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Public Perceptions of Europe's Seas

A Policy Brief

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Introduction

This survey across several European countries explores the values, concerns and aspirations of individuals regarding the marine environment. The policy agenda in Europe is moving forward as a result of the European Marine Strategy Framework Directive; for planning and maritime development; through the Integrated Maritime Strategy; and in reform of the Common Fisheries Policy. Concerning the oceans, the views of communities across Europe are relatively unknown. While the positions of organised stakeholder groups are captured through responses to policy consultations, the opinion of the 'person in the street' is difficult to include in the decision making process. Yet, crucially, it is the collective choices made by communities in the resources they use, the places they visit, and live in that drive many pressures on the marine environment. Public viewpoints on the oceans will play an important (if yet undetermined) role in supporting reforms such as marine planning, the large scale deployment of marine renewables, and marine protected areas that have considerable social and economic consequences. Understanding the perspective of communities will be critical in how the policy process unfolds.

The ocean is our life support system. Ecological processes within the oceans generate many benefits for human beings with these benefits collectively called 'ecosystem services' (MEA 2005; Fisher *et al* 2009). Though many of the benefits from ecosystem services are well defined economic benefits, such as products from fisheries, other benefits are not so easily accounted and are communal in nature. These range from the essential life support services such as climate regulation, services such as recreational enjoyment of the coast, education and spirituality.

Human societies interact and influence the natural environment in many ways. Since many of the benefits derived from ecosystem services and the costs of degradation are often not part of the traditional economy or traded in markets, ecosystems services are easily (and frequently) neglected when decisions are being made. This can contribute to the gradual erosion of environmental quality in Europe's marine environments. Increasingly policy makers recognise the value of ecosystem services as a part of a shift towards a more pluralistic, multi-sectoral 'Ecosystem Approach'. As a first step towards this holistic approach to environmental management, it is important to understand how communities perceive and value the environment and their concerns about environmental problems.

European environmental legislation and the developing science of the Ecosystem Approach offer the potential to include the environmental costs of our activities in our decision making processes. Implementing the Ecosystem Approach demands a trade-off between economic use and marine protection. Recovery of our marine ecosystems is a societal choice and requires a vision of what we want from our environment. In order to obtain this vision it is essential to understand how people value the seas, what they value, and what they expect from their environment. Understanding the 'social pulse' allows for a meaningful debate into

what options and policies are acceptable to the public and identifies what policy mechanisms may be used to move towards the vision of a sustainable marine environment. It also reflects the degree to which information on marine issues and policies have been communicated to the public and incorporated into their own values.

Survey methodology

The survey targeted individuals from seven EU countries aiming to collect views concerning the sea, its relative importance to other issues, perceived problems, and solutions. It is important to understand these concerns and aspirations for several reasons:

- Communities are on the 'front line' in terms of impacts from the implementation of marine spatial planning and conservation measures;
- Community support and conflict is highly influential in determining the outcome of local and regional planning and conservation activities
- There is a lack of assessment of the level of basic knowledge in the general public concerning the sea; improved information will assist in targeting educational and awareness strategies.

The FP7 KnowSeas project, in collaboration with the Oak Foundation, commissioned a survey of seven European countries in order to identify emerging social trends concerning marine environments. A sample of **7000** interviews were taken across seven countries with **1000 respondents per country** (UK, France, Germany, Spain, Portugal, Italy, Poland) in December 2010-Jan 2011. The sample was randomly stratified in each country according to age, sex, and region. A sample of 1000 adults is statistically accurate to 3.1% (+/-) at a 95% confidence level and will facilitate a good standard of sub analysis within each country.

An online survey was the chosen methodology and was conducted by ICM Research. The sample was restricted to an 18-64 age bracket to ensure the highest quality sample is achieved due to internet accessibility. Internet access amongst over 65's remains low in several European markets. Meeting the full quota of older members of the population in Portugal currently presents a challenge due to the low proportion of internet access. To address this we set the older age quota at 45-64 rather than 55-64. All questions randomised the order of statements and scoring scales to minimise bias. Where data from all countries are included together in a single graph these were weighted according to the national population. Full details of the survey questions can be found in Appendix 1 at the end of this document

This policy brief presents a selection of the survey results and 'key messages' for discussion and inclusion in policy debates. It is an overview of the key trends and does not intend to comprehensively cover all questions and analysis. If you are interested in further analysis or country specific profiles please contact the authors:

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Public values for the ocean: the importance of ecosystem services

How important is the ocean to you as an individual, in each of the following ways?

Please use a scale of 1 to 5 where 1 means it is not at all important and 5 means it is very important.

