

THE BALTIC SEA

This survey is about your relation to the Baltic Sea and its environment. Your answers will help governments around the Baltic Sea to develop appropriate water quality improvement programmes. All answers are important – it is not necessary at all that you have specific knowledge of water quality or even the Baltic Sea.

By the Baltic Sea we mean the whole sea from the Bothnian Bay in north to the Gulf of Finland in east and Kattegat in west. Around the sea you find Finland, Russia, Estonia, Latvia, Lithuania, Poland, Germany, Denmark and Sweden. The Baltic Sea is depicted with light blue colour in the map below.



1. Do you feel that you live close to the Baltic Sea?

- ☐ Yes
- ☐ No

2. To what extent do you agree or disagree with the following statements about the Baltic Sea? Please tick one, and only one box on each row.

Statement	I totally agree	I agree rather than disagree	I neither agree or disagree	I disagree rather than agree	I totally disagree	
I am worried about the Baltic Sea environment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Baltic Sea environmental problems belong to the three most important environmental problems in Country	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
I can myself play a role in improving the Baltic Sea environment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
The protection of the Baltic Sea requires an international agreement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
The environmental degradation of the Baltic Sea has been exaggerated	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
It is my duty to get involved in protecting the Baltic Sea	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

THE BALTIC SEA AND LEISURE TIME ACTIVITIES

3. Have you ever been to the Baltic Sea or its coast to spend leisure time there?

- ☐ Yes, in the last 12 months
- ☐ Yes, in the last 5 years, but not in the last 12 months → go to question 5
- ☐ Yes, more than 5 years ago → go to question 5
- ☐ No → go to question 9

4. On how many days, during the last 12 months, did you visit the Baltic Sea or its coast for leisure time/purposes?

on about _____ days during the last 12 months

5. Which activities do you usually take part in on your leisure visits to the Baltic Sea? You can choose one or several alternatives.

- ☐ Swimming (in the sea)
- ☐ Fishing
- ☐ Boating
- ☐ Being at the beach or seashore for walking, picnicking, sunbathing
- ☐ Water sports (diving, wind surfing, water skiing)
- ☐ Going on a cruise
- ☐ Other, please specify: _____

6. Compared to the Baltic Sea, how often do you visit other water bodies (such as lakes, rivers, fjords, other sea areas) in Country or other countries for water recreation?

- ☐ Visit the Baltic Sea more often than other water bodies
- ☐ Visit the Baltic Sea about as much as other water bodies
- ☐ Visit other water bodies more often than the Baltic Sea
- ☐ Don't know

7. Is it possible to have a similar recreational experience at other water bodies as in the Baltic Sea? You can mark one or several alternatives.

- ☐ Yes, at another sea (for example: the Mediterranean Sea, the North Sea, the Red Sea)
- ☐ Yes, at a lake or a river or a fjord
- ☐ Yes, somewhere else, where: _____
- ☐ No, the Baltic Sea is the only place for such an experience → go to question 9

8. How far from your home is the nearest place where you can have a similar recreational experience as in the Baltic Sea?

- ☐ Closer than the Baltic Sea
- ☐ About as far as the Baltic Sea
- ☐ Farther than the Baltic Sea
- ☐ Don't know

9. Are you going to spend leisure time at the Baltic Sea in the next 5 years?

- ☐ Definitely
- ☐ Probably
- ☐ Probably not
- ☐ Definitely not
- ☐ Don't know

EUTROPHICATION IN THE BALTIC SEA

Eutrophication means accelerated growth of algae in water bodies. Eutrophication is caused by an excessive amount of nutrients, phosphorus and nitrogen, which the Baltic Sea receives from the rivers and the air. Nutrients originate from agriculture, municipal and industrial waste waters, and marine transportation. Eutrophication concerns the whole Baltic Sea. We all contribute to nutrient emissions, for example by consuming agricultural and industrial products, and producing wastewaters.

