

# Med-Zero-Plastic Action Plan

## Targeting the marine litter of the tourism industry in the Mediterranean Sea

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# Abstract

The Mediterranean Sea is under enormous environmental pressures due to its highly exploited coastline and waters. This meeting point between Africa, Asia and Europe is a biodiversity hotspot, and the biodiversity is the main driver of its economy. The human pressure has shaped for millennia this sea, which is now reaching a point of no return. Among human pressures, the production of litter that enters the sea has direct and indirect effects on this ecosystem's health; plastic being the most common material found, damaging wildlife and our own existence. It has been estimated that the Mediterranean Sea has on average 0.25 plastic items/m<sup>2</sup> (Figure 1), the concentration of plastic particles similar to that measured in the ocean accumulating spots - the ocean gyres (Cózar et al., 2015).

One of the most important economic activities in the Mediterranean Sea is tourism, which accounts for 250 billion euros of income in the whole region. The focus of this report is to define the drivers and pressures, and to identify the impacts from tourism in the Mediterranean Sea, while focusing on the issue of marine litter. The aim of the proposed responses, elaborated further in the form of an Action Plan, is to reduce the amount of marine litter originating from the tourism-connected activities both on land (coastline) and sea, to increase awareness and to propose solutions for the litter already present in those areas.

The proposed actions can roughly be divided into 4 main categories: Awareness, Recovery of Land and Marine based Litter, Waste Management, and the Reduce-Reuse-Recycle concept. Some actions combine activities related to more than one category, thus potentially having an even stronger impact. The actions are being presented in a table with a description, specific related activities, involved stakeholders, and milestones with a tentative timeframe.

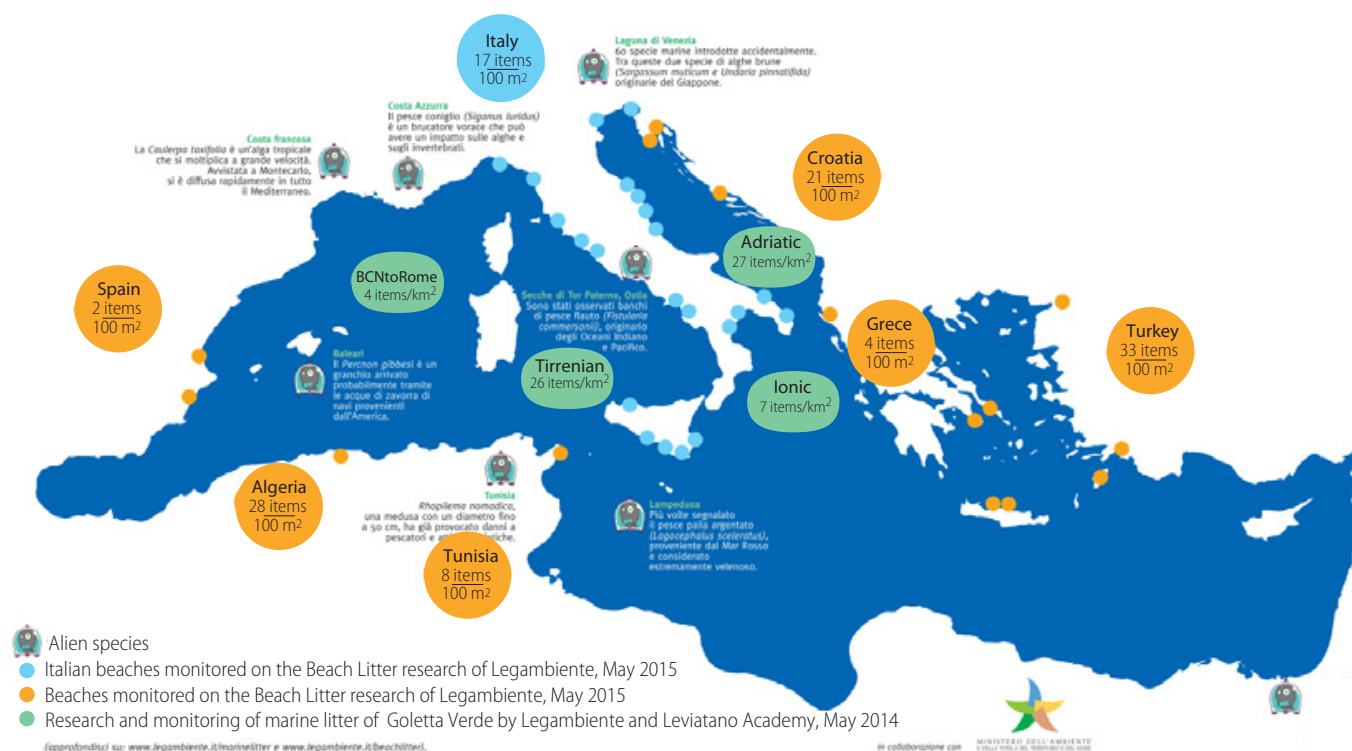


Figure 1: Average of marine litter per Km<sup>2</sup> in the sea and m<sup>2</sup> on land in the Mediterranean area (Legambiente, May 2015).



# 1. Introduction:

## Marine Litter in the Mediterranean Sea

### 1.1. The Mediterranean Sea

The Mediterranean Sea, which occupies some 2.5 million km<sup>2</sup> and an average depth that amounts to 1,501m (the maximum is measured off the southern coast of Greece: 5,150 m) (Legambiente, 2010), is an enclosed sea with only one opening for water exchange, the 14 km-wide Strait of Gibraltar (Blue Plan, 1987). In the strait, surface water flows into the Mediterranean Sea and deeper water flows out. The water exchange rate of the Mediterranean is estimated to be 80-100 years to renew only the mass of surface water. It goes up to 7000 years if we consider the entire volume (Legambiente, 2010). Its main characteristics are presented in Table 1.

Table 1: Main Characteristics of the Mediterranean Sea (Zenetos et al., 2002).

Aspect	Values	Consequence
Temperatures	Min: 12 °C and Max: 25 °C	High metabolic rates
Salinity	High	Loss of 2,500 km <sup>3</sup> /year (EEA, 1999)
Micro-tidal regime	< 0.5 m	Less potential for dilution and dispersion
Nutrient	Oligotrophic, increases from west to east	Low primary production
Biodiversity	Numerous endemic species	Hotspot in the world

This sea is bordered by 18 countries, where more than 142 million people inhabit its coastal regions (UNEP/MAP, 2012). The north-western shores of the sea are heavily populated and highly urbanised, while its southern coast is sparsely populated. Along the Mediterranean coast there are almost 600 cities, more than a thousand ports, several production plants and 200 gas power plants. In addition, major shipping lanes are found in the Mediterranean (Legambiente, 2010).

Multiple human activities cause various interlinking pressures that often have cumulative impacts on the Mediterranean coastal and marine environment. The key drivers of the main pressures that have been identified in the State of the Mediterranean Marine and Coastal Environment Report (UNEP/MAP, 2012) include: population growth, intensified industrial activities including offshore explorations, shipping, (over)fishing, and mass tourism.

Tourism was identified as the most important sector in the Mediterranean, resulting in the most job-creation region-wide, with 3,3 million direct jobs and 8,5 million total jobs in and over 250 billion EUR generated in coastal Mediterranean areas (Plan-Blue, 2014). The Mediterranean basin, if considered as a single area, is by far the largest global tourism destination (Figure 2), attracting almost a third of the world's international tourists (306 million out of 980 million worldwide) and generating more than a quarter of international tourism receipts (190 out of 738 billion Euro worldwide) (Limes, 2009; UNEP(DEPI)/MED, 2011; UNWTO 2012).

It is forecasted that the Mediterranean region will reach 500 million of international tourist arrivals by 2030 (UNWTO 2012). In the Mediterranean area, most tourists come from Europe (81 %), while the amount of tourists coming from other areas such as America or Asia accounts for 12 % (Figure 3; UNEP/MAP, 2012). It must also be noted that the Mediterranean is a growing market for cruise tourism (Appendix I).

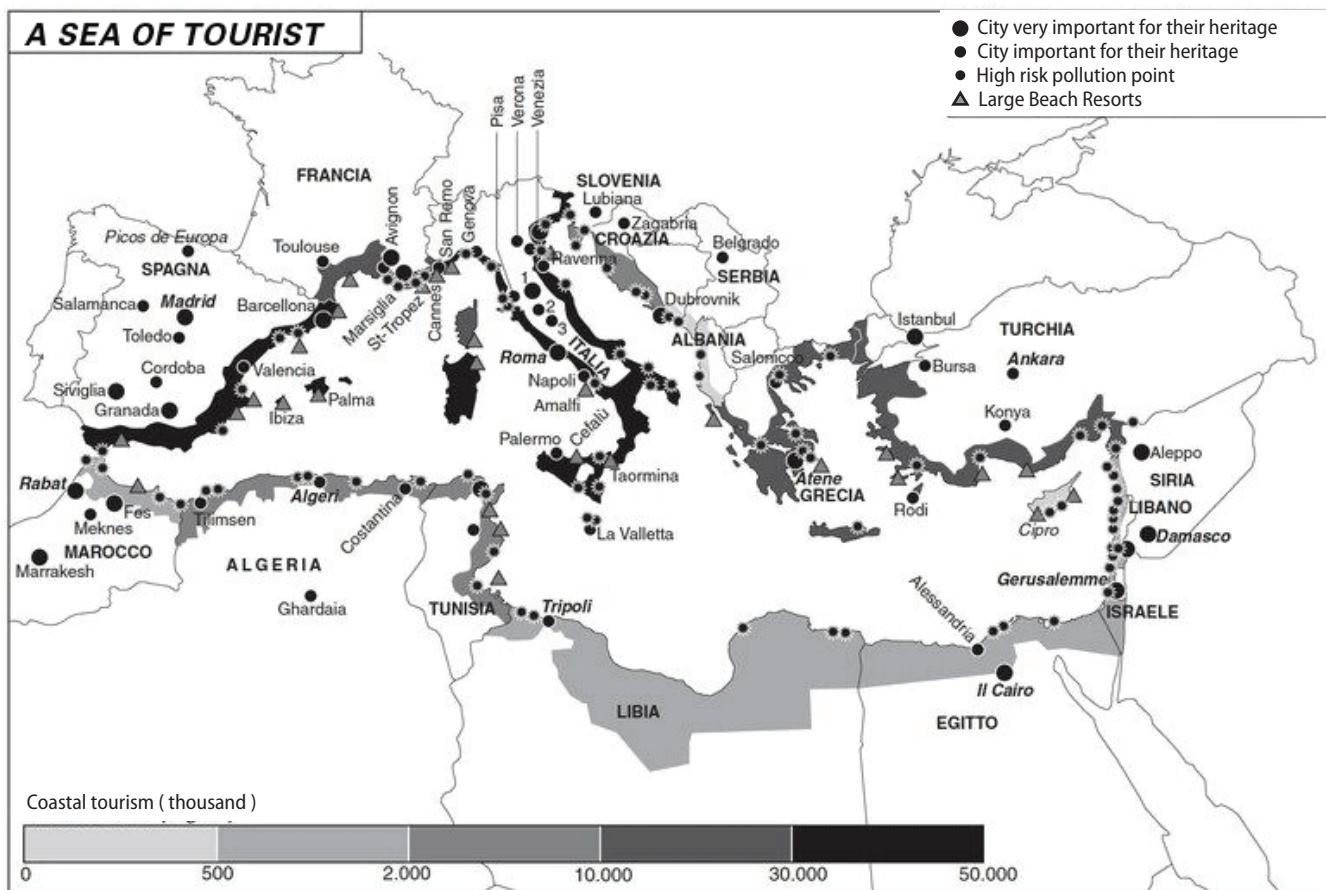


Figure 2: Coastal Tourism on the Mediterranean Sea - (Limes, June 2009).