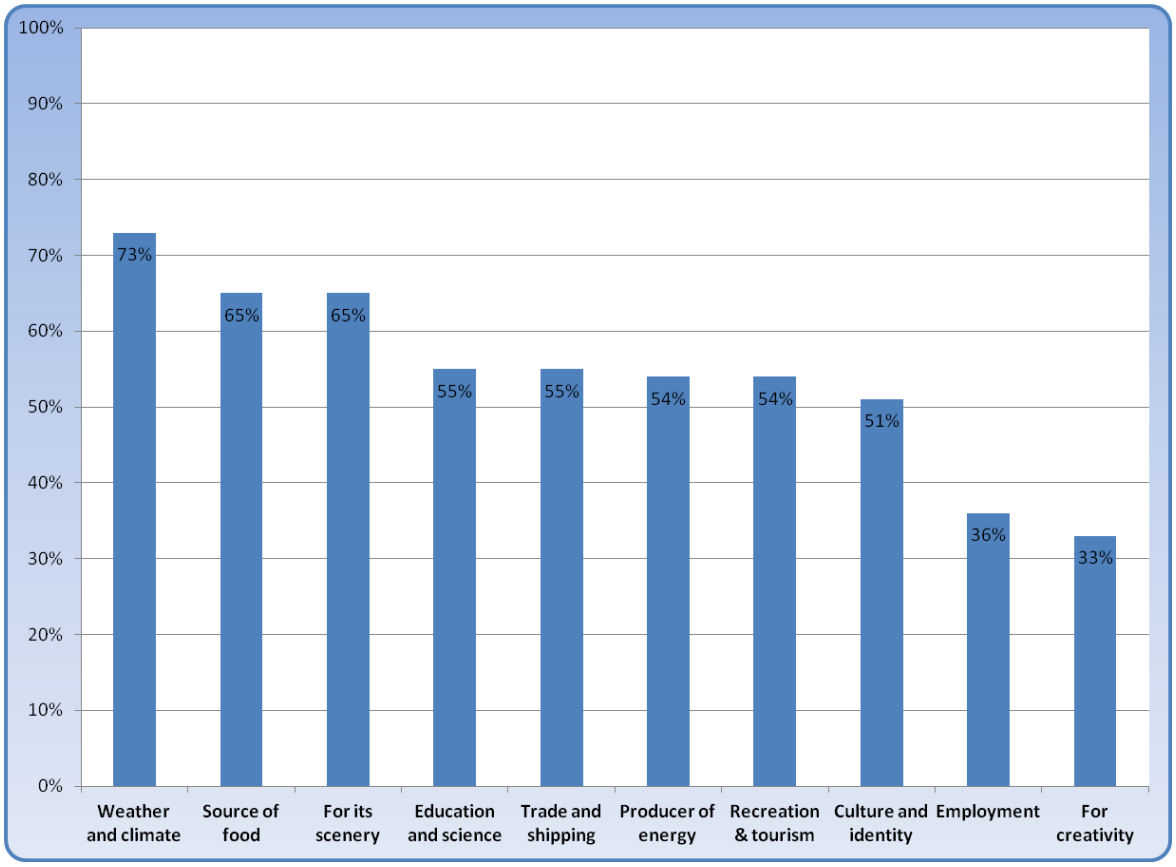

Figure 1.The value of the oceans to individuals across all countries. Scores shown as percentage of responses rated as 'important or very important' (a score of 4-5). Weighed to national populations.

Figure 1 shows the percentage of 'net positive' responses (important or very important) for each of the aspects of the marine environment. Climate and weather were perceived to be the most important aspects of the oceans with a weighted total of 73% of the population classifying them as important or very important. The value of the sea as a source of food and it's scenic value were equally valued with 65% of interviewees considering them important or very important. In terms of socio-economic uses, there was little difference between education (55%), trade and shipping (55%), energy (54%), tourism (54%) and cultural identity (51%). Employment and creativity were viewed as being the least important aspect of the seas with 36% and 33% of respondents considering it important.

The responses to this question reveal a spectrum of values toward the sea with differing priorities across nations (Figure 2). Figure 1 demonstrates that societal perspectives emphasise aesthetic as well as practical aspects of the seas. Non-market ecosystem services (climate regulation, scenery) are rated as important as maritime activities, some with direct and indirect economic benefits (for example tourism). This finding underlines the importance of developing systems and metrics for the inclusion of non-market and non-use ecosystem services in planning and decision making.

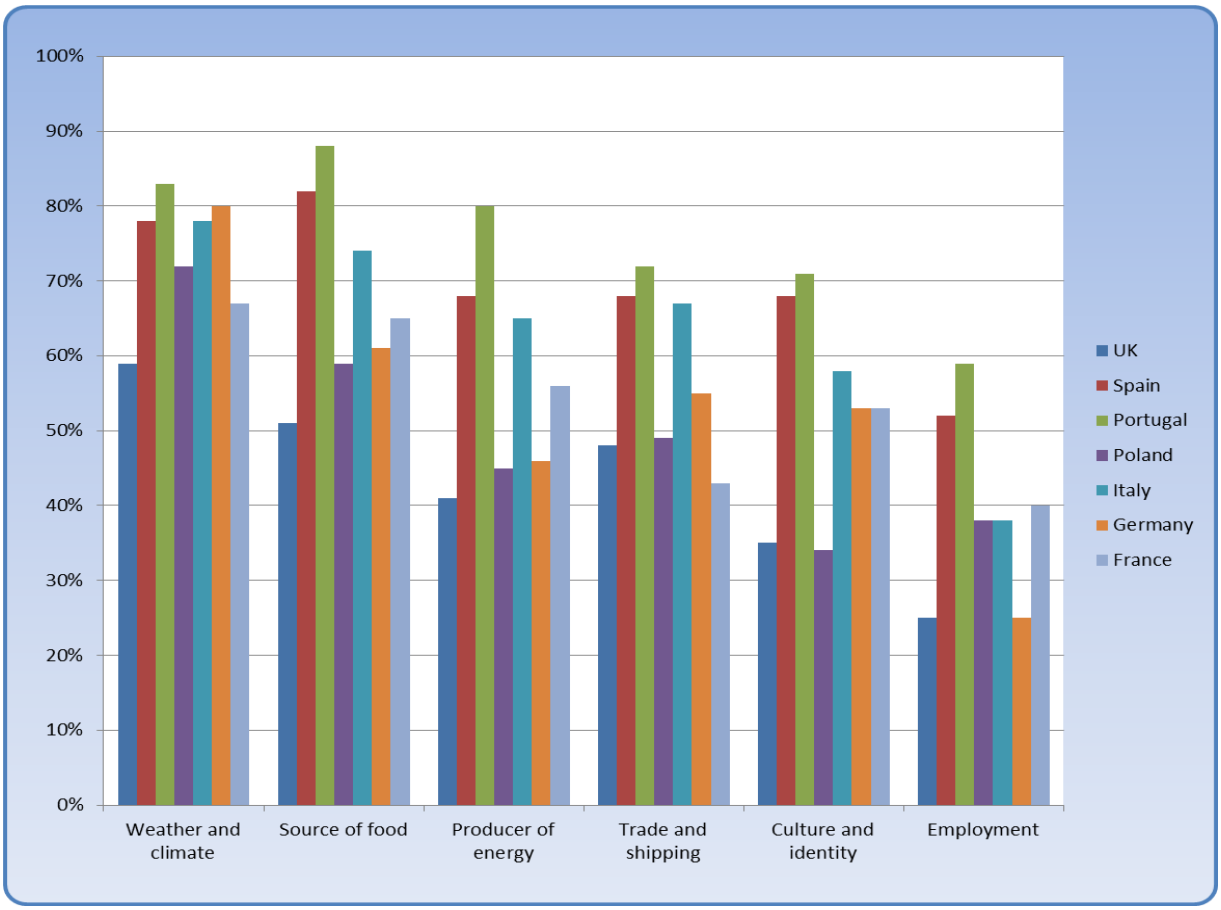

Figure 2 National perspectives on the value of the oceans for selected issues. Scores shown as percentage of responses rating 'important or very important' (rating of 4-5).

The near universal acceptance of the importance of the oceans to climate and weather suggests that the public understands an inherent coupling between ocean and atmospheric systems and recognises the importance of the marine environment in regulating climate. This recognition may be viewed as a positive step in terms of communication of global change to the public. However, as our survey will demonstrate, the overall effectiveness of scientific communication of marine environmental issues requires further investment.