In addition to eutrophication, there are other environmental problems present in the Baltic Sea such as overfishing, litter, toxic environmental pollutants and a risk of oil spills. In this survey, we focus only on eutrophication. The following includes some information on the impacts of eutrophication, and we would like to know whether you are familiar with these impacts.

Eutrophication causes *water clarity* to decrease. Water turbidity is caused by the excessive amount of nutrients in the water.

10. Have you heard prior to this survey that water clarity in the Baltic Sea is affected by eutrophication?

- ☐ Yes
- ☐ No

Algae increase with eutrophication. *Blue-green algae* accumulate on the surface at some parts of the sea causing visible algal blooms.

11. Have you heard prior to this survey about blue-green algal blooms caused by eutrophication in the Baltic Sea?

- ☐ Yes
- ☐ No

Underwater meadows are important reproduction areas for many fish species. As eutrophication increases, perennial plants give way to overcrowding of algae.

12. Have you heard prior to this survey that underwater meadows in the Baltic Sea are affected by eutrophication?

- ☐ Yes
- ☐ No

Fish species composition changes due to eutrophication. For example, the stocks of cod, herring and perch decline with eutrophication and the number of fish like roach and bream increases.

13. Have you heard prior to this survey about changes in fish species composition caused by eutrophication in the Baltic Sea?

- ☐ Yes
- ☐ No

Eutrophication causes *lack of oxygen in deep sea bottoms* in some regions and times of year. As a result these areas become lifeless: plants and bottom animals cannot survive there.

14. Have you heard prior to this survey that eutrophication causes lack of oxygen in deep sea bottoms in the Baltic Sea?

- ☐ Yes
- ☐ No

15. When did you first hear about the effects of eutrophication in the Baltic Sea?

- ☐ In the 1960s or earlier
- ☐ In the 1970s
- ☐ In the 1980s
- ☐ In the 1990s
- ☐ In the 2000s
- ☐ In the 2010s
- ☐ I heard about them the first time from this survey

16a. Have you personally experienced the effects of eutrophication in the Baltic Sea?

- ☐ Yes, often
- ☐ Yes, sometimes
- ☐ No, never → **go to the next page**
- ☐ Don't know → **go to the next page**

16b. What kind of effects have you experienced? You can choose one or several effects.

- ☐ Water turbidity
- ☐ Blue-green algal blooms
- ☐ Loss of underwater meadows
- ☐ Fish species composition changes
- ☐ Other, please specify _____

The effects of eutrophication on water quality in open sea areas

Marine scientists have prepared a colour scale to show how serious eutrophication is in the different parts of open Baltic Sea. Before answering to the following questions, we would like you to familiarise with the colour scale below.