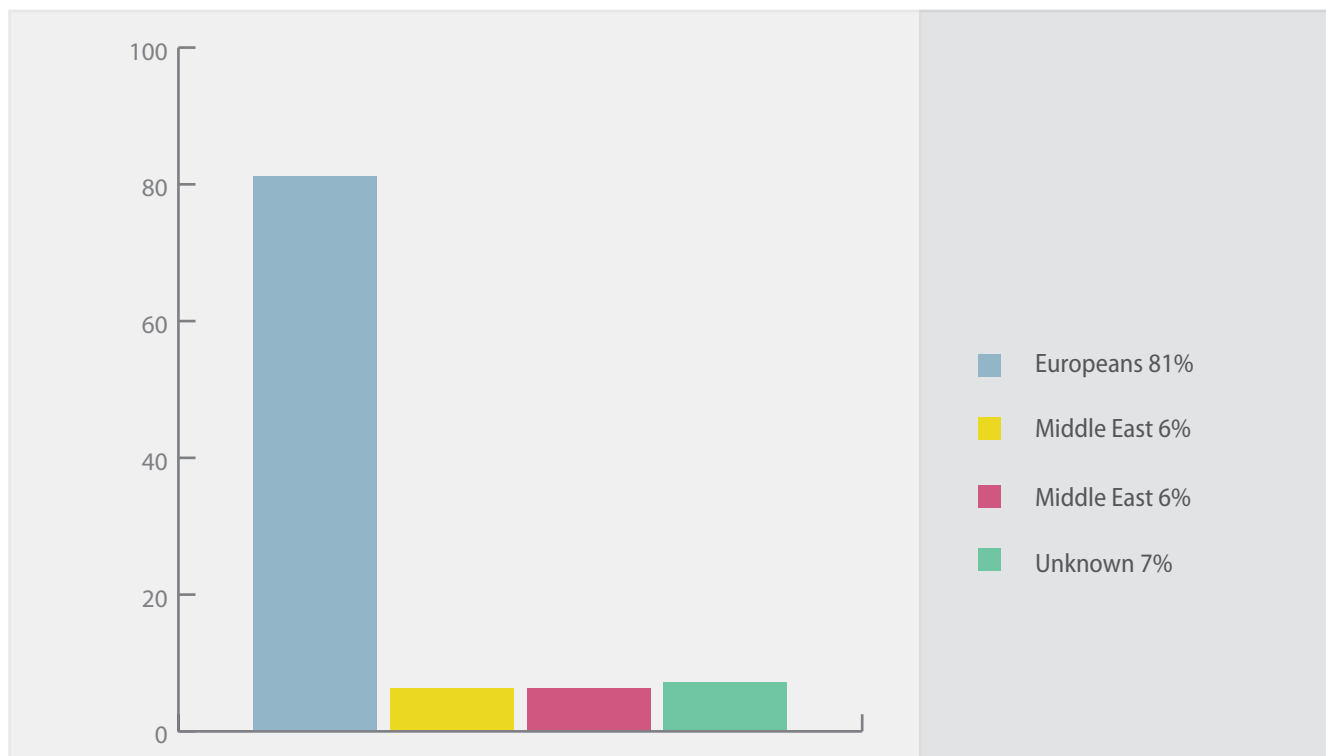


Figure 3: Around 80% of tourists visiting the Mediterranean come from Europe (UNEP/MAP, 2012).

Amenities and recreational opportunities for tourism provided by the Mediterranean's marine and coastal ecosystems form the foundation for 68% of the total revenue and about 1% of total international tourist spending (UNEP/MAP/BP 2010).

Mass tourism results in pressures such as:

- Unsustainable coastal development and local disruption of circulation patterns. Human-made structures such as sandy-beaches and marinas change the hydrographical conditions, and intensify the pressures on a limited area of the coast.
- The increasing use of vessels / recreational shipping (i.e. cruise ships, watersports, yachts etc) is linked to pressures such as contamination from acute events (oil spills), marine litter, introduction of invasive species, and even marine noise.
- The irresponsible use of the coast and coastal waters increase the load of litter that ends up in the marine environment, harming the marine habitats and species (ARCADIS, 2015; Plan-Blue, 2014), high percentage of which is endemic, and/or endangered (e.g. the Mediterranean monk seal, posidonia meadows, loggerhead and the green turtle, and several species of cetaceans) (WWF, 2001).

The above mentioned pressures can lead to changes in the state of the ecosystem. In addition, the physical and demographic conditions of the Mediterranean Sea make it a trap for marine and land-derived litter (Blue Plan, 1987). Marine Litter, as it is defined in Annex I of the Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources, consists on *"any persistent manufactured or processed solid material which is discarded, disposed of, or abandoned in the marine and coastal environment"* (UNEP(DEPI)/MED, 2011).

Floating marine debris can transport alien species, including invasive species, presence of which has already been recorded in the Mediterranean sea. Marine habitats such as seagrasses (Posidonia oceanica meadows), reefs and sea-caves, can end up being covered by marine litter. Marine organisms ingest marine debris mistaking it for food, or get entangled in it, often resulting in their death. The cumulative impacts of the pressures, as well as the lack of environmental awareness, next to the impact of climate change are linked amongst other, to biodiversity loss and degradation of marine habitats, as well as negative impacts on human health and economy (UNEP/MAP, 2012). The sector of tourism is therefore not just a driver of environmental pressures, but also, at the same time is vulnerable to the pressures created, in an interlinked manner.

The focus of this report is to define the drivers and pressures, and to identify the impacts from the tourism in the Mediterranean Sea, while focusing on the issue of the marine litter. The aim of the proposed responses, elaborated further in the form of an Action Plan, is to *reduce the amount of marine litter* originating from the tourism-connected activities both on land (coastline) and sea, to *increase awareness* and to *propose solutions* for the litter already present in those areas.

## 1.2. Environmental pressures and risks affecting the Mediterranean Coast and Sea A focus on Tourism and Recreational Activities

### DPSIR scheme for Marine Litter generated by tourism activities in the Mediterranean Sea

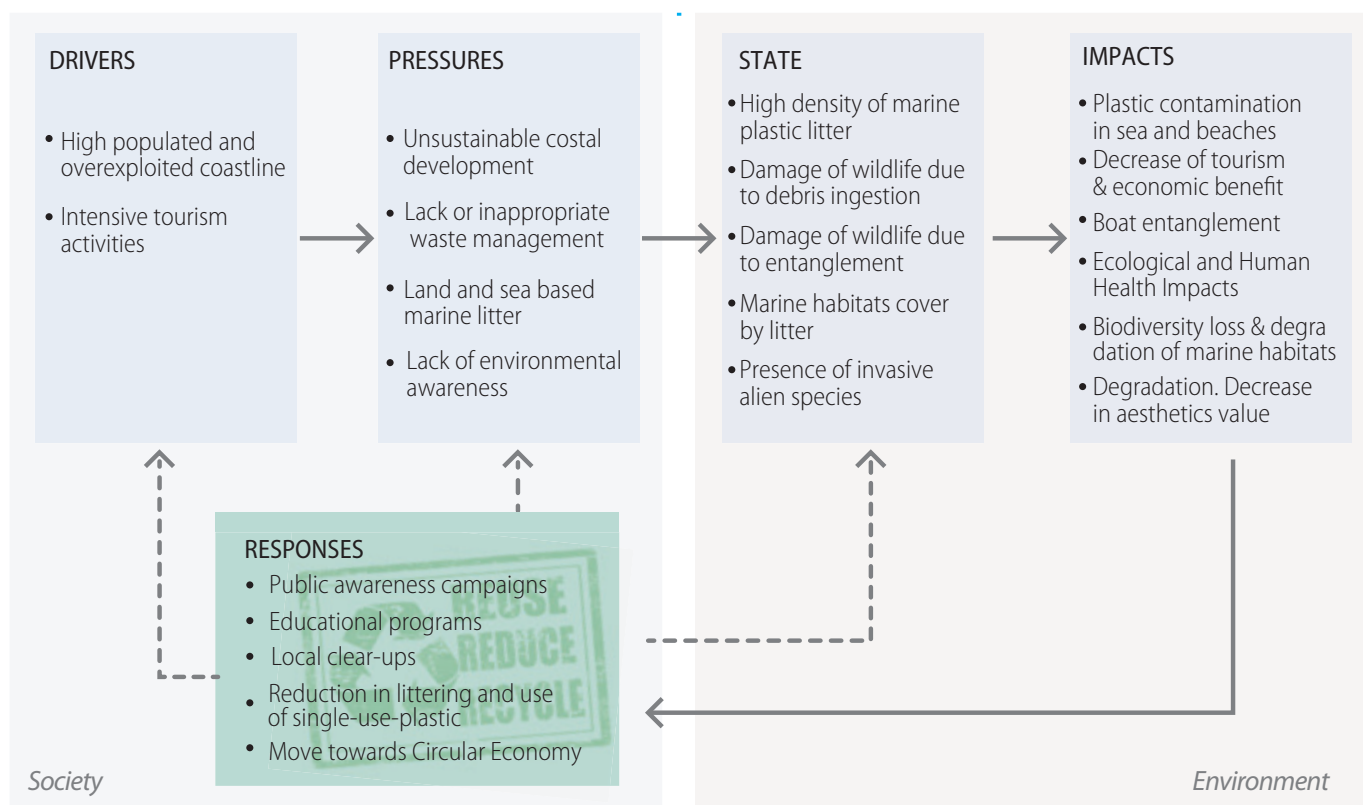


Figure 4: DPSIR Scheme (Kristensen, 2004) for Marine Litter on the Mediterranean Sea by recreational / tourism activities.

#### Drivers

The main drivers are the high population density found on the coastal areas leading to overexploited coastlines and the intensive recreational activities, including consumption of food and drinks near the coastlines and/or on the beaches, cruises and yachting and other water sports.

#### Pressures

Mass tourism results in pressures such as unsustainable coastal development, with insufficient or non-existent waste/disposal management; land based marine litter originating from the coastal area (runoff or mismanagement of household/apartment sewage waters, items left on the beach etc); sea based marine litter originating from boats, yachts, without the proper waste management system and also from cruise ships that are not following the defined regulations.

For example, huge number of plastic bags, bottles, fragments, and food containers end up in the sea or on beaches (Figures 5 and 6, Cózar *et al.*, 2015). The main groups of items found during the beach clean-up activities are sanitary items (mostly cotton bud sticks), cigarette butts and cigar tips, as well as packaging items and bottles (Figure 7). These items found indicate three types of activities to be the most important sources for marine litter in the Mediterranean: coastal-based tourism and recreation, household and sanitary activities (including waste collection and dumping), and smoking-related activities (overlapping with recreational/tourism activities, but also representing a topic on its own) (Interviews *et al.*, 2013).

