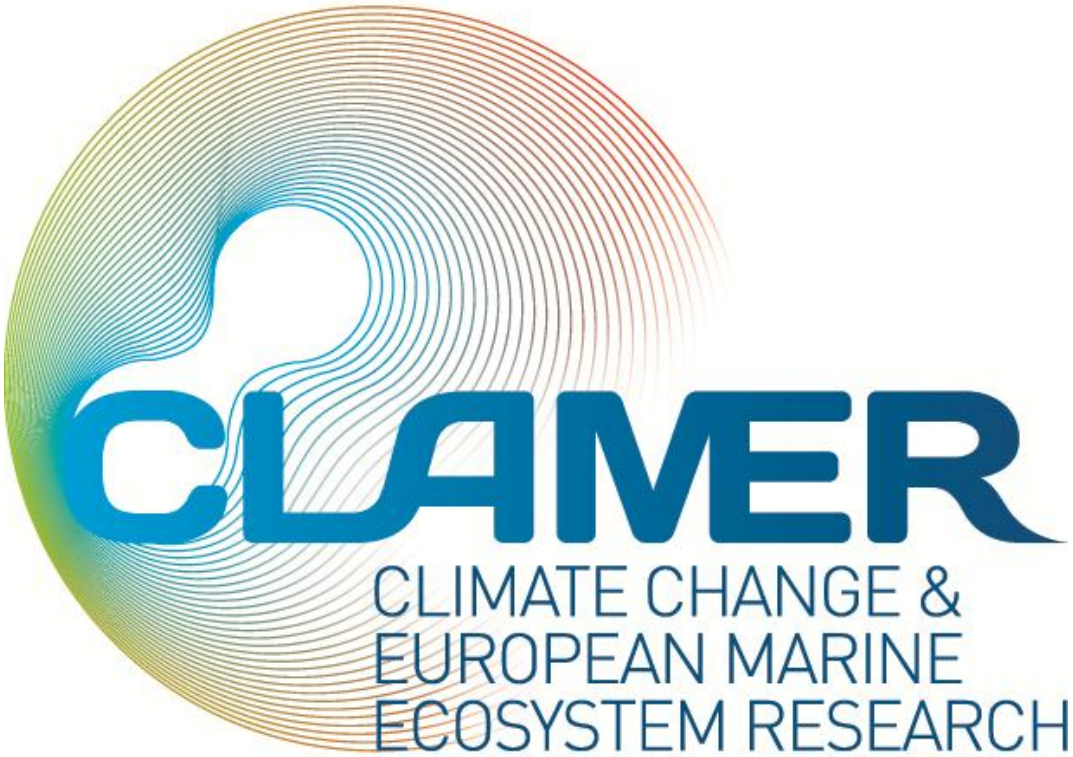

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Climate Change Impacts on the Marine Environment: Research Results And Public Perception

REPORT ON EUROPEAN PUBLIC AWARENESS AND PERCEPTION OF MARINE CLIMATE CHANGE RISKS AND IMPACTS

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I. EXECUTIVE SUMMARY

This report provides a brief overview of the opinions expressed by 10,000 European citizens on marine climate change risks and impacts through a polling exercise commissioned by CLAMER. The poll, which was conducted during January 2011 and spanned 10 European countries, aimed to find out what the European public knows and cares about, in relation to marine climate change risks and impacts.

The findings presented here build upon on an initial assessment presented to CLAMER by the polling company *TNS Opinion* in March 2011. The key headline messages from the CLAMER poll are as follows:

- The public clearly still cares about climate change, ranking it second overall from a list of major global issues, and almost everybody polled believed climate change is at least partly caused by humans.

- The marine and coastal issues the public expressed most concern about were not directly linked to climate change (pollution, over-fishing and habitat destruction), although many climate change issues (sea level and flooding, melting sea-ice, erosion and extreme weather) still scored very highly. Of these issues, changes in extreme weather events were seen as the most immediate threat.

- Estimates provided by the public for rates of sea level rise and temperature change matched well with scientific consensus, suggesting some fundamental messages are getting through to the public domain. However for some issues, especially ocean acidification, public awareness was extremely low.

- Looking at prioritising marine climate change research themes, there was a clear link between claimed level of awareness for a topic and how a topic was prioritised, with 'melting sea-ice' coming out on top. However, some issues such as impacts on 'disease and pests' and 'how communities can cope with the impacts of climate change' were seen as being of high research priority, despite limited awareness of these issues.

- When results were compared at the country level, or by age and gender, there were some marked differences in opinions. For example, the EU was regarded as being 'effective on tackling climate change' by twice as many people in some countries than others, whilst females and older people were most 'concerned' about all of the issues raised. The EU needs to recognise these differences if it is formulate effective communication strategies in the future.

CONTENTS

1 BACKGROUND AND METHODOLOGY

1.1 BACKGROUND

The FP7 EU project, CLAMER (Climate change and marine ecosystem research), builds upon a belief that there is a gap between what is known through research and what policy makers and the public know and understand about the impacts of climate change in the oceans and seas around Europe. One of the key deliverables from the CLAMER project was a public polling survey, which aimed to find out what European citizens know and care about in relation to climate change impacts at the coast and in the sea.

Before embarking upon the polling exercise, CLAMER undertook a review of previous polling studies. This review revealed that whilst there was a growing body of work on public perception of climate change in general, there was very little in the way of work specifically on marine climate change. Furthermore, little attention had been given to public perceptions of marine environmental issues in general.

The CLAMER polling exercise therefore provided a unique opportunity to start to redress this balance and not only look at how the public perceive marine climate change issues, but also to place these views in the context of public awareness and concern of marine environmental issues in general (pollution, overfishing etc.).

The geography and ethnic diversity of Europe makes it a very interesting study area, with many nations having extensive coastlines which border a range of regional seas, spanning the arctic to sub-tropical and from open-ocean to almost enclosed basins. The impacts of climate change on these varied marine and coastal environments are predicted to be wide-ranging and some countries are likely to be more vulnerable than others. A detailed scientific synthesis report on impacts across European seas has been produced as a key part of the CLAMER programme, and compliments this poll.

The poll has provided the opportunity to see how opinions of marine climate change vary across 10 European nation states, and also to examine differences according to key demographic features such as age, education and gender. Differences based on which European seas people interact with most, and whether people live near the coast or not, have also been considered. The inclusion of one land locked country (the Czech Republic) provides valuable insights into how a nation without a coastline regards marine climate change impacts.

The ‘quantitative’ approach taken in this polling exercise, looking at large numbers of respondents (some 10,000 in total) has been complemented by an in-depth workshop focussing on small groups of people in one geographic region, the UK (Terry & Chilvers, 2011). This workshop was used to explore the reasons behind some of the key messages emerging from the quantitative polling exercise.

The outputs from the poll have been further analysed as part of the CLAMER public perception summary report card (REF). This incorporates the outputs form the face-to-face workshop (Terry & Chilvers, 2011) and the detailed reviews of past public perception work and EU scientific outreach

activities (Pinnegar & Buckley, 2011), to provide a widely accessible and compelling view of how European citizens relate to climate change issues at the coast and seas and what lessons the EU can learn to improve public engagement with marine climate science in the future.

1.2 METHODOLOGY

Six organisations were invited to bid for the CLAMER polling contract. These included both academic and more commercial operations, some of which were based in Europe, whilst some were from the United States and Canada.

Following a rigorous appraisal process at the first CLAMER project meeting, the international polling organisation, *TNS Opinion* was awarded the contract. The key decisive factors were 1. Their significant previous experience of pan-European polling on climate change issues, 2. They offered the widest spread of countries to be included in the poll, incorporating all major European seas, and 3. They had access to existing panels of respondents and excellent language translation facilities.

The survey itself was 20 minutes long and was conducted online, which provided the most cost-effective approach for polling a large number of European citizens. With the size of the online panels and level of internet penetration, online approaches now reach a broad demographic spectrum providing robust, nationally representative samples, which compare well with face-to-face approaches. As a broadly quantitative study, requiring large numbers of comparable responses, most questions were multiple choice. However, a couple of open ended questions were included in order to provide completely unprompted responses on marine climate change issues, and how this compared to their opinions on other marine environmental issues.

The design of the questionnaire (see Annex 1) was a highly collaborative effort between the polling organisation (*TNS Opinion*) and all members of the CLAMER 'public perception' working group. Other work package leaders from CLAMER were also given the opportunity to comment on various drafts of the questionnaire to ensure that it met the needs of the consortium as a whole. The initial design was informed by a CLAMER review of existing literature on public perception studies on climate change and marine environments (Terry & Chilvers, 2011) and expert guidance from the polling agency. Lists of research themes and the technical 'ocean literacy' questions were based on the CLAMER Synthesis of European Research on the Effects of Climate Change on Marine Environments (Heip et al., 2011), to ensure that these were framed in the right way (i.e. so that the full range of major EU marine climate change research themes and scientific issues discussed in this report were fully captured in the questionnaire).

The sample design for the polling exercise, with 1,000 interviews in each of ten countries (figure 1) provided nationally representative samples within which to examine results at local, national and pan-European levels in accordance with key socio-demographics such as gender and age. The survey design also provided a robust 'coastal' sub-sample of 150 people, allowing us to compare views on marine issues from those at the coast compared to those living inland. One land-locked country was deliberately included to test how opinions in countries with a coastline differed from a country without one (Czech Republic).

The other nine countries were carefully selected based on their geographic location (i.e. proximity to different regional seas of Europe, from the Arctic through to the Mediterranean – figure 2), total population numbers, length of coastline and perceived vulnerability to climate change (e.g. sea level rise in The Netherlands). Political differences were also considered; hence the inclusion of former eastern bloc countries (Estonia and Czech Republic) and a non-EU member state (Norway, also included to capture an 'Arctic' sea coast).

Countries surveyed

1. Norway
2. Netherlands
3. United Kingdom
4. Germany
5. Estonia
6. France
7. Ireland
8. Czech Republic
9. Spain
10. Italy

Figure 1: The 10 countries surveyed in the CLAMER poll

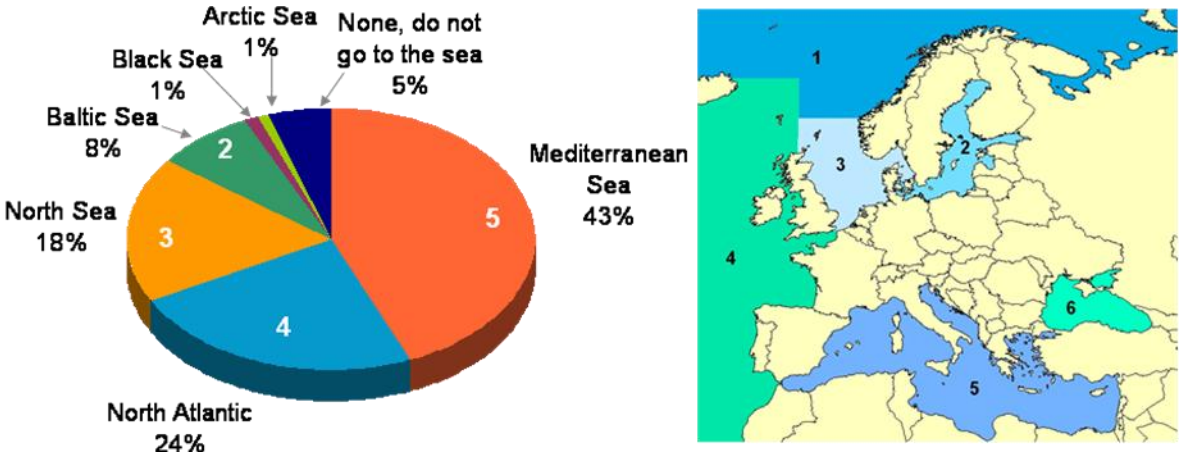

Figure 2: The regional seas covered in the CLAMER poll were selected to broadly coincide with the six regional seas identified in the CLAMER Synthesis Report (Heip et al., 2011). These are the Arctic (1), Baltic (2), North Sea (3) North Atlantic (4), Mediterranean (5) and Black Sea (6) (above right). The vast majority of the European sample polled interacted most frequently with the Mediterranean (43%), North Atlantic (24%) or the North Sea (18%) (above left). [Source: Q35; Sample = all 10 countries combined; N = 10,106 respondents].

It should be noted that whilst the decision on which of the 27 EU member states to poll was based on the criteria outlined above, countries with higher internet penetration rates were selected over those where fewer people had regular access to the internet to ensure samples were nationally representative (see Annex 2). This ruled-out inclusion of countries that bordered onto the Black Sea (i.e. Romania and Bulgaria) as they had low internet penetration rates and were areas where *TNS Opinion* also had limited capacity to conduct detailed polling studies of this nature.

2 RESULTS OF THE CLAMER POLL

2.1 PUBLIC KNOWLEDGE, CONCERNS AND ACTIONS

2.1.1 GENERAL PERCEPTIONS OF MAJOR GLOBAL RISKS AND CLIMATE CHANGE

When asked about general perceptions of major global risks, 18% of all respondents said climate change was the most serious problem facing the world. This result was exactly the same as a previous large scale study conducted amongst all 27 EU countries in 2009 (Special EUROBAROMETER 322; European Commission, 2009) (figure 3). This suggests that the 10 coutries sampled would appear to be representative of the European populace as a whole and that in general, concern about climate change as a major global issue hasn't diminished over the past 18 months. This is despite widely publicized issues including a very cold winter for much of Europe, and accusations (now proven false) of scientific irregularities and collusion among climate scientists.

