Plastic Busters MPAs Final Conference
Athens, 12-13 April 2022

THE PLASTIC BUSTERS MPAs CONCERTED ACTIONS TO SLASH MARINE LITTER POLLUTION IN THE MEDITERRANEAN: **AN OVERVIEW**

Prof. Maria Cristina Fossi
Biomarker Laboratory,
University of Siena, Italy
fossi@unisi.it

&

Dr. Thomais Vlachogianni
Senior Programme/Policy Officer
MIO-ECSDE
vlachogianni@mio-ecsde.org

UNIVERSITÀ DI SIENA 1240

Mediterranean

MIO-ECSDE

Interreg Mediterranean

PLASTIC BUSTERS MPAs

WHY THE PLASTIC BUSTERS INITIATIVE?

PLASTIC BUSTERS AT MEDITERRANEAN BASIN LEVEL

A crucial aspect of the marine litter issue, underlined by the **Barcelona Convention within the Regional Plan for Marine Litter** (Istanbul 2013) is that: "Marine pollution knows no border, pollution in one country affects all other 21 countries, hence there is a need for a regional approach".

Plastic Busters is the first project at basin scale that binds the Southern and Northern Mediterranean countries on the issue of Marine Litter under the umbrella of UNEP/MAP and UfM, with 10 countries already involved in the project and 12 countries endorsing the project.

Diagnosis of the problem to identified specific solutions

- Impact on Biodiversity?
- Impact on Fisheries?
- Identification of Hot spot areas?
- Impact on Human?

Project coordinator
Maria Cristina Fossi
Biomarker Laboratory, University of Siena, Italy

SDSN-MED
Flagship project

Mediterranean

ONU

UfM Labelling

Union for the Mediterranean
Union pour la Méditerranée
الإتحاد من أجل المتوسط

MED-Interreg

ENI -CBC

COMMON

AdriCleanFish

2013 **2016** **2018** **2019-2020**

PLASTIC BUSTERS AT MEDITERRANEAN BASIN SCALE

TRANSFERING/CAPITALIZATION OF PLASTIC BUSTERS MPAs

Union for the Mediterranean
Union pour la Méditerranée
الإتحاد من أجل المتوسط

COMMON

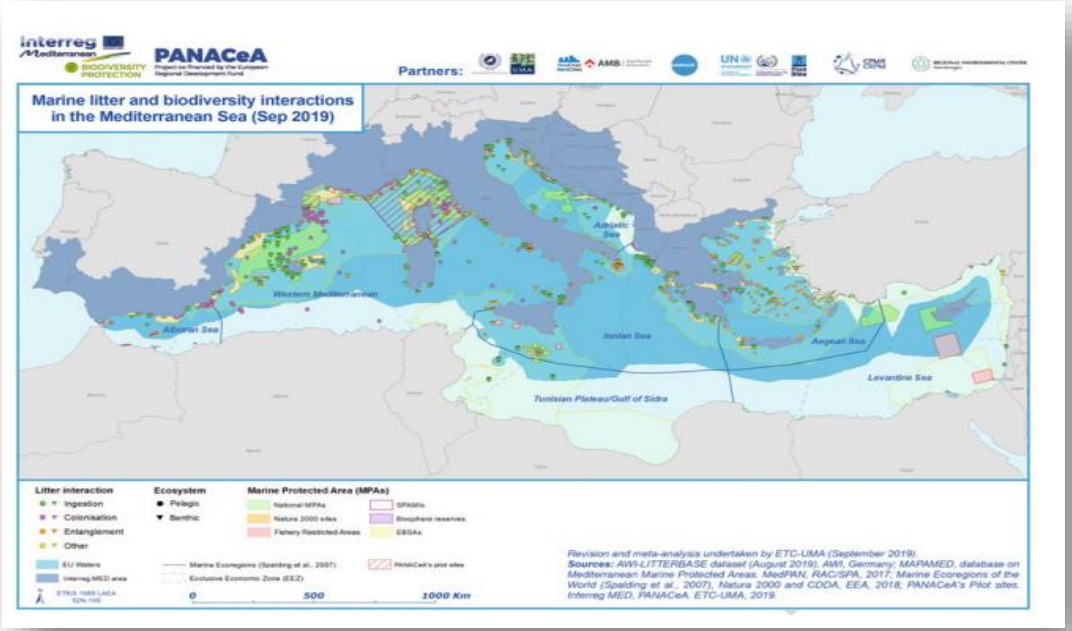
NEW

Water and Environment Support

Plastic Busters CAP

Interreg Mediterranean
PLASTIC BUSTERS MPAs

THE IMPACT OF MARINE LITTER IN MEDITERRANEAN MPAs

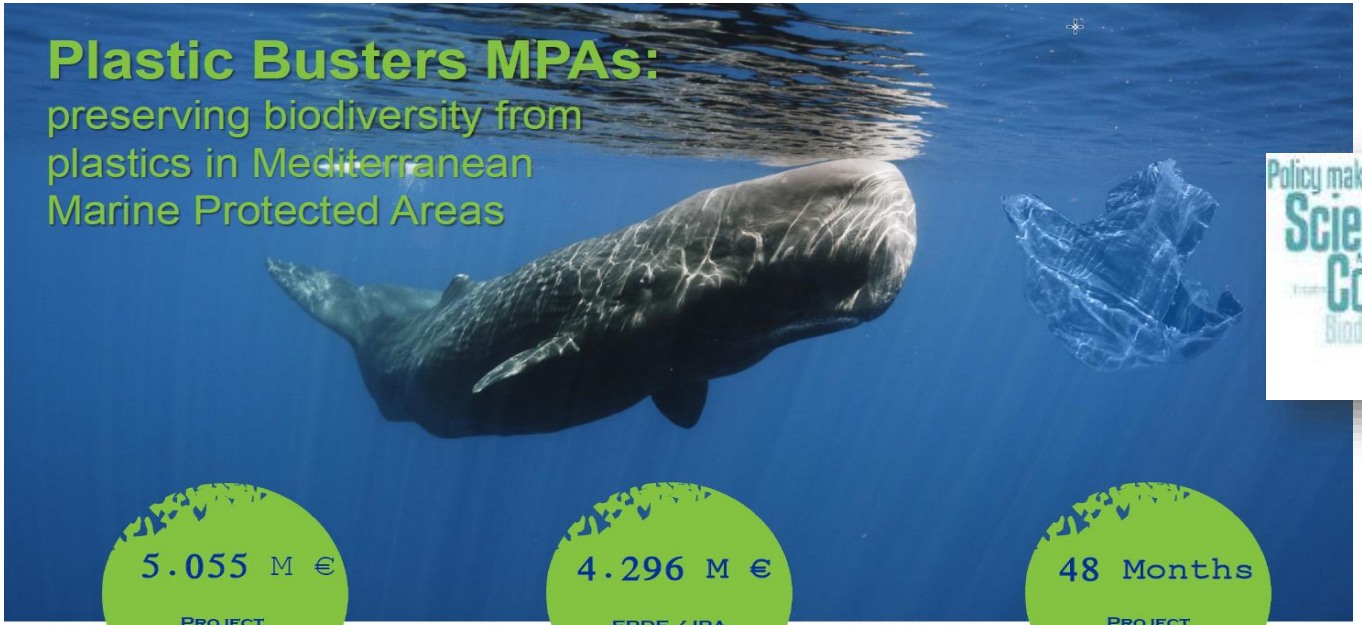


The Impact of Marine Litter in Marine Protected Areas (MPAs) in the Mediterranean Sea: How Can We Protect MPAs?

Maria Cristina Fossi and Cristina Panti

The Mediterranean 1231 MPAs and OECMs (Other Effective area- based Conservation Measures) cover 2,516,900 km^2 and cover 7.14% of the Mediterranean sea. Many of these areas are heavily subjected to the marine litter pressure.

