PERSEUS

POLICY-ORIENTED MARINE ENVIRONMENTAL RESEARCH IN THE SOUTHERN EUROPEAN SEAS

Clean Seas Communication & Outreach Best Practice Guide

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EXECUTIVE SUMMARY

Policymakers are called upon to create legislation and regulations to protect and manage our precious marine environment, but in many cases, the needed wider public awareness to gain traction of these measures is not in place. Not enough attention is paid to educating the public on their important role in mitigating the negative impacts which they themselves produce on the marine environment.

The *Clean Seas Communication & Outreach Best Practice Guide* is addressed to policy and decision makers, who are encouraged to integrate awareness raising and communication campaigns as a key policy measure with a view to stimulating the change in behaviour of citizens to adopt eco-friendly practices. The Guide provides useful information on the types, scope and means to undertake **citizen communication and public awareness activities that can make a significant difference to the state of the marine environment in the Mediterranean and Black Sea (referred to as the Southern European Seas or SES).**

Specifically, the Guide gives advice on **how to inspire "eco-friendly" behavioural changes of citizens** in their everyday lifestyles and especially when citizens go on holidays to the sea. Why **the focus on promoting eco-tourists**? As the warmest seas of Europe, the Southern European Seas are naturally the most attractive beach tourism destinations for swimming in Europe. The Mediterranean has the distinction of being the world's leading tourist destination, but also one of the 'most affected by marine litter' seas worldwide.

PERSEUS scientific findings have shown that the main marine litter in both seas is plastic waste, comprising up to 95% in the Mediterranean and 45% in the Black Sea. Moreover, cigarette butts were the main marine litter items found in great quantities on beaches in the Mediterranean. It is clear that tourists produce extreme pressure on coastal areas in the Southern European Seas and therefore, reciprocally, they can also make the greatest positive impact on the state of the SES through a change in their behaviour – hence the need for "eco-tourists".

This guide is a first of its kind in that it facilitates the creation of communication-oriented policy measures promoting "eco-friendly tourists". It includes examples of best communication practices and useful resources on how to raise public awareness to improve the general public's behaviour and reduce human pressures on the marine environment. Links to relevant PERSEUS scientific work giving context and insights to these proposals is also presented.

The **inclusion of targeted communication-oriented policy measures in any programme of measures is a 'must'**, as such measures can have far-reaching positive results on the 'Good Environmental Status' of the Southern European Seas.

SCOPE

The *Clean Seas Communication & Outreach Best Practice Guide* is based on the 'Issues Paper for Policy Makers on the Clean Seas Communication & Outreach Best Practice Guide', which prioritised the key environmental issues - tourism, marine litter and fishing/aquaculture - where communication and awareness raising can help to improve general public behaviour and reduce human pressures in the marine environment.

This Guide is meant for public authorities in both EU and non-EU countries and offers an overview of different options for creating public awareness activities and promoting the public's involvement which contributes to sustainable marine environment management. In particular, the Guide presents the best marine communication practices and provides specific guidelines on

how public authorities can successfully promote 'Good Environmental Status' in their countries and wider regions.

Engaging citizens has been an important pillar of activity for PERSEUS. It is clear that for our seas to be given the importance they deserve, the general public must understand the huge contribution the seas make to our lives. Citizen awareness and moreover their active engagement in protecting the sea is crucial for the successful implementation of marine policies. PERSEUS successfully organised and rolled out many citizen engagement initiatives, from ocean literacy in schools to citizen science campaigns and other outreach activities, many of which are showcased in this guide as good examples.

The Guide is available on the PERSEUS website and presents concrete examples of outreach activities targeted to citizens (especially tourists) for use by key stakeholders, such as policymakers, the tourism and recreational industry, environmental NGOs as well as educational marine centres (e.g. aquariums, museums, schools) to raise awareness on the status, challenges and threats that the marine environment is facing. It is important for policymakers to develop communication measures targeting citizens, as they play an important role in achieving 'Good Environmental Status'.

1. ABOUT THE GUIDE

1.1.In brief

This document provides guidance to policymakers on how to stimulate eco-friendly campaigns and change in behaviours among citizens. The main objective is to integrate environmental sustainability practices into decision making, especially in the marine tourism industry and transmit it into consumers' behaviours and purchasing choices, by disseminating scientific information and data on the status of our seas, beaches and the surrounding marine ecosystems.

The Guide outlines the significant challenges and pressures that the marine environment and its ecosystem are facing, with the view to defining what sustainability means in marine environment management, and presenting the most effective policies and communication strategies that would stimulate a change in behaviour in tourists and the public towards eco-friendly and sustainable practices.

Although this guide clearly shows that there is no 'one-fits-all' solution to stimulate eco-friendly behaviours in tourism, it highlights one key and important message: to succeed in making tourism more eco-friendly it is crucial to work hand in hand with all relevant stakeholders in the realm of the marine environment.

This being so, although the guide is aimed mainly for policymakers, all relevant stakeholders are encouraged to disseminate its contents and adopt the suggested tips and change in behaviours. From private and non-governmental organizations that have an interest in ensuring the long-term success of the tourism sector, to the wider tourism industry and finally to tourists and citizens, whose changes in lifestyles can make a significant difference in the protection and safeguard of our seas.

1.2.Who is this guide for

This guide is addressed to policy and decision makers, who are encouraged to integrate awareness raising and communication campaigns as a key measure to stimulate change in behaviour of citizens to adopt eco-friendly practices not only as tourists when they go on holidays, but also as citizens in their everyday lifestyles.

1.3.How can it help

This guide is meant to:

1. Inform policymakers on the state of the environment of our seas and marine ecosystems. This focusses in particular on the damaging environmental consequences of tourists' and citizens' wrong habits, which are threatening the safeguard and preservation of our seas.
2. Raise awareness on the importance of designing and implementing communication strategies that can effectively depict the real environmental status of our seas and the damaging consequences of human activities
3. Provide practical communication tools that can be implemented without significant resources, yet having a high impact in stimulating and advocating a change in the general public's behaviour.

The design and implementation of measures for "Communication, stakeholder involvement and raising public awareness" is seen as a core element in the effort of achieving a 'Good Environmental Status' in the South European Seas (SES), for both EU and non-EU countries. The communication strategy should promote a series of measures applicable to any marine environment to help encourage best practices and reduce human pressures on marine waters.

1.4.Why it matters- Facts and Figures

Marine regions of the Mediterranean and Black Sea have long been drivers of economic growth, providing natural resources and access to trade and transport, opportunities for recreation, and especially a key destination for tourism. Today, coastal tourism activities in both regions remain essential and are vital motors of the economy and society in general, with significant value for the employment sector, as well as high expectations for future growth. However, human and tourism activities are over-exploiting the marine and coastal ecosystems and the relative resources which they primarily depend on, threatening their long-term sustainability.

The following paragraphs offer brief but concise figures on the environmental impact of the tourism activity in both the Mediterranean and Black Sea. This is meant to contextualise the issues and provide some background for the discussions that will follow.

1.4.1. The Mediterranean Sea

The Mediterranean Sea is a holiday top destination and a key economic sector for the region[1]

The wider Mediterranean region is the **world's leading tourist destination**.

The Mediterranean is one of the most visited tourism regions in the world, accounting for one in three international tourist arrivals worldwide, over a quarter of total international tourism receipts, and almost 20% of the global cruise market[2].

In 2013, France, Spain and Italy were among the world's top 10 destinations for holidaymakers. As for tourism intensity in 2012, the Mediterranean destinations of Malta, Cyprus and Croatia were the most popular. As a result, this industry became **a key sector of the European economy**, **generating over 10% of EU GDP**.

Tourism in high seasons creates high environmental pressures on the region

Despite the difficulties of quantifying the real impact of tourism on the environment, any increase in the number of tourists undoubtedly has an impact on environmental variables such as waste generation, water and energy consumption.

In 2014, 343 million international tourists visited a Mediterranean destination. According to UNWTO's long-term forecast, this number will reach over 500 million in 2030.

PERSEUS findings[3] show the increasing human pressures of tourism on the marine environment, especially in the Mediterranean, where arrival of international tourists to Mediterranean countries has increased almost up to 30% in the last 10 years, while tourism international tourism receipts in this same period have almost doubled.

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[1] Source: EEA website and PERSEUS research work on Marine Litter led by F. Galgani / IFREMER. The main findings are presented in the fact sheet "Marine Litter: a growing threat to our seas" http://www.perseus-net.eu/assets/media/PDF/FACT%20SHEETS%20DEC%202015/5370.pdf

[2] World Tourism Organisation (UNWTO) 2015

[3] More information on tourism and fisheries impacts on the coast and open seas can be found in four PERSEUS deliverables: a) D2.2: Preliminary identification of pressures of the **coastal seas** in socio-economic terms & Gap Analysis on data and knowledge; b) D2.3 Assessment of pressures impacting the environment of the Work Package 6 Pilot cases in coastal seas socio-economic terms; c) D1.2: Pressures in the SES **open waters** in socio-economic terms & Gap Analysis on data and knowledge and d) D1.4: Assessment of pressures impacting the open sea environment of the Work Package 6 Pilot cases in socio-economic terms.

In particular:

- **A tourist consumes 3 or 4 times more water per day than a permanent resident**, with non-tourist water use ranging between 100 and 200 litres per person per day across Europe
- In Torremolinos (Spain), electricity consumption (of which tourism accounts for about 40%) increased by 160% between 1989 and 2008.
- Several studies have reported **increases in municipal solid waste (MSW) as the seasonal tourist population rises**. This has particularly been the case in small islands which are environmentally more vulnerable to the MSW growth and where any negative effects on health may spread more quickly. For instance, in Menorca, during the period 1998 to 2010, the daily average of MSW generated in August by tourists is higher than that from residents, while a Maltese resident generates a daily average of 0.68 kg of MSW compared to a daily average 1.25 kg by a tourist in a hotel.
- On average, in the Mediterranean tourists generate 10-15% more waste than inhabitants. In some tourist areas more than 75% of the annual waste production is generated during the summer season.
- **The most emission-intense mode of transport per kilometre travelled is the cruise ship**: direct air emissions of 0.330 kg CO2 per ALB KM[4] have been estimated. Furthermore, most cruises start with flights to reach harbours, adding between 10% and 30% to the total emissions caused by the cruise.

