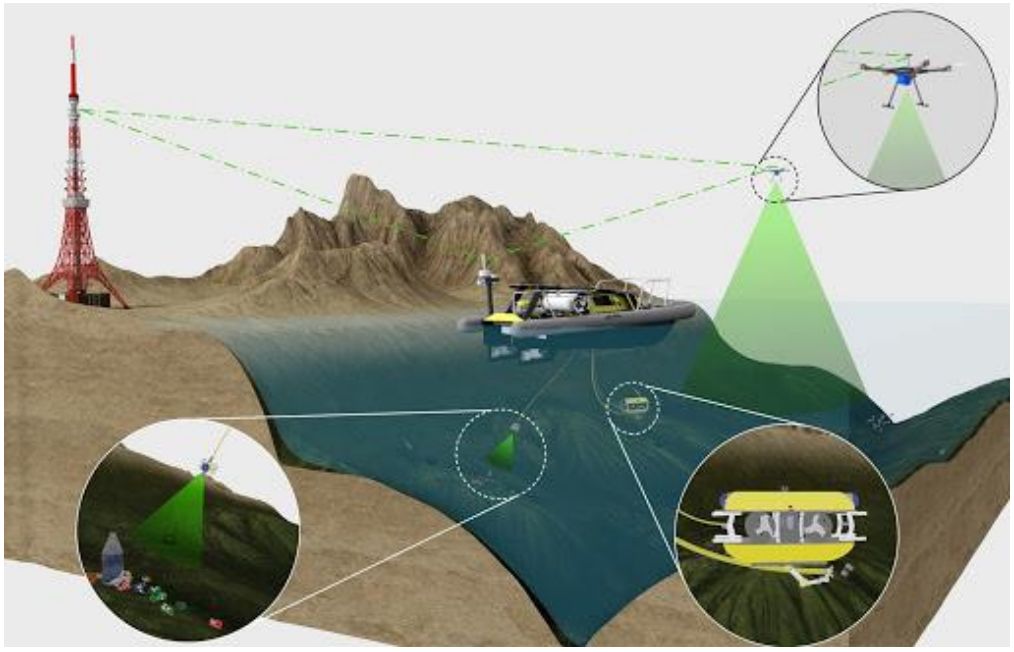
Today's oceans contain 26-66 million tons of waste, with approximately 94% located on the seafloor. So far, collection efforts have focused mostly on surface waste, with only a few local efforts to gather underwater waste, always involving human divers. No solution exists that exploits autonomous robots for underwater litter collection. A consortium of eight European partners from Croatia, France, Germany, and Romania are working on the development of autonomous robots for underwater littler collection. Bart De Schutter, professor at the Deft University of Technology, coordinates this Horizon-2020-funded project **SeaClear** (SEarch, identificAtion, and Collection of marine LittEr with Autonomous Robots).

Bart De Schutter: *"Our objective is to operate the robots autonomously, without remote human intervention, and to that end we plan novel developments in debris mapping, classification, and robot control. When fully operational, the SeaClear system aims to detect and classify underwater litter with 80% success rate, and to collect it with a 90% success rate."*



The SeaClear project will build a mixed team of unmanned underwater, surface and aerial vehicles to find and collect litter from the seabed. The project plans to use aerial vehicles to study the correlation between surface and underwater litter. The underwater vehicles will be fitted with special suction grippers for both small and large waste. The system developed will be demonstrated in two case studies: one in port cleaning (with end-user Hamburg Port Authority), and the other in a touristic area (Dubrovnik – with end-user DUNEA). Besides the two end-users, the consortium includes Subsea Tech SAS, an SME supplying proven hardware for the platform, and four academic institutions with complementary expertise in robotics, sensing, mapping, and control: Delft University of Technology, Technical University of Munich, University of Dubrovnik, Technical University of Cluj-Napoca. SeaClear received €5M funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 871295. The project runs over 4 years, between January 2020 and December 2023. At the TU Cluj, Lucian Busoniu is the principal investigator, and the main tasks of this partner are to develop the mapping approaches to be used by the underwater and aerial robots, as well as to lead project dissemination and exploitation.