The perceived importance of the oceans as a source of food is not surprising. This link between society and the sea is embedded in our history. For many people the most common and direct association with the oceans in daily life is through consumption of seafood. The values placed

on the oceans as a source of food varied between nations and to some extent reflects the degree to which seafood forms a major part of the diet (Table 1). Table 1 shows the annual per capita consumption of fish in each of the nations surveyed and the percentage of people in each of the surveyed nations considering supply of food as important or very important (Table 1).

Country	*Fish Consumption kg/capita/yr*	*% considering food as important or very important*
Portugal	61.6	88%
Spain	44.8	82%
France	34.2	65%
Italy	25.4	74%
UK	20.3	51%
Germany	15.3	61%
Poland	10.9	59%

Table 1. National fish consumption and value of food as a marine ecosystem service. Source Fishery and Aquaculture statistics. FAO yearbook 2008

The importance placed on the marine environment for scenery provides a justification for further incorporation of ecosystem services into the decision making process. The scenic value of the marine environment is not traded in the economy (though can be measured in some cases) and our survey indicates that to ignore the scenic values of the oceans during planning is to ignore one of the most widely held and important values that the public holds.

These findings make a strong case for the ecosystem approach to management. The results show that marine activities that are captured through economic metrics are not necessarily those of most importance to individuals. This highlights the challenge in including some of the less easily quantified aspects of the marine environment, such as its role in climate regulation and aesthetic considerations, in planning and decision making. It also indicates the relative challenges and opportunities within each surveyed country. Spain and Portugal demonstrated consistently high ratings for all issues indicating the importance of the oceans in daily life. In contrast, the UK took a more pessimistic view of the oceans by consistently ranking oceans issues lower and comparatively not as important. For example 25% of surveyed individuals indicated the oceans were important as a source of employment, 35% indicated the oceans were important in terms of culture and identity, 40% indicated the oceans were important as a source of energy, and 51% as a source of food (Figure 2).

Who Should Manage the Oceans?

When it comes to managing and protecting the ocean environment, how competent do you think are each of the following?

Please use a scale of 1 to 5 where 1 means not at all competent and 5 means highly competent

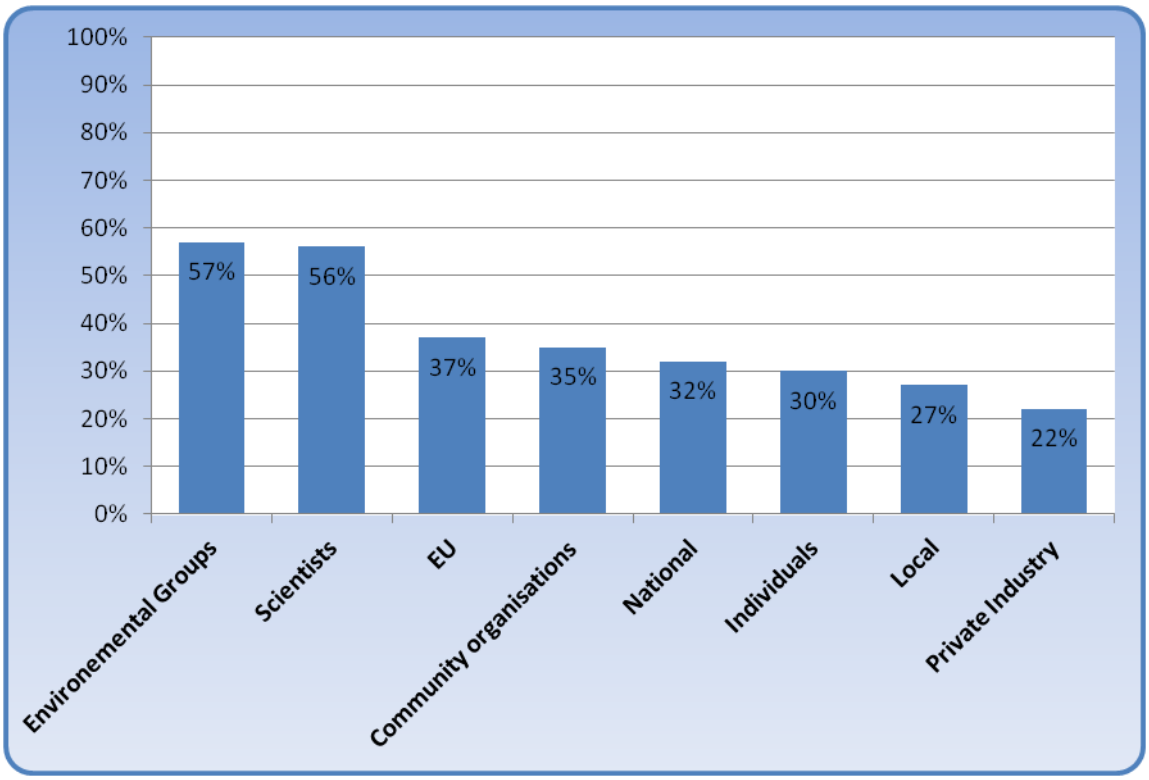

Figure 3: Combined and weighted data showing perceived competence of different groups to manage the environment. Scores shown as percentage of responses rating 'competent or highly competent' (rating of 4 -5). Note that EU, National and Local refer to governmental bodies.

Results indicated that over half of the population sampled believe that environmental groups or scientists were most competent to manage the marine environment while less than a third indicated that any other group was competent. Of the existing governmental institutions, the EU was considered most competent to manage the ocean environment with 37% of respondents indicating it was competent or highly competent. Private industry was considered least competent with a value of 22%. While we caution against over-analysis of institutional capacity at an aggregated scale due to the social, cultural and political differences between nations and institutions (with the exception of the EU) a clear pattern emerges over the role of science and civil society in policy process.

The apparent mistrust of government organisations, individuals and industry with this task may reflect discontent at environmental problems and the failure of government policy to prevent such problems. The findings illustrate the importance of transparent mechanisms whereby scientific evidence is explicitly included in the decision making process and that civil society

has a very important 'seat at the table'. Our interpretation is that this represents an opportunity for policy reform where scientific and community concerns are better represented in the decision process, including actively developing co-management mechanisms where appropriate.