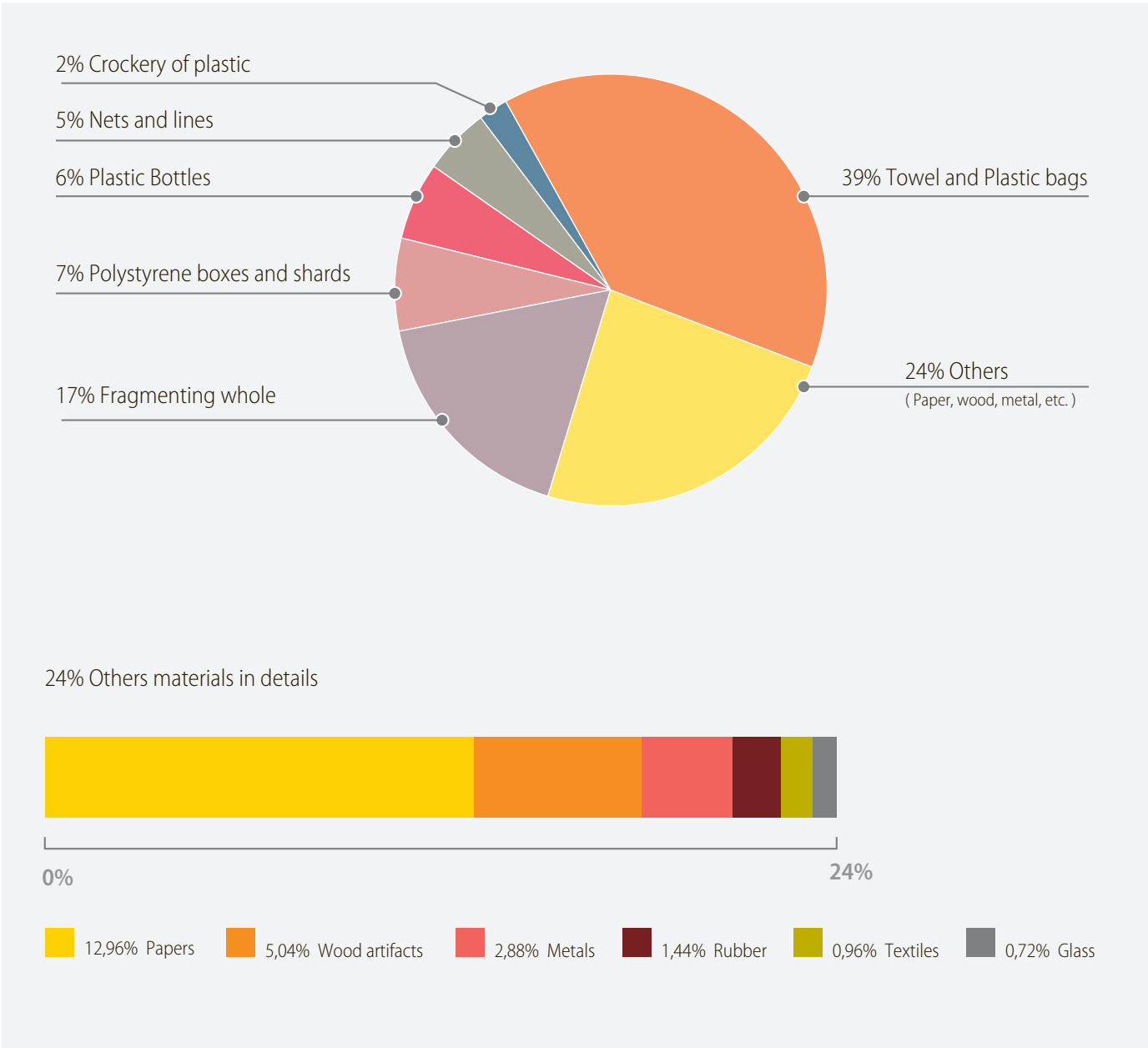


Figure 5: Types of marine litter in the Mediterranean (Cózar et al., 2015)



Figure 6: Types of marine litter in the Mediterranean (Cózar et al., 2015)

## State

Most marine litter consists of plastics that degrade slowly. A continuous input of different plastics results in a gradual build-up in the marine and coastal environment. It has been estimated that the average density of plastic (0.25 items/m<sup>2</sup>), as well as its frequency of occurrence in the Mediterranean Sea, are comparable to the accumulation zones described for the five subtropical ocean gyres (Figure 7) (Cózar et al., 2015).

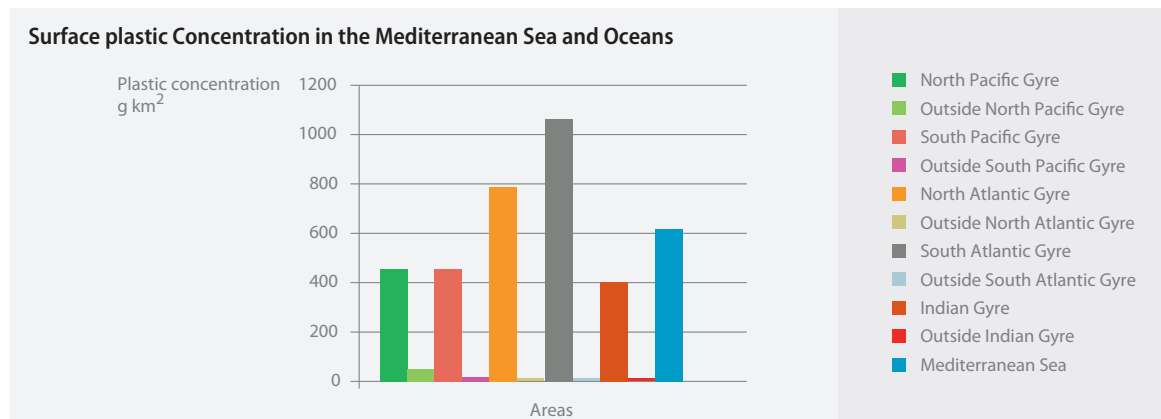


Figure 7: The concentration of plastic debris in the Mediterranean is similar to those found in the ocean gyres (Cózar et al., 2015).

## Impacts

Marine animals, plants, and habitats become entangled or covered in marine litter. Entanglement of marine species in marine debris is a global problem affecting at least 200 species (NOAA Marine Debris Program, 2014). Studies in the Mediterranean have shown that plastic debris has been found in stomachs of small fish, seabirds, turtles and sperm whales (Figure 8) (Cózar et al., 2015, Robards, et. al.1995, Stahelin et al., 2012, Mascarenhas et. al., 20014). Ingestion of marine litter by organisms as small as plankton and as large as whales (Derraik, 2002) can not only have direct lethal consequences via the obstruction of the digestive system (Stahelin et. al., 2012, Yamashita et al., 2011.), but also poses a transport mechanism for the additives and persistent pollutants included in the plastic (Mato, et al., 2001). As a species on top of the food-chain, the accumulation of plastic pollutants can be hazardous to human health as well (Martinez et al. 1998; Petit et al. 2002; Gobas et al, 2009, Nich et al. 2011). Other frequently observed impacts are the damage of sensitive habitats, the smothering of benthic habitats and the transport of non-endemic species on litter items into new habitats (ARCADIS, 2015).

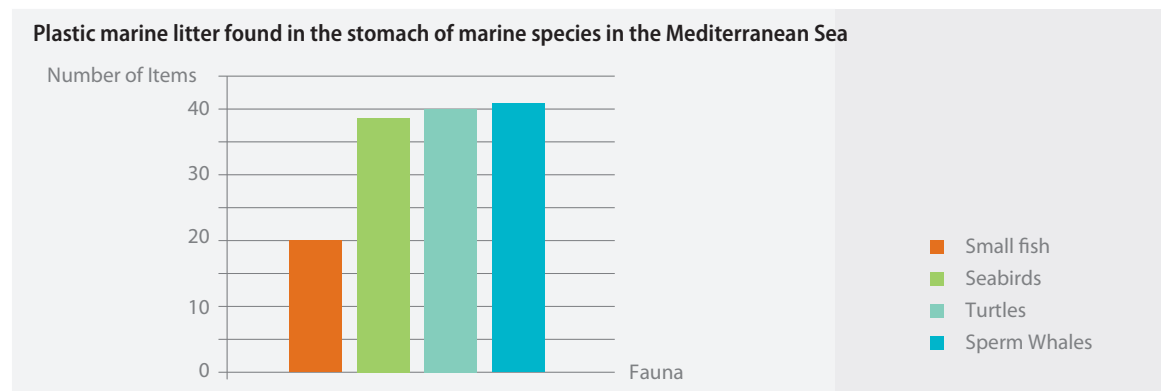


Figure 8: Plastic marine litter found in the stomach of marine species in the Mediterranean Sea (Cózar et al., 2015).

The changes in the quality and functioning of the ecosystem have an impact on the welfare and well-being of humans. Possible species extinction will be impacting the future generations by living in a poorer ecosystem. The dead birds and marine species, the plastic debris found on the coast and the bad smell of decay decrease the aesthetics of the environment and consequently it has a negative economic impact to the Mediterranean, by reducing the number of tourists visiting the area.

In addition, marine litter causes costly or irreparable damages to boats, yachts, and cruise ships, due to entanglement around the propellers and clogging of cooling water intakes. In such cases, boats can be disabled, thereby endangering human lives (UNEP, 2001).

## Responses

Actions should be taken to prevent, compensate and even improve this state of the environment, by firstly educating the general public and more specifically targeting the tourists visiting the area. Possible responses include: educational programs, clean-up activities, promotion of eco-tourism and development of a sustainable waste-management system.

A means to this end is the strong collaboration of all the Mediterranean countries in order to develop and implement a common Mediterranean Action Plan for Marine Litter coming from recreational and mass tourism in the region.

## 2. Stakeholders analysis

### 2.1 General Description

The main stakeholders identified to have interest and/or influence in the amount of marine litter originating from the tourism sector are:

- Tourists (including port users, recreational fishermen, users of pleasure crafts)
- Travel agencies
- Residents
- Retail and hospitality sector: owners and personnel of shops, hotels, restaurants
- Ship owners and personnel, including Cruise liners and Ferries
- Charter companies (Boat rentals), Sport Activities (jet ski, sailing, surf schools, scuba-divers)
- Schools and educational facilities
- Environmental NGOs
- Local municipalities
- Governments
- International Governmental Organisations
- Media

The identified stakeholders have different levels of influence and interest in the issue of marine litter (Figure 9), and come from different domains (Figure 10). However, all are involved in tackling the marine litter issue.

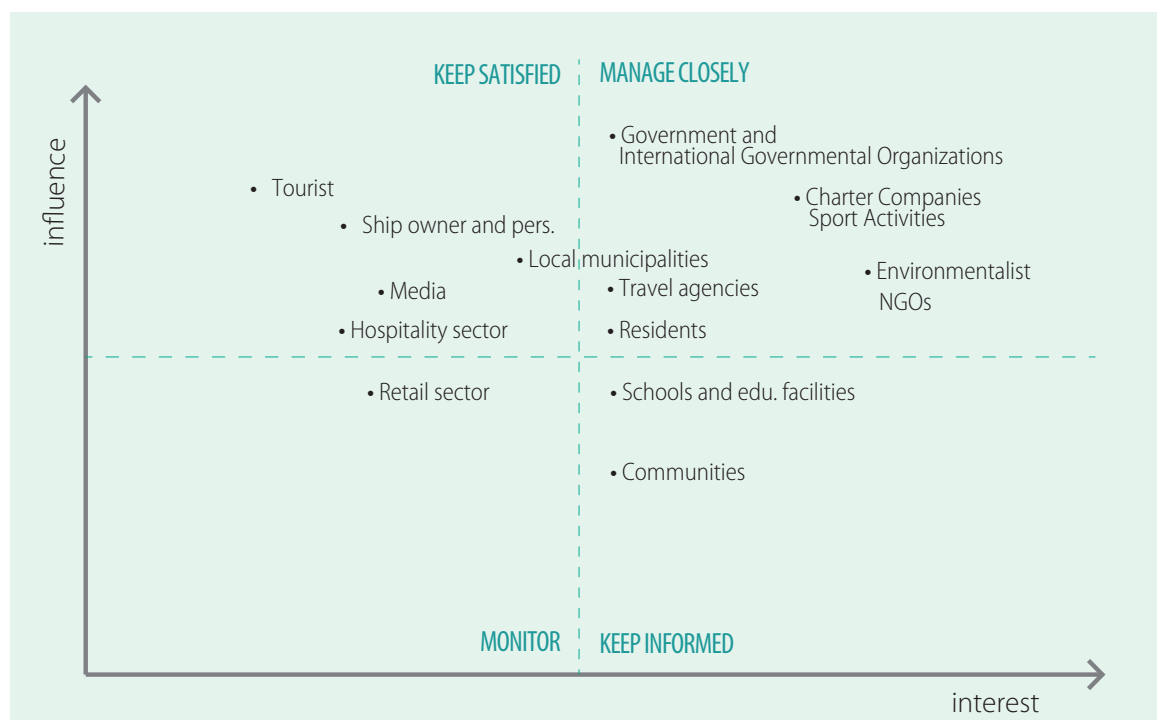


Figure 9: "Stakeholder analysis (MOOC on Marine Litter, 2015)".

