

Water and Environment Support

in the ENI Southern Neighbourhood region

Activity: WES N-E-DZ-1

Training on marine litter monitoring & mitigation

Showcases of best practice marine litter mitigation measures and methodological approach for their operationalization

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Member of the UNEP/MAP CORMON Group

WP Leader of Plastic Busters MPAs & Plastic Busters CAP



TURNING SCIENCE INTO POLICY & ACTIONS THE MAIN CHALLENGE OF OUR ERA

Fit-for-purpose data

Participatory decision-
making & bottom up
approaches

Feasible & effective
solutions

Coordinated & multilevel
actions

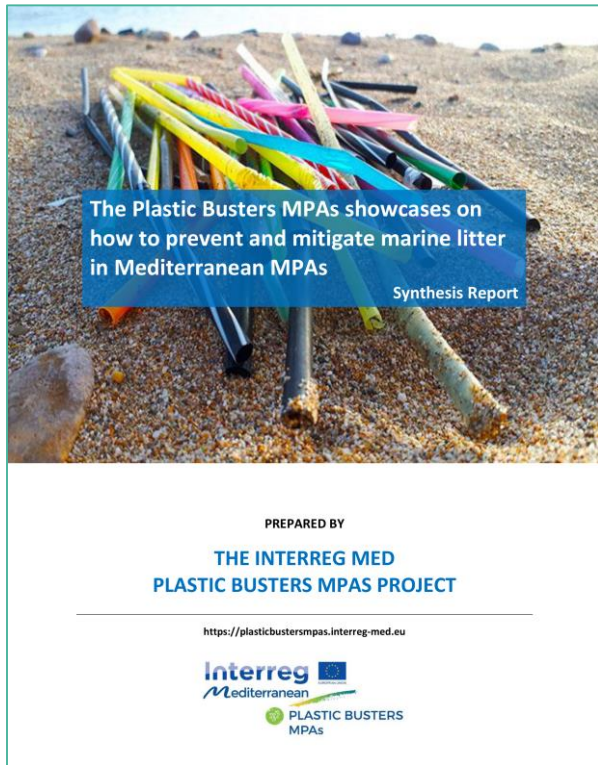
Methodologically- sound
& science-based processes

Social innovations for a
paradigm shift in the way
we produce & consume

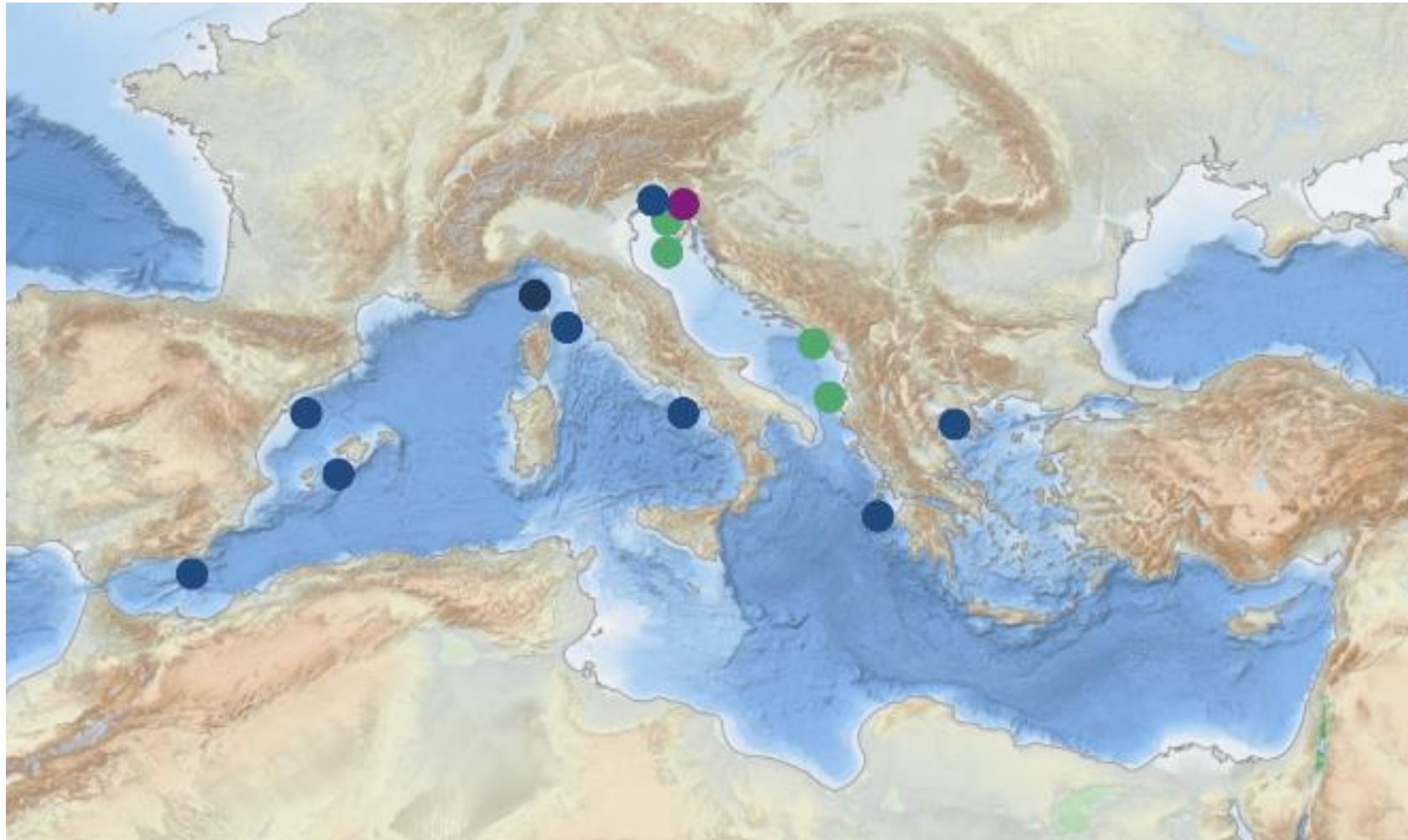
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THE PLASTIC BUSTERS MPAS BLUEPRINT FOR A JOINT URGENT RESPONSE TO MARINE LITTER POLLUTION