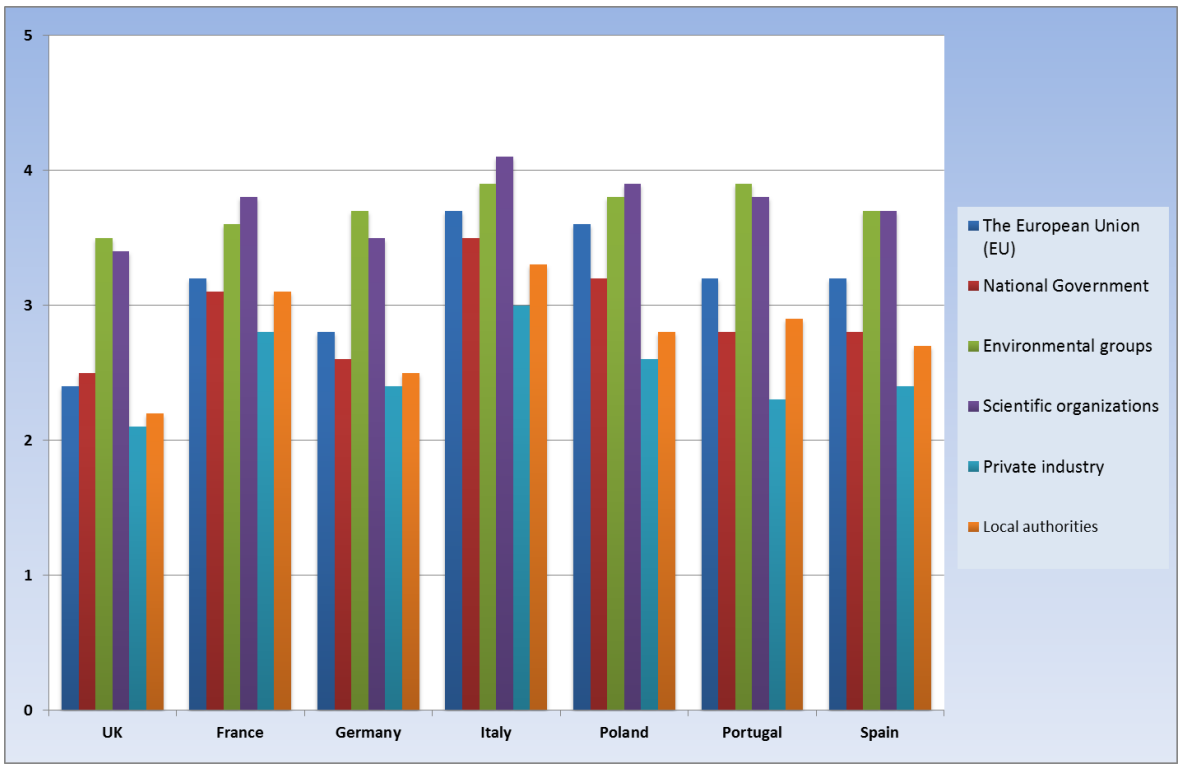

Figure 4. Average rankings of institutions by country on a 1 – 5 scale (where 1 means not at all competent and 5 means highly competent).

Confidence in the different types of government varied between nations (Figure 4). For example trust in the European union in terms of protecting the ocean environment differed dramatically with a high average ranking in Italy (3.7) contrasted against a low ranking in the U.K. (2.4). Similar variations in perceived competence to manage the ocean environment were found for national and local governments. In every country surveyed environmental groups and scientific organisations were clearly and statistically perceived as competent stewards of managing the marine environment over governmental authorities and industry.

This public perspective of competence to manage the oceans strongly supports an increased role for science and civil society in decision making. As a response, policy instruments such as the EU Marine Strategy Framework Directive, the EU Habitats Directive, the proposed Common Fisheries Policy, the Integrated Maritime Strategy, and associated national interpretations, should consider approaches that boost participatory decision making, co-management, and process transparency. The key point is that there is clear public concern over the process and outcomes for the marine environment and there is considerable opportunity for the evolution of policy mechanisms that link science, policy, and society.

The oceans are a low priority for the public

How concerned, if at all, are you about each of the following issues?

Please use a scale of 1 to 5 where 1 means it is not at all important and 5 means it is very important.

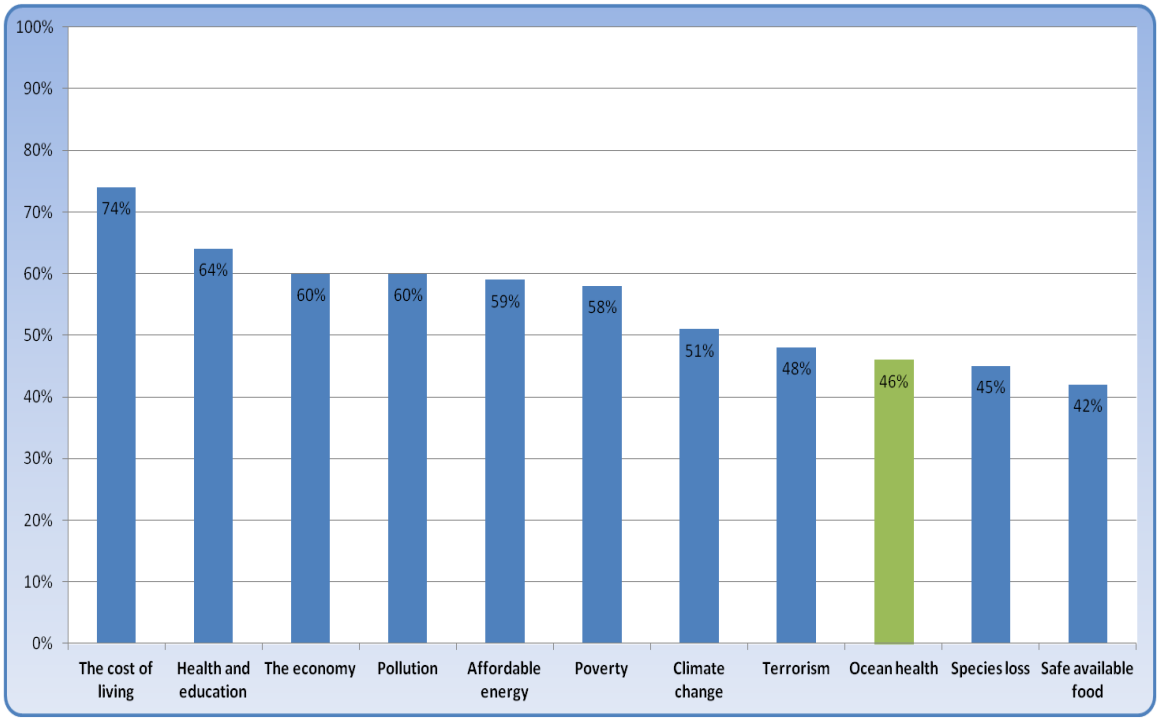

Figure 5 Prioritisation of issues of concern. Scores shown as percentage of responses rated as 'important or very important' (score of 4-5). Weighed to national populations.