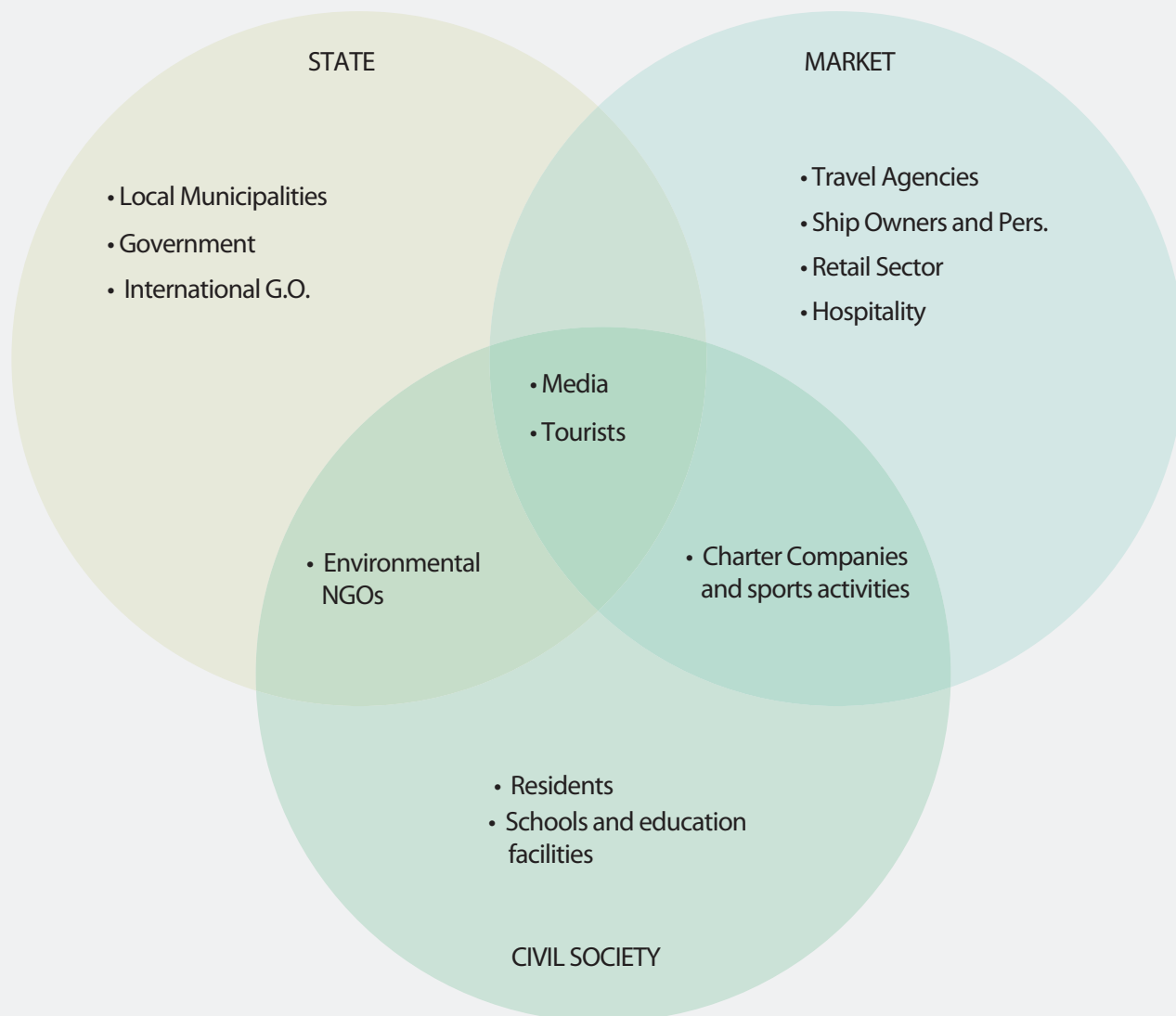


Figure 10: State-market-and-civil-society diagram (design modified from MOOC on Marine Litter, 2015b) characterizing the domains of the identified actors



## 2.2 Interactions Between the Actors (Stakeholders)

As identified in the DPSIR analysis (see figure 4), the main drivers of marine litter in the sector of tourism are connected to the human activities which induce pressures. Therefore, the main target for the proposed actions are tourists, and their behavior.

**Tourists** are influenced by media that promote a certain region, tourist agencies that suggest a certain adventure or holiday program, governments (both in the country of origin and country of holiday destination) that implement recycling or waste reducing policies, and local municipality that needs to provide adequate infrastructure. In turn, they can influence the tourist agencies by opting for (or demanding) a specific type of program (e.g. eco-tourism), and the local municipality and media by reporting about nice or littered environment, praising the approach of the local government of asking for changes.

**Travel agencies** are influenced by regulatory bodies (be it national government, international policies, or locality-specific regulations), and the market that balances between the demands of the tourists and possible options (expenses of cruise boats, camping, etc). They also have a role in the type of tourism they promote or how they present holiday destinations to consumers. Travel packs offering visits to natural sites, eco-friendly activities or promoting local consumption of products help raising awareness on tourists while enjoying holidays, while also reducing litter productions.

**Retail and hospitality sector** (hotels, restaurants, shops) can be motivated, or even legally forced, by various agencies (travel, governmental, or non-governmental) to recycle or use renewable resources and even ban the single-use plastic bags. They can also motivate/educate visitors by giving informational (leaflets or eco-friendly bags with motivational messages), choosing eco-friendly options (water saving policies, use refundable containers for drinks, etc.).

**Ship owners and crew members, including Cruise line companies and Ferries** play an important role as they transport a lot of tourists who generally practice an intensive tourism and stay in coastal areas from a few hours to overnight. The lack of awareness of their impact in local communities can play an important role as these heavy consumers could be led to a much more responsible way to use local amenities and beaches. Ferries are an important means of transport as well, and take tourists between islands (so, areas only reachable by boat). They could be motivated to practice sustainable tourism, but will do so mostly if there is a financial gain. Involving these stakeholders is a must to preserve the delicate balance of small communities and islands, and various agencies (travel, governmental, or non-governmental) could provide incentives to encourage this sector to recycle or use renewable resources, as well as have a role in tourists awareness raising. Avoiding any plastic wrapper or plastic on deck and on onboard shops would be a great add to avoid loss at sea while making aware all passenger of their impact on the marine environment.

**Charter companies (Boat rentals), Sport Activities (jet ski, sailing, surf schools, scuba-diving activities):** These stakeholders play an important role as together they have a large fleet of vessels that get used every day to sail around the coastline of the Mediterranean Sea (especially Greece, Turkey, Italy, and Croatia). It is especially important that these companies get involved in promoting a correct ocean behaviour etiquette to their clients and personnel and to help implement a recovery policy to whoever sails in remote beaches. Recreational boaters need to be supported mainly by Port Authorities, Yacht Clubs and Marinas, in order to easily access recycling facilities (for waste separated on board, or debris recovered from the sea) and to display a code of environmental conduct at sea and in the port.

**Residents** are influenced by the available facilities, incentives and rules imposed by the local, national (and sometimes international) regulatory bodies. The **Schools and educational facilities** can implement good practices at earlier age, and the **Environmental NGOs** can motivate the residents to take action and participate in local cleaning activities.

**Local municipality** is influenced by the residents, who elect the municipality and expect it to fulfil its goals and ensure the adequate infrastructure, but also the government that allocates the funds and sets the regulations to ensure the economic gain is not maximised at the expense of the environment quality.

**International regulatory bodies** that have sustainable tourism as a goal need to balance between the economic gain of a country (which is often the goal of the government and the local municipality) and environmental awareness and protection, implementation of which might come at additional economic costs and therefore tends to be delayed.

**Media:** Media have a crucial role in shaping the public opinion nowadays, and thus its influence in environmental problems such as marine litter is crucial. By choosing whether to present marine litter to the public as a serious problem or skipping the subject as “non-interesting”, press and media play a key role in raising awareness of general public. They should emphasize and disseminate the results of successful projects, and promote sustainable practices. Therefore, media involvement in tackling the problem of marine litter is of greatest importance in the context of a feasible and realistic action plan.

### 3. Overview of protection policies of marine litter and environment in Mediterranean Sea

The main legal and institutional frameworks affecting the Mediterranean are:

- Honolulu Strategy;
- IMO MARPOL 73/78 Convention – Annex V;
- MEDPOL of UNEP;
- GPA and the Regional Seas Programme of UNEP (ARCADIS, 2015) and
- Basel Convention (UNEP, 2009)
- Barcelona Convention and its Protocols;
- Mediterranean Strategy for Sustainable Development (MSSD);
- EU Environmental Strategy for the Mediterranean and Horizon 2020;
- EU Marine Strategy Framework Directive (MSFD);
- EU Thematic strategy on the Prevention and Recycling of Waste;
- National legislations on waste management and environmental protection;
- Agenda 21.

These legal frameworks are either international or global conventions applied to every country in the world, like Honolulu Strategy or MARPOL Convention. The Honolulu Strategy is a global framework strategy for a comprehensive effort to reduce the ecological, human health, and economic impacts of marine debris globally. It aims to help improve collaboration and coordination among the multitude of groups and governments across the globe in a position to address marine debris and to serve as a common frame of reference for action among these communities, as well as a tool for groups to develop and monitor marine debris programs and projects (European Commission Environment, 2015). This framework is organised by a set of goals and strategies applicable all over the world, regardless of specific conditions or challenges. The Honolulu Strategy specifies three overarching goals focused on reducing threats of marine debris (*Table 2*):

**Table 2:** *The overarching goals of the Honolulu strategy*

Goals of the Honolulu Strategy	
A	Reduced amount and impact of land-based litter and solid waste introduced into the marine environment
B	Reduced amount and impact of sea-based sources of marine debris including solid waste, lost cargo, ALDFG (Abandoned, Lost, or otherwise Discarded Fishing Gear), and abandoned vessels introduced into the sea
C	Reduced amount and impact of accumulated marine debris on shorelines, in benthic habitats, and in pelagic waters

Other strategies include the European Directives that apply only to the EU countries, like the MSFD, and the regional conventions that apply to all of the countries of the Mediterranean sea, such as the Barcelona Convention (see Appendix II for more details)". Strategies and frameworks can also reach local level, such as the Agenda 21, which can play an important role since they often result in direct measures that are closer to the citizenry, therefore influencing more in their behaviour than general guidelines at global scale.

Some consulted documents show that there can be problems of compliance with several of these legal frameworks. More specifically, the European Environmental Agency (EEA) completed an assessment and identified several difficulties, such as the lack of comparable and transparent information and of a harmonised reporting system; the lack of concrete and precise calendar according to which the Contracting Parties or Member States, should submit their reporting; and the lack of compliance due to the lack of a binding procedures (EEA Technical report No 45, 2001).

All those problems can be related to lack of legal structure, adequate infrastructure, vertical administrative coordination, political priority and inclusive environmental governance, and the limited public awareness of the issues at stake (ORAL, 2006).

## 4. MedZeroPlastic Action Plan

### 4.1 General Objectives

In line with the general environmental awareness stimulated by the many global and regional policies and agreements and considering the Honolulu Strategy, the “MedZeroPlastic Action Plan” is developed.

The main goal of this action plan is to reach zero litter found in the Mediterranean. In order to reach this goal, actions should be taken, both towards reducing the amount of litter reaching the sea and eliminating the litter already present in it. Besides, producing marine litter is inefficient from an economical point of view, since valuable materials pollute and damage the environment instead of being recirculated into the production chain. Moving towards a circular economy can add to the solution. A circular economy approach emphasises the importance of preventing waste and recycling and reusing materials and products (UNEP, 2009).

The Action Plan, developed as an assignment for the Massive Open Online Course on the Marine Litter (UNEP, NOAA, Open University), will be applicable in all the countries of the Mediterranean Sea. It will be forwarded to the Secretariat of the The Regional Activity Centre for Specially Protected Areas (RAC/SPA)<sup>1</sup> in order to be presented and discussed in the next meeting of the Focal Points for SPAs<sup>2</sup> with the goal of being adopted as an “Agreement” and therefore to be implemented in the whole region.

For the purposes of this Action Plan, the *Mediterranean Sea Area shall mean the maritime waters of the Mediterranean Sea proper, including its gulfs and seas, bounded to the west by the meridian passing through Cape Spartel lighthouse, at the entrance of the Straits of Gibraltar, and to the east by the southern limits of the Straits of the Dardanelles between Mehmetcik and Kumkale lighthouses* (UNEP/MAP, 2011).

