Plastic Busters MPAs approach in Med MPAs

Regional Training on harmonized ML monitoring protocols 12 October 2021

Presented by M. Cristina Fossi, University of Siena, Italy



The Impact of Marine Litter in Marine Protected Areas (MPAs) in the Mediterranean Sea



The Impact of Marine Litter in Marine Protected Areas (MPAs) in the Mediterranean Sea: How Can We Protect MPAs?

Maria Cristina Fossi and Cristina Panti



In the whole Mediterranean basis <u>1231</u> <u>MPAs</u> and OECMs (Other Effective area- based Conservation Measures) cover <u>179,798 km</u> for a total surface of 7.14% under a legal designation. <u>Many</u> of these areas are heavily subjected to <u>marine litter pressure.</u>



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Plastic Busters MPAs: preserving biodiversity from plastics in Mediterranean Marine Protected Areas







Plastic Busters MPAs: *Aim of the Training*

- ✓ First person event is intended to transfer knowledge gained on harmonized ML monitoring approaches and methodologies to MPA managers and staff members interested in developing skills on how to design an effective ML monitoring programme in their MPAs, consistent with the MSFD and the Barcelona Convention frameworks.
- ✓ This first session is dedicated to explaining the basics of ML monitoring and it provides an overview on the methodologies and approaches to monitor ML presence on beaches, sea surface, sea floor as well as in biota and the ML impact on living organisms and the type of results and indications that can be drawn from such monitoring.



Target Audience

- MPA managers and staff
- Other interested parties:

Local public authority, Regional public authority National public authority, Interest groups including NGOs Higher education and research International organisation, EEIG



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Plastic Busters MPAs: Training Agenda

TIME (CET)	SESSION	SPEAKERS/TRAINERS	
5.15 – 15.30	Registration		Interreg
15.30 – 17.30	 Session 1: in the classroom Welcome The Plastic Busters MPAs in a nutshell Training scope, and agenda for the following days Trainees' expectations The Plastic Busters MPAs Toolkit on marine litter monitoring: Beaches (macrolitter, microlitter) Sea surface (macrolitter, microlitter) Seafloor (macrolitter) Biota (endangered species) Biota (commercial species) 	 Cristina Fossi, UNISI Cristina Panti, UNISI Ilaria Caliani, UNISI Matteo Baini, UNISI Thomais Vlachogianni, MIO-ECSDE 	PLASTIC BUSTERS MPAS Regional Training on Harmonized Marine Litter Monitoring Latin May 2021 [9:30 - 12:00 cet trainide conferencing
	End of the day		TRA

Cediterranean PLASTIC BUSTERS MPAs

Plastic Busters MPAs general objectives Whole Management Cycle Of Marine Litter



- PlasticBusters MPAs, is a 4-year-long project Interreg Mediterranean funded project aiming to contribute to maintaining biodiversity and preserving natural ecosystems in pelagic and coastal marine protected areas (MPAs), by defining and implementing a harmonized approach against marine litter.
- The project entails actions that address the WHOLE MANAGEMENT CYCLE OF MARINE LITTER, from monitoring and assessment to prevention and mitigation, as well as actions to strengthen networking between and among pelagic and coastal MPAs located in Italy, France, Spain, Croatia, Albania and Greece.
- The project will support the implementation of the MSFD and the Barcelona Convention Regional Plan on Marine Litter Management in the Med.



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Plastic Busters MPAs: *Harmonized Diagnosis in the Environment*

4.1 – Coordinating WP 4

4.2

Piloting harmonized ML monitoring in Med MPAs to assess ML (macro- and micro-plastics) in the coastal and pelagic environment

4.3

Piloting harmonized ML monitoring approaches in Med MPAs and hotspots to establish the impacts on biota, including endangered species and fishery resources

4.4

Testing the ML forecasting model

4.5

Preparation of the demo projects

4.6 Piloting ML prevention and mitigation measures











MARINE LITTER MONITORING



Plastic Busters MPAs: *Harmonized Diagnosis in Biota*

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Piloting ML prevention and mitigation measures



MARINE LITTER IMPACTS ON BIOTA



Bioindicator selection in relation to habitat/home range



Plastic Busters MPAs: *Three Fold Monitoring Approach in Biota*



Plastic Busters MPAs:

Main findings expected by the application of the PBMPAs approach are...

