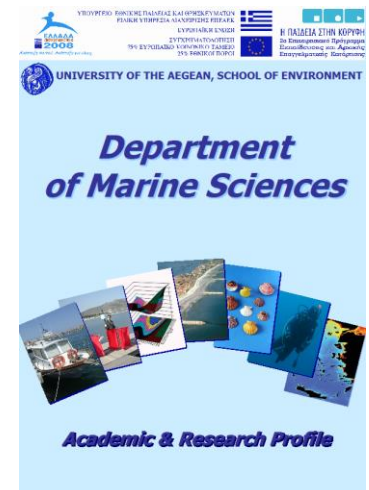
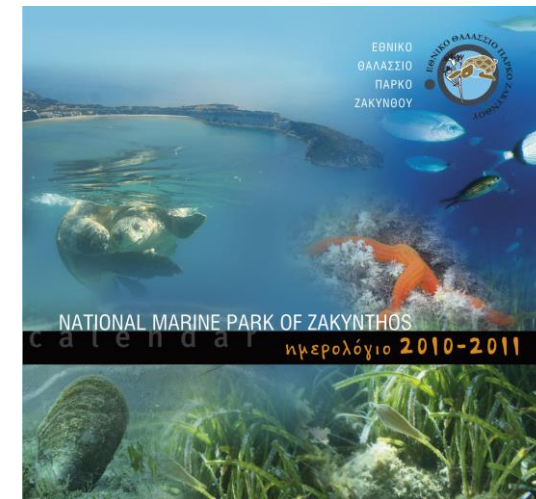


Ecosystem Based Approaches: Benefits for People and Nature

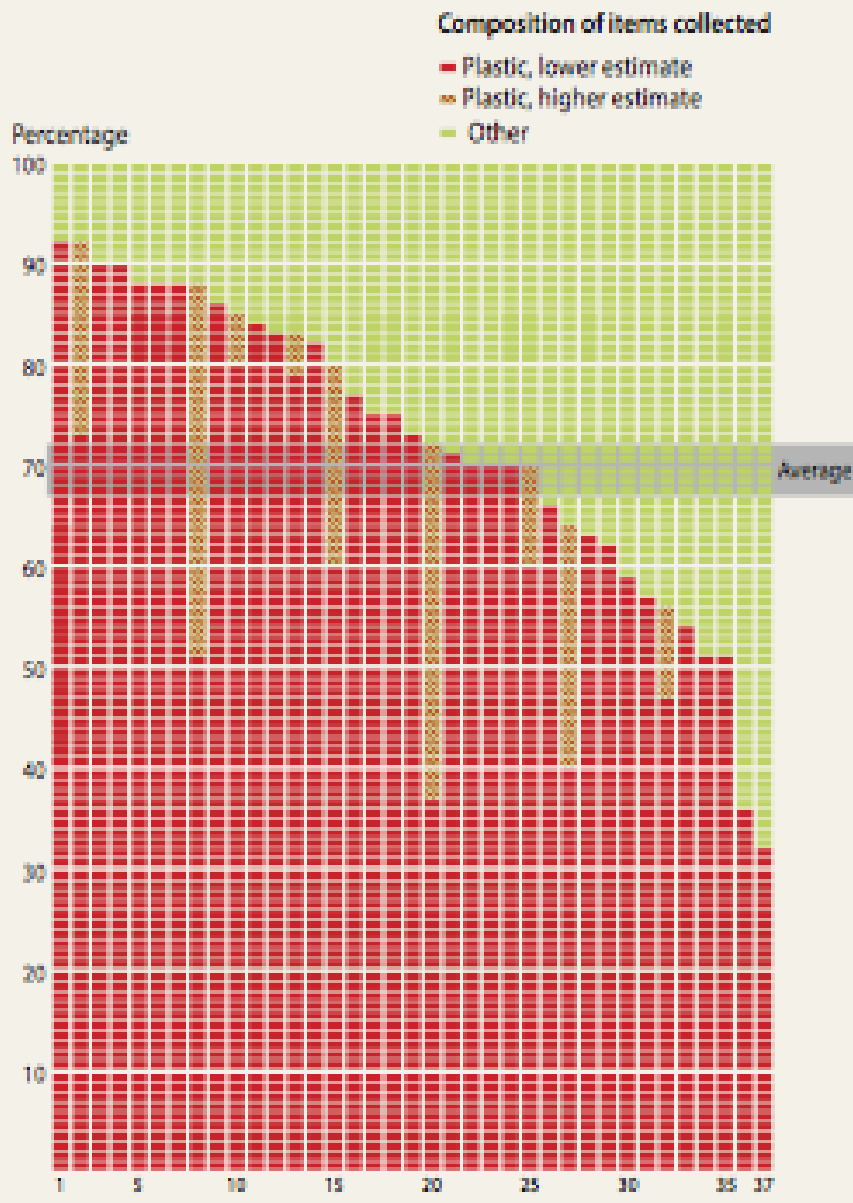
PLASTIC BUSTERS MPAs: Holistic approach to preserve Biodiversity from Plastics in Mediterranean MPAs