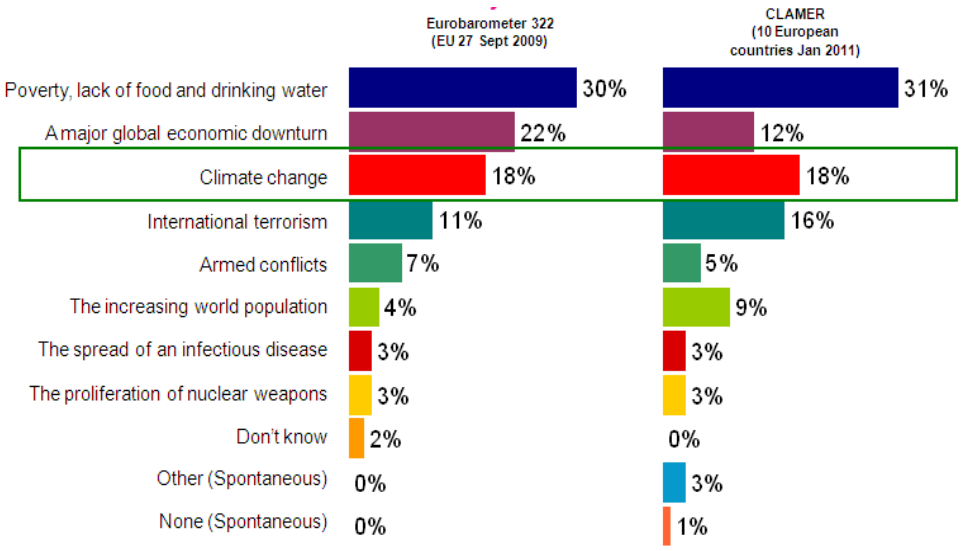

Figure 3: Results to the multiple choice question 'In your opinion, which of the following do you consider to be the most serious problem currently facing the world as a whole?' [Source: SPECIAL EUROBAROMETER 322: 28th August and 17th September 2009 (EU 27 – 26,718 respondents) / CLAMER January 2011; Sample = all 10 countries combined; N = 10,106 respondents].

Looking at the CLAMER survey at the country level however, there were marked differences between countries with a notably higher percentage of Spanish and Irish respondents (21%) saying that climate change was the most serious problem facing the world as a whole, compared to only 13% of the UK population and just 12% from the Czech Republic.

There were also some interesting differences according to age with a significantly higher percentage of respondents in younger age brackets (18-44) saying that climate change is the most serious problem compared to people aged over 55, and in particular those aged over 65.

Concerning the *causes* of climate change, almost half of all respondents (46%) believed that climate change is either 'mainly' or 'entirely' caused by human activity and 42% thought that climate change is caused 'partly by natural processes and partly by human activity'. Only 8% thought climate change was either 'mainly' or 'entirely' caused by natural processes (with a further 1% saying climate change did not exist and 2% saying 'don't know'). This is a much lower proportion than in the United States where levels of response saying climate change is mainly due to natural processes are typically around 32-36% (Leiserowitz et., 2010).

Figures varied widely by European country, with 60% of respondents from Spain believing that climate change is either 'mainly' or 'entirely' caused by human activity, compared to just 26% of respondents in Estonia. Almost as many Estonians (23%) thought that climate change was either 'mainly' or 'entirely' caused by natural processes (figure 4)

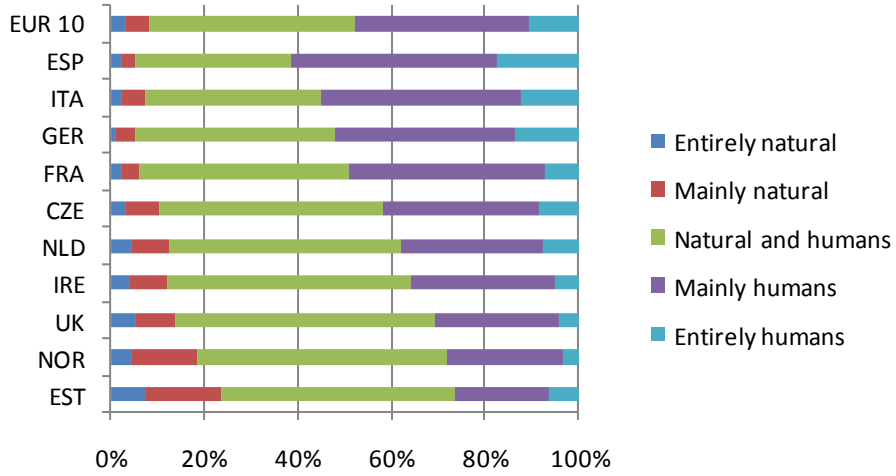

Figure 4: Results to the multiple choice question 'Thinking about the causes of climate change, which, if any, of the following best describes your opinion?' [Source: Q9; Sample = all 10 countries combined; N = 10,106 respondents].

2.1.2 MARINE ENVIRONMENTAL MATTERS

2.1.2.1 Un-prompted 'open-ended' questions on marine environmental matters and marine climate change

Right at the beginning of the survey, respondents were asked to say, in their own words, what the three most important *marine environmental matters* were that came to mind. They were then asked what their top three marine *climate change* issues were. These questions were asked upfront in order to get completely unbiased responses (i.e. before respondents were shown pre-determined lists of issues to consider later on in the survey). These 'open-ended' responses, were translated into English and 'coded' in order to get an impression of the most popular issues raised (e.g. all of the responses that were closely related to 'coastal erosion' were coded as 'coastal erosion').

For the open question on 'marine environmental matters', 'pollution' (as well as'water pollution' and 'oil pollution', featured very prominently. This is very apparent when these coded responses are fed into a word cloud diagram, which emphasises the most popular responses (figure 5).

When the open responses were coded for the 'top three marine environmental matters' at the *country level*, there were a number of differences (refer to Annex 3), most notably:

- Almost 19% of UK respondents, and 16% from Ireland, saw 'coastal erosion' as an important environmental matter. However, 'coastal erosion' hardly showed up at all as an issue for respondents from the Czech Republic, Spain or Norway.
- 'Fish stocks' / 'overfishing' was a much more common response in Germany and Norway (around 14%) than Estonia and Italy (less than 4%)
- 'Aesthetics' accounts for almost 9% of French responses and 6% of Estonian responses, but did not appear as much in responses from any other countries.
- 'Coastal development' was an important issue for respondents in Spain (9% of responses) and to a lesser extent, Italy (4% of responses), but hardly figured in other countries.
- 'Rubbish' / 'litter' was perceived to be a more important problem in the Czech Republic, Estonia and Ireland than other countries.

Figure 5: Results to the open-ended question 'When you are thinking about the coastline or the sea, what are the three most important environmental matters that come to mind?' [Source: Q7; Sample = all 10 countries combined; N = 10,106 respondents].

When subsequently asked to provide spontaneous responses *specifically* on marine climate change issues, sea level rise featured most prominently (figure 6). A wide range of other issues (such as wildlife, erosion and flooding) received a similar level of response behind this. For the spontaneous question on marine climate change issues, it was notable that around 13% of responses answered either 'don't know' or 'nothing' suggesting that a significant proportion of respondents were struggling to name three marine climate change issues.

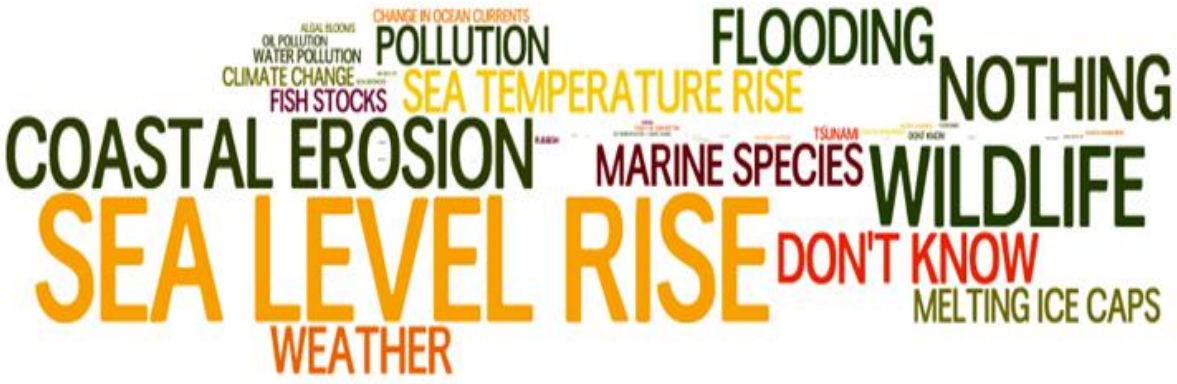

Figure 6: Word cloud of the results to the open-ended question 'Which three things, if any, come to mind when you think about the impacts of climate change on the coastline or sea?' [Source: Q7; Sample = all 10 countries combined; N = 10,106 respondents].

There are also some differences that emerge between countries, most notably:

- Sea level rise was the most frequent response in Germany, France and Spain with coastal erosion coming out top in Ireland and the UK..
- In Norway, The Netherlands, Estonia and Italy the most popular response was either 'don't know' or 'nothing' suggesting not many messages on marine climate change issues are getting through.
- In both Spain and France, 'tsunamis' accounted for about 2% of responses to this question, indicating that these respondents connect tsunamis with climate change.

A full set of 'word clouds' for each country can be found in Annex 3.

2.1.2.2 Awareness and concern on 'prompted' issues

Following up from the unprompted questions on general *marine environmental matters* and *marine climate change issues* the respondents were exposed to a predetermined list of marine environmental matters that were deemed to be particularly important by the CLAMER consortium (including both climate and non-climate related issues). Respondents were asked about how informed *and* concerned they felt about these issues in order to try and understand what the public 'knows and cares about' (figure 7).

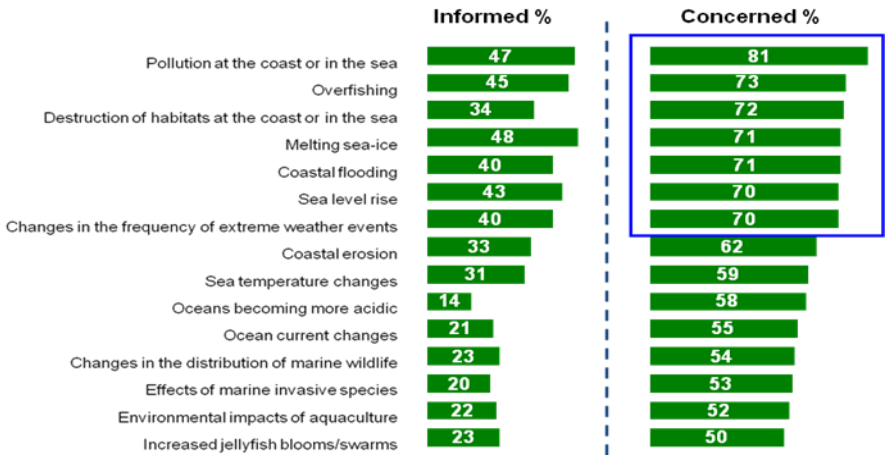

Figure 7: Results to the multiple choice questions 'How informed do you feel about each of the following?' /' ...and now please indicate to what extent do you feel concerned about each of the following?' [Source: Q13 / Q14; Sample = all 10 countries combined; N = 10,106 respondents].

Before considering the results of these questions on knowledge and concern, it should be noted that the polling organisation, *TNS Opinion* believes that respondents generally tend to over-state both their level of knowledge and concern. In general, males tend to claim they are more informed whereas females state they are more concerned. Consequently *TNS Opinion* advised that these results should be interpreted as a broad ranking of relative importance of each issue.

There is generally a strong correlation between how informed the respondents perceive themselves to be and how concerned they are, although some anomalies do exist. This is particularly true for 'oceans becoming more acidic' with only 14% of people saying they are 'informed' about this issue (with a figure as low as 7% in France) but with 58% of people being 'concerned' about it.

Focussing on the results to the question regarding 'concern', 'pollution' came out as the number one issue , across all 10 countries. This strongly reflects the 'unprompted' responses provided in the previous section. It is interesting to note that the next two marine environmental matters that respondents are concerned about are also non-climate related issues. However, some issues that do relate more directly to climate change came very close behind, most notably melting sea-ice, coastal flooding, sea level rise and changes in the frequency of extreme weather events (figure 7). Whilst the prominence of sea level rise in this 'prompted' list largely echoes the 'unprompted' popularity of this response earlier in the survey, melting ice features much more prominently here than in the earlier unprompted question on marine climate change issues.

There are some notable differences by country and across demographic groups for both how informed and how concerned people state that they are about particular issues. With regards to the 'informed' questions, German respondents claimed to be the most informed of the ten countries for 6 out of the 15 topics covered, whilst Italian respondents claimed to be most informed on 5 out of the 15 topics. Dutch and Estonian respondents claim to be the least informed on 5 topics each. In terms of 'concern', Norway came out the least concerned for 6 of the 15 topics, whilst The Netherlands was least concerned for 5 of the topics and Estonia on 4 of the topics.

This part of the survey revealed several surprising trends. For example, at 61%, coastal flooding and sea level rise were the joint second most stated concerns for the Dutch (after pollution). However, these were well below the averages of around 70% for both of these issues, when considered across

all 10 countries. This difference was even more marked for melting sea-ice, with concern being over 15% less in The Netherlands compared to the 10 country pooled average. This is despite the widely-held perception (for example among the CLAMER scientists involved) that citizens of The Netherlands would be most concerned by sea level rise, due to the country's low-lying geography.

With regard to all issues of concern, females generally expressed more concern than males, coastal dwellers more than those living inland and older people more than younger people (especially those in the 55-64 age bracket compared to 18-34 year olds).

Respondents living in coastal areas claimed to be both more informed *and* more concerned than those living inland, for all 15 issues. The results to the question regarding how 'informed' respondents were show particularly apparent differences between coastal populations and non-coastal populations for coastal erosion (41% 'informed' vs. 29%) and jellyfish blooms (30% vs. 20% respectively). For 'concern', differences were particularly marked for coastal erosion (71% 'concerned' vs. 59%), as well as ocean current changes (61% vs. 52%), marine invasives (61% vs. 50%) and jellyfish blooms (58% vs. 47%).

When categorised according to the regional sea experienced the most by the respondents, there were a few issues worth noting with regards to being 'concerned'. For sea temperature change, people visiting the Baltic and Mediterranean expressed most concern compared to those visiting other European seas. People visiting the Mediterranean were also most often more concerned about marine invasives and jellyfish blooms. Habitat destruction stands out as a concern for those visiting the Baltic most often but surprisingly, melting sea-ice was seen as much less of a concern amongst people who visit the Arctic compared to those that visit other seas (although it should be noted that the overall base size was relatively low [81 respondents]).

2.1.3 OCEAN LITERACY

To help interpret whether understanding among the European public is consistent with current scientific knowledge (as reported in the CLAMER Synthesis Report; Heip *et al*., 2011) the respondents were asked about a series of questions relating to the two most common direct measures of environmental change in the marine environment, namely sea temperature change and sea level rise. Broadly speaking, the estimates provided by the public accorded well with expert opinion.

