



HAL
open science

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

Fantina Madricardo, Vanessa Moschino, Antonio Petrizzo, Daphnie Galvez, Tihana Marčeta, Nicoletta Nesto, Susanna Mesghez, Massimo Caccia, Damien Sallé, Mariola Rodriguez, et al.

► To cite this version:

Fantina Madricardo, Vanessa Moschino, Antonio Petrizzo, Daphnie Galvez, Tihana Marčeta, et al.. The MAELSTROM innovative solutions for mapping and removal of seafloor marine litter: tests carried out in the Venice coastal area, Italy. EMRA 2023 – Workshop on EU-funded Marine Robotics and Applications, Jun 2023, Sibenik, Croatia. <lirmm-04775260>

HAL Id: lirmm-04775260

<https://hal-lirmm.ccsd.cnrs.fr/lirmm-04775260v1>

Submitted on 9 Nov 2024

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire HAL, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



HAL Authorization

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

Fantina Madricardo^{1*}, Vanessa Moschino¹, Antonio Petrizzo¹, Daphnie Galvez¹, Tihana Marčeta¹, Nicoletta Nesto¹, Susanna Mesghez¹, Massimo Caccia², Damien Sallé³, Mariola Rodriguez³, Jose Gorrotxategi³, Pierre-Elie Herve³, A. Oyarzabal³, David Culla³, Marc Gouttefarde⁴, Vincent Creuze⁴, Cyril Barrelet⁴, Andrea Fantin⁵, Nicola Ferrari⁵

1. Consiglio Nazionale delle Ricerche, Istituto di Scienze Marine (CNR-ISMAR), Italy
2. Consiglio Nazionale delle Ricerche, Istituto di Ingegneria del Mare (CNR-INM), Italy
3. TECNALIA, Basque Research and Technology Alliance (BRTA), Spain
4. LIRMM, Univ Montpellier, CNRS, Montpellier, France
5. Servizi Tecnici Srl, Italy

*Corresponding author: fantina.madricardo@ismat.cnr.it

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 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.