Marine litter represents a plague for the Mediterranean Sea[5]

The Mediterranean Sea has been described as one of the most affected areas by marine litter worldwide, in which there are no areas where litter permanently accumulates. PERSEUS main findings[6] for the Mediterranean Sea include:

- The main marine litter component is **plastic waste**, comprising up to **95% of the accumulating litter on shorelines, ocean surface or sea floor.**
- Cigarette butts are the main marine litter items found in great quantities on beaches, along the Mediterranean Sea.
- Plastic bags are found in excess on the seafloor, comprising almost 50% of all plastic litter.

Plastic is the main component of marine litter

An estimated 731 tons of plastic is littered every day at sea, representing 95% of waste accumulated on shorelines, the ocean surface or the sea floor. The highest densities of floating microplastics, up to 4,680,000 items / km^2 are found in the Mediterranean Sea, with annual inputs at a level of 50 billons micro particles.

1.4.2. The Black Sea

The Black Sea region's rising importance in the tourism industry[7]

[4] Available Lower Berth KM
[5] Source: PERSEUS research work on Marine Litter led by F. Galgani / IFREMER.
[6] Based on PERSEUS deliverable D2.7: Impact of pollution (including contaminants, litter and noise) on coastal ecosystems in the SES under WP2: Pressures and Impacts at coastal level
[7] Source: International Centre for Black Sea Studies

Over the past decades, the quality and quantity of tourism services in the Black Sea region have improved significantly. In 2013, the Black Sea region registered 127 million international arrivals (22.5%), out of the total 564 million international arrivals registered in European destinations and a total of 74 billion USD receipts (15%) out of the 489 billion USD for the whole European region.

The Black Sea ecosystem has been the subject of intense scrutiny

The Black Sea region has been experiencing dramatic changes to its ecosystem during the last 50 years, clearly the vulnerability of its marine resources. The region is facing a number of severe challenges:

- **Land-based sources are the biggest polluters** and account for more than 70% of all pollution. Eutrophying nutrients, which enter the sea through rivers, are one of the worst pollutants, while nutrients coming from the Danube River (mainly nitrates) remain significant but stable during recent years.
- **The fish stock has deteriorated dramatically** over the past three decades. The diversity of commercial fish caught has decreased over this period from about 26 species to 6 and the volume of fish caught increased. This is almost entirely due to significant anchovy fishing by Turkey, accounting for almost 80% of the total catch. The main factors behind the decline of fish stocks are: changes to the ecosystem as a result of eutrophication; the arrival of alien species and overfishing.
- **Unique terrestrial ecosystems**, such as those in the Caucasus region, the Danube Delta and the East Carpathians **are under threat** of severe damage and disappearance.

According to the PERSEUS research[8], the Black Sea is one of the basins where data and information on the abundance and distribution of marine litter are lacking. The Black Sea is particularly vulnerable to pollution, as it is a small semi-enclosed, surrounded by industrialised countries, home to shipping routes, fisheries and tourist activities, with relatively high river discharge.

In dedicated **marine litter** studies carried out by PERSEUS in the Black Sea where the MSFD protocol, the seafloor of the basin, the findings showed that the dominant marine litter types were plastics (45%) and metals (22%).

Europe's Southern European Seas – i.e. the Mediterranean and Black Seas – are natural summer vacation destinations, which gives them an extra heavy environmental burden during the summer months in comparison with Europe's other seas. Tourists play a major role in the state of these seas. Therefore, policy measures targeting and mobilising eco-friendly changes in tourist behaviour should be put in place to offset this "tourism burden" in the SES.

Message from Izmir: The PERSEUS Declaration on Tourism & Marine Litter

PERSEUS worked with stakeholders from around the SES to recognise the importance of linking the marine litter issues to the expansion of tourism and create a consensus on the next measures that should be taken, especially as regards citizen engagement.

The Interactive Stakeholders Session "Blue Growth for Green Cities: Documenting Anthropogenic Impacts and suggesting Policy Options", organized by PERSEUS within the "International Congress on Green Infrastructure and Sustainable Societies / Cities (GreInSus)"

[8] Based on PERSEUS deliverable D2.7: Impact of pollution (including contaminants, litter and noise) on coastal ecosystems in the SES under WP2: Pressures and Impacts at coastal level

(Izmir, 8-10 May 2014), explored the relation of Marine Litter and Tourism as threats towards achieving Clean Seas by 2020, which is the project's main objective.

Participants reached a consensus on the best design options and solutions through negotiations and voting, once they had identified and agreed upon the main barriers posed by 'Tourism' to achieving 'Clean Seas' by 2020 and a sustainable marine ecosystem.

The results of the interactive session were then submitted to the Conference organisers to be announced at the closing ceremony. The final declaration, now called the 'PERSEUS Message from IZMIR', was finalised with the consent and approval of all participants. Some of the key points include:

- The Mediterranean basin is one of the most visited destinations in the world;
- Clean Seas are an important element for sustainable Tourism;
- Marine Litter is an explicit barrier to Tourism;
- Tourism is one priority area to deliver sustainable growth and jobs;
- Tourism is a significant coefficient of Marine Litter and can increase pressure on natural resources;
- Marine Litter and unregulated touristic activity pose a threat to the marine environment and human health.

The **key barriers** identified to achieving "Clean Seas by 2020" were set out as follows:

- Insufficient and unreliable data hinder accurate problem identification;
- Ineffective governance and inadequate reinforcement mechanisms;
- Lack of marine spatial planning magnifies the pressure exerted from Tourism on natural resources and the environment;
- Short-term benefit preferred over Long-term strategy in Tourism development
- Need of new policies for reducing Marine Litter and changing consumer habits;
- Lack of culture on recycling and waste prevention;

Initiatives and measures related to citizen-engagement identified and proposed were as follows**:**

a) Key measures for Marine Litter

- Prevent waste; it is a key factor for reducing the amounts of waste at source
- Implement coordinated, transnational Environmental Education programs and campaigns across countries
- Increase public awareness, improve "recycling culture" and alter "consumer behavior"

b) Key measures proposed for Tourism:

- Adopt sustainability practices in the tourist industry to protect the use of natural resources;
- Develop thematic tourism linking tourism and marine environment, education and awareness;

- Implement Environmental Education programs and campaigns;
- Increase public awareness and improve "consumer behaviour".

The general consensus was that science and society should be connected and engaged more effectively and broadly. Proposed initiatives and measures should involve close collaboration of all involved stakeholders engaging all parts of society economy, policy and science and can be successful and implemented through the participation of responsible and educated citizens.

It is clear that it is time for a cultural shift towards "Respecting our seas", where education should be the vector of change leading to enhanced public awareness and eco-friendly behaviours.

It is in this context and spirit that the Clean Seas Guide has been developed.

1.5.Methodology

This overview is the result of a collaborative inter-disciplinary investigation and review of similar literature, such as scientific publications, best practice guidelines, booklets and policy briefs in the field of sustainable marine environment management.

This Guide is based on three main chapters:

- **Chapter 2: Tourism Impacts & Measures:** provides an overview of negative impacts on the marine environment and ecosystem as a result of **careless tourism activities and practices**. It also offers a series of examples of measures and actions needed to reduce pressures on marine waters.
- **Chapter 3: Mobilising citizens:** describes how habits in our everyday life can have a fundamental impact on the status of marine environments even if not on holiday and/or living in cities and locations far from the seaside.

Both chapters are structured around four subsections aimed at clearly identifying: the issue ('What is the issue?'); its importance ('Why should we care?'); iii) possible actions/solutions ('What can we do?') and key best-practice examples ('Examples').

- **Chapter 4: Communication tools:** identifies a series of communication tools that would be effective and immediate in stimulating a change in behavior in tourists and the public towards eco-friendly and sustainable practices.

Based on these considerations and discussions and drawing on results of undergoing research, brief concluding remarks are drawn in the end.

2. TOURISM IMPACTS & MEASURES

The following chapter provides an overview of negative impacts on the marine environment and ecosystem as a result of careless tourism activities and behaviours. In particular:

- **2.1. Habitat and water.** Coastal biological diversity as well as water resources are placed under a sever threat of degradation and depletion by reckless construction, leisure activities, overuse of resources and tourist activities.
- **2.2. Marine Litter.** Litter contaminates the status and health of coasts and waters. It originates from multiple sources such as, litter washed from rivers, litter discarded from boats, litter from fishermen and from beachgoers and tourists.
- **2.3. Fish consumption.** Overfishing, unsustainable fishing practices and non-

environmentally friendly consumption habits are threatening ocean ecosystems, jeopardizing the equilibrium of the marine habitat and putting the survival of fish species at stake.

2.1.Habitat and water

2.1.1. Habitat alteration and coastal degradation

Coastal ecosystems, such as wetlands, coral reefs and sea-grass beds, play a major role in the lifecycle of many marine organisms. About 95% of world marine production originates from coastal ecosystems, including economically important fish species, by providing breeding, nursery and feeding grounds. However, natural resources and habitats in coastal areas are facing increasingly heavy demands due to the rapid population growth and human development.

As a result of these pressures, marine and coastal biological diversity are placed under severe threat of degradation, loss of productivity, and risk of intensified conflicts over the increasingly scarce coastal resources.