For sea level rise over the next 100 years, 40% of respondents suggested that waters would rise by 10cm to 1 metre with a further 27% saying the figure would be between 1 and 5 metres. The CLAMER Synthesis report discusses sea level change as one of its key themes and the figures from the 2007 IPCC report [of a 19-58cm rise in sea level by end of century] matched well with the responses provided by the general public (Heip et al., 2011). The CLAMER Synthesis Report goes on to state that more recent studies [i.e. since the latest IPCC report was published in 2007] estimate that sea level could rise by anything up to 2 metres by 2100 (with most 'upper' estimates in the range 80cm to 1.6m). It would therefore seem reasonable to state that, given the uncertainty surrounding sea level projections, the estimates provided by over two thirds of respondents matched well with what experts currently propose.

For sea temperature change, the general consensus amongst the public is that sea temperature has risen by less than 2 degrees C over the past century. Looking forward to changes over the coming century, there is a higher percentage of people saying the rise will be greater than 2 degrees C

(figure 8). Both of these estimates accord well with the general scientific consensus. For example, the CLAMER Synthesis Report states that 'the current trend of warming is likely to continue with increases of 2°C and more over this time frame [next 100 years]' (Heip et al., 2011).

Differences between countries in responses for sea temperature rise over the next 100 years, were quite marked in some cases. For instance, only 32% of Estonians thought sea temperature rise would exceed 2 degrees C in the next 100 years compared to 61% of Spaniards.

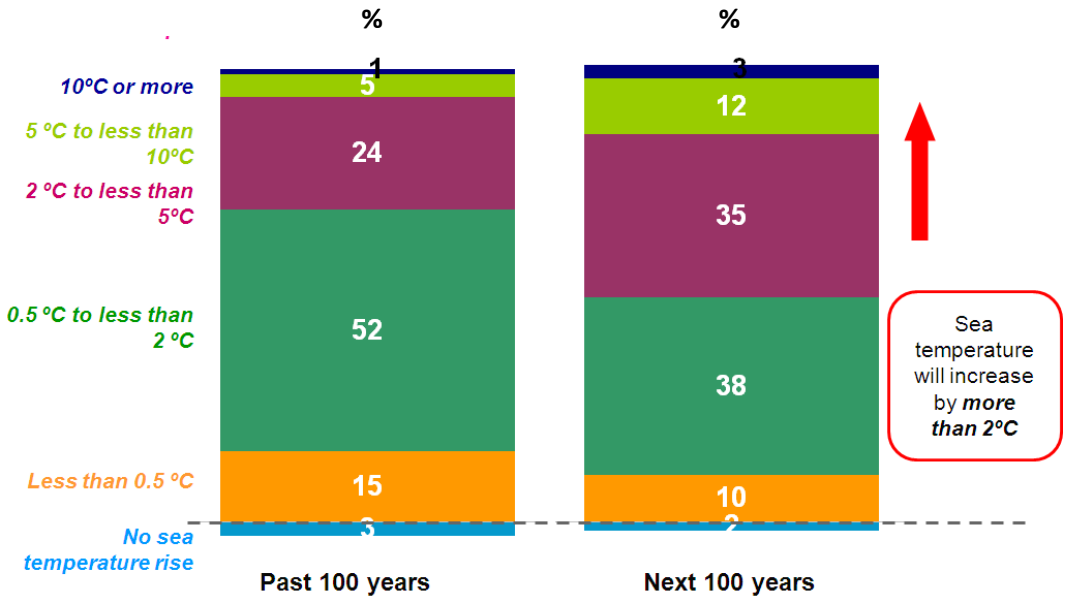

Figure 8: Results to the multiple choice questions 'By how much, if at all, do you think sea temperature around the coasts of [your country] has risen over the past 100 years' / 'will rise over the past 100 years?' (Note for Czech respondents 'Europe' was inserted in parentheses). [Source: Q18 / Q19; Sample = all 10 countries combined; N = 10,106 respondents].

Respondents were also asked about a set list of key marine climate change impacts in order to determine the public's concept of *when* climate change impacts would become apparent. The pooled European data showed that for all six of the issues, at least 50% of the public thought that impacts would become apparent in the next 20 years. When asked about 'changes in the frequency of extreme weather events (e.g. storms)' over 50% of the public thought that impacts were *already* apparent (figure 9). There was a high correlation between those who were 'concerned' about the impacts of climate change from the previous section and how soon they thought impacts would become apparent. Those who were highly concerned thought they could already see these impacts happening.

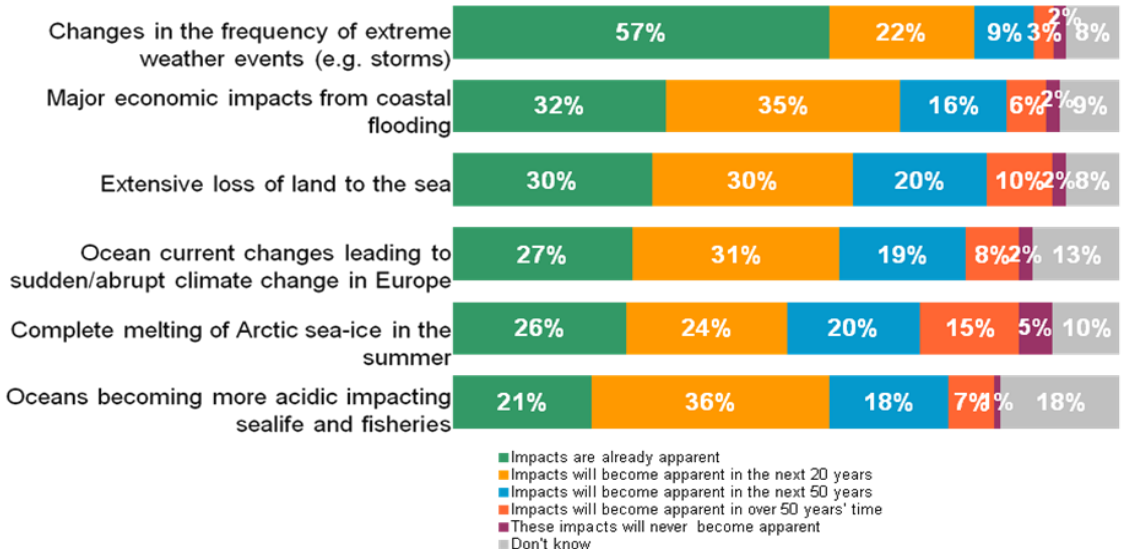

Figure 9: Results to the multiple choice questions 'When, if at all, do you think the following impacts of climate change on the coastline and seas of Europe will become apparent?' [Source: Q15; Sample = all 10 countries combined; N = 10,106 respondents].

Although there was similar agreement across all countries that changes in the frequency of extreme events are either already apparent, or would become apparent in the next 20 years, for other issues certain countries claimed that impacts were already or would become apparent much sooner than other countries. With regards to 'major economic impacts from coastal flooding', Ireland, Czech Republic and France in particular, considered this as a more immediate threat than other countries. Interestingly, The Netherlands stands out as the country that did not have this opinion, with only 21% of respondents saying 'major economic impacts from coastal flooding' were already apparent. With regard to 'extensive loss of land to the sea', France (in particular), along with Ireland, Italy and the UK were most likely to consider this a more immediate problem, whilst Estonia and Norway stood out as the countries that believed this would not become apparent until much further in the future. 'Ocean current changes leading to sudden / abrupt climate change in Europe' were again a more immediate concern according to the Irish (in particular), as well as French and Italian respondents, with Norwegians least likely to say this was already occurring. Complete melting of Arctic sea-ice in the summer was again seen by French respondents as a much more immediate issue than for any of the other countries polled. Acidification was seen as a more immediate threat by Germany, Italy, France and the Czech Republic. In the UK and Norway, almost 30% of respondents said they did not know when impacts from acidification would become apparent (compared to the average of 18% for all countries combined).

When considering differences in answers according to the regional sea experienced most by respondents, those visiting the North Atlantic and Mediterranean were most likely to think that climate change was already causing extensive loss of land to the sea, as well as major economic impacts from coastal flooding. The latter was also true of those visiting the Black Sea, although it should be noted that the base size for people visiting the Black sea was relatively low (60 respondents). People visiting the Baltic were more likely to say that climate change was already causing changes in the frequency of extreme weather events. With regard to melting sea-ice, those people visiting the North Atlantic were most likely to say that climate change was already leading to the complete melting of Arctic sea-ice. For acidification, those people visiting the Baltic, or the Black Sea thought this was already happening.

Females were more likely than males to say that impacts were already apparent for all six issues and in general, the youngest (18-24) and oldest (65+) respondents were least likely to say that impacts were already apparent.

2.1.4 SOURCES OF INFORMATION AND TRUST

A very important area of interest to this project was *how* European citizens obtain information about climate change impacts at the coast or in the sea and to what extent they *trust* different sources of information. With regard to sources of information, the dominant medium was television and in general, there was a good degree of trust in television as a source of information. In general there was a good correlation between the sources of information and the level of trust in each one (figure 10).

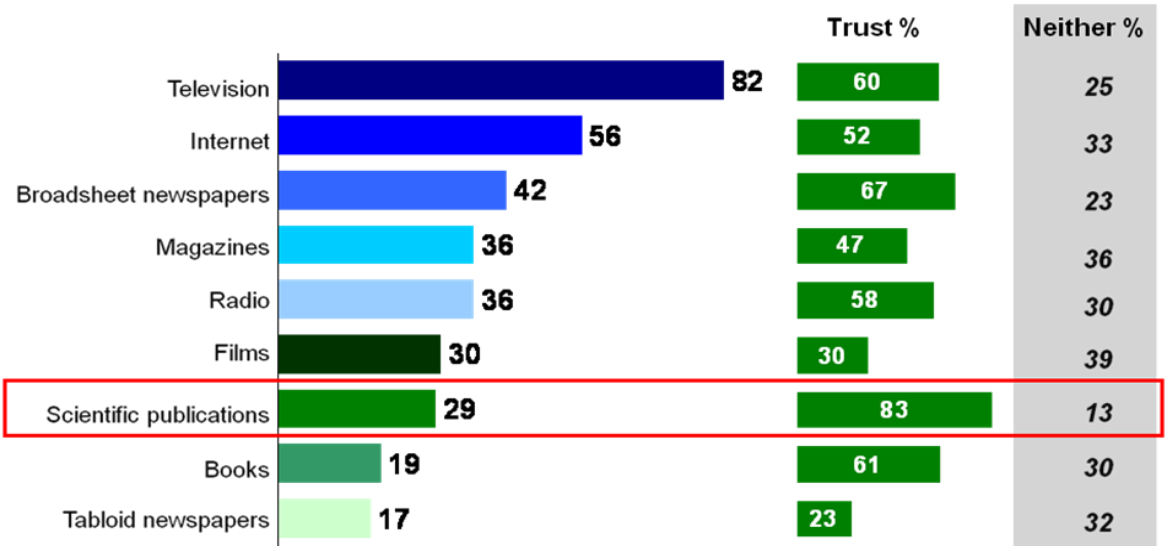

Figure 10: Results to the multiple choice questions 'Where, if at all, have you seen or heard of information about climate change impacts on coastlines or the sea? and 'To what extent, if at all, do you trust* each of the following types of media when providing information about climate change impacts on the coastline or the sea? [Source: Q20/21; Sample = all 10 countries combined; N = 10,106 respondents].

**'Trust' = respondents answering 4 or 5 on a five point scale, where 5 = trust a lot. 'Neither' = respondents answering the mid-point (3) on the same five point scale.*

Trust was particularly high for scientific publications, and a surprisingly high percentage of respondents (29%) claimed that they had heard about climate change impacts at the coastline or in the sea through this medium. This high percentage may be down to scientific publications being cited through other mediums and through articles in popular special interest magazines (e.g. National Geographic).

The UK and The Netherlands both stand out as countries that, in general, claimed to receive the least information on marine climate change issues and also had the lowest levels of trust. Of particular note was the relatively low level of information they received from, and their trust in, the

internet and scientific publications as sources of information on marine climate change. It is interesting to note though that respondents from the UK (as well as Ireland) claimed to obtain a relatively high percentage of their information on marine climate change issues from government reports (20% vs. an average of 11% for the results pooled across countries).

There were a number of other differences regarding both information sources and trust across the different countries studied. For the most popular medium, television, Estonian, and to a lesser extent German and Irish respondents trusted this medium the most as a source of marine climate change information. French respondents trusted television the least amongst the countries polled. For the second most popular source of information, the internet, both its use as a source of information on marine climate change, and trust in it, was highest in the Czech republic (81% usage and 65% trust) and Estonia (74% usage and 62% trust). Although less people used the internet as a source of climate change information in Italy, trust was very high at 70%. Indeed, trust in all sources of information (except TV, radio and film) was relatively high in Italy compared to all other countries.

Looking at demographics, 18-24 year olds were the biggest users of the internet, films and social networking sites as sources of information. Interestingly, there was a clear steady decline in receiving information from friends and family with age, with 32% of 18-24 year olds getting information through friends and family compared to just 14% for the 65+ age group. With regard to trust, females were more trusting than males for all information sources, and in particular television (65 % vs. 54% respectively). Trust also tended to increase with age.

For most sources of information on marine climate change issues, trust was generally greater amongst people living in coastal areas than for those living inland, and was lower amongst people most frequently visiting the North Sea, North Atlantic and Arctic. However, this may just be an artefact, reflecting the fact that some of the least trusting national populations on these issues (UK, The Netherlands and Norway) lie in close proximity to these regional seas.

With regard to trust in *individuals and organizations*, scientists working in research institutes or for NGOs were clearly the most trusted groups, along with NGOs themselves (figure 11).. Industry and local and national government did not score highly, and when scientists were associated with either of these, trust was far lower than for ‘pure’ academics or those linked to NGOs. Whilst the EU didn’t rank highly overall, it fares better than other political or government bodies.

Looking at key demographics, there were some marked differences between groups, especially in distrust ‘when providing information on climate change at the coastline or the sea’. For all organizations and individuals listed, men distrusted organisations and individuals more than women, and in almost all cases, people over 35 expressed more distrust than those aged between 18 and 34.

Between countries, some marked differences between levels of distrust were also apparent. For industry, distrust was as high as 61% in Germany but only 21% in France. This pattern for distrust extended to scientists in industry with 50% distrust in Germany compared to only 15% in France. Citizens of the Czech Republic and Ireland were most likely to distrust their national governments, whilst the Dutch and Norwegians were least likely to do so. Finally, respondents from the UK and Germany were most likely to distrust the EU, whilst levels of distrust of the EU were lowest amongst Italian respondents.