It is noted that the MedZeroLitter Action Plan followed the schematic overview of a general action plan targeting marine litter (Figure 12) and it is presented in detail in Appendix III.

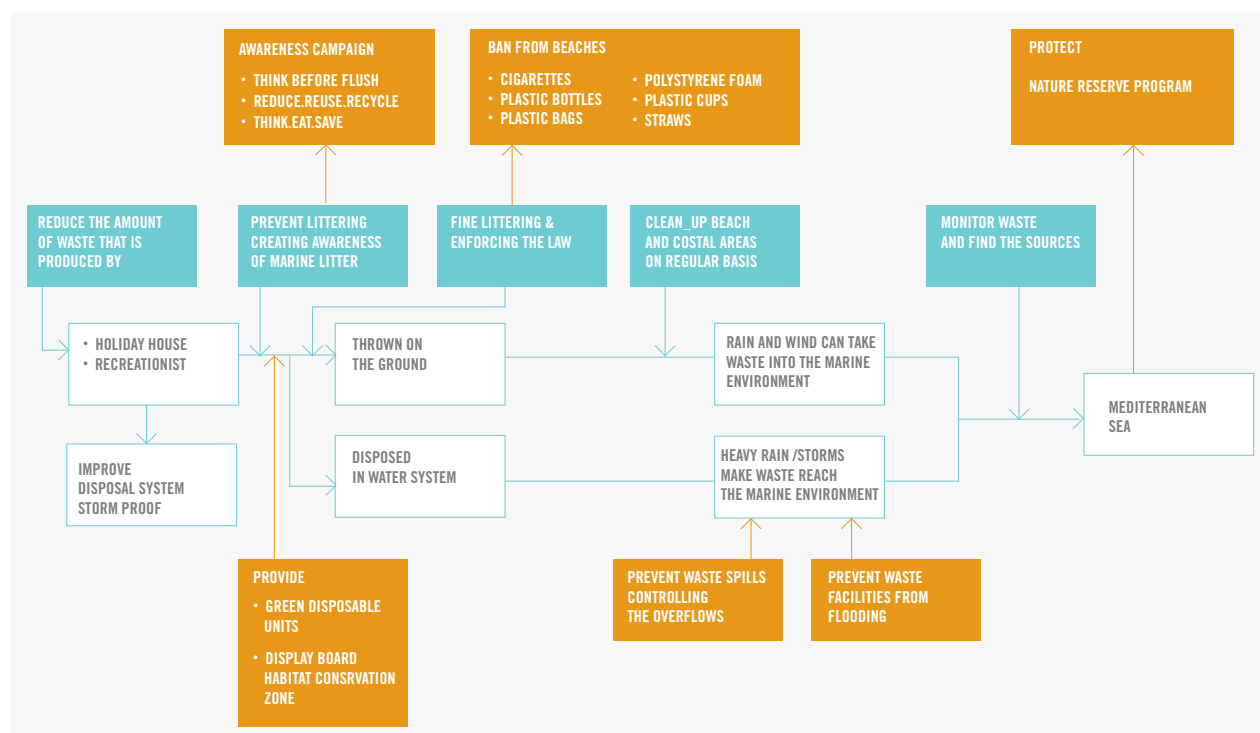


Figure 11. Schematic overview of a general action plan targeting the issue of marine litter. (In white boxes, pressures resulting in marine litter, in blue boxes, goals of the plan and in orange boxes, the proposed actions)".

## 4.2 Actions

### 4.2.1 Awareness Campaigns

Education, information and training are extremely important components in all efforts towards more waste-wise thinking in society (UNEP, 2005). The huge amounts of litter produced in the Mediterranean due to tourism make the sector, and especially the hospitality industry, the best major target for awareness and education campaigns so as to minimise the ensuing marine litter.

Education and training are needed to raise awareness of everyone's responsibility in preventing litter entering the marine environment. This education programmes should aim at all stakeholders of the tourism industry, such as: ship owners and operators, crews, port users, recreational fishermen, users of pleasure crafts, water-sports trainers, coastal hotels, restaurants and shop owners and staff and the general public. Education on the sources and effects of marine litter and ways of reducing the problem must be incorporated into the curricula on different levels in the educational sector (UNEP, 2005). Outreach and education must also extend beyond schoolhouse curricula to include policy makers, port authorities, and local stakeholders of the tourism sector (NOAA Marine Debris Program, 2015).

In order to achieve this goal and provide environmental education and awareness, the following actions must be developed (Appendix III):

- Awareness campaigns targeting tourists (especially teenagers of ages 13-19) will be performed, to sensibilise them about the issue of marine litter caused by tourism activities and how, by applying simple and easy rules, everyone can contribute towards healthier beaches and oceans. There will be a focus on influencing tourists' consumption habits, reducing the use of single use items and choosing more sustainable or reusable packaging for their foods and beverages especially while being on the beaches/coast. The overall goal is to achieve litter-free beaches and to do so, there must be a drastic reduction of plastic in the first place.
- Targeting the future generation by promoting environmental awareness campaigns in schools will also promote a more sustainable future development of tourism in the area. Children are more open to learn and adjust their behaviour than grown-ups.
- Public awareness campaigns (for example, Figure 12) will be organised in every country in the Mediterranean Sea, as well as a big global awareness campaign, to further educate the possible tourists coming to the area. Campaigns with interactive tools and public involvement create dialogue between the stakeholders, and media can also play an important role.

### 4.2.2 Removing Marine Litter

Lots of volunteers can be found, even amongst tourists that could participate in local beach clean-ups. There have been numerous beach clean-up activities around the Mediterranean countries and more are being planned. For example, in 2016, Clean up the Med program will be held during May, when thousands of volunteers, from many different countries, speaking different languages and from many different cultures and religions will act together to protect their environment by removing tons of waste from the Mediterranean beaches and coastline (<http://international.legambiente.it/>). These initiatives are of great importance in removing marine litter from the environment and they should be a part of a coherent Mediterranean Action Plan.

### 4.2.3 Reduce - Reuse - Recycle

Since the plastic debris is the main driving force for all the changes of the ecosystem state and impacts, a reduction of this plastic waste will have a positive outcome. Reducing this number can come from using other materials, such as paper bags, by reusing items such as the plastic water bottles and by recycling the plastic waste. Innovative and creativity are keywords that can be applied in finding new ways to reduce, recycle and reuse plastic waste. An example can be the development of new, fully biodegradable materials for packaging and containers, as a potential solution for ecological transition (Plastic in the Mediterranean Sea: What are the solutions?, 2015).

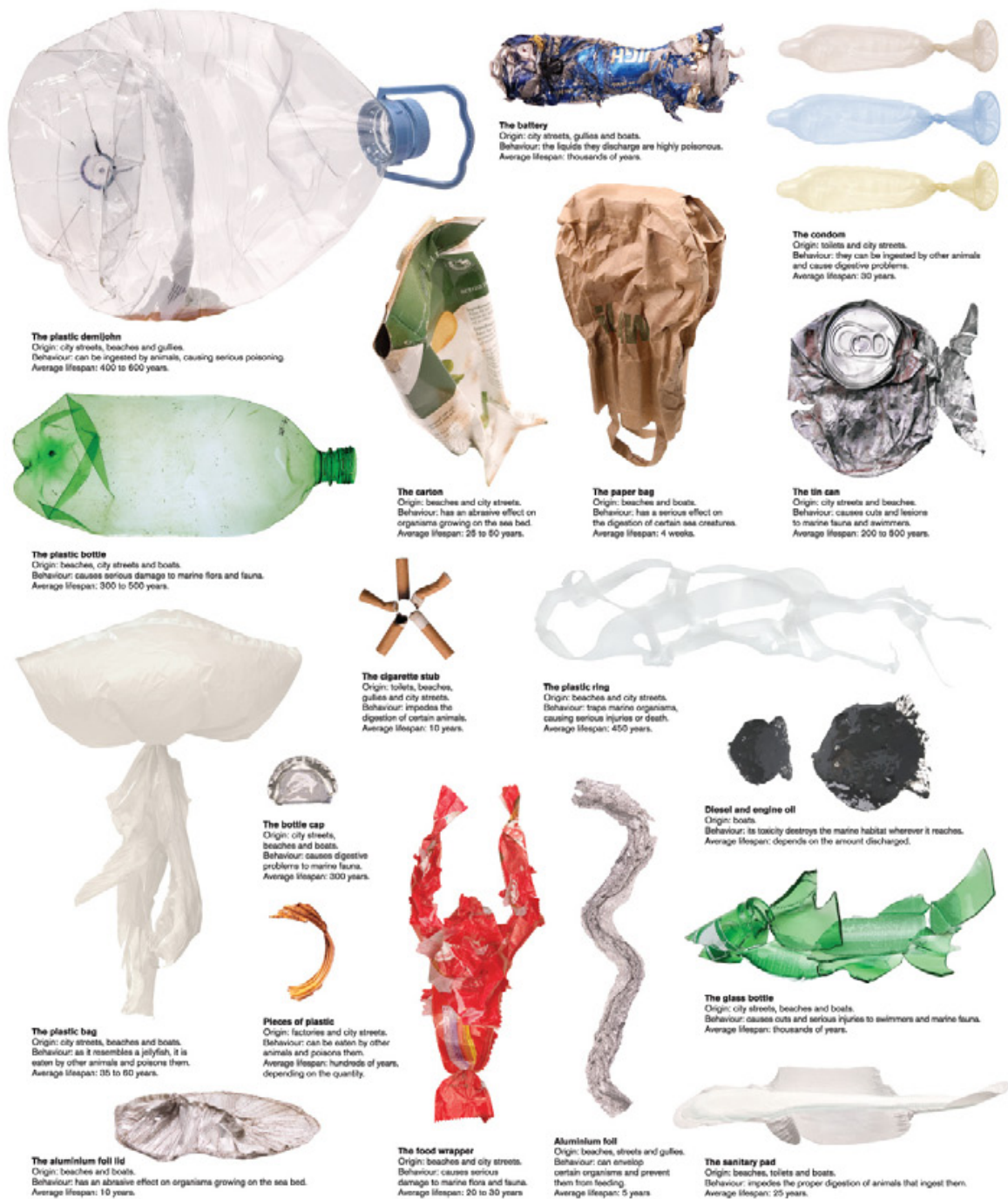
The plastic debris had been identified as the largest proportion of marine litter, strongly impacting the ecosystem state. Therefore, a reduction of plastic waste will have many positive outcomes. Reduction of plastic waste can be achieved by using other materials, such as paper bags, by reusing items such as plastic water bottles and by recycling plastic waste. Innovative and creativity are keywords that can be applied in finding new ways to reduce, recycle, and reuse plastic waste. An example can be the development of new, fully biodegradable materials for packaging and containers, as a potential solution for ecological transition (Plastic in the Mediterranean Sea: What are the solutions?, 2015).

Reducing, or even banning, the use of single-use plastic items in all areas and facilities close to the coastline (Action 6 in Annex III) will drastically decrease the pressures on this intensively used part of the marine environment. A positive example of such activities is the Spanish campaign called "Soy un chiringuito responsable" (Figure 16).

<sup>1</sup> RAC/SPA was established by the Contracting Parties to the Barcelona Convention and its Protocols in order to assist Mediterranean countries in implementing the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean (<http://www.rac-spa.org/>)

<sup>2</sup> In each state that is Party to the Convention, RAC/SPA has a Focal Point appointed by the country's authorities. The FP ensures liaison with RAC/SPA on the technical and scientific aspects of implementing the Protocol (<http://www.rac-spa.org/>).

# THE MOST DANGEROUS SPECIES IN THE MEDITERRANEAN



All around the world, 8 million tonnes of waste reach the sea every day. All this refuse is generated by human activity. This non-recyclable rubbish is thrown into the toilet, onto the streets, into gullies, onto the sand and into the sea, turning it into a tangible destroyer of marine life. But you can stop this from happening.