DROSOS KOUTSOUBAS

University of the Aegean/National Marine Park of Zakynthos PLASTIC BUSTERS MPAs – Preserving Biodiversity from plastics in Mediterranean MPAs



Mostly plastic



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IMPACTS

Plasticized animal species - Ingestion

Number of species with documented records of marine debris ingestion



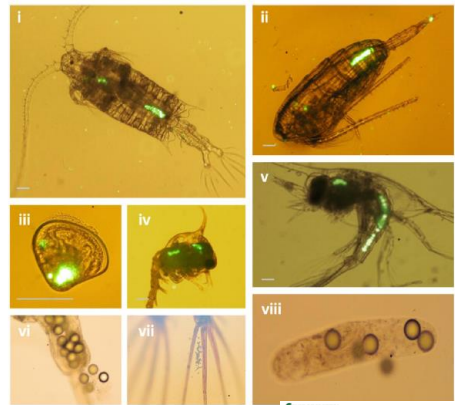
Source: Kühn, S., et al., Deleterious Effects of Litter on Marine Life, in Bergmann, M., et al., Marine Anthropogenic Litter, Springer, 2015

Plasticized animal species - Entangled

Number of species with documented records of entanglement in marine debris

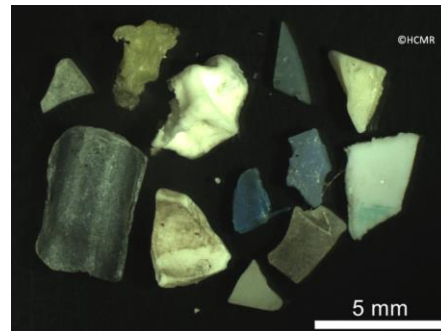
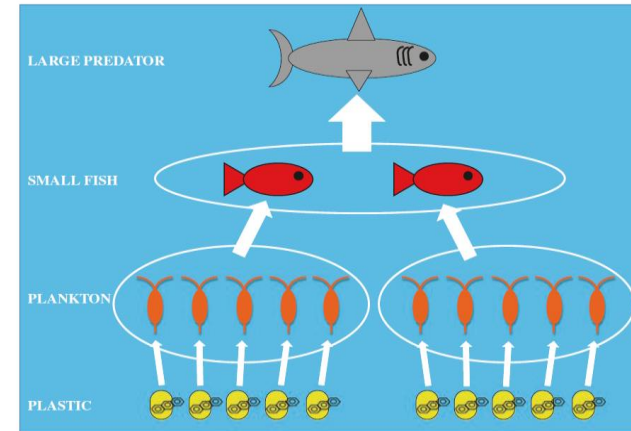


Source: Kühn, S., et al., Deleterious Effects of Litter on Marine Life, in Bergmann, M., et al., Marine Anthropogenic Litter, Springer, 2015



IMPACTS – Microplastics < 5mm

- Links to human health**
- Fish and mussels consumed by humans
 - Ingested microplastics may transport chemicals
 - Potential biomagnification of microplastic transported chemicals up the food chain