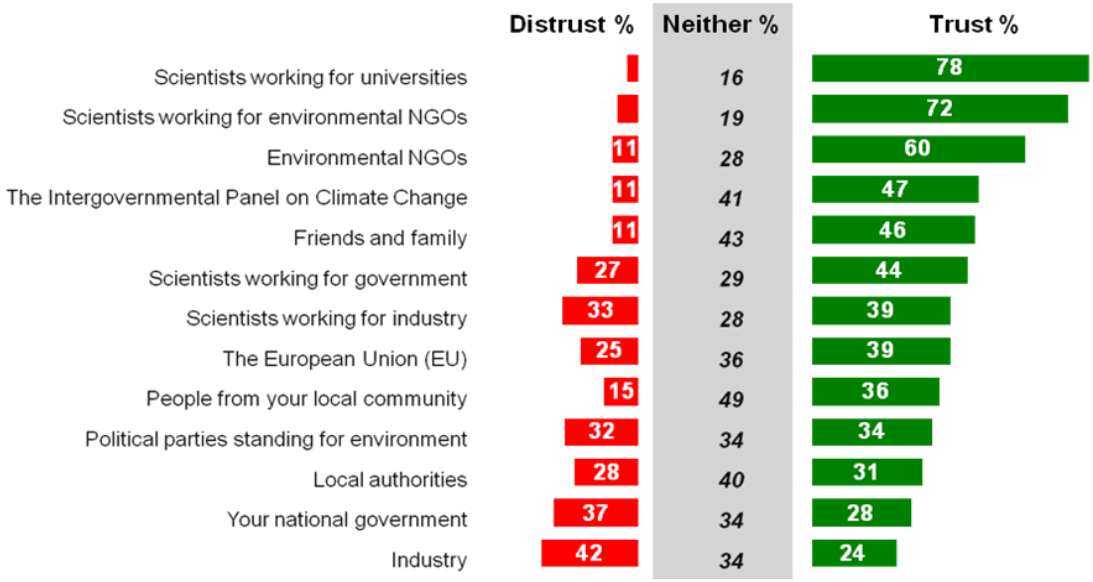

Figure 11: Results to the multiple choice questions 'To what extent, if at all, do you trust* each of the following individuals or organisations when providing information about climate change impacts on the coastline or the sea?' [Source: Q22; Sample = all 10 countries combined; N= 10,106 respondents].

**'Trust' = respondents answering 4 or 5 on a five point scale, where 5 = trust a lot. 'Neither' = respondents answering the mid-point (3) on the same five point scale.*

2.1.5 TAKING ACTION AND PERSONAL RESPONSIBILITY

As part of this study, CLAMER also wanted to learn more about the actions that European Citizens consider to be the most effective to reduce and cope with the impacts of climate change. Looking at the results of the CLAMER survey, there would appear to be a marked disparity between what people claim would be the most effective means of helping to reduce or cope with the impacts of climate change, and the actual actions they take in their everyday lives. The actions people currently take appear to focus more on decisions as 'consumers', such as reducing energy use, buying environmentally friendly or locally sourced foods, reducing water use and taking holidays closer to home (figure 12). However, such actions might equally be interpreted as relating to reducing household expenditure (i.e. economic incentives) as opposed to concerted actions aimed at reducing environmental impact.

In this respect, there were some interesting differences that emerged at the country level. With regard to the most popular choice of actions that people *should* take, namely reducing energy use at home, the strongest advocates for this course of action were respondents from Norway and Spain, whilst the citizens of Czech Republic and Estonia were least likely to say this. Again the Czechs, along with the French were least likely to say that we should be using sustainable energy sources, with the Spanish being strongest advocates of this option.

Environmentally friendly transportation scored very highly amongst the citizens of Czech Republic with the percentage of the population favouring this almost double that of UK, Ireland and The Netherlands. Reducing water use at home was much less favoured by the Norwegians, where presumably water is in more plentiful supply than it is in Spain or France. This is reflected in the comparatively low figures for action *actually* taken to reduce water usage in Norway.

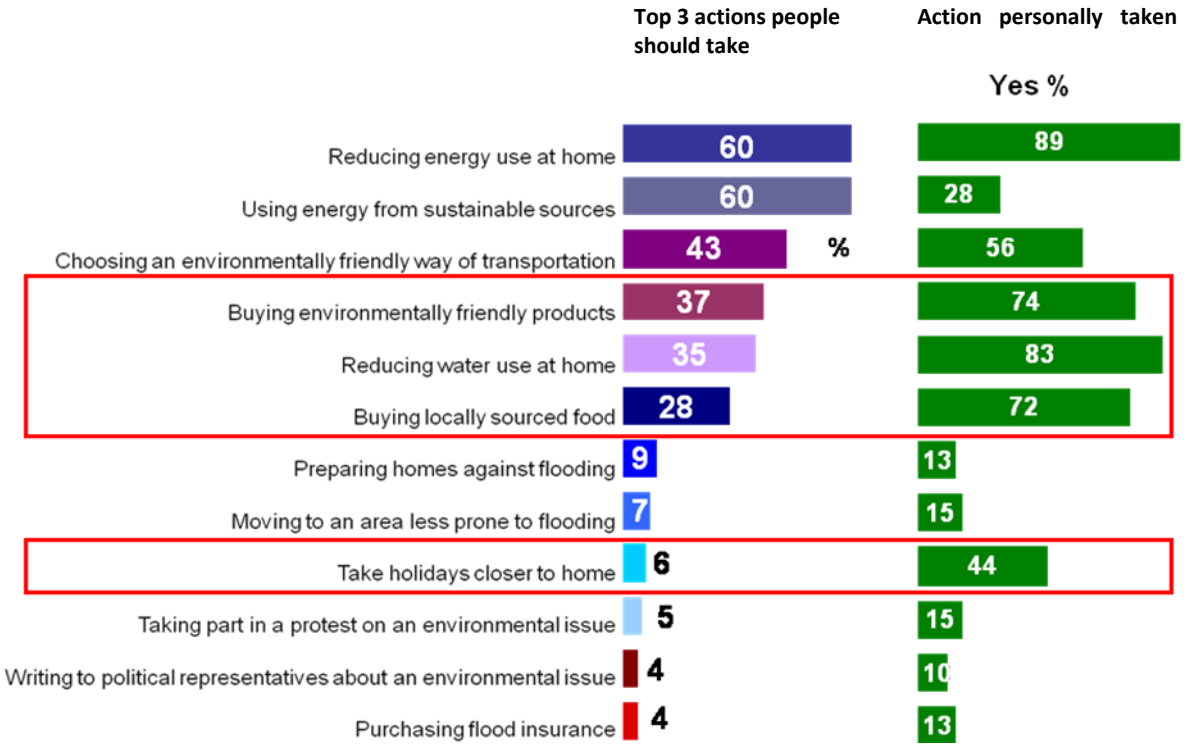

Figure 12: Results to the multiple choice questions 'select the three most effective actions individuals should take to reduce and cope with the impacts of climate change' and 'Have you taken any of the following actions to reduce and cope with the impacts of climate change' [Source: Q24a / Q25; Sample = all 10 countries combined; N = 10,106].

In terms of what people *actually* do, reducing energy use at home was fairly universal across the countries studied, although Norway comes out lowest (which is at odds with the fact that this scores highest when asked what people *should* do). Buying locally sourced food was much less common in Norway and The Netherlands than all of the other countries studied, whilst using energy from sustainable sources was much more prevalent in The Netherlands and Germany than it was in the UK. 'Taking holidays closer to home' was a more common response in Czech Republic and Estonia than in France or Norway, although the driver of this could be as much (or more) to do with economic factors as with reducing impacts on the environment. Italians and Spanish citizens were much more likely to have taken part in an environmental protest than many of their northern European neighbours, especially people from the UK, Estonia, The Netherlands, Germany and Norway.

It is interesting to note that for the Czech Republic, the number of respondents mentioning flood related issues (and in particular saying they have taken action to prevent flooding impacts) was comparatively high, although the French too appeared to be highly active in preventing flood impacts. For citizens of the Czech Republic, this may be a response to the devastating floods that Eastern Europe has suffered in recent years as a result of extreme rainfall events.

There were also a number of interesting points to note concerning differences by age for what *should* be done to tackle climate change. The youngest age groups (18-34 year olds) were most likely

to say that people *should* choose an environmentally friendly way of transportation but were the least likely to say that people *should* buy locally sourced food. The oldest age group (65+) was the least likely to think that we *should* use sustainable energy sources to combat climate change.

In terms of personal action taken, there were some general trends by gender. Females tended to be more pro-active than males and, at least for the more common actions taken, there was an increase in actions taken as age increases. Interestingly, the reverse trend was true for 'moving to an area less prone to flooding' which was most prevalent amongst 18-34 year olds.

Focussing on how effective different *groups* are at tackling climate change, the results largely reflected earlier opinions expressed about trust in sources of information, with NGOs faring well, industry and government faring badly and the EU doing well compared to other political bodies (figure 13).

Between countries, there were marked differences on the perceived effectiveness of different individuals and organisations in tackling climate change at the coastline or in the sea. Charities and NGOs were viewed much more positively in France, Italy, Spain and Ireland than in The Netherlands and the Czech Republic. National governments were viewed most favourably in The Netherlands and Estonia, whilst local government came out relatively well in Norway and France. In general, citizens of the Czech Republic scored much lower than everyone else, particularly for the effectiveness of individual citizens. Germans also tended to be less positive than other countries. The European Union divided opinion across the countries studied, with very positive responses from Estonia (68% 'effective'), Italy (67%) and Spain (64%) compared to much more negative responses from France (39% 'effective'), Czech Republic (39%), UK (38%) and Germany (33%).

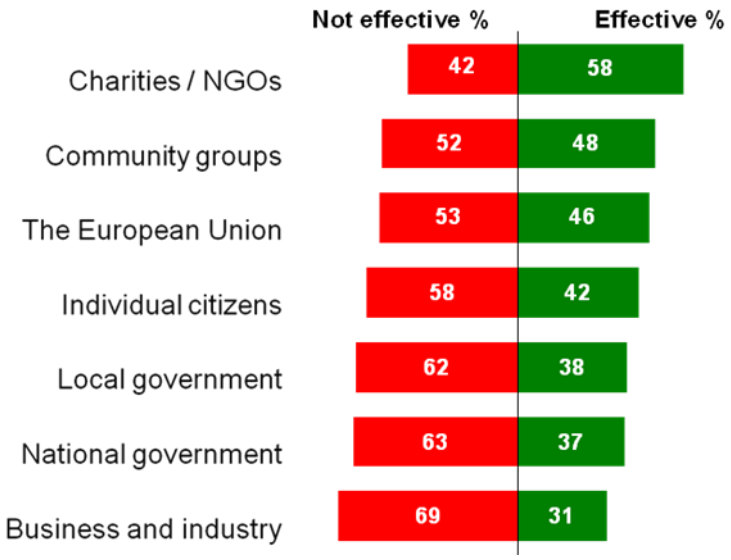

Figure 13: Results to the multiple choice question 'How effective are the following in tackling climate change impacts at the coastline or in the sea?' [Source: Q23; Sample = all 10 countries combined; N= 10,106 respondents].

In terms of demographic group differences, again females provided more positive responses than males (this is especially true concerning the effectiveness of charities and NGOs). For almost all the

individuals or organisations listed, positive responses declined with age, and in some cases these declines were quite marked. For example, 41% of 18-24 year olds thought that business and industry were effective at tackling climate change impacts at the coastline or in the sea, compared to just 21% of those over 65. For Charities and NGOs, 69% of 18-24 year olds were positive compared to 46% of over 65s.

Looking at the extent to which the general public feels they can *'influence decisions to manage the impacts of climate change'*, perhaps unsurprisingly there was a decrease as we move from local, national, regional through to European level, although the drop off wasn't that large (almost 40% of people still agreed that they could influence decisions at the European level, compared to 55% for local level decisions; figure 14).

Figure 14: Results to the multiple choice question 'How much do you agree or disagree that you can influence the decisions that are made at each of these levels to manage the impacts of climate change?' [Source: Q26; Sample = all 10 countries combined; N = 10,106 respondents].

Looking at the country level, respondents from France, and to a lesser extent Italy, were more likely to say that they could influence decisions at *all* four levels compared to the other countries studied. For influence at the European level, France particularly stood out with 51% of respondents 'agreeing' that they could influence decisions on climate change issues compared to just 23% for the UK (Norway scored even lower at 20% but this is to be expected as it isn't in the EU).

Females were more likely than males to agree that they could influence decisions at all levels, and older people were more likely than younger people to agree that they could influence decisions (except at the European level where the youngest group was a little higher than the other age groups).

2.2 POLICIES AND RESEARCH PRIORITIES - WHAT DO THE PUBLIC THINK?

2.2.1 CLIMATE CHANGE AND MARINE POLICIES

In the final section of the survey, respondents were asked to think about a range of marine and climate change *policies*, and to highlight the issues that they considered important for the EU to prioritise on. CLAMER also aimed to gauge the awareness by European citizens of EU *research* concerning key areas on marine climate change impacts.

When asked about the top three priorities for EU marine and climate change *policies*, by far the most popular response from the defined list was a tightening of controls on chemicals released into the sea, a topic that is *not* directly related to climate change. Two of the other top responses (limiting over-fishing and limited commercial activities in the sea), were not directly related to climate change issues either. The most prioritised climate change issues were related to climate change *mitigation* (either limiting emissions through international agreements or actively removing CO_2 from the atmosphere), with research into the *impacts* of climate change at the coast or in the sea coming near the bottom of the list (figure 15).

