



# MARine Litter in Europe Seas: Social AwarenesS and CO-Responsibility

# DELIVERABLE 4.3 – DOCUMENT OF OUTCOMES FOR EACH OF THE TWELVE NATIONAL EVENTS AND FOR ALL FOUR REGIONAL SEAS



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Author:	Kathrin Kopke (University College Cork, Ireland), Ashley Bennison (University College Cork, Ireland), Thomas Maes (CEFAS, UK), Thomie Vlachogianni (MIO-ECSDE), Ryan Metcalfe (KIMO, Denmark) and Anca Gheorghe (Mare-Nostrum, Romania)
Contributors:	Provincia di Teramo, Italy: Mara Di Berardo & Virna Venerucci, EUCC, NL: Joana Veiga & Maria Ferreira, CEFAS, UK: Eva Garnacho & Denise Goldsmith, Plymouth University, UK: Bonny Hartley, MerTerre, France: Isabelle Poitou & Claire Poulin, Regionalni Razvojni Center Koper, SL: Tamara Ristic & Slavko Mezek, University College Cork, Ireland: Kathrin Kopke & Ashley Bennison, Mare Nostrum, Romania: Anca Gheorghe & Michaela Candea EUCC, Germany: Kristina Klesse, ISOTECH LTD, Cyprus: Demetra Orthodoxou & Xenia Loizidou, UBBSLA, Bulgaria: Polina Antonova & Mariana Kancheva, Faculdade de Ciências e Tecnologia – Universidade Nova de Lisboa, Portugal: Lia Vasconcelos, Isabel Palma & Flávia Silva, Turkish Marine Research Foundation, Turkey: Ozgegul Ozturk & Söngul Yavuz
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#### **Document Information**

This report deliverable documents the outcomes for each of the twelve national fora on marine litter across Europe and in regional sea context. It summarises the individual events and highlights findings from the fora and reports key findings.

#### **Approvals**

Date	Partner
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## **1** EXECUTIVE SUMMARY

MARLISCO is a European project, funded by the European Union's Seventh Framework Programme (FP7), comprised of 20 partners from 15 countries. MARLISCO aims to raise societal awareness and co-responsibility for marine litter in European Seas. Work Package 4 of MARLISCO hosted 12 national fora to raise awareness of marine litter and find potential long-term solutions by providing participants with the necessary scientific information, the opportunity for stakeholders to become more informed on the issues and impacts of marine litter, and to provide an opportunity for debate and active contribution in the provision of viable solutions to marine litter.

This report evaluates the forum format as a tool to engage stakeholders across Europe. The report provides an overview of the MARLISCO marine litter fora and summarises their outcomes across Europe and within a regional seas context relating to regional seas conventions and activities with remits to issues of marine litter.

Across Europe approximately 1540 stakeholders were engaged in the forum process between April 2014 and April 2015. Across all the fora a wide range of stakeholders were engaged reaching across multiple sectors. Each of these events provided their top ten suggestions, actions and ideas to be considered at a European level. Each of the suggestions linked to one or more of eight recognised approaches that address waste and litter in general. From each suggestion keywords were extracted using text-mining techniques before exploring commonalities and central themes across Europe.

The report explores the links between keywords across recognised approaches of waste and litter management and within their areas of effect. Keywords, such as Awareness, Waste, Sea, and Social are considered in relation to one another and how this may have been reflected in the perceptions of fora participants.

In a regional seas context throughout Europe OSPAR, HELCOM, The Barcelona Convention, and The Bucharest Convention are considered in relation to the approaches of MARLISCO and how the fora process has benefitted and can contribute to approaches addressing marine litter in the regional seas.

The report concludes by considering how the MARLISCO forum process integrates across Europe and outlines challenges relating to the process of creating this report, highlighting marine litter as a trans-boundary issue. Finally the report lists recommendations to further develop the forum process and more crucially in tackling the issue of marine litter in European seas.





### **2** INTRODUCTION

#### 2.1 MARLISCO – 'MARine Litter in European Seas: Social AwarenesS and Co-Responsibility'

MARLISCO is a European project funded by the European Union's Seventh Framework Programme (FP-7) for research; technological development and demonstration under grant agreement no [289042]. Marine litter is globally recognised as an emerging threat to the environment, human health and safety, as well as livelihoods. MARLISCO's goal is to raise public awareness, facilitate dialogue and promote co-responsibility among the different actors towards a joint vision for the sustainable management of marine litter across all European seas.

The Consortium is made up of 20 partners from 15 European countries across Europe's four regional seas (Figure 1). The partners represent industry, research, education and NGOs. The project commenced in June 2012 and will finish in May 2015.



Figure 1: Map indicating the distribution of the MARLISCO Project Partners by country (in dark blue).

MARLISCO has four overarching objectives:

- To increase awareness of the consequences of societal behaviour in relation to waste production and management on marine socio-ecological systems;
- To promote co-responsibility among the different actors;
- To define a more sustainable collective vision; and
- To facilitate grounds for concerted actions.

These objectives are being met through activities and events organised over the duration of the project. One of the project's main activities is the organisation and running of a series of 12 national marine litter fora across Europe between April 2014 and April 2015 in work package 4.





#### 2.2 Marine Litter Forum Aims & Objectives

In work package 4: Empowering Society through Informed Debate, the twelve MARLISCO fora aim to raise awareness of the marine litter issue and find potential long term solutions by achieving the following objectives:

- To provide participants and stakeholders with the necessary scientific information in an accessible format so that both the scale of the marine litter issue and the difficulties in providing long-term solutions given varying levels of public perception of the problem and the technical, economic and waste management policy constraints on industry can be appreciated.
- To afford the opportunity for stakeholders to become more informed on the issues associated with marine litter and its impacts at the national and regional sea level, and
- To provide an opportunity for stakeholders to participate in debate and actively contribute to providing viable solutions to this serious societal problem.

#### 2.3 Objectives and scope of this report

This report illustrates one MARLISCO mechanism used to engage stakeholders with an interest in, or responsibility for, some aspect of reducing the quantity of litter entering the ocean across Europe and to gather their opinions on how to address marine litter in their country.

