



GOBIERNO
DE ESPAÑA

MINISTERIO
PARA LA TRANSICIÓN ECOLÓGICA

WATER

ENTER



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PREAMBLE

The accumulation of **marine litter at sea is an** unprecedented **environmental problem** with consequences that are not fully measurable today. However, there is evidence of negative impacts of various kinds on our **marine species, habitats and ecosystems**. The sea cannot assimilate the continuous inputs of wastes from all the populated areas of the world. Once in the marine environment, litter is easily dispersed and reaches the most distant and pristine areas due to the ocean currents. We are therefore facing a problem with global origin and consequences.

Many studies are being carried out in the last few decades on the occurrence, abundance, composition and impacts of marine litter and, as a result, **Action Plans** have been adopted at different international scales, and at national level through our first Marine Strategies.

In Europe, the process towards a circular economy and, in particular, the European plastic strategy, gives us unquestionable opportunities to delve into the origins of this problem and transform our society into a community that is aware of available resources and waste production, and is responsible for its management throughout its entire life cycle, contributing to extend its lifespan and protecting our natural heritage from becoming a recipient of what we no longer need.

Active collaboration of the whole society is key to face marine litter. The Public Administrations, the scientific community, and a good number of business associations and NGOs work together towards this common objective, building and sharing solutions and knowledge in different forums and initiatives.

ABBREVIATIONS AND ACRONYMS

CEDEX	Centre for Public Works Studies and Experimentation
Convenio Barcelona	International Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean
Convenio OSPAR	Convention for the Protection of the Marine Environment of the North-East Atlantic
DGSCM	General Directorate for Coast and Sea Sustainability
DM	Marine Subdivision
IEO	Spanish Institute of Oceanography
MITECO	Ministry for the Ecological Transition
ONU	United Nations (UN)
ONU Medio Ambiente	United Nations Environment Programme (UNEP)
ONU Medio Ambiente-PAM	United Nations Environment Programme- Mediterranean Action Plan (UNEP-MAP)
SGPM	Deputy General Directorate for the Protection of the Sea
ZEC	Special Area of Conservation (SAC)

GLOSSARY OF TERMS

GOOD ENVIRONMENTAL STATUS (GES). Environmental status of marine waters where these provide ecologically diverse and dynamic oceans and seas, which are clean, healthy and productive within their intrinsic conditions, and the use of the marine environment is at a level that is sustainable, thus safeguarding the potential for uses and activities by current and future generations.

DESCRIPTORS. They are the basis for the GES definition and assessment. The Marine Strategy Framework Directive 2008/56/CE (MSFD) provides a list of 11 qualitative descriptors (Annex I) that every Member State must use to define and assess GES. These descriptors must be developed according to the Commission Decision (EU) 2017/848 of 17 May 2017 laying down criteria and methodological standards on good environmental status of marine waters and specifications and standardized methods for monitoring and assessment, and repealing Decision 2010/477/EU.

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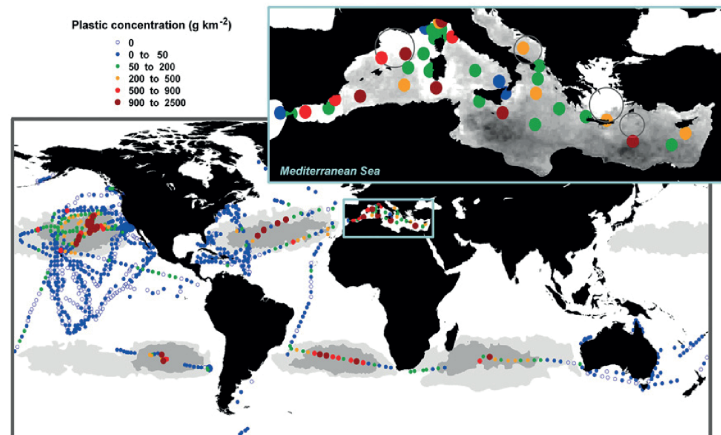
WHAT DOES “MARINE LITTER” MEAN?

The term “marine litter” encompasses any persistent, manufactured or processed solid material, discarded, disposed of or abandoned in the marine or coastal environment, deliberately or indirectly through river mouths and estuaries.
 (Descriptor 10- Marine Strategies; UNEP 2009)

At a planetary scale, 5 large offshore plastic accumulation areas have been identified (2-5 million square kilometres) coinciding with the major Subtropical Gyres. Floating plastic concentrations in the Mediterranean Sea are comparable to those found in these 5 accumulation areas.