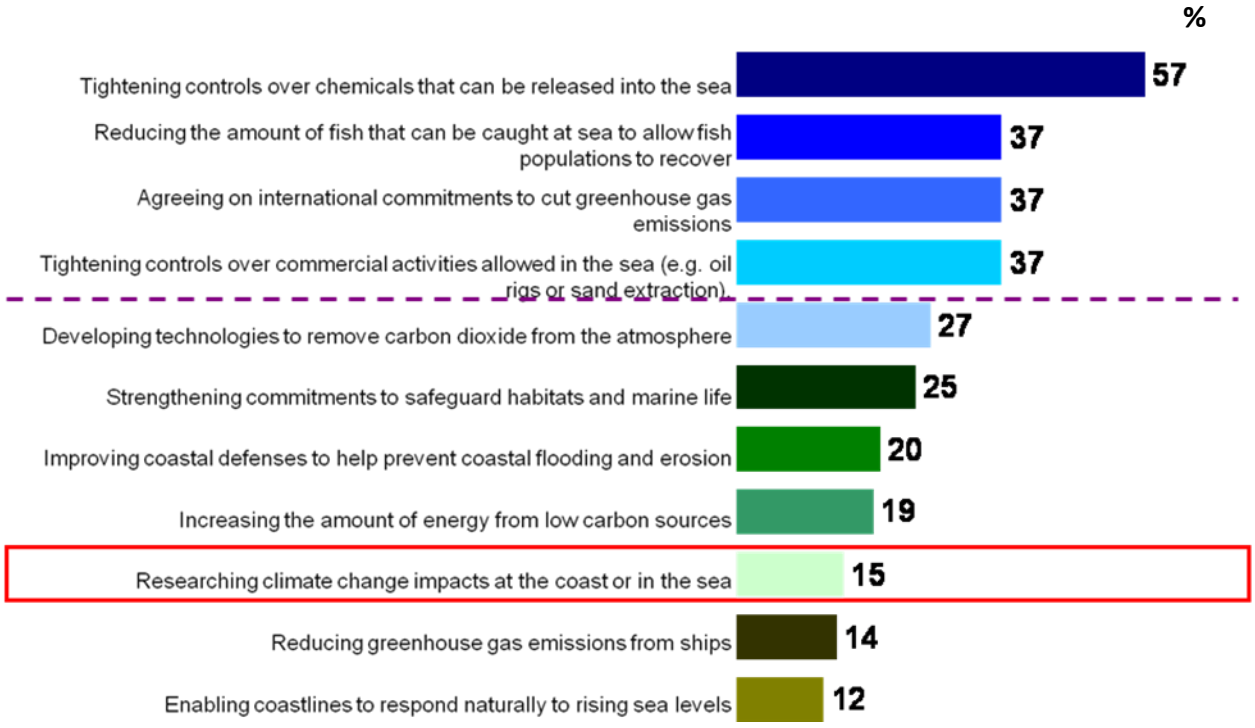

Figure 15: Results to the multiple choice question 'If you had to decide what climate change and marine policies should be prioritised by the European Union, which three would you select from the list below?' [Source: Q27; Sample = all 10 countries combined; N = 10,106 respondents].

At the country level, tightening controls over chemicals was the top priority for all countries polled. This was a particularly popular response for Estonia and the Czech Republic, where 71% and 69% of respondents respectively, included this in their top three priorities. Tightening controls over

commercial activities in the sea also scored particularly highly in these two countries, with 58% of respondents listing this in their top three priorities in the Czech Republic and 57% in Estonia.

Of the other three most popular responses overall, reducing fishing fared well everywhere except Italy. Agreeing on international commitments to cut climate change was a more popular choice in Italy (along with Spain) and was least popular in France.

Coastal defences featured highly in UK (32%) and The Netherlands (28%) but scored only 9% in Norway and 10% in Spain. Increasing use of energy from low carbon sources was also relatively popular in the UK, as well as in France and Ireland but much less popular in the Czech Republic. Norway stood out as the country where researching climate change impacts at the coast or the sea found most favour with 25% of respondents including this in their top three priorities.

The youngest age group (18-24) tended to score policies associated with reducing the amount of CO_2 in the atmosphere (whether that be through international agreements, developing low carbon energy sources or technologies to actively remove CO_2 from the atmosphere) more highly than older age groups. Tightening controls over the chemicals that can be released into the sea, whilst still the most popular response amongst 18-24 years, was much lower than for the oldest two age groups (48% vs. 61%). The oldest two groups were also more likely to say that improving coastal defences was a priority compared to younger age groups.

There were a number of notable differences according to the sea with which respondents interacted with most. People visiting the Baltic most often were much more likely to prioritise 'tightening controls over commercial activities in the sea' than people visiting other seas (except the Black Sea, but the base size for this sea was relatively low). The other issue that particularly stood out concerned people visiting the North Sea most, who were more likely to choose 'improving coastal defences' as a priority.

2.2.2 EU MARINE CLIMATE CHANGE RESEARCH THEMES – AWARENESS AND PRIORITIES

A fundamental question for the CLAMER project concerned the level of awareness amongst the European populace on the main marine climate change research themes currently being funded by the EU. CLAMER identified 13 key research areas related to marine climate change, which the EU has supported during the recent FP5, FP6 and FP7 funding programmes (Calewaert *et al.*, 2011).

With regard to *awareness*, it was clear that studies of melting sea-ice stood out with almost 50% of the total sample having heard about such research. More generally, studies related to physical impacts of climate change (except for acidification) scored more highly than social and economic impacts (figure 16).

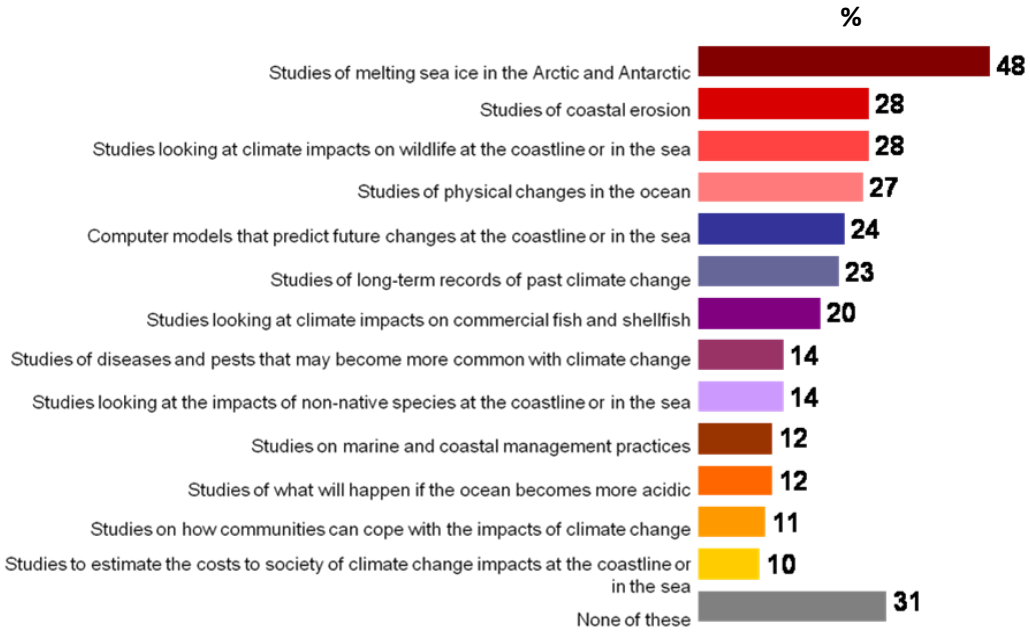

Figure 16: Results to the multiple choice question 'Which of the following research themes that the EU is currently funding into climate change impacts at the coastline or in the sea have you heard about?' [Source: Q28A; Sample = all 10 countries combined; N = 10,106 respondents].

When the results were analysed separately per country, there was considerable variation between them in terms of stated awareness of research themes. Awareness of research on coastal erosion varied from relatively high awareness in Ireland (40%), Italy (37%) and UK (34%) to much lower figures in The Netherlands (16%) and Norway (13%). Awareness of studies looking at climate impacts on marine wildlife was particularly high in Spain (39%) and to a lesser degree France (34%) but was as low as 10% in The Netherlands. There was generally more awareness of computer modelling studies in Germany and Czech Republic than in the UK, Spain and Norway and a much greater awareness of past climate studies in Germany than all other countries, especially Norway. Awareness of climate impacts on fish and shellfish was much higher in the Czech Republic than other countries, awareness of 'diseases and pests' was highest in Spain and of 'non-native species' in Estonia.

In general, stated awareness of the 13 research themes was highest in Italy, Spain and the Czech Republic and lowest in, The Netherlands, Norway and UK (almost half of UK respondents said that they had not heard about any of the 13 research themes listed).

When considered according to key demographics, awareness of 10 of the 13 issues raised was highest amongst the two oldest age groups (55+). The exceptions to this were computer modelling and social and economic impacts, where the 18-24 year olds scored most highly. People aged between 25 and 54 were generally less aware of the listed research themes than the youngest and oldest age groups. Perhaps unsurprisingly, people living in coastal areas had a higher awareness of issues relating to coastal erosion and marine and coastal management practices than those living inland.

With regards to research *priorities*, there was a clear link between the research themes that respondents were most aware of, and the top three research themes that they thought should be prioritised (figure 17). The exception to this was 'coastal erosion' which falls down the list of priorities despite the public having a relatively high awareness of it. Conversely, studies on 'diseases and pests' and 'how communities can cope with climate change' were relatively high up the list of priorities despite the public not being very aware of these research themes. Research looking at the 'costs to society of climate change' as well as 'impacts of non-native species' were of lowest priority for the public.

	Priority (top 3)	**Awareness** %
Studies of melting sea-ice in the Arctic and Antarctic	**1**	**1**
Studies of physical changes in the ocean (e.g. ocean currents, storms and waves)	**2**	**3**
Studies looking at climate impacts on wildlife at the coastline or in the sea	**3**	**2**
Studies of diseases and pests that may become more common with climate change	**4**	**7**
Studies on how communities can cope with the impacts of climate change	**5**	**9**
Studies of coastal erosion	**6**	**2**
Studies of what will happen if the ocean becomes more acidic	**7**	**8**
Computer models that predict future changes at the coastline or in the sea	**8**	**4**
Studies looking at climate impacts on commercial fish and shellfish	**9**	**6**
Studies of long-term records of past climate change	**10**	**5**
Studies on marine and coastal management practices	**11**	**8**
Studies to estimate the costs to society of climate change impacts at the coastline or in the sea	**12**	**10**
Studies looking at the impacts of non-native species at the coastline or in the sea	**13**	**7**

Figure 17: Results to the multiple choice questions 'Which of the following research themes that the EU is currently funding into climate change impacts at the coastline or in the sea have you heard about?' and 'if you had to decide what research into climate change impacts at the coastline or in the sea should be prioritised in the future by the European Union, which three from the list below would you choose?' [Source: Q28A/ Q28B; Sample = all 10 countries combined; N = 10,106 respondents].

Looking at country level responses on research priorities, studies of melting sea-ice were regarded as universally important across all 10 countries. In only one country (Estonia) did this not come in first place, and then it was only pushed into second place by 1%.

For the remaining 12 issues listed, there were marked differences in opinion between countries. Studies of physical changes featured most prominently in Estonia, whilst the importance of research related to impacts on wildlife was seen as particularly important in Spain, but much less so in The Netherlands, a fact that strongly reflects the much higher stated awareness of this issue in Spain than The Netherlands. Studies of diseases and pests were regarded as more important by Estonians,

the French and the Spanish whilst responses of 'coastal communities' (i.e. socio-economic studies) were regarded as being particularly important to Norwegians. 'Coastal erosion' was seen as more of a priority for respondents from the UK and Ireland than other countries. The Czech Republic appeared very concerned about impacts on fish and shellfish, especially when compared to Estonians. Citizens of Germany regarded studying long term records of climate change as being important relative to other countries, especially Spain. Studies on marine and coastal management practices were more important to the Dutch than all other nations surveyed and studies on 'non-native species' were more important to the Norwegians than anyone else.

With regards to demographics, studies looking at wildlife, pests and diseases, and how human communities can cope with climate change were typically more important to women than men. A higher proportion of men thought that computer modelling of climate, studying past records and estimating costs to society of climate change were priority areas of research. The most obvious trend according to age was an increase in the perceived importance of coastal erosion studies with age. Conversely, a higher proportion of younger people felt that estimating the economic costs to society should be a priority area of research.

People living in coastal areas were more likely to say that coastal erosion studies were a priority compared to those living inland, although there was little difference between these groups regarding the importance of marine and coastal management practices. People visiting the Arctic most often felt that studies on acidification and non-natives species were a higher priority than respondents visiting other seas (although the base size was quite low) and studying long term climate records was seen as more important to people visiting the Baltic and North Sea than other regional seas of Europe.

3 SUMMARY AND CONCLUSIONS

3.1 SUMMARY

The CLAMER survey on European public awareness and perception of marine climate change risks and impacts showed that at a broad level, the public continue to regard climate change as one of the most important problems we face, with almost a fifth of respondents saying this issue is the most serious problem facing the world today. Only 'poverty, lack of food and drinking water' scored more highly in our survey. The UK and Czech Republic were slight exceptions to this rule, being the only countries where climate change did not rank as one of the top three global issues. It was also notable that older people (especially over 65s) were less likely to say that climate change is the most serious problem facing the world today.

Looking at the causes of climate change, the vast majority of the 10,000 respondents from across Europe thought that climate change was caused at least in part by human activity. Estonia and Norway were a little less likely to believe that this is the case, with Spain at the other end of the spectrum, with the majority saying that humans are either mostly or entirely to blame for climate change.

Looking at the ranking of how informed and concerned the public are about marine environmental matters, it was interesting to note that it is pollution, a non-climate change issue that people were most concerned about. However a number of climate change issues featured relatively highly on the list of issues respondents were most concerned about, notably melting sea-ice, coastal flooding, sea level rise and changes in extreme weather events. There was relatively low awareness about oceans becoming more acidic, despite ocean acidification being a major EU research theme. This limited knowledge may be due to the fact that this particular issue seems less 'visible' than some of the other climate related impacts listed, and it remains unclear how and whether this long-term change will impact people's daily lives.

Broadly speaking, there was a positive correlation between how informed and concerned the public were on the issues listed, and coastal populations were typically more informed and concerned than those living inland. There were also some clear differences between countries in how informed and concerned people stated they were. This is of relevance for European projects and how or whether they choose to attempt to communicate with the public in different countries.

Public understanding of likely impacts (sea temperature change and sea level rise) tallied remarkably well with current scientific understanding, suggesting that the public has a fair degree of understanding or intuition about the likely magnitude of changes involved for these issues. With regards to *when* impacts might become apparent, it is arguably the most visible of those impacts, i.e. changes in extreme events, which the public perceived as the most immediate threats. The least 'visible' and most poorly understood impact, ocean acidification, was regarded as being the least immediate threat.