The purpose of this report is to provide an overview of the MARLISCO marine litter fora and to summarise the outcomes of the national events in order to highlight messages that are relevant across Europe and to provide complimentary information in support to on-going relevant MSFD activities. The report also examines the fora outcomes at regional seas level relating to regional seas conventions and activities with remits relevant to issues of marine litter.



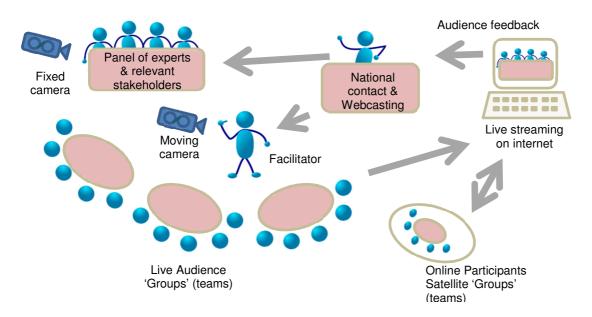


# **3** THE MARINE LITTER FORA ACROSS EUROPE

#### 3.1 The Forum Process

University College Cork (UCC), Ireland in collaboration with MARLISCO project partners developed a common forum format to support implementation of the national events, which guided through the planning stages, stakeholder engagement and the actual event (see Kopke and Doyle, 2015). The developed format was modelled on participatory methodology developed for the MARGOV fora (Vasconcelos and Caser, 2012) promoting large-scale public involvement. The format was designed to be flexible, allowing individual MARLISCO partners to modify aspects in reaction to relevant ongoing, current events in their countries e.g. in support of and to compliment national implementation of MSFD processes, or to take advantage of national, cultural characteristics that may be beneficial to the success of the event and to include lessons learned from MARLISCO partners that already conducted a forum. Information on national implementation of the MARLISCO fora will be provided in national reports for each event (see list of reports in Annex 1).

Key aspects of the MARLISCO marine litter fora include the use of a facilitator, a live webcast and recording of the events, a panel of experts, early and proactive stakeholder engagement for live audience as well as for online participants (see Figure 2). Live webcasting of the events led to the use of a running order, a document used in live broadcasting to describe the order of events in detail, which proved to be a valuable support during the events. The interactive webcast allowed inclusion of not only more stakeholders but provided access to and a voice for participants from remote locations and increased visibility of the event (Kopke and Doyle, 2015). Edited footage for each event, summary information of each forum and some of the national reports will be made available via the MARLISCO website in collaboration with WP3 under National Fora Outcomes (http://www.marlisco.eu/National Fora Outcomes.en.html).



*Figure 2: Schema indicating how live audience and online participants feeding into national event using the common MARLISCO fora format and live webcast.* 





Interactive activities with forum participants (e.g. table quiz and hands-on activity) and the use of the MARLISCO animation 'Impacts and Sources of Marine Litter', which was developed specifically for the MARLISCO marine litter fora with artist Jane Lee, allowed transfer of latest scientific knowledge in an accessible way and focused discussion on current scientific, technological and societal positions with respect to marine litter (Kopke and Doyle, 2015). The MARLISCO animation is available online via YouTube since April 2014 with over 10 000 views to date (https://www.youtube.com/watch?v=017bBeXhYz4).

Forum engagement with participants aimed to be non-confrontational and inclusive and the format allowed for informed input from forum stakeholders on how to address marine litter in their country through a consensus approach which is linked to higher quality decisions and greater satisfaction within a group and in turn better acceptance of group decisions (De Dreu and West, 2001; Yang, 2010). Live audience members and online participants worked in groups of five on actions, solutions or ideas that can address marine litter. Forum participants voted as individuals on how effective and how implementable they perceived submitted suggestions to be. This process not only allowed collection of ideas that are valuable and tangible, representing stakeholder input and expertise from multiple relevant sectors but allowed each participant to express their individual preference on how best to address marine litter, gauging overall support for suggestions (Kopke and Doyle, 2015).

The format also provided an opportunity for information exchange about marine litter between stakeholders representing diverse expertise and to raise awareness of issues with relevant sectors in participating countries (Kopke and Doyle, 2015). The format was trialled and adjusted in Ireland before its first implementation in Dublin, Ireland 2014. Participants' perceptions pre- and post-events were assessed through quantitative evaluation by the MARLISCO team in Plymouth University under WP2, which provided insight into stakeholders' perceptions and intentions in relation to marine litter. Results indicated that the fora were viewed as a positive experience and there were some statistically significant differences between participants' pre- and post-fora perceptions and intentions concerning issues of marine litter (Hartley et al., 2015).

#### 3.2 The Forum Participants

The MARLISCO Marine Litter Fora were implemented in twelve European countries between April 2014 and April 2015 (see Table 1) engaging about 1540 stakeholders across Europe with 644 live audience members attending and reaching about a further 896 online participants though the interactive live webcasts.

Date	Location	Live Audience
2nd April 2014	Dublin, Ireland	40
15th October 2014	Nicosia, Cyprus	36
16th October 2014	Istanbul, Turkey	46
24th October 2014	Lisbon, Portugal	57
28th October 2014	Constanta, Romania	60
31st October 2014	Varna, Bulgaria	50
10th December 2014	London, United Kingdom	70
16th January 2015	Rome, Italy	83
4th February 2015	Strunjan, Slovenia	41
24th February 2015	Marseille, France	53
21st March 2015	Neubrandenburg, Germany	50
1st April 2015	Amsterdam, Netherlands	47

Table 1: MARLISCO Marine Litter Fora - Date, Location and Number of Live Audience Participants





Marine litter is a cross sectoral issue and forum participants across Europe represented a wide range of sectors (see Figure 3), which provided an opportunity to utilise sector specific knowhow during the event and allowed for mutual learning between forum stakeholders (Kopke et al., 2015). Some sectors of activities represented in Figure 3 represent a number of more distinct sector allocations, which have been summarised for the purpose of this report e.g. the large representation of Research & Education includes for example distinct areas of relevant research ranging from e.g. microplastics and ecotoxicology to marine biology and coastal and marine governance and more. Further details on sector affiliation and expertise of fora participants per country are available in the individual national reports of the events (see Annex 1).