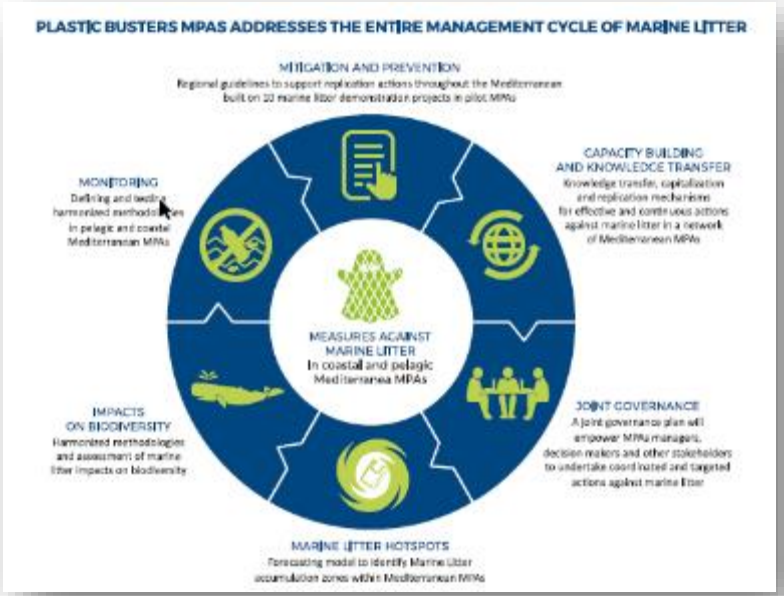
THE PLASTIC BUSTERS MPAs IN A NUTSHELL



Interreg Mediterranean
PLASTIC BUSTERS MPAs

THE PLASTIC BUSTERS MPAs OBJECTIVES

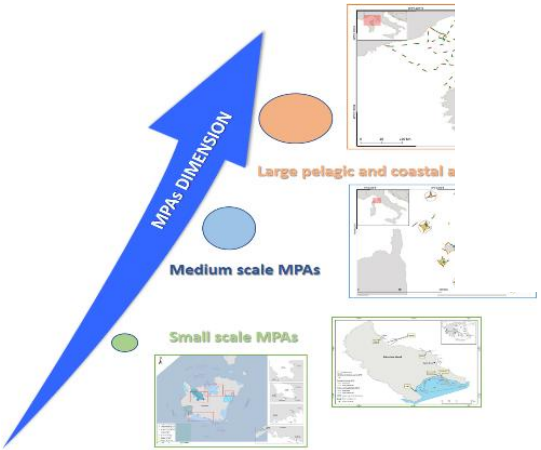
NOVELTY – ENTIRE MANAGEMENT CYCLE OF MARINE LITTER

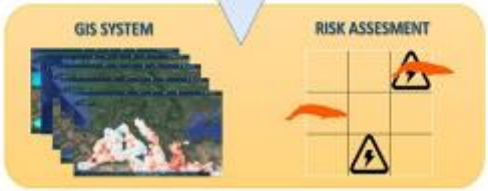


- **Plastic Busters MPAs**, is a 4-year-long project Interreg Mediterranean funded project aiming to contribute to **maintaining biodiversity and preserving natural ecosystems** in pelagic and coastal MPAs, by defining and implementing a **harmonized approach against marine litter**.
- The project entails actions that address the **ENTIRE 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 supports the **implementation** of the **MSFD** and the Barcelona Convention **Regional Plan for Marine Litter** Management in the Mediterranean.

PLASTIC BUSTERS MPAS ACTIVITIES IN MPAS

NOVELTY – RISK ASSESSMENT - FROM DIAGNOSIS TO MITIGATION





Diagnosis → ***Prevention & Mitigation***

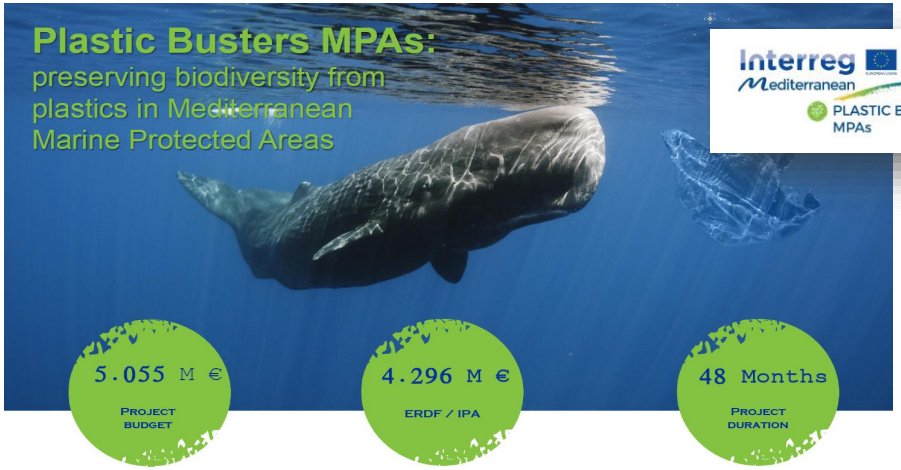
The Mediterranean lighthouse

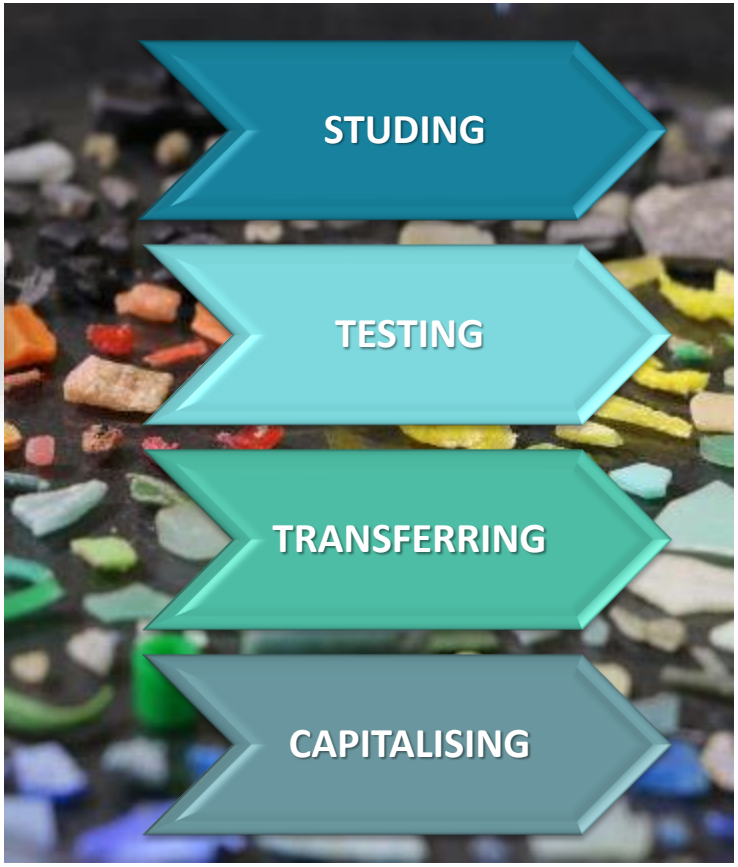
Objective: **preventing and eliminating pollution of our ocean, seas and waters.**

Targets:

- Reduce by at least **50%** plastic litter at sea.
- Reduce by at least **30%** microplastics released into the environment.

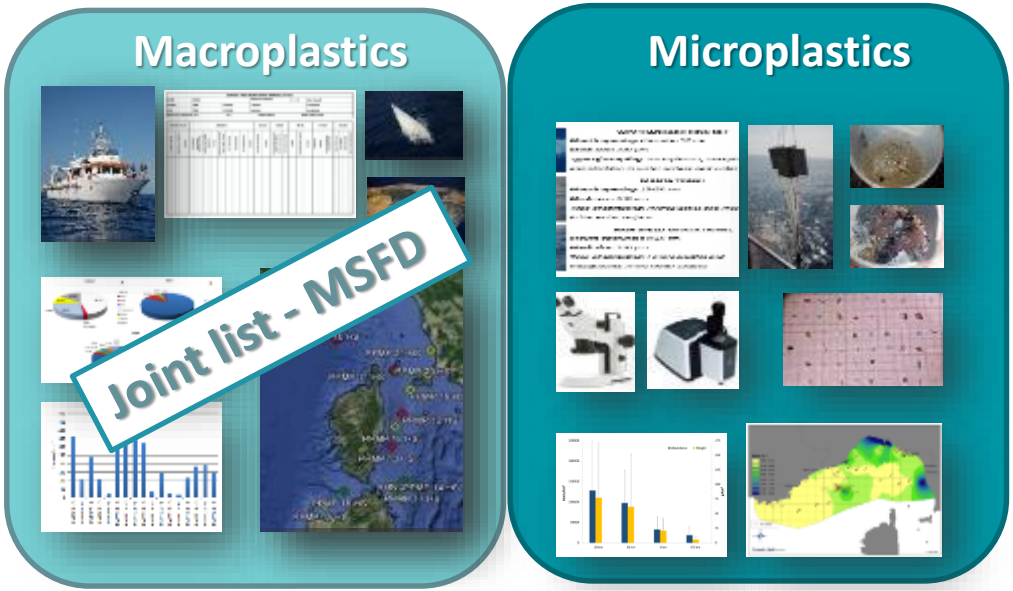
THE PLASTIC BUSTERS MPAs MAIN LINES OF ACTION





NOVELTY - HARMONIZED DIAGNOSIS OF MARINE LITTER IN COASTAL & MARINE ENVIRONMENT

THE TESTING PHASE
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
Preparation of the demo projects
Piloting ML prevention and mitigation measures



Interreg Mediterranean
PLASTIC BUSTERS MPAs

THE PLASTIC BUSTERS MPAs MONITORING APPROACH

The monitoring methodologies applied were tailor-made according to the **scale of the MPAs**

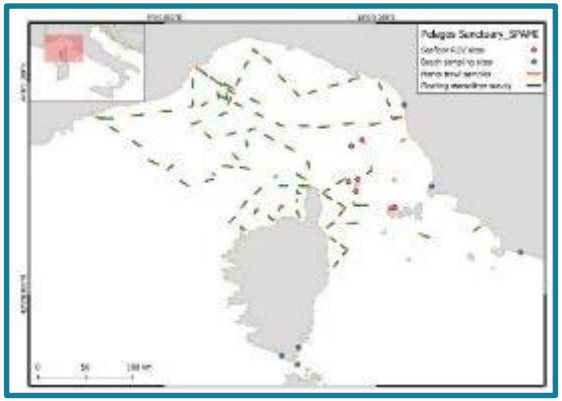
- ✓ **Small scale MPAs: Cabrera, Zakynthos**
- ✓ **Medium scale MPAs: Tuscan Archipelago**
- ✓ **Large pelagic (SPAMI, EBSA): SPAMI Pelagos Sanctuary**

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

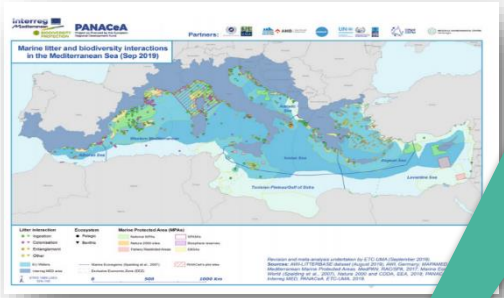
Medium scale MPAs: Tuscan Archipelago National Park