**Uncontrolled waste is a threat to the seas.**



Figure 12: Example of ADV campaign poster to promote awareness (Barcelona-Catalunya Council | Generalitat de Catalunya - Departament de Medi Ambient | Habitatge Agència Catalana de l'Aigua 2015).



#### 4.2.4 Waste Management

Public littering (which includes the coastal zone) is illegal, and waste management at sea is regulated by conventions such as MARPOL. Despite formal regulations, both sea and land based litter end up in the sea, often as a result of poorly managed waste deposit sites. Activities proposed within this category (*Actions 7&9 in Annex III*), aim to improve: the waste management by actions focusing on increasing the percentage of separated and recycled waste, providing suitable waste containers, reducing the waste-loss due to overfilled or inappropriate waste bins, etc. A common bad habit of visitors on the beach, is using the beaches as a big ashtray, or a convenient garbage ditch for small (often plastic) fragments that seem "too small to worry about"; therefore targeting for a drastic reduction of (plastic) fragments and cigarette butts found on the sand and other (pebbled) beaches is essential. A way to achieve this is by distributing free reusable containers (*e.g. plastic cones such as the one depicted in Figure 14*) to be used as ashtrays and small trash containers while on the beach. The cones with a beach or location name would also be a nice souvenir, and therefore make it more likely that it will not be left on the beach itself. If it does, it is still easier to collect, clean, and reuse it than it is to collect individual cigarette butts.

#### 4.2.5 Ecotourism

Another way of reducing marine litter problem is by promoting eco-tourism and practices leading to a sustainable use of the marine ecosystems. According to the World Tourism Organization, ecotourism is now a major trend with a growing demand for consumers for packages which offer responsible travel to natural/protected areas, conservation of the environment, and improvement of the well-being of local people. Amongst the most interesting regions globally for ecotourism potential, is the Mediterranean area. Due to its high diversity of landscapes and ecosystems, along with the unique socio-economic and cultural variety, the Mediterranean area provides suitable conditions for the development of an effective and sustainable ecotourism (World Tourism Organisation UNWTO, 2015). An example of promoting this type of tourism, is the recent MEET-Mediterranean Experience of Eco-tourism project; a strategic project involving 8 countries of the Mediterranean in the framework of cross-border cooperation, with the main objective the development of an integrated strategy in order to settle an Eco-Tourism Development model for the Mediterranean Protected Areas that boosts a better seasonal distribution of tourism flows (MedPAN, 2015) and *Action 10 in Annex III*.



Figures 13: Example of a bins full of all kind of wastes in beaches



Figure 14: Cone ashtrays to prevent littering of the cigarette butts



Figure 15: Barcelona anti-litter campaign, Generalitat de Catalunya, 2006.



Figure 16: Image of the spanish campaign called "Soy un chiringuito responsable".  
(<http://chiringuitosyvoluntarios.es/formulario-de-inscripcion-para-los-premios-chiringuitos-responsables-2015/>)

## 5. Conclusion

Marine litter is a complex problem affecting every sea in the world, and specially the Mediterranean Sea, due to its overexploitation and natural characteristics. Tourism, identified as an important sector of the Mediterranean economy, is both a source and a victim of litter present in the marine environment. Because marine litter comes from sea-based and land-based sources, reduction, prevention and removal measures must be implemented across a wide range of geographic locations and societal sectors (ARCADIS, 2015). It is crucial that every Mediterranean country gets involved in this issue in order to achieve the goal of a "Mediterranean Zero Litter" state. It is also important to have accessible, reliable, and comparable scientific information from all around the Mediterranean. This information could be used to monitor the sea, improve management and actions and can also be incorporated into education and outreach programs (NOAA Marine Debris Program, 2015). The ecological status can be assessed through common indicators and parameters proposed by all the Mediterranean countries. This solid scientific knowledge, along with promoting more dialogue and creating bridges between science and society, can eventually lead to the desired solutions (Plastic in the Mediterranean Sea: What are the solutions?, 2015).

The proposed Med-Zero-Litter Action Plan focuses on actions that (i) increase the awareness about marine litter, (ii) reduce amount of litter in the coastal environment, (iii) follow the Reduce-Reuse-Recycle philosophy, (iv) aim to improve the waste management, and (v) develop the concept of eco-tourism, especially in the Marine Protected Areas.

The actions listed in the Med-Zero-Litter Action Plan propose new, and link to the existing strategies, aiming to achieve the three overarching goals of the Honolulu strategy. The Honolulu Strategy (HS) is one of the most complete documents developed by scientists, practitioners, managers, and the private sector from around the world, and supported by the international governmental organisations. Therefore, it is one of the fundamental strategies for tackling the issue of marine litter. Actions (i) "Awareness campaign on sea fronts and beaches - Reduce/No littering during holidays", (ii) "Beach Ambassador Awareness Campaign", (iii) "Avoid the use of single use plastic in areas and facilities 200m from the coast", (iv) "Butts free beaches", and (v) "Reduce the amount of lost garbage from overflowing bins during peak periods" all aim to reduce the amount and impact of land-based litter and solid waste introduced into the marine environment (Goal A of the HS). Action "Mediterranean Experience of Eco-Tourism (MEET Project) - Second Phase", in addition to Goal A of the HS, also aims to *reduce the amount and impact of sea-based sources of marine debris including solid waste, lost cargo, ALDFG (Abandoned, Lost, or otherwise Discarded Fishing Gear), and abandoned vessels introduced into the sea* (Goal B of the HS). Actions (i) "Recover marine litter on large scale in the Med through sports event and gather data ("Med Clean-up Regatta)" and (ii) "Clean Up the Med" week; Pan-Mediterranean initiative" focus on *reducing the amount and impact of accumulated marine debris on shorelines, in benthic habitats, and in pelagic waters* (Goal C of the HS). Actions such as "Promote separation of litter produced on board of vessels (yachts, ships, cruisers) and recovery of litter encountered in the sea" will act towards fulfilling two goals (B and C) of the Honolulu Strategy, whereas the final action "Promote and Implement MedZeroLitter Action Plan" aims to fulfill all three goals of this important Strategy.



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# ANNEXES

# I. Data Analysis on Cruise Ships in the Mediterranean Sea

The Mediterranean is a growing market for cruise tourism. The absence of any international coordination of the industry at the region level leaves it open to exploitation, especially considering the lack of effective pollution control mechanisms. In 2012 there were 207 cruise ships active in the Mediterranean with the capacity of 249,000 passengers and the annual total of 5.7 million passengers and 28.7 million visits to its ports (G. P. Wild and BREIA, 2013; Marusic et al., 2012 in H. Caric, 2014). In 2010, over 50% of all Cruise Ports in the Mediterranean were in Italy and Greece (*Table A1*), with most frequent cruises in the West Mediterranean basin, connecting Italy, Spain and Tunisia (*Figure A1*).

**Table A1:** Number of Mediterranean cruise ports in 2010 by country (Source: Marusic et al., 2012)

Country	Mediterranean Cruise Ports	
	No	%
Italy	35	25.9
Greece	35	25.9
France	18	13.3
Spain	13	9.6
Croatia	11	8.1
Turkey	10	7.4
Egypt	2	1.5
Tunisia	2	1.5
Others	9	6.7
Total	135	100.0

The United Nations Environment Programme (UNEP) has identified tourist ships as one of the principal pollution sources of marine ecosystems. Estimations of waste from cruise ships vary from 2.6 to 3.5 kg/person/day (USEPA, 2008 at H. Caric, 2014); in 1995 it was estimated that around 24% of all waste produced within the shipping industry comes from cruisers (NRC, 1995 in H. Caric, 2014), the percentage today possibly being larger. The wastes consists of glass, tin, plastic, paper, cardboard, steel cans, kitchen grease, kitchen waste and food waste. Generally recyclables are separated and stored for shore disposal or are treated on board (i.e., glass crushing). About 75–85% of the remaining waste is incinerated that depends on vessel age and facilities, with the bottom ash being discharged at sea when permitted or stored for off loading at shore facilities. Most plastics are stored for disposal at shore facilities, as there is a total ban on dumping plastics at sea and on incineration of certain plastics (Butt, 2007).

Even though the waste management is regulated by MARPOL Annex 5, and all large vessels in the international transport must carry onboard a Waste Management Plan, which includes written procedures for collecting, storing, processing, and disposing of waste, numerous faulty waste disposal events had been reported (Caric, 2014). Additionally, the separated waste is often collected at shore by local communal waste service and mixed on poorly managed waste dumps (Caric, 2104).



**Figure A1:** Sources REMPEC, *Environment and Security in the Mediterranean Desertification*, ENVSEC 2009; *The most frequent Mediterranean cruise itineraries in 2010*, Source: Marusic et al., 2012

## II. Overview of main Policies

### Legal Infrastructure for Marine Litter in the Mediterranean Sea

#### *International / Global Conventions*

There are numerous international conventions that directly address various aspects of marine litter and form the foundation of the UNEP Marine Litter Initiative including: (a) the International Convention for the Prevention of Marine Pollution from Ships (MARPOL 73/78) and its Annex V which prohibits the at-sea disposal of plastics and garbage from ships, (b) the Convention for the Prevention of Marine Pollution by Dumping of Wastes and other Matter (London Convention) and (c) the Convention on the Trans-boundary Movements of Hazardous Wastes and Their Disposal (Basel Convention) (Ten Brink, et al., 2009).

In addition, Agenda 21 which was adopted in 1992, is a comprehensive plan for global, national and local action by organizations of the United Nations system, governments, and major groups in every area in which human activity impacts the environment. Chapter 17 of the Agenda 21 deals with the protection of the oceans, and Chapter 21 deals with solid waste: "all domestic refuse and non-hazardous wastes such as commercial and institutional wastes, street sweepings and construction debris. Environmentally sound waste management is concerned not just with safe disposal or recovery but also with the root cause of the problem, such as unsustainable production and consumption patterns" (UNEP, 2005).

#### *European Union Directives*

Most countries in the northern part of the Mediterranean basin are Member States of the European Union (EU) and have to adopt and implement all the EU Directives and Regulations, in addition to their national legislations (EU Waste Legislation). Amongst those are: (1) the Waste Framework Directive, (2) the Packaging and Packaging Waste Directive, (3) the Port Reception Facilities Directive and (4) the Landfill Directive.

In addition to the above, the Marine Strategy Framework Directive aims to achieve Good Environmental Status (GES) of the EU's marine waters by 2020. It also aims to protect the resource, marine-related economic and social activities depend on, considering 11 descriptors. Descriptor 10 focuses on marine litter, stating that GES is achieved only when "properties and quantities of marine litter do not cause harm to the coastal and marine environment" (Marine Strategy Framework Directive).

Furthermore, the European Maritime and Fisheries Fund (EMFF) can support the collection of waste by fishermen from the sea such as the removal of lost fishing gear and marine litter, in order to protect and restore marine biodiversity and ecosystems in the framework of sustainable fishing activities (European Commission Environment, 2015 ).

## Regional Convention - Barcelona Convention and its Protocols

Nowadays, all 21 countries surrounding the Mediterranean Sea, as well as the European Union, are Contracting Parties (CP) to the Barcelona Convention - Convention for the Protection of the Marine environment and the Coastal Region of the Mediterranean ( UNEP(DEPI)/MED, 2011). This convention is a regional convention adopted in 1976 to prevent and abate pollution from ships, aircrafts and land-based sources in the Mediterranean Sea. It includes, but is not limited to, dumping, runoff and discharges. Signers agreed to cooperate and assist in dealing with pollution emergencies, monitoring and scientific research. The convention was adopted on 16 February 1976 and last amended on 10 June 1995 (The Barcelona Convention, 1995).

The convention includes seven protocols, some of which are directly or indirectly relevant to marine litter (The Barcelona Convention, 1995):

- a. The prevention and elimination of pollution of the Mediterranean Sea by dumping from ships and aircrafts or incineration at sea;
- b. Cooperation in preventing pollution from ships and, in cases of emergency, combating pollution of the Mediterranean Sea;
- c. Protection of the Mediterranean Sea against pollution from land-based sources and activities;
- d. Specially protected areas and biological diversity in the Mediterranean;
- e. Protection of the Mediterranean Sea against pollution resulting from exploration and exploitation of the continental shelf and the seabed and its subsoil;
- f. Prevention of pollution of the Mediterranean Sea by transboundary movements of hazardous wastes and their disposal;
- g. Integrated Coastal Zone Management in the Mediterranean.