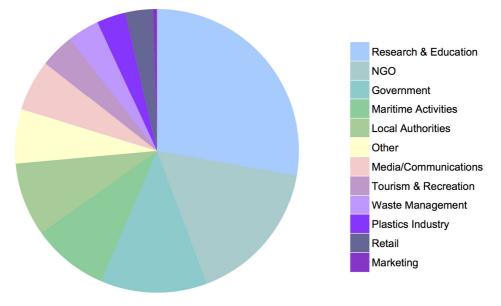


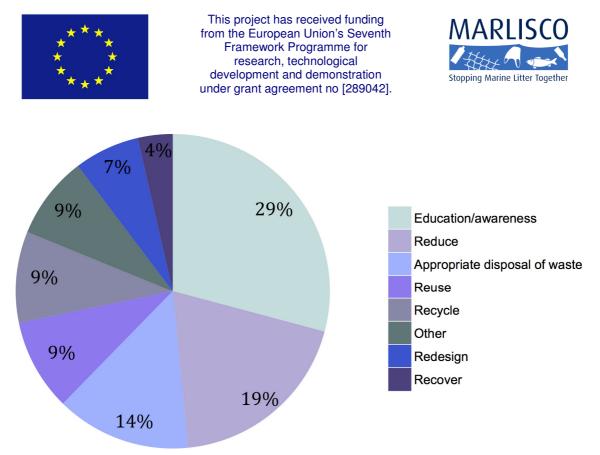
Figure 3: Distribution of live audience participants by sector of activity.

#### 3.3 Fora Outcomes across Europe

To asses fora outcomes across Europe, MARLISCO project partners, who implemented a national event, were ask to submit the top ten suggestions coming from their national event. The suggestions were actions, ideas and options submitted through group work in the individual events. MARLISCO partners determined their top ten based on the individual participant voting. These ten submissions per event were analysed by the MARLISCO team in Ireland in relation to existing strategies and approaches addressing waste and litter in general (see 3.3.1) and in terms of common thematic areas across submissions highlighting common areas of stakeholder focus across Europe (3.3.2).

#### 3.3.1 Fora Outcomes and Recognised Approaches

Across all twelve events the majority of submitted actions, suggestions and ideas relate to recognised concepts and approaches that address issues of waste and litter in general (see Figure 4), such as increasing Education/Awareness (29.01%), Appropriate Disposal of Waste (13.83%) and the Reduce (19.19%), Reuse (9.37%), Recycle (9.82%), Recover (3.57%) and Redesign (6.69%) concepts. These links indicate that the overall approaches and concepts are not only well known but suggest that more and definite measures and actions targeting marine litter are required to utilise these established approaches and concepts to effectively address marine litter across Europe.



*Figure 4: Illustrates distribution of submitted outcomes in relation to established approaches addressing waste and litter – percentages indicated in Figure 4 are rounded to nearest integer.* 

A substantial proportion of submitted fora outcomes link to ideas of increasing education and raising awareness (see Figure 4), indicated that fora participants across Europe perceive that a general lack of knowledge about marine litter needs to be addressed to successfully combat issues of marine litter in the countries that implemented a marine litter forum. Reduction of waste and appropriate disposal of waste also feature high in fora submissions across Europe, which signals these areas of waste management are perceived by stakeholders to require attention and have to be improved in relation to marine litter issues.

#### 3.3.2 Keyword Summary of Fora Outcomes

In order to summarise the fora outcomes, the diversity of submitted actions, suggestions and ideas from all events were explored for commonly used keywords. Keywords were calculated using R statistical software and were parsed removing punctuation and end words (and, the, etc.) as well as the terms 'marine' and 'litter'. The totals for each keyword were calculated, which is represented graphically in Figure 5 through a word cloud, where words that appear the most have the largest font.

From the pool of keywords, the 28 most commonly used were selected, based on a count of 5 or more in at least one of the Recognised Approaches categories discussed in 3.3.1. The chosen 28 keywords were further grouped to Area Of Effect as follows:

- How: keywords relating to action;
- What: keywords relating to target;
- Where: keywords relating to location and
- Who: keywords linking to persons and/or groups of people.

The 28 keywords and their links to Recognised Approaches categories and grouping within their Area Of Effect are shown in Table 2 from highest to lowest count.







Figure 5: Word cloud illustrating the most commonly used keywords across all fora submissions.

Figure 5 demonstrates the importance placed on awareness coming from fora participants across Europe, also highlighting other areas of participants focus through keywords such as reduce, sea, waste, packaging, plastic, beach, social, problem, public and recycling.

Table 2 highlights relationships of keywords across Recognised Approaches categories and Area Of Effect where Keywords *Awareness, Fishing, Nets* and *Waste* are found in all Recognised Approaches categories except for the category Other. The majority of the commonly used keywords can be found within the Education/ Awareness category under Areas Of Effect "How" and "What". This highlights that fora participants across Europe have similar ideas as well as targets e.g. under "What" in this category fora participants draw attention to overall waste and products but also highlight more specific type of targets such as plastic, packaging and cigarettes. The high number of keywords in this category also shows that education and awareness about marine litter can and has to be addressed from multiple angles.

Location Area Of Effect (Where) under each Recognised Approach category highlights *Sea* and *Beach* and in addition also focus on *National* and *Schools* under Education/Awareness. The only category focusing on people or groups of people is found in Education/Awareness linking to *Social*, *Public, People* and *Fisherman*. Specific keywords such as *Biodegradable* are only found in one category should also be noted as they still common across all submitted ideas.





