



**Joint measures to preserve natural  
ecosystems from marine litter in  
Mediterranean Marine Protected Areas**

## **TOP 10 PRIORITY ACTIONS TO CURB MARINE LITTER IN MEDITERRANEAN MARINE PROTECTED AREAS**

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A JOINT PLAN FOR ACTION

*Prepared by ACT4LITTER*

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## 1. INTRODUCTION

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The Mediterranean Sea is one of the areas most affected by marine litter worldwide. Marine litter is found lying on the shores, as well as floating anywhere from the surface to the bottom of the sea. Even in pristine environments of the Mediterranean, such as coastal and marine protected areas, marine litter is building up threatening habitats and species. MPA managers stand at the forefront of this issue and sadly they lack the tools, knowledge, and often the resources to effectively tackle it.

Within a period of almost two years, ACT4LITTER, an Interreg Med funded project, has provided essential support to managers of marine protected areas to fast-track actions against marine litter. Within this period, MPA managers and marine litter experts from 26 entities and 11 different countries, namely Albania, Belgium, Croatia, Cyprus, France, Greece, Italy, Montenegro, Slovenia, Spain and Tunisia have been brought together and have evolved into a taskforce with a joint mission to curb marine litter.

MPA managers, through four editions of the ACT4LITTER participatory-science campaign entitled Marine Litter Watch Month, collected valuable baseline information on the amounts and the full spectrum of marine litter deposited on the beaches of protected areas in the Mediterranean. The project provided a set of well-designed and well-tested webinars that enhanced the managers' skills on how to monitor marine litter in a harmonized way by using a standardized beach litter monitoring protocol.

Through the project's participatory approach, the marine litter experts have identified some 100 measures (<https://bit.ly/2CX8Rxk>) to prevent and mitigate marine litter and they have contributed to the development of a decision-making tool to help MPA managers identify the most effective and feasible marine litter measures for their MPA specific context.

The Management Bodies of nine Mediterranean coastal and marine protected areas have joined forces with ACT4LITTER in order to come up with comprehensive action plans for marine litter management in their respective MPAs. The action plans were developed step-by-step, engaging all stakeholders with the aim to reflect the MPA-specific context and characteristics and define the priority measures towards preventing and mitigating marine litter effectively. At the heart of the elaboration process of the actions plans, lay the decision-making tool which facilitated the shortlisting of priority measures. The decision-making tool ([www.dmtmarinelitter.com](http://www.dmtmarinelitter.com)) is an innovative system that provides essential support to MPA managers in order to address marine litter.

The collective experience of the pilot MPAs sets the baseline for a common urgent response by Mediterranean MPAs to deal with the lurking marine litter threat. This response along with its strategic elements is captured in the present document which aims to assist other MPA managers in the region to achieve their conservation goals. In an effort to obtain a wider consensus on which actions are of high priority and should be featured in the present document, ACT4LITTER conducted a survey and gather the feedback of some 106 MPA managers from 18 Mediterranean countries, namely Albania, Algeria, Croatia, Cyprus, Egypt, France, Gibraltar, Greece, Israel, Italy, Lebanon, Libya, Monaco, Slovenia, Spain, Tunisia and, Turkey.

The actions listed within this document are the common priority actions identified within the Action Plans of the 9 pilot MPAs (see Annex I) and the aforementioned survey responses (see Annex II).

This document was prepared within the framework of Interreg Med funded ACT4LITTER project by the ACT4LITTER partnership.

## 2. DEFINITIONS AND POLICY CONTEXT

Within this document marine litter is defined as any persistent, manufactured or processed solid material discarded, disposed of or abandoned in the marine and coastal environment. The main legislative frameworks related to marine litter monitoring in Mediterranean MPAs are the EU Marine Strategy Framework Directive (2008/56/EC, 2010/477/EC, 2017/848/EC) and the Barcelona Convention Ecosystem Approach (COP19 IMAP Decision IG.22/7) (see Box 1.1 and Box 1.2).

