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First Capitalisation Workshop

*Designing the future system of observing systems to assess and address threats to the Mediterranean marine ecosystem
- State-of-the-art, needs and future direction*

Webinar: 14-15th December, 2020

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**PLASTIC BUSTERS
MPAs**

Project co-financed by the European
Regional Development Fund

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Plastic Busters MPAs

GEOGRAPHIC EXTENSION: MEDITERRANEAN BASIN

INTEGRATED PROJECT

Project coordinator: ISPRA

Scientific coordinator: University of Siena



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

5.055 M €
PROJECT BUDGET

4.296 M €
ERDF / IPA

48 Months
PROJECT DURATION



Plastic Busters MPAs general objectives

Whole Management Cycle Of Marine Litter

PLASTIC BUSTERS MPAS ADDRESSES THE ENTIRE 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.

Plastic Busters MPAs activities in MPAs

Risk Assessment - From Diagnosis to Mitigations



WP4 -Testing

- Pelagos Sanctuary (IT,FR,MC)
- Tuscan Archipelago (IT)
- Zakynthos National Marine Park (GR)
- Parque Nacional Del Archipiélago De Cabrera (SP)

WP5-Transferring

- Reserve Naturelle des Bouches de Bonifacio (FR)
- Parc National de Port-Cros (FR)
- Pelagie Islands MPA (IT)
- Res-Lošinj MPA (HR)
- Sazan-Karaburun (AL)



Diagnosis



Mitigations

Plastic Busters MPAs: Harmonized Diagnosis in Biota

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



i) Plastic detection



Analysis of the ingested marine litter/microplastics:

- Occurrence (%)
- Abundance (n°)
- Weight (g)
- Polymer analysis

ii) Plastic tracers detection



Analysis of plastic additives:

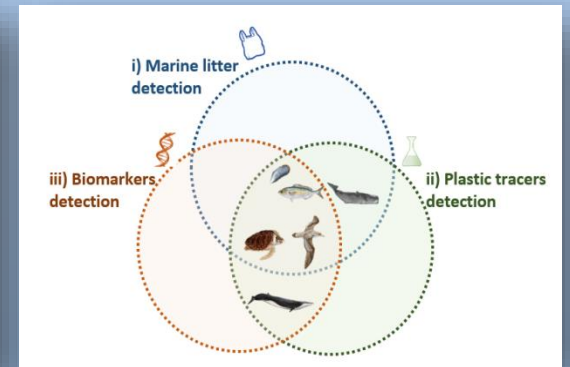
- Phthalates
 - PBDEs
 - Bisphenol A
- Analysis of PBT compounds:
- PCBs
 - DDTs
 - PAHs
 - Mercury

iii) Biomarkers detection



Effects at molecular level:

- Measure of DNA damage
 - Alterations of gene expression
 - Alteration of proteins
- Effects at cellular level:
- Alteration of cell functions
- Effects at tissue level:
- Histological and histopathological alterations



MARINE LITTER IMPACTS ON BIOTA

Plastic Busters MPAs: Three Fold Monitoring Approach in Biota

Commercially harvested species



Endangered species



i) Plastic detection

- Analysis of the ingested marine litter/microplastics:
 - Occurrence (%)
 - Abundance (n^o)
 - Weight (g)
 - Polymer analysis

ii) Plastic tracers detection

- Analysis of plastic additives:
 - Phthalates
 - PBDEs
 - Bisphenol A
- Analysis of PBT compounds:
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iii) Biomarkers detection

- Effects at molecular level:
 - Measure of DNA damage
 - Alterations of gene expression
 - Alteration of proteins
- Effects at cellular level:
 - Alteration of cell functions
- Effects at tissue level:
 - Hystological and hystopathological alterations



Plastic Busters MPAs: PILOTING ML PREVENTION AND MEASURES



Best practices for tourism and recreation

Solid waste management practices

Replacement of single-use plastics

Banning specific items and activities

Awareness raising campaigns

Port reception facilities

Upcycling and/or recycling

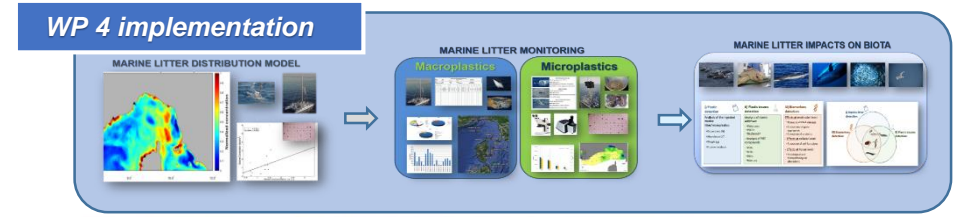
Extended producer responsibility schemes

Fishing for litter

Derelict fishing gear management schemes

Plastic Busters MPAs: Transferring

- ✓ Within this activity the studied and tested monitoring approaches for ML under **WP3 and WP4** will be converted into **protocols** that will ensure the successful the **replication of the harmonized ML surveillance methods** by a wider set of users and territories.
- ✓ These protocols will be written in a **clear and concise way**.
- ✓ The monitoring protocols will guarantee the **transferability of the project knowledge in an easily and quickly accessible way** meeting the needs of the target groups such as MPA managers, academia, NGOs, other ML monitoring practitioners.

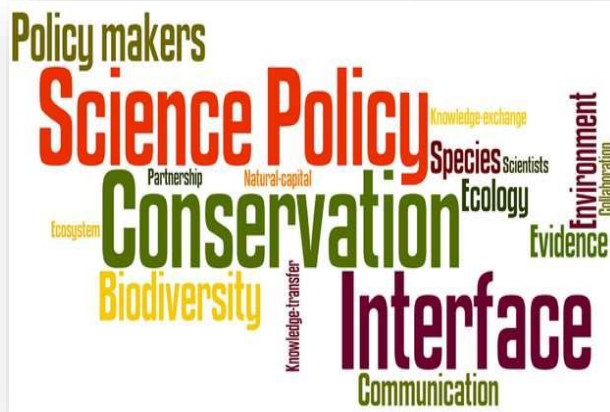


Plastic Busters MPAs: Transferring, Capitalizing and Governance



Plastic Busters MPAs tackles one of the main challenges of our era and one of the main challenges of all science-policy-society projects which is to bridge the gap between science, policy and society and connect the information production and knowledge generation to its use in the decision making process at different levels.

The project will support the **implementation** of the **MSFD** and the **Barcelona Convention Regional Plan on Marine Litter Management** in the Med.



Plastic Busters on basin scale:

Transferring/Capitalizing of the Plastic Busters MPAs



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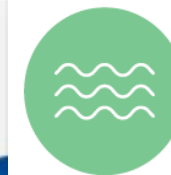
ENI
CBCMED
Cooperating across borders
in the Mediterranean

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Marine Protected Areas

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COMMON

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Thanks !

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