THE PLASTIC BUSTERS PIONEERS



● Testing Actions

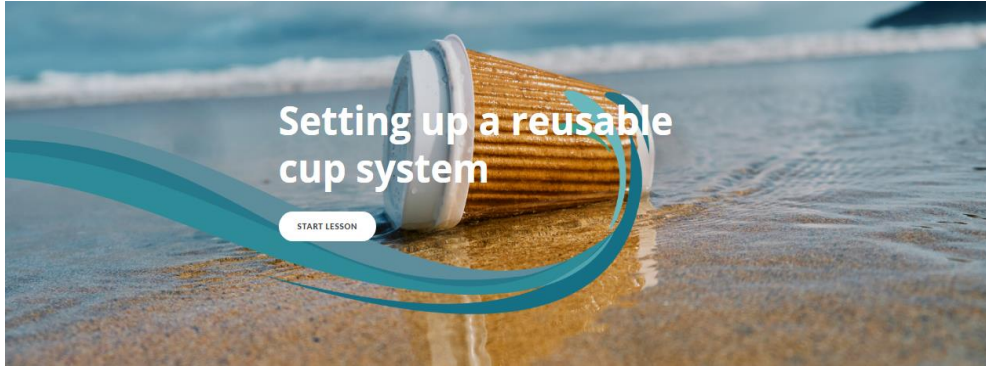
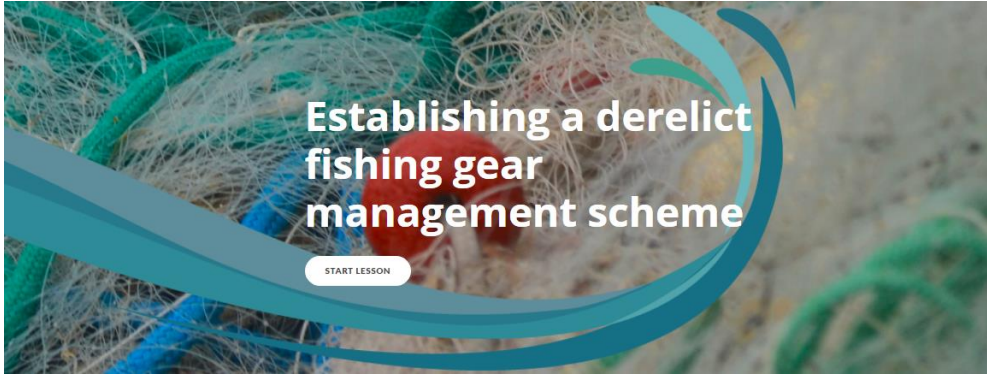
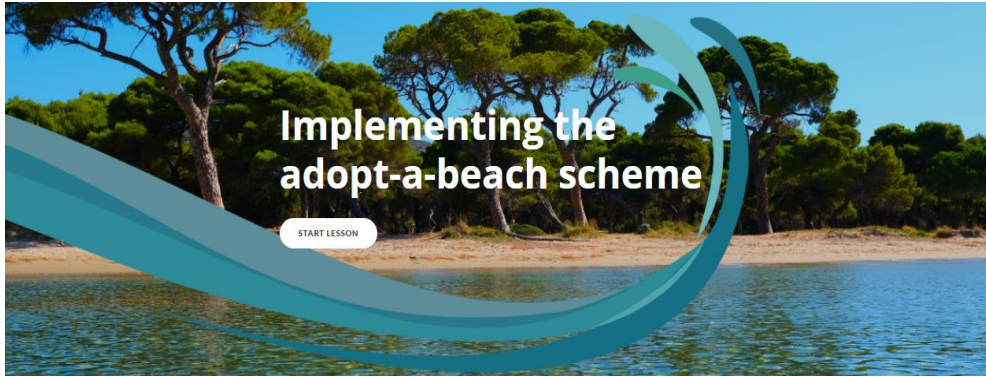
- FRANCE - Pelagos Sanctuary
- GREECE - National Marine Park of Zakynthos
- GREECE - Thermaikos Gulf Protected Areas
- ITALY - Miramare MPA
- ITALY - Pelagos Sanctuary
- ITALY - Tuscan Archipelago National Park
- SPAIN - Cabo de Gata-Níjar Natural Park
- SPAIN - Cabrera National Park
- SPAIN - Natural 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



Self-paced distance learning course
Plastic Busters MPAs module on how to operationalize marine litter prevention & mitigation measures
<https://envirolearning.net/catalog/info/id:152>

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RESOURCE PACK
ON MARINE LITTER MITIGATION MEASURES
IN THE MEDITERRANEAN