Recognised	Area Of Effect				
Approaches	How	What	Where	Who	
Education/ Awareness	<ol> <li>Awareness</li> <li>Action</li> <li>Campaign</li> <li>Inform</li> <li>Reduce</li> <li>Education</li> <li>Fishing</li> <li>Media</li> <li>Collection</li> <li>Recycling</li> </ol>	<ol> <li>Waste</li> <li>Plastic</li> <li>Product</li> <li>Problem</li> <li>Packaging</li> <li>Nets</li> <li>Cigarettes</li> </ol>	<ol> <li>Sea</li> <li>Beach</li> <li>Schools</li> <li>National</li> </ol>	<ol> <li>Social</li> <li>Public</li> <li>People</li> <li>Fishermen</li> </ol>	
Appropriate Disposal of Waste Reduce	<ol> <li>Awareness</li> <li>Fishing</li> <li>Action</li> <li>Awareness</li> </ol>	<ol> <li>Waste</li> <li>Cigarettes</li> <li>Nets</li> <li>Waste</li> </ol>	1. Beach 2. Sea 1. Sea		
	<ol> <li>Reduce</li> <li>Fishing</li> <li>Collection</li> </ol>	<ol> <li>Plastic</li> <li>Nets</li> <li>Packaging</li> <li>Problem</li> <li>Product</li> </ol>	2. Beach		
Reuse	<ol> <li>Awareness</li> <li>Fishing</li> </ol>	<ol> <li>Waste</li> <li>Plastic</li> <li>Product</li> <li>Packaging</li> <li>Problem</li> <li>Nets</li> </ol>	1. Beach 2. Sea		
Recycle	<ol> <li>Awareness</li> <li>Recycling</li> <li>Fishing</li> </ol>	<ol> <li>Waste</li> <li>Plastic</li> <li>Packaging</li> <li>Nets</li> </ol>	1. Beach 2. Sea		
Redesign	<ol> <li>Awareness</li> <li>Fishing</li> <li>Biodegradable</li> </ol>	<ol> <li>Product</li> <li>Nets</li> <li>Waste</li> </ol>	1. Sea		
Other	1. Action	1. Problem	1. Sea 2. Beach		

Table 2: Keyword Summary for fora

#### 3.4 Discussion

The twelve national fora provided platforms for structured dialogue between the key stakeholders, relevant experts, and the general public, on the topic of marine litter and focused on developing solutions together. The events were successful in engaging stakeholders from multiple sectors with a diversity of expertise in dialogue about marine litter. Furthermore, the sheer number of people reached through the fora is a positive result in itself, attesting to a well-functioning process and format which may lend itself to be used for future multi-sector stakeholder engagement.

The MARLISCO fora ran parallel with important phases of the implementation of the Marine Strategy Framework Directive (MSFD) in MARLISCO partner countries and relate to Descriptor 10 (marine litter). Therefore these fora should be viewed as complimentary to these processes e.g. as a valuable addition to the MSFD public consultation procedure required under Article 19 of the





Directive. While the outcomes of the individual fora provide informed views about how to address marine litter issues in participating countries, the fora summary offers a snapshot of informed stakeholder opinions on how to address marine litter across Europe.

In more detail, the distribution of keywords from all fora throughout Recognised Approaches and their representation within their Area Of Effect (Table 2) highlights European-wide, common themes coming from the national events. The prominence of some keywords, especially *Awareness, Waste* and *Reduce* highlights participants' perception focus across Europe.

#### 3.4.1 Discussion How - keywords relating to action

The Area Of Effect "How", links keywords associated with how to reduce marine litter. The keyword *Awareness* appears as the most mentioned keyword in all Recognised Approaches categories (Table 2). This suggests fora participants perceive raising awareness about marine litter as the most important action that needs to be addressed in all areas of established strategies addressing waste and litter in general. In addition, such high word count also indicates that fora participants consider societal awareness of marine litter is perhaps not as high as it should be. In the category of Education/Awareness, several keywords point to definite outreach methods such as *Campaign, Education*, and or *Media*, all associated with large wide reaching strategies to disseminate information.

The keywords in the other Recognised Approaches (Appropriate Disposal of Waste, Reduce, Reuse, Recycle, and Redesign) are representative of specific manners of addressing marine litter. *Biodegradable, Reduce,* and *Recycling* may represent stakeholder perception on how to stop further litter entering the seas whereas *Fishing,* which appears in six of seven Recognised Approaches, shows the popularity of initiatives such as "fishing for litter," an approach that appeared as a suggested action in nearly all national fora. Overall from suggested actions across fora, fishing for litter and ghost nets presented a common theme.

#### 3.4.2 Discussion What - keywords relating to target

The Area Of Effect "What" explores what participants at national fora perceive to be key targets in terms of items and sources when addressing marine litter problems. Unsurprisingly, *Waste* appears in six of seven Recognised Approaches. Both *Cigarettes* and *Nets* appear frequently within the "What" Area Of Effect. Both of these items are emotive issues within marine litter e.g. nets are often displayed in media and outreach to highlight bycatch and ghost-fishing. *Cigarettes* have been reported as one of the most abundant forms of marine litter, whilst smoking itself is a key social health issue, the frequency with which *Cigarettes* appears in the "What" Area Of Effect highlights its prominence within the public perception of marine litter.

In all Recognised Approaches, the keyword *Plastic* rates highly. Plastic is a key issue within marine litter, having been the focus of a large number of studies and campaigns. Rather unexpectedly, however, is the absence of microplastic in the keywords. Whilst it was present in top ten suggestions from several individual fora, the overall word count was not high enough to be included in analysis for this report. It is unsure as to whether this is due to lack of awareness of microplastic or simply participants pre-empting the creation of microplastic from degradation of larger plastic items. *Packaging* also appears within four of the seven Recognised Approaches, representing packaging as a perceived key component of marine litter.

#### 3.4.3 Discussion Where - keywords relating to location

The Area Of Effect "Where" shows the locations that fora participants perceive to be important when addressing litter. *Sea* and *Beach* appear in all the Recognised Approaches, as these locations are associated with marine litter and in the case of *Beach* where marine litter is most visible for the public. It is interesting to note that no terrestrial sources of marine litter appear in the "Where"





classification. *Schools* and *National* also appear as keywords under "Where", however exclusively within the Education/Awareness category. *Schools* as a keyword in the Education/Awareness approach suggests that fora participants across Europe explored raising awareness within the youth demographic as a method of increasing overall societal awareness of marine litter across Europe.