**Box. 1.1.** *The Marine Litter Descriptor, criteria, and respective Indicators within the framework of the EU MSFD.*

### Marine Litter within the EU MSFD

**Properties and quantities of marine litter do not cause harm to the coastal and marine environment (Descriptor 10)**

**Criteria D10C1 - Primary:** The composition, amount and spatial distribution of litter on the coastline, in the surface layer of the water column, and on the seabed, are at levels that do not cause harm to the coastal and marine environment.

- ✓ amount of litter washed ashore and/or deposited on coastlines, including analysis of its composition, spatial distribution and, where possible, source (10.1.1)
- ✓ amount of litter in the water column (including floating at the surface) and deposited on the sea-floor, including analysis of its composition, spatial distribution and, where possible, source (10.1.2)

**Criteria D10C2 - Primary:** The composition, amount and spatial distribution of micro-litter on the coastline, in the surface layer of the water column, and in seabed sediment, are at levels that do not cause harm to the coastal and marine environment.

- ✓ amount, distribution and, where possible, composition of microparticles (in particular microplastics) (10.1.3)

**Criteria D10C3 - Secondary:** The amount of litter and micro-litter ingested by marine animals is at a level that does not adversely affect the health of the species concerned.

- ✓ amount and composition of litter ingested by marine animals (10.2.1)

**Criteria D10C4 - Secondary:** The number of individuals of each species which are adversely affected due to litter, such as by entanglement, other types of injury or mortality, or health effects.

**Box. 1.2.** *The Marine Litter Operational Objectives and respective Indicators within the framework of the Barcelona Convention Ecosystem Approach and the Integrated Monitoring and Assessment Programme (IMAP)*

### Marine Litter and the Barcelona Convention Ecosystem Approach

**Ecological Objective 10 (EO10):** Marine and coastal litter do not adversely affect the coastal and marine environment.

**IMAP Common Indicator 22:** Trends in the amount of litter washed ashore and/or deposited on coastlines (including analysis of its composition, spatial distribution and, where possible, source).

**IMAP Common Indicator 23:** Trends in the amount of litter in the water column including micro plastics and on the seafloor.

**IMAP Candidate Indicator 24:** Trends in the amount of litter ingested by or entangling marine organisms focusing on selected mammals, marine birds, and marine turtles.

### 3. GOALS AND OBJECTIVES

The overarching goal of the 'TOP 10 Priority Actions to curb Marine Litter in Mediterranean Marine Protected Areas' (hereinafter referred to as Joint Plan for Action) is to promote priority actions needed to tackle marine litter and facilitate the efforts of MPA managers in achieving their conservation objectives.

The key objectives of Joint Plan for Action are to:

- i. **Prevent** and **reduce** marine litter entering the coastal and marine environment of Mediterranean MPAs;
- ii. **Collect** and **remove** marine litter from the coastal and marine environment of Mediterranean MPAs by using sound methods that don't pose any threats to habitats and species, with a specific focus on marine litter hotspots and accumulations areas;
- iii. **Enhance** and **deepen** knowledge on the marine litter threat (amounts, composition, sources, pathways and impacts) in Mediterranean MPAs.

### 4. PRIORITY ACTIONS TO COMBAT MARINE LITTER IN MEDITERRANEAN MPAs

In this section, the priority actions needed to tackle marine litter and facilitate the efforts of MPA managers in achieving their conservation objectives are presented. Each action is featured with a number, a short description and the role MPA managers can play in the implementation.

- **Implementer.** The MPA manager is directly involved in the implementation of a marine litter measure, i.e. the MPA manager designs and sets up a specific marine litter measure like a clean-up operation.
- **Facilitator.** The MPA manager facilitates other actors to implement a marine litter measure by helping create the enabling conditions, i.e. The MPA manager organizes a capacity building workshop targeting a wide range of stakeholders aiming to enhance their skills to implement best practice marine litter measures.
- **Promoter.** The MPA manager advocates for and/or supports the implementation of a marine litter measure, i.e. the MPA manager carries out advocacy/lobbying work targeting policy/decision makers in order to promote the establishment of an extended producer responsibility scheme for cigarette butts.