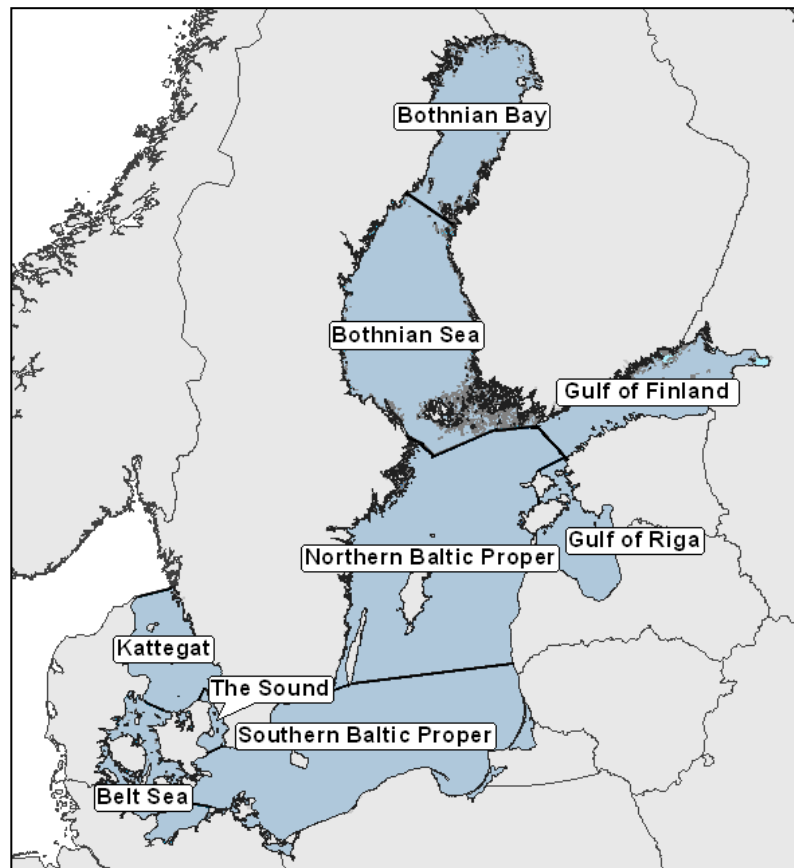
Description of the effects of eutrophication						
Water quality	Water clarity	Blue-green algal blooms	Underwater meadows	Fish species	Deep sea bottoms	Water quality
Best possible water quality	Clear	Seldom	Excellent condition Good for fish spawning and feeding	Cod, herring and perch common	No oxygen deficiency Bottom animals common	Best possible water quality
	Mainly clear	Sometimes	Patchy vegetation Good for fish spawning and feeding	Cod, herring and perch common	Oxygen deficiency in large areas Bottom animals common	
	Slightly turbid	In most summers	Cover a small area Less good for fish spawning	Fewer cod, but herring and perch common More roach, carp and bream	Oxygen shortages often in large areas Some bottom animals rare	
	Turbid	Every summer	Cover a small area Bad for fish spawning	Fewer cod, herring and perch More roach, carp and bream	Oxygen shortages often in large areas Some bottom animal groups have disappeared	
Worst possible water quality	Very turbid	On large areas every summer	Almost gone Not suitable for fish spawning	Almost no cod, fewer herring and perch Lots of roach, carp and bream	Oxygen shortages always in large areas No bottom animals in many areas	Worst possible water quality

17a. In your opinion, to which of the colours in the before-mentioned water quality scale does the current water quality in the area of the Baltic Sea that you are most familiar with correspond?

- ☐ Blue (best)
- ☐ Green
- ☐ Yellow
- ☐ Orange
- ☐ Red (worst)
- ☐ Don't know → go to question 18

17b. Which area(s) of the Baltic Sea did you have in mind (see map below)? You can choose one or several areas.

- ☐ Bothnian Bay
- ☐ Bothnian Sea
- ☐ Gulf of Finland
- ☐ Gulf of Riga
- ☐ Northern Baltic Proper
- ☐ Southern Baltic Proper
- ☐ Belt Sea
- ☐ The Sound
- ☐ Kattegat
- ☐ The whole Baltic Sea



18. How do you believe water quality in the Baltic Sea will develop in the next 40 years?

- ☐ Water quality will improve
- ☐ Water quality will stay the same
- ☐ Water quality will deteriorate
- ☐ Don't know

19. To what extent do you personally view the following effects of eutrophication in the Baltic Sea as problems or not?

	Not at all a problem	Rather small problem	Neither small nor big problem	Rather big problem	A very big problem	
Water turbidity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Blue-green algae	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Underwater meadows loss	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Fish species composition change	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Lack of oxygen in deep sea bottom areas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