The European Union has added the Offshore Protocol as a part of EU legislation, by adopting on 10 June 2013 the Directive on safety of *offshore* oil and gas operations (The Barcelona Convention, 1995).

The Barcelona Convention and its protocols, together with the Mediterranean Action Plan, form part of the United Nations Environment Programme (UNEP) Regional Seas Programme.

This policy is actually an **agreement** among the Mediterranean countries and also the European Community and its main objectives are (The Barcelona Convention, 1995):

- to assess and control marine pollution
- to ensure sustainable management of natural marine and coastal resources;
- to integrate the environment in social and economic development;
- to protect the marine environment and coastal zones through prevention and reduction of pollution, and as far as possible, elimination of pollution, whether land or sea-based;
- to protect the natural and cultural heritage;
- to strengthen solidarity among Mediterranean coastal States;
- to contribute to improvement of the quality of life.

Many of these protocols are being effectively implemented, where others are more difficult and challenging to implement in all the countries of the Mediterranean. This is due to economic constraints, lack of political will and even the bad relationships between several countries in the Mediterranean Sea, which can negatively affect the progress of the Barcelona Convention and its Protocols.

# III.

## MedZeroLitter Action Plan

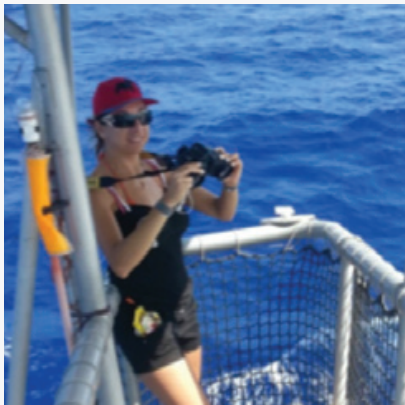


MedZeroLitter Action Plan							
CATEGORIES	ACTIONS	STAKEHOLDERS	ACTIVITIES	GOALS	MILESTONES / TIMEFRAMES	COMMENTS / REFERENCES	LINK TO HONOLULU STRATEGY
AWARENESS CAMPAIGNS	1) Awareness campaign on sea fronts and beaches - Reduce/No littering during holidays	Local governments	1) Prepare and distribute informative brochures to the hotel receptions regarding the marine litter and proposed solutions	1) Reduction of single-use plastic items (i.e. plastic bags) used by visitors. 2) No littering the beach and collecting any debris found. 3) Having visitors respect the local environment and change their behavior - being aware and behaving in a manner that will reduce marine litter: using reusable bags, not throwing litter on the beach, etc	<b>March 2017:</b> Distribute the brochure to the coastal hotels <b>By summer 2017</b> all coastal hotels in the Mediterranean will be able to provide information and reusable bags to visitors. <b>By summer 2020</b> no marine litter by visitors will be found on Mediterranean beaches.	Use brochures and video produced by MARLISCO PROJECT: <a href="http://www.marlisco.eu/brochure-sectors-specific-in-english.en.html">http://www.marlisco.eu/brochure-sectors-specific-in-english.en.html</a>	Goal A
		Hospitality Sector (i.e. hotels)	2) Offer free reusable bags at the hotel receptions, along with a brochure that educate the tourists and facilitate a positive change in their behavior				
		Tourists (General Public)	3) Reading brochures and using reusable bags provided by the hospitality sector and tourist agencies, educating also their friends				
	2) Beach Ambassadors - "Adopt a Beach" Awareness Campaign	Education Department (Schools) / National Authorities	1) Develop an awareness campaign called "Our Litter Heroes" to encourage the kids of taking care the marine environment	1) Teach future generations the importance of keeping beaches and oceans clean of waste and marine litter 2) Promote engagement/awareness by applying the practice of "Adopt a beach" and enhance the role of the public with regard to marine litter management. 3) Convincing tourists and general public of the importance of keeping our natural environment healthy 4) Identify and engage individuals\ groups\ schools\ that may act on voluntary basis as "Ambassadors of the beach" within such schemes	<b>February-March 2016:</b> The coordinating body will develop the logos and the scopes of the "Adopt a Beach" campaign and bring in some "famous people" to motivate the general public. <b>June-July 2016:</b> Lunch the campaign and invite people to participate by "adopting a beach", cleaning it and being responsible to maintain it clean	The "Our Litter heroes" will be developed through social media by establishing a hashtag#OurLitterHeroes Instagram channel to upload the picture on both media of kids recovering floating or abandoned litter month the most "liked" Hero can be elected as an "Ambassador of the Beach" which can "Adopt a beach" Campaign."	Goal A
		NGOs and Tourism Organizations	2) Agree on a coordinating body to take the initiative and promote an awareness campaign called "Adopt a Beach" to encourage tourists and the general public to choose a beach and support their conservation and protection of natural values promoted				
		VIPs (Famous People)	3) Develop a network of collaboration and get involved in protecting and cleaning up beaches by "adopting a beach" and encouraging the general public to do the same				
REMOVING MARINE LITTER AND AWARENESS CAMPAIGNS	3) Recover ML on large scale in the Med through sports event and gather data - "MED CLEAN UP REGATTA" (Research and Recovery)	Regattas organizations	1) Educate and sensitize the general public interested in water-sports and recreational boating, about the Marine Litter problem in the Mediterranean, its causes and solutions. 2) Promote a Reggata with the goal of collecting marine litter	1) Raising awareness by highlighting the problem of marine litter within the national education programme to obtain recreational seafarers permit. 2) Recover Marine Litter on large scale in the Mediterranean, through water-sports events and gather data (research) regarding the marine litter found in order to propose possible solutions, through the scientific community.	<b>Feb/March 2017:</b> Locate possible regatta course and contact possible port hosts /marinas to check feasibility. <b>April 2017:</b> Confirmation of Regata Home port and general rules for boats admissions, sponsors etc <b>May 2017:</b> Announced the 1st "Med Clean Up" Regatta to look for massive participation and media coverage. <b>September 2017:</b> "Med Clean Up" Regatta sports event takes place along with participation from other water-sports facilities and yachts' owners that will collect debris from areas around the Mediterranean <b>By 2020:</b> The scientific community will provide a report on the data/results and possible solutions to target the problem. The report will be distributed to governmental authorities and Regional Seas Conventions as well as the European Environment Agency for helping them to produce relevant policies and take actions	A Regatta event will aim to sensitize the sailing community on the issue of marine litter and make them aware how much they can help by collecting the debris from the Mediterranean sea. It will be an open-call event for all kinds of sailing boats that will promote "green sailing code". Recovering and sampling would be done via dragging a Manta Trawl few meters off the aft of the vessel. (Relevant Reference: Ecosurf Brazil ( <a href="http://ecosurf.org.br/site/">http://ecosurf.org.br/site/</a> ) and Ecosurf Italia). In this scenario, it could be useful to implement a "PAY (LESS) AS YOU RECOVER" campaign, with which their guests can have an extra fun reason to involve their family and children in recovering debris from beaches and sea.	Goal C
		Ports / Marinas Authorities	3) Educating the recreational boaters and giving them incentives like exemption from mooring taxes. 4) Create a network around the Mediterranean of recreational boaters ready to collect the debris they see.				
		Boat owners (sailing, yachts etc) and professional skippers	5) Establish new kinds of sports events that join up the fun of a regatta and also puts the crews and sailors in the front line of ocean protection. 6) Recover as much marine litter as possible to clean up pre-selected areas in the Mediterranean and to obtain data regarding the concentration and type of marine litter in those areas.				
		Sports Activities Facilities/ Providers (Jet ski rentals/ Paddle /Sailing & Surf schools etc)	7) Recover marine litter, even from remote areas that can have access, in order to avoid having them re-entering the sea and to preserve the ecosystem and its users. 8) Promote environmental education, awareness and responsible behavior for water-sports users and sailors and give them incentives such as exemption from mooring taxes, thus creating a network around the Mediterranean of people ready to collect the debris they see.				
		Scientific Community	9) Gather the data from the collected marine litter for research and for developing possible solutions to the problem				
		4) "Clean Up the Med" week; Pan-Mediterranean initiative	RAC/SPA, MED/PAN, UNEP, European Union and NGOs				
	EU Environment Agency, National Governments and Scientists		4) Explore and promote possibility to combine clean-up activities with Marine Litter surveys based on existing/agreed monitoring protocols or tools				
	Media and Local Authorities		5) Promotion of the Regional Sea MED Coastal Clean-up week including the development of electronic leaflets, promo-text for Regional Sea/national webpages, etc. (at Regional Sea scale)				
	Scuba Diving Schools and Organizations		6) Get involved by collecting and removing marine litter from the sea bottom				
	Hospitality Sector		7) Promote the event in all the hotels and encourage participation 8) Organize "Green Awards" and give "Green Certificate" for the most "green" accommodations (by measuring waste production, clean-up the beach events, awareness campaigns etc)				
	Tourists / Visitors		9) Get involve in the "Clean Up the Med" week while being on their holidays and thus feeling as being part of something great.				