Small scale MPAs: Cabrera, National Park, Zakynthos National Park

MPAs DIMENSION



Large pelagic and coastal areas - SPAMI

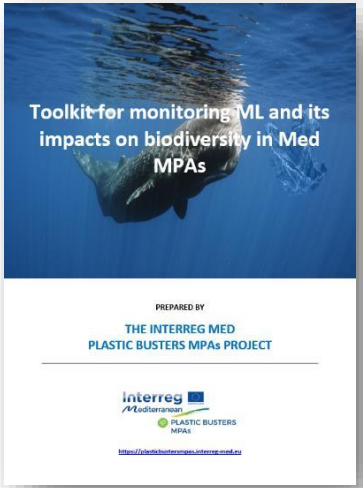


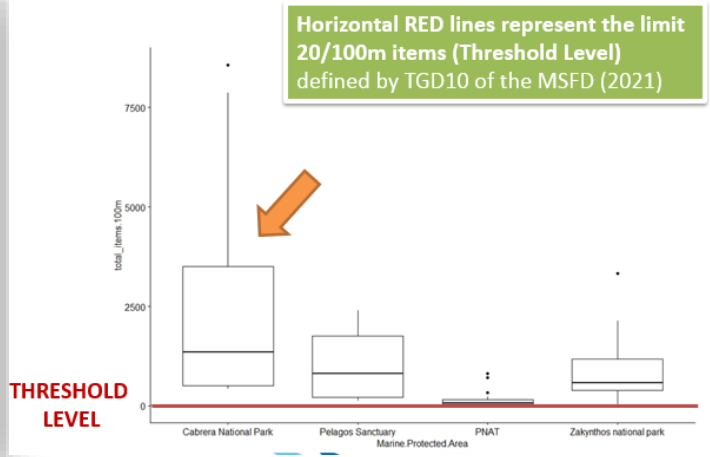
Medium scale MPAs

Small scale MPAs

THE PLASTIC BUSTERS MPAs MONITORING EFFORT IN THE 4 MPAs

TYPE OF SAMPLE/SURVEY	N°
Floating macrolitter	314
Floating microlitter	213
Beach macrolitter	135
Beach microlitter	810
Seafloor sediment	51
Seafloor macrolitter	51
ROV	7

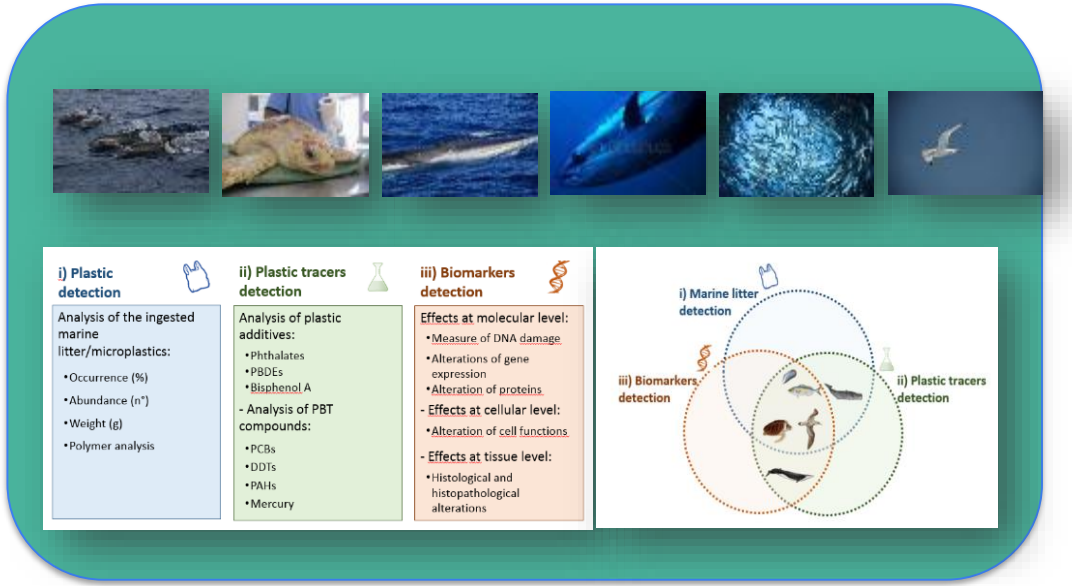




1530 Samples/Surveys!

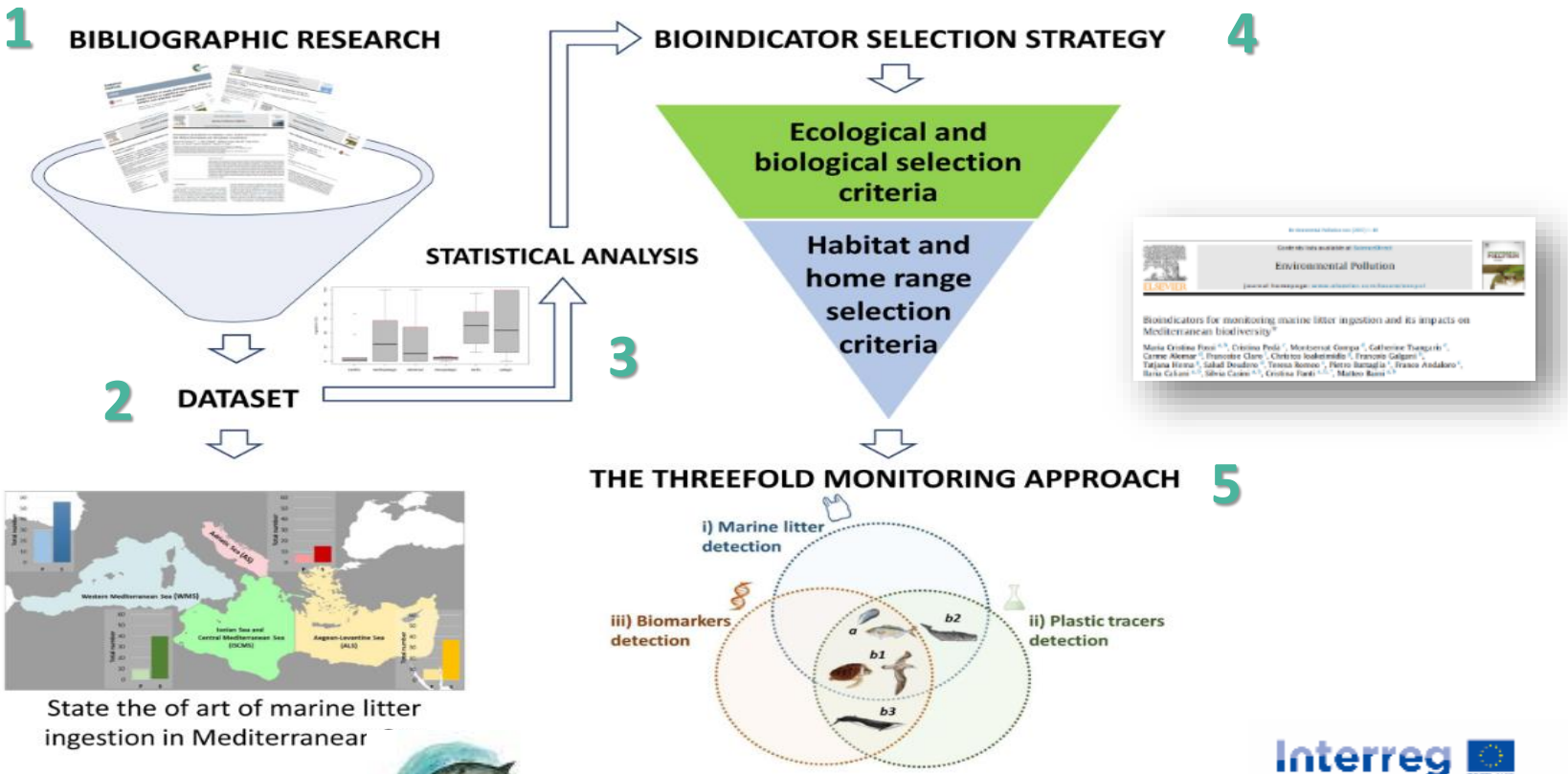
NOVELTY - HARMONIZED DIAGNOSIS OF MARINE LITTER IN BIOTA

THE TESTING PHASE
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
Preparation of the demo projects
Piloting ML prevention and mitigation measures



MARINE LITTER IMPACTS ON BIOTA

IDENTIFICATION OF MARINE LITTER BIOINDICATORS



State the of art of marine litter ingestion in Mediterranean

PLASTIC BUSTERS

Interreg Mediterranean

PLASTIC BUSTERS MPAs

BIOINDICATORS SELECTION IN RELATION TO HABITAT & HOME RANGE

Basin Scale

	SEA SURFACE	COASTAL WATERS	OPEN WATERS	SEAFLOOR	COAST LINE AND BEACH SEDIMENT
BASIN SCALE (Mediterranean Sea)	*Calonectris diomedea, Puffinus yelkouan*	*Calonectris diomedea, Puffinus yelkouan*	*Balaenoptera physalus; Cetorhinus maximus Xiphias gladius; Thunnus thynnus Xiphias gladius; Thunnus thynnus Caretta caretta Physeter macrocephalus*		
MEDIUM-SCALE (Mediterranean UN Environment/MAP sub-regions)			*Thunnus alalunga [illegible] caretta Thunnus [illegible]lunga*		
SMALL-SCALE (FAO GSA)		*Boops boops Trachinotus ovatus*	*Maurolicus muelleri Engraulis encrasicolus Sardina pilchardus* Myctophids	*Mullus barbatus [illegible]hrops norve[illegible]us, Galeus melastomus, Merluccius merluccius, Solea spp. Galeus melastomus, Scyliorhinus canicula*	
LOCAL SCALE				Holoturians	*Mytilus galloprovincialis Arenicola marina* Decapods *(e.g. Carcinus sp.)*