#### 3.4.4 Discussion Who - keywords linking to persons and/or groups of people

The "Who" Area Of Effect contains only four keywords and all appear within the Recognised Approach of Education/Awareness. *Social* is the most common keyword, followed by *Public* and *People*, which suggest fora participants perceive public awareness about marine litter is too low. Furthermore, increasing public awareness can influence public behaviour, which is vital to successfully address marine litter.

A change in public behaviour through increasing public awareness is perceived to be vital to successful in addressing marine litter. *Fishermen* only appearing within the Education/Awareness category may suggest that fora participants perceive fishermen to be in a key position to make an impact in education awareness as well as reduction of marine litter and collection of marine litter.

#### 3.4.5 Discussion Summary

In summary the keywords raised here within each Area Of Effect and across the Recognised Approaches show that there is no set, specific action or suggestion to tackle the problem of marine litter. The forum participants, who represented different sectors, have submitted suggestions, which are strong in raising societal awareness reflecting a key aim of the MARLISCO project. When considered the synergies Education/Awareness has with other Approaches, it becomes clear that the keywords presented in Table 2 show that a wide ranging strategy that addresses the problem of marine litter could have a far reaching effects with positive consequences for both society and the environment.





## 4 THE MARINE LITTER FORA IN REGIONAL SEAS CONTEXT

#### 4.1 Introduction

MARLISCO marine litter fora took place at countries located in all four European Regional Seas, namely the North East Atlantic, the Mediterranean Sea, the Baltic Sea and the Black Sea. The relevant events are discussed in relation to the OSPAR Convention, the Barcelona Convention, the Helsinki Convention (HELCOM) and the Bucharest Convention, as these conventions address marine litter at the relevant scope of work (see 4.1.1, 4.1.2, 4.1.3, 4.1.4).

#### 4.1.1 **OSPAR Convention**

OSPAR is the administrator of the Oslo and Paris Conventions for the protection of the marine environment of the *North-East Atlantic*. The OSPAR Regional Action Plan (RAP) sets out the policy context for OSPAR's work on marine litter and describes the various types of actions that OSPAR will work on over the coming years. The OSPAR RAP objective is in line with the definition of Descriptor 10 of the Marine Strategy Framework Directive (MSFD) and supports the achievement of an EU-wide "quantitative reduction headline target" for marine litter, as agreed in the 7<sup>th</sup> Environment Action Programme. The main objectives of the OSPAR RAP are to:

- Prevent and reduce marine litter pollution in the North-East Atlantic and its impact on marine organisms, habitats, public health and safety and reduce the socioeconomic costs it causes;
- Remove litter from the marine environment where practical and feasible;
- Enhance knowledge and awareness on marine litter;
- Support Contracting Parties in the development, implementation and coordination of their programmes for litter reduction, including those for the implementation of the Marine Strategy Framework Directive (MSFD).
- Develop management approaches to marine litter that are consistent with accepted international approaches

Although the OSPAR RAP operates on a regional, political level and MARLISCO targeted rather the public and societal changes they share the common goal to tackle the marine litter issue by introducing measures, best practices and education (OSPAR 1998).

#### 4.1.2 Barcelona Convention

The Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (UNEP/MAP, 1995), known as the Barcelona Convention has been adopted by 22 Mediterranean countries. The Protocol on Land Based Sources and Activities (UNEP/MAP 1996) addresses the importance of dealing with the problem of marine litter, while other protocols have direct and indirect references. In 2013, the Contracting Parties adopted a Regional Plan on Marine Litter Management in the Mediterranean (RPMLM) which sets out the main actions and measures to tackle marine litter. The main objectives of the Regional Plan (UNEP/MAP, 2013) are to:

- Prevent and reduce to the minimum marine litter pollution in the Mediterranean and its impact on ecosystem services, habitats, species in particular the endangered species, public health and safety;
- Remove to the extent possible already existent marine litter by using environmentally respectful methods;
- Enhance knowledge on marine litter; and





• Achieve that the management of marine litter in the Mediterranean is performed in accordance with accepted international standards and approaches as well as those of relevant regional organizations and as appropriate in harmony with programmes and measures applied in other seas.

#### 4.1.3 *HELCOM*

HELCOM (Baltic Marine Environment Protection Commission – Helsinki Commission) is the governing body of the Convention on the Protection of the Marine Environment of the Baltic Sea Area also known as the Helsinki Convention. It was formed in 1974. A new convention was signed in 1992 and entered into force in January 2000 (HELCOM 2008).

The Baltic Sea Action Plan (2007) encourages projects to remove litter from the coastal and marine environment and HELCOM has passed various recommendations as actions to reduce litter input to the Baltic Sea environment. The HELCOM Moscow Ministerial Declaration (2010) agreed to take further steps to carry out national and coordinated monitoring of marine litter and identify sources of litter. The 2013 HELCOM Copenhagen declaration called for further coherent action in addressing the pollution of the marine environment by litter, prevention and reduction of marine litter from land- and sea-based sources, together with a decision to develop a Regional Action Plan on Marine Litter by 2015 (HELCOM March 2015).

The HELCOM Regional Action Plan (RAP) will be finalized during the spring of 2015 for agreement at the next HELCOM Heads of Delegation meeting, June 2015. The RAP aims to significantly reduce marine litter by 2025 compared to 2015 and prevent harm to the coastal and marine environment. The plan should enable concrete measures for prevention and reduction of marine litter from its main sources (HELCOM 2015).

There are two types of actions which aim at reducing the input and presence of marine litter in the Baltic Sea. Regional actions require a joint approach by HELCOM contracting parties and will operate on a large scale and across national boundaries. Information exchange and coordination of measure considered to be primarily of national concern is the other action area and is the responsibility of the contracting party (HELCOM March 2015).