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The Challenges

- **The Mediterranean Sea** is one of the areas **most affected** by **Marine Litter (ML)** in the world.
- **The impacts of Marine Litter on marine biota** within MPAs, including endangered species, **remain poorly addressed**
- **Prevention and mitigation measures** are **urgently needed**

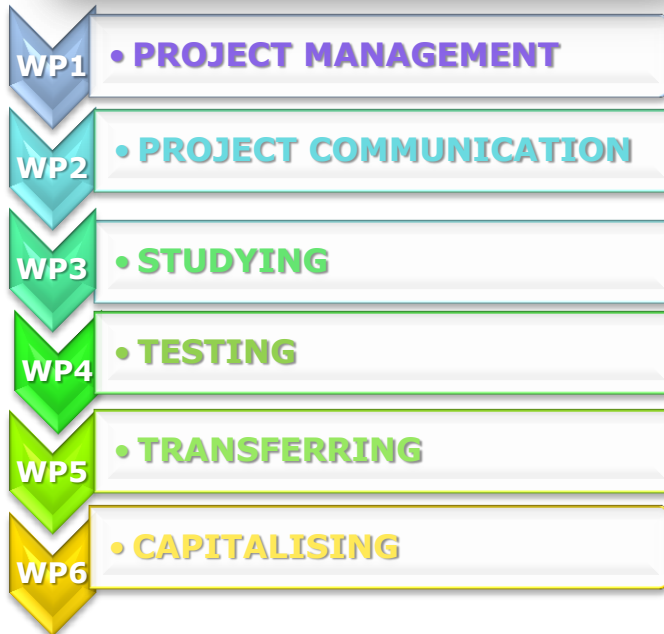
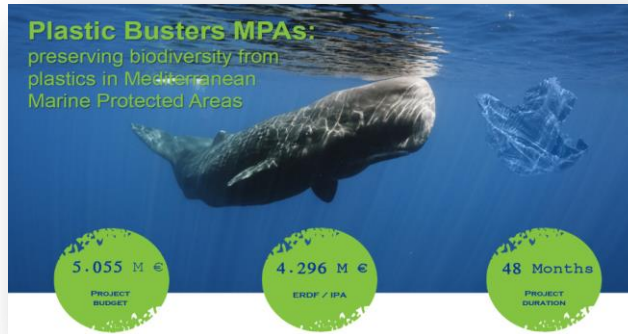
Overall PLASTIC BUSTERS MPAs Project (2018-2022) Objective

- To contribute to **maintaining Biodiversity and preserving Natural Ecosystems in Mediterranean Pelagic and Coastal MPAs**, by defining and implementing a **harmonized approach** against **Marine Litter**

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MAIN FOCUS



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Regional Development Fund

The **main objectives** of the **PLASTIC BUSTERS MPAs** Project will be achieved through a **multidisciplinary** and **integrated** approach (already developed and tested partially in the previous **PLASTIC BUSTERS UfM** Project) that **focuses on:**

- A. **Defining harmonized Methodologies** at Regional and National level for **ML** monitoring in **Mediterranean MPAs**
 - B. **Identifying ML Hotspots** such as ‘gyres’ and ‘fronts’ in the **MPAs**, where **ML** accumulates and **Marine Species** live and feed
 - C. **Assessing the impact of ML** on biodiversity in **MPAs**
 - D. **Implementing ML** prevention and mitigation measures
 - E. **Setting up a joint Governance Plan** for managing **ML** in Pelagic and Coastal Med **MPAs**.
- The Project will also **capitalize on results and outputs delivered by relevant Initiatives and Projects**.
- The Project will support the **implementation** of the **MSFD** and the **Barcelona Convention Regional Plan on Marine Litter Management** in the Med.