MARINE LITTER IS A GLOBAL PROBLEM: 10 MILLION TONS ENTER ANNUALLY INTO SEAS AND OCEANS

UN AND MARINE LITTER	
2005	General Assembly
2011	Honolulu Strategy
2012	United Nations Conference on Sustainable Development (UNCSD) Rio+20 UNEP Global Partnership on Marine Litter (GPML)
2015	Sustainable Development Goal 14 (Target 14.1) by 2025, “prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution”
2017	Clean Seas campaign (accession of Spain) UNEA Resolution 3/7 on Marine Litter and Microplastics



Source: Cózar A, Sanz-Martín M, Martí E, González-Gordillo JI, Ubeda B, Gálvez JÁ, et al. (2015) Plastic Accumulation in the Mediterranean Sea. PLoS ONE 10(4): e0121762. doi:10.1371/journal.pone.0121762

MICROPLASTICS

Microplastics are a group of synthetic materials made from petroleum derivatives or bio-based polymers. They are solid particles, sized below 5 mm, not soluble in water and with a low degradability.



PRIMARY: intentionally produced and introduced into products, as for example: industrial abrasives, cosmetics, pre-production plastic pellets, etc.

SECONDARY: resulting from the degradation of larger plastic fragments.

MICROPLASTICS HAVE BEEN DETECTED IN 88% OF THE OCEANIC SURFACE AND ARE PERSISTENT IN THE ENVIRONMENT

Large quantities of microplastics are entering the marine food chain and accumulating on the sea-floor

They are increasingly present in all the oceans and in the most remote places of the earth (including the polar ice cap), continental waters and the terrestrial environment

They are ingested by numerous species of marine biota

Areas of high concentration of microplastics = feeding areas of aquatic organisms

Existence of microbial communities that develop on the surface of any piece of plastic in aquatic environments ("Plastisphere")

Identification and quantification of microplastics require standardized techniques and methodologies

Modelling: tool to identify sources, pathways and potential sinks for microplastics

MARINE LITTER IMPACTS



ENVIRONMENTAL IMPACTS	<ul style="list-style-type: none"> • Entanglement and ingestion of marine litter by marine fauna, which can cause stranglement, malnutrition and other internal or external injuries • Degradation of the sea-floor • Transportation of invasive species
SOCIOECONOMIC IMPACTS	<ul style="list-style-type: none"> • Fisheries sector: degradation of fishing grounds • Tourism and recreational activities: accumulation of marine litter on beaches and coasts, collision with boats
MICROPLASTICS IMPACTS	<ul style="list-style-type: none"> • Ingestion by marine biota: reduction of fertility and increase of mortality • Risk of trophic transfer to humans through commercial species • Adsorption of pollutants from the environment, a mechanism for contaminants accumulation on microplastics and its uptake by living organisms

ACTIONS IN THE CONTEXT OF INTERNATIONAL CONVENTIONS FOR MARINE PROTECTION

	OSPAR Convention	Barcelona Convention
Monitoring and assessment programs	The CEMP “Coordinated Environmental Monitoring Programme”, including the Joint Assessment & Monitoring Programme (JAMP)	Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and related Assessment Criteria (IMAP)
Action Plans	Regional Action Plan for Prevention and Management of Marine Litter in the North-East Atlantic (Agreement 2014-1)	Regional Plan on Marine Litter Management in the Mediterranean (Decision IG.21/7) 2013 and the Enforcement Decision (IG22/10) 2016