BIOINDICATOR SELECTION STRATEGY

Ecological and biological selection criteria

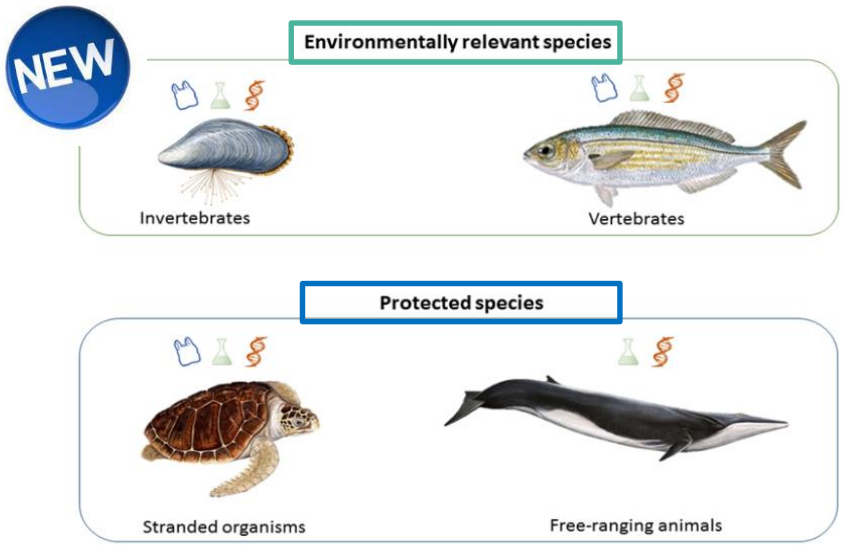
Habitat and home range selection criteria

BLUE: biondicator for macrolitter

RED: bioindicator for microplastics

Local Scale

THE THREEFOLD MONITORING APPROACH



The simultaneous investigation in bioindicator species of:

A) the analysis of **gastro-intestinal content** to evaluate the **marine litter** ingested by the organisms;

B) the analysis of **plastic additives** and PBT compounds used as plastic tracers;

C) the analysis of the effects by **biomarkers responses** at different level of biological organization

… will allow a **more complete assessment of the real impact** related to plastic litter ingestion by marine organisms.

BIOINDICATORS SELECTION IN RELATION TO HABITAT & HOME RANGE

Local Scale

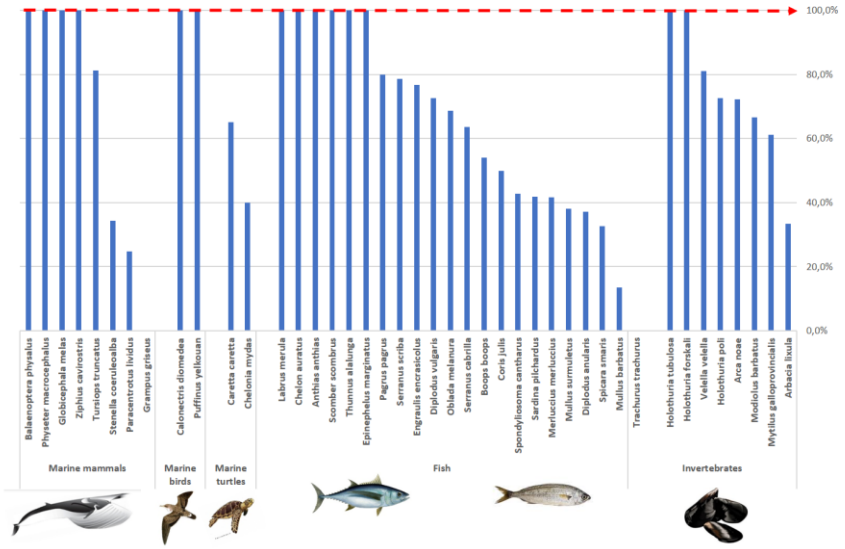
Basin Scale

HARMONIZED MARINE LITTER DIAGNOSIS IN MEDITERRANEAN BIODIVERSITY

Taxa	N° species	N° specimens
Invertebrates	9	551
Fish	22	1223
Reptiles	2	190
Birds	3	56
Pinnipeds	1	12
Cetaceans	7	81

2113 Specimens!

MPs Frequency of Occurence in Selected Bioindicators



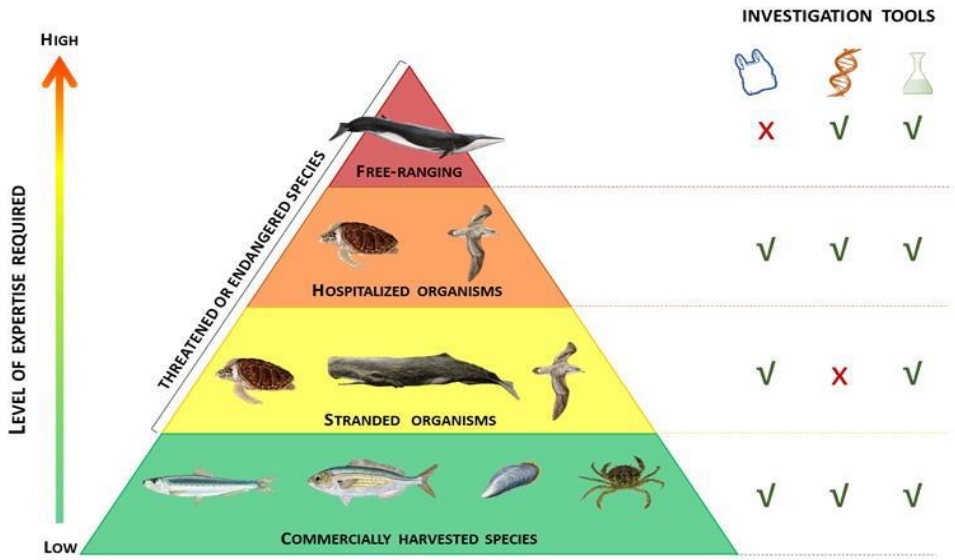
44 Species!

Interreg Mediterranean

PLASTIC BUSTERS MPAs

A NEW APPROACH FOR MONITORING MARINE LITTER INGESTION & IMPACT IN MEDITERRANEAN BIODIVERSITY

NEW



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:
  - Hystological and hystopathological alterations

Interreg Mediterranean
PLASTIC BUSTERS MPAs

THE PLASTIC BUSTERS MPAs JOINT STRATEGY FOR MONITORING MARINE LITTER & ITS IMPACT ON BIODIVERSITY

SYNERGY BETWEEN MPA MANAGERS & RESEARCHERS

Synergy

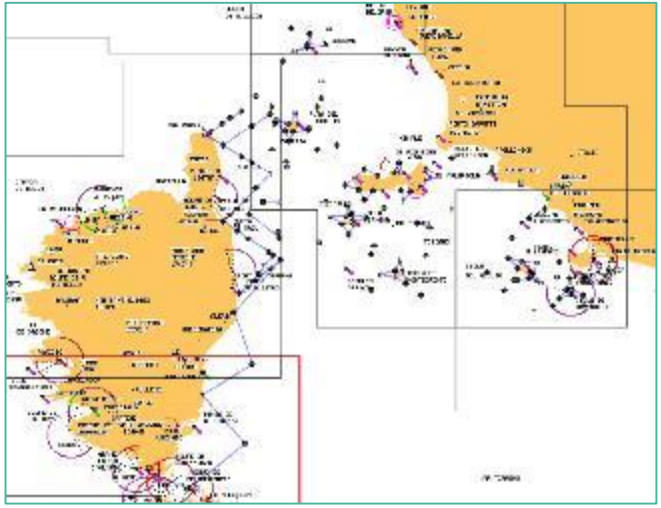
Interreg
Mediterranean
PLASTIC BUSTERS
MPAs

MARINE LITTER MONITORING & THE 4 STUDY AREAS

SMALL SCALE MPA
ZAKYNTHOS NATIONAL MARINE PARK

SMALL SCALE MPA
CABRERA NATIONAL PARK

MEDIUM SCALE MPA
TUSCAN ARCHIPELAGO NATIONAL PARK



LARGE SCALE MPA
SPAMI - PELAGOS SANCTUARY

hcmr HELLENIC CENTRE FOR MARINE RESEARCH

GOVERN ILLES BALEARS

CAIB

UNIVERSITÀ di SIENA

ISPRA

UNIVERSITÀ di SIENA

CORSE CORSICA

Interreg Mediterranean

PLASTIC BUSTERS MPAs

MARINE LITTER MONITORING & TRANSFERRING ACTIONS

Regional capacity building events

On-site replication actions

Secche della Meloria – Italy (UNISI)

Brijuni - Croatia (UNIST-FGAG)

Karaburun-Sazan - Albania (MM)

Bonifacio - France (UNISI, OEC)

Capo Milazzo - Italy (ISPRA)