- ✓ **DIAGNOSTIC PHASE**: development of effective methodologies to **diagnose the marine litter** (including microplastics) **presence and impacts on biodiversity** inhabiting Mediterranean MPAs (Deliv. 3.3.1), including the identification of Marine Litter hotspots (Deliv. 3.5.1).
- ✓ **MITIGATION PHASE**: development of efficient tailor-made surveillance, prevention and mitigation measures in Med MPAs (Deliv.3.6.1) designed according to the diagnostic actions carried out during the monitoring phase. Identification of a series of measures to prevent and mitigate the impacts of marine litter in the hotspot areas, while capitalizing on previous projects results (e.g. Interreg MED ACT4LITTER, MEDSEALITTER, DG-ENV INDICIT, IPA-Adriatic DeFishGear, etc.).



Plastic Busters MPAs activities in MPAs **Risk Assessment - From Diagnosis to Mitigations**



WP4 -Testing

De Cabrera (SP)

Pelagos Sanctuary (IT,FR,MC)

•Zakynthos National Marine Park (GR)

Karaburun-Sazan MPA (AL)

Capo Milazzo MPA (IT)

Brijuni National Park(HR)

Parque Nacional Del Archipiélago

Tuscan Archipelago (IT)

WP5 – Transferring



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MPAs

From Diagnosis to Mitigation: the PB MPAs Mitigation Measures

FRANCE - Pelagos Sanctuary

GREECE - National Marine Park of Zakynthos

GREECE - Thermaikos Gulf Protected Areas

ITALY - Miramare MPA

ITALY - Pelagos Sanctuary

ITALY - Tuscan Archipelago National Park

SLOVENIA - Strunjan Landscape Park

SPAIN - Cabo de Gata-Níjar Natural Park-UNESCO Global Geopark

SPAIN - Cabrera Archipelago Maritime-Terrestrial National Park

SPAIN - Natural Park of Ebro Delta

CROATIA – Brijuni National Park

ALBANIA – Karaburun Sazan MPA

TESTING PHASE

TRANSFERRING PHASE

Photo © Thomais Vlachogianni

Plastic Busters MPAs: MPAs Tipology

The monitoring methodologies described in this training have been developed to be tailor-made according to the **extension of the Marine Protected Areas** to be monitored. Whenever necessary, these methodologies have been described for each of the three types of protected areas completed in the project:

✓ Small scale MPAs: Cabrera, Zakynthos

✓ Medium scale MPAs: Tuscan Archipelago

✓ Large pelagic and coastal areas (SPAMI, EBSA): SPAMI Pelagos Sanctuary

The end goal is to **develop a monitoring strategy**, which could be adapted to other Mediterranean MPAs on the basis of their extension and characteristics – including MPAs/SPAMIs (Specially Protected Areas of Mediterranean) and EBSAs (Ecological or Biologically Significant Areas) – during the transferring phase of the project.





Plastic Busters MPAs:

Joint strategy for monitoring marine litter and its impact on biodiversity in Mediterranean MPAs & selected monitoring methodologies



The harmonized monitoring protocols are described in detail in the thematic chapters subdivided in the following methodological sections:

a. SURVEY DESIGN: this section describes how the survey will be planned in the different MPAs according to MPAs extension

b. **SAMPLING METHODOLOGY**: this section describes how the sampling should be performed in all the environmental compartments as well as biota and the methodologies to be used

c. SAMPLE PROCESSING METHODOLOGY: this section describes how the samples should be processed and how data should be analysed and reported.





Plastic Busters MPAs:

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Synergy

Joint strategy for monitoring marine litter and its impact on biodiversity

SYNERGY BETWEEN MPA MANAGERS AND RESEARCHERS



ECTED AREAS

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Plastic Busters MPAs: Toolkit



MONITORING MACRO-AND MICROLITTER IN THE ENVIRONMENT



MONITORING MACRO-AND MICROLITTER IN BIOTA





Plastic Busters MPAs: Toolkit – Supporting documents





Monitoring MACROLITTER on beaches



Monitoring MICROLITTER in beaches sediments



3. Methodology for monitoring MICROLITTER in beach

sediments

This document describes the methodological approach for monitoring microlitter on beaches. It has been compiled based on the related methodologies developed within the IPA-Adriatic DeFishGear project and the JPI-Oceans BASEMAN project and it has been adapted within the framework of the Interreg Med PlasticBusters MPAs project to address the recent advances in the field.