WHAT IS THE ISSUE?

Increased construction of recreational facilities related to tourism development, such as hotels, airports, roads, and vacation homes has increased pressure on coastal resources and has caused one of the greatest negative impacts on coastal and marine ecosystems around the world.

Marine habitats such as beaches, seagrasses and coral reefs are all particularly sensitive to habitat alterations, which growth in the tourism industry is partly responsible for. Seagrasses for example, although relatively robust, are highly susceptible to damage from excess turbidity, shading and water pollution typically associated with shoreline development.

Loss of biodiversity and picturesque landscapes already affects a number of tourist destinations throughout the Mediterranean. For example, over 43% of the Italian coastline is completely urbanised due to tourism development, with only 6 stretches of coast over 20 km that are not developed.

Habitat degradation can also cause the reduction or loss of sensitive coastal systems that offer key ecological services. For example, both coastal dunes and wetlands offer a buffer against high seas and storm surges, protecting natural habitats and man-made infrastructure further inland. The degradation of these habitats can have dire consequences for the coastline, leading to expensive repairs and maintenance of infrastructure, which could have been avoided with careful planning.

Similarly, leisure activities such as diving, boating and fishing can also cause negative impacts on ecosystems at local level, affecting living organisms and causing habitat destruction. Boating and diving can introduce underwater noise and cause physical damage to seabed ecosystems by the use of anchors in sensitive areas or by inappropriate diving techniques. Fishing can also result in physical damage by breaking valuable seabed structures (e.g. corals) or capturing sensitive/endangered species, and discarded fishing gears can threaten the survival of underwater habitats and marine life, including coastal species such as seabirds.

WHY SHOULD WE CARE?

- LOSS OF SENSITIVE ECOSYSTEMS- Not only does a degraded habitat destroy the equilibrium and wellbeing of marine life, but it also affects nearby coastal ecosystems, such as wetlands and dunes which provide key ecological services for the surrounding flora and fauna as well as for humans.

- FEWER FISH- Degraded habitat reduces the number and variety of fish, which are important for attracting visitors, as well as for ensuring the equilibrium of the marine fauna.
- DISTURBANCE OF MARINE WILDLIFE- Excessive disturbance can cause animals to leave primary feeding and reproductive areas. This leads to an overall decline in habitat health and a decrease in the primary features that attract tourists.
- IMPACTS on CORALS- Anchors and chains can scar coral reefs, break coral colonies and other reef-dwelling organisms. Remaining corals will also be stressed and more vulnerable to associated problems, such as diseases.
- CLOUDY WATER- Anchoring can cause an increase in sand and sediment in the water. This can make clear water appear cloudy or murky and prevents corals from getting the sunlight Rthey need to survive.
- REDUCTION IN BIODIVERSITY- The overharvesting of fish and other popular game species negatively impacts the overall health and diversity of near-shore marine and coral ecosystems. This loss of diversity, aside from threatening the overall health and integrity of the ecosystem, can also diminish the attractiveness of the area to potential tourists.

WHAT CAN WE DO?

Stakeholder	Activities
Recreational fishing industry	- Change boat practices causing disruptive effects to the marine habitat. This includes for instance, anchoring boats in designated areas, away from important ecosystems. - Educate tourists who rent boats and have little understanding of harmful sailing practices - Prevent marine pollution from fishing by ensuring that no marine debris is left behind from fishing practices.
Environmental NGOs	- Conduct educational campaigns and environmental awareness briefings for tourists on the sensitive nature of near-shore marine and reef ecosystems and the potential impacts that can result from irresponsible snorkelling and diving.
Policymakers	Environmental Legislation - authorities need to put regulations in place to: - Ensure that coastal development is conducted in a sustainable manner and taking the environment into consideration. Any coastal development project should have an environmental impact assessment conducted. This should be carried out with input and guidance from environmental specialists and/or NGOs that can offer recommendations that guide the tourism industry stakeholders towards sustainability - Establish marine protected areas (MPAs) in which anchoring, fishing, harvesting of corals and harassment of wildlife are banned - Protect sensitive ecosystems, especially ecosystems that offer key services (e.g. dunes and wetlands) - Encourage responsible leisure activities such as: beach use, snorkeling

	and diving, boating and sailing and fishing
Tourists	- Choose holiday destinations and accommodations that comply with sound environmental standards and practices, such as environmental conservation efforts and commitments to sustainable tourism. - Behave responsibly when practicing leisure or sport activities by refraining from visiting protected areas, driving boats in an irresponsible manner that could result in collision with marine animals (e.g. turtles and cetaceans), and fishing for sensitive/endangered species.

BEST PRACTICE EXAMPLES AND GOOD RESOURCES

The Rainforest Alliance, in partnership with **Conservation Internationa**l, has put together a comprehensive *Guide to Good Practices for Sustainable Tourism in Marine-Coastal Ecosystems: Lodging Businesses.*

The guide offers comprehensive information about marine coastal ecosystems and the environmental resources most used by tourism activities in these ecosystems. It analyses the potential problems associated with tourism and provides recommendations on how to improve management practices in the industry. The correct and sound implementation of such best practices allows tourism stakeholders to minimize their impacts on the environment, while getting the maximum benefit from tourism activities that are linked to natural and social environments. By using this guide tourism stakeholders can become aware of the key characteristics of the natural habitats where they operate, and consequently improve their management plans by following the suggested best management practices.

The guide can be downloaded at the following link (http://www.rainforest-alliance.org/sites/default/files/publication/pdf/marine_coasta_eng_0.pdf).

European Council on Trade and Tourism offers an online guide for sustainable tourism, including:

- A list of best practices in sustainable tourism
- The European Charta on Principles of Fair Tourism
- European Union Code of Conduct for Tour Operators
- The Partnership for Global Sustainable Tourism Criteria

The online guide can be found here: http://ectt.webs.com/sustainabletourism.htm

United Nations Environment Programme (UNEP) has compiled a handbook on Sustainable Coastal Tourism: An integrated planning and management approach.

The handbook explains how the tourism sector can contribute to sustainable development in coastal areas, as well as to the long-term sustainability of coastal tourism. The handbook provides an easy-to-use practical guide to sustainable coastal tourism. It identifies key stakeholders as well as key tools that should be included in the different stages of the planning and development process, to ensure its success. The handbook targets national and local decision-makers, operators from the tourism sector as well as practitioners in the field of

integrated coastal zone management, and also strives to support communities affected by tourism development.

The handbook can be downloaded at the following link:

http://www.unep.fr/shared/publications/pdf/DTIx1091xPA-SustainableCoastalTourism-Planning.pdf

2.1.2. Water and resource depletion

Water, and especially fresh water, is one of the most critical natural resources. However, despite its vast amount on the planet, decades of unsustainable management have resulted in crisis water levels in many parts of the world.

Generally speaking, the abstraction of water for industrial and agricultural use as well as for provision of services, of which tourism is one of the main ones, has negative impacts that extend beyond the harm to freshwater and terrestrial ecosystems. Abstraction from coastal aquifers can worsen water quality through the intrusion of saltwater, diminishing the quality of the groundwater and preventing its subsequent use. Not surprisingly, large areas of the Mediterranean coastline have been affected by saline intrusion driven by abstraction of water for agriculture and public water supply, mostly driven by a surge in tourism activities.

WHAT IS THE ISSUE?

The tourism industry generally overuses water resources for hotels, swimming pools, golf courses and tourists' personal consumption. The increased population in coastal areas during tourism high season can lead to overexploitation of resources, causing severe environmental issues such as degradation of water supplies, greater volumes of waste water and freshwater scarcity for local communities throughout the rest of the year.

In dryer regions of the Mediterranean, the issue of water scarcity is of particular concern. Because of the hot climate and the tendency of tourists to consume more water when on holiday than they do at home, the amount used per person can run up to 440 litres a day, which represents almost double what the inhabitants of an average Spanish city use.

Golf course maintenance can also deplete fresh water resources. Golf courses require an enormous amount of water every day and, as with other causes of excessive extraction of water, this can result in water scarcity. In recent years golf tourism has increased in popularity and because golf resorts are more and more often situated in or near protected areas or areas where resources are limited, impacts of their activity are exacerbated.

Tourism can also lead to a decrease in coastal water quality and in biodiversity due to water pollution issues. The generation of high volumes of domestic wastewater ends up frequently with poorly treated or non-treated effluents reaching the rivers and coastal waters, causing problems such as unhealthy conditions for bathing due to possible presence of microbial pathogens in waters. Similarly, nutrient loading due to runoffs from agriculture and aquaculture causes eutrophication of coastal waters which can lead to oxygen depletion and ultimately ocean dead zones and decrease in biodiversity.

WHY SHOULD WE CARE?

- DEGRADATION OF WATER QUALITY –Solid waste and littering can degrade the physical appearance and quality of the water and shoreline and cause the death of marine animals

- SEWAGE RUNOFF- causes serious damage to coral reefs because sewage contains lots of nutrients and it stimulates the growth of algae, which cover the filter-feeding corals, hindering their ability to survive
- CHANGES IN SALINITY- as a result of poor water quality can have wide-ranging impacts on coastal environments and threaten the health of humans and animals.

WHAT CAN WE DO?

