SEVENTH FRAMEWORK PROGRAMME

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

D2.1
BASELINE EVALUATION OF STAKEHOLDER PERCEPTIONS AND ATTITUDES TOWARDS ISSUES SURROUNDING MARINE LITTER

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Document Information

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Author:	Bonny Hartley (Plymouth University)
Contributors:	Sabine Pahl and Richard Thompson (Plymouth University)
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Document Information

This report deliverable documents a baseline assessment of stakeholder perceptions about marine litter across Europe, including perceptions about the causes and consequences of marine litter, perceived risk and responsibility, and behavioural intentions to engage in solutions. It outlines the survey development and implementation stages, and provides an analysis of trends across participating stakeholder groups and countries.

Approvals

Date	Partner
13/09/2013	ISOTECH (Work Package Leader)
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V0.6	09/10/2013	Revised version addressing Coordinator comments.	BH (Plymouth University)

List of annexes

Annex1_ Screenshot of initial webpage where respondents select their language to participate
Annex2_ The stakeholder survey consent form
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Annex4_ The number of respondents in each stakeholder group within each country
Annex5_ Perceptions about who is responsible, competent and motivated to reduce marine litter, by stakeholder group (means)
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1 INTRODUCTION

1.1 MARLISCO *'MARine Litter in Europe Seas: Social AwarenesS and CO-Responsibility'*

The MARLISCO project seeks to raise societal awareness of both the problems and the potential solutions relating to a key issue threatening marine habitats worldwide: the accumulation of marine litter. A major objective of the project is to understand and subsequently facilitate societal engagement in order to inspire changes in attitudes and behaviour. This project is a Mobilisation and Mutual Learning Action Plan with the aim of providing a series of mechanisms to engage key stakeholders with an interest in, or responsibility for, some aspect of reducing the quantity of litter entering the ocean. These include: industrial sectors; users of coastal and marine waters; the waste management and recycling sectors; Regional Sea Commissions and EU representatives; local municipalities; citizens' groups; environmental NGOs; school children and the general public; social and natural scientists.

MARLISCO recognises the need for a concerted approach to encourage co-responsibility through a joint dialogue between the many players. This is being achieved by organising activities across 15 European countries, including national debates in 12 of them, involving industry sectors, scientists and the public (WP4), a European video contest for school students (WP5), educational activities targeting the younger generation together with exhibitions to raise awareness among the wider public (WP6). MARLISCO is making use of innovative multimedia approaches to reach the widest possible audience, in the most effective manner (WP3). The project will develop and evaluate an approach that can be used to address the problems associated with marine litter and which can also be applied more widely to other challenges where there are substantial benefits to be achieved through better societal integration among researchers, stakeholders and society.

1.2 Objectives and scope of this report

The purpose of this report is: *'To provide a systematic stakeholder survey mapping perceptions and attitudes towards issues surrounding marine litter (problems and solutions)'*. It documents the development of a European-wide survey of social perceptions about marine litter and reports key findings. The report outlines each stage of survey development, including survey design, piloting, translation, implementation and analysis of trends.

The objective is to: *'Conduct systematic stakeholder surveys regarding problem awareness, perceived responsibilities and solutions and their acceptability [Months 5-12, subsequently assess changes over time Month 28-32] (Lead by Partner 4, Partners 1, 2, 5-18). These methods will be applied in Month 10 to assess baseline problem awareness (causes, extent and impacts) and perceived responsibilities, solutions and their acceptability (e.g., changes in policy or individual behaviour). The methods will be applied again in Month 30 to assess any changes.'*

Therefore, there are two stages to the stakeholder survey 1) an initial baseline assessment of stakeholder perceptions in the first year of the project, and 2) a subsequent assessment of stakeholder perceptions in year three, the final year of the project (month 32 report). This report documents stage 1 of this process, providing a "snapshot" of societal awareness and perceptions about marine litter across Europe, and trends across a range of stakeholder groups. It examines individuals' perceptions about the quantity, location, causes and consequences of marine litter, perceived risk and responsibility, and behavioural intentions to engage in solutions. The follow-up report will contain full formal statistical analyses and trends. Although there will be some capacity to see changes in individuals' perceptions about marine litter over the time course of the MARLISCO project, the follow-up assessment will not sample the same individual respondents for direct comparison; it will merely apply the same methods and procedures.

This report provides a valuable step in understanding societal perceptions toward marine litter across Europe. Understanding societal perceptions and more specifically, the perceptions of different stakeholder groups, is a critical step in attempts to engage society in the problem of marine litter and to facilitate changes in attitudes and behaviour.

It is intended that this report can be used to inform MARLISCO activities throughout WP2-6 as appropriate; for example, to help target discussion in the debates within WP4, or to guide engagement in outreach activities within WP6. Further, this report will inform academic and applied audiences across the marine, environmental and social sciences.

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BOX 1 AIMS: What questions did the stakeholder survey set out to answer?

→ What are European attitudes and perceptions about marine litter?
→ Do perceptions vary according to stakeholder group/sector?
→ Do perceptions vary across participating countries?

MAIN FINDINGS

A total of 3748 respondents completed the survey across Europe and across a range of stakeholder groups. Overall, the majority of respondents reported noticing litter on most or every visit to the coast. Respondents were concerned about marine litter and perceived the marine environment as being highly valuable to society. Litter was believed to be present in all locations of the marine environment, largely near urban areas and on beaches, and with the least in polar seas. Marine litter was also perceived to pose several negative impacts. Respondents believed that plastic represents 45.5% of marine litter – this signifies a large underestimate according to the literature.

Respondents believed government, industry, commercial users and general public are highly responsible but less competent and even less motivated to take action to reduce marine litter. This is in comparison to independent scientists and environmental groups who were perceived as least responsible, yet most competent and motivated. Respondents reported being likely to take several actions themselves to reduce marine litter and perceived that it would be reasonably easy to take these actions.

Respondents from different stakeholder groups and different countries shared many of the same perceptions about marine litter. For example, there was a similar pattern of results across stakeholder groups and participating countries when considering the relative quantity of litter across the different marine environments, the contribution of different pathways by which litter can enter the marine environment, and the *relative* severity of the different impacts. However, some differences in perceptions did emerge between stakeholder groups and between countries. For example, environmental organisations were most concerned about marine litter, whereas respondents working in design and manufacturing and retail were slightly less concerned than other stakeholder groups. Similarly, respondents from Portugal, Slovenia, the UK, Germany and Greece were more concerned about the problem of marine litter compared to other countries, particularly Romania, the Netherlands, Cyprus and Denmark who reported being the least concerned about the problem. In addition, although all stakeholder groups underestimated the percentage of marine litter that consists of plastic, environmental organisations and coastal and marine industry reported the highest percentage of plastic compared to other stakeholders, particularly those from retail and design and manufacturing sectors who reported the lowest percentage composition of plastic. Similarly, all countries underestimated the percentage of marine litter that consists of plastic, particularly respondents from Cyprus, Denmark, Romania, Italy, Portugal and Turkey who reported the lowest percentage composition of plastic. Respondents from the UK, Germany and Slovenia reported the highest proportion of plastic in marine litter. Further, those from environmental organisations along with respondents from Greece, Portugal and Slovenia reported being the most likely and able to take action.

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2 IMPLEMENTATION OF THE SURVEY ACROSS EUROPE

2.1 Participating countries and stakeholder groups

The survey was implemented across 16 countries – the UK, Italy, Netherlands, Denmark, Slovenia, Ireland, Romania, Germany, Bulgaria, Portugal, Greece, Cyprus, Turkey, France, Belgium and Spain. The principal stakeholder groups contacted to participate in the survey are listed in Table 1 below.

Table 2.1: Stakeholder groups approached to participate in the survey

	Main stakeholder categories/sectors	Specific categories within these sectors (the survey was distributed across these pre-defined groups)
1	Designers and manufacturers (of products that may become marine litter)	Material production Material conversion Product/packaging design
2	Retailers (of products that may become marine litter)	Supermarkets Other shops
3	Coastal and/or marine industry	Commercial fishing Shipping Off-shore industries Coastal tourism Aquaculture
4	Waste management sector	Waste collection and transportation Waste separation Waste disposal to landfill or incineration Waste recycling Sewage treatment
5	Government and/or policy makers	Local National International
6	Environmental organisations	NGO/charity
7	The media	Newspaper Radio Television Online
8	Education sector	School College (further education) University (higher education)
9	General public/domestic users of coastal and marine waters	This can include general public, tourists, recreational fishers, surfing and diving groups etc.

2.2 Survey item selection and development

The survey was developed around a number of models of risk perception and behaviour change which outline key factors which predict pro-environmental behaviour. Here we outline what each group of questions in the survey assess and the rationale (the full questionnaire is available from bonny.hartley@plymouth.ac.uk).

2.2.1 Personal experience of the coast and marine litter

Two questions assessed the frequency of individuals' coastal visits and the frequency that they observe litter. This provided a broad indication of respondents' experience with the coast and marine litter.

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2.2.2 Awareness of the presence and extent of marine litter (quantities, location, and material composition)

These questions assess respondents' perceptions about the quantity and distribution of marine litter, and material composition. If individuals are not aware of the presence or extent of the problem then they may be unlikely to act to reduce marine litter.

2.2.3 Perceptions about the sources of marine litter

These questions assess individuals' perceptions about the sources of marine litter, or more specifically the pathways by which litter reaches the sea. A lack of knowledge or misperceptions about these sources/pathways can act as a barrier to reducing marine litter.

2.2.4 Perceptions about the negative impacts of marine litter

These questions assess individuals' perceptions about the consequences and harmful impacts of marine litter. Again, a lack of knowledge or concern in this area can act as a barrier to behaviour change.

2.2.5 Risk perception – concern and acceptance of the problem of marine litter

These questions assess whether individuals perceive marine litter as a risk and are concerned, or whether they chose to deny the problem. Denial is an important predictor of inaction.

2.2.6 Social norms about marine litter

These questions assess individuals' perceptions about what other people think and how others behave regarding marine litter (what are appropriate or standard beliefs and behaviours among the group). People are heavily influenced by social norms, and as such they act as an important predictor of behaviour. For example, an individual may think that marine litter is an important problem, however if they believe that their community does not share this view then this can lead to inaction.

2.2.7 Perceived responsibility, competence and motivation of groups and organisations

These questions are designed to target individuals' perceptions about who is responsible, competent and motivated to take action to reduce marine litter. These factors may not go hand in hand. For example, some individuals may believe the government is highly responsible, whilst perceiving that they are not highly competent and/or not motivated. Also, if individuals believe that other groups should be responsible for reducing marine litter then they will be less likely to take responsibility and action themselves. Similarly, perceiving others as incompetent or unmotivated tends to be negatively associated with pro-environmental intentions (in this case, to engage in behaviours which will reduce marine litter).

2.2.8 Behavioural intentions and self-efficacy (perceived control) in taking action to reduce marine litter

These questions assess whether there is a lack of motivation and perceived efficacy in taking action to reduce marine litter. Low self-efficacy tends to be associated with weaker behavioural intentions and greater levels of inaction.

2.2.9 Perceived value of the coast and sea

These questions assess the value and importance individuals place on the marine environment. Specifically, they assess perceptions about how valuable the coasts and seas are to society for various resources, such as for recreation and tourism, as a source of food, for trade and shipping, for employment, as a source of energy, for education and science. Placing less value on the marine environment for these eco-system services may be associated with less concern about marine litter and inaction.

2.2.10 Demographics

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The survey also recorded respondents' age, gender, and country of residence.

2.2.11   Stakeholder grouping

Finally, respondents indicated whether they worked in one of the 8 stakeholder sectors. When individuals indicated they did not work in any of these stakeholder groups, they were categorised as general public respondents.

2.3   Survey translation

The survey was translated and available in 14 languages as listed below:

1. English
2. Italian
3. Dutch
4. Danish
5. Slovenian
6. Irish
7. Romanian
8. German
9. Bulgarian
10. Portuguese
11. Greek
12. Turkish
13. French
14. Spanish

Translations were cross-checked with additional native speakers for accuracy and to ensure the meaning of questions had not been significantly altered in the process.

2.4   Piloting

The survey underwent initial piloting and analysis in the UK to ensure clarity of questions, robustness of scales (this shows whether a series of similar questions can be summarised as a composite score) and to determine how long it took to complete. Pilot results confirmed that questions formed reliable scales and only minor edits were made. As part of the pilot, half the respondents received a survey titled "Perceptions about marine litter" and half received a survey titled "Working together to reduce marine litter". Those who completed the survey under the latter title were significantly more concerned about the problem of marine litter. This positive message of collective effort and co-responsibility reflects the MARLISCO logo very well and supports the overarching goals of the project. A conscious decision was made to use the neutral title "Perceptions about marine litter" rather than the more positive framing in the actual survey so as not to influence respondents; the goal was to assess individuals' baseline perceptions and attitudes about marine litter.

2.5   Recruitment of respondents

The survey set out to obtain 25 responses for each of the 9 stakeholder categories (with reasonably even spread across the more specific groups), as listed in Table 2.1, per country in order to gain a broad sample of the key sectors and countries.

The survey was promoted via a variety of methods by advertising and distributing the weblink to the survey (or word document):
- via e-mailing distribution lists and e-newsletters
- through contacts at local and national organisations
- via environmental, litter, or marine-related websites and forums
- via websites with specific stakeholder audience

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- via contact searches in the required sectors and promoting a "snowballing" method where individuals pass on the survey to their contacts, who are asked to do the same, and so on.

The survey was primarily available online via a web-link that took respondents to an initial page where they were asked to select the language they wished to complete the survey in (see Annex I). Respondents then proceeded to the survey (the full questionnaire is available from bonny.hartley@plymouth.ac.uk). The survey was also available in paper form when online participation was less feasible (e.g., for fishermen, visitors at a beach, people without internet access).

2.6   Additional guidance and documents

Guidance notes were produced to ensure consistency in implementation of the survey across Europe. In addition, a spreadsheet was available for MARLISCO partners to record stakeholder contacts, engagement and avoid duplication. Further, an online response tracking tool was developed to record the number of surveys completed online (broken down by country and stakeholder grouping).

2.7   Ethical procedures.

Ethical approval was obtained from Plymouth University's Faculty of Science and Technology Ethics Board. Consent and debrief forms were produced in line with Plymouth University ethical procedures for conducting surveys with human participants (see Annex II and Annex III). Specifically, respondents were informed that participation was voluntary, the survey was anonymous, and that their information was confidential.

3   RESULTS

This section presents the results of the baseline European survey of social perceptions. First, a breakdown of the sample is provided in Section 3.1, in terms of respondent country of residence (Table 3.1), stakeholder group (Table 3.2) and gender (Table 3.3). Section 3.2 presents overall results of the survey for respondents across Europe. Results from each question set are considered in turn to reveal respondents' perceptions about the scope, causes and consequences of marine litter, perceived risk and responsibility, and behavioural intentions to engage in solutions (results from all items are presented). Section 3.3 and Section 3.4 present a breakdown of results according to stakeholder group and country of residence, respectively. The latter two sections use composite scores so that each question set is averaged into a single index. Several additional analyses were conducted on the data but for the purpose of this report we present a selection of the key findings. Note that where we report differences, these are based on statistically significant results. Further analyses and a greater level of detail will be provided in the follow-up report in 2015.

3.1   Results: Summary of respondents

A total of 3876 respondents participated in the survey across Europe and across a range of stakeholder groups. A breakdown of the sample by country of residence, stakeholder group and gender is shown below. Respondents ranged in age from 9–89 years (*Mean age* = 38.42, *SD* = 13.11). Figures from the whole sample are presented here. However, as Table 3.1 shows, 128 respondents completed the survey from outside the MARLISCO consortium of participating countries. This included other European countries and the rest of the world. The survey was not actively promoted and implemented in these additional countries, but accessible online nonetheless. The number of respondents in any one of these additional countries was low, and these are excluded from the main results. All subsequent analyses are conducted on the main sample representing participating countries from the MARLISCO consortium (N=3748).

There was a good spread of responses across the 16 participating countries, although there were a limited number of respondents from Belgium, Bulgaria and Spain. This may partly be attributed to fewer resources or opportunity to promote the survey to all stakeholder groups within these countries. For example, the Belgium partners in the MARLISCO project represent plastics producers, recyclers, and converters. These partners were vital in implementing the survey within their sector across Europe, and focused less on wider implementation in Belgium or across other stakeholder groups. In addition, there was good spread of responses across the 9 stakeholder groups, and much higher response from educators and the general public. Further, slightly more female than male respondents participated in the survey. The number of respondents in each stakeholder group within each country is available in Annex IV for reference.

Table 3.1: Frequency of respondents by country of residence

Country of residence	N
Belgium	19
Bulgaria	22
Cyprus	162
Denmark	185
France	506
Germany	132
Greece	223
Ireland	200
Italy	240
Netherlands	257
Portugal	850
Romania	217
Slovenia	77
Spain	27
Turkey	264
UK	367
The rest of the word	128

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Other (including, Sweden, Norway, Switzerland, Estonia, Isle of Man, Poland, Czech Republic, Croatia, Brazil, Austria, USA, Canada, Venezuela, Australia, New Zealand, Israel, Ukraine, Oman, Georgia, Lebanon, Mexico, South Korea, South Africa, Cape Verde, Reunion, Euskal Herria Tanzania)		
TOTAL		3876

Table 3.2: Frequency of respondents by stakeholder group

Stakeholder group	N (all)	N (Europe)
Designers and manufacturers	262	257
Retailers	152	148
Commercial/industry users of coastal and marine waters	343	338
Waste management	193	188
Government/policy	439	427
Environmental NGOs	326	296
The media	136	133
Educators	900	866
General public/domestic users of coastal and marine waters	1126	1096

Table 3.3: Frequency of respondents by gender

Gender	N (all)	N (Europe)
MALE	1724	1670
FEMALE	2150	2076

3.2   Results: European survey responses

This section of the results presents the overall data from the sample of respondents across Europe. Results from each question set (see Section 2.2) are considered in turn to reveal respondents' experience of the coast, perceptions about the scope, causes and consequences of marine litter, perceived risk and responsibility, and behavioural intentions to engage in solutions (results from all items are presented).