PLASTIC BUSTERS CAP



LAND-BASED SOURCES OF MARINE LITTER

**poor waste
management**

industrial outfalls

**discharges of
untreated
municipal sewage**

**tourism &
recreational
activities**



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INDICATIVE MEASURES TO ADDRESS LAND-BASED SOURCES OF MARINE LITTER



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



Setting up the adopt-a-beach scheme



Developing an awareness raising campaign for cigarette-butt free beaches



Developing a network of collection points for beverage containers

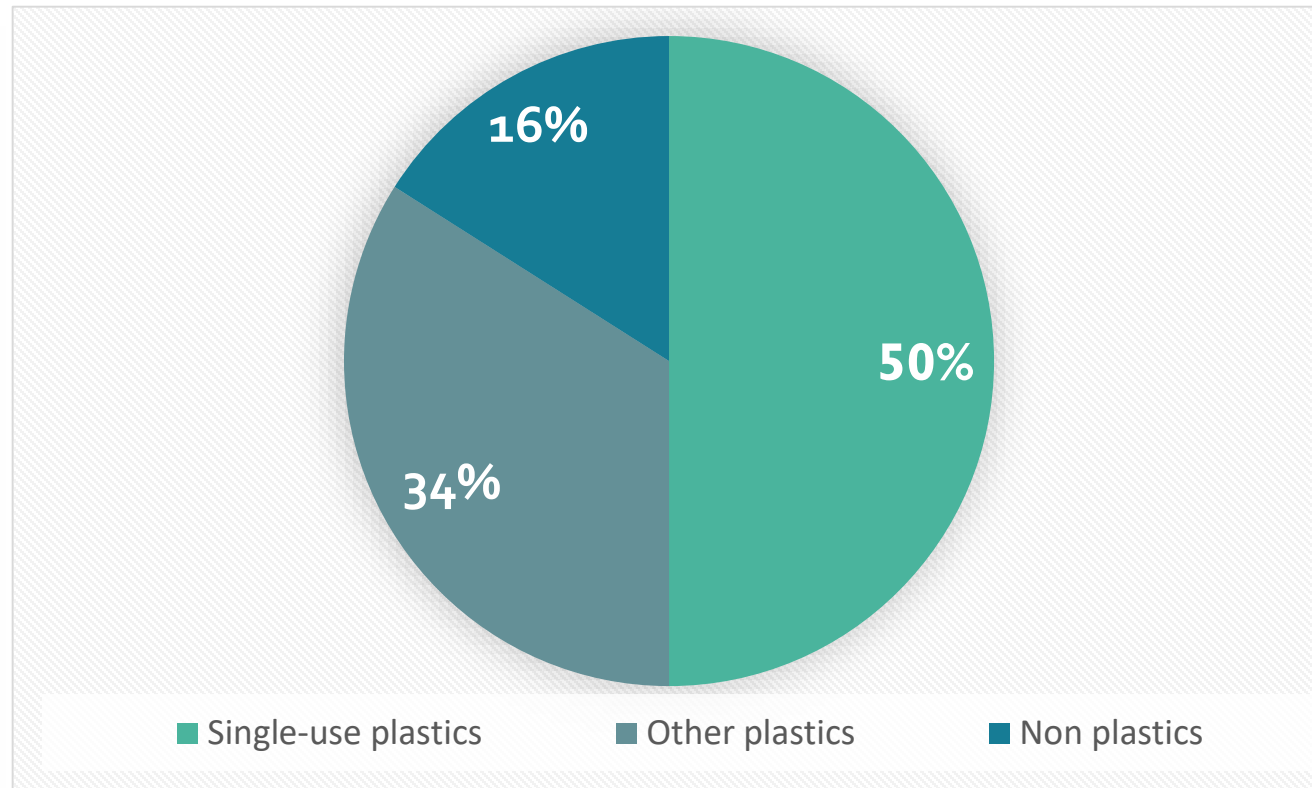


Setting up a reusable cup delivery system for beach bars



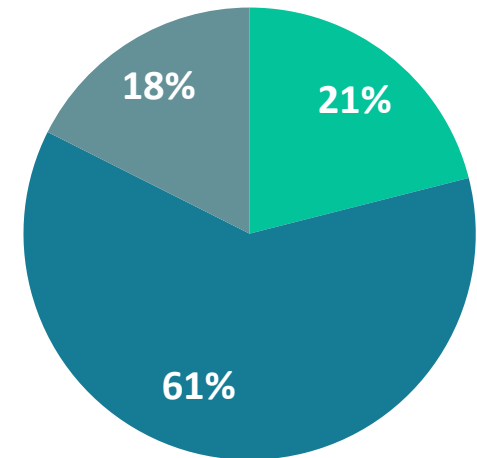
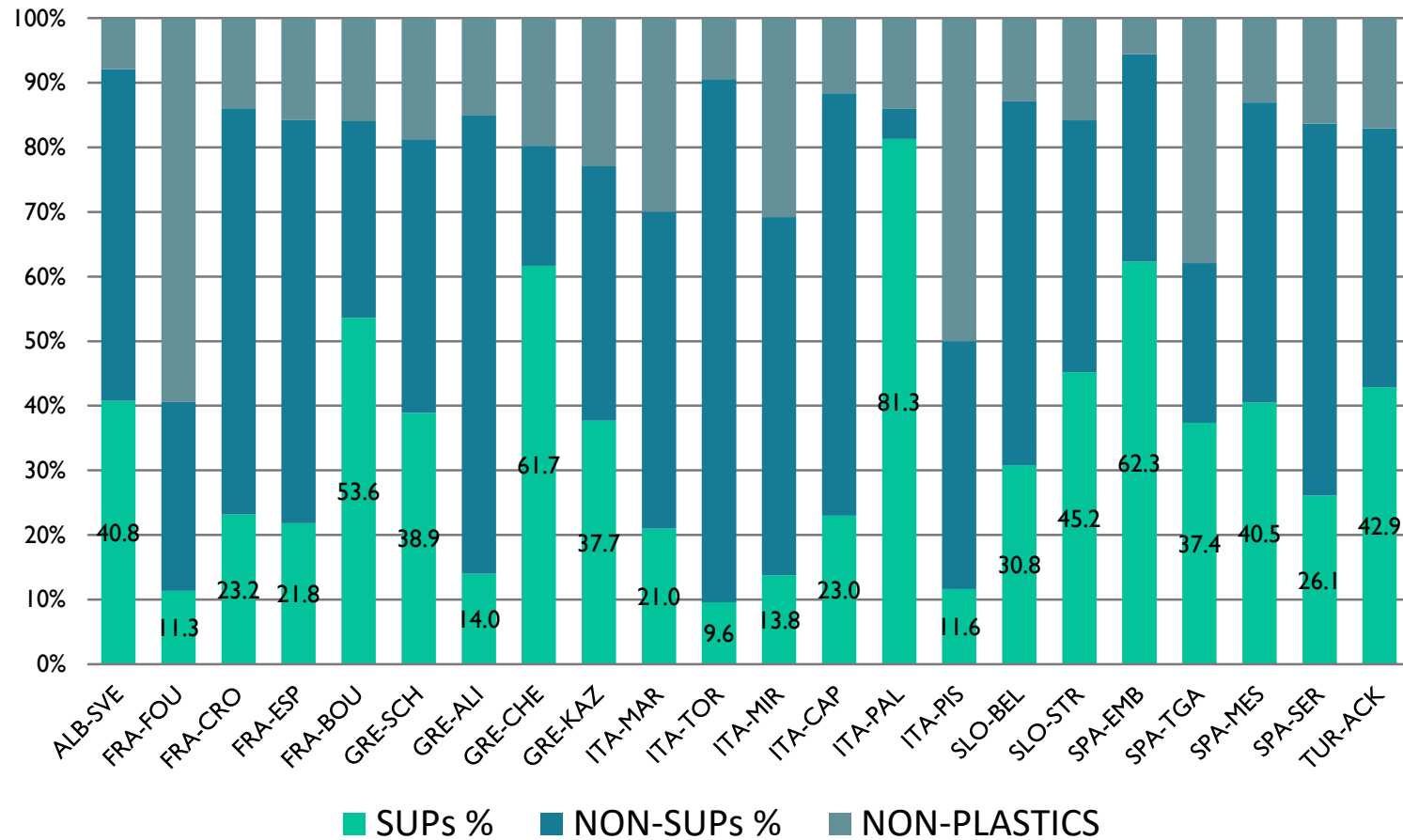
Improving waste management practices

PERCENTAGE OF SUPS FOUND ON EUROPEAN BEACHES IN 2016



Addamo, A.M., Laroche, P., Hanke, G., 2017. Top Marine Beach Litter Items in Europe. EUR 29249 EN, Publications Office of the European Union, Luxembourg, 2017, ISBN 978-92-79-87711-7, JRC108181.