TRANSFERRING ACTIONS IN CAPO MILAZZO MPA

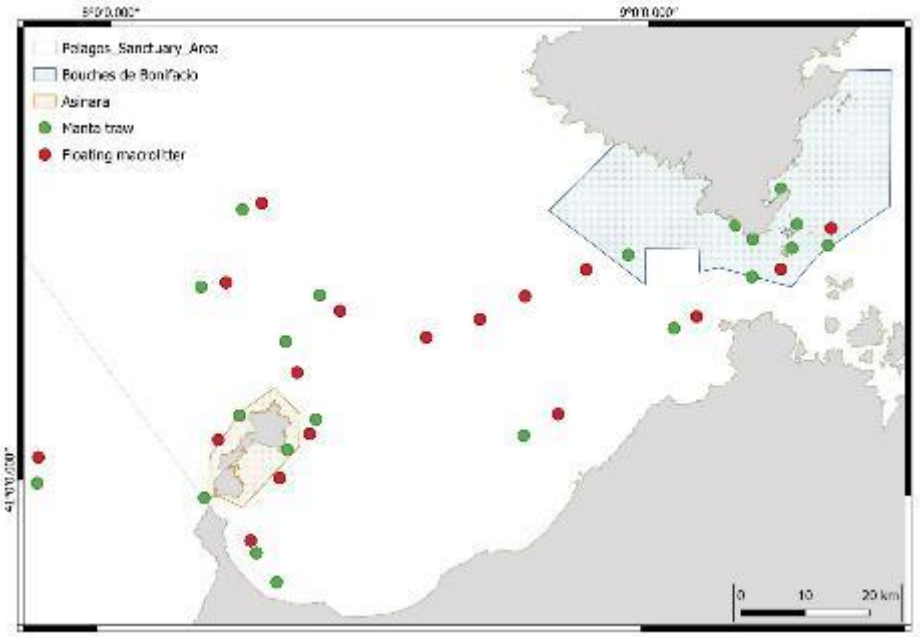
Plastic Busters MPAs Final Conference
Athens, 12-13 April 2022

TRANSFERRING ACTIONS IN BONIFACIO MPA

June 2021

Sampling activities in Bonifacio and Asinara:

- **21 Manta (MPs)**
- **38 FL transets**

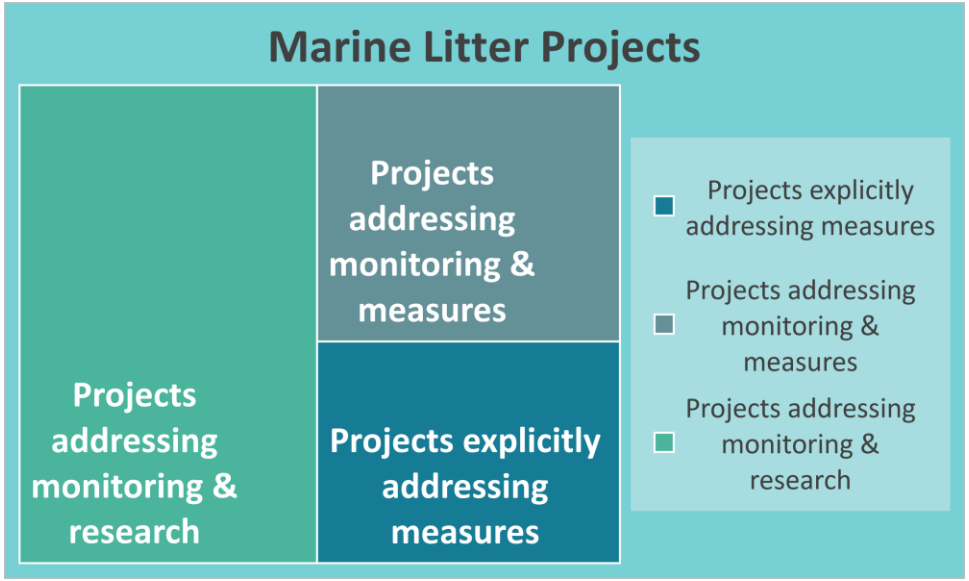


Interreg Mediterranean
PLASTIC BUSTERS MPAs

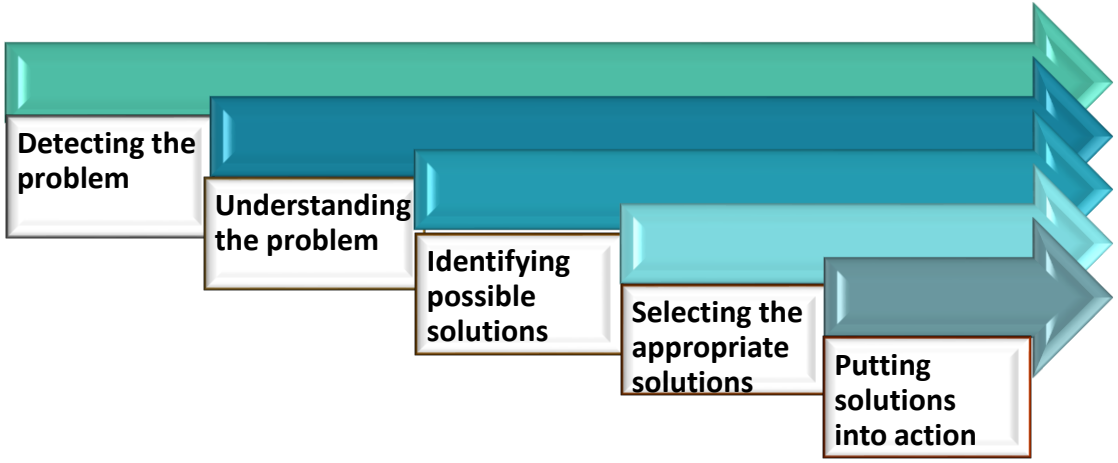
From the Diagnosis to Mitigation

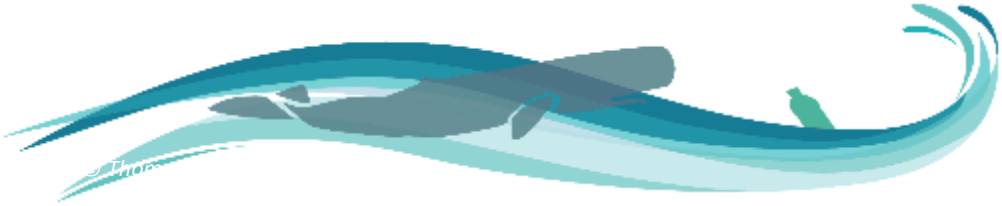
NOVELTY – MARINE LITTER PREVENTION & MITIGATION ACTIONS AT THE HEART OF THE PLASTIC BUSTERS MPAs

Source:
MSFD TGML, 2021. List of Research Projects prepared for the MSFD Technical Group on Marine Litter.

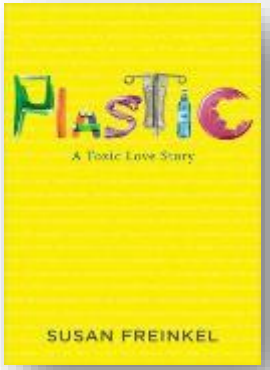


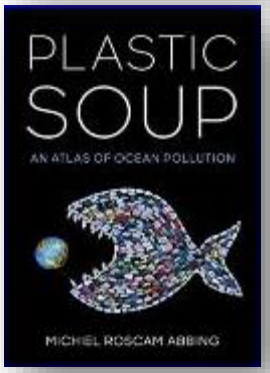
FROM A COMPREHENSIVE DIAGNOSIS OF THE MARINE LITTER PROBLEM TO TAILOR-MADE ACTIONS ON THE GROUND!

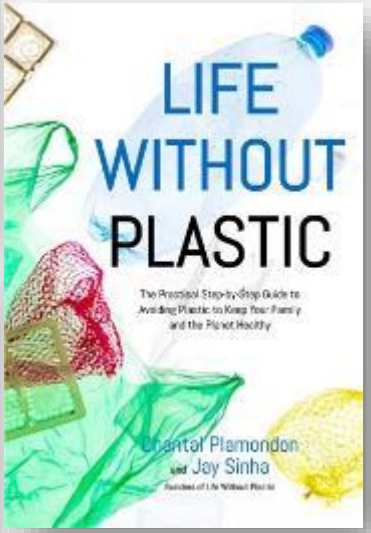


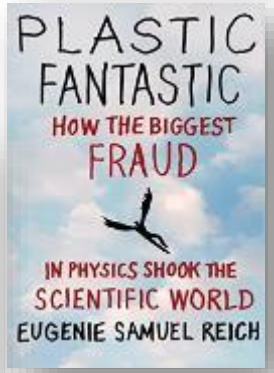


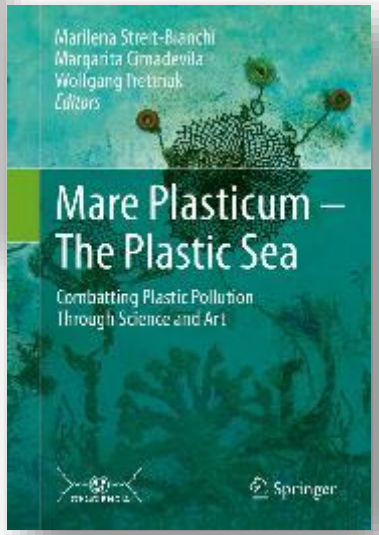
FROM THE ANTHROPOCENE TO THE PLASTOCENE...