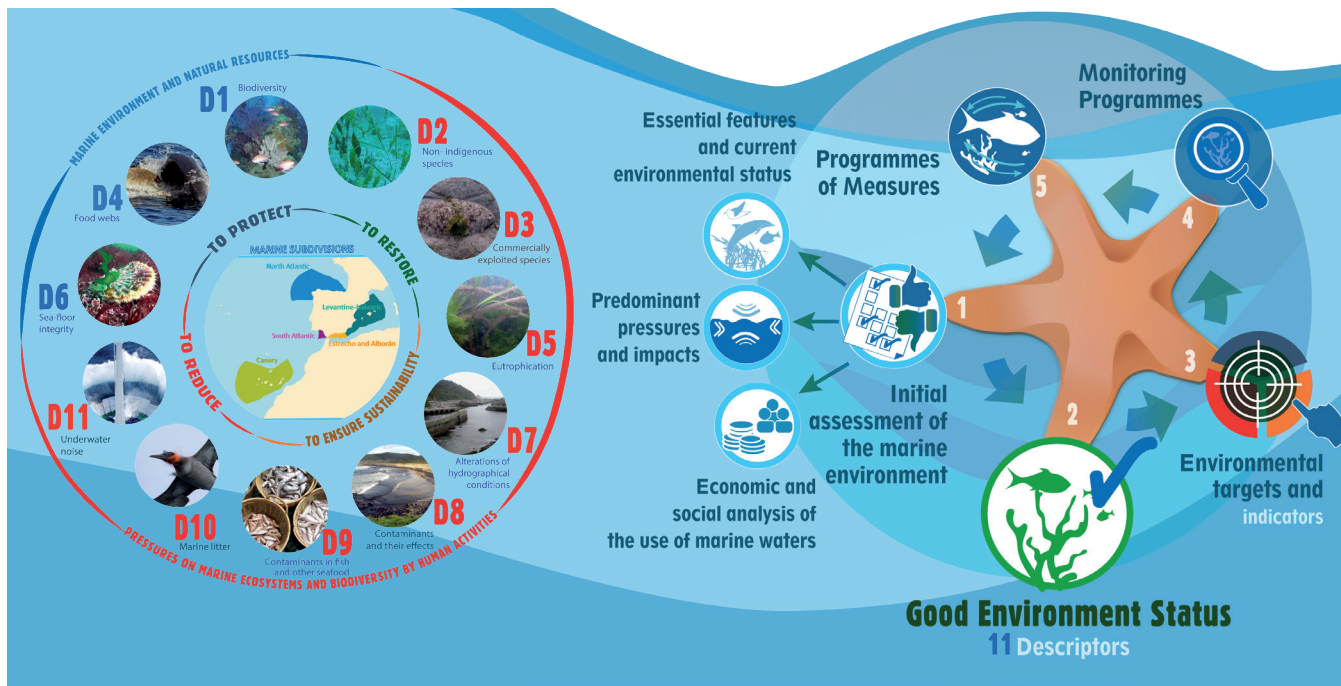
Milestones of the EU

- 2008** Directive 2008/56/EC, of 17 June 2008, Marine Strategy Framework Directive
- 2014** Zero Waste Management Program for Europe: 30% reduction target of the 10 most common types of waste on beaches and fishing gears
- 2015** Circular Economy Action Plan which includes the revision of the EU waste legislation
- 2018** European Strategy for Plastics



MARINE LITTER IN THE MARINE STRATEGIES

The **Marine Strategies** are the marine environmental planning tool of reference to achieve or maintain the **Good Environmental Status (GES)** of the marine environment. An initial assessment, a GES definition, setting of environmental targets, establishment of monitoring programmes and implementation of measures specifically designed to achieve GES are developed for each of the 11 descriptors. **Descriptor 10** is referred to **marine litter**.



MARINE LITTER IN SPAIN: COMPOSITION AND SOURCES

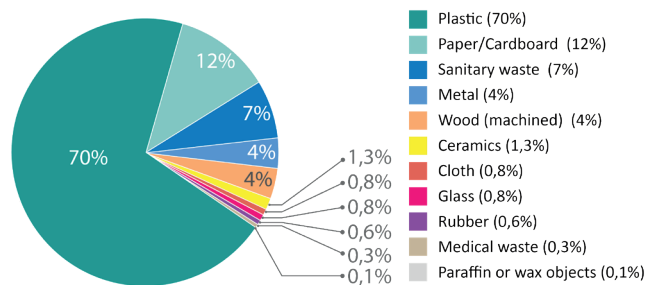


Figure 1. Macro-litter composition. Source: Reports of the monitoring programme on marine litter on Spanish beaches 2013-2017.MITECO.

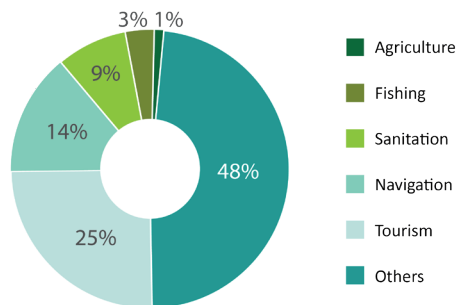


Figure 2. Sources of marine litter. Source: Reports of the monitoring programme on marine litter on Spanish beaches 2013-2017.MITECO.