PLASTIC POLLUTION & SUPS IN MEDITERRANEAN MPAS



Vlachogianni , 2019. Marine Litter in Mediterranean coastal and marine protected areas – How bad is it. A snapshot assessment report on the amounts, composition and sources of marine litter found on beaches. Interreg Med ACT4LITTER & MIO-ECSDE.

FEATURED MEASURES TESTED & REPLICATED IN PLASTIC BUSTERS MPAS



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



Setting up a reusable cup delivery system for beach bars

THE MAIN TARGETED LITTER ITEMS



Bags



Cutlery



Straws



Food & beverage containers



Cups & cup lids



Plates



Stirrers

SETTING UP A SUPS-FREE NETWORK OF COASTAL FOOD & BEVERAGE OUTLETS

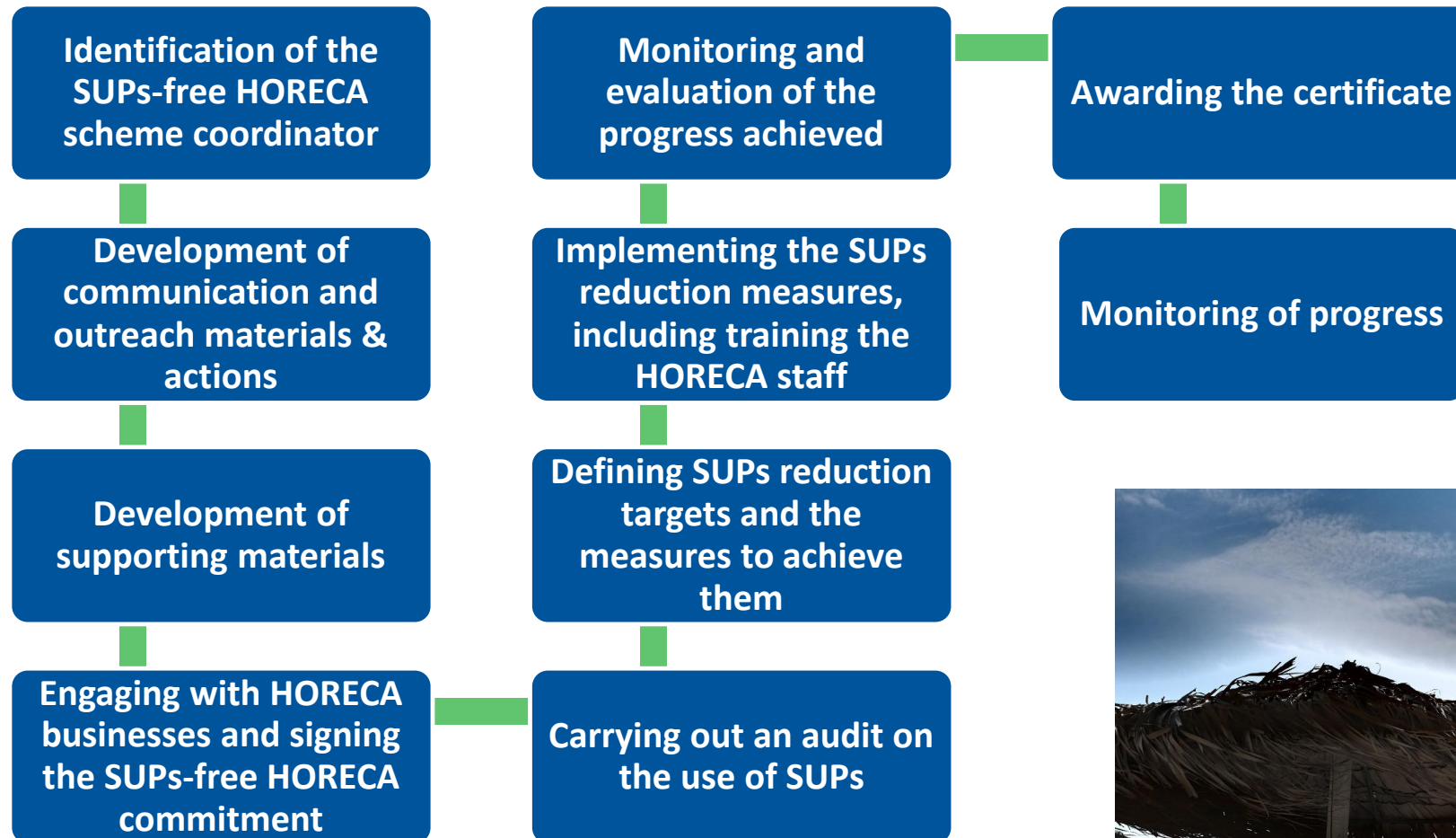


INTRODUCTION

- This is a measure designed to promote best practices within the tourism and recreation sector with regard to reducing significantly and/or phasing out single-use plastics such as straws and stirrers, cups, cutlery, plates, bottles, shopping bags, etc.
- Within this measure coastal food and beverage outlets (hotels, restaurants, canteens, cafes, snack bars, etc., hereinafter referred to as HORECA) voluntarily register to a network and commit themselves to comply with a set of good environmental practices related to the prevention, reduction, reuse and recycling of plastic waste, with special emphasis on SUPs.



SETTING UP A SUPS-FREE NETWORK OF COASTAL FOOD AND BEVERAGE OUTLETS



DEVELOPMENT OF COMMUNICATION AND OUTREACH MATERIALS

Owners and staff of coastal food and beverage outlets (hotels, restaurants, cafes, snack bars, canteens, etc.)

Tourism businesses, tourist operators, tourist service providers

Local authorities (as potential promoters and multipliers)

Local environmental NGOs (as potential promoters and multipliers)

Media (as potential promoters and multipliers)

CARRYING OUT AN AUDIT ON THE USE OF SUPS

The SUPs **audit** aims at **evaluating the use of the targeted SUPs** within the coastal HORECA business interested in joining the SUPs-free coastal HORECA scheme.

Detailed information of the **amount** (items and/or weight) and **types** of SUPs used in the daily business operations should be recorded, in addition to the **management practices** of SUPs related waste.

Information on the **key features of the business** such as type, scale, number of employees, average number of customers, etc. should be recorded.