EUTROPHICATION OF THE BALTIC SEA IN 2050

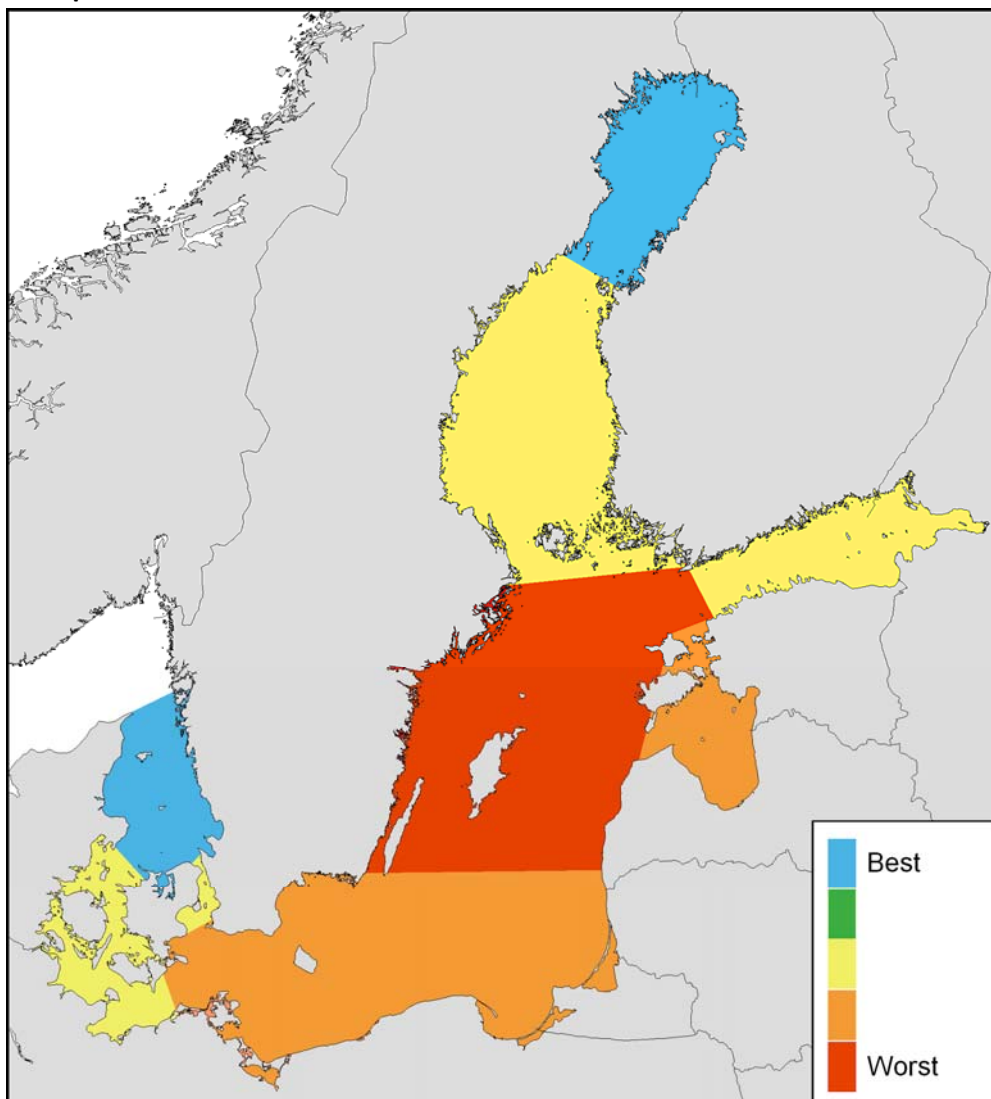
In this survey, the level of eutrophication is presented using maps. The maps have been prepared by marine scientists and they are based on the best available knowledge on the development of eutrophication in the Baltic Sea. We describe the level of eutrophication using the water quality scale described to you previously. The colours on the map correspond to the water quality scale (blue = best level, red = worst level). [Click here](#) if you want to see the water quality scale.

We want your opinion on reducing eutrophication in the entire Baltic Sea area. This means that we present eutrophication as an average for large areas. Local conditions can be slightly better or worse from the regional averages shown in the maps.