Three patterns emerged from the results. The first identified that the major issue facing the population was the cost of living. This was followed by the second group that listed a number of issues of day to day and immediate concern to communities, including health, education and the economy. 60% of respondents were equally concerned about the economy and pollution indicating that some environmental and economic issues were of similar priority, particularly when those issues can directly impact individuals. Affordable energy and poverty were also causes for concern for the majority of people.

In the lower tier, 51% of the population were concerned with climate change (with national variations in Figure 6 below) while less than half of the population considered terrorism, ocean health, species loss and the availability of food as particularly important. While these issues could be considered somewhat removed from the day to day concerns of individuals, as expressed in the lower scores of importance, in actual fact they have a subtle and powerful influence on society. In terms of environmental issues, while pollution and climate change were considered relatively important, the more abstract elements of environmental health (i.e. ocean health and species loss) were of less concern. The message is that immediate problems, such as the cost of living, health and pollution, were of greater concern to the public than the more abstract elements of sustainability. While this is unsurprising, it raises a challenge for science communication as healthy ecosystems fundamentally support social and economic activity.

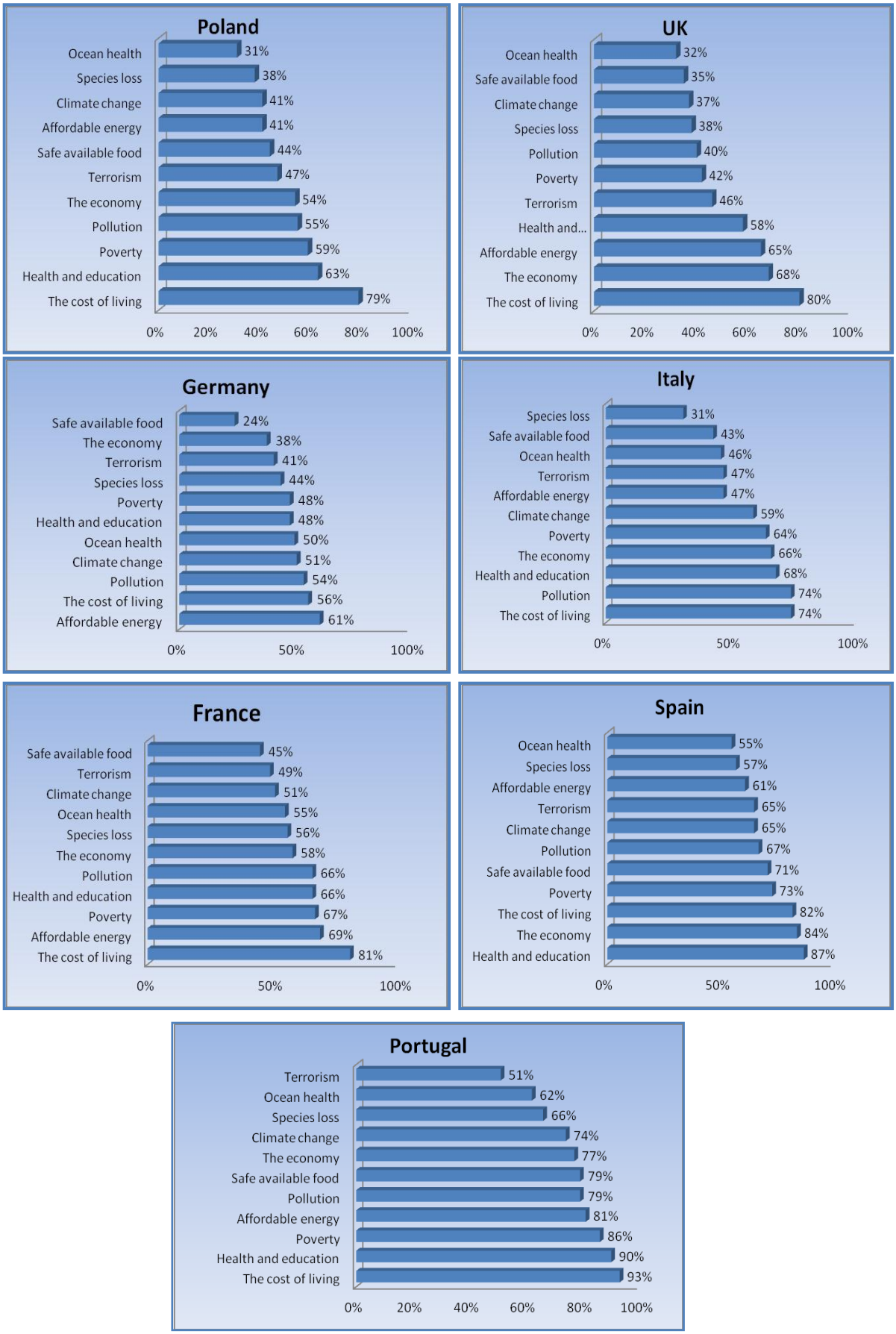

Figure 6. National rankings and priorities of issues of concern. Scores shown as percentage of responses rated as 'important or very important' (score of 4-5).

Schism between scientific and public perspectives of the problem

In your opinion, how much of a threat, if any, does each of the following pose to the marine environment?

Please use a scale of 1 to 5 where 1 means it does not pose any threat and 5 means it poses a severe threat.