RESULTS & FINDINGS

- 1. Quantitative and qualitative diagnosis of the impacts of Marine Litter in Med MPAs and on marine biodiversity:** in order to contribute to the increase of MPAs meeting their conservation goals and objectives, via the reduction of the anthropogenic impacts of ML it is essential to diagnose the **extent and nature of the impact**.
- 2. Enhanced protection of biodiversity and ecosystems in Pelagic and Coastal MPAs through targeted prevention and mitigation actions:** based on the diagnostic analysis of the extent and nature of the impact of ML, tailored-made measures will be defined and implemented to reduce the ML pressure and associated risks in the 47% (Pelagic and Coastal 9256130 ha) of Med SPAMI and MPAs.
- 3. Accelerated knowledge transfer to Med MPAs and scaling-up of best practices to tackle ML through enhanced institutional uptake of Project results:** the Project will improve the share of Protected Areas which meet their conservation goals concerning Marine Litter

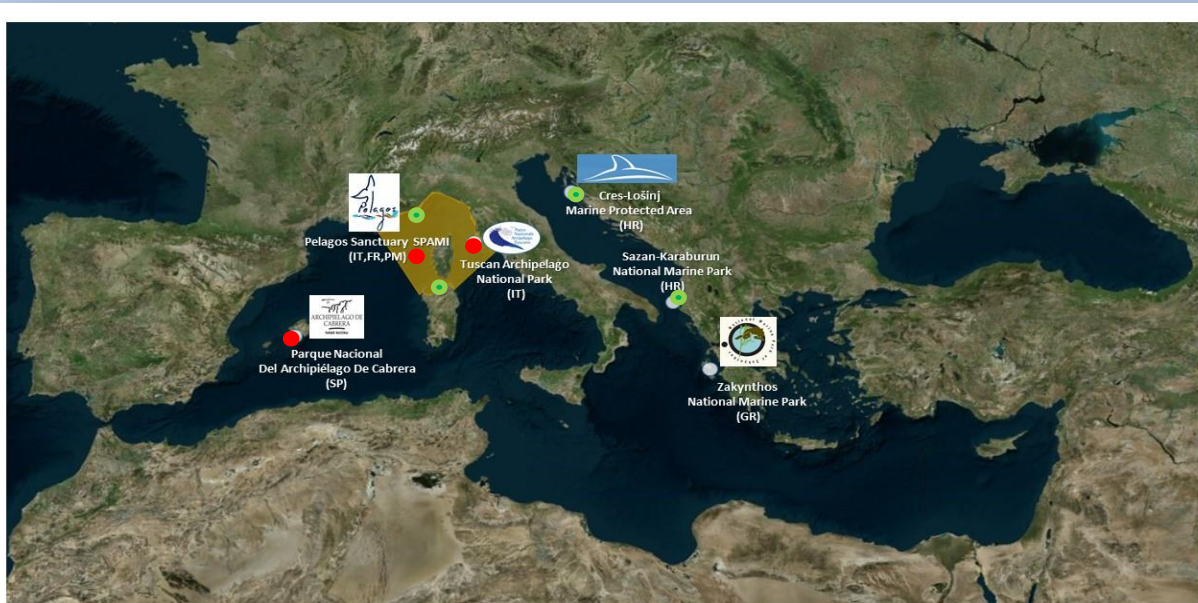
WP4 -Testing

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

WP5-Transferring

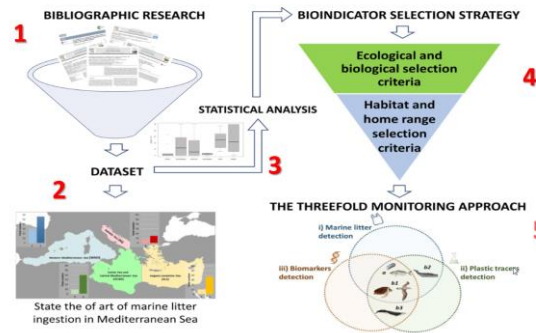
- Reserve Naturelle des Bouches de Bonifacio (FR)
- Parc National de Port-Cros (FR)
- Pelagie Islands MPA (IT)
- Res-Lošinj MPA (HR)
- Sazan-Karaburun (AL)
- 5 other MPAs