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Monitoring MACRO-LITTER on sea-surface



5. Methodology for monitoring MACROLITTER on the sea-surface with visual observation by small- and medium-sized vessels

This document describes the methodological approach for monitoring macrolitter on the sea surface. It has been compiled based on the related methodologies developed within the IPA-Adriatic DeFishGear and the Interreg Med MEDSEALITTER projects and it has been adapted within the framework of the Interreg Med PlasticBusters MPAs project to address the recent advances in the field.

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Monitoring MICROLITTER on sea-surface







6. Methodology for monitoring MICROLITTER on the seasurface using manta net tows

This document describes the methodological approach for monitoring microlitter on the sea surface. It has been compiled based on the related methodologies developed within the IPA-Adriatic DeFishGear project as well as other EU projects and the scientific literature, and it has been adapted within the framework of the Interreg Med PlasticBusters MPAs project to address the recent advances in the field.

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Monitoring MACROLITTER on the seafloor with <u>scuba</u> and ROV



Presented by UNISI





8. Methodology for monitoring MACROLITTER on the seafloor with visual surveys with scuba/snorkeling (shallow coastal waters, 0–30m)

This document describes the methodological approach for monitoring macrolitter on the seafloor. It has been compiled based on the related methodology developed within the IPA-Adriatic DeFishGear and it has been adapted within the framework of the Interreg Med PlasticBusters MPAs project to address the recent advances in the field.

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Monitoring MACRO and MICROLITTER in BIOTA: INVERTEBRATE





stion Filtration Microscopy FTIR







10. Methodology for monitoring MACROLITTER and MICROLITTER ingestion in biota: invertebrates

This document describes the methodological approach for monitoring macrolitter and microlitter ingestion in invertebrates. It has been compiled based on the related methodologies developed within the IPA-Adriatic DeFishGear project and the Interreg Med MEDSEALITTER project, and it has been adapted within the framework of the Interreg Med PlasticBusters MPAs project to address the recent advances in the field.

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Monitoring MACRO and MICROLITTER in BIOTA: FISH









11. Methodology for monitoring MACROLITTER and MICROLITTER ingestion in biota: fish

This document describes the methodological approach for monitoring macrolitter and microliter ingestion in fish species. It has been compiled based on the related methodologies developed within the IPA-Adriatic DeFishGear project and the Interreg Med MEDSEALITTER project, and it has been adapted within the framework of the Interreg Med PlasticBusters MPAs project to address the recent advances in the field.

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Monitoring MACRO and MICROLITTER in BIOTA: ENDANGERED SPECIES

Presented by UNISI









This document describes the methodological approach for monitoring macrolitter and microliter ingestion in sea turtles. It has been compiled building on the methodologies developed within the EUfunded INDICIT I project and the marine litter monitoring guidance documents of the MSFD TG10 and UNEP/MAP and it has been adapted within the framework of the Interreg Med PlasticBusters MPAs project to address the recent advances in the field.

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Plastic Busters MPAs:

An approach for monitoring marine litter ingestion and impact in Mediterranean biota







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Plastic Busters MPAs: MPA scale

The monitoring methodologies described in this training have been developed to be tailor-made according to the **extension of the Marine Protected Areas to be monitored.** Whenever necessary, these methodologies have been described for each of the three types of protected areas completed in the project:





✓ Large pelagic (SPAMI, EBSA): SPAMI Pelagos Sanctuary





Monitoring activities in <u>small scale MPAs</u>: **Contemporation Contemporation C**











Monitoring activities in <u>Medium scale MPAs</u>: Tuscan Archipelago National Park











PLASTIC BUSTERS

MPAs



Monitoring activities in <u>Large pelagic and</u> ^A <u>coastal areas</u>: SPAMI - *Pelagos Sanctuary*







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