	TITLE	SHORT DESCRIPTION	THE MPA MANAGER ROLE
# 1	<b>Setup an adopt-a-beach scheme</b>	This is a measure designed to foster volunteer stewardship by encouraging volunteers to 'adopt' beaches, clean them up and survey them throughout the year, thus collecting valuable marine litter data essential for facilitating effective responses against marine litter.	Implementer
# 2	<b>Promote bans and/or levies on single-use items</b>	This entails lobbying actions for banning single-use items or for putting a levy on them.	Promoter
# 3	<b>Setup and carry out awareness raising and education campaigns</b>	This entails wide-ranging activities such as school interventions, communication campaigns, cleanups, workshops, summer schools, exhibitions and others, aiming to deepen	Implementer

		public understanding on the issue of marine litter and catalyze change in their perceptions and attitudes towards waste.	
# 4	<b>Establish 'passive' fishing for litter schemes</b>	This is a measure designed to encourage fishermen to bring ashore litter they catch while performing their daily fishing activities, not only leading to removal of marine litter but also raising awareness on the issue within the fishing sector and the wider public.	Implementer/Facilitator
# 5	<b>Carry out cleanup and removal actions</b>	This measure refers to cleanup and removal actions implemented at the coast or at sea, with environmental friendly methods.	Implementer
# 6	<b>Setup selected waste reduction measures</b>	Good waste management must begin with the prevention of its generation in the first place. This refers to measures that reduce waste production, i.e. via designing for life cycle, phasing out the use of single-use items, etc.	Implementer/Facilitator/Promoter
# 7	<b>Improve waste management</b>	This entails actions that address all phases of a waste management scheme: collection and sorting of waste, proper treatment either for reuse and recycling or for environmentally safe disposal.	Implementer/Facilitator/Promoter
# 8	<b>Promote extended producer responsibility schemes</b>	This measure refers to an environmental policy approach in which a producer's responsibility for a product is extended to the post-consumer stage (waste) of a product's life cycle, i.e. mandatory take-back systems, deposit-refund systems, etc.	Promoter
# 9	<b>Improve wastewater management systems</b>	This refers to technological solutions and innovations needed in order to ensure that wastewater treatment systems prevent effectively the leakage of micro-litter into the environment.	Promoter
# 10	<b>Carry out participatory-science initiatives to collect marine litter data</b>	This measure refers to the method of undertaking scientific research where community groups and science professionals work together in a meaningful way on to collect marine litter data.	Implementer/Facilitator/Promoter

## ANNEX I. LIST OF THE PIONEERING MPAS AND THE METHODOLOGICAL APPROACH OF THE ACT4LITTER PILOT ACTIONS TO IDENTIFY PRIORITY MEASURES

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### THE ACT4LITTER PIONEERING MPAs

- Cabo de Gata-Níjar Natural Park/UNESCO Global Geopark – Andalusia (Spain)
- Ebro Delta Nature Park (Spain)
- Kornati National Park (Croatia)
- Miramare MPA and MAB-UNESCO Biosphere Reserve Miramare and coast of Trieste (Italy)
- MPA Cala Ratjada – Balearic Islands (Spain)
- MPA of Torre Guaceto (Italy)
- MPA Torre del Cerrano (Italy)
- Strunjan Landscape Park (Slovenia)
- Thermaikos Gulf Protected Areas Management Authority (former Axios – Loudias – Aliakmonas Management Authority)(Greece)

### THE ACT4LITTER FIVE-PHASE PROCESS FOR THE ELABORATION OF THE ACTION PLANS

The development of the Action Plans for the management of marine litter in the aforementioned 9 Mediterranean MPAs followed a five-phase process (described by *Scoullou et al., 2015*) as presented below. It should be clarified that within the scope of the ACT4LITTER project the completion of the four phases (Phase 1-4) was envisaged.

**Phase 1 – Establishment:** The overall aim of the establishment phase is to define/make known the intention for drafting the plan and identify the convening body responsible for the overall coordination of the planning. All parties that should be involved were identified and a core group with the mandate to prepare and implement the plan should be established. At this early stage, effort should be directed to identify the stakeholders and design the stakeholders' engagement process.