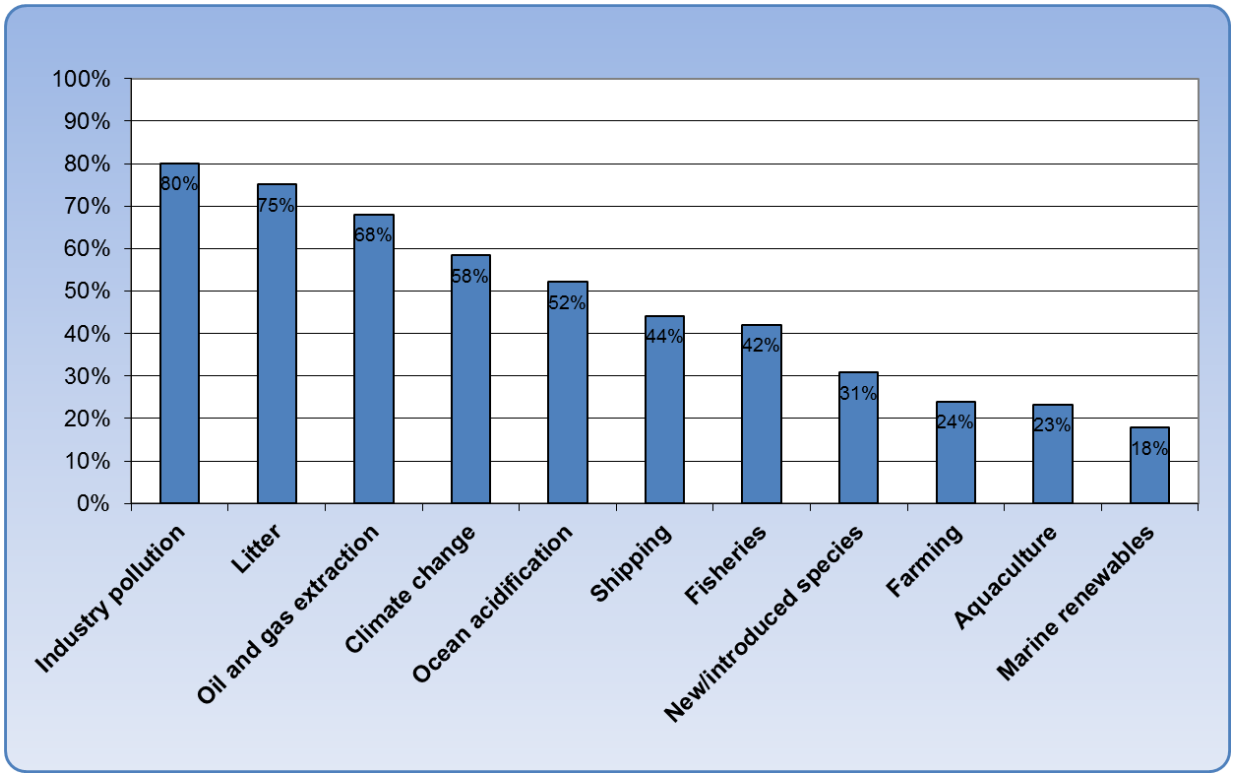

Figure 7. Rankings of perceived threats to the environment. Scores shown as percentage of responses rated as 'threat or severe threat' (score of 4-5).

The rankings highlight that in terms of serious threats, pollution, litter, and large scale industrialisation were of the most concern to individuals. Climate change ranked relatively high in the minds of the public with 58% citing it as a threat or severe threat, but still leaving 42% of the population who consider it a minor threat or no threat. Fewer than half of the respondents considered shipping, fisheries, introduced species, farming, aquaculture or marine renewables a threat to the marine environment.

A number of views can be drawn from the data. For example, the issues that were ranked as the most serious threats were issues that are highly visible in the public mindset and sustain an immediate impact on communities. The data highlights a schism between the public and the scientific community over perceptions of environmental problems in the sea. In terms of scientific understanding, while pollution, litter and oil and gas are serious issues to be

managed, climate change, ocean acidification and fisheries present far greater, long lasting and irreversible threats and changes to marine species, habitats and stability. Certain environmental threats are perceived by scientists as more important than others. An international survey of scientist's perceptions of threats to the oceans (Halpern *et al* 2006) found that climate change and demersal destructive fishing are the two chief causes of concern for scientists. In addition eutrophication poses a major threat driven by agriculture and coastal population growth and has had drastic impacts on the marine environment, particularly in the Baltic and Black Seas causing hypoxia, anoxia and mass benthic die-offs in the Black Sea (Mee *et al* 2005) and hampering the recruitment of valuable fish stocks in the Baltic (MacKenzie *et al* 2000). Introduced species have also had a catastrophic effect of fisheries in the Black Sea small pelagic fisheries (Oguz *et al* 2008).

The misalignment between the perceived and actual threats to the marine environment may be seen as a failure on the part of the marine science community to adequately communicate their findings to the general public. Nevertheless the inclusion of climate (ranked 4th at 58%) in the public perception of threats to the ocean does suggest that there has been some degree of effective communication on this issue. It indicates that while a gulf exists between public and scientific understanding about many threats to the marine environment, successful communication is not impossible. Such communication is essential to the proper functioning and implementation of an ecosystem approach.

Support for Marine Planning and Protection

It has been suggested that governments should make plans that specify the different activities that can happen and where they can happen in the sea. To what extent do you agree or disagree with this idea?

Please use a scale of 1 to 5 where 1 means strongly disagree and 5 is strongly agree.

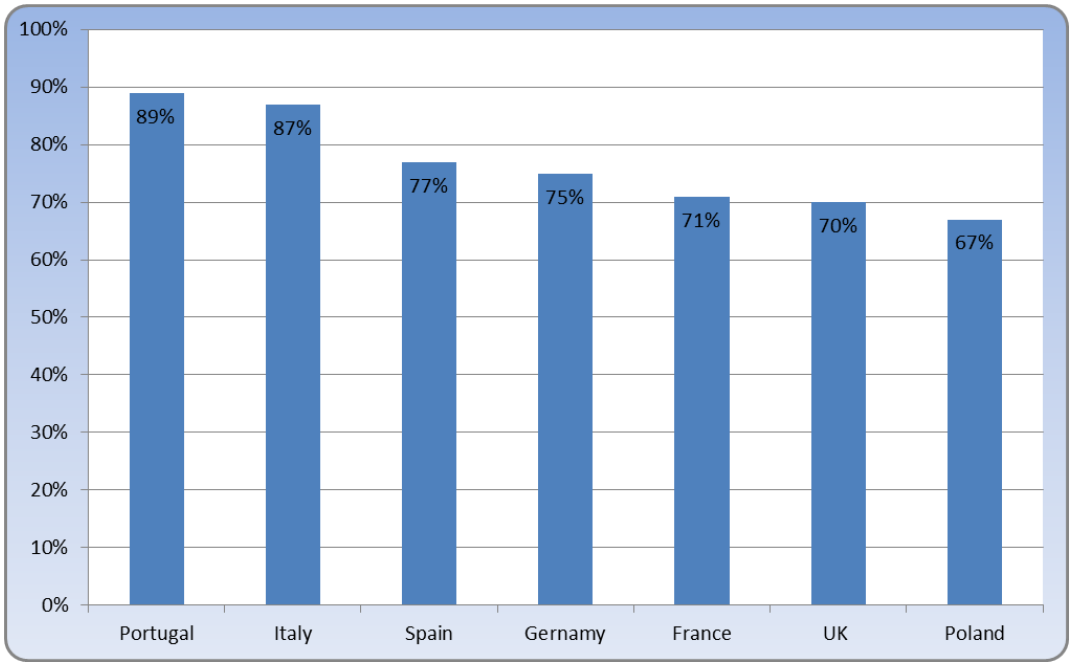

Figure 8. Rankings of national responses to marine spatial planning. Shown as percentage of responses rated as 'agree or strongly agree' (score of 4 or 5).