#### 4.1.4 *The Bucharest Convention*

The Bucharest Convention on the Protection of the Black Sea against Pollution was signed in Bucharest in April 1992, and ratified by all six legislative assemblies of the Black Sea countries in the beginning of 1994. The implementation of the Convention is managed by the Commission for the Protection of the Black Sea against Pollution and its Permanent Secretariat in Istanbul, Turkey (Bucharest Convention 1992).

The Black Sea Commission comprises one representative of each of the Contracting Parties (Bulgaria, Georgia, Romania, Russian Federation, Turkey and Ukraine) to the Bucharest Convention. The Bucharest Convention is the basic framework of agreement and three specific protocols, which are: the control of land-based sources of pollution; dumping of waste; and joint action in the case of accidents (such as oil spills) (Bucharest Convention 1992).

The Strategic Action Plan for Environmental Protection and Rehabilitation of the Black Sea, was adopted in Sofia, Bulgaria, in 2009. This document represents an agreement between the six Black Sea Coastal states to act together assisting the continued recovery of the Black Sea (BS SAP 2009).

The Strategic Action Plan provides a brief overview of the current status of the Sea, based largely on information contained within the 2007 Black Sea Transboundary Diagnostic Analysis (BS TDA), and taking into account progress with achieving the aims of the original (1996) Black Sea Strategic





Action Plan (BS SAP). This SAP builds upon the BS SAP signed in 1996 (updated in 2002), by reorganising the priorities and actions therein considering the progress in the region and the current state of the environment. This updated (2009) version of the BS SAP describes the policy actions required to meet the major environmental challenges now facing the Black Sea, and includes a series of management targets (BS SAP 2009).

#### 4.2 MARLISCO Fora in the Regional Seas

#### 4.2.1 The North East Atlantic

Six national MARLISCO Marine Litter fora were organised with relevance to OSPAR (see Table 1 for location and date for individual national events). The OSPAR Executive Secretary, Dr Darius Campbell attended the UK MARLISCO Forum and presented the OSPAR Regional Action Plan (RAP) and different actions. During the presentation it became clear that the role of the RAP ML is to coordinate work to improve the evidence base on the impacts of litter on the marine environment. OSPAR will establish a range of measures and actions; identify existing activities, gaps and opportunities where OSPAR can add value. Therefore OSPAR will form a framework under which contracting parties can identify where a regional approach can add value to the actions of individual contracting parties. Several of the ideas from the MARLISCO fora in the North East Atlantic are taken up through the OSPAR RAP, as they required a regional approach which could only be delivered by OSPAR. The RAP is designed as a flexible tool providing a set of actions to address marine litter and thus several MARLISCO Best Practices will be applied during the process. OSPAR actions have been grouped in four themes as follows:

- the reduction of litter from sea-based sources and
- the reduction of litter from land-based sources,
- the removal of existing litter from the marine environment and education and outreach on the topic of marine litter.

The majority of the suggestions from the fora in the North East Atlantic region can be linked to these four OSPAR themes.

#### 4.2.2 The Mediterranean

In the Mediterranean region, five national fora took place. There was no UNEP/MAP (Secretariat of the Barcelona Convention) representative at the actual national events; however the outcomes of the fora reached the UNEP/MAP Focal Points and/or the UNEP/MAP CORMON group representatives through various channels, also via their direct participation in the fora in some cases. Furthermore, Ms. Tatjana Hema, UNEP/MAP-MEDPOL Programme Officer has participated in all MARLISCO Steering Committee meetings and had the opportunity to gain some insights on the fora discussions and results. The actions of the RPMLM have been grouped in the following themes:

- Integration of marine litter measures into the LBS National Action Plans;
- Prevention of marine litter;
- Removing existing marine litter and its environmentally sound disposal;
- Assessment of marine litter in the Mediterranean;
- Mediterranean Marine Litter Monitoring Programme;
- Research topics and scientific cooperation;
- Specific guidelines;
- Technical assistance





• Enhancement of public awareness and education.

All actions that came out from the five foras fall into the themes of prevention and removal, as well as awareness raising and education.

#### 4.2.3 The Baltic Sea

Focussing on the Baltic Sea Region, the Baltic Forum was held by EUCC-D in cooperation with the University of Neubrandenburg in Germany. The goal of the forum was to discuss which local and regional policies and measures exist that would effectively contribute to the reduction and prevention of marine litter and how this could be implemented in practice. There was no HELCOM representative at the event held in Germany; however the final report will be shared with HELCOM through the Ostseeparlamentarierkonferenz and also given to the German national marine litter working group. Stefanie Werner from the Federal Environment Agency is a member of the working group and is the German representative in HELCOM. Sylvia Bretschneider presented the activities of the Baltic Sea parliamentary Conference and the work of HELCOM. Participants in the Baltic Forum proposed 10 actions that were felt most effective to combat marine litter. Many of these are in line with the actions in the HELCOM Regional Action plan. Public awareness of the issue was felt to be most important and shows up in 5 of the 10 actions. The forum stated that all sorts of activities and events are needed to motivate more and more people to take part in reducing litter.

#### 4.2.4 The Black Sea

In the Black Sea Region three national events took place in Romania, Bulgaria and Turkey (more detail see Table 1). The events took place in October 2014 and the Bulgarian Forum coincided with the Black Sea Action Day, which is celebrated annually on October 31, since 1996, when the Black Sea Strategic Action Plan was signed. The goal of the national fora taken place in the Black Sea region was to discuss which local and regional policies and measures exist and what actions are needed to reduce and prevent marine litter in Black Sea and how these could be implemented. The national events presented the most current issues of marine litter in the Black Sea and provided an environment for participants from to discuss the problem of marine litter. The outcomes from the national fora in the Black Sea region can be grouped into several categories, such as education, cooperation, legislation, recycling and involving those responsible.