**Phase 2 – Analysis and Scenarios:** The aim of the analysis phase is to establish the foundation on which the preparation of the plan and its implementation will be based. Any available information on the marine litter issue (amount, types, sources and impacts) was collected, including information on pre-existing relevant plans. The marine litter specific context together with the MPA-specific context will be introduced into the ACT4LITTER decision-making model in order to generate a proposed scenario for the prevention and mitigation of marine litter. In parallel, within this stage the engagement of stakeholders will be initiated.

**Phase 3 – Setting the Vision:** The aim of this stage is to achieve the engagement and consensus building with the stakeholders and the wider community on the action plan based on the findings from the Establishment and Analysis & Scenarios phases. Within this stage stakeholders will be engaged in the identification of the key problems and issues for the plan to deal with and will set the course for the eventual 'shape' of the plan and its implementation by reviewing the proposed scenario (from Phase 2) and shortlisted marine litter measures that will be generated by the ACT4LITTER decision-making model.

**Phase 4 – Designing the Future:** The aim of this stage is the actual drafting and finalization of the marine litter action plan which will contribute in shaping the future of the MPA. The action plan should indicatively include: the goals and objectives of the plan, a preamble explaining the scope and process followed for its production and approval, the vision, the context derived from the analysis, the governance structure, the institutional framework for implementation, the priority marine litter measures agreed upon by the different stakeholders along with a roadmap for their implementation.

Within this stage stakeholders will be engaged in the finalization and final adoption of the action plan.

**Phase 5 – Realizing the Vision:** The aim of this final phase is to operationalise the adopted marine litter action plan and provide for its constant improvement. Within this stage the necessary actions will be undertaken for the operationalization of the action plan, including getting access to funds and monitoring and reviewing the implementation of the action plan.

#### **THE MEASURES SHORTLISTED BY THE PILOT MPAS**

A brief overview of the marine litter measures shortlisted by the 9 pilot MPAs based on the results produced by the decision-making tool is presented below:

##### ***Cabo de Gata-Níjar Natural Park/UNESCO Global Geopark – Andalusia, Spain***

- Raise public awareness on the marine litter threat.
- Carry out educational talks / workshops on the problem of marine litter at sector level (in all sectors involved, focusing on the agricultural sector, as a big part of the problem)
- Disseminate stickers for shops, hotels, bars, etc. on the proper disposal of waste.
- Map and monitor (including recovery of) marine litter via using ships of opportunity in order to identify marine litter hotspots or accumulation and transport patterns.
- Limit or eliminate single-use plastics, acknowledge the effort against marine litter of companies from any sector via a distinctive sign.
- Raise awareness on the risk of waste accumulation in dry rivers.
- Celebrate the European Week of Waste Reduction during the summer and in collaboration with companies.

##### ***Ebro Delta Nature Park, Spain***

- Carry out a public awareness raising campaign
  - Set up a learning and service program targeted to students.
  - Develop an educational game and a didactic material entitled “Ebre Nius”.
  - Elaborate a communication plan to guide all awareness raising actions.
- Promote the replacement of single-use plastics
  - Promote the use of reusable cups, plates and cutlery in public acts.
  - Promote the use of reusable cups in beach bars via supplying beach bars with such cups.
  - Use paper bags in the information centres of the Ebro Delta Natural Park.
  - Implement sustainable consumption practices within the Park’s daily operations, via encouraging the use of reusable cups or food containers; forbid the use of single-use cups, cutlery and plates in events promoted by the Park; promote waste savings in fun events, etc.
- Carry out cleanup campaigns and removal actions
  - Undertake cleanup operations in the Delta.
  - Organize cleanup actions with the involvement of people affected by mental disorders or disabilities.
  - Deploy a beach cleaning protocol (with mechanical or manual means) on the beaches of the Delta, during the summer period.
  - Carry out other clean ups.