DEFINING SUPS REDUCTION TARGETS AND THE MEASURES TO ACHIEVE THEM

IDENTIFY OPTIONS

EXAMINE THE OPTIONS

SET SUPS REDUCTION TARGETS

PRIORITIZE THE OPTIONS

SELECT THE MEASURES

DEVELOP A BUSINESS
TRANSFORMATION PLAN



PRIORITIZATION OF MEASURES

Waste hierarchy

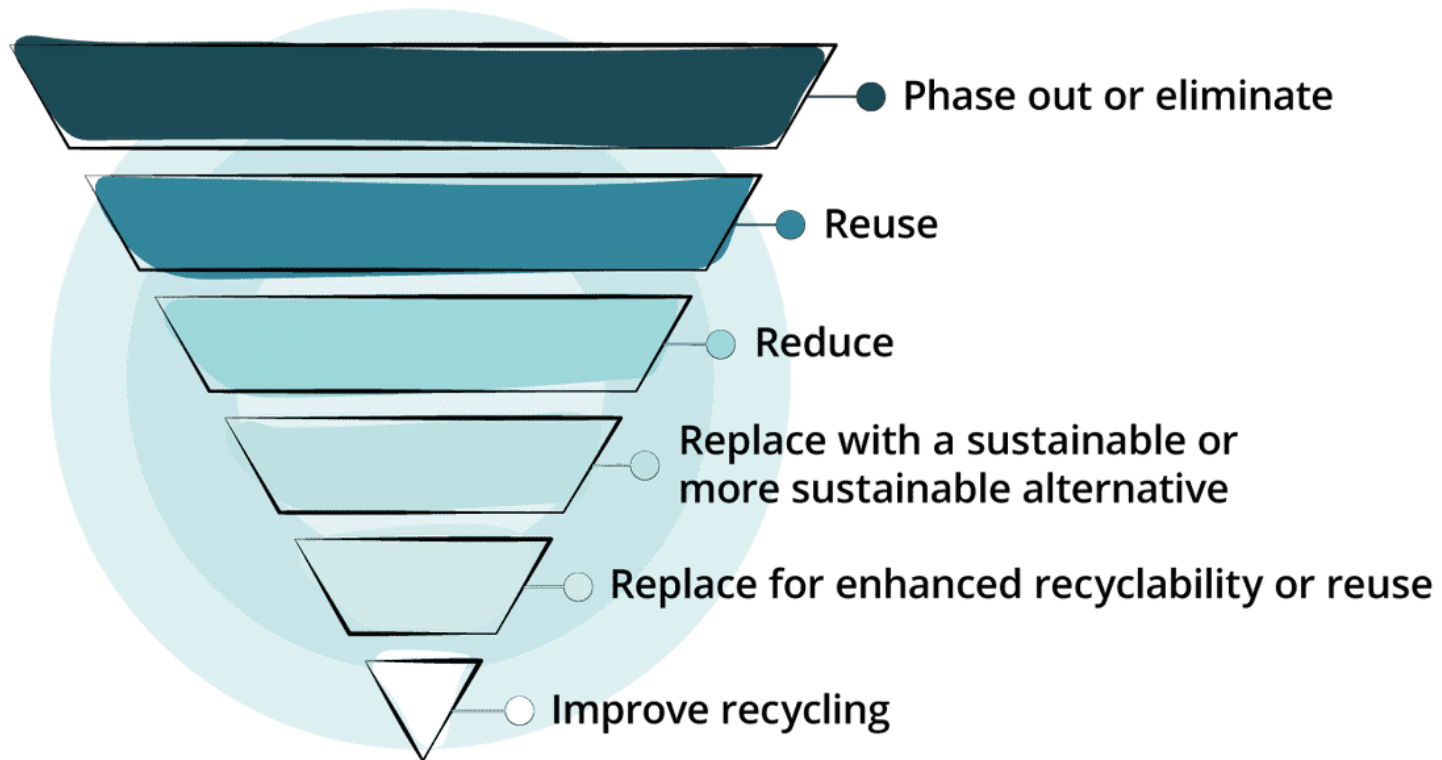


Photo © Thomais Vlachogianni

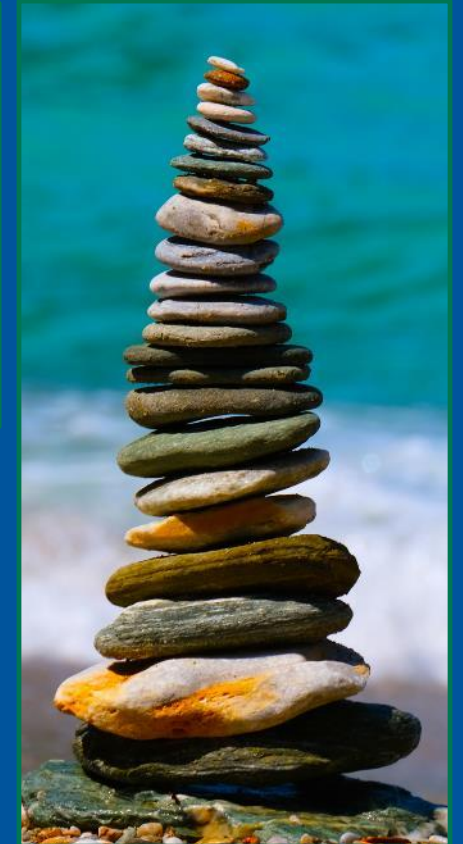
PRIORITIZATION OF MEASURES

Strategic
impact

Economic
impact

Environmen
tal impact

Health and
safety
impact



Photos © Thomais Vlachogianni



**PLASTIC
BOTTLES
ALTERNATIVES**

ELIMINATION



REDUCTION



REPLACEMENT

"It's only one straw,"
said 8 billion
people.

STRAWS

REPLACEMENT



ELIMINATION



REPLACEMENT





PHASING OUT

REPLACING

REDUCTION

STIRRERS





**COFFEE
CUP**



REPLACEMENT



REDUCTION



THE PLASTIC BUSTERS MPAS SHOWCASE IN STRUNJAN LANDSCAPE PARK

Challenges

Identifying proper alternatives of low cost & high environmental performance

Finding the proper timing for implementing the measure (seasonality of the beach bars)

Convincing the business owners; many of them were afraid that by making changes might displease their customers

A clear plastic cup is lying on its side on a pebbly beach. The cup is tilted, and water is spilling out from its opening. The beach is covered in small, smooth, multi-colored pebbles in shades of grey, brown, and white. The background is slightly blurred, showing more of the beach and some larger rocks.