Stakeholders	Actions
Policymakers	- Take steps to improve the quality of water entering the oceans from wastewater streams and storm water runoff. - Ensure the construction of wastewater treatment facilities and storm water collection systems and make sure they are well designed to cope with high season loads in order to guarantee that pollution levels in effluents are within established safety limits.
Tourists	- Become informed about the water quality status of their holiday's destination through authorities' water monitoring programmes and eco label programs such as the 'Blue Flag' for beaches. - Adopt environmentally-friendly habits to reduce energy and water consumption (e.g. using public transport, switching off lights and devices when not used, choosing to shower rather than taking a bath, turning off the tap when brushing your teeth/shaving, etc.)
Environmental NGOs and authorities	Develop guidelines and initiatives according to the specific target group. <u>Tourists:</u> Promote and carry out a series of awareness raising campaigns. For instance: - The 'Bin it and Bag it' (rather than flush it) campaign encourages citizens and visitors to bag personal products rather than flush these down the sewer, as they often pass through the system and end up littering the ocean floor and beaches - Campaigns for reducing, reusing and recycling solid waste so that less waste enters the waste stream in the first place. <u>Agriculture and aquaculture industries</u>: - Create awareness regarding issues related to nutrient loading and promote more sustainable practices, such as organic farming methods for local aquaculture ventures. <u>Tourism stakeholders</u> (hotels, restaurants, recreational facilities). Environmental NGOs should spread the message that poor water quality can ultimately affect tourism and thus be bad for the industry's business. Actions include: - Encourage them to install water saving devices, such as: timing devices to control water flow from taps/showers and prevent water wastage - Encourage them to save water and energy through local media channels (radio, TV, Newspaper, Magazine campaigns), as well as billboards and signage - Encourage local recreational facilities such as golf courses to reduce their use of fertilizers as this can fuel algal growth in freshwater and coastal systems leading to eutrophication, red tides and ocean dead zones in marine systems

	- Encourage them to provide economic-based incentives to stimulate better tourism behaviour. There are different charging mechanisms that can be used as a mean to influence tourists' behaviour, both through providing discounts, waivers, and imposing charges. Some examples include for instance, Rewarding schemes- offering waivers and/or discount coupons to consumers who decide not to have their hotel room cleaned or their towels/bedsheets changed.
Tourism stakeholders	- Tourism stakeholders from destinations with good water quality can promote this via the internet (local websites and websites of programs such as those listed above), email campaigns to the travel industry (e.g. travel agents), etc. - Provide tourists with a list of water and energy saving tips in all hotel rooms (e.g. as a laminated poster on back of bathroom/bedroom doors) or on welcoming TV screens in the reception area, showing short videos broadcasting water-saving tips and messages to tourists. Different energy and water saving tips can be consulted in the following links : • http://www.sustainabletourism.net/ • https://www.ecotourism.org/energy-saving-tips-travelers • http://kleindale.net/skal/a_english/sustainable101_tips.html - Respect waste treatment regulations and legislation and guarantee that wastewater receives appropriate treatment by connecting to sewer systems or by adequately treating their wastewater in their own facilities prior to discharging.

BEST PRACTICE EXAMPLES AND GOOD RESOURCES

PERSEUS & Sailing

PERSEUS teamed up with several charter sailboat companies to launch the PERSEUS & Sailing "eco-campaign". This campaign targeted the general public who usually sail in the Mediterranean during the summer season and aims to encourage them to adopt an eco-friendly approach during their sailing experience. As part of the initiative, PERSEUS developed a leaflet on '5 eco-friendly tips' for sustainable sailing, which has been disseminated in chartered sailboats across the Mediterranean and that sailors can adopt to reduce their impact on the marine environment. In this leaflet, a 'Sustainable Sailing Photo Contest' has also been launched. Sailors took part in the contest by sending photos of their sailing experience and life at sea that captures their attention such as, sunsets, sail boats, beaches, clear waters, life on board, marinas, coastal or underwater flora and fauna, etc. The best photos are awarded with discount vouchers for their next sailing trip.

In addition, sailors were also encouraged to take part in other PERSEUS citizen science campaigns - i.e. Jellyfish spotting (link: http://www.perseus-net.eu/en/jellyfish_map/index.html) and Marine LitterWatch (link: http://www.perseus-net.eu/site/content.php?locale=1&locale_j=en&sel=516)

Tourism Concern launched in 2012 the *'Water Equity in Tourism (WET)'* campaign together with the release of a report with case studies to highlight how disproportionate use of fresh water by tourists can create problems for local communities in developing countries. The

campaign involved:

- Detailed research into tourism's impact on water access of local communities
- A special steering committee comprised of experts from campaigning groups, development agencies, think-tanks and academia to guide and analyse the research. See below for the list of organisations that made up the steering group
- Awareness-raising with tourists including water-saving tips for holidays and campaign actions
- Lobbying and advocacy, including promoting dialogues with industry, governments and community stakeholders in a bid to ensure protection for local peoples' right to water

The report and the campaign are available at the following link: http://tourismconcern.org.uk/water-equity-in-tourism/

2.2.Marine litter

Marine litter is a complex problem with relevant implications for the marine and coastal environment as well as for the associated human activities all over the world. Marine litter originates from both ocean-based and land-based sources; it is rooted in poor solid waste management practices, lack of infrastructures, indiscriminate human activities and behaviours and an inadequate understanding on the part of the public of the potential consequences of their actions.

Whether on holiday at the seaside or living in inland city far from the coast, human behaviours and actions are the main sources of marine litter.

With regards to sea-based sources of marine litter, research conducted within PERSEUS covered most aspects of marine litter and was based on the collection of harmonized data on beaches, surface waters, deep sea floor and on micro-plastics in both the Mediterranean and Black Seas in view of developing new approaches based on visual observation of floating marine macro litter for monitoring application[9].

It has been found that the main sources of marine litter come from merchant shipping, ferries and cruise liners; fishing vessels; offshore oil and gas platforms; litter washed in from rivers and aquaculture installations. The irresponsible and inconsiderate behaviour of tourists when going to beach and seaside resorts needs to be added to the above list, as it contributes significantly to polluting and altering the status of the marine environment and ecosystems.

Given the biological richness and concentration of economic activities in both the Mediterranean Sea and Black Sea, the effects of waste pollution on marine and human life are disastrous. This issue calls for a change in behaviour of society as a whole, from organisational and management frameworks in recycling and waste disposal, to the conscience and behaviour of every single citizen.

2.2.1. Litter left by tourists and fishing industry

[9] Based on PERSEUS deliverable D2.7: Impact of pollution (including contaminants, litter and noise) on coastal ecosystems in the SES under WP2: Pressures and Impacts at coastal level

WHAT IS THE ISSUE?

The Mediterranean Sea is a great accumulation zone of human debris. The main component of this floating litter is plastic waste, which comprises up to 95% of waste accumulated on shorelines, the ocean surface or sea floor. Plastic waste slowly fragments into floating micro-plastics, which represent an emerging and major problem, as it can accumulate harmful chemicals such as persistent organic pollutants (POPs) from the sea. When these are concentrated on a tiny piece of plastic, swallowing it can be deadly for some marine organisms. These small plastic particles also become part of the beach. For example, some studies have found many types of plastic to be commonplace in the sediment on the British coastline. And it is not just wildlife that is affected by marine litter. It can eventually enter the human food chain, when microplastics are ingested by fish or shellfish which may subsequently be eaten by people.

PERSEUS research has estimated that up to 4,680,000 items/km2 of micro-plastic are found in the Mediterranean Sea, with annual inputs at a level of 50 billion micro particles.

Cigarette filters and cigar tips are another type of marine litter that can be found in the Mediterranean Sea in great quantities. They both represent a real scourge for the region and can be found even in the most remote coastal areas. It has been estimated that it takes between 1-5 years for a cigarette filter to decompose in the marine environment. This slow decomposition is mainly due to contained substances such as foamed plastic and chemicals, which may also cause serious health problems to marine fauna and flora.

The Black Sea, on the other hand is one of the many marine regions where abundance and distribution of marine litter remains unknown and/or hard to quantify. This expanse of water is particularly vulnerable to pollution, as it is almost completely enclosed, surrounded by industrialised countries, home to shipping routes, fisheries and tourist activities, and a large drainage basin. Although a known vulnerable area, data on marine litter in the region — and in particular debris floating on the surface — is lacking. However, a 2015 study conducted by the Science for Environment Policy of the European Commission *'Floating litter in the Black Sea: abundance and composition'* provided the first account of the abundance and types of litter floating in the Black Sea. In particular, the study focussed on the quantification of floating macrodebris in the north-western zone, through a visual survey. The survey was conducted during a research cruise in June 2014 as part of the EU-funded project CoCoNet. The researchers assessed all floating debris larger than 2 cm in an area off the Romanian coast, between the Danube delta and port of Constanta. The amount of man-made litter found was high and comparable to reports from other offshore and coastal locations, including the Mediterranean Sea.

The relation between Marine Litter and Tourism as threats towards achieving PERSEUS's main objective of Clean Seas by 2020 has been examined during the International Congress on Green Infrastructure and Sustainable Societies/Cities (GreInSus) held in Izmir (Turkey) in May 2014. Participants recognised Marine Litter as an explicit barrier to tourism, as the combination of high levels of marine litter and the derived loss of marine fauna (i.e. sea turtles and species dwelling on corals) can truly compromise the choice of specific areas as touristic destinations. Besides specific recommendations, in terms of initiatives and measures to prevent Marine Litter to negatively affect the environment and consequently the tourism industry, participants highlighted the importance and need of a 'cultural shift' towards the respect of our seas. In

particular, education was identified as the main vector of change leading to enhanced public awareness and eco-friendly behaviors[10].

WHY SHOULD WE CARE?