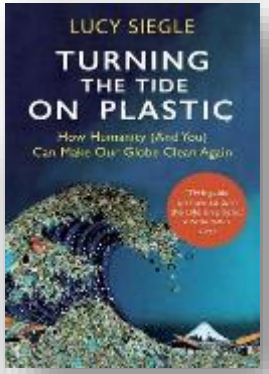


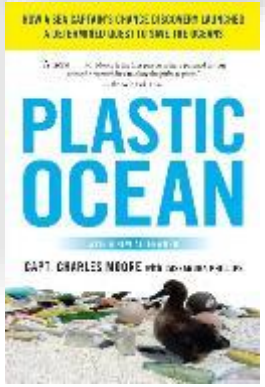


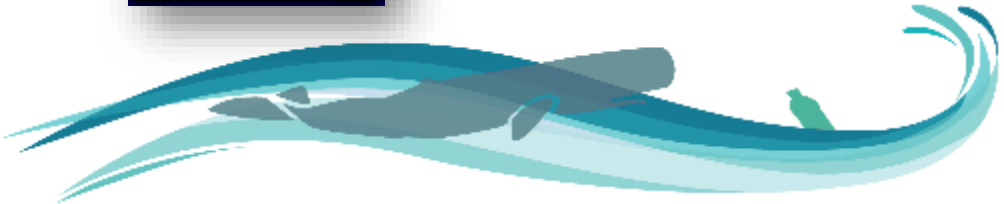












Interreg Mediterranean

PLASTIC BUSTERS MPAs

WISE USE OF PLASTICS WITHIN A CIRCULAR ECONOMY

Source → Manufacture → Distribute → Consume → Waste

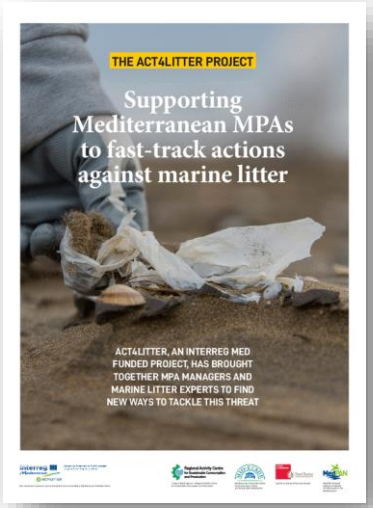
ACT4LITTER THE STARTING POINT FOR TACKLING MARINE LITTER IN MEDITERRANEAN MPAs

Inventory of marine litter measures

Decision-making tool for prioritizing measures

Generation of fit-for-purpose marine litter data

Elaboration of MPA-specific marine litter action plans



Interreg Mediterranean ACT4LITTER

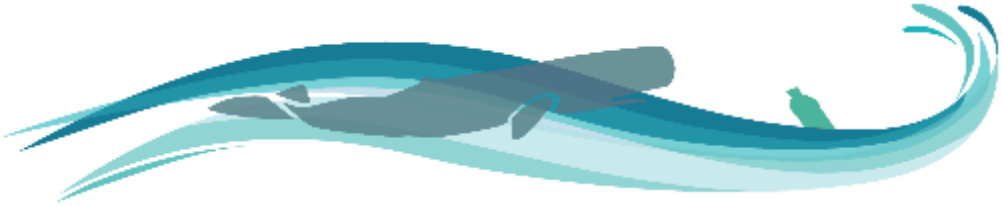
Interreg Mediterranean PLASTIC BUSTERS MPAs

THE PLASTIC BUSTERS MPAs MAPPING OF BEST PRACTICE MARINE LITTER PREVENTION & MITIGATION MEASURES

Nº	Prevention measure?	Title of the measure	Brief description	Measure category	Targeted litter items	Implementation Scale	MPA involved?	Potential MPA role (*)	Responsible Actor
M-1	NO	The Ocean Washing-Up Liquid Bottle	A plastic bottle made from bioplastics, recycled plastics and plastics fished from the oceans. The innovative bottle is made from 10% reclaimed ocean plastic.	Upcycling and/or recycling	Plastics	EUROPEAN	N/A	Facilitator	ENTERPRISE & OTHER ECONOMIC OPERATOR
M-2	NO	Furniture from plastic marine litter	Furniture is created following the principles of circular production and design. They make optimal use of marine litter and of 'waste streams' to produce furniture.	Upcycling and/or recycling	Plastics	NATIONAL	NO	Facilitator	ENTERPRISE & OTHER ECONOMIC OPERATOR
M-3	NO	The "Recyclable Shampoo Bottle" project	This initiative, led by a global shampoo brand, focuses on making a recyclable bottle made from up to 25 % recycled beach plastics.	Upcycling and/or recycling	Plastics	EUROPEAN	YES	Facilitator	ENTERPRISE & OTHER ECONOMIC OPERATOR
M-4	YES	Providing an alternative solution to single-use plastic cutlery	This company-led initiative is dedicated to innovative design promoting sustainability. New products are created that, once disposed of, are harmless to the environment. One of these products is 100% biodegradable and compostable cutlery.	Promoting the replacement of single-use plastics	Plastic packaging	INTERNATIONAL	N/A	Implementer	ENTERPRISE & OTHER ECONOMIC OPERATOR
M-5	YES	The "Bag it and Bin it- Don't flush it" campaign	This campaign encourages women between 15 and 45 to bag and bin sanitary items instead of flushing them down the toilet. Campaign materials include a logo, posters, leaflets and stickers. Retailers and manufacturers are asked to apply the logo to products.	Awareness raising campaigns	Sanitary items	NATIONAL	N/A	Facilitator	NGO & CSO
M-6	YES	The "No more wipes" campaign	This campaign encourages citizens to use a waste bin to collect sanitary items instead of flushing them down the toilet	Awareness raising campaigns	Sanitary items	REGIONAL	NO	Facilitator	NATIONAL PUBLIC AUTHORITY
M-7	YES	The "#WeloveWater" campaign	Municipal water supply company and a start-up have launched the '#WeloveWater' campaign to raise public awareness of the fact that the toilet is not a wastebasket where waste like wipes or cigarettes can be flushed down and cause blockages in water treatment plants.	Awareness raising campaigns	Sanitary items	LOCAL	NO	Facilitator	(PUBLIC) UTILITIES & SERVICE PROVIDERS
M-8	YES	The Operation Clean Sweep campaign	The campaign's goal is to help every plastic resin handling operation implement good housekeeping and pellet, flake, and powder containment practices to work towards achieving zero pellet, flake, and powder loss, protecting the environment and saving valuable resources. Other campaigns: Nurdle free oceans (UK)	Promoting extended producer responsibility schemes	Plastic pellets / flakes	INTERNATIONAL	N/A	Facilitator	PRIVATE SECTOR
M-10	YES	The "Last Plastic Straw" campaign	The Last Plastic Straw movement seeks to activate citizens through campaigns to push for change in restaurant practices in their local communities to limit and ultimately eliminate the use of plastic straws.	Awareness raising campaigns	Single-use items	INTERNATIONAL	N/A	Facilitator	NGO & CSO
M-11	YES	The "Plastic Free Town" Movement	In order to facilitate action, the Plastic Pollution Coalition disseminates guidelines on how to start a bag ban or an EPS ban in a town. In partnership with local organizations, three steps are proposed: audit of common sources of plastic pollution in the community; evaluation and identification of viable, locally sourced alternatives to the sources of plastic pollution; development of a plan to reduce plastic pollution.	Banning specific items and activities	Plastics	INTERNATIONAL	N/A	Facilitator	NGO & CSO
M-12	YES	The "Bring your nets back to shore, Recycle" campaign	The Catalan Waste Agency has carried out a project to manage discarded fishing nets in ports and prevent their disposal at landfills or in the sea. The project placed containers at the Catalan ports. The waste is later managed through waste treatment facilities to valorise the waste (e.g. to make other plastic products).	Derelict fishing gear management schemes	Fishing gear & nets	REGIONAL	YES	Facilitator	(PUBLIC) UTILITIES & SERVICE PROVIDERS
M-13	YES	From Net to Raw Materials	A Danish industry introduced a pioneering invention that makes it possible to separate different types of plastic that are otherwise inseparable. Fishing nets and plastic waste are processed into marketable basic materials.	Derelict fishing gear management schemes	Fishing gear & nets	NATIONAL	N/A	Facilitator	ENTERPRISE & OTHER ECONOMIC OPERATOR
M-14	YES	The Healthy Seas initiative	Healthy Seas transforms fishing nets and other waste into regenerated nylon yarn. In the final step, textile products are created. Non-profit activities include the recovery of fishing nets by volunteer divers and their storage in special facilities, educational campaigns and waste prevention programs.	Derelict fishing gear management schemes	Fishing gear & nets	EUROPEAN REGIONAL SEAS	N/A	Facilitator	NGO & CSO