## MedZeroLitter Action Plan

CATEGORIES	ACTIONS	STAKEHOLDERS	ACTIVITIES	GOALS	MILESTONES / TIMEFRAMES	COMMENTS / REFERENCES	LINK TO HONOLULU STRATEGY
REMOVING MARINE LITTER AND AWARENESS CAMPAIGNS	5) Fishing For Litter (FFL) Program	European Union - DG MARE & UNEP/MAP	1) Financially Support (through the EMFF) efforts made by (professional) fisheries towards removal of marine litter 2) Explore and agree on common guidelines and best practices for sustainable fisheries.	1) Promote the transition towards "fishing for litter" while cleaning the marine environment from both floating and submerged litter. 2) Raise awareness about the amount and impact of ALDFG ( <i>Abandoned, Lost, or Discarded Fishing Gear</i> ) 3) Recovery of fish stock by reducing the fishing pressure and removing ALDFG from the seas	<b>2016 - end 2020:</b> - EU financially supports the program throughout the European Maritime and Fisheries Fund (EMFF). - National Governments are in direct contact with recreational and professional fishermen and collect data of ML fished. - Fishermen participate in the FFL program <b>January 2017:</b> UNEP/MAP distributes common guidelines and best practices to recreational and professional fishermen. <b>May 2016-2019:</b> NGOs have talks every May (month with lower fishing activity due to regulations), for three years and educate the fishermen regarding the ML problem. <b>September 2021:</b> EU + UNEP/MAP prepare a report with the final results of the program and extent program if possible.	- EMFF 2014 - 2020 ( <a href="http://ec.europa.eu/fisheries/cfp/emff/index_en.htm">http://ec.europa.eu/fisheries/cfp/emff/index_en.htm</a> ) - Use Code of good practice and the toolkit developed under the EC project MARELITT ( <a href="http://www.marelitt.eu/?s=39">http://www.marelitt.eu/?s=39</a> )	Goals B i C
		National Governments and Environmental NGOs	3) Educate recreational and professional fishermen about marine litter problem and its possible solutions and how they can get involved. 4) Encourage recreational and professional fisheries to implement to the extent possible the "fishing for litter" program, providing the financial support by the EU and/or UNEP				
		Recreational and Professional Fishermen	5) Get involved in the program and collect marine litter 6) Use best practices for sustainable fishing activities (change equipment material etc)				
REDUCE-REUSE-RECYCLE	6) Implement a ban of single use plastic in areas and facilities 200m from the coast	Governments	1) Massive online campaign asking to enforcing the laws or proposing new one via online petition sites such as Change.org. 2) Ban of plastic bags on all establishments close to the beach (less than 200 m). 3) Promotion of incentives for local businesses that ban the use of plastic cutleries.	1) Reduce use of single use plastics at beaches and seas by reducing the plastic cutleries used in coastal businesses. 2) Reduction of the number of plastic bags used in coastal areas. 3) Promotion of sustainable packaging. 4) Raise awareness about single-use plastics and promote their more sustainable alternatives and a friendly-to-the-environment behavior of local businesses and visitors	<b>Summer 2016:</b> Create and promote a Mediterranean Responsible BeachBar Affiliation Programme that will mimic the Spanish example, across the Mediterranean Basin, which can be enforced by linking it with the obligatory measures to be taken for obtaining or maintaining the Blue Flag for each touristic beach. <b>By end of 2016:</b> launch and promote an online campaign for ban of single use plastic in designated areas <b>By 2017:</b> ban implemented and enforced <b>By 2018:</b> Most common single use plastic items replaced with reusable alternatives (in cooperative businesses this can be done regardless of the law implementation) <b>2016+</b> Achieved milestones should be followed by reports by the media		Goal A
		Local Authorities	4) Appoint Coast Guards (paid or volunteers) to ensure no single use plastic is distributed or left behind in the designated areas				
		Beach bars/Chiringuitos	5) Promotion of more sustainable packaging for products: Chiringuito Responsible program affiliation - "It's All Our Trash Campaign"				
		Local Business (Sports activities, Hospitality sector, Shops, and markets)	6) Ban the use of plastic cups, straws and plates and promote the use of reusable or compostable cutleries. 7) Encourage replacing single use plastic items with more sustainable alternatives (e.g. more durable cups, cloth bags, etc.)				
		Tourists and Media	8) Inform about alternatives to single use plastics so they join the petition and put pressure on the government				
WASTE MANAGEMENT	7) Reduce the amount of lost garbage from overflowing bins during peak periods	Solid waste managements	1) Improve available bins - Increase the number of bins found in coastal areas with high number of visitors and use closed-bin designs that will avoid losses of wastes due to the wind. 2) More regular collection of waste during the peak periods	1) Reduce the amount of land based litter by reducing the lost garbage from overflowing bins during peak periods in the coastal areas of the Mediterranean	<b>March 2016:</b> Start adding more bins (regular and for recycling) to the beach and coastal areas as well as improve the current ones (bigger, different design etc) <b>April - September 2016:</b> Add signs on the bins and distribute handouts with messages such as "We want to see the sand, not a dump", for promoting environmental awareness, no littering and recycling, <b>May - October 2016:</b> if this action will be proven successful, then it will be repeated each year. <b>By summer 2018:</b> All visitors will act in a socially and environmentally responsible way.		GoalA
		Local Businesses	3) Through the high peak season, local stores and businesses, will have the watch of the nearest bins; in case it gets filled, they will be responsible to either inform the local waste management department or they should clear it by collecting the full bag and adding a new one.				
		Tourists (bathers)	4) Act in a socially and environmentally responsible way - Be aware of the marine litter problem and be a part of its solution by throwing away their litter in suitable bins; if a bin is full, use the next one.				
WASTE MANAGEMENT AND AWARENESS CAMPAIGNS	8) "Butts-free" beaches	Local authorities	1) Ask Local Authorities and the Government to propose a law or enforce fines for littering cigarette butts on the beach ("Butts free beaches" campaign).	1) Reduce cigarette butts entering the oceans by proposing new laws and by giving away portable ashtrays on the beach and seashores. 2) Reduce the amount of cigarette butts that remains in the beaches and inform the beach users about the toxicity and persistence of cigarette butts	<b>Summer 2016 :</b> Distribution of cone ashtrays and informative leaflets tourists and bathers	Portable ashtrays with a mark of the beach and/or resort would serve as a souvenir, thus increasing the chance of being kept and reused. Even if the portable ashtrays are left on the beach, they will be less likely to end up in the sea, and easier to recover during the beach clean up activities than the individual cigarette butts would be.	Goal A
		Tourists	2) Distribution of cone ashtrays and informative leaflets in the beach to avoid littering and inform the beach users about the damage and toxicity of cigarette butts in the oceans				

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WASTE MANAGEMENT AND RECOVERY OF MARINE LITTER	9) Promote separation of litter produced on board of vessels (yachts, ships, cruisers) and recovery of litter encountered in the sea	Local Authorities and Environmental Organizations	1) Promote the need for a good source separation of waste at sea, giving talks to the crews of yachts and teaching them the importance of having all the different containers for all types of waste in their boats.	1) Educate and promote environmental awareness and behavior for the yachting clubs 2) Reduce the amount of waste from private boats (yachts and cruisers) that may end up in the seas 3) Remove floating debris from the environment and thus reduce the amount of marine litter in the Mediterranean by implementing the Recovery Campaign 4) Develop a "Fishing for Plastic" policy/agreement via establishing bonus for vessels that recover Marine Litter 5) Decrease the deposition of separated waste in the same landfills as the communal waste 6) Increase the amount of the material that gets recycled by creating a network of separating-collecting-and recycling facilities that make new items (e.g. surf shorts out of bottle caps - UK company "Riz Boardshorts")	<b>2016:</b> Create a network of volunteers from environmental organizations and educators hired by the local governments, to develop a series of talks for the crews and skippers of the yachts. <b>By 2017:</b> 25% Reduction of waste produced in yachts and at least 70% increase of recycling of their wastes.  <b>By 2017:</b> 10% Reduction of waste produced on cruisers. <b>By Summer 2017:</b> Recovery Campaign for promoting crews to collect floating marine litter found while at sea. - Have the required containers available, for the collection of waste to either forward it to scientists or for recycling. - The network for the whole reduce-reduce-recycle circle should have a platform to start attracting users. <b>By Summer 2018:</b> Develop and implement a Strategy to promote and ensure care of the marine environment. <b>By 2019: Increase</b> in the amount of recovered marine litter from the sea by cruisers 20% <b>By 2019: Everyone</b> on a yacht will be willing to collect any floating debris found while at sea and to continue the Strategy developed	Goals B and C	
		Yacht clubs, Yacht crews and professional skippers	2) Separate their waste in different containers, promote recycle and reduce the amount of their waste in their boats. 3) Develop and implement a Recovery Campaign named "It's NOSTRUM, so pick it up!" as an incentive to collect floating debris while at sea.				
		Cruiser owners and personnel	4) In addition to promoting waste separation, make incentives to avoid single-use plastics. Cruisers have many tourists on board, and usually serve meals, snacks, and refreshments on board. Due to water limitation, they often use single-use plastic items. Examples of incentives for waste separation and reduction would be dish washing facilities in ports, fee paid per volume of communal waste with a smaller fee paid per volume of separated waste etc. 5) Promote marine debris retrieval from sea by "buying off" such waste in the ports. Cruisers can decide to pull a mesh while cruising, or encourage their passengers to retrieve marine debris while they stop in ports and/or coves where tourists can pick up trash to, for example, win a free drink on the cruiser.				
		Private and Public Marinas	6) Provide specific containers to collect each type of marine litter found in the sea by yachts, for recycling them or for forwarding them to the scientists that might need the data				
		Recycling companies	7) Buy off the separated recyclable materials, making a financial incentive for the other stakeholders to separate it.				
ECOTOURISM	10) Mediterranean Experience of Eco-Tourism (MEET Project) - Second Phase	MedPAN (Network of Marine Protected Area Managers in the Mediterranean)	1) Continue the MEET Project in other countries in the Mediterranean Sea 2) Follow up and evaluate the results of the first phase of the MEET Project	1) Promote an ecotourism model for Mediterranean Protected Areas (MPAs) based on the "European Charter for Sustainable Tourism" to promote a better seasonal distribution of tourism flows (Med/PAN MEET project). 2) Produce guidelines for Eco-Tourism Best Practices and promote them through the E.U. or RAC/SPA meetings and documents. 3) Reduction of marine litter through Eco-Tourism practices in MPAs and enforcement of Zero Waste regulation in the areas. 4) Promote Ecotourism and Best Practices through Media coverage.	<b>December 2016:</b> Med/PAN evaluates the results of MEET first phase and develops the second call of interest <b>2017:</b> Develop a brochure with guidelines for ecotourism best practices for the Mediterranean Coastal and Marine Protected Areas. These guidelines are then forwarded to the E.U. Environment Agency 2017+ : <b>New</b> Regulation "Zero Waste in MPAs" and enforcement - strict penalties will be applied to those littering the areas. <b>2017 - 2020 :</b> Participate in the MEET Project with the relevant Managers of the MPAs <b>March 2017 - March 2020: Second phase of MEET Project</b> <b>2018:</b> E.U. issuing guidelines for ecotourism best practices for the Natura 2000 network <b>2020:</b> Distribute a video documentary and articles regarding Eco-Tourism by attending the activities within the MEET Project.	The Mediterranean Experience of Ecotourism (MEET) project aims to improve the sustainability and the rationalization in distribution of the tourism sector in the Mediterranean region. In the framework of cross-border cooperation within the European Neighborhood Policy Instrument (ENPI Med), under the strategic line "Promoting the sustainable tourism for the socio-economic development and enhancement of territories", this strategic project involved 10 countries of the Mediterranean (Italy, France, Spain, Jordan, Lebanon, Egypt, Malta, Cyprus, Greece and Tunisia). ( <a href="http://www.medecotourism.org">http://www.medecotourism.org</a> )	Goals A and B
		European Union	3) Issuing guidelines for Eco-Tourism best practices for the Natura 2000 network (Habitats Directive 92/43/EEC)				
		RAC / SPA (The Regional Activity Centre for Specially Protected Areas)	4) Continue the collaboration with MedPAN for the next MEET phase and promoting Eco-Tourism activities through Barcelona Convention meetings. 5) Produce a brochure of guidelines for best practices of Eco-Tourism				
		National Governments and Tourism Organizations of the Mediterranean Countries	6) Promote Eco-Tourism, especially in Protected Areas. 7) Get involve in the MEET Project 8) Develop "Zero-Waste" Regulation in MPAS.				
		Media	9) Make video documentaries and magazine articles to promote areas of natural beauty along with Eco-tourism. Such articles can be added in airlines on-board magazines.				
ACTION PLAN	11) Promote and Implement MedZeroLitter Action Plan	Students of the Marine Litter MOOC	1) Create a multidisciplinary team of people in their countries to report the advances made with the implementation of the different actions of the Action Plan	1) Keep track of the activities and also to develop new strategies to improve results	<b>2016:</b> make contact / join the international, regional, and local initiatives (such as: Global Partnership on Marine Litter; Marine Litter Solutions, etc. ) to create a strong network	Global Partnership on Marine Litter; <a href="http://www.marinelitternetwork.org/page/global-partnership-marine-litter">http://www.marinelitternetwork.org/page/global-partnership-marine-litter</a> ; Marine Litter Solutions - <a href="http://www.marinelittersolutions.com/who-we-are/joint-declaration.aspx">http://www.marinelittersolutions.com/who-we-are/joint-declaration.aspx</a>	Goals A, B and C
		NGO s and governmental organizations and initiatives	2) Support groups created in various Mediterranean countries and act as a link between the stakeholders and the authorities both locally and nationally	2) Provide capacity for action throughout the national territory and so extend the scope of the Action Plan			
		Science communicators	3) Approach science communicators in our respective communities	3) Motivate the general public using a strong scientific background (facts), and preferably some more well known community figures who will push and promote the Action plan			
		Media	4) Create communication channels through social media (Twitter, Youtube, Facebook, Instagram), posting related actions to dedicated websites such as Recycleopedia ( <a href="http://www.recycleopedia.com/">http://www.recycleopedia.com/</a> ) in order to promote the Action Plan	4) Make known to the world the Med Zero Plastic Action Plan and its activities. The more accounts and channels, the more repercussion will have the Action Plan			



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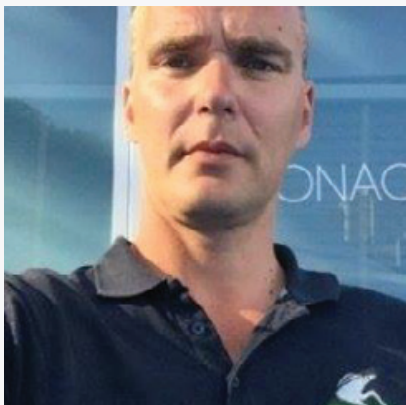
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