### ***Kornati National Park, Croatia***

- Raise public awareness and promote co-responsibility for marine litter in Europe via targeted campaigns (such as the Keep the Mediterranean Litter Free Campaign, etc.)
- Promote and/or join pan-European initiatives such as the 'European Week for Waste Reduction' or the 'Let's Clean Up Europe'.
- Carry out awareness raising actions to reduce the use of single-use plastic bags.
- Promote bans for single-use plastic bags or expanded polystyrene items.
- Implement the 'adopt-a-beach' scheme.
- Engage divers in 'Dive Against Debris' schemes.
- Carry out seabed clean-up operations in marine litter hotspots.
- Implement the 'Fishing for litter' scheme.
- Promote and/or participate in the Blue Flag Initiative.
- Promote the establishment of a tax on boats, for financing measures to manage waste on islands.
- Seek ways to obtain the antivolabossa device which is designed in such a way to prevent bin bags from blowing away.

### ***Miramare MPA & MAB-UNESCO Biosphere Reserve, Italy***

- Beach cleanup along the whole MPA (Cleanup campaign and removal actions).
- Scuba diving for picking up and displaying collected litter in marinas and neighbouring sites (Cleanup campaign and removal actions + Public awareness raising campaign).
- Didactic program dedicated to primary school students visiting Miramare MPA, named "Sco-vazze a-mare " (Public awareness raising campaign).
- Promoting the use and checking the feasibility for installing a "Seabin" device into the core area.

### ***MPA Cala Ratjada – Balearic Islands, Spain***

- Raising public awareness on marine litter.
- Awareness and education of fishermen for good practices in the management of their waste.
- Marking and retrieval of fishing gear (already done by fishermen, MPA Service and Guardia Civil Divers).

### ***MPA Torre del Cerrano (Italy)***

- Monitor marine litter along the Cerrano river to assess the amount, composition and sources of riverine marine litter inputs.
- Implement removal/cleanup operations at the river bed and the river outflow.

### ***MPA of Torre Guaceto (Italy)***

- Monitor marine litter in line with the MSFD TG10 guidelines and enhance knowledge on the amount, composition and sources of marine litter in the MPA of Torre Guaceto.
- Setup a service regularly and manually cleanup the beaches of the MPA.
- Awareness raising to reduce litter from fishing boats.
- The 'Fishermen Sea Protectors' campaign
- Set up seafloor cleanup operations in collaboration with divers.
- Promote the use of pocket-ashtrays to reduce the amount of cigarette butts found on beaches.
- Raise awareness on marine litter via organizing public cleanup events.

### ***Strunjan Landscape Park, Slovenia***

- Implement a public awareness raising campaigns. Specifically these campaigns should:
  - Support the "straw-free" initiative and promote the reduction of single-use plastic items such as straws, cups, cutlery and plates in restaurants, hotels, etc.

- Entail different types of actions undertaken within the national campaign 'Living with the sea', such as clean-ups, exhibitions within nautical fair, round table discussions with a wide range of experts etc., organized by state institutions and with the participation of non-governmental organizations.
- Setup the adopt-a-beach scheme. It is of crucial importance to transfer this measure also to lakes and rivers along the territory of the 14 protected areas of Slovenia.
- Cleanup campaign and removal actions.