3.2.1   Personal experience of the coast and marine litter

Two questions assessed the frequency of individuals' coastal visits and the frequency with which they observe litter on the coast. As Figure 3.1 shows, the majority of respondents reported that they visited the coast yearly, monthly or weekly, whilst many reported they visited daily. Therefore, the sample represents a good spread of infrequent and frequent visitors to the coast. Figure 3.2 shows that the majority of respondents reported that they noticed litter on most or on every visit to the coast, and many reported noticing litter on some visits. Very few reported rarely noticing marine litter, and fewer still reported never noticing it.

> **BOX 2 KEY RESULTS: How often do people witness marine litter?**
> The majority of respondents visit the coast yearly, monthly, or weekly, and notice litter on most or on every visit to the coast.

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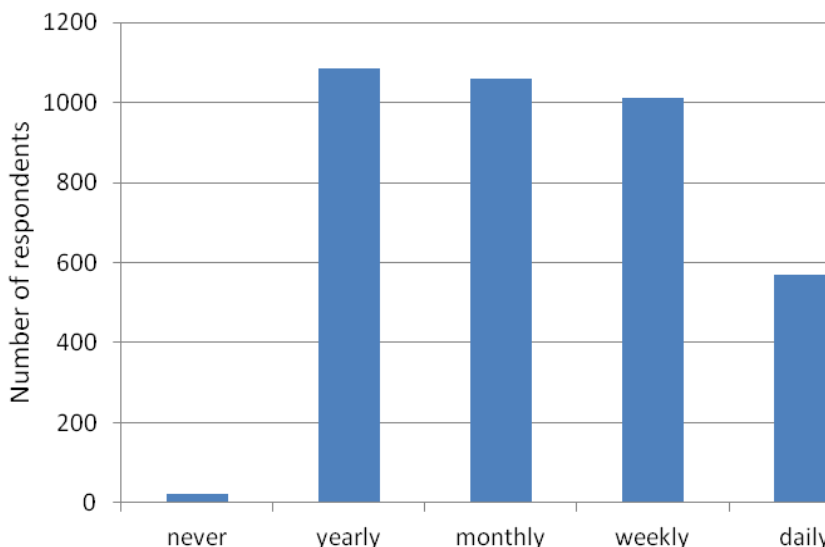
Figure 3.1. Reported frequency of visits to the coast (scale 1-5: never, yearly, monthly, weekly, daily)
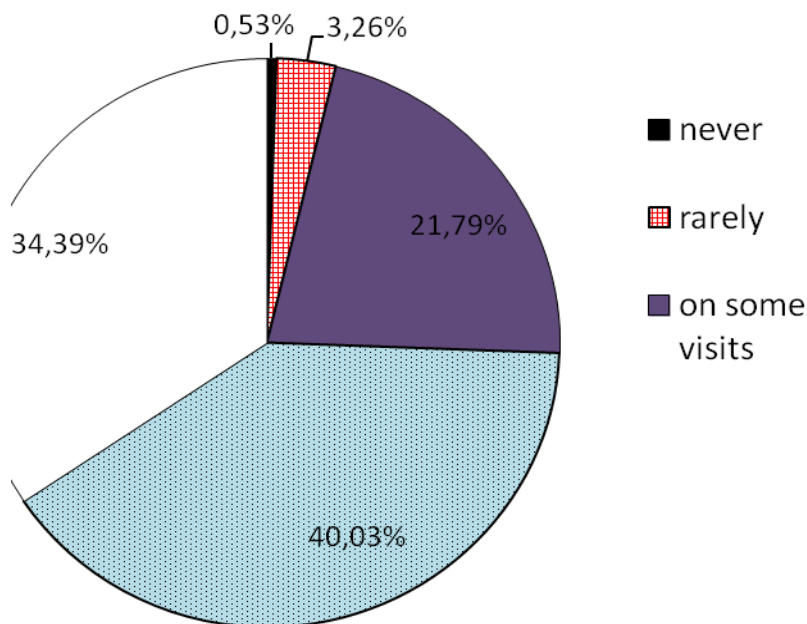
Figure 3.2. Frequency that respondents report witnessing marine litter

3.2.2   Awareness of the presence and extent of marine litter (quantities, location, and composition)

A number of questions assessed respondents' knowledge about marine litter and the scale of the problem. This included perceptions about the quantity and distribution of marine litter, and material composition.

As Figure 3.3 indicates, respondents believed the majority of marine litter to be present near urban areas and on beaches. This may be associated with perceptions about the causes and sources of marine litter, as for

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example, respondents may perceive more frequent human activity in these locations. As might be expected, respondents perceived the least quantity of litter to be present in polar seas. Interestingly, despite less visibility of litter below the water's surface, respondents perceived there to be more litter here than on the surface of coastal waters or open oceans. Long-term, wide-scale surveys of marine litter in surface water, seabed and circulating in the water column are rare, as for practical reasons, it is more difficult to monitor the accumulation of debris on the seabed and water column than on beaches. However, data from the Ocean Conservancy's (2004) International Coastal Clean suggest that approximately 70% of marine litter sinks to the seabed and 15% floats.
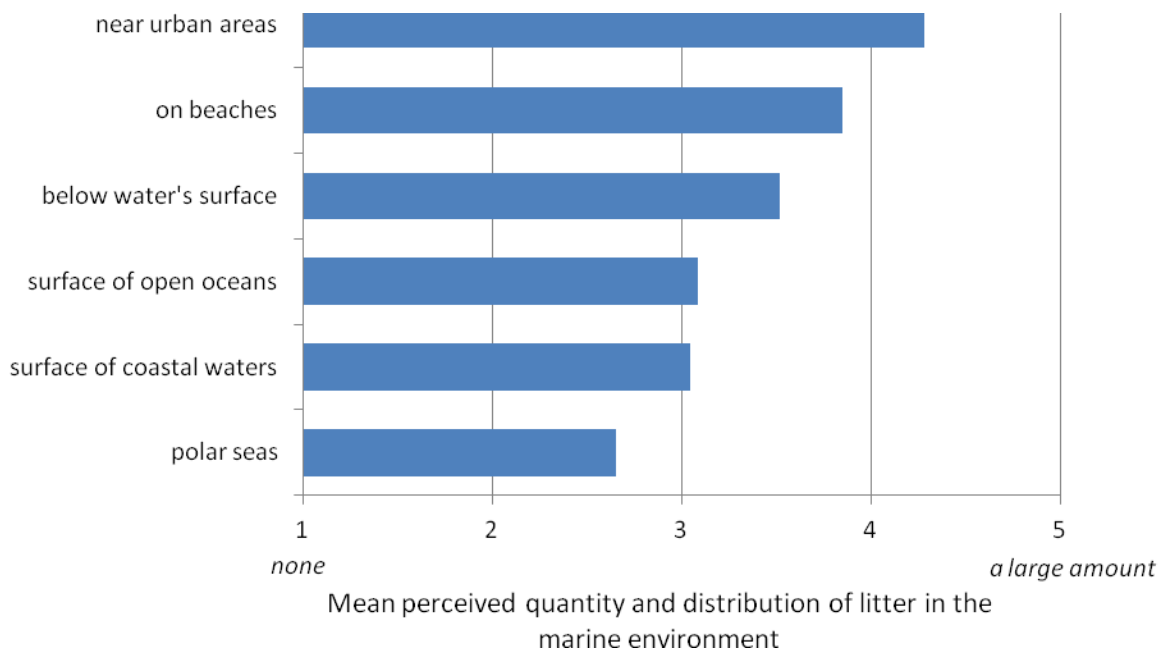
Figure 3.3. Perceptions about the quantity, location and distribution of marine litter on beaches and at sea (1-5 scale: none - a large amount)

Table 3.4: Perceptions about the percentage material composition of marine litter compared to actual composition

Material	Actual % composition	Perceived % composition	Difference (degree of misperception)
Plastic	75.01	45.50	-29.51 (underestimate)
Metal	2.89	12.83	9.94 (overestimate)
Glass	2.07	11.20	9.13 (overestimate)
Paper/cardboard	4.37	9.77	5.40 (overestimate)
Processed wood	2.87	8.35	5.48 (overestimate)
Cloth	2.96	5.34	2.38 (overestimate)
Miscellaneous	9.80	7.01	-2.79 (underestimate)

Note: 'Actual' composition figures represent data from 609 surveys made in eight countries between 2001 and 2006 – Belgium, Denmark, Germany, The Netherlands, Portugal, Spain, Sweden and the United Kingdom (51 regular reference beaches altogether). These trends are broadly consistent across regions and at a global scale. (OSPAR 2007).

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BOX 3 KEY RESULTS: What is marine litter composed of?
On average, respondents believed that plastic represents 45.5% of marine litter. Respondents correctly perceive the majority of marine litter is plastic, but underestimate the proportion.

Literature across international reports (e.g. UNEP regional Seas, OSPAR), scientific papers, and government reports, consistently shows that plastic items represent the most abundant type of marine litter globally and within Europe, typically constituting around

3.2.3   Perceptions about the sources of marine litter

Two sets of questions assessed the pathways by which litter is perceived to reach the sea, and the contributing factors involved. A variety of land- and sea-based activities can result in litter entering the marine environment; it can enter the coastal and marine environment directly, or be brought indirectly to the sea by rivers, sewage outlets, storm water outflows, currents, winds or eve tides. It can result from point or diffuse sources (Figure 3.4). The Ocean Conservancy's annual International Coastal Clean-up (ICC) 10 programme provides global figures for the period 1989 – 2007 which highlight the predominance of land-based sources, which account for around 90% of marine litter.
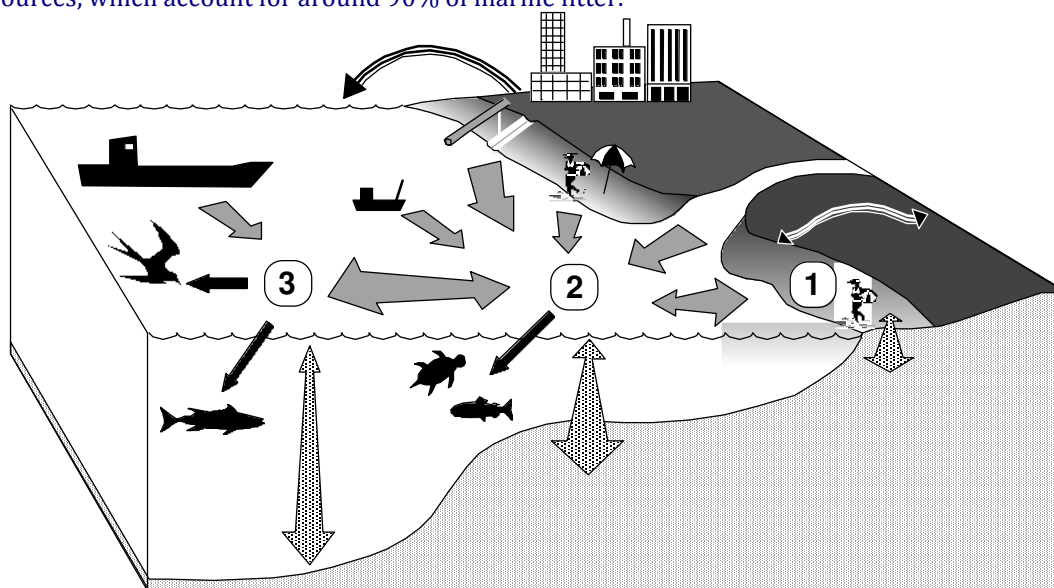
Figure 3.4. Schematic diagram showing the main sources and movement pathways for plastics in the marine environment, with sinks occurring (1) on beaches, (2) in coastal waters and their sediments and (3) in the open ocean. Curved arrows depict wind-blown litter, grey arrows water-borne litter, stippled arrows vertical movement through the water column (including burial in sediments) and black arrows ingestion by marine organisms. (Source Ryan et al. 2009)

As Figure 3.5 shows, survey respondents perceived 'direct release in the sea' as contributing the most to how litter ends up on the coast and in the sea. It is clear that respondents also understood that land-based sources contribute to litter entering the marine environment. However, landfill and sewage pathways were considered as contributing the least.

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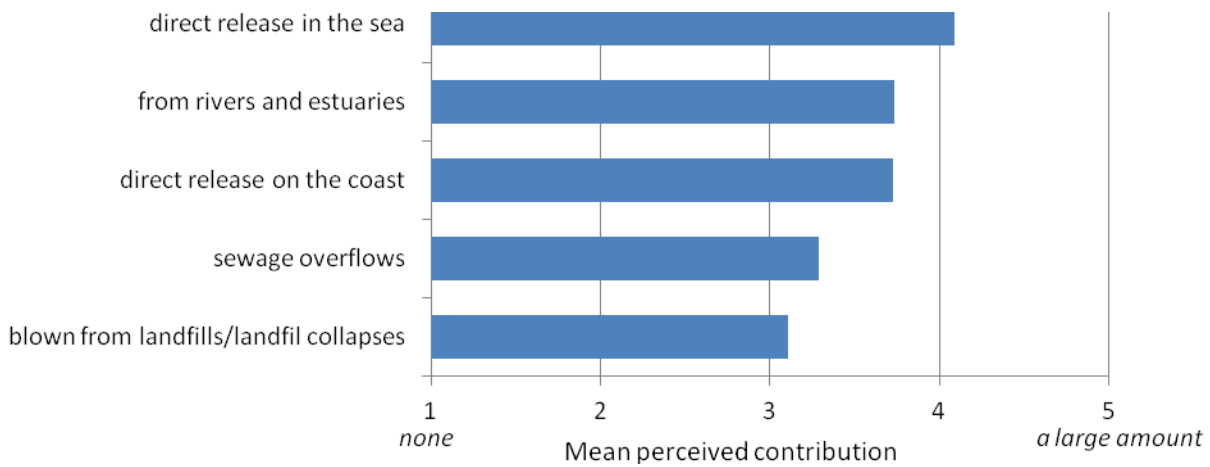
Figure 3.5. Perceptions about the different pathways that contribute to marine litter reaching the coast and sea (1-5 scale: none - a large amount)

Figure 3.6 shows that many factors were seen as playing an important role in adding to marine litter. However, 'a lack of bins in public areas' and 'losses during transportation of products or waste' were perceived as less important. It is possible that for example, respondents may not believe there is a lack of bins, or that more bins would be a solution.
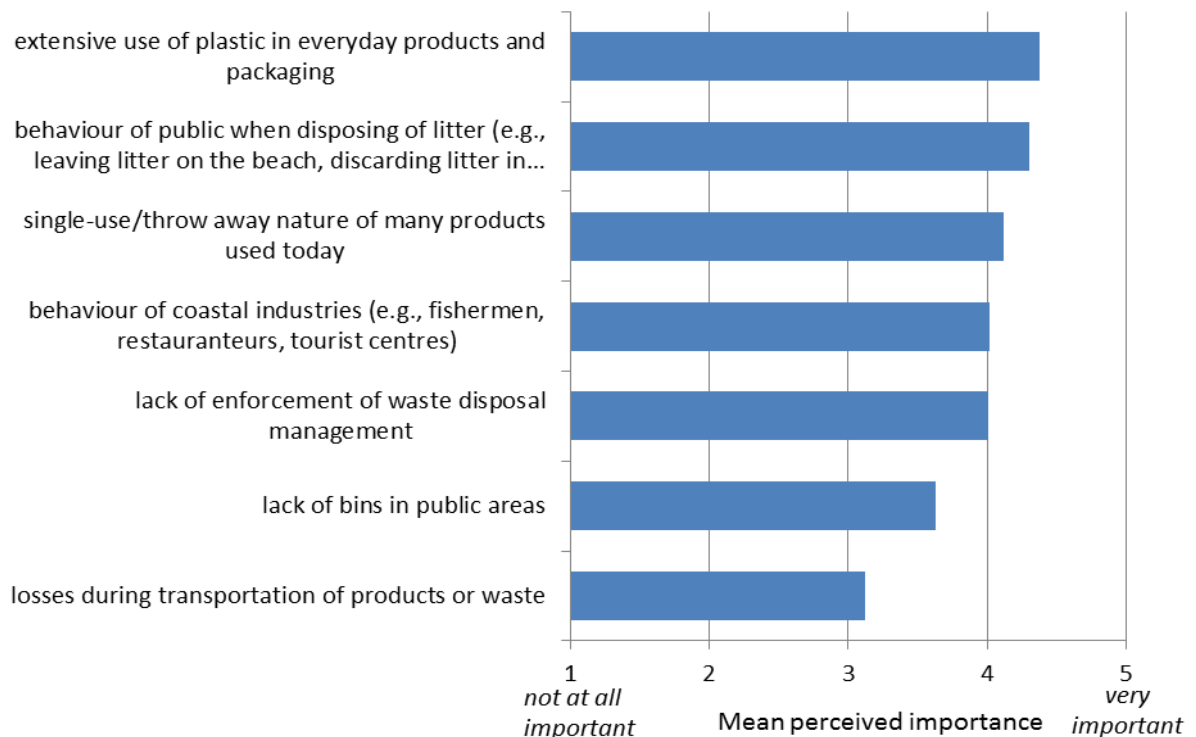
Figure 3.6. Perceptions about the importance of different factors in contributing to marine litter (1-5 scale: not at all important – very important)

3.2.4   Perceptions about the negative impacts of marine litter

Impacts of marine debris have recently been reviewed and encounters between marine debris and organisms are reported for 663 species (Secretariat of the Convention on Biological Diversity and Scientific