**SETTING UP A REUSABLE CUP
DELIVERY SYSTEM FOR BEACH BARS**

Photo © Thomais Vlachogianni

INTRODUCTION

- ✓ This measure is designed to promote the use of reusable cups in beach bars, festivals and big events.
- ✓ The reusable cup system for beach bars and festivals refers to the distribution and use of a reusable cup by food and beverage outlets; drinks are sold in this cup, which is available to the customer for a deposit. **Upon completion of use, the customer returns the cup to the food and beverage outlet and receives the initial deposit back.**



OBJECTIVES OF THE MEASURE

Reduce the number of single-use cups used and discarded at beach bars and festivals that may end up as marine litter.

Reduce the cost of clean-up operations during or after festivals and big events and/or daily recreational activities

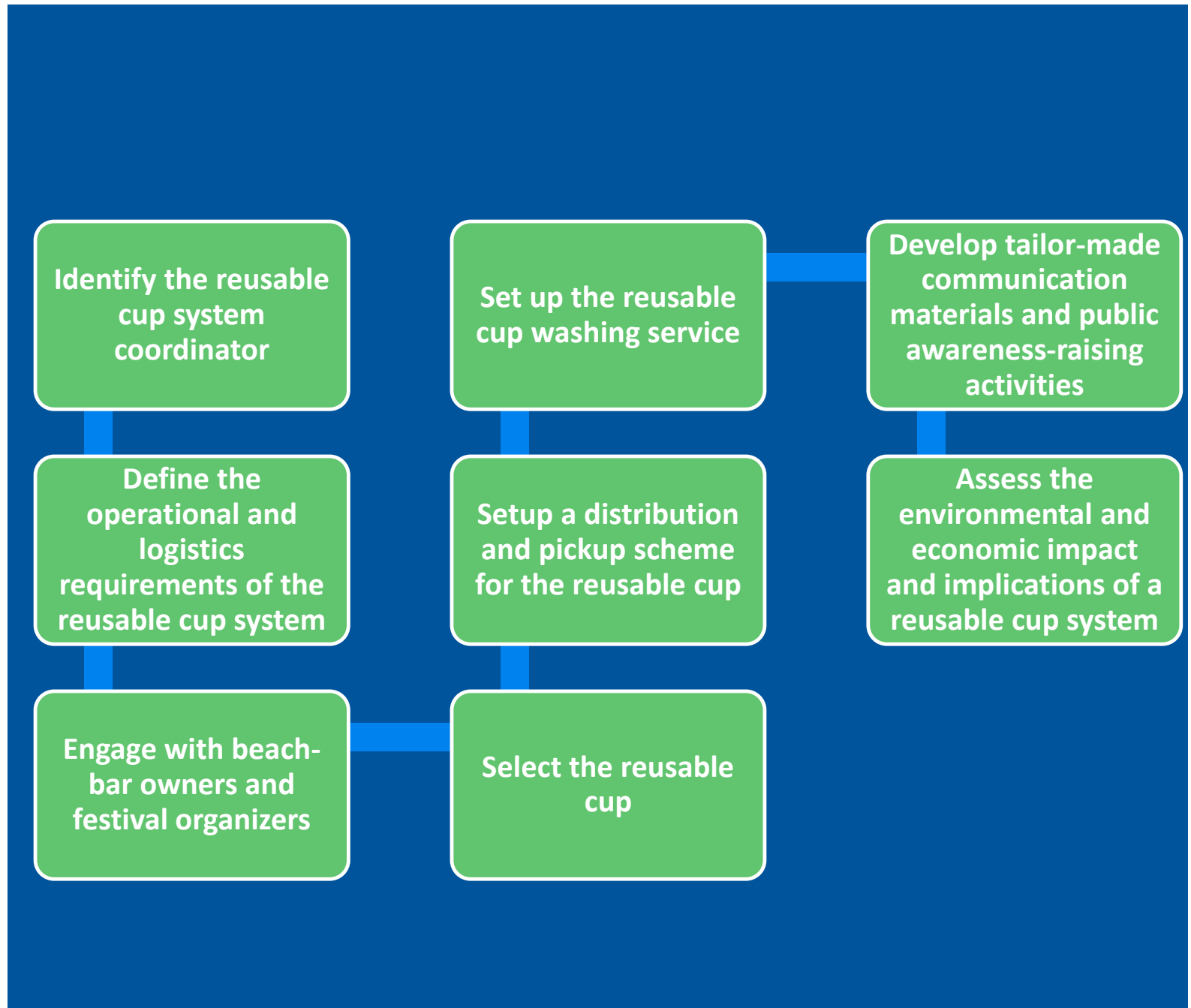
Enhance awareness of local communities and visitors on issues related to plastic pollution and marine plastic pollution from SUPs and related solutions

Ultimately contribute to a reduction in the amount of raw plastic material inputted to the economy

A reusable cup system might also prove to be economically profitable. It may result in: savings from not purchasing new single-use cups, reduced waste management costs, revenue from deposits on cups which are not returned.

SETTING UP A REUSABLE CUP DELIVERY SYSTEM FOR BEACH BARS:

KEY STEPS



DEFINING THE OPERATIONAL AND LOGISTICS REQUIREMENTS OF THE REUSABLE CUP SYSTEM

- ▶ **Selecting the appropriate cup** in terms of material, design, size, longevity, cost and environmental impact and deciding whether it will be purchased or rented;
- ▶ **Setting the cup deposit value and mapping all regulatory requirements** (i.e. related to taxation or invoicing issues for the deposit), deciding what to do with the revenue generated by non-returned cups;
- ▶ **Defining the number of reusable cups required** and setting up an inventory on the amounts of cups handled within the system;
- ▶ **Identifying the distribution and pickup logistics for the reusable cup**; how the cups are distributed to the businesses; how they are picked up after their use; how they are transported for washing and how they are ultimately returned to the businesses;
- ▶ **Setting up a reusable cup washing option**;
- ▶ **Develop tailored-made communication** materials and public awareness-raising activities in order to build the awareness of the customers prior to the launching of the activity, and streamline 'customer onboarding'.
- ▶ **Assessing the environmental and economic impact and implications** of the reusable cup system by taking into account, among others, the number of reusable cups used, the number of reusable cups 'lost', information related to the overall lifecycle of the reusable cup, carbon emissions during the transport of the reusable cups, etc.