#### 4.3 Discussion

The OSPAR RAP contains several MARLISCO suggestions requiring collective activity within the framework of the OSPAR Commission through, where applicable, OSPAR measures (i.e. Decisions or Recommendations) and/or other agreements such as guidelines. Some MARLISCO ideas are considered by contracting parties in their national programmes of measures, including under the Marine Strategy Framework Directive. The OSPAR RAP approach regarding these national actions is based around the core principle that the RAP allows contracting parties to identify which of the measures and actions listed they have already taken forward (e.g. as a result of existing or planned national or European legislation or other initiatives such as MARLISCO) and consider others needed to further combat marine litter. MARLISCO therefore provides guidance to contracting parties and OSPAR provides the framework for regional cooperation. The OSPAR RAP contains, a category of actions that address issues that fall under the competence of other international organisations and competent authorities. The political influence of OSPAR thus gives an overarching power to certain MARLISCO suggestions e.g. changes to waste legislation, port reception facilities, and international fishing pressures (OSPAR 1998).

Overall, the actions proposed within the national fora held in the Mediterranean are already included in the RPMLM. In some cases, the MARLISCO fora results in terms of priority issues are considered in the ongoing LBS National Action Plans update process aiming to incorporate the requirements and commitments under the RPMLM. Public participation and consultation is one of





the key steps of this process. The experiences gained and the information obtained within the MARLSICO project can be a valuable asset in the selection of cost-effective measures. Furthermore, the high potential of other MARLISCO projects outputs to contribute to the implementation of the RPMLM has been acknowledged by UNEP/MAP, who has provided the financial support to translate the MARLISCO educational material and the best practice guide into Arabic and expand their use in the southern Mediterranean countries. Options to replicate the MARLISCO approaches, including the national fora setup, within the Mediterranean region are being also explored.

The action areas generated from the Baltic Forum are included in the Regional Action Plan for the Baltic Sea in one form or another. Some ideas and outcomes from the forum as raised by participants could be considered by HELCOM to incorporate in the RAPs action plans. Expanding deposit refund systems to festivals, events and close to recreational activities could be considered at the Baltic workshop. Ideas generated as educational or communication strategies can also be considered as best practices and incorporated on the HELCOM website. MARLISCO educational material is cited in the Baltic Regional Action Plan as existing materials that could be used to raise public awareness at a national level (HELCOM 2015: NE5). Future projects in the region, can make use of the MARLISCO exhibition and educational materials, adapt and translate into other languages in the region. A Nordic project group (Norway and Sweden with support from the Danish MARLISCO partner) is already interested in including this as a part of their project proposal.

In the Black Sea outcomes of the national fora are viewed positive providing groundwork in dialogue about marine litter in the Black Sea and together with other MARLISCO materials such as the MARLISCO educational material, web documentary, serious game, best practice guide are seen as having great potential for raise public awareness at a national levels.

In general public and societal aspects and interactions which formed the basis of the MARLISCO project and its outcomes allowed stakeholders and the wider public to feed in their concerns and activities into a more regional framework like the OSPAR RAP or showcase support for specific RPMLM in the Mediterranean and link to HELCOM and provide foundation for further dialogue in the Black Sea. Some of the RAP measures were based on results of MARLISCO and as such cooperation with other relevant regional and international organisations was achieved. Two regional sea conventions (Barcelona Convention/OSPAR) have developed marine litter action plans. The replications of MARLISCO's activities have a key role to play in the facilitation of the implementation of these plans, thus ensuring the sustainability of the collective outcomes of the project. Furthermore, the demonstrated synergies of MARLISCO's actions within the aforementioned RAPs context serve as a source of inspiration for the Black Sea and Baltic Sea where regional agreements for marine litter have yet to be put in place.





# **5** CONCLUSION

#### 5.1 Summary

In summary the MARLISCO Marine Litter forum process and format was successfully implemented across Europe reaching a substantial number of stakeholders from many sectors. Across all fora awareness is flagged as key to addressing marine litter. While this report focused on common suggestions from the national events, the highlighted keywords are diverse, demonstrating that marine litter needs to be addressed from multiple angles. Submitted fora actions, ideas, and options showed synergies with regional seas plans and activities (e.g. under RAP and RPMLM) and the events themselves, linked through participation of regional seas representatives, engaged the process in dialogue and mutual learning with other fora participants.

#### 5.2 Challenges

The MARLISCO fora each produced a set of suggested actions from which common themes could be realised. The first major hurdle with this process was identifying a suitable method for extracting information from the suggested actions. Each forum produced suggested actions, but they varied vastly in tone, composition, and structure. In order to bring them to a base level it was decided that keywords would be extracted using text-mining procedures. The totals from the analysis managed to produce common themes and issues present in suggested actions across Europe. Whilst this approach has been very successful, the integration of themes is still from national fora.

Many of the issues and challenges from marine litter that have been considered at national fora are potentially trans-boundary problems. The nature of marine litter presents unique problem as multiple countries border the same seas. Regional seas partnerships, as have been detailed in this report, encourage countries within their jurisdiction to work together. However a problem still presents itself at the meeting points between these borders.

#### 5.3 Recommendations

This summary report highlights common themes and national relevant actions and solution to address marine litter; to progress these towards realisation further research and active stakeholder engagement are required, building upon the relationships established with relevant stakeholders in the MARLISCO partner countries.

All fora identified public outreach, education and awareness as key to address marine litter, which highlights that a lack of knowledge in the public domain needs to be addressed across Europe.

Within the remit of MARLISCO the individual fora focused on solutions, suggestions and actions within a national context, however as marine litter is a trans-boundary issue; regional seas events with active stakeholder engagement and input should be the next step to successfully feed stakeholder perception and expertise into existing plans as well as to support the establishment of agreements at regional seas level where such plans are absent.





# **6 REFERENCES**

Bucharest Convention on the Protection of the Black Sea Against Pollution, 1992

De Dreu, C. W. and West, M.A. 2001. Minority dissent and team innovation: The importance of participation in decision making. Journal of Applied Psychology, Vol 86(6), Dec 2001, 1191-1201.

Executive Secretary, HELCOM 36-2015 - Draft HELCOM recommendation on RAP on Marine Litter.