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and Technical Advisory Panel GEF 2012). As Figure 3.7 indicates, respondents believed that marine litter posed several negative impacts. Of these impacts, respondents perceived that the marine environment was subject to the greatest level of threat, and tourism and fishing and shipping industries the least.
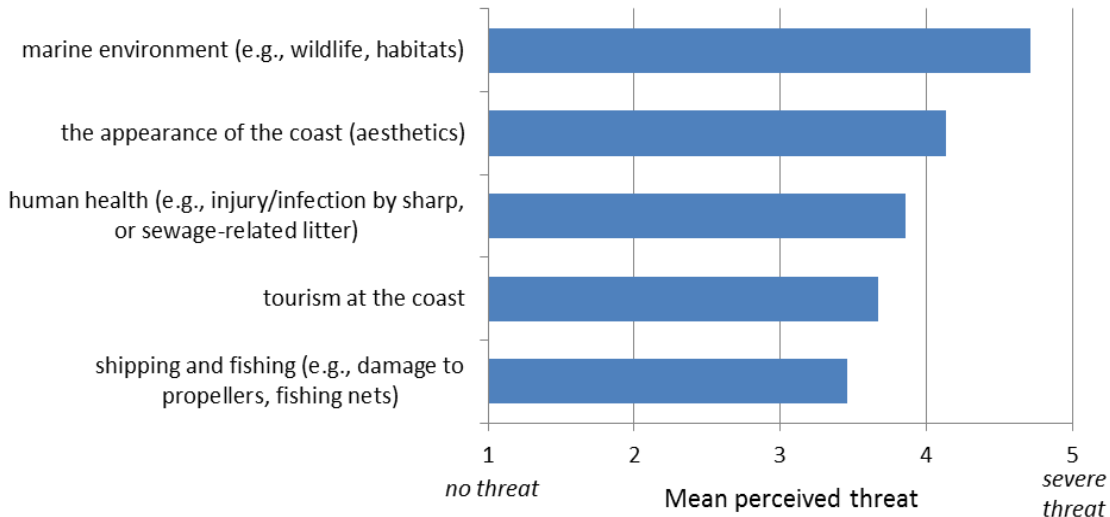
Figure 3.7. Perceptions about the impact (threat) of marine litter (1-5 scale: no threat – severe threat)

3.2.5   Risk perception – concern and acceptance of the problem of marine litter

Nine items assessed the extent to which respondents agreed that marine litter was a problem and were concerned about it. As Figure 3.8 shows, respondents believed that marine litter was an important problem and were concerned about it. More specifically, respondents believed that the quantity of marine litter is increasing, and that it represents a present threat, will cause lasting damage, and is a problem for all (not just coastal communities or other countries).
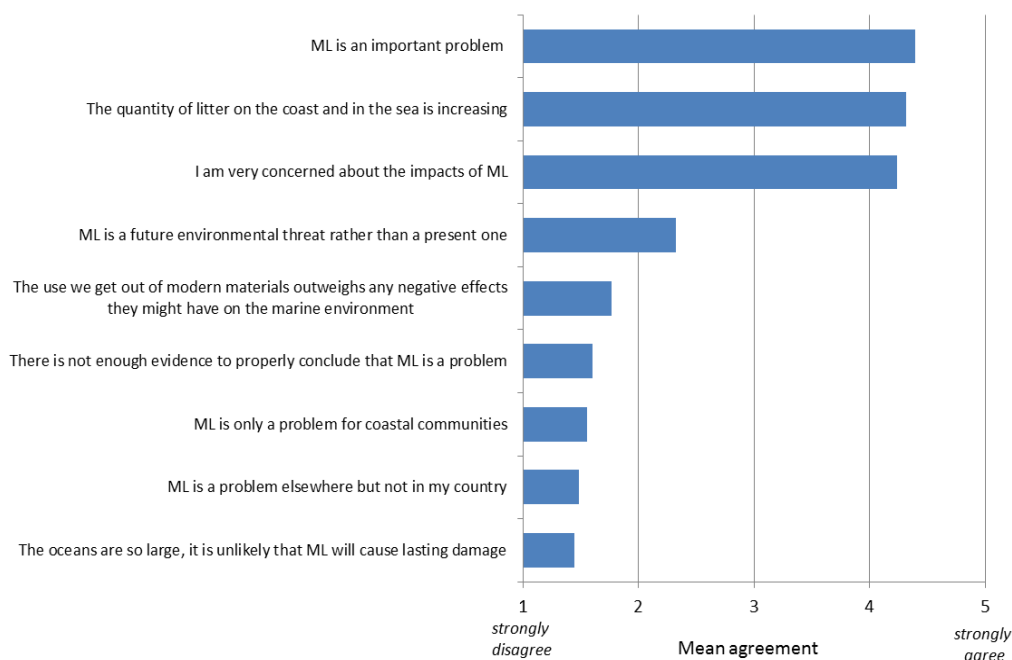
Figure 3.8. Risk perceptions and concern about the problem of marine litter (1-5 scale: strongly disagree – strongly agree)

BOX 4 KEY RESULTS: Are Europeans concerned?
Respondents were concerned about marine litter and believe it is a problem for all, not just coastal communities or other countries.

3.2.6   Social norms about marine litter

Three items assessed respondents' perceptions about what other people think and how others behave regarding marine litter (what are appropriate or standard beliefs and behaviours among the group). As Figure 3.9 shows, respondents believed that most of their family or friends think it is important to reduce marine litter and will support them in doing so. This would suggest there is a norm among close others to see marine litter as important and to act. However, respondents were undecided whether most people in their community cared about marine litter. A possible explanation for this may simply be that respondents do not know their community well enough to answer this question.
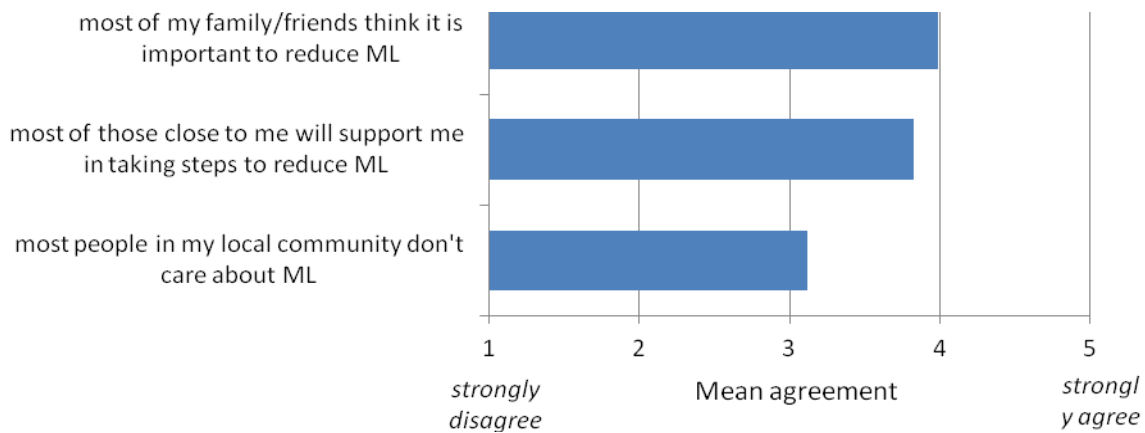
Figure 3.9. Social norms about marine litter (1-5 scale: strongly disagree – strongly agree)

3.2.7   Perceived responsibility, competence and motivation of groups and organisations

A number of questions assessed respondents' perceptions about who is responsible, competent and motivated in taking action to reduce marine litter. Results indicate that all groups are seen as somewhat responsible and competent to reduce marine litter. There was greater variation in the extent to which the different stakeholders were perceived to be motivated to reduce marine litter. As can be seen in Figure 3.10, responsibility, competence and motivation do not necessarily go hand in hand. For example, although respondents believed government, industry, commercial users and general public are highly responsible, they believed that they are less competent and even less motivated. This is in comparison to independent scientists and environmental groups who were perceived as least responsible, yet most competent and motivated. Educators are the only group who were perceived to be equally responsible, competent and motivated.

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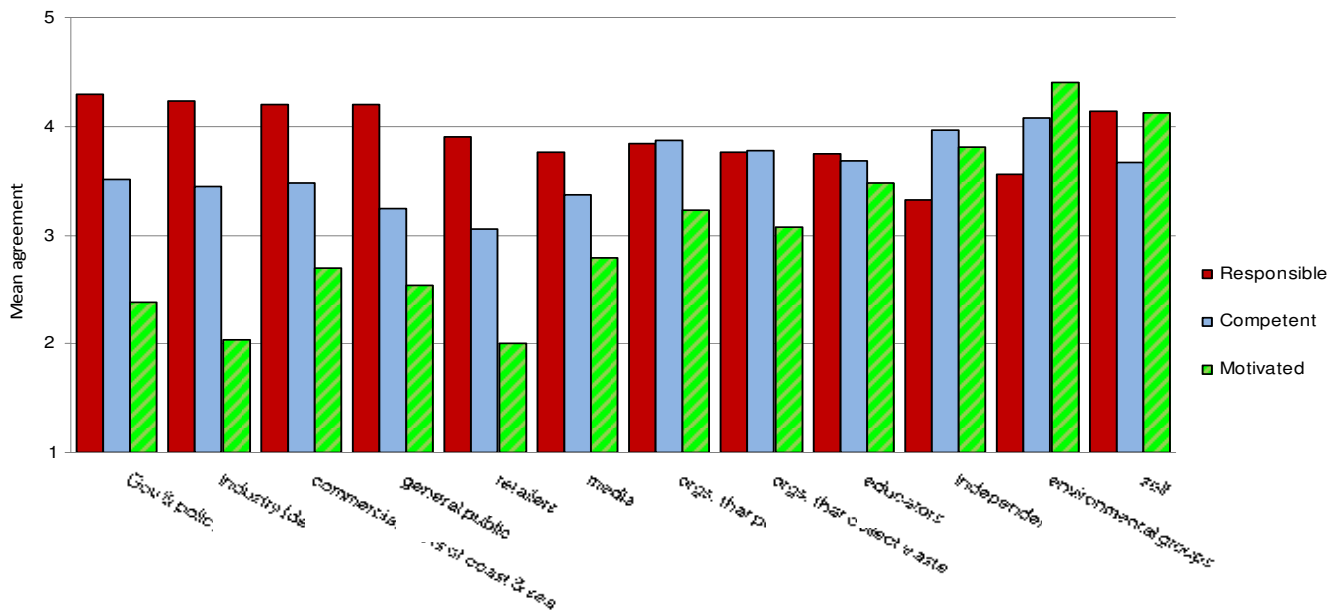
Figure 3.10. Perceptions regarding who is responsible, competent, and motivated (1-5 scale: strongly disagree – strongly agree)

BOX 5 KEY RESULTS: Who is perceived as responsible, competent and motivated?
Respondents believed government, industry, commercial users and general public are highly responsible, but less competent and even less motivated to reduce marine litter.

Independent scientists and environmental groups were perceived as least responsible, yet most competent and motivated.

Four questions assessed how likely individuals would be to take key actions to reduce marine litter, and how easy these would be for them to do. Respondents reported being likely to take all actions, but had least intention to ask people to pick up litter if they saw them littering (Figure 3.11). Respondents also perceived that it would be quite easy to take these actions, but believed asking people to pick up litter would be less easy.

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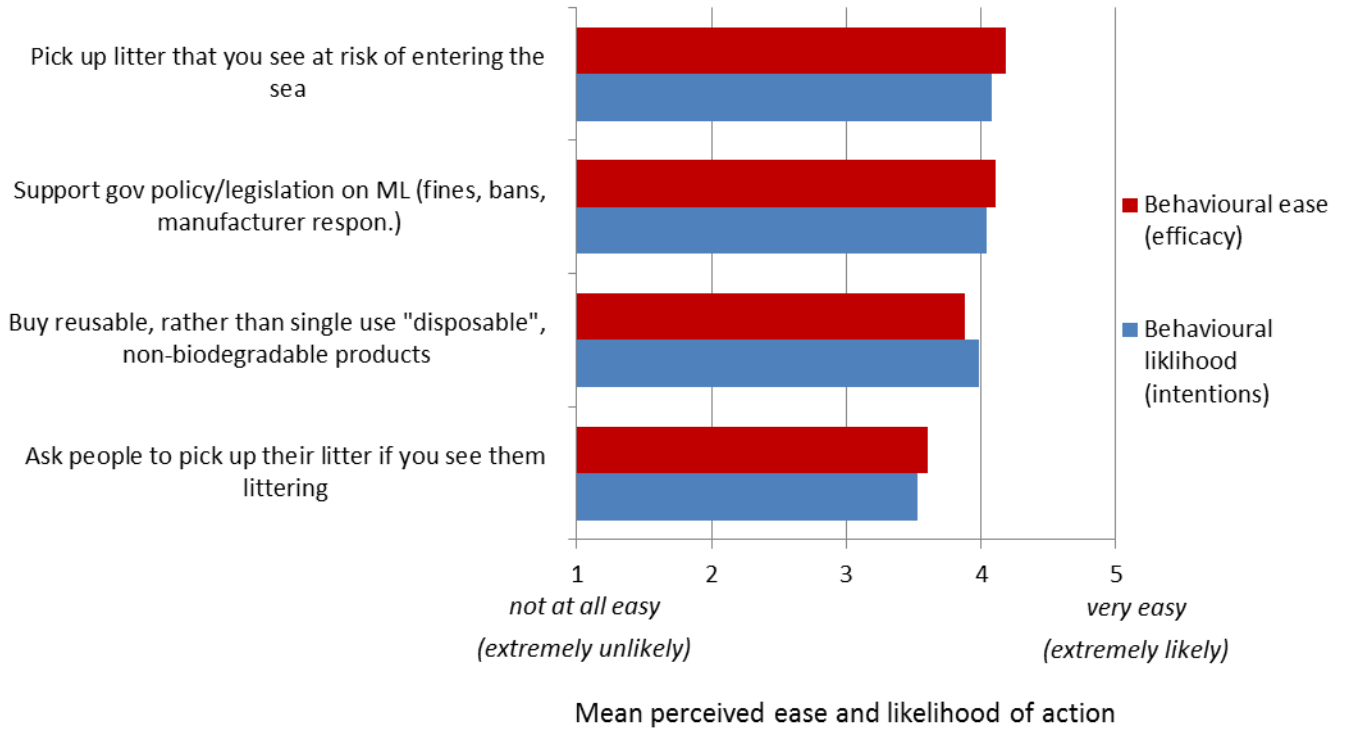
Figure 3.11. Behavioural intentions regarding how likely (1 extremely unlikely – 5 extremely likely) individuals are to take key actions to reduce marine litter, and how easy it would be (1 not at all easy – 5 very easy).

3.2.9   Perceived value of the coast and sea

These questions assessed the value and importance respondents place on the coasts and seas, which reflects the services that the ocean provides. As Figure 3.12 indicates, respondents rated the coasts and seas as highly valuable across all items.

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As a legacy to preserve for future generations

For its role in supporting biodiversity in plants & animals

For recreation & tourism

As a source of food

For its scenery, aesthetics

For trade & shipping

As part of your culture & identity

For education & science

For employment

As a source of energy

1   2   3   4   5

not at all valuable   Mean perceived value   *extremely valuable*
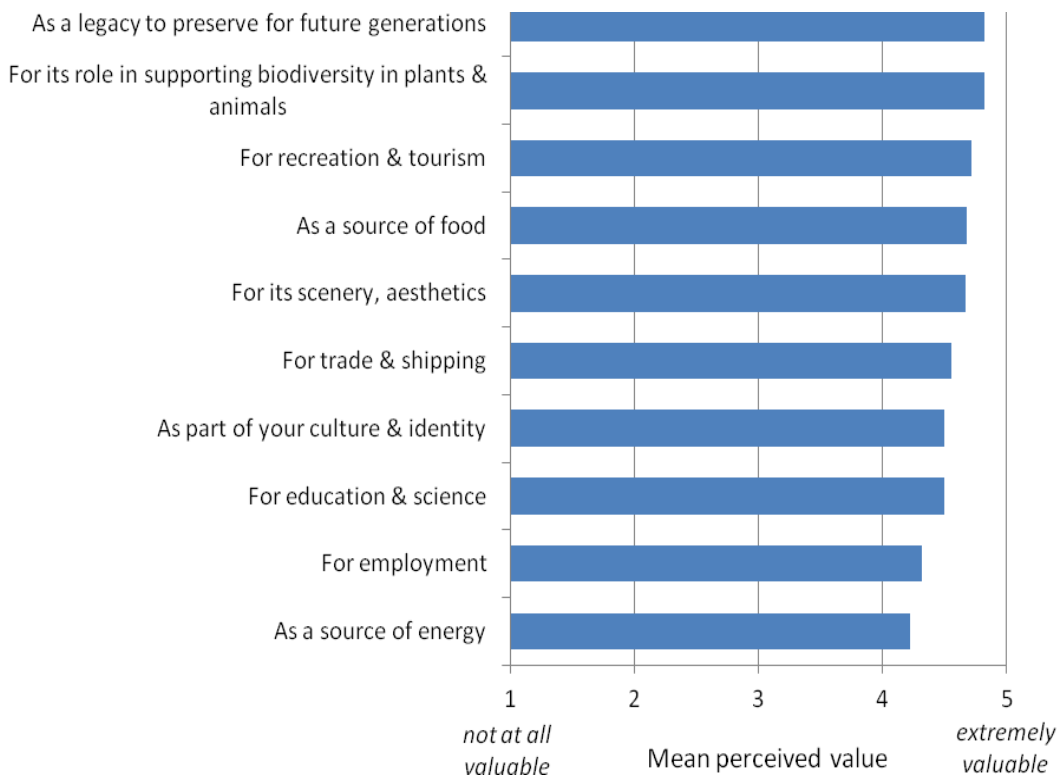
Figure 3.12. Perceived value of the coats and sea (1-5 scale: not at all valuable – extremely valuable)

3.3   Results: Comparing European perceptions about marine litter by stakeholder group

This section presents a breakdown of results according to stakeholder group, and where possible highlighting key trends. It documents where respondents from the nine stakeholder groups show similar or distinct perceptions about the scope, causes and consequences of marine litter, perceived risk and responsibility, and behavioural intentions to engage in solutions. A series of graphs highlight similarities and differences in stakeholder responses for each set of questions. The overall mean (all stakeholders combined, indicated by a dashed line) can also be used as a reference point.