ADVANTAGES & DISADVANTAGES OF RENTING OR PURCHASING A REUSABLE CUP

Renting a reusable cup

- ▶ Lower logistical requirements implied in the setup of the reusable cup system
- ▶ All distribution and pickup logistics are provided by the service providers
- ▶ The cup washing service can be included in the rental option
- ▶ No option to brand the reusable cups with festival/bar logo(s) or that of sponsors
- ▶ Eventual economic revenue from the deposit of the unreturned cups is lost

Purchasing a reusable cup

- ▶ Higher logistical requirements for setting up the reusable cup system
- ▶ All distribution and pickup logistics need to be set up
- ▶ The cup washing service most probably will have to be setup
- ▶ Option to brand the reusable cups with festival/bar logo(s) or that of sponsors
- ▶ Eventual economic revenue from the deposit of the unreturned cups
- ▶ Possibility to re-use the same reusable cups over time, depending though on the quality of the selected cups

THE PLASTIC BUSTERS MPAS SHOWCASE IN EBRO DELTA NATURAL PARK



Challenges

Selecting the right cup

Setting up the reusable cup washing service

Reusable cup losses

Assessing the environmental performance of the overall measure

SEA-BASED SOURCES OF MARINE LITTER

fisheries

aquaculture

shipping

offshore mining



INDICATIVE MEASURES TO ADDRESS SEA-BASED SOURCES OF MARINE LITTER



Establishing an ALDFG scheme to tackle fisheries & aquaculture litter



Promoting the sustainable management of mussel farming nets



Targeted removal of litter



Fishing for litter



Improving port reception facilities



Improving waste management on board

ESTABLISHING A DERELICT FISHING GEAR MANAGEMENT SCHEME



This is a measure that aims to **reduce the amount of litter generated by the fisheries and aquaculture sectors** ending up in the coastal and marine environment. It refers to a scheme for the collection, sorting, transport, treatment, recycling/reuse and/or final disposal of fishing gear.

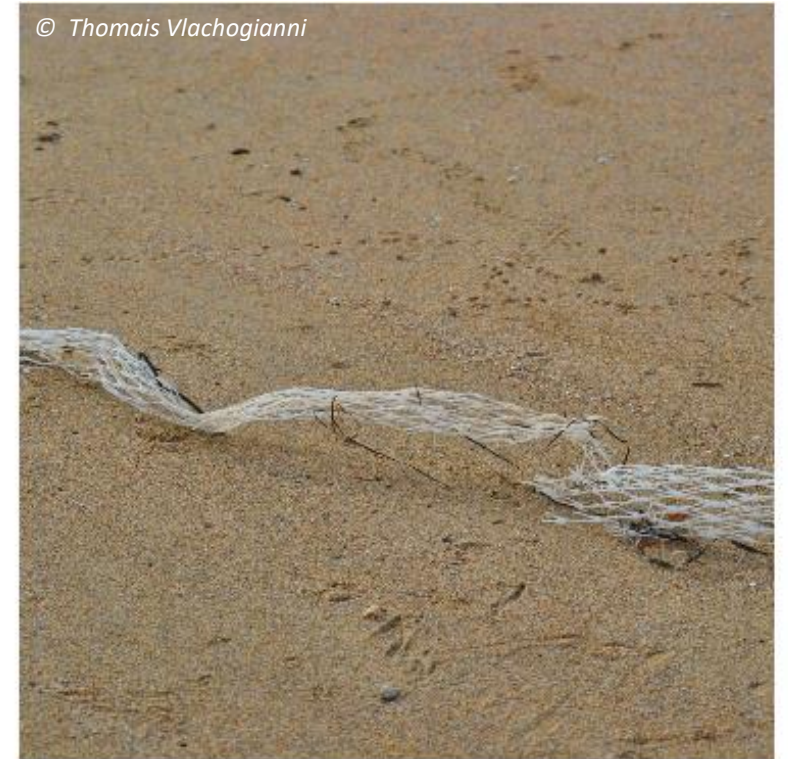
COMMON TYPES OF FISHING GEAR WASTE



fishing nets



lines



mussel socks

Abandoned, lost or otherwise discarded fishing gear is a **significant and very persistent type of marine litter** with numerous harmful effects on the marine and coastal environment and human livelihoods and well-being.

DIRECT AND INDIRECT CAUSES OF ALDFG

Direct causes

operational fishing factors such as weather making it more likely that gear will be left or discarded

illegal, unregulated and unreported fishing

gear retrieval and gear disposal costs

gear conflicts

vandalism and/or theft

Indirect causes

unavailability of onshore waste disposal facilities

accessibility and cost of use of onshore waste disposal facilities

OBJECTIVES OF THE MEASURE

Enhance the understanding of the derelict fishing gear issue in the intervention area by assessing the types, quantities, sources and pathways. This is crucial information that needs to be considered when developing a fishing gear waste delivery system and management process.