- INCREASE IN ALGAE GROWTH- Human waste contains nutrients, pathogens and viruses that can contribute to disease and detrimental algae blooms in nearshore marine environments. Blooms reduce available oxygen in the environment and suffocate coral reefs. This has terrible consequences, as it leads to a decrease in coral cover and also affects populations of fish and other species that use coral as a source of food and habitat.
- DISEASED MARINE ORGANISMS- Increased levels of bacteria, viruses and diseases associated with human waste can also pose serious risks for human health and food resources in local communities by contaminating a variety of harvestable fish and other species.
- FEWER FISH-Many species of reef fish depend on living coral as a food resource as well as for habitat and shelter. When algae bloom and/or garbage damages reef communities, fish populations decline, causing negative impacts on the ecosystem health.
- INCREASE IN THREATS TO WILDLIFE- Garbage is often mistaken as food and can kill seabirds, turtles, fish and marine mammals and if entangled in near-shore marine ecosystems, it can kill living organisms, such as coral and reefs.
- NEGATIVE EFFECTS ON TOURISM INDUSTRY- The tourism industry can be seriously affected by the high pollution (e.g. waste, litter, etc.) left on beaches by human activities as well as by the loss of the marine fauna, such as turtles, marine mammals and all species dwelling on corals, which often represent a prime attraction for tourists to a destination. A combination of these factors can truly compromise the choice of specific areas as touristic destinations.

WHAT CAN WE DO?

Stakeholder	Action
Policymakers	Ensure the correct management of marine litter, in particular: - Create a sound legislation for waste management, - Set up monitoring programmes - Enhance and enforce the legal basis for management of marine litter - Involve all relevant stakeholders in activities for controlling and abating marine litter - Establish no discharge zones which can help protecting ecologically and economically important coastal areas - Enhance opportunities to recover and recycle plastic products

[10] More information on PERSEUS's International Congress on Green Infrastructure and Sustainable Societies/Cities (GreInSus) is available here: http://www.perseus-net.eu/site/content.php?locale=1&locale_j=en&sel=489&artid=1629

Consumers	Maintain eco-and environmental-friendly behaviours when on holiday. In particular: - Restrain from littering practices, such as: flushing medicines down the toilet, using personal care products that contain plastic microbeads and instead rely on products using other types of natural exfoliants such as sugars, salt and pumice. - Use eco-friendly products, such as biodegradable sunscreens, etc. - Support policy change and classify plastic as hazardous, rather than inert - Choose products which can be easily recycled and lead to less waste - Restraining from throwing litter overboard when on a cruise
Fishing/recreational industry	- Keep marine vessel waste storage and sanitation devices in good conditions - Improvement of port reception facilities for handling ship-generated wastes and old/damaged fishing nets - Avoid discarding litter overboard, including old or damaged fishing nets - Keep garbage contained and minimize the use of plastic and non-recyclable materials
Environmental NGOs	Develop guidelines and initiatives according to the specific target group-tourism operators, ship owners and operators, fisherman, divers and civil society in general. In particular: Tourists - Promote voluntary beach and waterway cleanup campaigns, 'adopt a beach' campaigns with civil society and the private sector - Promote efforts to reduce waste, reuse products, and recycle materials wherever possible. This includes both communication efforts, as well as setting up facilities (i.e. recycling bins and/or recycling centres) to enable them to do so. Vendors and consumers - Discourage the use of plastic bags and ban the free distribution of plastic shopping bags. Instead a series of incentive measures to encourage the use of reusable and recyclable packaging should be set up, such as: • 'Refunding system' for which the consumer pays a deposit for using the plastic bag, which is refunded when returned to vendor after the use. A similar scheme can be put in place for plastic bottles, whereby if

	consumers bring back their bottle after using it, they would be rewarded with a discount on their next purchase. • Containers for cans, glass, paper and plastic could be made available at busy beaches to enable beachgoers to recycle their litter rather than trash it. These can be advertised through billboards and signage encouraging beach users to do so. • Charge a fee on all plastic shopping bags

BEST PRACTICE EXAMPLES AND GOOD RESOURCES

Some examples of best practice to combat marine litter are:

PERSEUS Marine LitterWatch citizen science programme (http://www.perseus-net.eu/site/content.php?locale=1&sel=516). Through the PERSEUS Marine LitterWatch (MLW) Campaign a total of 41 beaches have been adopted by PERSEUS partner institutes and have been regularly surveyed for marine litter. The data collected through the Marine LitterWatch app is submitted to a central database hosted by the European Environmental Agency (EEA) and is available (open-access), thus providing a central repository for this information across Europe.

MARLISCO (Marine Litter in European Seas - Social Awareness and Co-responsibility) (http://www.marlisco.eu). The MARLISCO project has listed 73 best practices in combating the problem of marine litter in European seas.

UNEP Regional Seas Programme (http://www.unep.org/regionalseas/marinelitter/). The UNEP Regional Seas Programme has developed and implemented several activities related to marine litter management.

Project Aware - Dive Against Debris (http://www.projectaware.org/project/marine-debris). The Dive Against Debris initiative consists of underwater surveys of marine litter undertaken by divers who record then remove trash from the seabed. The data recorded provides information on marine debris to help persuade governments, businesses and individuals to take action to combat this plague.

Ocean Conservancy - International Coastal Cleanup. (http://www.oceanconservancy.org/our-work/international-coastal-cleanup/) Every year, the Ocean Conservancy organizes an International Coastal Cleanup at beaches all around the world. In 2014 648,015 volunteers from 92 countries took part in the International Coastal Cleanup, recording and collecting more than 12.3 million pounds of litter off beaches around the world.

Surfrider Foundation (http://www.surfrider.eu/en/environment-local-actions/marine-litter.html). Surfrider Foundation strives to eliminate marine litter that originates from both land and marine sources by advocating reduce - reuse - recycle programmes to minimize waste, and through various action programmes, including: 1) Lobbing the European Commission to recognize marine litter as a pollutant and influencing manufacturers to convert to more environmentally-friendly practices; and 2) Scientific research that quantifies and qualifies the impact of waste dumped by ships, ultimately aiming to ban ships dumping waste at sea.

2.3.Fish consumption

Well-managed fisheries and aquaculture resources and the associated industries provide a fundamental component of human nutrition, as well as an important source of employment for society. Despite all the international efforts for responsible and sustainable management of fisheries, many fish stocks are still exploited beyond sustainable limits, meaning that a specific fish population would not be able to guarantee its reproductive capacity in order to replenish stocks. Overfishing can lead to a dramatic decline of targeted species, often resulting in a devastating stock collapse, which can have severe economic, social and ecological consequences.

For instance, in 2013, 88% of the assessed stocks in the Mediterranean and Black Seas were overfished. According to FAO data, in 1960,the annual global per capita consumption of fish was 10kg, whereas today the annual global per capita consumption of fish has almost doubled to 19 kg, with consumption in some countries such as Denmark, Portugal and Japan as high as 40 to 50 kg. These figures show just how much more we are depending on fish as a food source.

2.3.1. Unsustainable fishing and overfishing

According to marine ecologists, overfishing and unsustainable fishing are amongst the greatest threats to ocean ecosystems.

WHAT IS THE ISSUE?

Unsustainable fishing and overfishing happen when humans catch fish from the seas and oceans in such massive quantities and at a faster pace than nature can naturally replenish. The amount and especially the type of fish that the fishing industry brings ashore depends mostly on the market and needs of consumers, who normally tend to concentrate consumption on a very small number of species. The popularity of particular stocks or seafood dishes could potentially lead to serious declines of species, such as the Bluefin tuna. Tunas are top predators in the marine food chain, maintain the balance in the ocean environment, but they are also an extremely popular fish. As a result, Bluefin tuna populations have declined severely from overfishing over the past few decades and are now at risk of extinction.

In addition to the market's demand, modern technology has also given the fishing sector a huge advantage over fish. For instance, sonar fish finders assist fishing vessels with targeting large shoals of fish, while advances in fishing equipment enable them to stay on the seas for weeks and months and even process the fish before they come back ashore. The typical targets are mature/adult fish, because of their large proportion. This reduces the number of breeding adults in a population and lowers its rate of reproducibility, as species are unable to replenish the fish populations at the same rate that they are removed.

WHY SHOULD WE CARE?

- LOSS OF KEY ECOSYSTEM SPECIES- Both practices have disruptive consequences on the ecosystems' equilibrium and can lead to serious environmental changes, such as specie extinctions, damaged and unbalanced systems (e.g. filled with jellyfish instead of cod).
- REDUCTION IN MARINE BIODIVERSITY – The overharvesting of particular species negatively impacts the overall marine health and diversity
- FEWER FISH- The popularity of seafood species such as cod, bluefish tuna and shrimps has already led to severe declines in these types of fish. Further consumption will likely lead to the listing of several of these species as endangered, threatening the survival of the species and limiting their availability for food consumption.

WHAT CAN WE DO?

Stakeholder	Action
Services sector	Supermarkets-Provide citizens with information on species and sources of catches from labels to enable them to select sustainable fisheries. Similarly they should diversify fish species choice for consumption to reduce pressure on certain populations, and for consumers to avoid buying fish from overexploited stocks Restaurants/Hotels-Provide information on the source of seafood on menus, as well as on placemats and/or printed paper tablecloths to enable citizens to make an informed choice when selecting their meal and to persuade them to opt for more sustainable species
Policymakers	Multiple actions targeted to: - The fishing industry- Develop sound fisheries management policies that regulate the industry by setting sustainable Total Allowable Catch (TAC) limits and by allocating annual quotas to commercial fishing companies. Management policies can also restrict fishing in certain areas (e.g. marine reserves) to ensure that there is still some population to replenish stocks, and/or to restrict fishing during vulnerable seasons (e.g. when fish are spawning) to ensure that the population remains healthy. - Services sector– introduce labelling of fish products as mandatory, including information regarding species status and source of products, in order to enable consumers to make sustainable choices when purchasing fish products.
Consumers	Get informed and support ecologically sustainable fisheries practices (e.g. buy/choose fish that is not threatened or endangered)
Fishing industry	Promote and adopt sustainable farming practices of popular species to reduce pressure on wild stocks. This also includes harvesting fish stocks in a sustainable manner, and where necessary to diversify as well as promoting the utilization and harvesting of alternate less vulnerable species to reduce pressure on stocks that are in high demand.
Environmental NGOs	Carry out educational and awareness raising campaigns targeting all levels in the public debate: government authorities and policymakers, consumers, fishing industry, services sector (i.e. restaurants and hotels).