Eutrophication in open sea areas in 2050

The map below presents the level of eutrophication of the Baltic Sea in 2050 if no additional measures are taken to reduce eutrophication. The current measures will be continued, and hence the state of the Baltic Sea in 2050, presented below, is better than the present state.

Eutrophication of the Baltic Sea in 2050 without additional measures



New international programs to reduce eutrophication in the Baltic Sea

In the following, we present programs to reduce eutrophication in the Baltic Sea.

In these programs, nutrient loads to the Baltic Sea would be reduced for example by reducing the use of fertilizers, changing to phosphate-free detergents and increasing the efficiency of wastewater treatment. Measures that reduce nutrient emissions the most efficiently would be taken. All Baltic Sea countries would agree upon implementing these measures and the chosen program would be internationally binding.

Additional measures to reduce eutrophication costs money, and some of the costs accrue every year. More funds are needed to be able to implement a program. The chosen program would be financed by collecting a special Baltic Sea tax from each individual and firm in all Baltic Sea countries. The payments would be mandatory for all individuals and firms, and they would only be used for reducing eutrophication in the Baltic Sea.

20. Other issues than reducing eutrophication also require attention in the society. Which two of the following issues do you personally consider the most important in Country? Please choose two most important issues.

- ☐ Healthcare
- ☐ Education
- ☐ Climate change mitigation
- ☐ Public safety
- ☐ Public infrastructure
- ☐ Water protection
- ☐ Another issue, please specify _____

We would like to know if you would be willing to pay for a program to reduce eutrophication in the Baltic Sea.

When you answer, please remember that:

- You would have to pay the special Baltic Sea tax every year for the rest of your lifetime that would leave you with less money to spend on other things.
- Reducing eutrophication will not improve other environmental problems in the Baltic Sea, such as toxic environmental pollutants, litter, overfishing and the risk of oil spills.
- You have the possibility to use other water bodies, such as lakes, rivers and other sea areas for recreation.

21. Would you be willing to pay anything at all to reduce eutrophication in the Baltic Sea?

- ☐ Yes → **continue to the information after Q21**
- ☐ No → **go to question 22**
- ☐ Don't know → **continue to the information after Q21**

Next we will present two alternative international programs to reduce eutrophication in the Baltic Sea. The programs differ with respect to the extent of nutrient load reductions, and they lead to different changes in the level of eutrophication. These programs are alternatives to each other, and we wish you to consider them separately. **Go to the next page, to Program option 1**

22. What was the most important reason for you not to be willing to pay for reducing eutrophication in the Baltic Sea? Choose the most important reason.

- ☐ The current level of eutrophication in the Baltic Sea is satisfactory
- ☐ I can't afford to pay
- ☐ I do not believe a program to reduce eutrophication would work
- ☐ I am prepared to pay for reducing eutrophication in the Baltic Sea, but not by paying an extra tax
- ☐ I am prepared to pay for reducing eutrophication in the Baltic Sea, but I think that those who pollute more should pay more
- ☐ I am prepared to pay for reducing eutrophication in the Baltic Sea, but I think that the payment should be income dependent
- ☐ I do not care about the Baltic Sea
- ☐ I have received too little information
- ☐ Other problems are more significant
- ☐ I do not believe the money will be used for the purpose
- ☐ Other reason, please specify _____

Program option 1

Please compare the following two maps, and think about how much it is worth to you to reduce the level of eutrophication in the Baltic Sea as presented in the maps.