3.3.1   Personal experience of the coast and marine litter

As might be expected, those working for coastal and marine industry and environmental organisations reported visiting the coast and noticing litter more often than other stakeholder groups (Figure 3.13, 3.14). The general public and respondents working in the education sector reported visiting the coast least often (just more than monthly). In general, irrelevant of stakeholder group, respondents report noticing litter on most visits to the coast.

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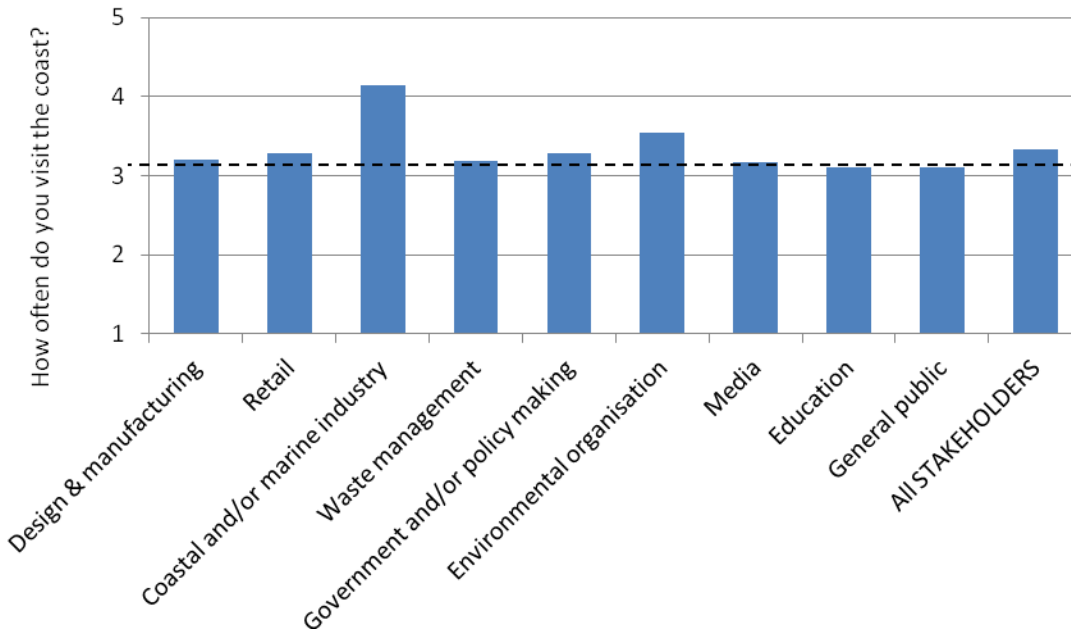
Figure 3.13. Reported frequency of visits to the coast by stakeholder group (scale 1-5: never, yearly, monthly, weekly, daily). A dashed reference line indicates the overall mean (as shown in the 'All Stakeholders' category).
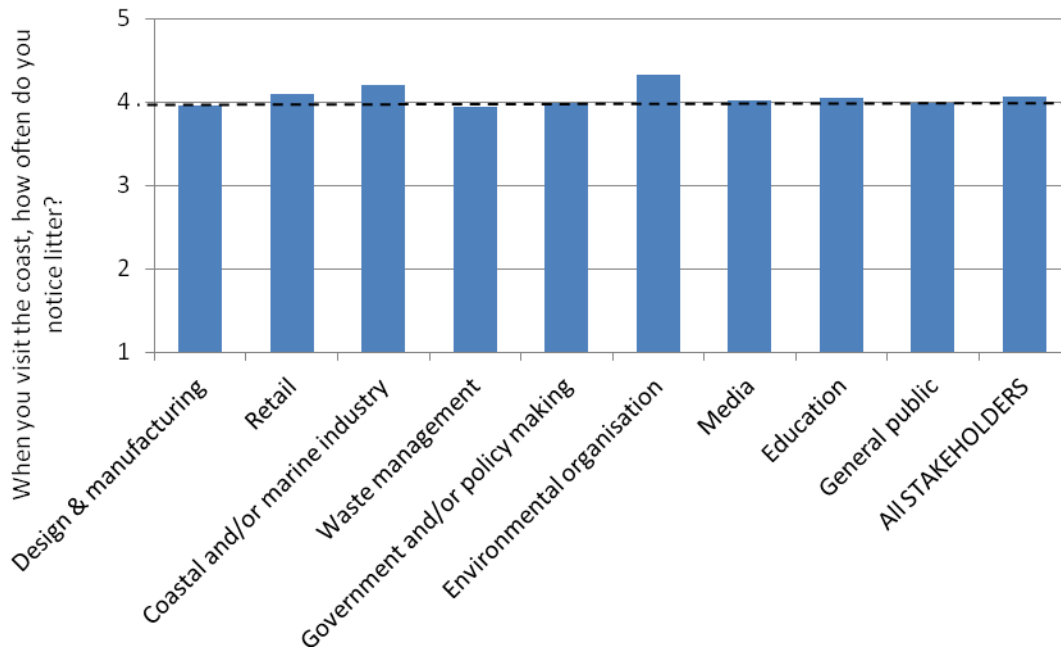
Figure 3.14. Frequency that respondents report witnessing marine litter by stakeholder group (scale 1-5: never, rarely, on some visits, on most visits, on every visit). A dashed reference line indicates the overall mean (as shown in the 'All Stakeholders' category).

3.3.2 Awareness of the presence and extent of marine litter (quantities, location, and material composition)

Respondents from all stakeholder groups showed a similar pattern of results when considering the relative quantity of litter across the different marine environments (Figure 3.15). Indeed, all stakeholders perceived the greatest quantity of marine litter near urban areas and on beaches and the least in polar seas. Respondents working for environmental organisations perceived a slightly higher quantity of litter in the

marine environment, but overall, stakeholders held similar perceptions about the quantity and location of marine litter. As shown in Figure 3.16, respondents from all stakeholder groups somewhat underestimated the proportion of marine litter that consists of plastic. Plastic items represent the most abundant type of marine litter globally and within Europe, typically constituting around 75% of all items found (UNEP, 2005). Whilst environmental organisations and coastal and marine industry reported the highest percentage of plastic compared to other stakeholders, this still represents an underestimate according to the literature. Respondents from retail and design and manufacturing sectors reported the lowest percentage composition of plastic. All other stakeholder groups seem reasonably balanced in their estimate that plastic represents approximately 45% of marine litter.
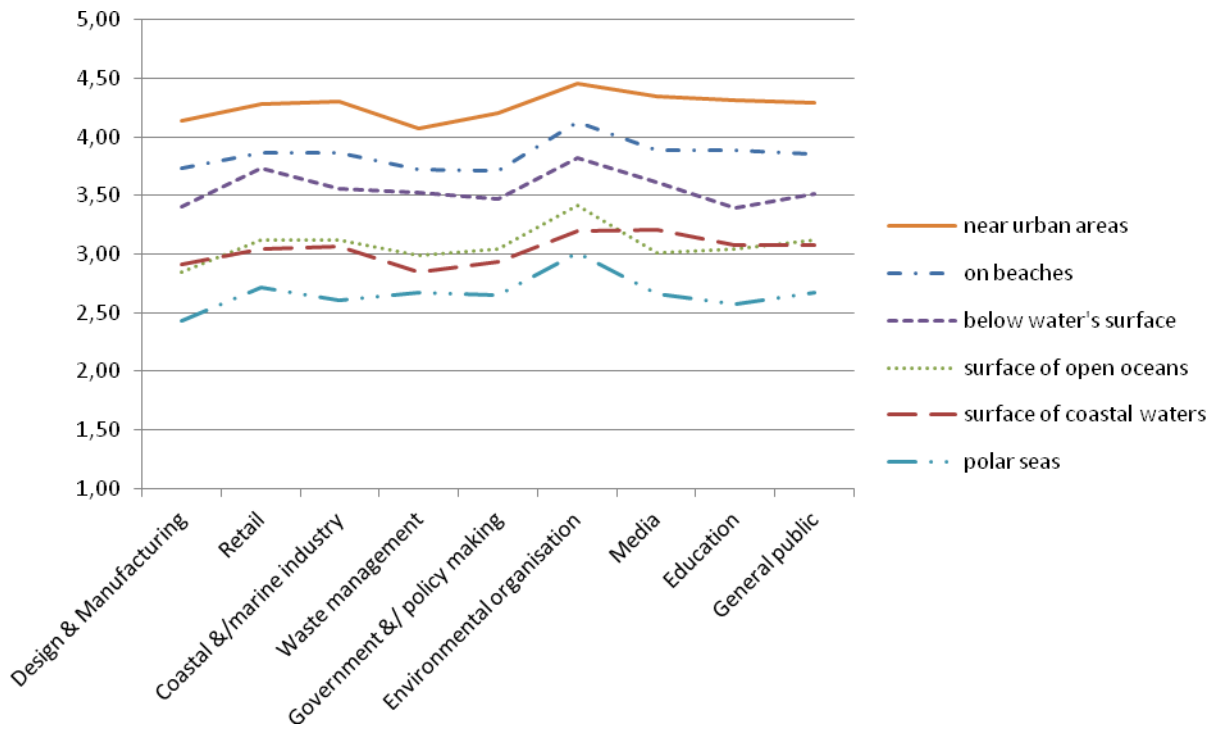
Figure 3.15. Perceptions about the quantity of litter in the marine environment by stakeholder group (1-5 scale: none - a large amount)
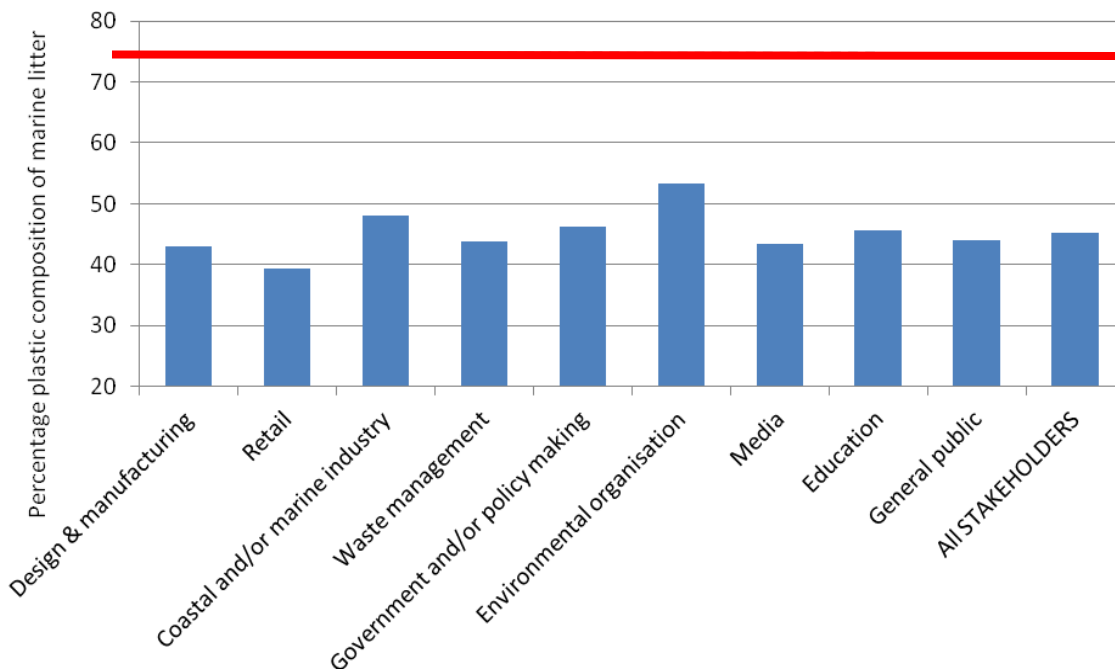
Figure 3.16. Perceptions about the percentage of marine litter that is composed of plastic by stakeholder group. The reference line at 75% here indicates the 'actual' proportion of plastic that is commonly reported in the literature.

3.3.3   Perceptions about the sources of marine litter

Stakeholders held broadly similar perceptions about the contribution of the different pathways by which litter can enter the marine environment (Figure 3.17). Indeed, respondents from all stakeholder groups perceived direct release of litter in the sea to contribute the most to marine litter, and litter blown from landfill or landfill collapses to contribute the least. In addition, stakeholders held similar perceptions about the importance of particular factors in contributing to marine litter (Figure 3.18).

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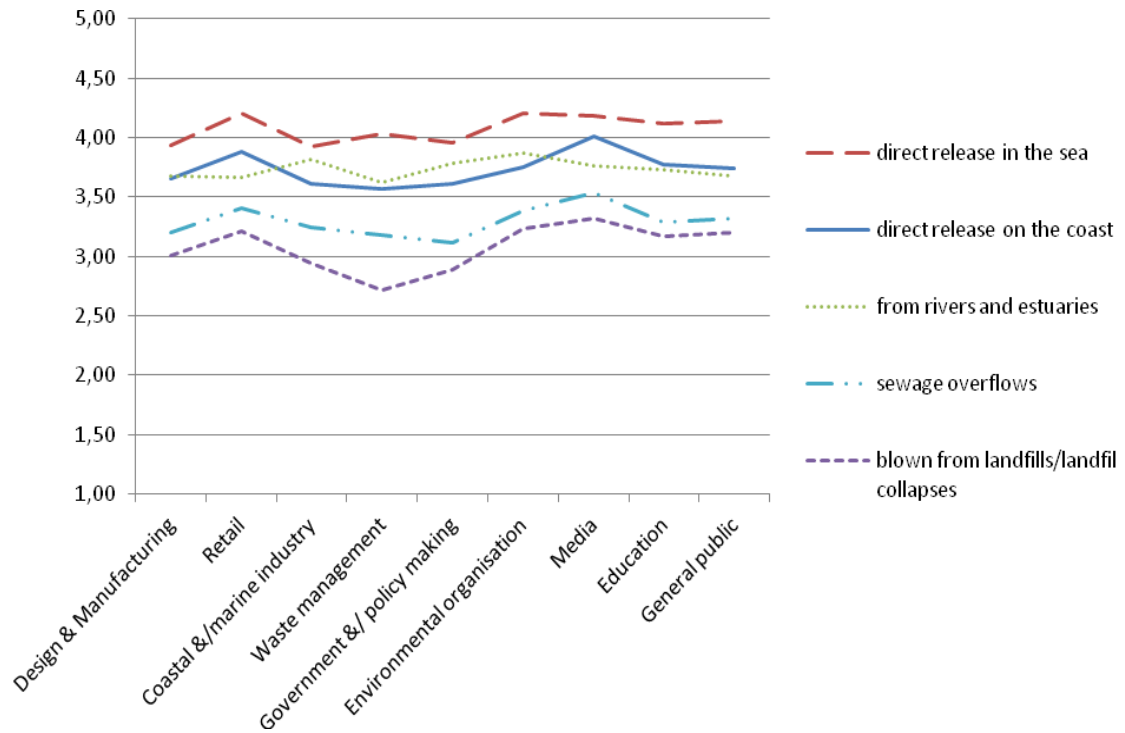
Figure 3.17. Perceptions about the different pathways that contribute to marine litter, by stakeholder group (1-5 scale: none - a large amount)
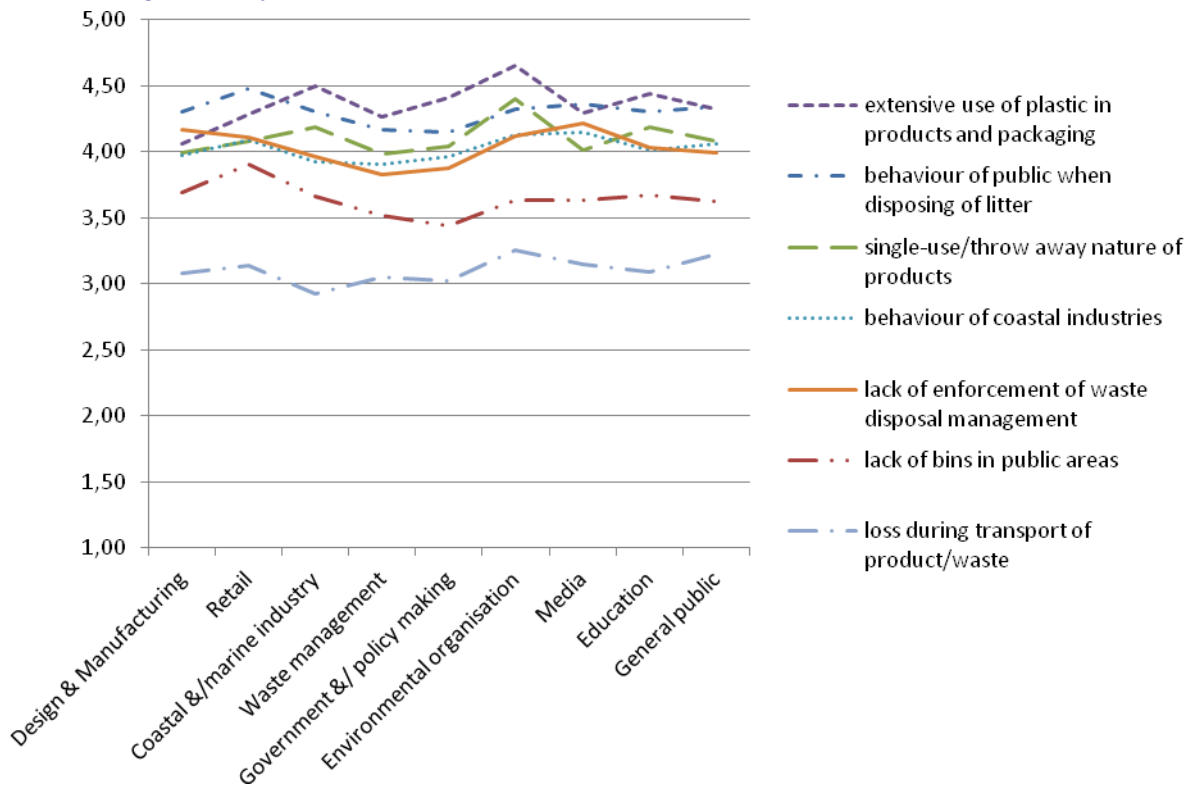
Figure 3.18. Perceptions about the importance of different factors in contributing to marine litter, by stakeholder group (1-5 scale: not at all important – very important)