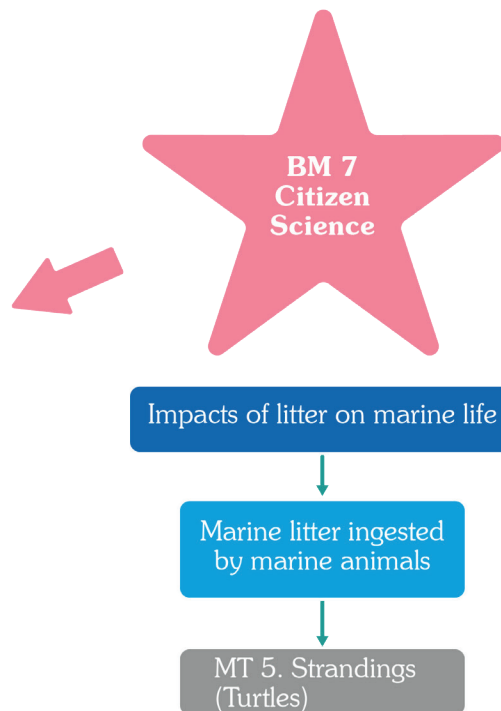
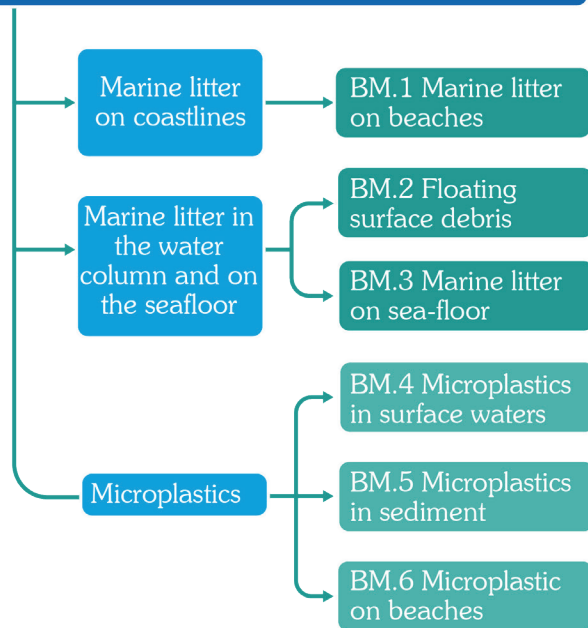


Figure 3. Top X of macro-litter. Source: Reports of the monitoring programme on marine litter on Spanish beaches 2013-2017. MITECO.

MARINE LITTER MONITORING PROGRAM

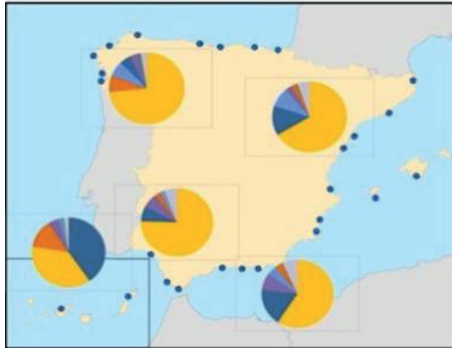
The Marine litter monitoring program is composed of the following subprograms for each of the 5 Spanish marine subdivisions:

CHARACTERISTICS OF LITTER IN MARINE AND COASTAL ENVIRONMENT



MARINE LITTER ON BEACHES BM-1

In 2013, a standardized monitoring program was started covering **26 beaches of the Spanish coastline**, in order to characterize the objects found, compare the situation in the different Spanish **marine subdivisions** and calculate trends in order to implement measures aimed at reducing marine litter.

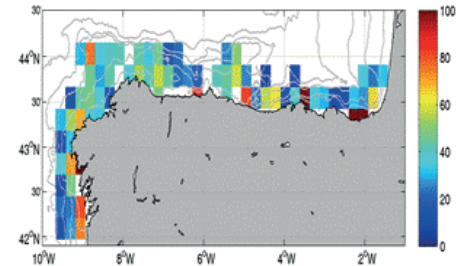


MARINE LITTER ON SEA-FLOOR BM-3

Each year, on the coasts of the Cantabrian Sea and the continental shelf of Galicia, the IEO carries out the **DEMERSALES** oceanographic survey, aimed at assessing the state of the demersal and benthic ecosystems. Marine litter collected from each haul is recorded taking into account both total weight and number of litter items per square kilometre. The same methodology will be applied in the **ARSA** surveys in the South Atlantic subdivision, and in the **MEDITS** surveys for the Gibraltar Strait and Alboran Sea and the Levantine-Balearic subdivisions.

FLOATING SURFACE DEBRIS BM-2 AND MICROPLASTICS IN SURFACE WATERS BM-4

During the last 5 years, the observation and recording of **floating surface marine litter** in the Cantabrian coast has been conducted annually as a complementary activity to seabirds and cetaceans monitoring developed during the **PELACUS** pelagic acoustic assessment surveys carried out by the IEO. These surveys cover the continental shelf from shallow bottoms to 2,000 meters depth. Work is being done to homogenize, standardize and extend this sampling to the entire Spanish coast.



MICROPLASTICS IN SEDIMENT BM-5

In a research phase, some sediment samples have been taken during contaminants surveys. The methodology to analyse microplastics in those samples is being refined.