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RESULTS & FINDINGS

Identification of marine litter bioindicators



Environmental Pollution
 Contents lists available at ScienceDirect
 Environmental Pollution
 Journal homepage: www.elsevier.com/locate/envpol
 Bioindicators for monitoring marine litter ingestion and its impacts on Mediterranean biodiversity
 Maria Cristina Fossi ^{a,b}, Cristina Peda ^a, Montserrat Compa ^a, Catherine Tsangaris ^a, Carme Alomar ^a, Françoise Claro ^a, Christos Ioakeimidis ^a, Francisco Gálvez ^a, Tatjana Hema ^a, Salud Deudero ^a, Teresa Romeo ^a, Pietro Battaglia ^a, Franco Andaloro ^a, Ilaria Callani ^{a,b}, Silvia Casini ^{a,b}, Cristina Panti ^{a,b,c}, Matteo Baiati ^{a,b}

DIAGNOSIS

- Piloting harmonized ML monitoring in Med MPAs to assess ML (macro- and micro-plastics) in the Coastal and Pelagic environment
- Piloting harmonized ML monitoring approaches in Med MPAs and hotspots to establish the **impacts on biota**, including endangered species and fishery resources
- Testing the ML Forecasting Model

MARINE LITTER DISTRIBUTION MODEL

MARINE LITTER MONITORING

Macroplastics

Microplastics

MARINE LITTER IMPACTS ON BIOTA

MITIGATION

- Preparation of the ML Demo Projects
- Piloting ML Prevention and Mitigation measures

RISK ASSESSMENT

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RESULTS & FINDINGS

WP5-Transferring

WP: TRANSFERING

5.3 Capacity building and training on how to apply harmonized ML monitoring approaches

5.4 Capacity building and training on how to implement selected ML measures in Med MPAs

5.5. Technical support for transferring the Plastic Busters tested approaches in 10 Med MPAs

TARGET GROUP

- MPAs Managers
- Local Public Authorities
- Regional Public Authority
- National Public Authority
- Interest groups including NGOs
- Higher Education and Research
- Business Support Organisation
- International Organisation, EEIG

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- Event targeted to **MPAs managers, Academia, NGOs** on how to **carry out ML surveillance**
- Event targeted to **Decision makers, Competent Authorities, NGOs** to design an effective **monitoring programme** within the **MSFD** and **Barcelona Convention Frameworks**
- e-learning module: the **distance learning module** will be dedicated to selected **ML Monitoring Approach tested** within the Project. It will serve as an effective knowledge tool to **enhance the skills of the target groups** towards **replicating the Project** piloted actions.

POLICY CONTRIBUTION



The Project 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.

- Contribution to the key Legislative frameworks related to ML: EU MSFD and Barcelona Convention Regional Plan on Marine Litter in the Mediterranean
- Building synergies with relevant Projects, Initiatives and Processes taking place in the Med on ML
- Contributing to the uptake of **Prevention and Mitigation measures** by National Programs of measure of the Partner Countries
- To promote the implementation a **joint Governance** scheme with regard to ML management in Med MPAs
- The **joint Governance Plan** will provide a common framework for ML actions for Med MPAs and decision makers at Local, National and Regional level



Thanks you for your attention



Coordinator: Italian National Institute for Environmental Protection and Research, Italy
Scientific coordinator: University of Siena , Italy
 Corsican Agency For Environment, France
 Regional Government of the Balearic Islands, Spain
 Management Agency of Zakynthos National Marine Park, Greece
 Tuscan Archipelago National Park, Italy
 Mediterranean Information Office for Environment, Culture and Sustainable Development, Greece
 Spanish Oceanographic Institute, Spain
 Hellenic Centre for Marine Research, Greece
 French Research Institute for Exploitation of the Sea, France
 Catalan Waste Agency, Spain
 Hellenic Ministry of Environment and Energy, Greece
 Albanian Ministry of Environment, Albania
 Ministry of Environmental and Nature Protection of Croatia, Croatia
 University of Split, Croatia, and 15 associated partners



Plastic Busters MPAs:
 Preserving Biodiversity from plastics in Mediterranean marine protected area

For further information please contact: www.biodiversity-protection.interreg-med.eu

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The MED Biodiversity Protection Community is featured by PANACeA