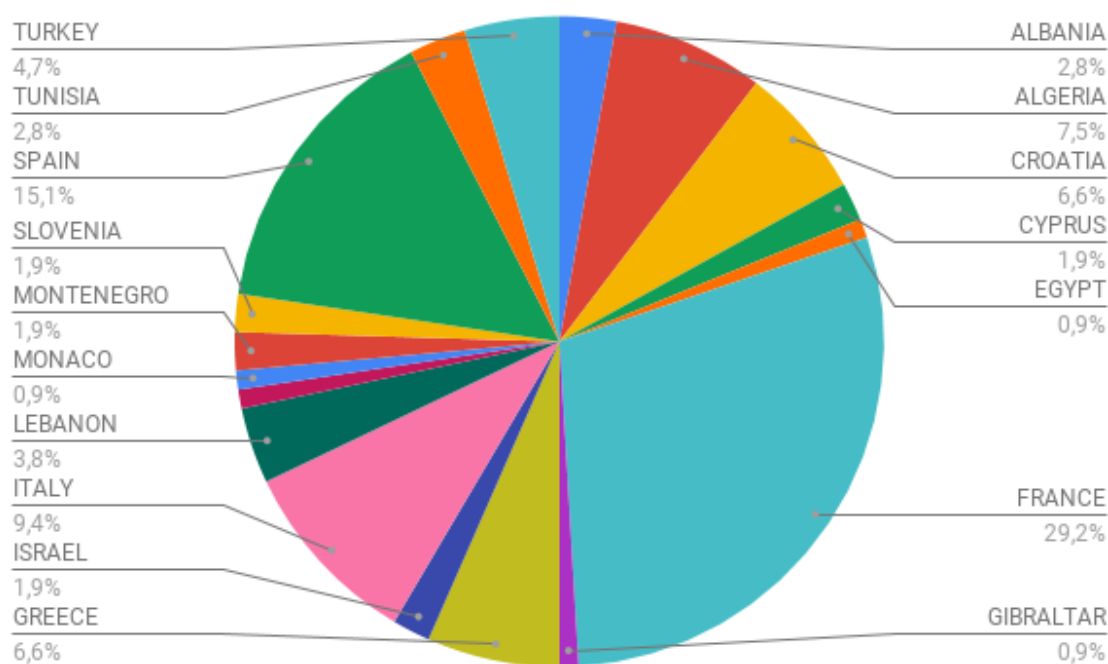
***Thermaikos Gulf Protected Areas Management Authority (former Axios – Loudias – Aliakmonas Management Authority)(Greece)***

- Raise the awareness of mussel farmers, fishermen (professional and recreational) and people fishing sea worms on the marine litter issue and promote co-responsibility.
- Raise the awareness of farmers in adjacent areas on the impacts of the agriculture sector with regards to marine litter.
- Carry out environmental education programmes on marine litter targeted to schools.
- Organize professional cleanups of Alyki Kitrous. The removal actions will be carried out manually due to the sensitivity of the sand dunes and species dwelling or reproducing in these.
- Removal of marine litter via trawl boats.
- Removal of marine litter via floating collection devices in Axios River.
- Improving the port reception facilities for waste management.
- Monitor the impacts of microplastics to mussels.
- Study and test solutions for specific litter items found in this area.

## ANNEX II. RESULTS AND FINDINGS OF THE ACT4LITTER SURVEY TO IDENTIFY PRIORITY MEASURES AGAINST MARINE LITTER

A short survey was circulated among the Mediterranean MPAs community with the objective to obtain a wider consensus on which actions are of high priority in terms of tackling marine litter effectively in MPAs. 106 MPA managers responses from 18 Mediterranean countries were received.

**THE ACT4LITTER SURVEY RESPONSES**



Survey recipients were provided with a list of 25 clustered measures, and were asked to select and rank the three measures they consider as the most effective ones to address marine litter in their MPA (without considering cost or feasibility issues).

### THE ACT4LITTER CATEGORIES OF MARINE LITTER MEASURES

- 1 - Adopt-a-beach scheme
- 2 - Awareness raising campaign targeted to boaters
- 3 - Banning specific items and activities
- 4 - Promoting best practices for ecotourism
- 5 - Promoting best practices for recreational fishing
- 6 - Campaign to reduce plastic water bottles
- 7 - Cleanup campaign and removal action
- 8 - Deposit-refund system /reverse vending machines
- 9 - Derelict fishing gear management scheme
- 10 - Eco-labelling
- 11 - Setting up an Environmental Management System
- 12 - Imposing a fee/tax/levy

- 13 -** Implementing the fishing for litter scheme
- 14 -** Improving port reception facilities for waste
- 15 -** Improving waste management on-board
- 16 -** Improving wastewater management systems
- 17 -** Marking and retrieval of fishing gear
- 18 -** Promoting extended producer responsibility schemes
- 19 -** Promoting the replacement of single-use plastics
- 20 -** Public awareness raising campaign
- 21 -** Actions to reduce cigarette butts on beaches
- 22 -** Promoting the Responsible Beach Snack Bars initiative
- 23 -** Establishing a return-refund system for packaging
- 24 -** Campaign to phase out microplastics in cosmetics
- 25 -** Upcycling and/or recycling

The survey results were analysed using a weighted ranking approach: (1) a score is used to determine how measures are ranked; (2) the score is a weighted calculation; (3) measures ranked first are given a higher value or "weight"; (4) the score, computed for each measure, is the sum of all the weighted values; (5) as the number of measures to be ranked are limited to 3, the first-ranked items are given a score of 3, the second-ranked a score of 2, and the third-ranked a score of 1.