Support for the implementation of marine planning is high across the population. Portugal and Italy expressed strong support for the notion of marine planning with 89% and 87% respectively agreeing or strongly agreeing to the proposal. At the other end of the scale, there was still substantial support in the public for marine planning with France (71%), UK (70%) and Poland (67%) signalling that planning is an appropriate instrument for managing coastal and marine activities. This survey occurred in a period where marine planning systems in Europe are at their initial stages of development. For example, the UK is beginning its first marine spatial planning process in the East Inshore and Offshore region and public opinion may change as

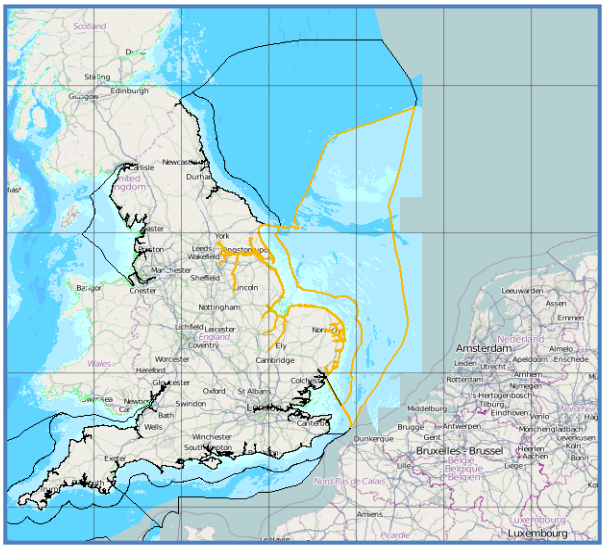

Figure 9 The East Inshore and Offshore Plan Area
Source: UK Marine Management Organisation: http://planningportal.marinemanagement.org.uk/

the process unfolds. However, at this point in time, despite the technical, political and financial challenges inherent in marine planning, it appears that the public accepts the concept and is supportive of implementation.

Some people have suggested that governments should designate parts of the ocean as protected areas, in the same way that they do with national parks on land, while others have said this is not a good idea. To what extent do you agree or disagree with this suggestion?

Please use a scale of 1 to 5 where 1 means strongly disagree and 5 is strongly agree.

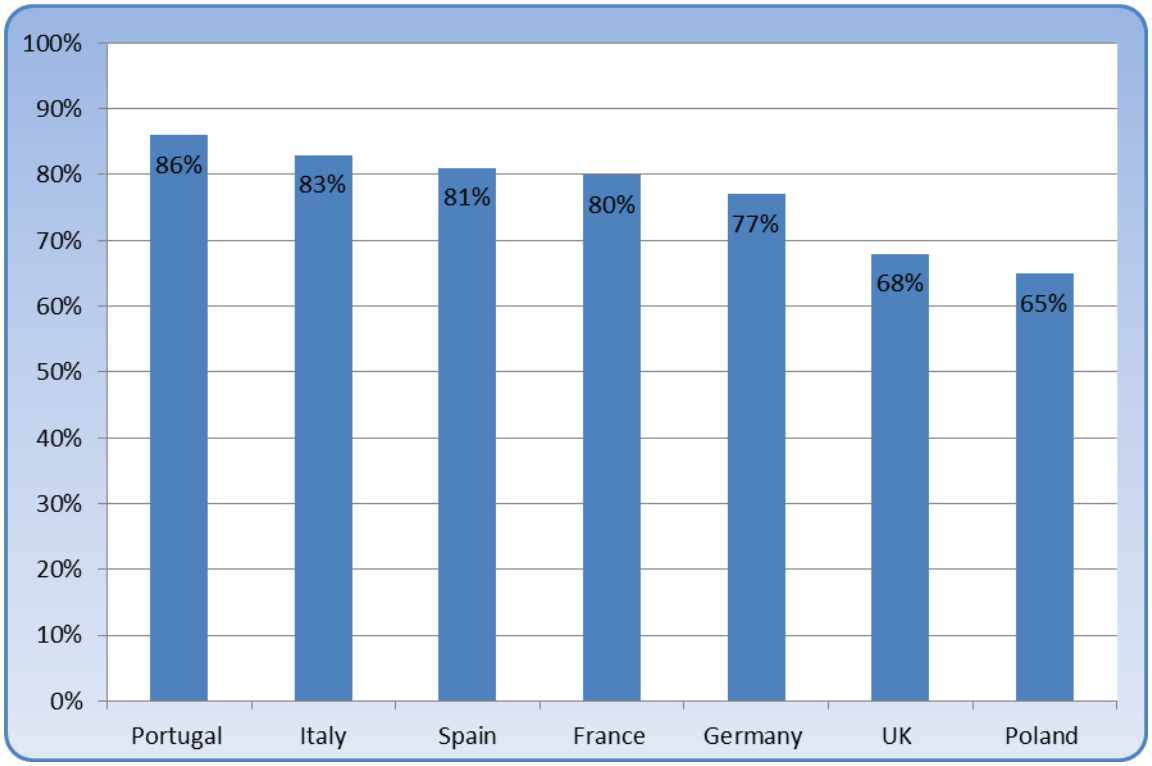

Figure 10. Rankings of national responses to designation of marine protected areas. Shown as percentage of responses rated as 'agree or strongly agree' (score of 4 or 5).

The creation of marine protected areas, from no take zones to multiple use management, has regularly been cited as a controversial policy instrument. While the designation and management of MPAs can generate local conflict if communities are not included in the decision making processes, at the national scale, the concept appears to be strongly supported.

Portugal, Italy, Spain, France and Germany strongly agreed with the designation of protected areas with three quarters of the population 'agreeing or strongly agreeing' to designations (Figure 10). The response was more diluted in the UK and Poland with a slight majority of the population supporting designation (68% and 65% respectively). A comparison can be made between support for marine area protection, rankings for ocean health as 'important or very important' (from Figure 6) and per capita seafood consumption (Table 2). Countries that have expressed ocean health as relatively important (against other issues in Figure 6) and/or have higher relative consumption of seafood appear to be more supportive of marine protected area designation at the national scale.

	Agree MPA designation %	Ocean Health is important %	Consumption of fish kg/ yr
Portugal	86	62	61.6
Italy	83	46	25.4
Spain	81	55	44.8
France	80	55	34.2
Germany	77	50	15.3
UK	68	32	20.3
Poland	65	31	10.9

Table 2. MPA designation, Ocean Health and Seafood consumption

While the survey results paint an optimistic picture for support for marine area protection at the national scale, it would be premature to say this support would stay the same over time and it is likely that regional and local responses will vary according to social and economic contexts. The key policy message is that there appears to be considerable goodwill and political capital in the public mind for the designation and development of marine protected areas, and this goodwill should be used wisely to develop transparent, participatory, publically supported and ecologically coherent marine protected areas.