MICROPLASTIC ON BEACHES BM-6

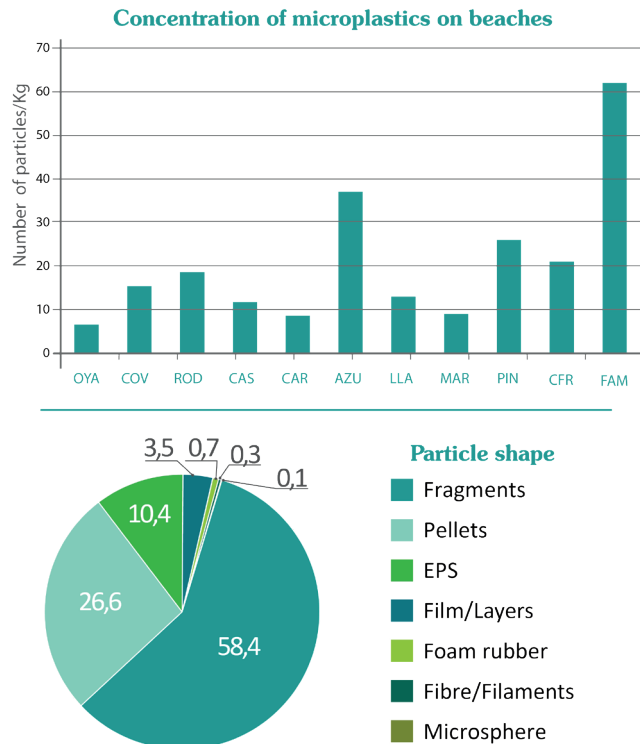
After the initial phase, the **monitoring program of microplastics** on beaches began in autumn 2016, and is now being implemented by CEDEX. In this routine monitoring, 11 beaches of our coast are sampled twice a year.

MARINE LITTER IN BIOTA MT-5

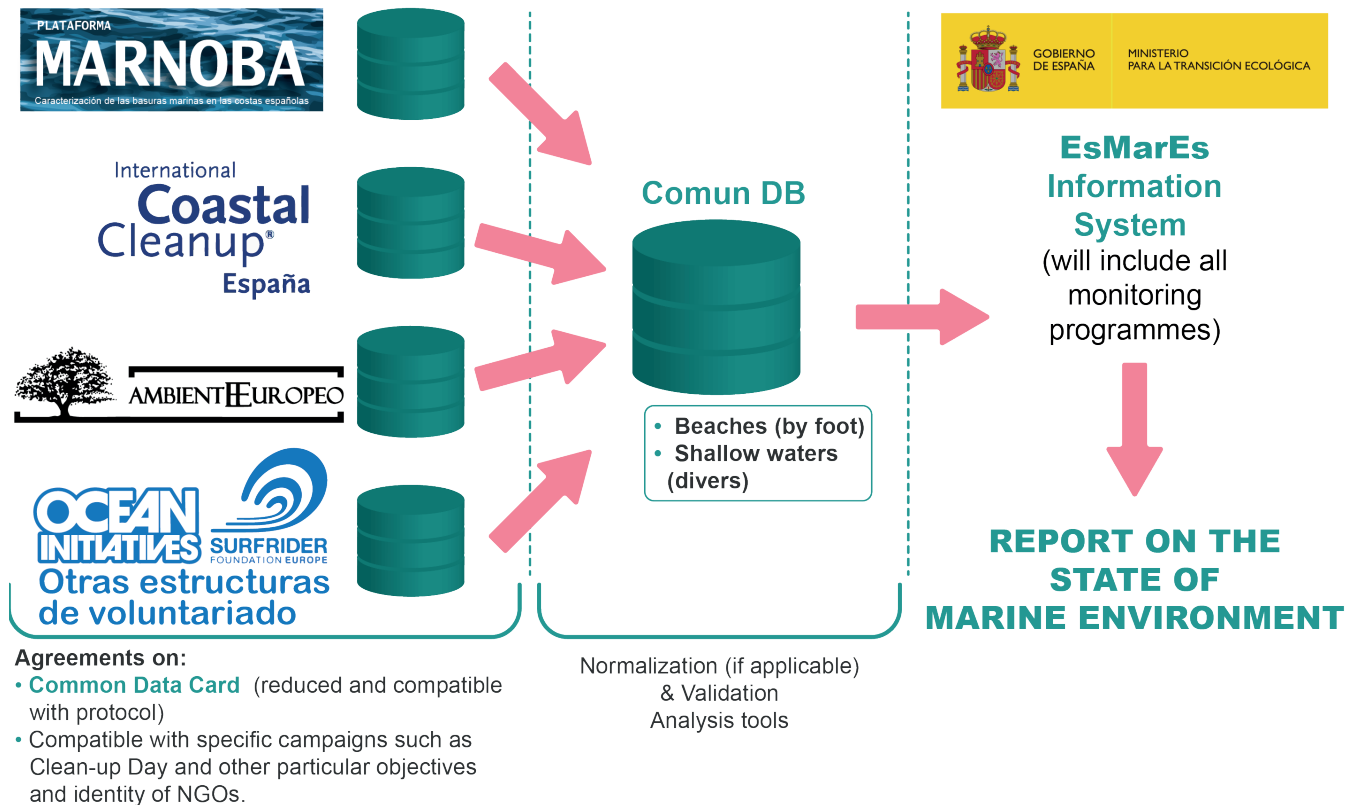
The **INDICIT** project, started in February 2017 and funded by the European Commission, aims at developing a standardised monitoring of litter in marine organisms, with particular emphasis on sea turtles. In particular, the following indicators are under consideration:

- **Indicator 1:** macro-litter ingested by sea turtles (debris items >5 mm).
- **Indicator 2:** marine wildlife entanglement in debris (all taxa).
- **Indicator 3:** micro-litter ingested by fish/ sea turtle (debris items <1mm).

RESULTS AFTER DEVELOPING 4 SURVEYS

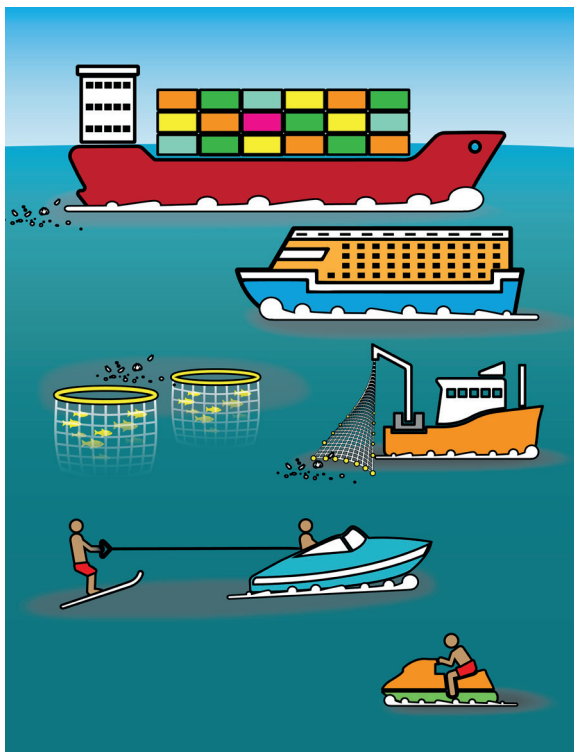
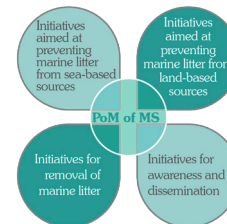


CITIZEN SCIENCE BM-7



PROGRAM OF MEASURES ON MARINE LITTER

MARINE LITTER FROM MARITIME SOURCES



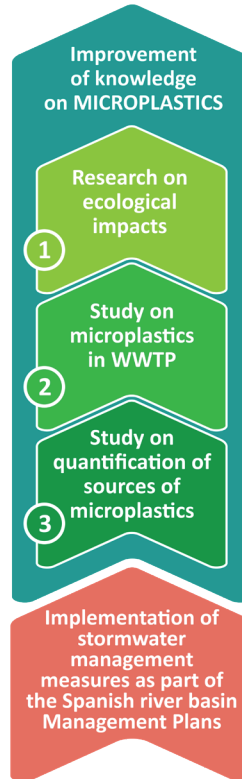
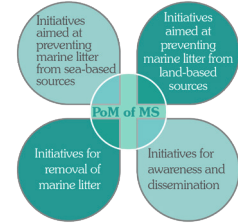
Facilitate land-based discharges of marine debris (e.g. non-special fee in ports for MARPOL residues) contributes to minimize discharges at sea

Promote improvement of waste management on board in fishing vessels and at aquaculture facilities

Promote installation of recycling points in fishing docks (non-MARPOL waste)

Promote recycling of certain materials, such as expanded polystyrene and fishing nets

MARINE LITTER FROM LAND-BASED SOURCES



Cuando ya no puedas utilizar tu bolsa de plástico...

- Descartada en el contenedor amarillo de plástico normal.
- Descartada en el de Residuos orgánicos si es compostable.

¿Bolsas de plástico?

MENOS BOLSAS, MÁS VIDA

1 de ENERO de 2020
Las bolsas de plástico que se DEBEN CONTENER UN 50% DE PLÁSTICO RECICLADO. Se prohíben las bolsas de plástico fragmentadas.

