The MAELSTROM innovative solutions for mapping and removal of seafloor marine litter: tests carried out in the Venice coastal area, Italy

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The presence of litter in the marine environment is becoming a global concern. A large percentage of the litter in the marine environment accumulates on the seafloor making it difficult the identification where it accumulates and, even more difficult to implement an efficient and eco-sustainable removal. For this reason, the development of new techniques for the monitoring and the removal is urgent. This is one of the aims of the EU co-founded H2020 Smart technology for Marine Litter SusTainable RemOval and Management (MAELSTROM) project,that allowed to map the presence of seabed macro litter hotspots close to the historical city of Venice (Italy), and in an abandoned aquaculture farm in the Venice coastal area by means of a high resolution multibeam echosounder and video inspections. In these areas, in September 2022 and between May and June 2023, an innovative an underwater cable-driven robot mounted on a floating platform to remove the seafloor macrolitter has been successfully tested in. During the tests, the robotic solution, selectively and efficiently cleaned the seafloor from several macro litter items using a gripping device. In this study, we present the results of the high-resolution mapping and classification that helped to fine-tune the operations of the innovative robotic system for the marine seafloor litter removal.