



## Supporting the protection of the Baltic Sea: assessment of cultural and recreational values

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**Short title:** Cultural and recreational values of the Baltic Sea

**Key Message:** According to a conservative estimate, almost one third of the respondents in Denmark, Finland and Sweden would be willing to financially support actions aimed at improving the Baltic Sea environment. Majority of the values and uses of the Baltic Sea, such as swimming, diving, fishing, hiking and picnicking, are directly related to cultural and recreational services provided by the sea.

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### What is the problem?

The increasing pressure of human activities on the Baltic Sea and within its catchment area is drastically affecting the environmental status of the sea, as well as its capacity to provide valuable ecosystem services. This threat calls for a better understanding of the different values and uses by people in the Baltic Sea States, including several of the Nordic Countries, associate with their marine environment, in order to more effectively safeguard and manage the benefits it provides.

To support these endeavors, an extensive public survey was carried out to gather information on the values and uses of the Baltic Sea in nine Baltic Countries, including Denmark, Finland and Sweden. The survey also explored people's concerns over the marine environment and their attitudes towards various measures for improving it. It is generally understood that the Baltic Sea is of high cultural and recreational significance to the broader public, however gathering evidence of this on broad-scale has been lacking. To address this caveat of lack of information, a comprehensive survey (i.e. BalticSurvey) was carried out in 2010 in the context of the BalticSTERN initiative, an international research network whose purpose is to carry out cost-benefit analyses regarding the environmental problems of the Baltic Sea (Söderqvist et al. 2010).

## Which ecosystem services were examined and how?

BalticSurvey did not explicitly focus on ecosystem services, however several of the identified values and uses of the Baltic Sea were directly related to **cultural and recreational services**. These cultural and recreational values further build on the range of **regulating and supporting services**, including ability of the sea to maintain good water quality, healthy fish stocks, charismatic species, and aesthetic and cultural values. In addition, swimming, diving, fishing, picnicking, sunbathing and other similar activities surveyed by the study are also linked to the maintenance and quality of broader ecosystem services in the Baltic Sea basin, such as the ability of coastal wetlands to maintain good water quality. Consequently, highlighting the socio-economic importance of the cultural and recreational values can also help to protect a range of ecosystem services in the Baltic Sea basin.

The BalticSurvey included about 9000 interviews carried out during spring 2010 in nine countries bordering the Baltic Sea (1000 interviews / country) (Söderqvist et al. 2010). The survey was designed to guarantee a full comparability of results across all Baltic Sea States. Telephone interviews were used to collect data in Denmark, Sweden, Finland, Germany, Russia and Poland. In Estonia, Latvia and Lithuania, face-to-face interviews were considered a more suitable option. For all countries but one, 1 000 interviews were randomly sampled and surveyed. In Russia, due to its large population and wide geographical extent, the sampling was focused on the urban population of St. Petersburg and Kaliningrad areas.

## Results

### *Importance of cultural and recreational values of the Baltic Sea*

The results of the survey indicate high appreciation of the cultural and recreational values of the Baltic Sea. In all the Baltic Sea countries except Russia, more than 80% of the respondents have been at the sea at least once to spend leisure time. People from the surveyed Nordic Countries are the most frequent users of the Baltic Sea for recreational purposes, with the frequency of visits being significantly higher during the summer. The highest proportion of recreational visits (98%) was found in Sweden, followed by 90% in Denmark and 85% in Finland (Söderqvist et al. 2010).

The most common cultural and recreational activities in all the surveyed countries are related activities that depend directly on the ecosystem services provided by the Baltic Sea, including swimming and walking, sunbathing and picnicking on the seashore. Boating and cruises are also relatively common in some countries, including Denmark, Finland and Sweden. Ice-fishing, skiing and skating are enjoyed by around 10 % of the respondents in Finland and Sweden.

While most of the people in the Baltic Sea countries have used the sea to spend leisure time, professional experience of the sea is limited. The proportion of respondents saying that they have or have had an occupation that is dependent on the sea is 10% in Sweden, 8% in Finland and 6% in Denmark. This indicates that cultural values (and related ecosystem services) are the main direct benefits of the Baltic Sea to people at the national level.

### *Insights related to the status of the Baltic Sea*

The survey revealed that concerns over the environmental status of the Baltic Sea are similar between the surveyed countries. In Denmark, Sweden and especially in Finland, more than half of the respondents declared to be concerned over the Baltic Sea environment. Furthermore, in Sweden and Finland the majority of respondents felt that the environmental problems of the Baltic Sea belong to the three most important, nation-wide environmental problems.