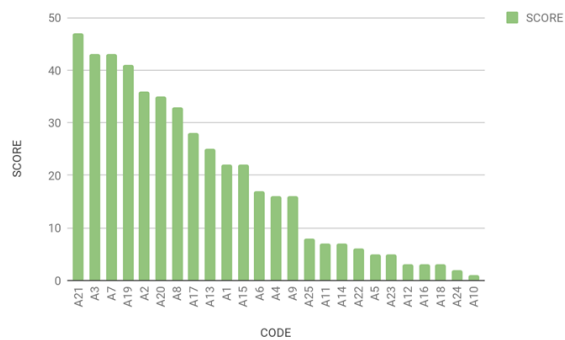
#### REGIONAL RESULTS



## RESULTS FOR EU COUNTRIES & NON EU COUNTRIES

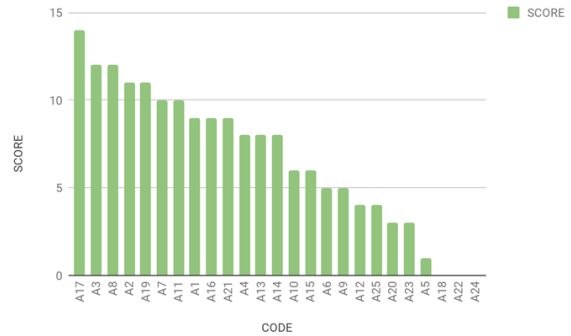
### EU

- 1 Public awareness raising campaign
- 2 Banning specific items and activities
- 3 Cleanup campaign and removal action
- 4 Promoting the extended producer responsibility



### NON EU

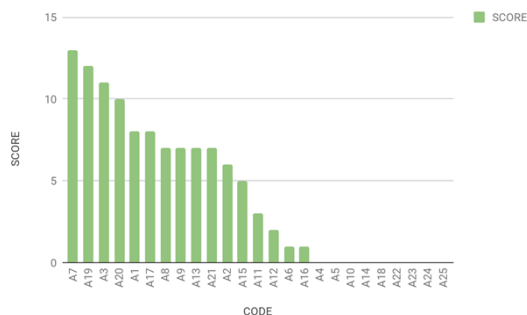
- 1 Improving wastewater management systems
- 2 Banning specific items and activities
- 3 Setting up a deposit-refund system



## RESULTS FOR APG MEMBERS & OTHERS

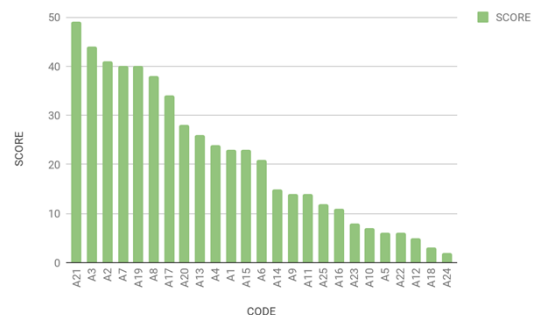
### APG

- 1 Cleanup campaign and removal action
- 2 Promoting the extended producer responsibility
- 3 Banning specific items and activities



### OTHERS

- 1 Public awareness raising campaign
- 2 Banning specific items and activities
- 3 Awareness raising campaign targeted to boaters





## Joint measures to preserve natural ecosystems from marine litter in Mediterranean Marine Protected Areas



Catalan Waste Agency -  
Regional Activity Center  
for Sustainable Consump-  
tion and Production



Sant'Anna School of  
Advanced Studies



MedPAN - Network  
of Marine Protect-  
ed Area Managers  
in the Mediterra-  
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