3.3.4 Perceptions about the negative impacts of marine litter

There were not large differences between stakeholders' perceptions about the severity of impact; all stakeholder groups perceived marine litter to present a threat (Figure 3.19). Stakeholders also held similar perceptions about the *relative* severity of the different impacts, rating threats to the marine environment as most severe, and threats to the fishing and shipping industry as least severe.
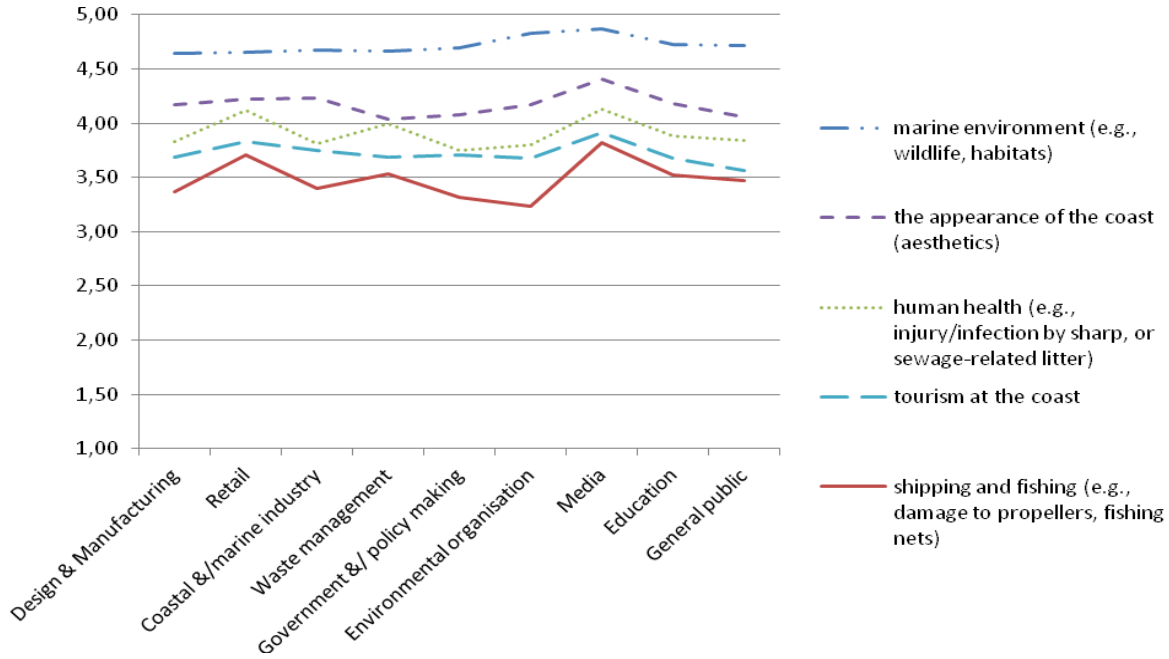
Figure 3.19. Perception about the impact (threat) of marine litter by stakeholder group (1-5 scale: no threat – severe threat)

3.3.5 Risk perception – concern and acceptance of the problem of marine litter

To simplify the presentation of results for this set of questions, individual items assessing level of concern have been combined into one score. As Figure 3.20 shows, respondents from all stakeholder groups were concerned and agreed that marine litter is an important problem. Environmental groups were slightly more concerned and perceived marine litter as slightly more important than other stakeholder groups. Respondents working in design and manufacturing and retail were slightly less concerned about the problem.
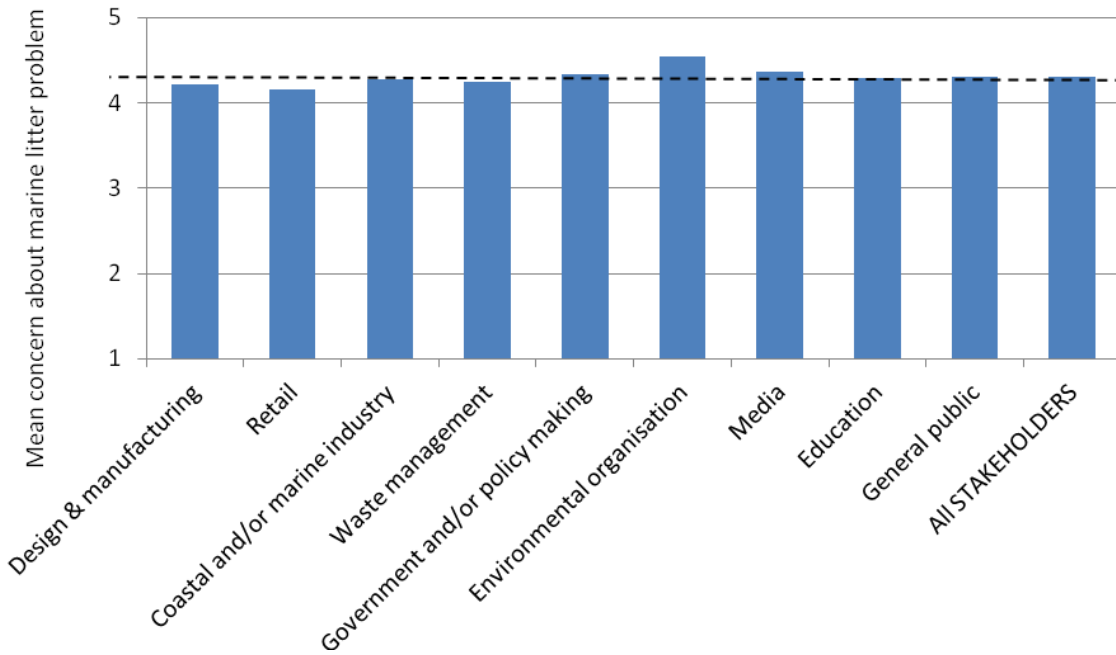
Figure 3.20. Overall concern about the problem of marine litter by stakeholder group (1-5 scale: strongly disagree – strongly agree). A dashed reference line indicates the overall mean (as shown in the 'All Stakeholders' category).

3.3.6 Social norms about marine litter

Respondents from all stakeholder groups were reasonably undecided as to whether people in their community cared about marine litter (Figure 3.21). Coastal and/or marine industry agreed to a small extent that people in their local community do not care about marine litter.
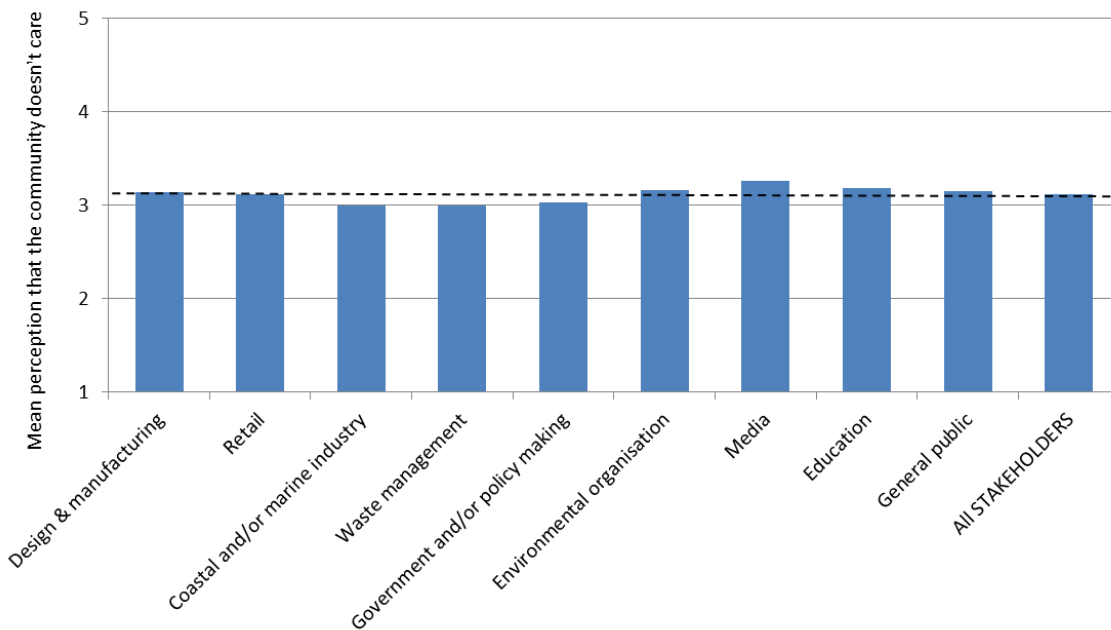
Figure 3.21. Mean perceived community norm 'most people in my local community don't care about marine litter' by stakeholder group (1-5 scale: strongly disagree – strongly agree). A dashed reference line indicates the overall mean (as shown in the 'All Stakeholders' category).

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3.3.7   Perceived responsibility, competence and motivation of groups and organisations

This question was too complex to breakdown by stakeholder group and present in graphical format at this level of detail here. A table of means is presented in Annex V for reference.

3.3.8   Behavioural intentions and self-efficacy (perceived control) in taking action to reduce marine litter

To simplify the presentation of results for this set of questions, individual items assessing behavioural intentions and efficacy have been combined into one score. All stakeholder groups reported being likely to take action to reduce marine litter and perceived these actions to be quite easy (Figure 3.22). Environmental organisations reported being the most, and general public the least, likely and able to take action.
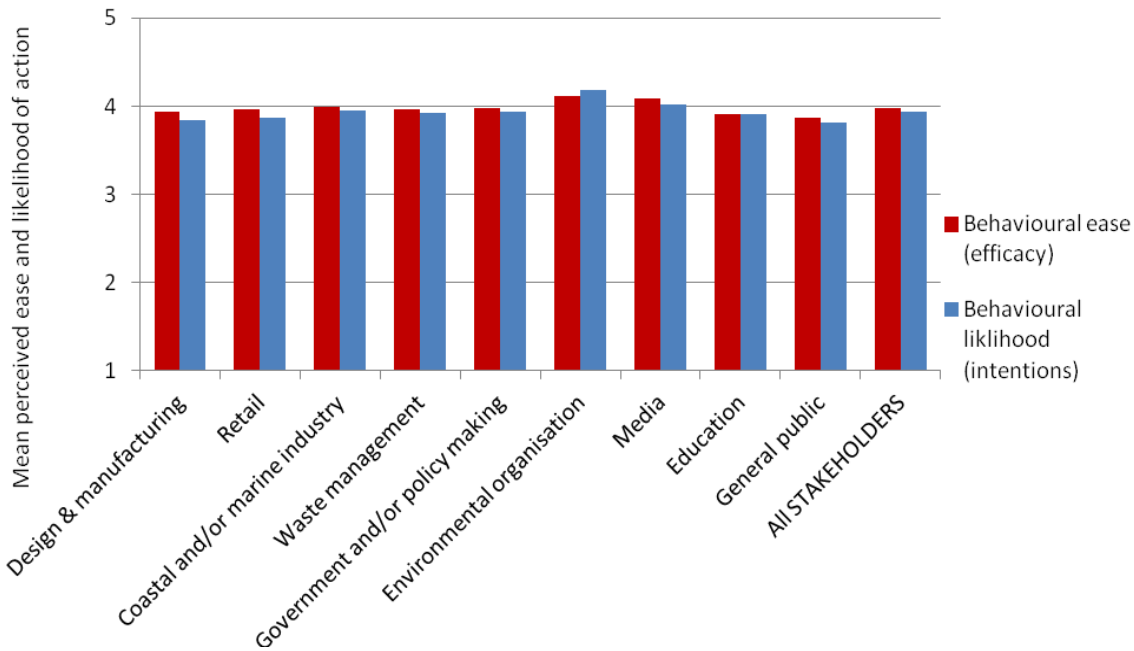
Figure 3.22. Behavioural intentions regarding how likely (1 extremely unlikely – 5 extremely likely) individuals are to take action to reduce marine litter, and how easy it would be (1 not at all easy – 5 very easy) by stakeholder group.

3.3.9   Perceived value of the coast and sea

As Figure 3.23 shows, all stakeholder groups perceived the coast and sea as highly valuable to society, and there were not large differences between stakeholder groups.

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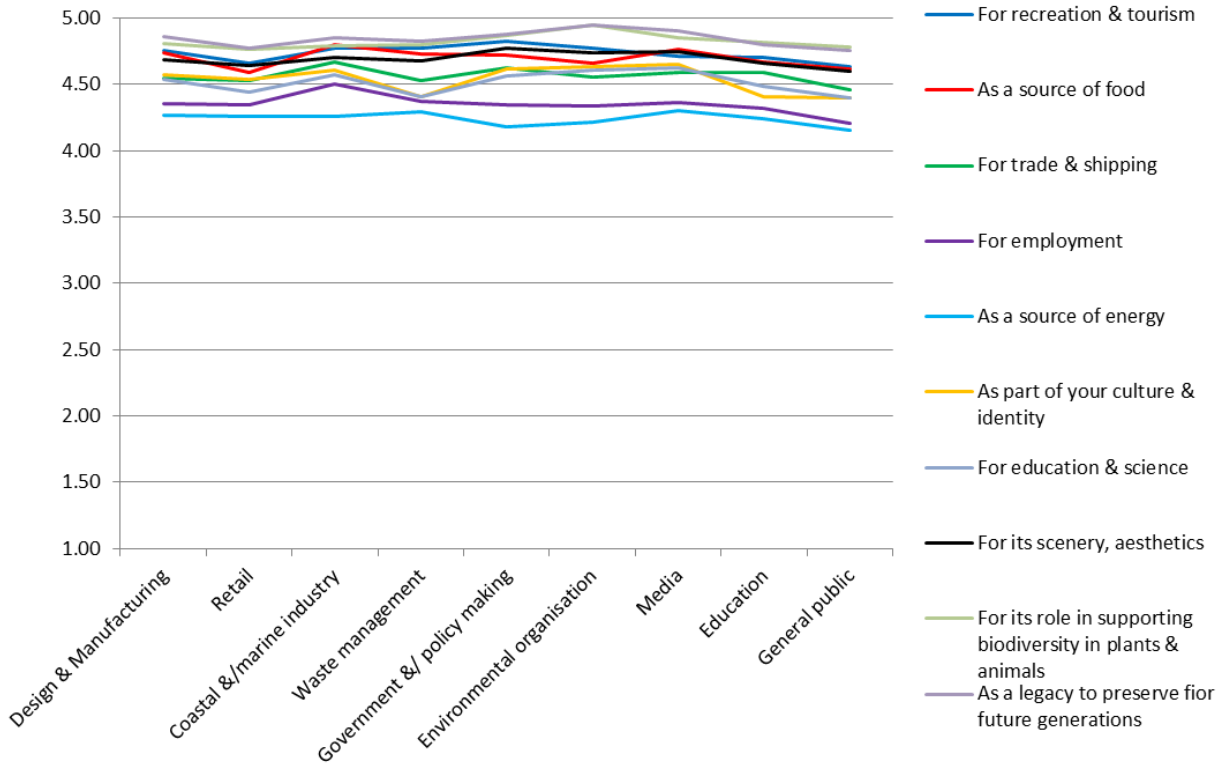
Figure 3.23. Perceived value of the coasts and sea by stakeholder group (1-5 scale: not at all valuable – extremely valuable)

3.4 Comparing European perceptions about marine litter by country of residence

This section presents a breakdown of results according to country of residence, and where possible highlighting key trends. It documents where respondents from the 16 participating countries show similar or distinct perceptions about the scope, causes and consequences of marine litter, perceived risk and responsibility, and behavioural intentions to engage in solutions. A series of graphs highlight similarities and differences in country responses for each set of questions. The overall mean (all countries combined, indicated by a dashed line) can also be used as a reference point where possible. Please note that countries which had very low sample size are shown by grey bars as these are insufficient for reliable comparison.