Litter and damage to marine flora and fauna was perceived as a big problem in all Baltic Sea states, including the Nordic countries. Algal blooms, low quality of coastal waters, and oxygen deficiency in the sea causing complete deterioration of seabed were also a cause of concern. Among the Nordic countries, issues related to water quality were the most common concern in Finland whereas Swedes were the most alarmed over overfishing. All of these identified concerns seem to be closely linked with the identified significant recreational and aesthetic values of the Baltic Sea. They are also all related to the diminished capacity of the sea to maintain a range of regulating or supporting services related to water purification and waste and nutrient retention.

Interestingly, however, the respondents did not feel that the water quality of the Baltic Sea would be restricting recreational opportunities at present. In general, Danes and Swedes consider water quality a less restricting factor than Finns. This is not surprising as Finland accesses the Baltic Sea via the Gulf of Finland, an area which has rather poor water quality in comparison to several other parts of the sea. In most of the surveyed states, including the Nordic countries, respondents did not feel that they themselves were directly responsible for impacting the Baltic Sea environment. Wastewater treatment plants, industry, farmers in the catchment area, professional fishermen, and sea transports and ports were seen as activities and stakeholders responsible for the diminishing environmental of the sea.

### *Willingness to support actions to improve Baltic Sea environment*

The survey revealed that almost 30% of the respondents in Denmark, Finland and Sweden would be willing to financially support actions aimed at improving the Baltic Sea environment. It is to be noted that 25% of the respondents were neutral – or indecisive – in terms of their willingness for financial contribution to conservation (i.e. neither agreed nor disagreed with the posed question). This might have been caused by the lack of detail provided in the survey regarding the concrete conservation actions foreseen to be taken (see ‘Next steps’ below). Consequently, the 30% public support can be considered a conservative estimate.

Results also indicated a strong support within all the surveyed countries for funding actions through increased charges on pollution emissions. The other types of suggested payments, i.e. increased taxes and increased bills, were considerably less popular. In general, preferring earmarked payments over increased fee on water or taxes might be explained by the perceived lack of transparency and strong negative connotation associated with taxes and fees.

### **Did the examination of ecosystem services generate impacts on decision-making or policies and, if so, how?**

The results of BalticSurvey provide a comprehensive overview of the present values, uses, perceptions, concerns and attitudes of the general public towards the Baltic Sea in nine different countries, including Denmark, Finland and Sweden. The survey provides quantitative evidence that

the Baltic Sea has a significant cultural and recreational value to the broader public and shows that a range of such values and public benefits are at stake if the degradation of marine environment continues.

The outcomes of the survey provide a good basis for guiding the decision-making in the Baltic Sea states both at regional and national level. They can help to assess the true costs and benefits of protecting and restoring marine ecosystem and related services. The survey results can also guide towards identifying and adopting conservation measures most likely to be supported by the general public. The results of the survey also provide a good starting point for further cost-benefit analyses in the Baltic Sea area. Also, the study forms a basis for further environmental valuation studies and possible development of concrete, publicly acceptable mechanisms to fund conservation of the Baltic Sea.

Building on the above and following the BalticSurvey, a contingent valuation study was designed and conducted in all nine littoral countries in 2011 with the purpose of estimating the benefits of reducing eutrophication in the Baltic Sea. With identical surveys and over 10 000 responses, the study elicited willingness to pay measures for two future eutrophication scenarios, built on 50% and 100% delivery of the nutrient loading reduction targets set in Baltic Marine Environment Protection Commission (HELCOM) Baltic Sea Action Plan. The preliminary results indicate that the majority of Finns, Danes and Swedes would be willing to pay to reduce eutrophication in the Baltic Sea (Ahtiainen et al. in prep.). While the stated willingness to pay is rather hypothetical, i.e. it might not reflect the actual amount of money people would pay to support conservation, the results show that they are in general willing to support action and policies for reducing eutrophication. In addition, it is possible to identify the benefits which the society in each littoral country would accrue from the ecological improvements in the Baltic Sea. The results of the valuation study also provide an important input for a comprehensive cost-benefit analysis of combating eutrophication in the Baltic Sea.

### **Lesson learned**

The survey illustrated several challenges associated with collecting comparable data on the public values from different countries, including the importance of correct framing of questions, complex translation issues, homogenous sampling procedures and data collection mode. Active involvement of representatives from all Baltic Sea countries was necessary for constructing the questionnaire in order to secure results that are nationally representative for each country and comprehensible also to people who know very little about the Baltic Sea. This information is likely to be useful for the design of similar regional and/or international surveys.

It should be also kept in mind that the survey results represent a snapshot of today's society. For example, people's willingness to contribute financially is likely to be influenced by the general economic situation. Some of the Baltic Sea countries have recently experienced a severe economic crisis, which might have had an impact on attitudes. By repeating this survey in time it would be possible to understand if and why attitudes change over time.

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