BEST PRACTICE EXAMPLES AND GOOD RESOURCES

Fish4tomorrow is an environmental campaign formed in 2010 following several discussions between different Maltese NGOs and environmentalists regarding the state of Maltese and European fisheries. Fish4tomorrow has compiled a **Quickfish guide** with the help of scientists, fishers, and other experts in the field. The aim of the guide is to provide information on various fish which are consumed locally in order to be able to rate them based on environmental sustainability. Information was obtained through various sources and the fish were ultimately rated based on: health of fish stocks, fishing method and its consequences, social consequences,

and any other environmental impacts of fishing, farming, importation, etc. The Quickfish guide is updated every 2 years.

The Guide classifies fish in three different categories:

°°° These fish are recommended for consumption. They are generally caught in ways which are good for the fish stocks, the .environment, the fishers, and society at large;

°° It is suggested that to eat these fish in moderation. This is because there are one or two issues with the way they're caught .produced, or brought to the local market;

° Fish with this rating are best avoided when possible. These fish are usually caught in ways which are depleting the fish stocks negatively affecting other species or the environment Destructive fish practices and intensive aquaculture practices.

WHAT IS THE ISSUE

Destructive fish practices include all fishing techniques that involve catching too much fish to a degree that they become endangered as well as destroying the physical environments of marine life. Such techniques can cause habitat alterations that can seriously affect the entire ecosystem and consequently disrupt the entire food chain in the oceans. These include, but are not limited to:

- Bottom Trawling – enormous nets are weighted down and dragged across the seafloor, scooping up everything in their path. This technique is 'unselective', which means that the net indiscriminately catches every life and object it encounters and severely damages seafloor ecosystems.
- Bycatch- catching other sea animals in the process, such as cetaceans, turtles, corals and invertebrates (e.g. starfish, crabs and sponges), which most of the times are destroyed and thrown back into the sea.
- Poison and explosive- both techniques are very common and cause severe impacts on the marine ecosystem. The use of poison to catch fish has dangerous and multiplying effects on all marine inhabitants, such as corals, algae and plants, which are killed. Similarly, explosions can produce very large craters, devastating large areas of the sea floor, killing not only the target fish, but also the other surrounding fauna and flora (e.g. coral reefs).
- Ghost fishing- is the result of nets and other fishing materials that are accidentally or intentionally abandoned in the sea. These nets continue to senselessly trap not only fish, but also shellfish, marine mammals and other creatures, which die of suffocation or exhaustion.

Intensive aquaculture practices. Aquaculture is the fastest growing sector of worldwide food production and is facing a new era of expansion in Europe - a quarter of seafood products consumed in the EU (including imports) are produced on farms. In 2011, 1.24 million tonnes of aquaculture goods were produced in the EU, worth €3.51 billion, and there are over 14 000 aquaculture enterprises, directly employing 85 000 people in total. However, if the sector does not expand sustainably, it can have some serious environmental implications. Intensive and unregulated aquaculture practices such as, farming tropical shrimp species involve the construction of ponds that can cause severe damage to coastal ecosystems such as mangroves and wetlands. Intensive aquaculture is also associated with poor water quality and nutrient loading, and in some cases, over-exploitation of some fish species used as live food or for the production of fish meal or pelleted feed.

WHY SHOULD WE CARE?

- INCREASE IN ILLEGAL AND DESTRUCTIVE FISHING- Driven by the potential for short-term financial gain, many fishers will turn to destructive fishing methods to harvest popular seafood. In delicate habitats, such as reef systems, this often includes nets that damage reef structure, dynamite blasting and use of cyanide to poison and catch fish.
- DISRUPTED SEA BOTTOM HABITATS- Seabed ecosystems are characterized by exceptional biodiversity, very vulnerable to external disturbances in their environment. Disruptive practices such as bottom trawling can kill bottom dwelling organisms and their habitats.
- INCREASE IN SEDIMENTATION-Stirred up sediment can disrupt sea bottom communities, smothering and choking coral colonies and causing broader impacts in the ecosystem.
- DISTURBANCE OF MARINE WILDLIFE- Excessive disturbance can cause animals to leave primary feeding and reproductive areas, which can lead to an overall decline in habitat health.

WHAT CAN WE DO?

Stakeholder	Action
Policymakers	Multiple actions targeted to: - The fishing industry- regulating and making compulsory for all fishing vessels to keep records of their incidental catch of non-target species, and to take concrete steps to reduce their bycatch; running/sponsoring programmes to educate small-scale fishing communities, initiating programmes to develop techniques with reduced environmental impacts and developing the tourist sector, as an effective way of increasing the value of the fish and the surrounding environment - Consumers- contributing to raising awareness so that they can make informed decisions when purchasing fish products.
Consumers	- Get informed on the impacts of different aquaculture methods through guides and , and eventually boycott unsustainable products, by choosing the ones that are farmed in an environmentally responsible and sustainable manner. This way, citizens can play a decisive role in reducing the demand for environmentally sensitive products and encourage companies to pursue sustainable fishing practices as a more economical alternative. - Select sea-friendly souvenirs and avoid buying mementoes, and products made from marine animals or animal parts, including shells and especially coral.
Fishing industry	- Change boat practices. This includes: anchoring boats in designated areas away from important ecosystems and reefs - Follow proper navigation principles
Environmental NGOs	Raise environmental awareness and run educational campaigns amongst: - The fishing industry, on the need to protect non-target species, as well as the ecosystems that support fish on which they depend for their livelihoods. This also includes proposing less destructive alternatives or

	mitigating measures that can be adopted to reduce their environmental impact. - Consumers- through educational campaigns via traditional media such as newspaper/magazine articles, radio interviews, TV documentaries, highlighting the problems associated with unsustainable aquaculture practices

BEST PRACTICE EXAMPLES AND GOOD RESOURCES

WWF, in partnership with the Seafood Choices Alliance, North Sea Foundation and the Marine Conservation Society, have developed a method of assessing the sustainability of species harvested for seafood and have put together seafood guides for various countries, as well as posters and other materials, to help consumers choose their meals wisely. Seafood guides for European countries as well as other countries around the world can be viewed at the link below:

http://wwf.panda.org/what_we_do/how_we_work/conservation/marine/sustainable_fishing/sustainable_seafood/seafood_guides/

The Marine Stewardship Council's (MRC) *Certified sustainable seafood* program works with various partners to transform the global seafood market, promoting sustainable fishing practices. By conforming to strict standards in terms of fishery sustainability and seafood traceability, stakeholders can become certified within the program, allowing them to market their seafood products under the MSC ecolabel as certified sustainable seafood. More information on this program can be found at the MRC website: http://www.msc.org/

European Commission:

1. "*How do you choose your fish?*" A Press Pack put together by the European Commission for journalists to help them create awareness to support the reform of the Common Fisheries Policy. This press pack contains information for journalists on how to help consumers understand more about the fish they buy and about the Common Fisheries Policy. The press pack can be downloaded at the following link: http://www.friendofthesea.org/public/news/eudgmarepresspackconsumers.pdf
2. *Facts and Figures on the Common Fisheries Policy* - a booklet published by the European Commission that provides comprehensive data on Europe's fisheries and seas compiled by experts from various scientific institutions and organizations across Europe. The data provided offers policy makes a vital tool for sound decision making in terms of fisheries management in European seas to ensure fisheries remain viable, profitable and sustainable in the future. The booklet can be downloaded at the following link:

http://ec.europa.eu/fisheries/documentation/publications/pcp_en.pdf

3. *A pocket guide to the EU's new fish and aquaculture consumer labels*-The Common Organization of the Markets establishes the specific information that must accompany fishery and aquaculture products sold to consumers and mass caterers. These requirements complement the general EU rules on the provision of food information to consumers, and contribute to more transparency on the market as they enable consumers to make informed choices on the products they buy. From 13 December 2014, the rules for labels accompanying all fishery and aquaculture products for EU consumers will change. This pocket guide explains what must appear on the new labels and what additional information can be displayed.

Under the new rules, applicable to fish, molluscs, crustaceans and algae, products sold to consumers or mass caterers must bear the following information:

- the commercial and scientific name of the species
- whether the product was caught at sea or in freshwater, or farmed
- the catch or production area and the type of fishing gear used to catch the product
- whether the product has been defrosted and the date of minimum durability (also known as the 'best before' or 'use by' date), in line with general food labelling rules

In addition, to allow consumers to have a better understanding of where the product comes from, the information on the catch or production area must be provided in detail:

- For fish caught at sea:
  - In the Northeast Atlantic, Mediterranean and Black Sea: the name of the FAO sub-area or division , map of fishing areas in the EU as well as a simplification for the consumer (a clearer name, a map or a pictogram)
  - In other waters: the name of the FAO area
- For freshwater fish: the body of water and the EU country of origin or the non-EU country of provenance
- For farmed fish: EU or non-EU country of final rearing period

Products may also be accompanied by additional voluntary information, such as the date of catch or landing, information on environmental, social or ethical matters, production techniques and nutritional content.

The guide can be downloaded at the following link:

http://ec.europa.eu/fisheries/documentation/publications/eu-new-fish-and-aquaculture-consumer-labels-pocket-guide_en.pdf

4. *Sustainable Aquaculture: a new 'Future Brief" from Science for Environment Policy*- In light of the growing importance of the aquaculture sector in the worldwide food production, the Science for Environmental Policy has produced an overview of research into aquaculture's impacts, which considers how it could develop in harmony with environmental goals and how it can expand sustainably.