With regards to sources of information on marine climate change, television and the internet generally dominated although a surprisingly high proportion of respondents said they got their information through scientific publications. Trust in scientific publications was generally much higher than for all other forms of media although broadsheet newspapers, TV and books also scored fairly well. Trust in different organisations or individuals again showed that the public generally have most

faith in scientists (although this is significantly lower for scientists working for government or industry), with NGOs also faring well. Whilst the EU came someway down the list it is more trusted than local and national political bodies. Industry came at the bottom of the 'trusted' list.

The patterns seen for levels of trust were mirrored in the poll results concerning the organisations and individuals perceived as effective at taking action. NGOs fared well, (along with community groups), the EU was as more effective than local and national governments and I industry came bottom. Across Europe, respondents felt they generally had more influence at the local than European level, although the difference was not that marked. Half of the respondents in France felt they could influence decisions at the EU level, a figure much higher than for all of the other countries polled.

When asked which marine and climate change policies should be prioritised by the EU, it was again a non-climate change related option that was the clear favourite (namely 'tightening controls over chemicals that can be released into the sea'). The most popular climate change related options were associated with climate change mitigation (through reduction in atmospheric CO_2) rather than understanding, or reducing the effects of climate change
Finally, looking at EU research themes, awareness of research on melting sea-ice stands out with almost half of all polled respondents having heard about this issue. Of all the other research themes listed, it was evident that more people had heard about research associated with physical changes than research associated with social and economic impacts of climate change. Almost a third of all respondents had not heard of any of the 13 research themes listed. This figure rose to almost half of all respondents in the UK.

There was a clear link between the research themes that respondents had heard of and those that the public thought should be prioritised. The most notable exception to this was 'erosion' which came further down the list of priorities. Conversely, studies on disease and pests, along with impacts on communities were high up the list of priorities even though relatively few respondents were aware of research going on in these areas.

3.2 CONCLUSIONS

Listed below are the preliminary conclusions from the polling exercise. Much more detailed conclusions (as well as discussion and analysis) are included in the summary card synthesising all of the CLAMER public perception work (i.e. the detailed literature review of previous public perception studies on climate change and / or marine environments, the review of past outreach activities for related European science framework projects and the workshop with the public that compliments this poll).

1. There were many subtle differences across Europe with regard to perceptions, awareness and stated research priorities concerning climate change in the oceans and seas which the EU should take note of.

2. Whilst understanding of some key topics is good (e.g. sea level rise), there is limited public awareness of some scientific issues (e.g. acidification), possibly reflecting a failure of communication in some instances (by scientists, project leaders, governments and policy makers). More emphasis is required on techniques to engage the public and on wider dissemination where awareness is lacking.

3. Scientists should consider where the public get their information from (mostly television and the internet) and how citizens come to the opinions they do, and thereby target correspondence and communication on the most trusted and used media sources (being aware that certain types of scientist are more trusted that others).

4. Scientific topics that the public are interested in and prioritise as being important are not always the same as those that would be prioritised by policy makers, research funders and the scientists themselves. Marine climate change issues are typically viewed as being of lower priority and importance when compared with other marine environmental issues. The utility of certain research strands concerning climate change in the oceans and seas remain poorly understood and consequently are valued less than issues of immediate and recognizable threat to individuals and society.

5. Public perception regarding climate change in the oceans and seas is almost universally negative, focussing on threats rather than any potential opportunities.

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ANNEX 1. THE CLAMER QUESTIONNAIRE

Dear Participant,

Thank you for responding to our invitation. We would now like to ask you a few questions about your opinions on environmental issues. Your opinion is critical to understand better how to find solutions to today's environmental problems. This survey will take approximately xx minutes to complete. If you have any questions, please e-mail us at (insert relevant address).

Your answers will be treated anonymously

Q.A Code Country of sample

	CODE
Czech Republic	
Norway	
Estonia	
UK	
Netherlands	
Germany	
France	
Italy	
Spain	
Ireland	

ESTONIA ONLY

Q1 Please select your language

	Language – *(Please select only one answer)*
Estonian	
Russian	

Q3 What is your gender?

	Gender
Male	1
Female	2

CHECK QUOTAS. IF FULL SHOW TERMINATION SCREEN 1

Termination screen 1: Thank you for your time. You are not part of the target group for this project, but we'll send you new survey opportunities soon

Q4 How old were you on your last birthday? Please type your age in the box below.

	Insert exact age

Age on last birthday	1
Refuse	

If age < 18 - End of the interview - Control quotas - CHECK QUOTAS. IF FULL SHOW TERMINATION SCREEN 1

Termination screen 1: Thank you for your time. You are not part of the target group for this project, but we'll send you new survey opportunities soon

Q5A. Please indicate where you live?
(Select only one answer)

CZECH REPUBLIC (FOR QUOTAS)
Prague
Central Bohemian
Plzen
South Bohemian
Karlovy Vary
Ústi nad labem
Liberec
Hradec Králové
Pardubice
Vysocina
South Moravian
Olomouc
Moravia-Silesian
Zlín

NORWAY (FOR QUOTAS)
Akershus
Aust-Agder
Bergen
Buskerud
Finnmark
Hedmark
Hordaland
Møre og Romsdal
Nordland
Nord-Trøndelag
Oppland
Oslo
Rogaland
Sogn og Fjordane
Stavanger
Svalbard
Sør Trøndelag
Telemark
Troms
Tromsø
Trondheim
Vest-Agder
Vestfold
Østfold

ESTONIA (FOR QUOTAS)
Tallinn
Põhja-Eesti
Ida-Virumaa
Lääne-Eesti
Kesk-Eesti
Lõuna-Eesti

UK (FOR QUOTAS)
North East
North West
Yorkshire and the Humber
East Midlands
West Midlands
East of England
London
South East
South West
Wales
Scotland

NETHERLANDS (FOR QUOTAS)
Drenthe
Flevoland
Friesland
Gelderland
Groningen
Limburg
Noord-Brabant
Noord-Holland
Utrecht
Zeeland
Zuid-Holland
Overijssel

GERMANY (FOR QUOTAS)
Baden-Württemberg
Bayern
Berlin
Brandenburg
Bremen
Hamburg
Hessen
Mecklenburg-Vorpommern
Niedersachsen
Nordrhein-Westfalen
Rheinland-Pfalz
Saarland
Sachsen
Sachsen-Anhalt
Schleswig-Holstein
Thüringen

FRANCE (FOR QUOTAS)

Alsace
Aquitaine
Auvergne
Bourgogne
Bretagne
Centre
Champagne-Ardennes
Corse
Franche-Comté
Ile-de-France
Languedoc-Roussillon
Limousin
Lorraine
Midi-Pyrénées
Nord-pas-de-calais
Basse-Normandie
Haute-Normandie
Pays-de-la-loire
Picardie
Poitou-Charentes
Provence-Alpes-Côte-d'Azur
Rhone-Alpes

ITALY (FOR QUOTAS)
Abruzzo
Basilicata
Calabria
Campania
Emilia Romagna
Friuli Venezia Giulia
Lazio
Liguria
Lombardiy
Marche
Molise
Piedmont
Puglia
Sardinia
Sicily
Tuscany
Trentino Alto Adige
Umbria
Valle d'Aosta
Veneto

SPAIN (FOR QUOTAS)
Andalusia
Aragon
Asturias
Balearic Islands
Canary Islands
Cantabria
Castille-Le Mancha
Castile-Leon

Catalonia
Madrid
Valenciana
Euskadi
Extemadura
Galicia
Navarre
Principado de Andorra
Murcia
La Rioja

IRELAND (FOR QUOTAS)
Connacht
Dublin
Munster
Rest of Leinster
Ulster

OVERSAMPLE ONLY
Q5B Do you live in any of the following regions?
(Select only one answer)

	COUNTRY
Coastal region 1	
Coastal region 2	
Coastal region 3	
Coastal region 4	
Coastal region 5	
Coastal region 6	
Coastal region 7	
Coastal region 8	
Coastal region 9	
Coastal region 10	
…	

ASK Q5C AND Q5D IN THE UK ONLY – SOCIAL GRADE (FOR QUOTAS)
Q5C Please indicate to which occupational group the Chief Income Earner in your household belongs, or which group fits best.
This could be you: the Chief Income Earner is the person in your household with the largest income.
If the Chief Income Earner is retired and has an occupational pension please answer for their most recent occupation.
If the Chief Income Earner is not in paid employment but has been out of work for less than 6 months, please answer for their most recent occupation.
(Please select only one answer)

Semi or unskilled manual work *(e.g. Manual workers, all apprentices to be skilled trades, Caretaker, Park keeper, non-HGV driver, shop assistant)*
Skilled manual worker *(e.g. Skilled Bricklayer, Carpenter, Plumber, Painter, Bus/ Ambulance Driver, HGV driver, AA patrolman, pub/bar worker, etc)*
Supervisory or clerical/ junior managerial/ professional/ administrative *(e.g. Office worker, Student Doctor, Foreman with 25+ employees, salesperson, etc)*

Intermediate managerial/ professional/ administrative *(e.g. Newly qualified (under 3 years) doctor, Solicitor, Board director small organisation, middle manager in large organisation, principle officer in civil service/local government)*
Higher managerial/ professional/ administrative *(e.g. Established doctor, Solicitor, Board Director in a large organisation (200+ employees, top level civil servant/public service employee)*
Student
Casual worker – not in permanent employment
Housewife/ Homemaker
Retired and living on state pension
Unemployed or not working due to long-term sickness
Not working due to disability
Full-time carer of other household member

Q5D. What is your working status?
(Please select only one answer)

FULL-TIME PAID WORK (30+ HOURS PER WEEK)
PART-TIME PAID WORK (8-29 HOURS PER WEEK)
PART-TIME PAID WORK (UNDER 8 HOURS PER WEEK)
RETIRED
STILL AT SCHOOL
IN FULL TIME HIGHER EDUCATION
UNEMPLOYED (SEEKING WORK)
NOT IN PAID EMPLOYMENT (NOT SEEKING WORK)

START

Q6 In your opinion, which of the following do you consider to be the most serious problem currently facing the world as a whole?
Please select only one answer

Rotate statements (keep 'Other Specify' and 'None of these' to the end – Single answer only	**Please select one answer**
Climate change	
International terrorism	
Poverty, lack of food and drinking water	
The spread of an infectious disease	
A major global economic downturn	
The proliferation of nuclear weapons	
Armed conflicts	
The increasing world population	
Other (PLEASE SPECIFY)_____	
None of these	

Q7 When you think about the coastline or the sea, what are the three most important environmental matters that come to mind?
Please be as specific as possible. Maximum 4 words per line.

	Environmental Matter

	Please be as specific as possible – Max 4 words
1	
2	
3	

Q9 **Thinking about the causes of climate change, which, if any, of the following best describes your opinion?**
Please select only one answer

Rotate statements (Keep Don't know to the end) – Single answer only	Please select one answer
Climate change is entirely caused by natural processes	
Climate change is mainly caused by natural processes	
Climate change is partly caused by natural processes and partly caused by human activity	
Climate change is mainly caused by human activity	
Climate change is entirely caused by human activity	
There is no such thing as climate change	
Don't know	

Q11 **Which three things, if any, come to mind when you think about the impacts of *climate change on the coastline or the sea*?**
Please be as specific as possible. Maximum 4 words per line.

	Impacts of climate change on the coastline or the sea – Please be as specific as possible – Max 4 words
1	
2	
3	

Q12 **And for each impact you have mentioned, please indicate, if it is 'a good thing', 'neither a good thing nor a bad thing', or 'a bad thing'.**
Please select only one response for each statement

	ROWS (INSERT ANSWERS FROM Q11)	A good thing	Neither a good nor a bad thing	A bad thing
1				
2				
3				

Q13 How informed do you feel about each of the following?
Please select only one response for each statement

ROTATE STATEMENTS	5. Very well informed	4	3	2	1. Not informed at all	Don't know **(ONLY SHOW IF RESPONDENT DOES NOT GIVE AN ANSWER FOR A STATEMENT BEFORE MOVING ON TO THE NEXT SCREEN)**
Ocean current changes						
Melting sea-ice						
Sea level rise						
Coastal flooding						
Changes in the frequency of extreme weather events (e.g. storms)						
Environmental impacts of aquaculture (fish or shellfish farming)						
Overfishing						
Effects of marine invasive species						
Oceans becoming more acidic						
Sea temperature changes						
Destruction of habitats at the coast or in the sea						
Pollution at the coast or in the sea						
Coastal erosion						
Changes in the distribution of marine wildlife						
Increased jellyfish blooms/swarms						

Q14 And now please indicate to what extent do you feel concerned about each of the following?