1 de JULIO de 2018
SE COBRAN TODAS LAS BOLSAS.

1 de ENERO de 2021
SE PROHIBEN LAS BOLSAS DE PLÁSTICO ligeras y muy ligeras, salvo las compostables.

¡Ahorraselas al medio ambiente!

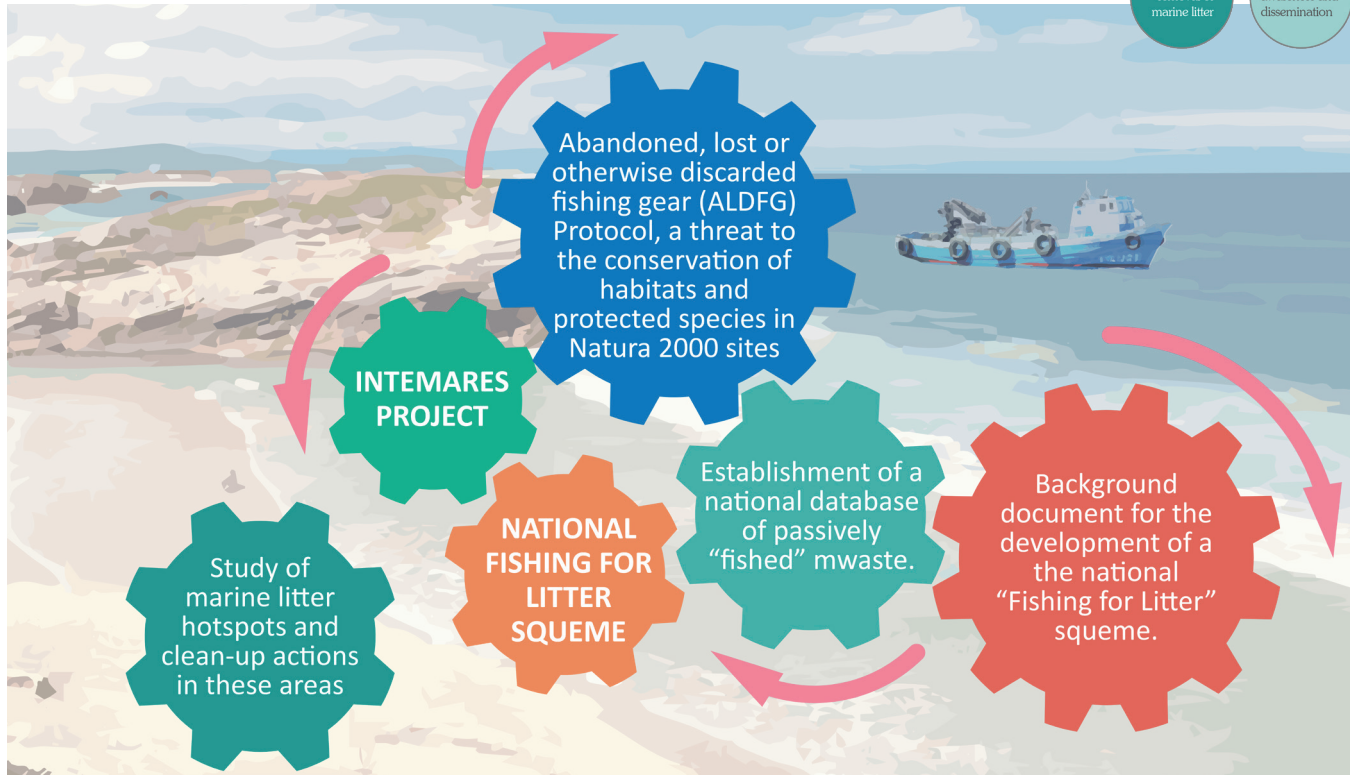
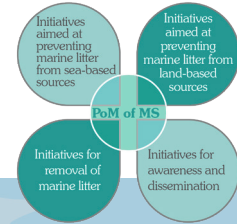
Real Decreto 293/2018, de 18 de mayo, sobre reducción del consumo de bolsas de plástico.



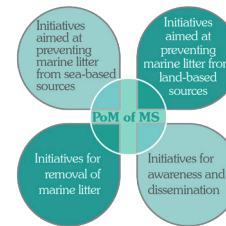
Royal decree 293/2018, of 18 May 2018, on the reduction of the consumption of plastic bags and the creation of the product producers registry

MARINE LITTER REMOVAL


A meaningful participation of the **fisheries sector** is key to combat marine litter:




RAISE-AWARENESS AND DISSEMINATION CONCERNING THE PROBLEM OF MARINE LITTER





Financing of citizen involvement in clean-up activities in rivers, beaches and shallow sea beds.