150 best practice measures identified

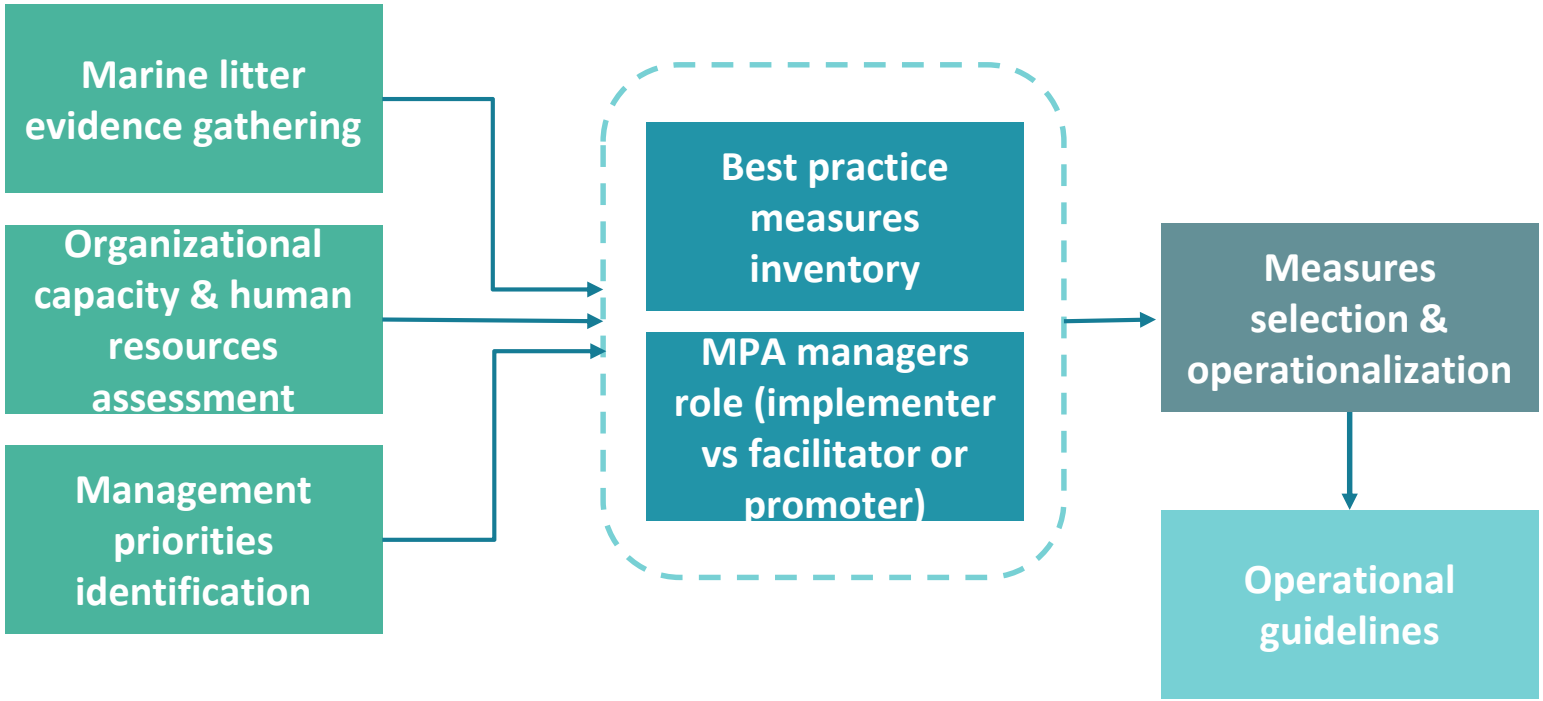
MSFD TGML inventory of marine litter measures



Interreg Mediterranean

PLASTIC BUSTERS MPAs

THE METHODOLOGICAL APPROACH FOR SELECTING PRIORITY MARINE LITTER MEASURES



THE PLASTIC BUSTERS MPAs MARINE LITTER PREVENTION & MITIGATION MEASURES

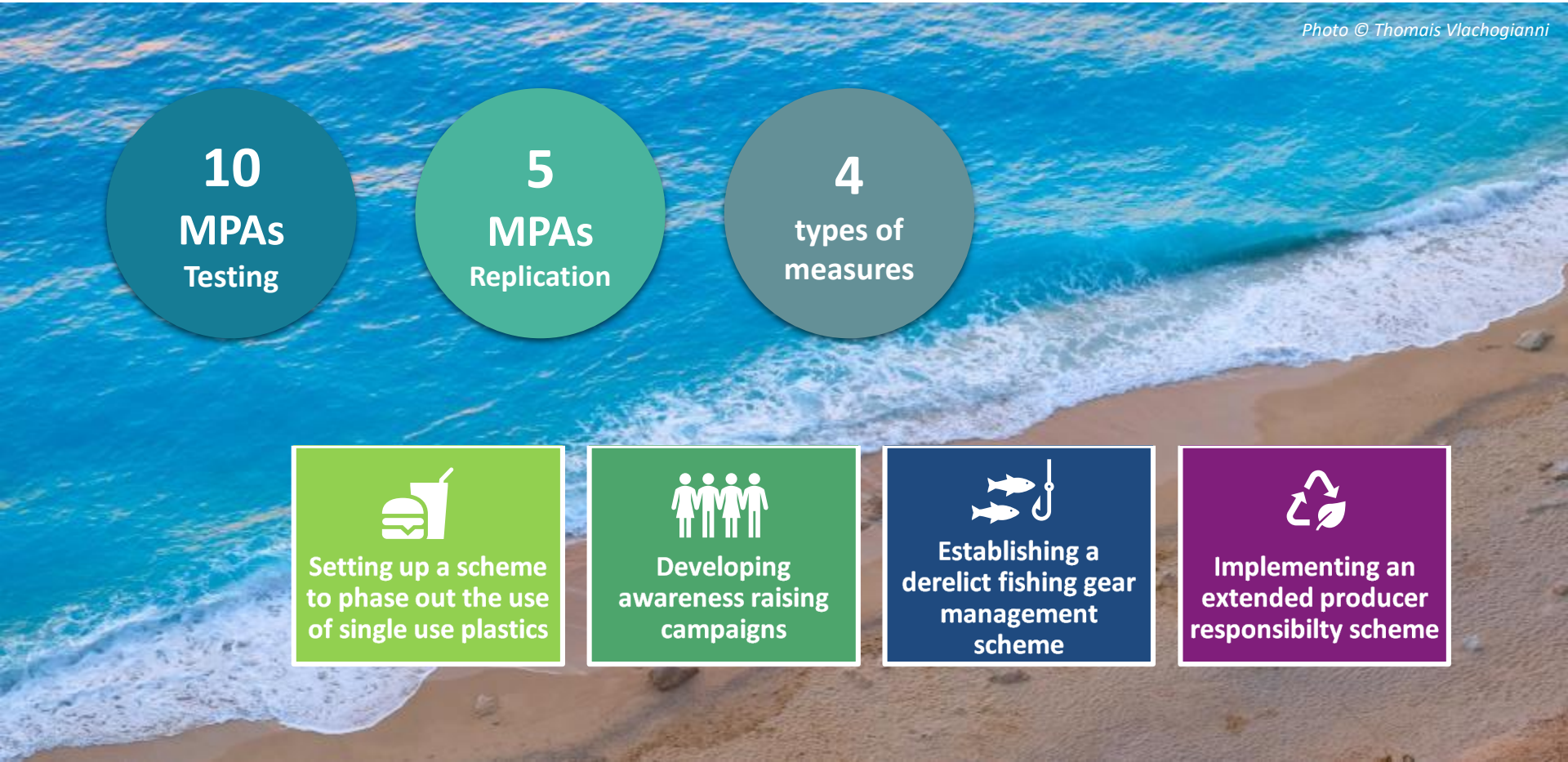


Photo © Thomais Vlachogianni

10
MPAs
Testing

5
MPAs
Replication

4
types of measures

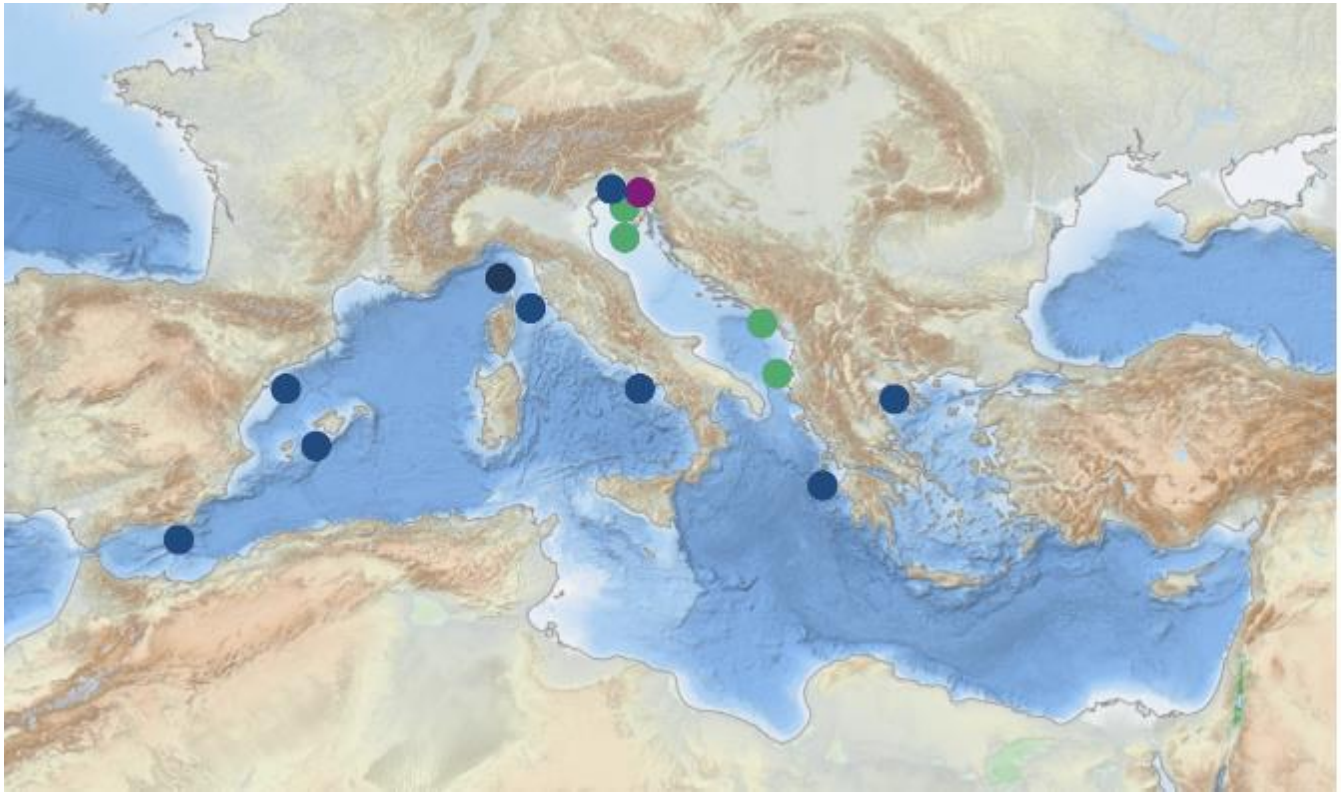
Setting up a scheme to phase out the use of single use plastics