Please select only one response for each statement

ROTATE STATEMENTS	5. Very concerned	4	3	2	1 Not at all concerned	Don't know **(ONLY SHOW IF RESPONDENT DOES NOT GIVE AN ANSWER FOR A STATEMENT BEFORE MOVING ON TO THE NEXT SCREEN)**
Ocean current changes						
Melting sea-ice						
Sea level rise						
Coastal flooding						
Changes in the frequency of extreme weather events (e.g. storms)						
Environmental impacts of aquaculture (fish or shellfish farming)						
Overfishing						
Effects of marine invasive species						
Oceans becoming more acidic						
Sea temperature changes						
Destruction of habitats at the coast or in the sea						
Pollution at the coast or in the sea						
Coastal erosion						
Changes in the distribution of marine wildlife						
Increased jellyfish blooms/swarms						

Q15 When, if at all, do you think the following impacts of climate change on the coastline and seas of Europe will become apparent?
Please select only one response for each statement

ROWS – PLEASE ROTATE	Impacts are already apparent	Impacts will become apparent in the next 20 years	Impacts will become apparent in the next 50 years	Impacts will become apparent in over 50 years' time	These impacts will never become apparent	Don't know
Ocean current changes leading to sudden/abrupt climate change in Europe						
Complete melting of Arctic sea-ice in the summer						
Extensive loss of land to the sea						
Major economic impacts from coastal flooding						
Changes in the frequency of extreme weather events (e.g. storms)						
Oceans becoming more acidic impacting sealife and fisheries						

Q16 Now please think about rising the sea-levels. What do you think the global average sea-level rise is likely to be, if at all, over the next 100 years?
Please select only one answer

	Please select one answer
There will be no rise in sea level over the next 100 years	
Less than 10cm (**UK/IRELAND**: 4 inches) rise	
10cm (**UK/IRELAND**: 4 inches) to less than 1 metre (**UK/IRELAND**: 3 feet) rise	
1 metre to less than 5 metres rise (**UK/IRELAND**: 3 feet to less than 16 feet higher)	
5 metres to less than 10 metres rise (**UK/IRELAND**: 16 feet to less than 32 feet higher)	
10 metres or more (**UK/IRELAND**: 32 feet or more rise)	

NO Q17

Q18 By how much, if at all, do you think sea temperature around the coasts of [FOR ALL COUNTRIES EXCEPT CZECH REPUBLIC: INSERT COUNTRY / FOR CZECH REPUBLIC INSERT: Europe] has risen over the past 100 years?
Please select only one answer

	Please select one
There has been no sea temperature rise over the past 100 years	
Less than 0.5 ºC	
0.5 ºC to less than 2 ºC	
2 ºC to less than 5ºC	
5 ºC to less than 10ºC	
10ºC or more	

Q19 By how much, if at all, do you think sea temperature around the coasts of [FOR ALL COUNTRIES EXCEPT CZECH REPUBLIC: INSERT COUNTRY / FOR CZECH REPUBLIC INSERT: Europe] will rise over the next 100 years?
Please select only one answer

	Please select one
There will be no sea temperature rise over the next 100 years	
Less than 0.5 ºC	
0.5 ºC to less than 2 ºC	
2 ºC to less than 5ºC	
5 ºC to less than 10ºC	
10ºC or more	

Q20 Where, if at all, have you seen or heard of information about climate change impacts on coastlines or the sea?
Please select all that apply

Rotate (Keep 'Other Specify' to the end)	Please select all that apply
Magazines	
Books	
Tabloid newspapers	
Broadsheet newspapers	
Internet	
Social networking websites	
Friends or family	
Religious institutions	
Radio	
Television	
Aquariums, museums or other exhibitions	
Work colleagues	
Films	
Scientific publications	
Government reports	
European commission reports, flyers or factsheets	
Reports by environmental organizations	
Other (Please specify)	

Q21 To what extent, if at all, do you trust each of the following types of media when providing information about climate change impacts on the coastline or the sea?
Please select only one answer for each information source

ROWS – Rotate statements – Keep 'Other' to the end	5.Trust a lot	4. Trust a little	3. Neither trust nor distrust	2. Distrust a little	1. Distrust a lot	Don't know (ONLY SHOW IF RESPONDENT DOES NOT GIVE AN ANSWER FOR A STATEMENT BEFORE MOVING ON TO THE NEXT SCREEN)
Magazines						
Books						
Tabloid newspapers						
Broadsheet newspapers						
Internet						

Social networking websites						
Blog						
Radio						
Television channels						
Films						
Scientific publications						
Other (Please specify)						

Q22 To what extent, if at all, do you trust each of the following <u>individuals or organisations</u> when providing information about climate change impacts on the coastline or the sea?
Please select only one answer for each information source

	ROWS – Rotate statements within groups (Group 1: 1, 2, 3, 4), (Group 2: 5 and 6), (Group 3: 7, 8, 9, 10, 11), (Group 4: 12, 13) – Keep 'Other' to the end	5.Trust a lot	4. Trust a little	3. Neither trust nor distrust	2. Distrust a little	1. Distrust a lot	Don't know **(ONLY SHOW IF RESPONDENT DOES NOT GIVE AN ANSWER FOR A STATEMENT BEFORE MOVING ON TO THE NEXT SCREEN)**
1	Scientists working for government						
2	Scientists working for environmental NGOs						
3	Scientists working for universities						
4	Scientists working for industry						
5	The Intergovernmental Panel on Climate Change (IPCC) **(Do not translate)**						
6	Industry						
7	The European Union (EU)						
8	Your national government						
9	Local authorities						

10	Political parties standing for environment (Greens, etc.)						
11	Environmental NGOs (Non-governmental organisations)						
12	Friends and family						
13	People from your local community						
14	Other (Please specify)						

Q23 How effective are the following in tackling climate change impacts at the coastline or in the sea?
(Please select only one answer per statement)

(Rotate statements)	4. Very effective	3. Somewhat effective	2. Not very effective	1. Not at all effective	Don't Know **(ONLY SHOW IF RESPONDENT DOES NOT GIVE AN ANSWER FOR A STATEMENT BEFORE MOVING ON TO THE NEXT SCREEN)**
Business and industry					
The European Union					
Individual citizens					
Community groups					
Charities / NGOs					
National government					
Local government					

Q24a From the list below, please select the <u>three most effective actions you feel individuals should take</u> to reduce and cope with the impacts of climate change.

Please select only three answers

Rotate statements – Keep 'Other' to the end	**Please select three**
Choosing an environmentally friendly way of transportation	
Reducing energy use at home	
Reducing water use at home	
Buying locally sourced food	
Buying environmentally friendly products	
Using energy from sustainable sources (e.g. tidal, wind power)	
Taking part in a protest on an environmental issue	
Writing to political representatives about an environmental issue	
Purchasing flood insurance	
Preparing homes against flooding	
Moving to an area less prone to flooding	
Take holidays closer to home	
Other (Please Specify)	

Q25 Please indicate whether you have taken any of the following actions to reduce and cope with the impacts of climate change.

Please select only one answer per statement

Rotate statements – Keep 'Other' to the end	**Yes**	**No**
Choosing an environmentally friendly way of transportation		
Reducing energy use at home		
Reducing water use at home		
Buying locally sourced food		
Buying environmentally friendly products		
Using energy from sustainable sources (e.g. tidal, wind power)		
Taking part in a protest on an environmental issue		
Writing to political representatives about an environmental issue		
Purchasing flood insurance		
Preparing homes against flooding		
Moving to an area less prone to flooding		
Take holidays closer to home		
Other (Please Specify)		

Q26 How much do you agree or disagree that you can influence the decisions that are made at each of these levels to manage the impacts of climate change:
Please select only one answer per statement

	5. Agree strongly	4. Agree slightly	3 Neither agree or disagree	2. Disagree slightly	1. Disagree strongly	Don't know **(ONLY SHOW IF RESPONDENT DOES NOT GIVE AN ANSWER FOR A STATEMENT BEFORE MOVING ON TO THE NEXT SCREEN)**
Local level decisions (your village, town or city)						
Regional level decisions						
National level decisions						
European level decisions						

Q27 If you had to decide what climate change and marine *policies* should be prioritised by the European Union, which three would you select from the list below?
Please select three responses

Rotate statements	*Please select three responses*
Researching climate change impacts at the coast or in the sea	
Developing technologies to remove carbon dioxide from the atmosphere	
Improving coastal defenses to help prevent coastal flooding and erosion	
Enabling coastlines to respond naturally to rising sea levels	
Increasing the amount of energy from low carbon sources	
Reducing the amount of fish that can be caught at sea to allow fish populations to recover	
Strengthening commitments to safeguard habitats and	

marine life	
Reducing greenhouse gas emissions from ships	
Tightening controls over commercial activities allowed in the sea (e.g. oil rigs or sand extraction).	
Tightening controls over chemicals that can be released into the sea.	
Agreeing on international commitments to cut greenhouse gas emissions	

Q28A Which of the following research themes that the EU is currently funding into climate change impacts at the coastline or in the sea have you heard about?
Please select all that apply

Rotate statements	*Please select all that apply*
Studies of physical changes in the ocean (e.g. ocean currents, storms and waves)	
Studies of long-term records of past climate change	
Studies of melting sea-ice in the Arctic and Antarctic	
Studies looking at climate impacts on commercial fish and shellfish	
Studies looking at climate impacts on wildlife at the coastline or in the sea	
Studies looking at the impacts of non-native species at the coastline or in the sea	
Computer models that predict future changes at the coastline or in the sea	
Studies of coastal erosion	
Studies of what will happen if the ocean becomes more acidic	
Studies of diseases and pests that may become more common with climate change	
Studies to estimate the costs to society of climate change impacts at the coastline or in the sea.	
Studies on how communities can cope with the impacts of climate change	
Studies on marine and coastal management practices	

Q28B And if you had to decide what *research* into climate change impacts at the coastline or in the sea should be prioritised in the future by the European Union, which *three* from the list below would you choose?
Please select three responses

Rotate	*Please select three responses*
Studies of physical changes in the ocean (e.g. ocean currents, storms and waves)	
Studies of long-term records of past climate change	
Studies of melting sea-ice in the Arctic and Antarctic	
Studies looking at climate impacts on commercial fish and shellfish	
Studies looking at climate impacts on wildlife at the coastline or in the sea	
Studies looking at the impacts of non-native species at the coastline or in the sea	
Computer models that predict future changes at the coastline or in the sea	
Studies of coastal erosion	
Studies of what will happen if the ocean becomes more acidic	
Studies of diseases and pests that may become more common with climate change	
Studies to estimate the costs to society of climate change impacts at the coastline or in the sea.	
Studies on how communities can cope with the impacts of climate change	
Studies on marine and coastal management practices	

Finally, we would like to know a bit more about you and your household, solely for statistical purposes.

Q29 How many people, including yourself, currently live in your household?

1
2
3
4
5
6
7
8
9
10 or more

Q30 How many children aged under 16 live in your household, for whom you have parental responsibility?

Q31 Are you the head of the household?

Yes
No

Q32A [IF Q31 =1] What is your working status?
[IF Q31 =2] What is the working status of the head of the household?
Please select only one answer

Currently working
Retired / pensioner /incapacitated
Unemployed / worked before
Unemployed searching 1st job
Student (not working)
Housewife/house husband

ASK Q32B for FRANCE ONLY

Q32B What is your occupation, or the occupation of the chief income earner?
Please select only one answer

Higher managerial/professional/administrative
Craftsperson/shop owner/head of company / Company owner
Company owner/manager Famer: Owner, operator, chef of farm, farmer, tenant farmer
Intermediate managerial/professional/administrative
Employee in public or private sector
Skilled manual worker
Semi or unskilled manual worker
Housewife/husband
Retired
Student
Unemployed

Q33A What is your highest education level?
Please select only one answer

Primary school
Middle school
Secondary (high) school
First university degree (bachelor / low university studies and equivalent)
Masters university degree
PhD university degree
Other (Please specify)_____
None

Q33B At what age did you finish your full-time education? [EXACT AGE IN 2 DIGITS]
Please enter in 2 digit numbers, so if your age was 9, then please enter 09, if you were 23 years old, please enter 23.

___ ___
Refused
Never been in full time education
Still in full time education

Q34 Please indicate whether you or any member of your household works in any of the following professions or industries.
Please select all that apply

Rotate – Multiple answers possible
Fishing industry / fishing-related industries
Other marine related industries
Coastal tourism
Marketing
Market research
Banking
Environmental protection / pressure group
Research
Policy making
Public Administration
Others (Specify_____)
None of the above (exclusive)

Q35 Which of these statements best describes how often, if ever, you visit the coast or the sea?
Please select only one answer

Once a week or more often
Once every 2 or 3 weeks
Once a month
Once every 2 or 3 months
Once every 4 to 6 months
Once or twice a year
Less often than once a year
Never

Q35 Which sea in Europe do you directly experience <u>most</u> during the year?
Please click on the map to select one Sea

INSERT MAP OF EUROPEAN SEAS
Arctic Sea
Baltic Sea
North Sea
North Atlantic
Mediterranean Sea
Black Sea

Q36 And in what ways do you interact with the coast or the sea?
Please select all that apply

Scuba diving / swimming / snorkelling
Recreational fishing
Boating / surfing / windsurfing / kite-surfing
Wildlife watching
Walking
Day trips or short breaks
Annual holiday
Through my work (please specify)
Other (please specify)

We appreciate your help with this survey. Thank you very much for your time.

ANNEX 2. CRITERIA FOR SELECTING EUROPEAN COUNTRIES

(chosen countries in red)
Regional Seas: (AR) Arctic/Barents Sea, (NS) North Sea, (BS), Baltic Sea, (CS) Celtic Seas, (AB) Atlantic & Biscay, (MS) Mediterranean Sea, (BL) Black Sea

Country	Regional Seas	Population (millions)	Size (Km)	Internet penetration (%)	Length of coastline (Km)	Other considerations
Austria	-	8.3	83,838	74.8	0	Land-locked – but is it too demographically similar to Germany?
Belgium	**NS**	10.8	30,528	77.8	66	Alternative to the Netherlands, but lower population and internet penetration
Bulgaria	**BL**	7.6	110,910	47.5	354	Low internet penetration and *TNS Opinion* capability
Cyprus	**MS**	0.8	9,251	39.3	648	Small population and very low internet penetration
Czech Republic	-	10.5	78,866	65.5	0	Land-locked, but lower internet penetration than Austria or Slovakia
Denmark	NS, BS	5.5	43,094	86.1	7,314	High internet penetration and two regional seas (NS and BS)
Estonia	**BS**	1.3	42,226	75.1	3,794	Highest internet penetration of the three Baltic States
Finland	**BS**	5.4	338,145	85.3	1,250	Outlook on the Baltic and high internet penetration but no Arctic coast
France	**AB, MS**	64.7	674,843	68.9	3,427	Large population and outlook on 2 seas (AB and MS) – 'core' EU state
Germany	**NS, BS**	81.8	357,050	79.1	2,389	Used as a bench-mark by *TNS Opinion* in polling studies – outlook on 2 seas (NS and BS)
Greece	**MS**	11.1	131,990	46.2	13,676	Would have been good choice for Med, but very low internet penetration
Hungary	-	10	93,030	61.8	0	Land-locked but limited *TNS Opinion* capability
Ireland	**AB, CS**	4.5	70,273	65.8	1,448	Small population and similar to UK – have provided additional funding
Italy	**MS**	60.4	301,318	51.7	7,600	Representative of the Mediterranean region – but low internet penetration

Latvia	**BS**	2.2	64,589	67.8	531	Lower internet penetration than Estonia
Country	**Regional Seas**	**Population (millions)**	**Size (Km)**	**Internet penetration (%)**	**Length of coastline (Km)**	**Other considerations**
Lithuania	**BS**	3.3	65,303	59.3	99	Lower internet penetration than Estonia
Luxembourg	-	0.5	2,586	85.3	0	Land-locked – very small population, similar to Netherlands & Germany
Malta	**MS**	0.4	316	59.1	197	Very small population
Netherlands	**NS**	16.6	41,526	88.6	451	Very low lying (high flood risks), very interesting to gauge opinion on CC
Poland	**BS**	38.1	312,683	58.4	491	Would have been good choice for the Baltic (large population but low IP
Portugal	**AB**	11.3	92,391	48.1	1,793	Lower internet penetration than Spain, also smaller population.
Romania	**BL**	21.5	238,391	35.5	225	Very low internet penetration – limited *TNS Opinion* capability
Slovakia	-	5.4	49,037	74.3	0	Land-locked – could be a good choice as also a former eastern bloc country
Slovenia	**MS**	2.1	20,273	64.8	47	Small country and broadly similar to Italy.
Spain	**AB, MS**	46.1	506,030	62.6	4,964	Outlook on 2 coasts (AB and MS), large population
Sweden	**BS**	9.3	449,964	92.5	3,218	Very high internet penetration but no outlook on the Arctic (prefer Norway)
United Kingdom	**NS, CS**	62.0	244,820	82.5	12,429	Island nation with large population and high IP. Outlook on CS and NS
Norway	**AR**	4.9	385,252	94.8	25,148	Sole representative of the Arctic region – maritime nation (non EU)