Creation of the figure "Guardians of the beach", for associations, environmental organizations, fishermen and other groups that ensure environmental preservation




Forums for discussion on difficulties linked to marine litter management (GT-CONAMA, Annual Thematic Workshop in CENEAM)




Training programs for fishermen, on-board observers, stranding networks personnel, Government managers, Agents of the Authority and schools



Raise-awareness programs aimed at companies of nautical tourism, fishermen, workers of the agricultural sector and at the civil society in general



Preparation and introduction of a curriculum related to marine litter in the regulated education system (i.e Yacht master title).



CITIZEN DECALOGUE AGAINST MARINE LITTER



Sources: decalogue elaborated by the Marine Garbage Working Group of CONAMA 2016

YOU ARE PART OF NATURE, LEAVE ONLY FOOTPRINTS ON EARTH AND YOUR WAKE AT SEA

CHALLENGES AND OPPORTUNITIES, TOWARDS A CIRCULAR ECONOMY LACKING MARINE LITTER

LAND-BASED SOURCES

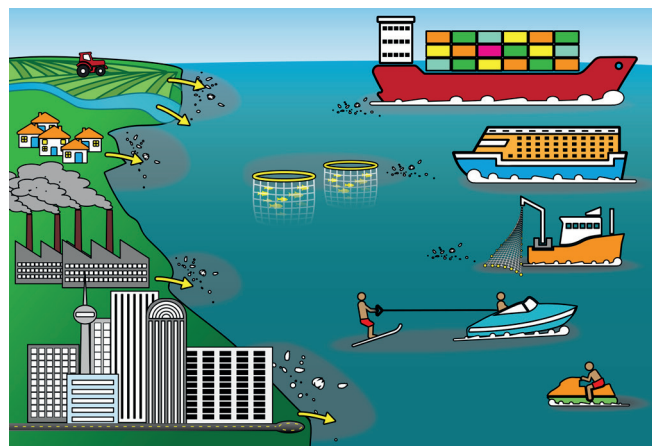
- Combat littering.
- Innovation in the fields of eco-design of packaging and plastic recyclability.
- Improvement of product labelling.
- Consumption incentive for products made from recycled materials.
- Promotion of good practices for citizenship in order to avoid discharges of hygienic products and improve separate collection.
- Reduction of the use of microplastics in industry and implementation of containment measures in WWTP / washing machines as a technological challenge.

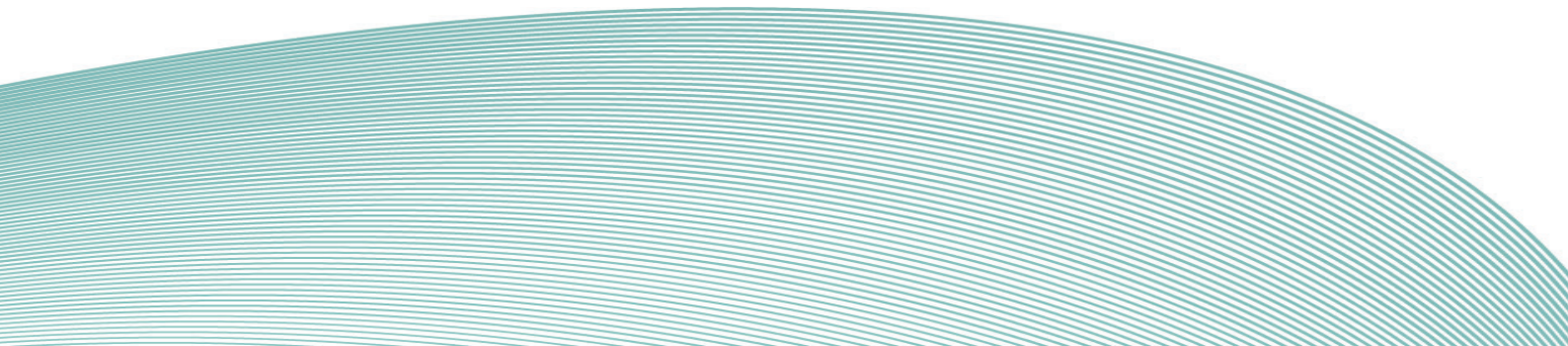
SEA-BASED SOURCES

- Minimize the impact of “ghost nets” on pelagic fauna and benthic habitats.
- Innovation in the fields of eco-design and recovery of waste generated by the maritime sector.

OTHERS

- Development of techniques and devices to remove marine litter in hotspots .
- Recovery of passively “fished” waste.
- Improvement of knowledge about potential effects of microplastics on human health.
- Monitoring of riverine inputs of marine litter (macro and micro).





ENERGRAM

REFLECT