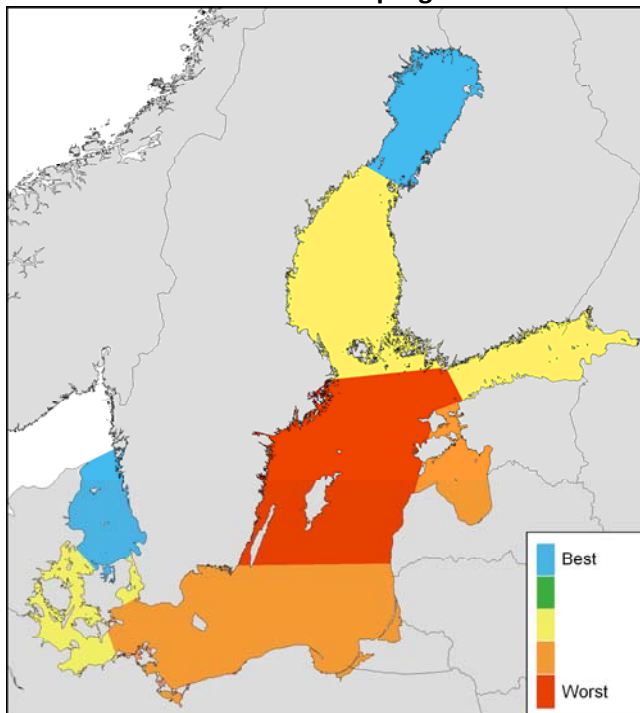
On the left you can see the level of eutrophication in the Baltic Sea in 2050 without a program to reduce eutrophication.

On the right you can see the level of eutrophication in 2050 with program 1 to reduce eutrophication.

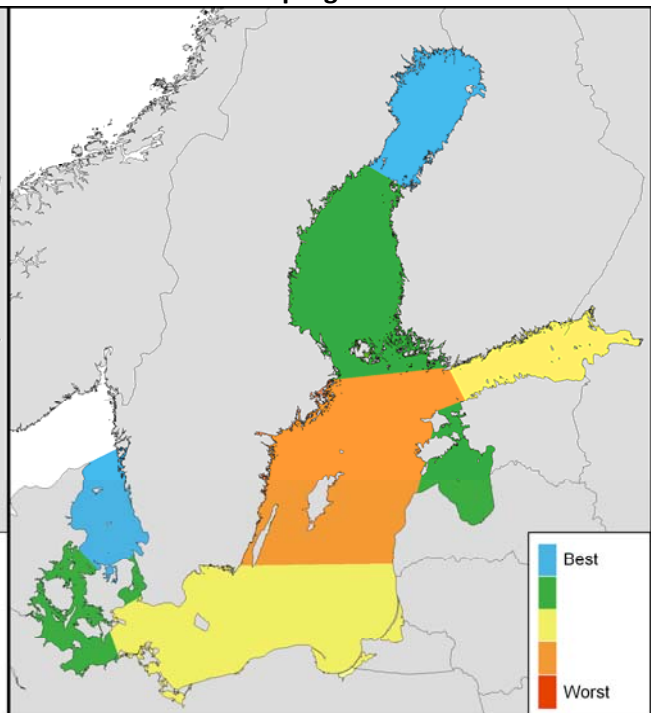
Eutrophication will gradually decrease and water quality improve until it reaches the state in the map on the right in 2050.

[Click here](#) if you want to see the water quality scale.

Baltic Sea in 2050 without the program



Baltic Sea in 2050 with program 1



23. What is the most you would be willing to pay every year to reduce eutrophication in the Baltic Sea as shown in the maps? Please consider your disposable income carefully before answering the question.

<input type="radio"/> 0 €	<input type="radio"/> 25 €	<input type="radio"/> 120 €	<input type="radio"/> 600 €
<input type="radio"/> 5 €	<input type="radio"/> 35 €	<input type="radio"/> 170 €	<input type="radio"/> 900 €
<input type="radio"/> 10 €	<input type="radio"/> 50 €	<input type="radio"/> 250 €	<input type="radio"/> over 900 €
<input type="radio"/> 15 €	<input type="radio"/> 75 €	<input type="radio"/> 400 €	<input type="radio"/> don't know

24. How certain are you about your willingness to pay for reducing eutrophication in the Baltic Sea? Please circle the level of certainty you have regarding your willingness to pay.