Developing awareness raising campaigns

Establishing a derelict fishing gear management scheme

Implementing an extended producer responsibilty scheme

OUR PARTNER MPAs



Testing Actions

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
SPAIN - Cabo de Gata-Níjar Natural Park
SPAIN - Cabrera National Park
SPAIN - Natural Park of Ebro Delta

Replication Actions

ALBANIA - Karaburun-Sazan MPA
CROATIA - Brijuni National Park
MONTENEGRO - Platamuni MPA
SLOVENIA - Debeli Rtič Landscape Park

Testing & Replication Actions

SLOVENIA - Landscape Park Strunjan

THE PILOTED & REPLICATED MEASURES

Setting up a SUPs-free network of coastal food and beverage outlets

Setting up the adopt-a-beach scheme

Establishing an ALDFG scheme to tackle fisheries & aquaculture litter

Promoting the sustainable management of mussel farming nets

Developing an awareness raising campaign for cigarette-butt free beaches

Developing a network of collection points for beverage containers

Setting up a reusable cup delivery system for beach bars

INTERFACING SCIENCE & PRACTICE WITH POLICY

MSFD TGML

UfM
WG ON ENV & CC
WG ON BLUE ECONOMY

BARCELONA CONVENTION & UNEP/MAP CORMON, MEDPOL FP, SCP/RAC FP, ML COORDINATION GROUP

THE PLASTIC BUSTERS & UfM POLICY BRIEF

MOVING FORWARD

MOST URGENT ACTIONS TO ADDRESS MARINE LITTER POLLUTION IN THE MEDITERRANEAN SEA

THE PLASTIC BUSTERS INITIATIVE TIMELINE

2013: Plastic Busters kick-starts at UNEP

2013: SNDS flagship solution

2016: UfM label obtained

2017: The Plastic Busters consortium is formed with the support of GIS

2018: The Interreg Med Plastic Busters MPAs project launches

2019: The ENI CBC COMMON project starts

2021: The Plastic Busters CAP is approved by ENI CBC MED

WHAT DOES EXPERIENCE TELLS US

Time is not on our favour. Urgent actions are needed to reverse the increase of marine litter pollution in general and marine plastic pollution in particular in the Mediterranean Sea.

The Mediterranean needs to accelerate the transition towards a regenerative growth model that gives back to the planet more than it takes, advance towards keeping its resource consumption within planetary boundaries, and therefore strive to reduce its consumption footprint and double its circular material use rate in the coming decade.

The **processes, initiatives** and **projects featured in this document**, all align in illustrating the need for a shift in production and consumption patterns, coupled with ambitious actions to prevent and mitigate marine litter effects. In concrete terms there is urgency in:

1. MOVING TOWARDS A CIRCULAR ECONOMY.

Keeping a linear economy and reducing the amount of environmentally harmful materials is not enough to curb the catastrophic path of marine litter. This approach can have more damaging effects by creating a false sense of "environmental consciousness and responsibility" in consumers.

Reducing the consumption footprint and increasing the circular material use rate is a targeted priority, which should also be seen in the context of the European Green Deal. Natural resources underpin national economies, provide crucial raw materials for everyday life, and are necessary to almost every sector of the global economy. In particular, given the size of the demand, raw materials (including both primary and secondary raw materials obtained through recycling) will continue to play a key role in the economy.

A comprehensive intervention is needed with a strong focus on new/sustainable behaviours and lifestyles, different from the current *throwaway culture* in society, with waste prevention becoming a priority. They should include:

- The **full embedment of circularity in policy and institutional frameworks.** Governments' intervention (national and regional levels) is key to steer the circular economy transition in coordination with the business sector and the civil society. Actions like raising awareness, mobilising private sector and other key stakeholders (i.e. consumers), are critical and need to be coordinated. Likewise, enabling frameworks require coherent measures in large number of relevant policy areas such as industrial development, entrepreneurship, trade, research and innovation and education and skills development.
- **Enhance Integrated Waste Management Plans.** Ambitious waste prevention (e.g., those integrating zero waste objectives and strategies) and management measures (including through waste prevention and management plans aligned with the waste hierarchy and circular economy objectives; targets for recycling of key waste streams and reducing landfills; extended producer responsibility schemes and deposit return schemes for plastic products and packaging) are urgently needed;
- **New business models**, are needed to favor resource-efficient production and uptake of clean technologies; promote upcycling businesses, engage and involve the private sector including the need to implement safe and sustainable approaches in the design stage of product development; use the Green Public Procurement as a lever for new business models.
- **Phase out Single Use Plastics** and prevent plastic pollution by enhancing the capacities of national and regional authorities in transposing the main requirements of the EU Single-Use Plastics Directive.

2. DEVELOPING INTEGRATED GOVERNANCE AND ACTIONS.

The Mediterranean Sea has to be considered as a whole, and marine litter as a multi-dimensional challenge for which non-coordinated responses offer little effectiveness and impact. Geographical, administrative, sectoral boundaries cannot constitute a hurdle to action. In that sense it is urgent to:

- Strengthen the **cooperation among all Mediterranean initiatives**, from both the North and the South rims of the Mediterranean basin, maintaining a clear overview of the entire management cycle of marine litter, **ensuring land/sea dimensions**. **Capitalize on current results and advance towards a region-wide approach,** ensuring long term support to the ongoing process. Disseminate and exchange best practices and, where relevant, compare the different circular economy initiatives, to take forward partnership initiatives.
- Although useful data on marine litter exists and has been recently improved in the region (types, quantities, etc.) it is inconsistent and geographically restricted mainly to the North Mediterranean. Standardized monitoring data for assessment purposes concerning the problem of litter across the whole Mediterranean is still a necessity and information sharing between and among NGOs, IGOs, research institutes, relevant authorities, etc. in the region regarding marine litter related data needs to be improved through **an enhanced common information sharing system**.
- **Map domestic policies and regulatory frameworks** in Mediterranean countries on the management of natural resources (e.g. water, soil, minerals, biomass) and the circular economy transition, including sustainable use, improving circularity, and strengthening resilience to climate change impacts. Enhancing the implementation of selected ML policy/regulatory prevention and reduction common measures at sub-regional/national levels and sharing of related best practices.
- Developing and applying regionally harmonized approaches, guidelines and tools to ensure effective implementation of selected measures. Improve, and/or widely implement a **Harmonized Marine Litter monitoring strategy at the Mediterranean level**, working with a novel, harmonized protocol to detect the presence and impact of marine litter on biodiversity via a set of bioindicator species (ranging from invertebrates to marine mammals) across the entire Mediterranean basin, in line with both MSFD and IMAP indicators. Such harmonized protocol shall allow the identification of hotspot areas for marine litter threats to marine biodiversity as well as of prevention and mitigation actions (such banning single use plastics; establishing derelict fishing gear management; banning specific activities, introducing extended producer responsibility; implementing awareness raising campaigns). Significant efforts should be addressed on enlarging the geographical scope of marine litter monitoring programmes to assess the presence and effects of marine litter in marine protected areas, within the context of the SDG 14 Life Below Water
- **Reinforce the role of the Science-Policy-Society interface**. This should be strengthened by favouring Research & Development projects gathering industry and academia and by encouraging the connection between scientific research and societal needs to address marine litter. Effective implementation of such interface must also be enabled via adequate capacity building programs and proper financing of key actors, such as MPA management bodies, local and national environmental protection agencies, and the alike.
- Enforcing current **legislation and policy measures addressing marine litter including on responsibility and liability issues** and further develop and upgrade them.

3. ADOPTING A SYSTEMIC, INTERCONNECTED APPROACH.

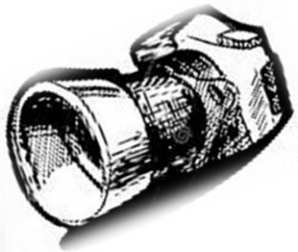
Going forward, a more holistic and systemic approach shall be adopted to fight marine litter in order to really understand (and address via new diagnostic systems) the whole set of impacts and stressors that human activities are posing on biodiversity and on oceans' health. **Cumulative direct and indirect stressors** caused by marine litter, chemical contamination, climate change, and emerging pathogens among others, concur in destabilizing the precarious balances of marine biodiversity, marine ecosystems, and their services.

A paradigm shift should then be embraced to recognise the health-environment nexus as the core of planetary health and evolve **from cost-benefit analysis to recognition of 'co-benefits'**. A new approach to addressing environmental problems is needed that does not recognise a trade-off between 'saving the economy' and 'saving lives', nor between 'the economy' and 'the environment', but rather works towards the concurrent achievements of the preservation of oceans, marine economic activities, and human livelihood and wellbeing.

To this end, it is of priority to link **human livelihood and well-being with ocean health** and realize that monitoring and addressing cumulative stresses on the oceans via a co-benefits approach means not only to preserve the health of ocean ecosystems but also to preserve human livelihood via accessing better quality ecosystem services (e.g., fisheries, climate stabilization, etc.).

Plastic Busters MPAs Final Conference
Athens, 12-13 April 2022

THE PLASTIC BUSTERS TEAM



PLASTIC BUSTERS

UNIVERSITÀ DI SIENA 1240

MIO-ECSDE

Union for the Mediterranean
Union pour la Méditerranée
الإتحاد من أجل المتوسط

Plastic Busters MPAs Final Conference
Athens, 12-13 April 2022

Thank you!

M. Cristina Fossi & Thomais Vlachogianni
fossi@unisi.it - vlachogianni@mio-ecsde.org

www.plasticbustersmpas.interreg-med.eu

@PlasticB_MPAs

@PlasticBustersMPAs

Interreg Mediterranean
PLASTIC BUSTERS MPAs