- Hartley, B. L., Holland, M., Pahl, S., & Thompson, R. C. 2015. Evaluation of specific educational and outreach activities related to marine litter. Deliverable D2.5 report. MARLISCO project. Marine Litter in European Seas: Social Awareness and Co-Responsibility. (EC FP7 Coordinated and Support Action, SIS-MML-289042).
- HELCOM recommendation 36/1 Adopted 4 March 2015 Regional Action Plan on Marine Litter (RAP ML)
- HELCOM Secretariat, November 2008, Convention on the protection of the Marine Environment of the Baltic Sea Area, 1992 with amendments.
- Kopke K., Bennison A., Doyle T. (2015). MARLISCO Marine Litter Forum In Ireland, Report as part of the MARine Litter in European Seas: Social AwarenesS and CO-Responsibility (MARLISCO) FP-7 project, grant agreement no [289042], Beaufort (c/o CMRC), University College Cork.
- Kopke K. and Doyle T., 2014. Guidelines: preparing for your National Forum on Marine Litter. Internal Support Document for the MARLISCO Marine Litter Fora, Coastal and Marine Research Centre, University College Cork.
- OSPAR 1998 Convention for the Protection of the Marine Environment of the North-East Atlantic

Strategic Action Plan for Environmental Protection and Rehabilitation of the Black Sea, 2009

- UNEP/MAP, 2013. Regional Plan for the Marine Litter Management in the Mediterranean, UNEP(DEPI)/MED IG.21/9.
- UNEP/MAP, 1995. Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean.
- UNEP/MAP, 1996. Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources and Activities.
- Vasconcelos, L., & Caser, U. (2012). MARGOV building social sustainability. Journal of Coastal Conservation, 16, 523–530.
- Yang, M. C. (2010). "Consensus and Single Leader Decision-making in Teams Using Structured Design Methods." Design Studies. 31(4):345-362.

http://www.blacksea-commission.org/\_convention-fulltext.asp

http://ec.europa.eu/environment/marine/international-cooperation/regional-seaconventions/bucharest/index\_en.htm

http://www.blacksea-commission.org/\_bssap2009.asp





# **Annex I – Summary of MARLISCO National Fora Reports**

Amaha Öztürk A, Öztürk Ö (2015). MARLISCO Marine Litter Forum In Turkey, Report as part of the MARine Litter in European Seas: Social AwarenesS and CO-Responsibility (MARLISCO) FP-7 project, grant agreement no [289042], TUDAV, Turkey

Languages available in: Turkish

Available from: MARLISCO website under National Fora Outcomes

Candea M, Gheorghe A (2015). MARLISCO Marine Litter Forum In Romania, Report as part of the Marine Litter in European Seas: Social AwarenesS and CO-Responsibility (MARLISCO) FP-7 project, grant agreement no [289042], Mare Nostrum NGO, Romania

Languages available in: Romanian

Available from: MARLISCO website under National Fora Outcomes

de Jong H, Ferreira M (2015) Report of the Dutch National Forum on Marine Litter – Interactief Verslag Nationaal Forum "Zee Zonder Zwerfvuil", Vereniging Kust & Zee (Coastal& Marine Union – EUCC), The Netherlands. Languages available in: Dutch Available from: MARLISCO website under National Fora Outcomes

Garnacho E and Goldsmith D (2015). MARLISCO Marine Litter UK Forum Report. MARine Litter in European Seas: Social AwarenesS and CO-Responsibility (MARLISCO) (EC FP7 Coordinated and support action, SIS-MML-289042), Cefas, UK. Languages available in: English

Available from: MARLISCO website under National Fora Outcomes

Kancheva M, Antonova P (2015). MARLISCO Marine Litter Forum In Bulgaria, Report as part of the MARine Litter in European Seas: Social AwarenesS and CO-Responsibility (MARLISCO) FP-7 project, grant agreement no [289042], Union of Bulgarian Black Sea Local Authorities (UBBSLA) **Languages available in**: Bulgarian

Available from: MARLISCO website under National Fora Outcomes

Klesse K, Stybel N (2015) Report on the German National Forum on Marine Litter, Die Küsten Union Deutschland e.V. (EUCC-D), Germany

Languages available in: German

Available from: MARLISCO website under National Fora Outcomes

Kopke K., Bennison A., Doyle T. (2015). MARLISCO Marine Litter Forum In Ireland, Report as part of the MARine Litter in European Seas: Social AwarenesS and CO-Responsibility (MARLISCO) FP-7 project, grant agreement no [289042], Beaufort (c/o CMRC), University College Cork.

Languages available in: English

Available from: MARLISCO website under National Fora Outcomes or contact k.kopke@ucc.ie

Mezek, S., Peca, N. (2015) Report on the Slovenian National Forum on Marine Litter, Regional Development Centre Koper. Languages available in: Slovenian & English Available from: MARLISCO website under National Fora Outcomes or contact slavko.mezek@rrc-kp.si

Orthodoxou, D.L., Loizidou, X.I. (2014) Report on the Cypriot National Forum on Marine Litter, ISOTECH Ltd. Languages available in: English

Available from: MARLISCO website under National Fora Outcomes or contact info@isotech.com.cy

Poitou I, Poulin C, (2015). MARLISCO Marine Litter Forum In France, Report as part of the MARine Litter in European Seas: Social AwarenesS and CO-Responsibility (MARLISCO) FP-7 project, grant agreement no [289042], MerTerre, France.

Languages available in: French

Available from: MARLISCO website under National Fora Outcomes

Vasconcelos L, Silva F, Ferro F, Raposo I.P, Sobral P (2015). Fóruns sobre Lixo Marinho em Portugal - Relatório do projeto MARLISCO (MARine Litter in European Seas: Social AwarenesS and CO-Responsibility, Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa, Portugal.

Languages available in: Portuguese

Available from: MARLISCO website under National Fora Outcomes

Venerucci V, Di Berardo M (2015), Italian Marine Litter Forum Report, Province of Teramo. Languages available in: Italian and English Available from: MARLISCO website under National Fora Outcomes