   The brief can be downloaded here:

   http://ec.europa.eu/environment/integration/research/newsalert/pdf/sustainable_aquaculture_FB11_en.pdf

The United Nations Environment Programme (UNEP) Mediterranean Action Plan has published *Guidelines for shark and ray recreational fishing in the Mediterranean.* The publication was prepared as part of the Action Plan for the Conservation of Cartilaginous Fishes in the Mediterranean Sea and provides guidelines for recreational fishers targeting cartilaginous fish species. The guidelines strive to:

- Promote catch and release and thus reduce the impact of recreational fishing activities on shark and ray populations in the Mediterranean Sea.

- Provide guidelines for handling catches to improve survival after being released.
- Encourage recreational fishers to participate in 'citizen science' projects by collecting data that can assist with research and management.
- Create awareness and improve scientific knowledge of the status, biodiversity and ecological importance of sharks and rays in the Mediterranean.

The publication can be downloaded at the following link:

http://rac-spa.org/sites/default/files/doc_fish/gl_shark_ray_en.pdf

3. MOBILISING CITIZENS

This guide is designed to give eco-friendly tips not only for people on vacation, but it also serves as an everyday guideline to promote eco-friendly lifestyles for the wider society. Even if not living near the coast or a water basin, people's daily habits can affect the environmental status of our seas, oceans and marine ecosystems in general.

The table below summarises how and why people's daily habits can have an impact on marine environments and provides some tips and advice on how to become more environmentally conscious in our day-to-day practices.

Specific issue	Underlying concept	Actions
Habitat alteration	Global warming due to the excessive burning of fossil fuels to power homes, cars and businesses has slowly created a blanket of carbon dioxide, acting as greenhouse and trapping more of the sun's heat. As a result of this phenomena, oceans have become warmer and more acidic as well, which makes it hard for organisms such as corals to build shells and skeletons as protection.	Reduce your 'carbon footprint' to stop global warming and ocean acidification. **Daily power consumption**- Reduce energy use and carbon emissions in daily activities. This includes, for instance drying laundry on a clothesline or rack instead of in the dryer, walk, bike, take the bus, or carpool to work or school, use more efficient light bulbs, etc. **Switch to renewables**-Not all energy needs to come from fossil fuels. Clean, unlimited energy can come from other natural and renewable sources such as the sun and the wind and it is worth finding out more about alternative energy programs near you.
Water depletion	All water on Earth is connected. Even if not living near the coast, water that goes down drains or runs off from yards can and will eventually make its way into the ocean.	**On the table-** Look for fruits and vegetables that are grown without pesticides, which contain toxins that can run off into the sea and harm marine life. Also look for products grown in season and geographically close to where you live. A lot of energy is wasted in transporting foods from far away or growing them in greenhouses at the wrong time of year. **At home-** Choose non-toxic cleaning products and low-phosphate detergents, which are then run off into

		the sea through the sewage system. As an alternative, household chores can be done with simple and natural ingredients like vinegar, baking soda, or lemon juice. **In the yard-** Minimise the use of fertilisers, which add nutrients to the soil and water that can be carried downstream when it rains. These extra nutrients can cause harmful algae blooms that disrupt the ocean's natural balance.
Marine litter	The trash we "throw away" doesn't disappear. Any moving water, be it waves on the beach, a river in a large city, a little stream running through a village, or rainwater, that carries trash and litter will end up ultimately in the ocean.	Curb your family's throwaway habits. **Recycle**- Abandon disposable habits and adopt a 'recycling lifestyle' by using reusable bags, beverage cups and food containers. And when you have no choice but to use disposable items, reuse or recycle them whenever possible. **Participate in garbage patrols**- Never litter inland and participate in beach or waterway clean ups to help stop the flow of trash into the ocean.
Fish consumption	When it comes to many of our once-favourite seafood, there aren't plenty more fish in the sea. Many fish have completely disappeared or are caught and sold for aquariums and as souvenirs.	**On the table-** Watch what you eat: buy and serve fish products that are certified being sustainably harvested, which includes demanding sustainable seafood at the supermarket as well as at restaurants. You can be aware of what you order by downloading a sustainable seafood guide. **At home-** If you have a salt-water aquarium, make sure you ask where and how the fish you buy were collected. Only buy fish in pet stores bearing the Marine Aquarium Council's Certification, which guarantees that their fish were carefully harvested and well cared for.

4. COMMUNICATION TOOLS

The previous two chapters provided a clear overview of how careless tourism activities as well as habits in our everyday life can have fundamental negative impacts on the marine environment and ecosystem.

The following chapter identifies a series of communication tools that can be successfully employed to stimulate eco-friendly campaigns and change in behaviours among tourists and citizens in general. These tools can be implemented without significant resources, yet they have a high impact in stimulating and advocating a change in the general public's behaviour towards eco-friendly and sustainable practices.

4.1.Posters, signage and billboards

Posters are an excellent tool to help visualising information. Generally speaking, people are lazy and reading long brochures and handouts can be a tedious exercise for many. Whilst posters

with strong images and with little text underneath are extremely effective and have a stronger impact than words.

The advantages of using posters and billboards are threefold.

1. Noticeable

A billboard is generally placed in strategic spots, where it is guaranteed that people will notice it. Unlike commercials or advertisements, one cannot change the channel or turn the page on a billboard, meaning that people will notice it whether they like it or not. Another added benefit is that many people travel the same route on a regular basis, for instance when they commute to work every day. This means that they pass by the same billboard regularly, which makes it more likely to stick in their minds.

2. Customized Placement

A billboard advertisement can be placed wherever it is felt to have the most impact. One can also use billboards in areas where reaching people is difficult. An example is near coast areas, which are often spread over vast distances. By placing billboard advertisements along one of the main roads along the beach, the visibility and thus effectiveness of the message can drastically increase.

3. Brief and to-the-point

An average person usually focusses on a billboard for about two or three seconds. This means that messages need to be kept short and to the point. In addition, billboards do better when they focus more on images than on text, as they are often seen by people in motion (i.e. driving, walking, etc.), which makes it more difficult for them to read. Therefore, if any text has to be written on the billboard, it must be large enough for them to read easily.

Large billboards bearing an environmental message erected at strategic places frequented by tourists, such as airports, train stations, ports, or the entrance to holiday destinations, can be an effective way of communicating with tourists 'en-masse' as they travel for holiday.

Specific issue	Communication actions
Habitat alteration and water depletion; Marine litter	At the beach Signs can be used to communicate **best practices to beach-goers.** Interpretive signage can be used as an educational tool to provide **information on sensitive habitats**, how tourism impacts these habitats, together with suggestions of what we can do to minimize these impacts. Similarly, signage can provide tips for being an **eco-friendly tourist** while enjoying the recreational facilities on offer. This includes also installing facilities such as **garbage/recycling** bins that are prominent and clearly marked for tourists to discard their litter in a responsible manner. Hotels They can set up posters with information on **eco-friendly best practices** in the reception areas, as well as information on **litter disposal** and recycling options/location points. Museums, Aquaria and Marine centres Educational posters with high graphic content, providing information through visually appealing illustrations and infographics can be a wonderful educational tool. Not only can they describe the variety and

	richness of marine life, but they can also present the threats and pressures it is facing as a result of irresponsible human activities and inconsiderate behaviors.
5. Fish consumption	Restaurants They can provide information on the source of seafood on their **menus**, as well as on **placemats and/or printed place mats**to enable citizens to make an informed choice when selecting their meal and to persuade them to opt for more sustainable species.

Billboards and posters can be effectively used to support themed campaigns. For instance:

- 'Leave only your footprints…'- can be used as a slogan/message for a poster depicting two beach scenes: one showing a filthy beach covered with litter and marine debris; the other showing a couple walking along the shoreline of a pristine beach.
- Stash your Trash- encourages to dispose of litter (i.e. food/beverage containers, cigarette butts, etc.) responsibly in a recycling or trash bin.

These campaigns can be targeted towards beach users and communicated via billboards, posters, and signage on beaches, at restaurants, hotels and holiday accommodation facilities, etc., encouraging them to adopt eco- and environmentally-friendly behaviours and habits.

4.2.Apps

Technology has drastically altered the way information flows within and among people. With nearly one-quarter of the world using smartphones, mobile apps have now become a necessity. This is why, the promotion of environmentally friendly campaigns and behaviours can benefit from a mobile app, provided that it identifies the right areas to address. These include issues such as: having clean beaches, clean sea waters (free from debris as well as from jellyfish and alien species) and being able to consume fish in a sustainable and safe way, which are all of interest for any beachgoer.

There are a number of reasons why apps are among one of the most effective tools to raise awareness on marine pollution.

1. **User-friendly**
   Nearly everyone has a smartphone and knows how to use its multiple features and especially how to download apps. This is why an app is an effective and user-friendly tool, whose impacts are immediate and wide in spectrum.
2. **Enhanced engagement**
   Direct experiences have a stronger influence on people's behaviour than indirect experiences. In other words, directly experiencing an environmental problem (e.g. seeing litter on the beach and not being able to sunbathe) as opposed to learning about an environmental problem on the news will have a stronger impact on people's attitude and behaviour.

   In this context, having an app that actively engages them (see examples below) and offers them the opportunity to act and do something to solve the environmental problem they experience directly can be an effective way to raise awareness and stimulate interest. Apps offer them the opportunity to actively take part in a cause they would otherwise feel too distant.

3. **Triggers of interest**
   A new app generally creates excitement and interests among consumers.
4. **Word of mouth**
   People like sharing things when reminded. An app can be a great trigger and an effective way to constantly remind consumers about its functionality and services and drives them to talk about it to other people. Besides contributing to solving and easing marine pressures through its functionalities, an 'environmental app' can actively raise awareness and spread/communicate the urgency of the problems.