3.4.1 Personal experience of the coast and marine litter

Respondents from Ireland, Portugal, Turkey and the UK reported visiting the coast most often and those from France, Germany, the Netherlands and Romania reported visiting the coast least often (Figure 3.24). Respondents from the majority of participating countries reported noticing litter on most visits to the coast, with Romania and Turkey noticing litter the most frequently and Cyprus, Ireland and Portugal noticing litter the least frequently (Figure 3.25).
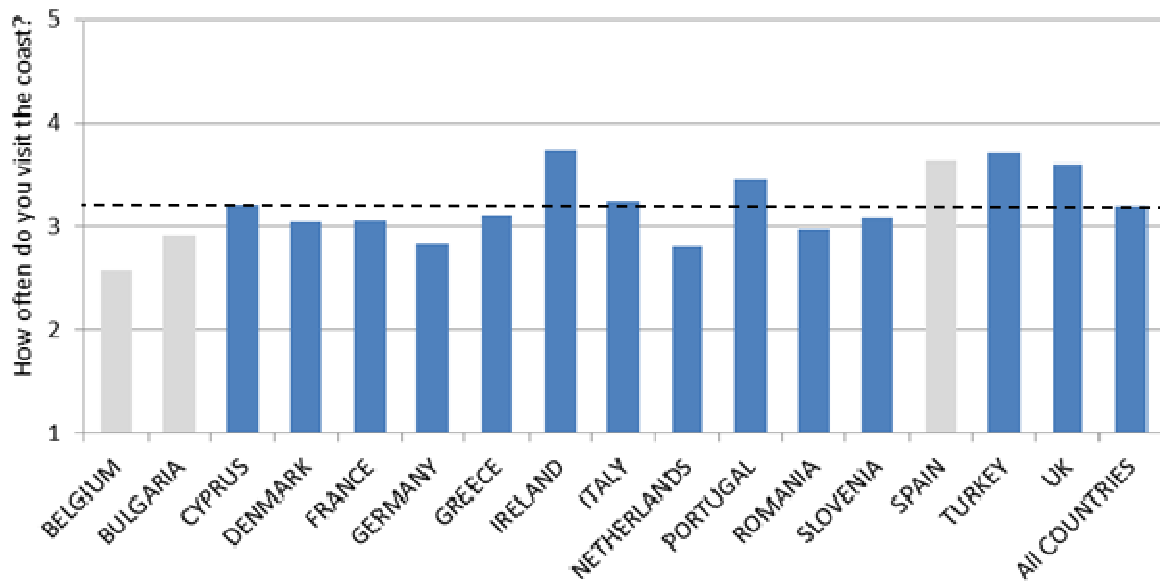
Figure 3.24. Reported frequency of visits to the coast by country of residence (scale 1-5: never, yearly, monthly, weekly, daily). A dashed reference line indicates the overall mean (as shown in the 'All Countries' category). Grey bars represent countries with very low response rate, insufficient for reliable comparison.

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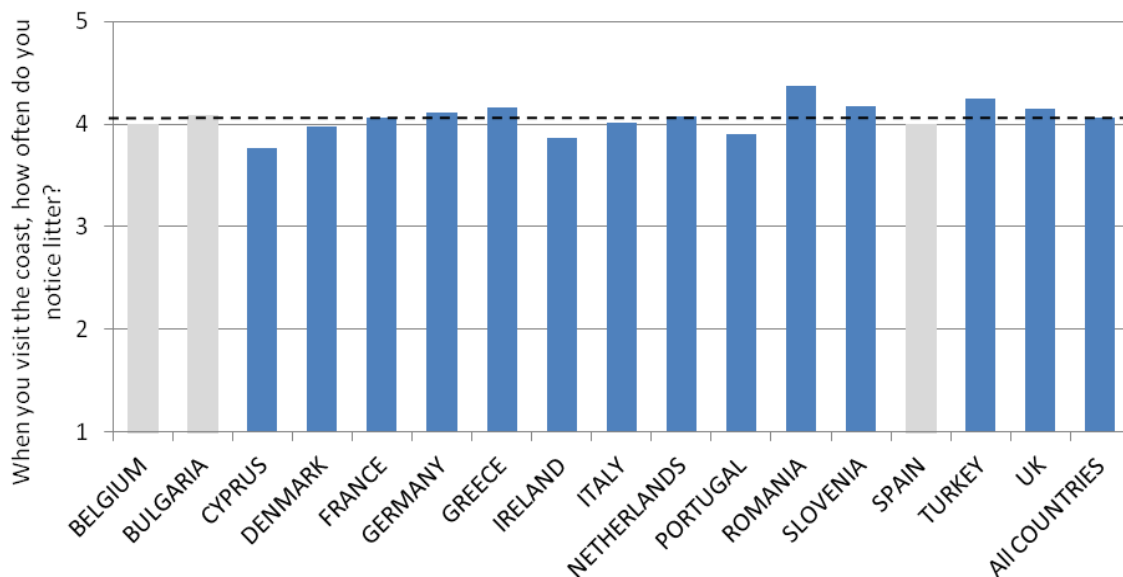
Figure 3.25. Frequency that respondents report witnessing marine litter by country of residence (scale 1-5: never, rarely, on some visits, on most visits, on every visit). A dashed reference line indicates the overall mean (as shown in the 'All Countries' category). Grey bars represent countries with very low response rate, insufficient for reliable comparison.

3.4.2 Awareness of the presence and extent of marine litter (quantities, location, and material composition)

Respondents from all countries showed a similar pattern of results when considering the relative quantity of litter across the different marine environments (Figure 3.26). There was a trend for countries to perceive the greatest quantity of marine litter near urban areas and on beaches and the least in polar seas. Some variations by country can be seen in Figure 3.26, for example, respondents from Romania perceievd relativey less marine litter below the water's surface, on the surface of open ocenas, and in polar seas than other countries. In addition, as shown in Figure 3.27 respondents from all countries underestimated the proportion of marine litter that consists of plastic. Respondents from the UK, Germany and Slovenia reported the highest percentage (up to 57%). Again this may still represent an underestimate according to the literature which suggests that plastic items typically constitute around 75% of all items found. Respondents from Cyprus, Denmark, Romania, Italy, Portugal and Turkey reported the lowest percentage composition of plastic. Whilst this may represent a large underestimate of the presence of plastic, regional differences in the material composition of marine litter should also be taken into account.

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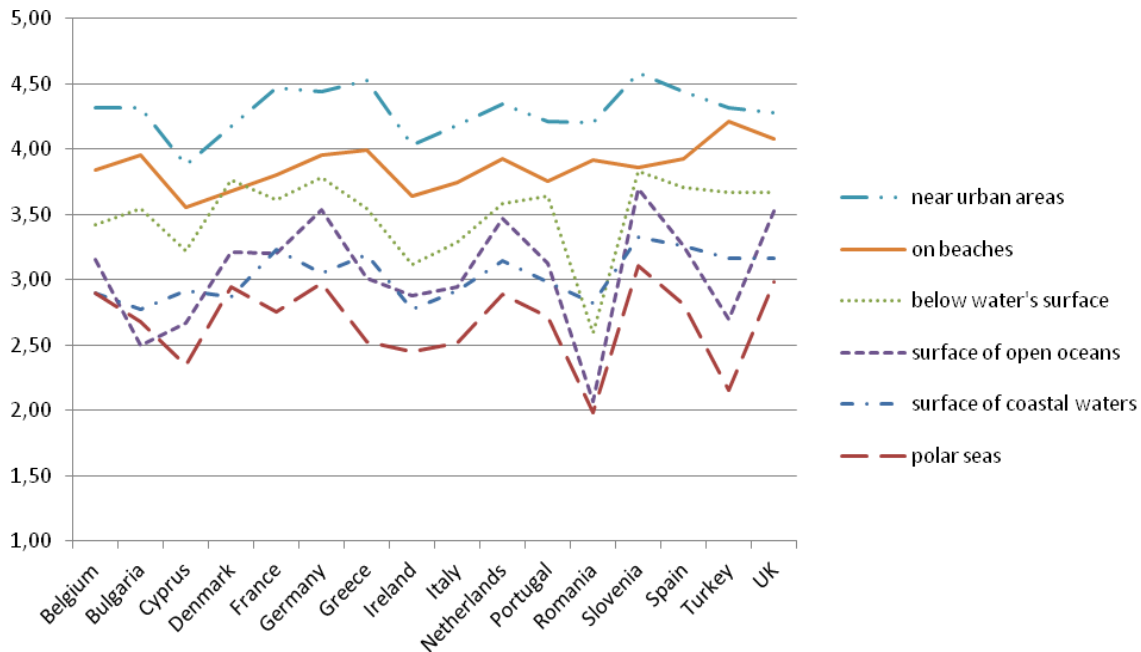
Figure 3.26. Perceptions about the quantity of litter in the marine environment by country of residence (1-5 scale: none - a large amount).
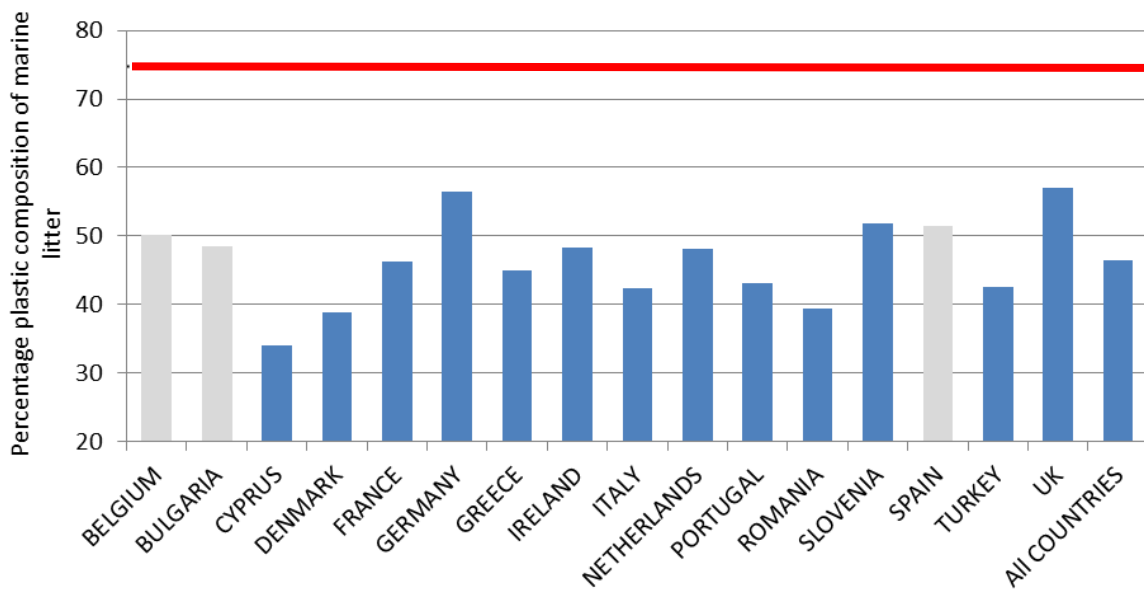
Figure 3.27. Perceptions about the percentage of marine litter that is composed of plastic by country of residence. The reference line at 75% here indicates the 'actual' proportion of plastic that is commonly reported in the literature. Grey bars represent countries with very low response rate, insufficient for reliable comparison.

3.4.3   Perceptions about the sources of marine litter

Countries held broadly similar perceptions about the contribution of the different pathways by which litter can enter the marine environment (Figure 3.28). Respondents from the majority of countries perceived direct release of litter in the sea to contribute the most to marine litter, and litter blown from landfill/landfill

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collapses or sewage overflows to contribute the least. However, there was noticeable variation between some countries. In addition, whilst there is some degree of country-specific variation between perceptions about the importance of particular factors in contributing to marine litter, there are some similar trends (Figure 3.29). For example, the majority of countries perceive a lack of bins and losses from transport of products and waste as less important than other factors.
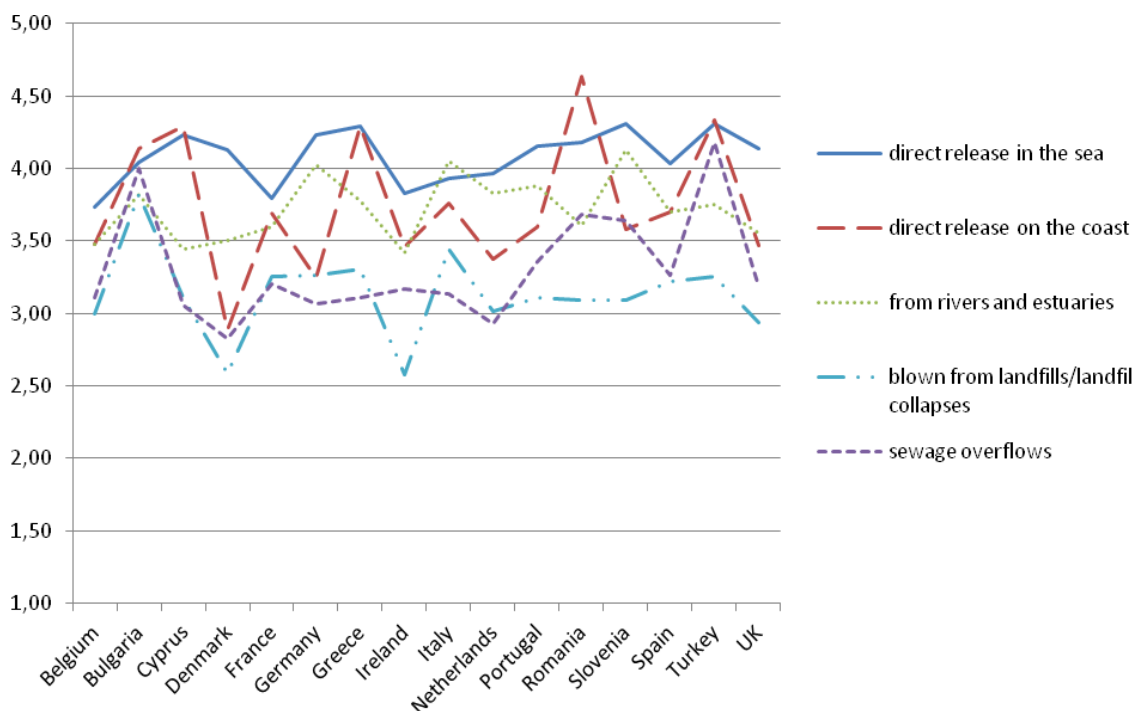
Figure 3.28. Perceptions about the different pathways that contribute to marine litter, by country of residence (1-5 scale: none - a large amount).
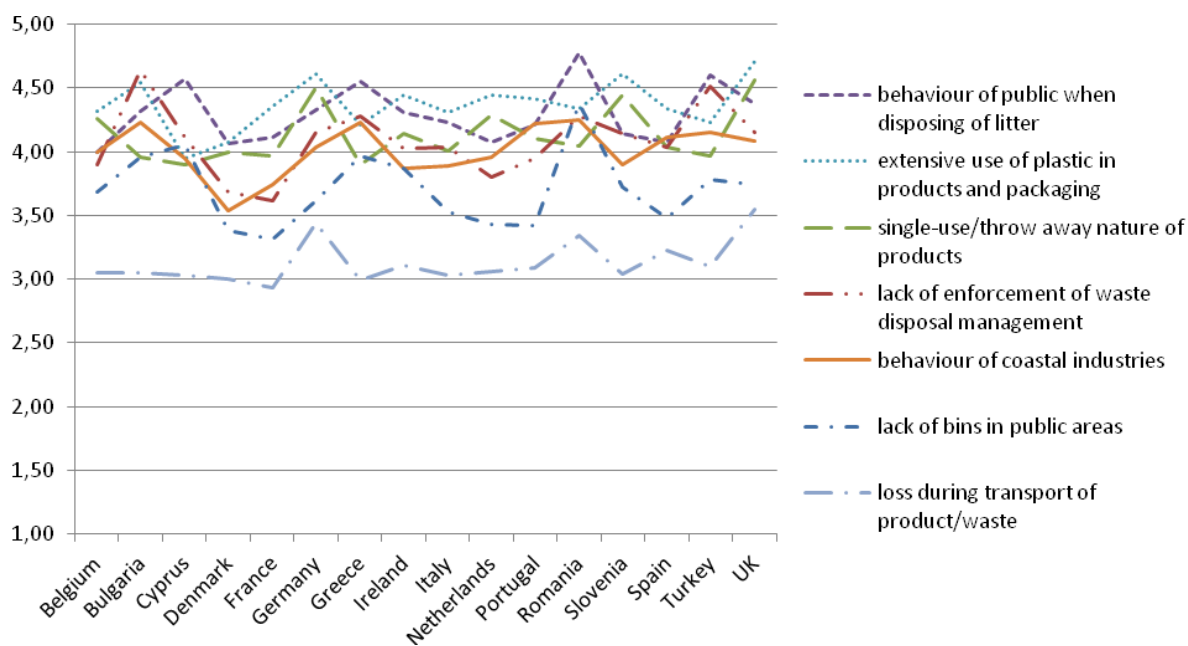
Figure 3.29. Perceptions about the importance of different factors in contributing to marine litter, by country of residence (1-5 scale: not at all important – very important).

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3.4.4 Perceptions about the negative impacts of marine litter

There were not large differences between perceptions about the severity of impact across countries; all countries perceived marine litter to present a threat (Figure 3.30). There was also a trend for countries to perceive similar *relative* severity of the different impacts, rating threats to the marine environment as consistently most severe and threats to the fishing and shipping industry as least severe. There was greater variation in perceptions about the other impacts across countries.
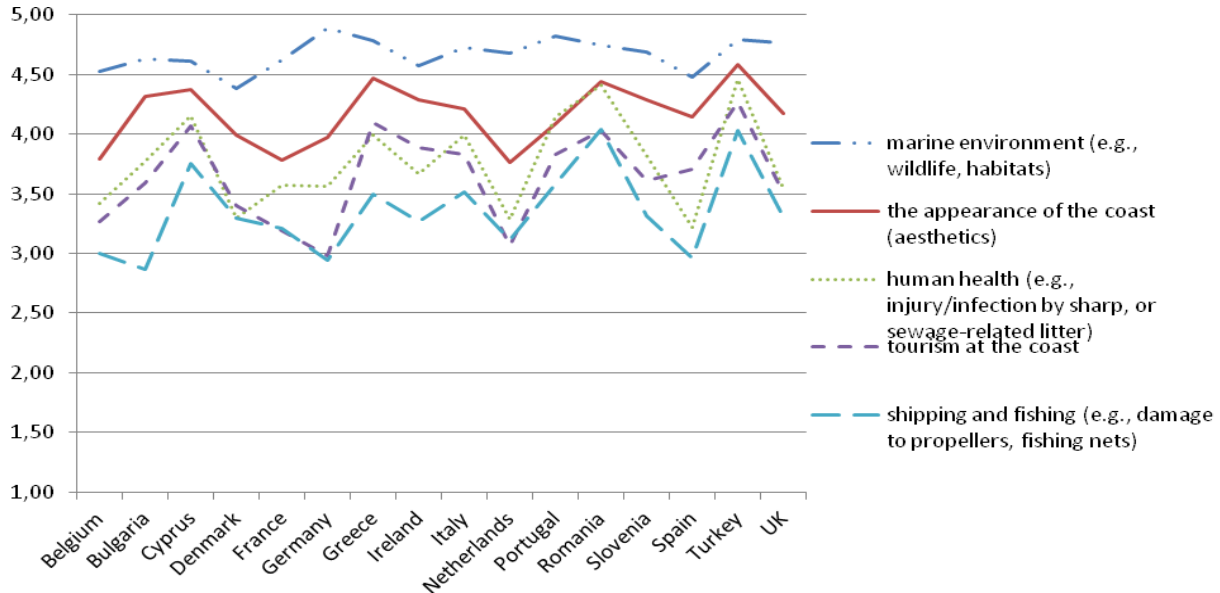
Figure 3.30. Perception about the impact (threat) of marine litter by country of residence (1-5 scale: no threat – severe threat).