Concluding note

When it comes to public perceptions of the marine environment is the glass half empty or half full? This policy brief identifies both cause for optimism and cause for concern when charting a course forward for ecosystem based management and marine planning within Europe. Human and natural systems are interdependent with social and economic drivers affecting ecosystem states. Any successful management initiative should understand the values of the public and incorporate this into the decision making process (Mee *et al* 2008). Public engagement is a critical part of the ecosystem approach - while it varies across differing national contexts, it drives social and political acceptability of the changes and trade-offs made in moving toward sustainable marine systems. Ecosystem based management is ultimately about managing *human* impacts on the environment and the public mindset is both a driver of impact and a source of solution.

Equally as important is the commitment to a transparent and democratically accountable process of decision making. Implementation of the ecosystem approach will require value judgements and trade-offs between sectors and differing interests and this will have an impact on society at large. These are important decisions that can and will impact future generations, yet as this survey has shown, we still have a relatively poor understanding of the public mindset when it comes to the perception of marine issues, particularly over time. Pomeroy and Douvere (2008) highlight that the involvement of stakeholders can provide an opportunity to develop 'mutual understanding' about management issues and generate new approaches and solutions for management. This brief endorses that perspective but also calls for wider social engagement beyond the limited 'stakeholder' approach. We seek the broader development of 'ocean citizenship' where communities are actively engaged in planning and making the decisions that affect them.

The drive for the measurement and assessment of ecosystem services is a part of the ecosystem management debate. An area of difficulty is the assessment and measurement of 'non market' services that benefit society at large and are available to all. This survey suggests that the public are implicitly aware of a range of benefits, and that a way forward to capture non market and non use ecosystem services may be to engage with the public over their awareness and preferences rather than the allocation of artificial costs. This survey highlights that perspectives on ecosystem services and priorities on actions substantially differ across national cultures.

The survey identified that there is public support for an increased role for scientific and civil society groups in the decision making process. It is important to note government still has a central coordinating role in the management of the marine estate, as democratic institutions are the best mechanism to deal with conflicting values, sectors and trade-offs. However, what the survey highlights is the public perception that the process could be improved if scientific and

civil organisations had a ‘seat at the table’ beyond the role of consulted stakeholders. This would potentially drive innovation in policy making, break down existing barriers and power structures, and incorporate science based participatory decision making and co-management as clear objectives.

Despite the call for greater engagement and transparency, the oceans in comparison with other day to day issues, occupy a lower rung on the ladder of public concerns. This is magnified by communication problems between scientists and the public and between scientists and policy makers which require more effort in order to articulate the ecosystem approach. Nevertheless, the survey highlights that the climate change message has some resonance in the public perception of threats to the ocean, and that successful communication is possible. We underscore that public engagement and communication is essential to the proper functioning of an ecosystem approach and sustainable development.

Finally, we note that the survey presents an optimistic picture for support for marine planning and protection at the national scale. There appears to be considerable goodwill in the public mind for the development of marine planning initiatives and marine protected areas although to date these are generally immature. It is a good starting point, and with genuine engagement, participation and accountability provide a platform for delivering a healthy marine environment that ensures a flow of benefits to all parts of society.

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Appendices A: Survey Questions

Question	Categories	Scoring
Q.1 How concerned, if at all, are you about each of the following issues?	Pollution, Poverty, Climate change, The economy, Terrorism, Food safety and availability, Health and education, Affordable energy, The cost of living, Loss of species, The health of the world's oceans	Not concerned (1) to very concerned (5)
Q.2 Now, please indicate to what extent do you agree or disagree with the following statement. The oceans are so large, it is unlikely that humans will cause lasting damage to them	|	Strongly agree, tend to agree, neither agree / disagree, tend to disagree, strongly disagree.
Q.3 Thinking about coastal waters and beaches in your country, how would you rate their condition? Would you say it is ..		Very good, fairly good, neither good nor poor, fairly poor, very poor, don't know.
Q.4 Thinking about deep oceans away from the coast (out of sight of land), how would you rate their condition? Would you say it is ...?		Very good, fairly good, neither good nor poor, fairly poor, very poor, don't know.
Q.5 In your opinion, how much of a threat, if any, does each of the following pose to the marine environment? Please use a scale of 1 to 5.	Oil and gas extraction, Pollution from industry, Farming, Fisheries, Shipping, Aquaculture (fish and shellfish farming), Marine renewable energy,Climate change, New or introduced species, Litter Ocean acidification,	Does not pose a threat (1) to severe threat (5).
Q.6 How important is the ocean to you as in individual, in each of the following ways? Please use a scale of 1 to 5 where 1 means it is not at all important and 5 means it is very important.	Recreation and tourism, as a source of food, for trade and shipping, for employment, as a producer of energy, as a part of your culture and identity, for education and science, for creativity, for its scenery, for the weather and climate.	Not at all important (1) to very important (5).
Q.7 When it comes to managing and protecting the ocean environment, how competent do you think are each of the following? Please use a scaleof 1 to 5 where 1 means not at all competent and 5 means highly competent:	The European Union (EU), National Government, Local authorities, Environmental groups, Private Industry, Scientific organisations, Community organisations, Individuals (you, family, friends etc)	Not at all competent (1) to highly competent (5).
Q.8 Some people have suggested that governments should designate certain parts of the ocean as protected areas, in the same way that they do with national parks on land, whilst others have said this is not a good idea. To what extent do you agree or disagree with this suggestion?		Strongly agree, Tend to agree, Neither agree nor disagree, Tend to disagree, Strongly disagree, don't know.

Q.9 It has also been suggested that governments should make plans that specify the different activities (e.g. fishing, recreation etc.) that can happen and where they can happen in the sea, and many governments are looking at making these plans. To what extent do you agree or disagree .		Strongly agree, Tend to agree, Neither agree nor disagree, Tend to disagree, Strongly disagree, Don't know.
Q.10 What do you think should be the top priorities for the development of marine and coastal areas? Please select two answers from the list below.	Conservation and protection Energy production, Food production, Education and science, Recreation and tourism, Infrastructure and ports, Other, None of these, Don't know	Select two.
Q.11 When buying seafood (fish or shellfish), to what extent, would each of the following influence your purchase? Please use a scale of 1 to 5where 1 means it would definitely not influence your purchase and means it definitely would influence your purchase.	Information about whether or not the fish is endangered or overfished, A label that indicates the product is environmentally friendly, Information about the origin of the fish, Information about how the fish was caught.	Would not influence (1) to would definitely influence (5).
Information about distance from the coast, age, gender, region, educational level and country was also collected.		