Examples of successful apps targeting the safeguard of marine environment and ecosystems can be found in the table below.

Specific issue	Communication actions
Habitat alteration and water depletion **Marine litter**	The PERSEUS Project is committed to bridge the communication gap between science and the public on issues of 'Good Environmental Status' (GES), and to develop a "Clean Seas" framework[11]. PERSEUS main focus has been to enhance the idea of popular science across the Mediterranean and Black Seas by promoting a change in the public perception of science and reinforcing the participation of the wider society in science-based research. In this context, two media initiatives have been developed: the Marine LitterWatch app and the Jellyfish Spotting Campaign. **Marine LitterWatch / Adopt a Beach** PERSEUS together with the European Environment Agency (EEA) and other partner organizations has launched the Marine LitterWatch campaign -- a citizen science project whereby citizens can record marine litter data on beaches in the Mediterranean and Black seas, using a smartphone app. This data is then fed into a central database of marine litter hosted by the EEA that can provide a useful tool for decision-makers to take further action to combat marine litter. A total of 41 European beaches have been adopted by PERSEUS partner organizations in Cyprus (1), Turkey (1), Malta (1), Tunisia (2), Greece (2), Spain (3), Morocco (4), Bulgaria (4), Israel (5), Romania (5) and France (6). These beaches are subject to surveys for four times throughout the year, and data on marine litter will be recorded using the Marine LitterWatch application. The PERSEUS-Marine LitterWatch Campaign had a twofold objective. Firstly, to gather relevant data on different litter types and distributions in order to offer a clearer picture of the litter problem. Secondly and especially, to raise environmental awareness to the problem of marine litter by getting citizens and scientists actively involved in the PERSEUS main concept of *Clean Seas by 2020.* The **PERSEUS Jellyfish Spotting Campaign** was officially launched on 20 May 2013 and ran until the end of the project in December 2015. The campaign relied on "citizen scientists" who are encouraged, through the PERSEUS website and the campaign's webpage, to record sightings of jellyfish and send a photograph where possible posting them directly on the project's website. Citizen science proves to be a very effective way to monitor the presence of jellyfish for two simple reasons: 1. Jellyfish are rather large and they do not normally swim away from

[11] See PERSEUS Factsheet on "Engaging citizens to help protect our seas - Ocean literacy, citizen science and outreach initiatives"
http://www.perseus-net.eu/assets/media/PDF/FACT%20SHEETS%20DEC%202015/5366.pdf

	observers; 2. Generally, people notice them. The Jellyfish Spotting Campaign has been received with great enthusiasm by the society at large. Thanks to this campaign, recording of these species brings to one confirmed new gelatinous species recorded out of a total of over 10,000 reports were submitted. The new species of jellyfish Pelagia benovici was discovered in the Gulf of Venice in May 2014. Other examples of apps include: **Marine Debris Tracker** is Mobile App developed by a joint partnership of the NOAA Marine Debris Division and the Southeast Atlantic Marine Debris Initiative (SEA-MDI), located within the College of Engineering at the University of Georgia (USA) that allows ocean users and beachgoers to report marine debris or litter from wherever they are in the world. The Marine Debris Tracker app, which can be downloaded for use on iPhones and Android phones, is a simple tool that allows users to report and record the type and location of debris through GPS features pre-installed on a cell phone. The data submitted is posted on an interactive website (www.marinedebris.engr.uga.edu) that allows data to be viewed and downloaded for users to design plans to prevent marine debris. The **Beat the Microbead App** is a smartphone app that was initially developed by two Dutch NGOs -- North Sea Foundation and the Plastic Soup Foundation -- to help consumers determine whether personal care products contain microbeads and enable them to choose an environmentally-friendly alternative instead. The United Nations Environmental Programme (UNEP) and Fauna & Flora International have since partnered with these Dutch NGOs to further develop the App for international consumers. Using a smartphone's barcode reader, the Ban the Microbead app allows consumers to scan a product's barcode, and will produce a colour coded output to indicate whether the product contains microbeads or not: Red, the product contains microbeads; Orange, the product contains microbeads, but the manufacturer has committed to replacing/omitting these in the near future; Green, the product contains no microbeads. The app can be downloaded from their website below: http://www.beatthemicrobead.org/
Fish consumption	The Marine Conservation Society (MCS) has developed a **Good Fish Guide App**, a definitive guide to sustainable seafood for all consumers who want to make the right choice at the supermarket fish counter or at the fishmongers. Consumers can search by common fish name and they will get all the information and details on which fish are the best sustainable choices, which should be avoided completely and which could be eaten occasionally to limit pressure on their stocks. This handy App explains the MCS traffic light ratings systems so consumers know exactly what they is sustainable and what it is not.

4.3.Audio-visual material & advertisements

The spread of modern technologies also means an increase in the role of audio-visual data carriers for communication, information and culture. Audio-visual materials such as online educational campaigns via website and social media, online videos, lectures, educational materials as well as downloadable content represent an excellent tool to help communicate and send information. In most of the cases the transmission of visual data has a greater value and impact than printed documents-where, for example, there is a literacy or language barrier.

Some of the key features and characteristics of audio-visual materials are:

1. Immediate effect

Audio-visual materials make meaning clearer by illustrating relationships and concepts in a way that is not possible with words, which proves a well-known saying that a picture is worth thousand words. Two minutes of video can be more useful and effective than reading a long brochure or publication and for children/students it can even provide more information than an hour of classroom work.

2. Stimulating effect

Interactive materials and displays such as touch-screens offer a more interactive hands-on user experience, and are very effective teaching tools. Touch-screen computers can include a quiz related to a specific exhibit or to marine issues in general. Touch-pools allow visitors to handle or feel certain specimens, allowing them to experience first-hand some of their biological traits. This is a great educational tool for supervised groups, such as school groups, as long as it is well controlled and conducted responsibly.

Examples of how different stakeholders can make a good use of audio-visual materials are presented below.

Specific issue	Communication actions
1. Habitat alteration and water depletion **2. Marine litter** **3. Fish consumption**	"Permanent" audio-visual material Museums, Aquaria and Marine centres Social media and online content play an increasingly important role in the efforts of museums to reach audiences, including online video distributed over sites like YouTube. Multimedia and interactive displays are fast becoming a vital part of the educational environment in museum in the attempted to modernise exhibitions or to make information more accessible, with high investment and advanced technology being essential in the process. Transport hubs Digital signage screens have now become the established way to broadcast fast changing travel information, arrival and departure schedules to passengers in public areas of transport hubs such as airports, ports, train and bus stations. These screens can also serve as a practical platform for advertising and broadcasting environmentally and eco-friendly messages to tourists and passengers, especially if travelling to beach and sea resort destinations. Hotels Hotels have the responsibility to provide their clientele with tips and guidelines on how to be responsible tourists and how to minimize the environmental impact of their actions while enjoying their leisure activities. An effective way of providing this information can be through setting up TV screen ads and videos in the reception areas, on arrival to their hotel room or even on their website and social media sites, as part of the advertisement and promotion of their activities/facilities. Recreational service suppliers Outdoor digital TV screens, which are sun, salt and saltwater proof can

	be installed on sailing yachts, passenger ships, luxury cruise liners and ferries. Besides providing live information such as weather and news, they can also broadcast short documentaries on the marine environment and its challenges as well as tips on how to be responsible and eco-tourists and thus become a useful and entertaining tool to passenger during the trip.

5. CONCLUDING REMARKS

Communication-based activities are some of the most important types of actions policymakers need to address and take in mobilising citizens and in this case, mostly tourists. In fact, a communication strategy does not have to be an extra accessory of policymaking, but instead an integral part of the overall policy engagement strategy. Communication is fundamental in the engagement of stakeholders and generally speaking, of the main recipients of a policy. Communication activities are an ongoing process and effort, representing the backbone of the day-to-day work that follows the implementation of specific policy from its design till its delivery.

This Guide was prepared with the view to showcasing some of the key messages that need to be communicated to the wider public, not only as citizens, but also and especially as individuals undertaking tourism activities, in order to have a significant impact on the marine environment.

The key recommendations are threefold:

1. **Include communication activities as part of policy measures-** Putting policy into place is important, but to be effective it needs to be communicated and well understood; therefore, it must be backed up with communication and public awareness campaigns. Communication measures are part of the overall package of measures that should be implemented and that are essential to get the level of engagement that can make a real difference to achieve GES in the SES.
2. **Recognize the connections between the Mediterranean and Black Sea's marine ecosystems and the welfare of societies.** The two marine regions are characterized by unique and rich biodiversity and host many diverse ecosystems, which all together form an invaluable natural capital, on which a large number of populations and economies depend. They are drivers of economic growth, providers of natural resources and access to trade and transport, opportunities for recreation and especially top destinations for tourism. Unsurprisingly, tourism represents one of the most important activities in all the Mediterranean and Black Sea countries and maritime habitats and ecosystems are essential to the growth and sustainability of the economies and societies of both regions. In light of this, it is fundamental that policymakers acknowledge the Mediterranean and Black Sea regions' strong maritime heritage and design a good set of regulations and policies, backed up by a sound communication strategy setting the right guidance and solutions to encourage environmentally and eco-friendly behaviors among tourists and citizens alike.
3. **Coherence in the communication campaign.** Chapter 4 of this guide has presented a number of communication tools that can be successfully employed to stimulate eco-friendly campaigns and change in behaviors among tourists and citizens in general. All these tools can either be easily implemented without significant resources (i.e. posters, billboards and signage) or are technology-based (i.e. apps, audiovisual material). The logic behind this choice lies in the fact that there should be coherence between the message: stimulating and advocating a change in the general public's attitude towards eco-friendly and sustainable practices and the means: the use tools that are co-friendly and do not add additional pressures on the environment, as paper-based hand-out, brochures and similar would do.


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