3.4.5 Risk perception – concern and acceptance of the problem of marine litter

To simplify the presentation of results for this set of questions, individual items assessing level of concern have been combined into one score. As Figure 3.31 shows, respondents from all participating countries were concerned and agreed that marine litter is an important problem. Those from Portugal, Slovenia, the UK, Germany and Greece were slightly more concerned and perceived marine litter as slightly more important than other countries, particularly Romania, the Netherlands, Cyprus and Denmark who reported being the least concerned about the problem.

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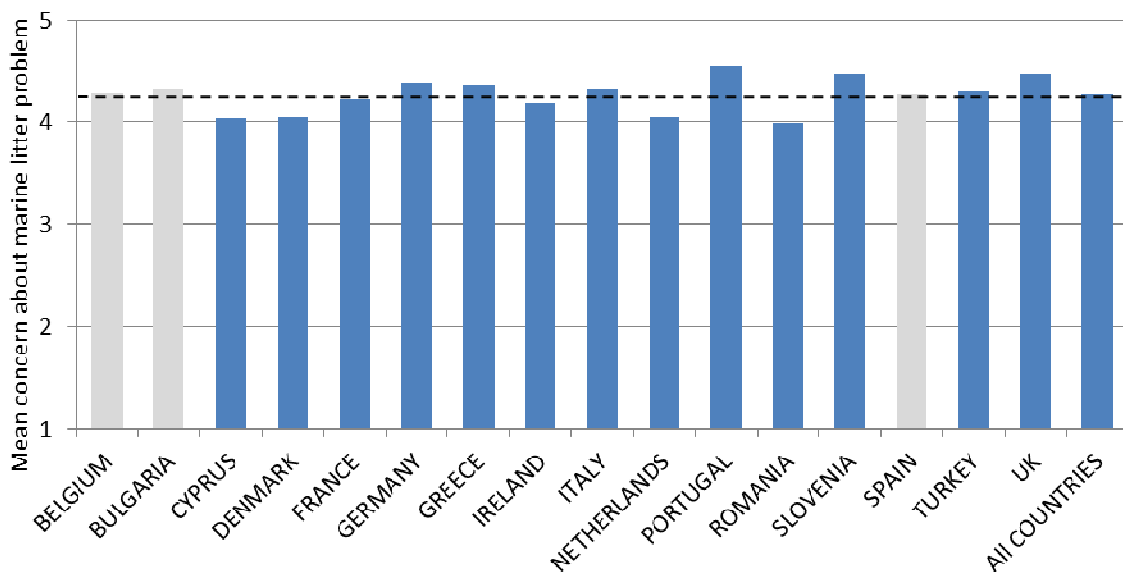
Figure 3.31. Overall concern about the problem of marine litter by country of residence (1-5 scale: strongly disagree – strongly agree). A dashed reference line indicates the overall mean (as shown in the 'All Countries' category). Grey bars represent countries with very low response rate, insufficient for reliable comparison.

3.4.6   Social norms about marine litter

Respondents from some countries were somewhat undecided as to whether people in their community cared about marine litter. Turkey, Romania and Germany were top among the countries who perceived that people in their local community do not care about marine litter, whereas respondents from Denmark and the Netherlands believed that people in their community did care about marine litter (Figure 3.32).
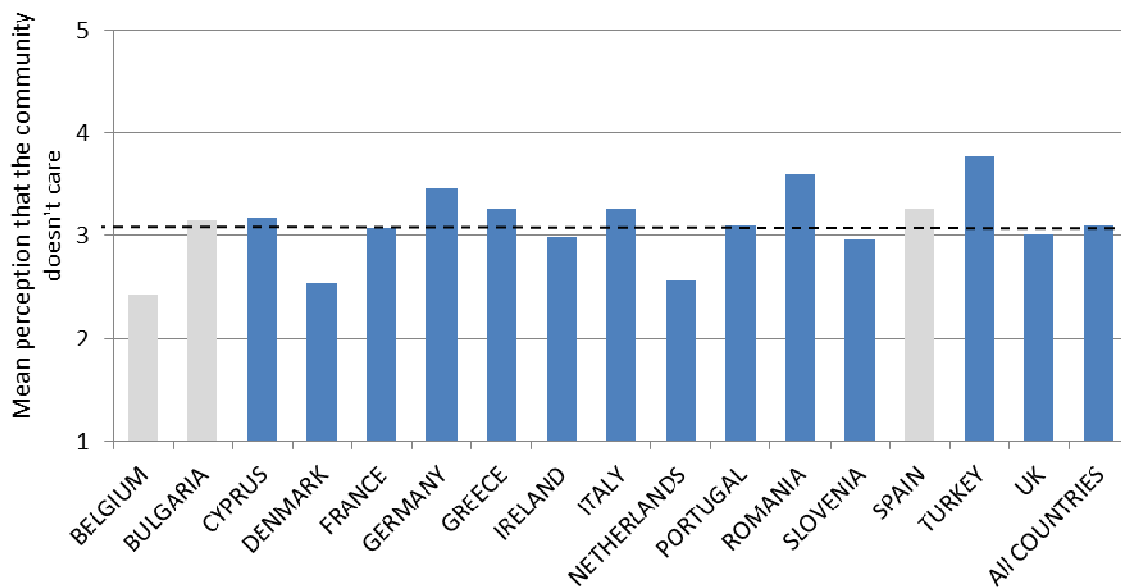
Figure 3.32. Mean perceived community norm 'most people in my local community don't care about marine litter' by country of residence (1-5 scale: strongly disagree – strongly agree). A dashed reference line indicates the overall mean (as shown in the 'All Countries' category). Grey bars represent countries with very low response rate, insufficient for reliable comparison.

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3.4.7   Perceived responsibility, competence and motivation of groups and organisations

This question was too complex to breakdown by country of residence and present in graphical format at this level of detail here. A table of means is presented in Annex V for reference.

3.4.8   Behavioural intentions and self-efficacy (perceived control) in taking action to reduce marine litter

To simplify the presentation of results for this set of questions, individual items assessing behavioural intentions and efficacy have been combined into one score. Respondents from all participating countries reported being likely to take action to reduce marine litter and perceived these actions to be quite easy (Figure 3.33). Those from Greece, Portugal and Slovenia reported being the most likely and able to take action. There was a tendency for respondents from the majority of countries to report being slightly more able than likely to take action (respondents in France and the UK were an exception here, where they reported being slightly more likely than able to take action).
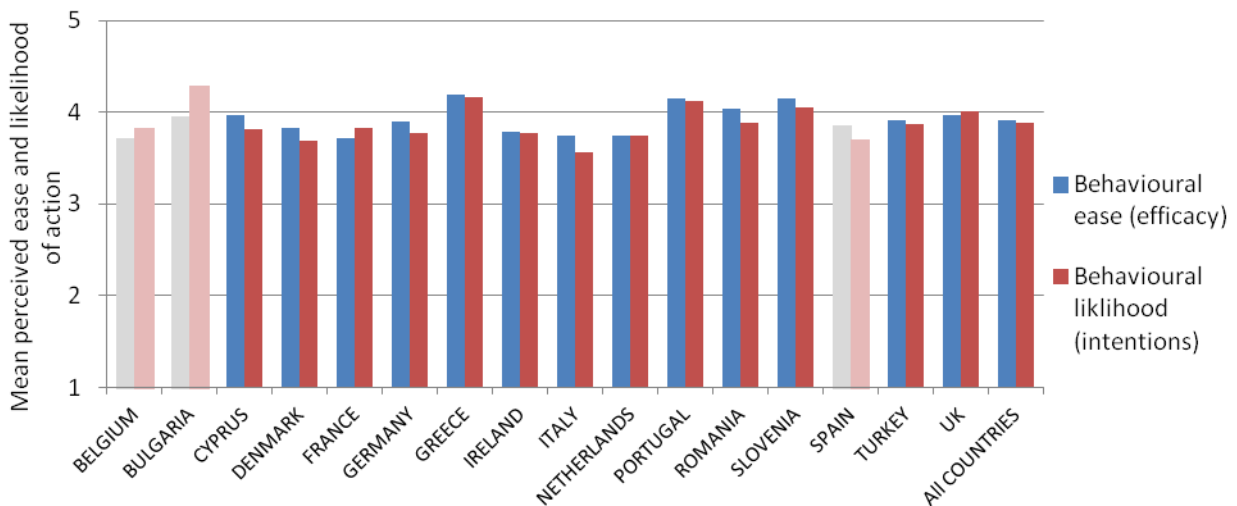
Figure 3.33. Behavioural intentions regarding how likely (1 extremely unlikely – 5 extremely likely) individuals are to take action to reduce marine litter, and how easy it would be (1 not at all easy – 5 very easy) by country of residence. Grey bars represent countries with very low response rate, insufficient for reliable comparison.

3.4.9   Perceived value of the coast and sea

Respondents from all participating countries perceived the coast and sea as highly valuable to society and there were not large differences between countries.

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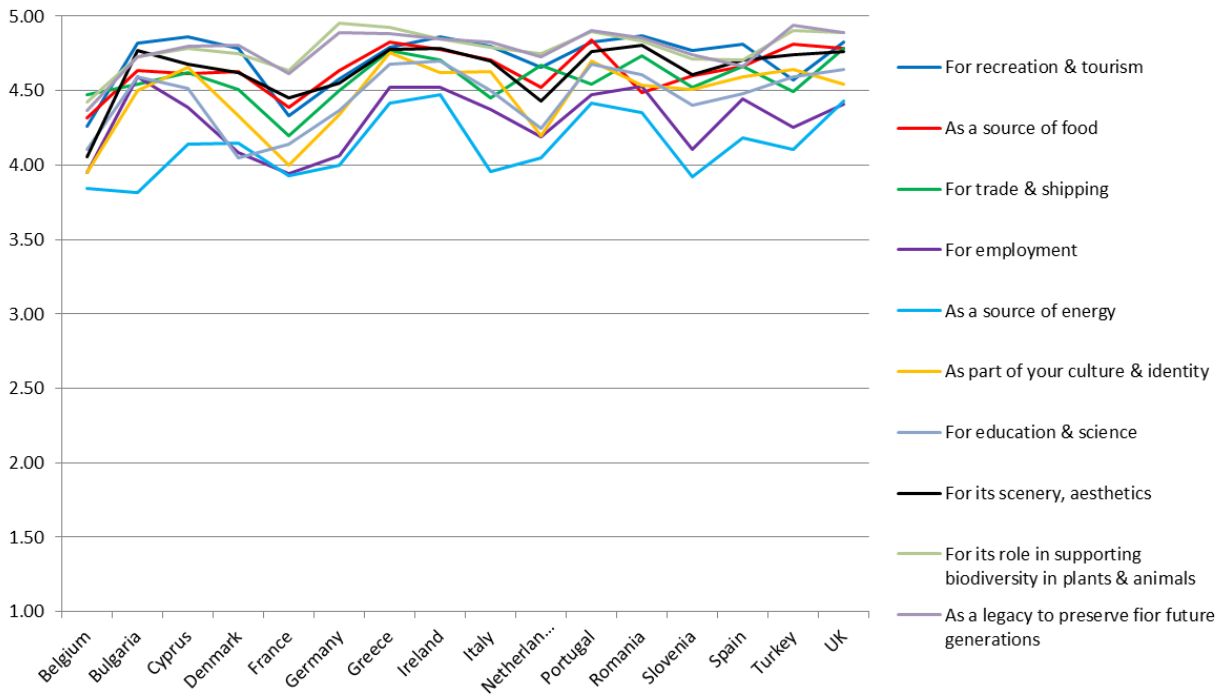
Figure 3.34. Perceived value of the coasts and sea by country of residence (1-5 scale: not at all valuable – extremely valuable).

4   DISCUSSION

4.1   Key findings

This report documents a baseline assessment of stakeholder perceptions conducted in the first year of the MARLISCO project. It provides a "snapshot" of societal awareness and perceptions about marine litter across Europe, and across a range of stakeholder groups. More specifically, this survey represents the first assessment of social perceptions about marine litter across 9 key stakeholder groups in 16 European countries.

Several factors can act as barriers to accepting the marine litter issue and working towards solutions. This survey assessed individuals' perceptions about the quantity, location, causes and consequences of marine litter, perceived risk and responsibility, and behavioural intentions and efficacy. Whilst these can be viewed as barriers, they also represent opportunities to raise awareness and engage individuals and groups in the topic of marine litter. A summary of key findings are presented in BOX 6.

BOX 6 KEY FINDINGS:

What findings did the stakeholder survey reveal and what questions has it answered?

➔   **What are European attitudes and perceptions about marine litter?**

The results of this survey indicate that the majority of Europeans notice litter on most or every visit to the coast. Respondents were concerned about marine litter, perceiving it to be an important problem, and believed the coasts are highly valuable to society. More specifically, respondents believed that the quantity of marine litter is increasing, and that it represents a present threat, will cause lasting damage, and is a problem for all (not just coastal communities or other countries).

Litter was believed to be present in all locations of the marine environment, largely near urban areas and on beaches, and with the least in polar seas. Respondents also believed that litter enters the marine environment predominantly via 'direct release in the sea' and less so via landfill and sewage pathways. Marine litter was also perceived to pose several negative impacts. Respondents believed that plastic represents 45.5% of marine litter – this signifies a large underestimate according to the literature.

Respondents believed government, industry, commercial users and general public are highly responsible but less competent and even less motivated to take action to reduce marine litter. This is in comparison to independent scientists and environmental groups who were perceived as least responsible, yet most competent and motivated. Educators were the only group who were perceived to be equally responsible, competent and motivated.

Respondents reported being likely to take several actions to reduce marine litter, but had least intention to ask people to pick up litter if they saw them littering. Respondents also perceived that it would be reasonably easy to take these actions, but again believed asking people to pick up litter would be less easy.

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➔ **Do perceptions vary according to stakeholder group/sector?**

Overall, respondents from different stakeholder groups shared many of the same perceptions about marine litter. For example, there was a similar pattern of results across stakeholder groups when considering the relative quantity of litter across the different marine environments, the contribution of different pathways by which litter can enter the marine environment, and the *relative* severity of the different impacts.

However, some differences in perceptions did emerge between stakeholder groups. Specifically, environmental organisations were more concerned and perceived marine litter as more important than other stakeholder groups. Respondents working in design and manufacturing and retail reported being slightly less concerned about the problem. In addition, although all stakeholder groups underestimated the percentage of marine litter that consists of plastic, environmental organisations and coastal and marine industry reported the highest percentage of plastic compared to other stakeholders. Respondents from retail and design and manufacturing sectors reported the lowest percentage composition of plastic. Further, environmental organisations reported being the most, and general public the least likely and able to take action

➔ **Do perceptions vary across participating countries?**

Similarly, respondents from different countries shared many of the same perceptions about marine litter in terms of quantity, location, pathways and impacts. All countries underestimated the percentage of marine litter that consists of plastic, particularly respondents from Cyprus, Denmark, Romania, Italy, Portugal and Turkey who reported the lowest percentage composition of plastic. Respondents from the UK, Germany and Slovenia reported the highest proportion of plastic in marine litter. In addition, respondents from Portugal, Slovenia, the UK, Germany and Greece were more concerned about the problem of marine litter compared to other countries, particularly Romania, the Netherlands, Cyprus and Denmark who reported being the least concerned about the problem. Further, those from Greece, Portugal and Slovenia reported being the most likely and able to take action.

4.2 Challenges and limitations

4.2.1 The sample

There are a number of limitations to keep in mind when interpreting the findings of this baseline survey of perceptions. Firstly, the survey set out to obtain 25 responses for each of the 9 stakeholder categories per country in order to gain a broad sample of the key sectors and countries. Certain stakeholder groups and countries appeared harder to engage and therefore there was limited opportunity to examine their perceptions. Indeed, a balanced spread of responses was not achieved in all cases, and there were a greater number of responses obtained from particular stakeholders and countries. This meant there was insufficient sample size to compare certain countries or stakeholder groups reliably. It is also possible that comparisons broken down by country of residence were confounded by stakeholder group, and vice versa due to disproportionate number of responses for particular stakeholder groups in certain countries (see Annex IV). For the purpose of this report, trends were presented and key differences highlighted where possible. It is

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important to ensure all countries and stakeholder groups engage effectively in the future, and efforts should be made in future surveys to achieve a sample to allow for such comparisons to be made.

4.2.2   *Survey technique, implementation*

There are also common limitations to the self-report method of the survey technique when assessing individuals' perceptions. Self-report methods can be subject to socially desirable responding, whereby participants provide responses which are viewed to be desirable in society, or which they believe are consistent with the goals of the survey. For example, respondents may report that they are more concerned about the problem of marine litter than they in fact are, because this is viewed as the more desirable response. Whilst this is a potential limitation, the online survey method used is likely to be superior and suffer from less social desirability than a face-to-face interview method.

4.3   Looking forward

4.3.1   *How findings inform our work*

This report provides a key step in understanding societal perceptions toward marine litter across Europe. Understanding societal perceptions and more specifically, the perceptions of different stakeholder groups, is a critical step in attempts to engage society in the problem of marine litter and to facilitate changes in attitudes and behaviour. Assessing why perceptions are similar or distinct across participating stakeholders and countries was beyond the scope of this report. It is important to understand what factors may lead to stakeholder and regional differences in perceptions and attitudes towards marine litter.