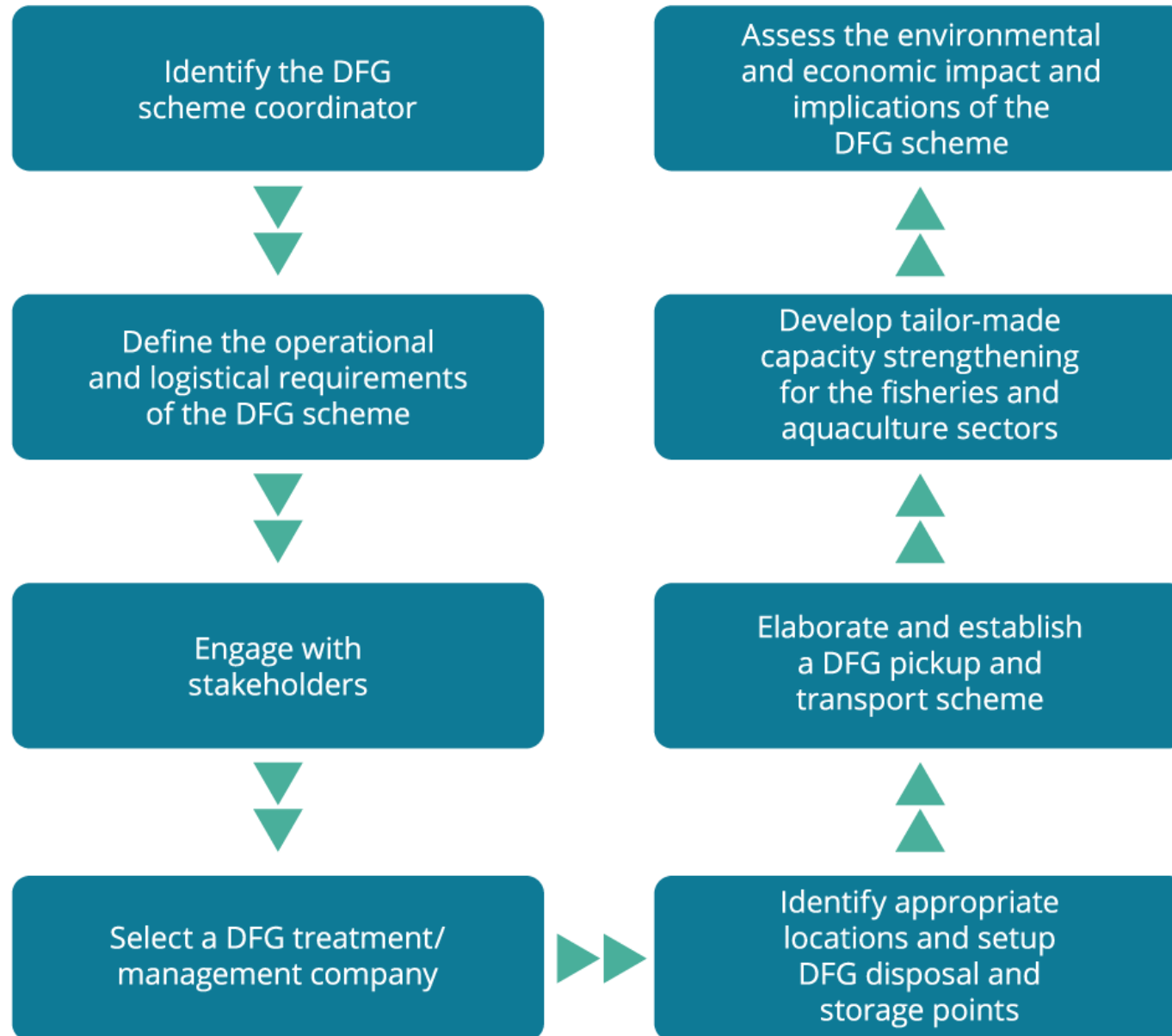
Raise awareness on the effects of derelict fishing gear and promote co-responsibility among the stakeholders involved in the fishing gear management process such as fishermen and fishermen's associations, aquaculture farmers and aquaculture associations, port authorities, waste management authorities and companies, divers and diving associations, local authorities, NGOs, fishing gear producers or traders, etc.

Promote best practices for the proper management and disposal of fishing gear on board and on land.

Restore coastal and marine ecosystems via targeted removal of derelict fishing gear in related hotspots; the removal and clean-up operations need to be done in an environmentally sound manner without posing any threat to habitats and species.

Improve public awareness on the issue of marine litter at large and on the issue of derelict fishing gear in particular and promote behavioural change towards more sustainable consumption patterns with regards to the reduction of the plastic footprint of citizens via informed consumer options.

KEY STEPS FOR SETTING UP A DERELICT FISHING GEAR SCHEME





Fishermen and fishermen's associations



Aquaculture farmers and aquaculture associations



Port authorities



Waste management authorities and companies



Divers and diving associations



Local authorities

THE STAKEHOLDERS



NGOs



Fishing gear producers or traders



MPA managers



Chambers of Commerce

THE KEY OPERATIONAL ASPECTS OF A DERELICT FISHING GEAR SCHEME

- ✓ **The types, sizes, composition, quantities and condition** of derelict fishing gear or fishing gear waste discarded in the intervention area;
- ✓ **The end-of-life treatment options** for the collected fishing gear waste and any pre-treatment and/or sorting requirements;
- ✓ **The availability of facilities and infrastructure** for the collection, sorting and storage of derelict fishing gear or fishing gear waste;
- ✓ **The transportation options to the treatment plant** of the fishing gear waste and the transportation requirements taking into account odour considerations or whether the waste is containerized, etc.;
- ✓ **Special licences and/or permits** required for the disposal and transportation of the collected fishing gear waste;
- ✓ **The level of awareness and experience** of stakeholders in the intervention area on the issues addressed by the derelict fishing gear scheme and their willingness to join the scheme;
- ✓ **Existing waste management schemes** and management plans in the intervention area;
- ✓ **The need for clean-up and removal operations** of derelict fishing gear in hotspots located in the coastal and marine environment.
- ✓ **Environmental and economic implications** of the scheme.



SELECTING A DFG MANAGEMENT COMPANY

Fishing gear waste is a complex waste stream to work with. Fishing gear consists of many different materials that are difficult or costly to separate. In addition, fishing gear often contain sand or mud, biological organisms and may be contaminated with antifouling coating, which often contains heavy metal residues (Brocbeck, 2016) and this influences the purity of the material and thus the recycling potential. Thus, there are limitations as to what can be recycled and what can be recycled profitably.



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MAIN END-OF-LIFE OPTIONS THAT HAVE BEEN REPORTED FOR FISHING GEAR WASTE

Mechanical recycling that can only be performed in dedicated fishing gear recycling facilities.

Chemical recycling that can only be performed in dedicated fishing gear recycling facilities.

Thermal processing.

IDENTIFYING APPROPRIATE LOCATIONS FOR SETTING UP DFG DISPOSAL AND STORAGE POINTS

An on-site visit to the intervention area and to any fishing ports and/or marinas in the vicinity **is required in order to carry out an extensive mapping of potential locations for the disposal of fishing gear waste.** This mapping should be thoroughly discussed and enriched with the involvement of all stakeholders, in particular the port authorities, waste management authorities, the fishermen and aquaculture farmers. **Port and waste management authorities can provide adequate, affordable and accessible derelict fishing gear reception and storage facilities or move collected fishing gear waste to a central storage facility or area in the port.** They might also help out with the arrangements for the transport, disposal and recycling of fishing gear waste together with other waste brought by ships or produced at the port.



ELABORATING AND ESTABLISHING A DFG PICKUP & TRANSPORT SCHEME



The disposal, pick-up and transport scheme of fishing gear waste should be organized in such a way that will ensure that the fishermen and aquaculture farmers and all involved professionals will experience minimal business disruption. When designing pick-up and transport routes, leveraging existing operations, such as existing schemes for the transport of waste brought by ships or produced at the port, could maximize efficiency, decrease business disruption and minimize environmental impact.



Thank you for your attention!

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