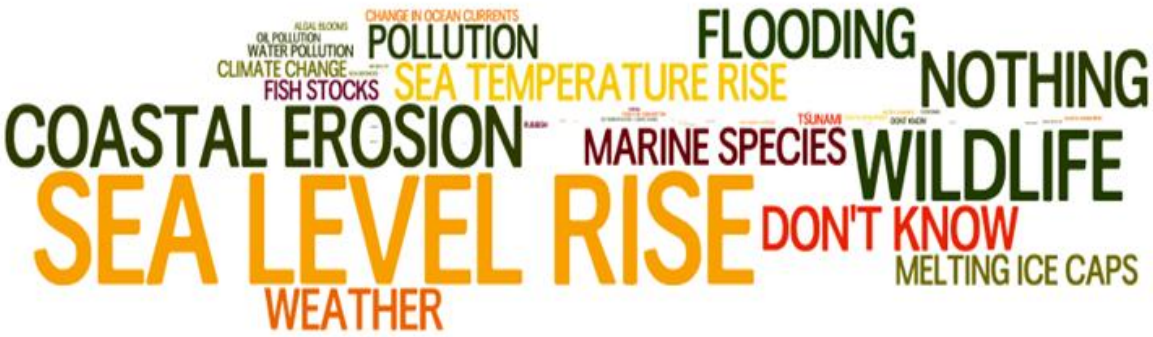
ANNEX 3. WORD CLOUDS FOR UNPROMPTED 'MARINE ENVIRONMENTAL MATTERS' AND 'MARINE CLIMATE CHANGE ISSUES' QUESTIONS

TOTAL (ALL 10 COUNTRIES COMBINED)

10,106 respondents / 30,318 responses for each question

Q7. When you are thinking about the coastline or the sea, what are the three most important environmental matters that come to mind?

Q11. Which three things, if any, come to mind when you think about the impacts of climate change on the coastline or sea?

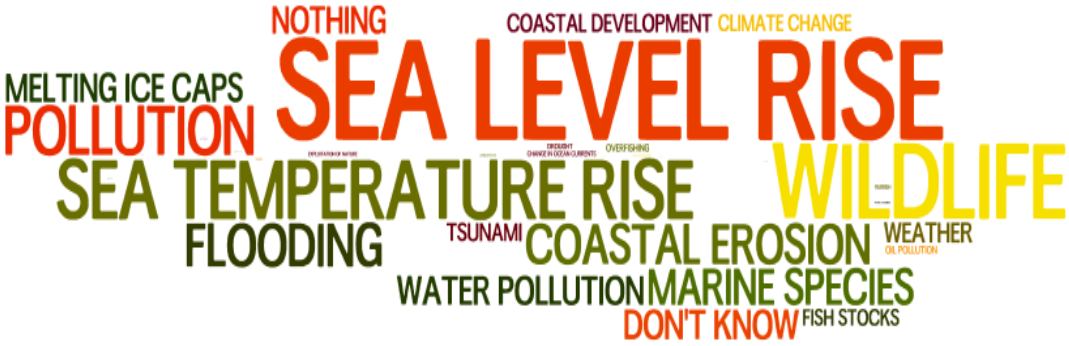


SPAIN

1027 respondents / 3081 responses for each question

Q7. When you are thinking about the coastline or the sea, what are the three most important environmental matters that come to mind?

Q11. Which three things, if any, come to mind when you think about the impacts of climate change on the coastline or sea?

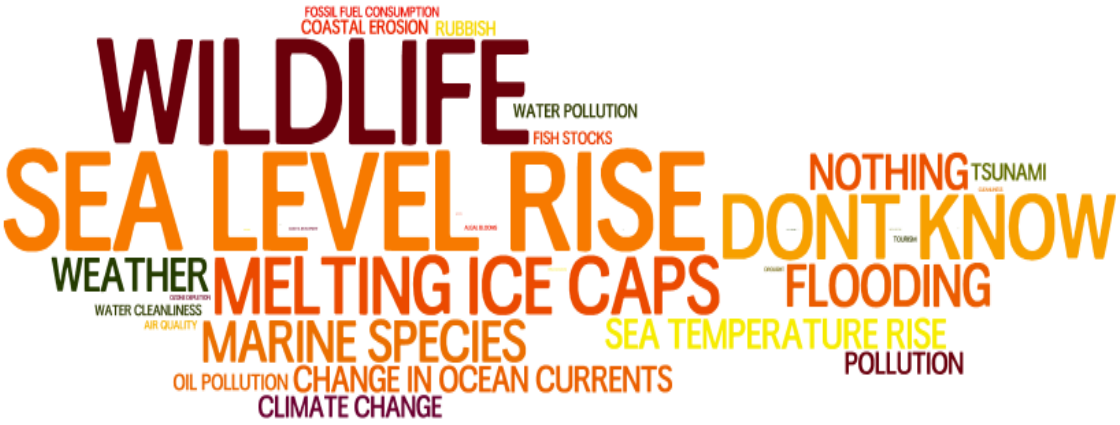


CZECH REPUBLIC

1033 respondents / 3099 responses for each question

Q7. When you are thinking about the coastline or the sea, what are the three most important environmental matters that come to mind?

Q11. Which three things, if any, come to mind when you think about the impacts of climate change on the coastline or sea?

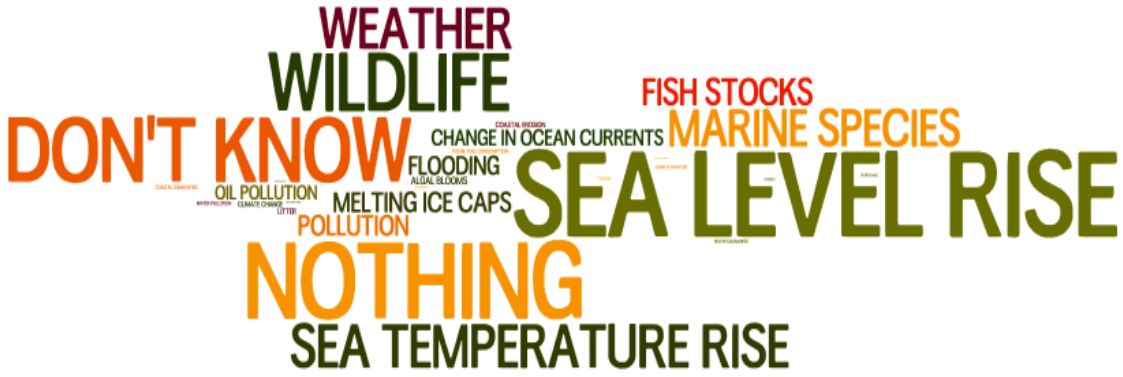


NORWAY

1006 respondents / 3018 responses for each question

Q7. When you are thinking about the coastline or the sea, what are the three most important environmental matters that come to mind?

Q11. Which three things, if any, come to mind when you think about the impacts of climate change on the coastline or sea?



IRELAND

1012 respondents / 3036 responses for each question

Q7. When you are thinking about the coastline or the sea, what are the three most important environmental matters that come to mind?

Q11. Which three things, if any, come to mind when you think about the impacts of climate change on the coastline or sea?

UNITED KINGDOM

1002 respondents / 3006 responses for each question

Q7. When you are thinking about the coastline or the sea, what are the three most important environmental matters that come to mind?

Q11. Which three things, if any, come to mind when you think about the impacts of climate change on the coastline or sea?

GERMANY

1006 respondents / 3018 responses for each question

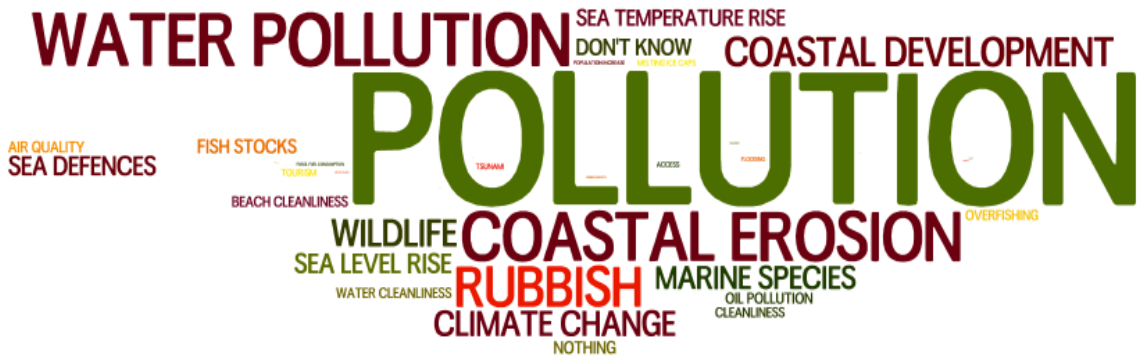
Q7. When you are thinking about the coastline or the sea, what are the three most important environmental matters that come to mind?

Q11. Which three things, if any, come to mind when you think about the impacts of climate change on the coastline or sea?

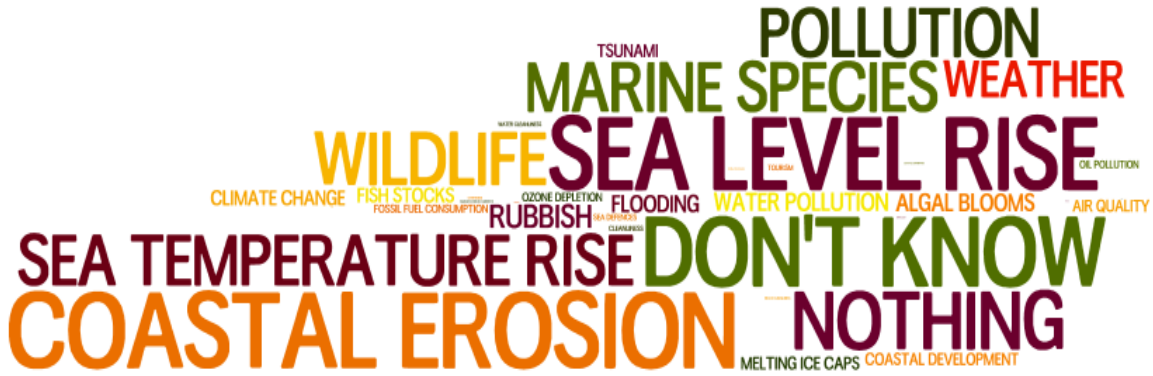
ITALY

1009 respondents / 3027 responses for each question

Q7. When you are thinking about the coastline or the sea, what are the three most important environmental matters that come to mind?



Q11. Which three things, if any, come to mind when you think about the impacts of climate change on the coastline or sea?



THE NETHERLANDS

1012 respondents / 3036 responses for each question

Q7. When you are thinking about the coastline or the sea, what are the three most important environmental matters that come to mind?

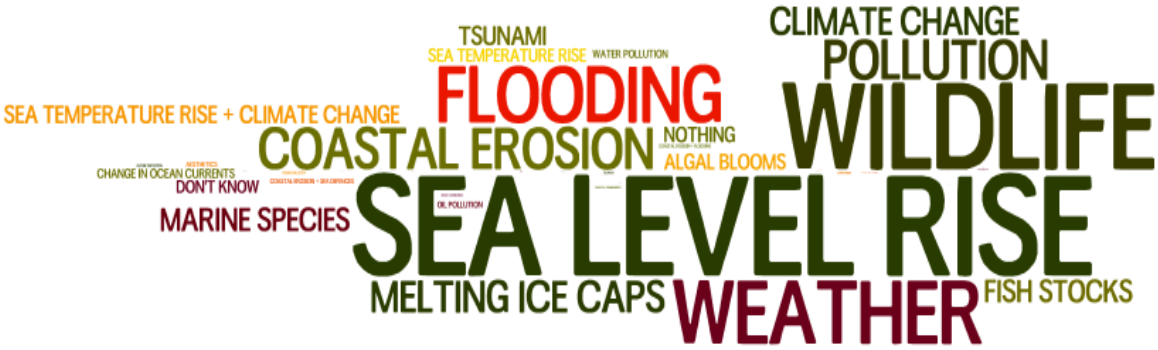
Q11. Which three things, if any, come to mind when you think about the impacts of climate change on the coastline or sea?

FRANCE

1007 respondents / 3021 responses for each question

Q7. When you are thinking about the coastline or the sea, what are the three most important environmental matters that come to mind?

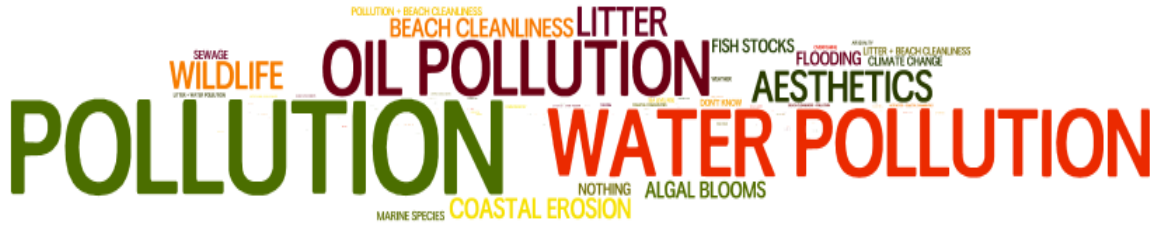
Q11. Which three things, if any, come to mind when you think about the impacts of climate change on the coastline or sea?



ESTONIA

1004 respondents / 3012 responses for each question

Q7. When you are thinking about the coastline or the sea, what are the three most important environmental matters that come to mind?



Q11. Which three things, if any, come to mind when you think about the impacts of climate change on the coastline or sea?