The findings from this survey will be used to inform MARLISCO activities throughout WP2-6 in year two and three of the project. For example, the results may help target discussion in the debates within WP4 to draw on key findings, for instance regarding the key differences in perceived stakeholder responsibility, competence and motivation. In addition, the findings will be used to guide further survey design and implementation, including shorter surveys planned within WP2 to evaluate educational and outreach activities across WP4-6. Aside from internal use within the MARLISCO project, this report will inform academic and applied audiences across the marine, environmental and social sciences.

4.3.2   *Future work/next steps*

A subsequent assessment of stakeholder perceptions in year three, the final year of the project will be conducted. The follow-up report (month 32) will contain full formal statistical analyses. Although there will be some capacity to see changes in individuals' perceptions about marine litter over the time course of the MARLISCO project, the follow-up assessment will not sample the same individual respondents for direct comparison; it will merely apply the same methods and procedures.

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5   REFERENCES

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6 ANNEXES

Annex I_Screenshot of initial webpage where respondents select their language to participate

SEVENTH FRAMEWORK PROGRAMME

Annex II _The stakeholder survey consent form

Perceptions about marine litter

We invite you to take part in a survey about marine litter (litter which is found on the coast and in the sea).

Who is organising this survey?
This survey is part of a European project called MARLISCO – Marine Litter in Europe Seas: Social Awareness and Co-Responsibility. The survey is being led by Plymouth University, UK.

What are the aims of the survey?
We want to understand what people's opinions are about marine litter. In this survey there are some questions about what type of litter is found in the sea, where it comes from, what the consequences are, and who is responsible.

On the next few pages we will ask you some questions about this and it should only take about 15 minutes. **There are no right or wrong answers to the questions in this survey. We are interested in your opinions.**

What happens to the information I provide?
Participation in this research guarantees confidentiality of the information you provide. No one apart from the research team will have any access to the information you provide. We will not ask you to write your name on the survey. Surveys will be stored securely for as long as is required by the UK Data Protection Act. Once the data are analysed a report of the findings may be submitted for publication. Only broad trends will be reported and it will not be possible to identify any individuals. A summary of the results will be available from the researcher on request.

Contact for further information
If you require any further information or have any queries about this survey, please contact the principal researcher in the UK, Bonny Hartley (bonny.hartley@plymouth.ac.uk)

-------------------- *Volunteer consent* --------------------

Please read the statements below and tick the box at the bottom of the page to indicate you consent to take part

I have received adequate information about the survey and about my ethical rights as a participant.

I fully understand that my participation is voluntary, the information I provide is confidential, and that due to the anonymous nature of the survey, it is not possible to withdraw data once it has been submitted.

☐ Please tick to confirm you agree to take part in this survey

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Annex III _The stakeholder survey debrief form

-------------------- *Debrief* --------------------

Thank you very much for taking part in this survey.

We would like to provide some further information about the purpose of the survey and what we expect to find.

We are looking at the relationships between several different attitudes and beliefs people may have about the issue of marine litter. In particular, we are interested in learning about individuals'...

- awareness and acceptance of the problem
- awareness of the sources and negative impacts of marine litter
- views about who should take responsibility for reducing marine litter
- intentions to take various courses of action to reduce marine litter

We are asking many different groups of people who have some interest in or responsibility for reducing the quantity of marine litter to take this survey. This includes recreational and commercial users of the coast and sea, environmental groups, government and policy makers, waste management sectors, and designers, manufacturers and retailers of items that can potentially become marine litter.

There are many barriers to reducing marine litter and its negative impacts. Understanding these factors will help to overcome these barriers and raise awareness in order to inspire changes in people's attitudes and behaviours. Visit our project website http://www.marlisco.eu/ for more information.

If you have any questions about this research please contact the principal researcher in the UK, Bonny Hartley at bonny.hartley@plymouth.ac.uk

Once again, we would like to thank you for your valuable contribution to this research. Your participation is greatly appreciated.

Yours sincerely,

Bonny Hartley

If you are dissatisfied with the way the research is conducted, please contact the principal investigator in the first instance email: *bonny.hartley@plymouth.ac.uk*. If you feel the problem has not been resolved please contact the secretary to the Faculty of Science Human Ethics Committee: Mrs Paula Simson, email: *paula.simson@plymouth.ac.uk* telephone: *++44 1752 584503*.

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Annex IV _The number of respondents in each stakeholder group within each country

	Design & Manufacturing	Retail	Coastal &/marine industry	Waste management	Government &/policy making	Environmental organisation	Media	Education	General public	Total
Belgium	2	2	1	1	3	4	1	3	2	19
Bulgaria	1	0	0	2	1	5	0	7	6	22
Cyprus	10	18	18	5	18	12	5	41	35	162
Denmark	2	5	10	13	34	8	4	25	84	185
France	15	16	26	20	38	42	12	144	193	506
Germany	15	1	5	2	11	10	3	32	53	132
Greece	14	13	15	7	19	18	15	81	41	223
Ireland	35	13	36	15	32	12	5	21	31	200
Italy	34	8	11	7	37	10	16	46	71	240
Netherlands	21	12	36	11	36	11	5	74	51	257
Portugal	38	23	85	81	122	60	25	147	269	850
Romania	7	9	10	8	13	15	5	82	68	217
Slovenia	7	4	10	3	12	7	4	4	26	77
Spain	2	0	3	0	4	7	0	4	7	27
Turkey	40	12	31	6	18	16	28	48	65	264
UK	14	12	40	7	29	59	5	107	94	367
Total	257	148	337	188	427	296	133	866	1096	3748

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Annex V _Perceptions about who is responsible, competent and motivated to reduce marine litter, by stakeholder group (means)

Perceptions about who is responsible (R), competent (C) and motivated (M) ▼	Design & Manufacturing	Retail	Coastal &/marine industry	Waste management	Government &/ policy making	Environmental organisation	Media	Education	General public	Total
	Stakeholder group of respondent									
general public (R)	4.28	4.24	4.25	3.95	4.23	4.31	4.39	4.19	4.17	4.21
general public (C)	3.07	3.31	3.29	3.08	3.28	3.34	3.02	3.29	3.25	3.25
general public (M)	2.51	2.43	2.55	2.69	2.60	2.52	2.53	2.62	2.47	2.54
environmental groups (R)	3.49	3.58	3.51	3.61	3.53	3.45	3.62	3.58	3.59	3.56
environmental groups (C)	3.85	3.97	3.88	4.01	4.05	4.23	4.10	4.11	4.13	4.07
environmental groups (M)	4.23	4.28	4.34	4.23	4.53	4.56	4.62	4.44	4.39	4.41
independent scientists (C)	3.90	3.89	3.89	4.04	3.96	4.01	3.94	4.03	3.96	3.97
independent scientists (M)	3.82	3.61	3.82	3.78	3.89	3.72	3.95	3.86	3.75	3.80
Gov & policy makers (R)	4.40	4.22	4.28	4.24	4.35	4.55	4.55	4.30	4.18	4.30
Gov & policy makers (C)	3.57	3.35	3.60	3.45	3.74	3.53	3.52	3.52	3.40	3.51
Gov & policy makers (M)	2.36	2.49	2.28	2.44	2.53	2.17	2.20	2.56	2.28	2.38
self (R)	4.24	4.18	4.20	3.95	4.16	4.27	4.17	4.08	4.10	4.13
self (C)	3.58	3.66	3.80	3.72	3.69	3.95	3.38	3.69	3.59	3.67
self (M)	3.99	4.01	4.24	4.13	4.22	4.39	4.15	4.09	4.05	4.12
industry (designers, producers) (R)	4.15	4.20	4.32	4.07	4.32	4.46	4.50	4.26	4.12	4.24
industry (designers, producers) (C)	3.54	3.30	3.38	3.47	3.64	3.49	3.37	3.43	3.41	3.45
industry (designers, producers) (M)	2.12	2.08	2.00	2.29	2.04	1.86	1.89	2.07	2.02	2.04

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Perceptions about who is responsible (R), competent (C) and motivated (M) ▼	Stakeholder group of respondent									Total
	Design & Manufacturing	Retail	Coastal &/marine industry	Waste management	Government &/ policy making	Environmental organisation	Media	Education	General public	
retailers (R)	3.85	3.74	3.98	3.73	4.00	4.13	4.17	3.93	3.79	3.90
retailers (C)	3.09	2.98	2.97	3.16	3.18	3.13	2.76	3.06	3.02	3.05
retailers (M)	2.02	2.31	1.90	2.16	1.93	1.82	1.89	2.06	1.99	2.00
commercial users of coast & sea (R)	4.21	4.15	4.23	4.14	4.27	4.42	4.33	4.20	4.12	4.21
commercial users of coast & sea (C)	3.494	3.439	3.584	3.435	3.504	3.512	3.361	3.545	3.408	3.481
commercial users of coast & sea (M)	2.74	2.83	2.79	2.72	2.58	2.53	2.51	2.80	2.66	2.69
orgs. that collect waste (R)	3.78	3.71	3.71	3.55	3.74	3.86	4.02	3.84	3.71	3.76
orgs. that collect waste (C)	3.82	3.74	3.80	3.79	3.81	3.76	3.60	3.83	3.72	3.77
orgs. that collect waste (M)	3.06	3.05	2.96	3.26	3.00	2.88	2.99	3.19	3.05	3.06
orgs. that process waste (R)	3.91	3.72	3.77	3.68	3.76	3.87	4.05	3.92	3.80	3.83
orgs. that process waste (C)	3.95	3.84	3.81	3.90	3.89	3.89	3.66	3.93	3.85	3.87
orgs. that process waste (M)	3.19	3.15	3.08	3.39	3.19	3.00	3.13	3.35	3.23	3.22
educators (R)	3.91	3.83	3.90	3.61	3.77	3.77	3.92	3.72	3.65	3.74
educators (C)	3.70	3.72	3.66	3.78	3.73	3.79	3.52	3.70	3.61	3.68
educators (M)	3.53	3.45	3.49	3.63	3.57	3.38	3.30	3.59	3.36	3.48
media (R)	3.97	3.93	3.78	3.71	3.73	3.91	4.08	3.74	3.63	3.76
media (C)	3.47	3.42	3.36	3.44	3.42	3.33	3.47	3.38	3.31	3.37
media (M)	2.92	2.99	2.69	2.97	2.80	2.44	2.83	2.91	2.69	2.78

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Annex VI _Perceptions about who is responsible, competent and motivated to reduce marine litter, by country of residence (means)

Perceptions about who is responsible (R), competent (C) and motivated (M) ▼	Country of residence																
	Belgium	Bulgaria	Cyprus	Denmark	France	Germany	Greece	Ireland	Italy	Netherlands	Portugal	Romania	Slovenia	Spain	Turkey	UK	Total
general public (R)	4.00	4.09	4.19	3.80	3.81	4.40	4.31	4.42	4.19	4.35	4.11	4.43	4.55	4.19	4.66	4.36	4.21
general public (C)	2.95	2.77	3.98	3.28	3.05	2.87	4.14	3.28	2.63	3.23	3.23	3.56	3.23	3.59	2.75	3.39	3.25
general public (M)	2.53	2.32	2.96	2.70	2.29	2.37	3.53	2.20	2.55	2.62	2.53	2.82	2.56	2.37	2.51	2.13	2.54
environmental groups (R)	3.05	4.00	3.76	3.54	3.08	2.93	3.41	3.26	3.23	2.87	4.04	3.95	3.65	2.96	4.48	3.35	3.56
environmental groups (C)	3.89	3.82	4.00	4.07	4.08	4.19	4.13	3.98	4.05	3.42	4.39	4.34	3.55	3.89	3.57	4.12	4.07
environmental groups (M)	4.63	4.27	4.09	4.58	4.41	4.63	4.30	4.26	4.45	4.67	4.51	4.16	4.48	4.48	4.09	4.46	4.41
independent scientists (R)	2.79	3.82	3.35	3.14	2.92	2.86	3.26	2.87	3.03	2.73	3.81	3.54	3.79	3.22	4.27	2.99	3.32
independent scientists (C)	3.84	4.14	3.93	4.10	4.07	4.22	3.83	3.99	4.23	3.27	4.34	4.01	3.26	3.70	3.18	3.89	3.97
independent scientists (M)	3.26	3.64	3.48	3.97	3.71	3.80	3.80	3.73	4.02	3.98	3.93	3.65	3.84	3.85	3.64	3.71	3.80
Gov & policy makers (R)	4.58	4.23	4.30	3.94	3.84	4.58	4.51	4.39	4.20	4.35	4.25	4.47	4.78	4.70	4.76	4.40	4.30
Gov & policy makers (C)	3.26	2.91	3.48	3.18	3.14	2.68	3.30	2.98	2.60	4.60	3.68	3.84	4.75	3.85	4.74	3.05	3.51
Gov & policy makers (M)	2.32	1.86	3.37	2.74	2.19	2.14	3.17	2.16	2.17	2.75	2.26	2.80	1.91	1.78	2.10	2.10	2.38
self (R)	3.89	4.82	4.12	4.03	3.49	4.12	4.26	4.15	4.21	3.88	4.26	4.50	4.29	3.52	4.72	4.18	4.13
self (C)	3.58	3.91	4.02	3.72	3.29	3.61	4.19	3.99	3.19	3.22	3.94	3.90	3.03	3.37	2.92	4.11	3.67
self (M)	4.16	4.36	3.77	4.11	3.97	4.27	4.30	3.89	3.61	4.28	4.42	3.51	4.19	4.37	4.05	4.38	4.12
industry (designers, producers) (R)	4.11	4.36	4.12	3.57	3.85	4.61	4.25	4.26	4.25	4.61	4.16	4.41	4.58	4.37	4.68	4.41	4.24
industry (designers, producers) (C)	3.84	3.68	3.64	3.32	2.94	3.22	3.66	3.22	3.14	3.88	3.59	3.74	3.84	3.48	3.60	3.39	3.45

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Perceptions about who is responsible (R), competent (C) and motivated (M) ▼	Country of residence																
	Belgium	Bulgaria	Cyprus	Denmark	France	Germany	Greece	Ireland	Italy	Netherlands	Portugal	Romania	Slovenia	Spain	Turkey	UK	Total
industry (designers, producers) (M)	1.89	2.14	2.64	2.23	1.77	1.69	2.52	1.87	2.14	2.10	2.00	2.65	1.97	1.81	1.83	1.73	2.04
retailers (R)	3.84	3.95	3.59	3.22	3.68	3.83	3.64	3.87	3.70	4.22	3.96	3.90	4.29	3.85	4.40	4.26	3.90
retailers (C)	3.37	2.73	3.26	2.81	2.78	2.53	3.19	2.93	2.47	3.53	3.22	3.24	3.56	3.11	3.00	3.10	3.05
retailers (M)	1.58	1.86	2.35	2.03	1.80	1.87	2.45	1.84	2.02	2.13	2.02	2.36	1.92	1.85	1.87	1.72	2.00
commercial users of coast & sea (R)	4.32	4.14	4.28	3.91	3.66	4.41	4.35	4.35	3.95	4.50	4.18	4.23	4.57	4.33	4.71	4.40	4.21
commercial users of coast & sea (C)	3.474	2.818	3.840	3.373	3.312	3.212	4.004	3.510	###	3.767	3.384	3.627	3.883	3.519	3.480	###	3.481
commercial users of coast & sea (M)	2.58	2.27	3.48	2.69	2.60	2.49	3.68	2.69	2.75	2.54	2.46	3.05	2.79	2.11	2.42	2.60	2.69
orgs. that collect waste (R)	4.11	4.09	3.58	3.44	3.36	3.95	3.63	3.67	3.55	3.46	3.90	4.38	4.18	3.37	4.39	3.76	3.76
orgs. that collect waste (C)	3.89	3.50	4.02	3.80	3.72	3.76	3.90	3.41	3.62	3.72	3.87	4.22	3.99	3.63	3.81	3.46	3.77
orgs. that collect waste (M)	3.21	3.00	3.52	3.39	3.16	2.69	3.54	2.40	3.02	3.14	3.01	3.65	3.18	2.59	3.12	2.49	3.06
orgs. that process waste (R)	4.11	4.23	3.72	3.55	3.36	3.77	3.79	3.75	3.64	3.50	4.03	4.39	4.25	3.67	4.42	3.84	3.83
orgs. that process waste (C)	3.95	3.77	4.03	3.88	3.80	3.71	3.97	3.54	3.66	3.70	4.13	4.12	3.99	3.56	3.97	3.54	3.87
orgs. that process waste (M)	3.37	3.32	3.70	3.41	3.22	2.87	3.55	2.62	2.98	3.28	3.31	3.71	3.27	2.44	3.54	2.61	3.22
educators (R)	3.74	4.18	3.98	3.36	3.26	3.37	3.94	3.69	3.61	3.27	3.98	3.77	4.16	3.37	4.53	3.77	3.74
educators (C)	3.37	3.23	3.93	3.38	3.41	3.54	3.96	3.75	3.62	3.20	4.06	3.65	3.74	3.70	3.30	3.71	3.68
educators (M)	2.89	3.18	3.57	3.42	3.41	3.30	3.58	3.45	3.46	3.68	3.65	3.22	3.31	4.07	3.39	3.31	3.48
media (R)	3.47	3.68	4.04	3.24	3.21	3.69	3.96	3.64	3.64	3.36	3.93	3.97	4.32	3.70	4.68	3.70	3.76
media (C)	2.95	2.50	3.81	3.05	3.05	3.11	3.84	3.26	2.93	3.21	3.58	3.62	3.74	3.33	3.58	3.26	3.37
media (M)	2.37	2.68	3.12	2.76	2.51	2.73	3.05	2.52	2.72	3.00	2.94	3.18	2.99	2.70	2.69	2.36	2.78

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