Very uncertain

Very certain

1 2 3 4 5 6 7 8 9 10

25a. What was the most important reason for you to be willing to pay for reducing eutrophication in the Baltic Sea? Choose the most important reason.

- ☐ I have used the Baltic Sea for nature experiences and recreation
- ☐ I plan to use the Baltic Sea for nature experiences and recreation in the future
- ☐ The existence of healthy marine ecosystems and plants and animals is important
- ☐ Other people in my generation are able to enjoy the water quality improvements
- ☐ Future generations will be able to enjoy the water quality improvements
- ☐ You can do a lot for environmental protection with a small contribution
- ☐ Other reason, please specify _____

→ go to the next page

25b. What was the most important reason for you not to be willing to pay for reducing eutrophication in the Baltic Sea? Choose the most important reason.

- ☐ The current level of eutrophication in the Baltic Sea is satisfactory
- ☐ I can't afford to pay
- ☐ I do not believe a program to reduce eutrophication would work
- ☐ I am prepared to pay for reducing eutrophication in the Baltic Sea, but not by paying an extra tax
- ☐ I am prepared to pay for reducing eutrophication in the Baltic Sea, but I think that those who pollute more should pay more
- ☐ I am prepared to pay for reducing eutrophication in the Baltic Sea, but I think that the payment should be income dependent
- ☐ I do not care about the Baltic Sea
- ☐ I have received too little information
- ☐ Other problems are more significant
- ☐ I do not believe the money will be used for the purpose
- ☐ Other reason, please specify _____

→ go to the next page

25c. What was the most important reason for you to answer "don't know" in the willingness to pay question? Choose the most important reason.

- ☐ I am not sure whether I can afford to pay
- ☐ I am not sure whether the program to reduce eutrophication would work
- ☐ I am not sure that I care about the Baltic Sea that much
- ☐ I have received too little information
- ☐ The question was unclear
- ☐ I am not sure whether the money will be used for the stated purpose
- ☐ Other reason, please specify _____

→ go to the next page

Program option 2

As an alternative policy option, the following program could be implemented instead of the previous program. Please compare again the maps and think about how much it is worth to you to reduce the level of eutrophication in the Baltic Sea as presented in the maps.

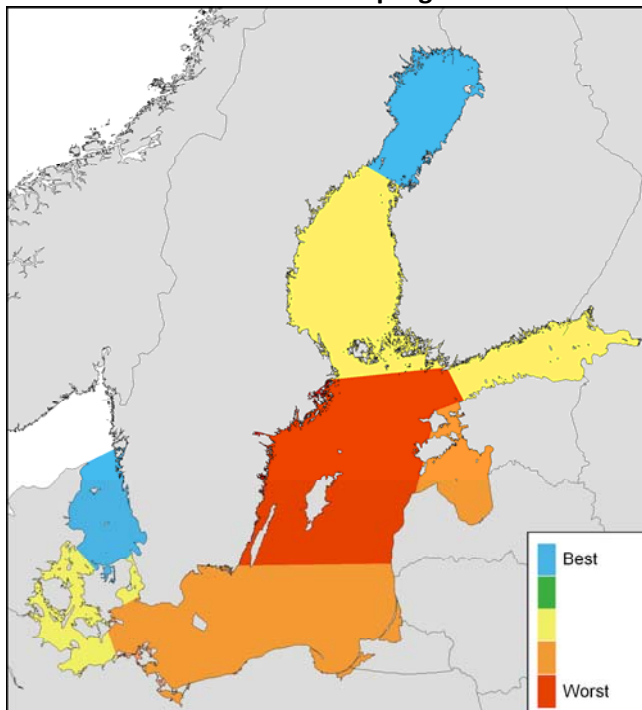
On the left you can again see the level of eutrophication in the Baltic Sea in 2050 without a program to reduce eutrophication.

On the right you can see the level of eutrophication in 2050 with program 2 to reduce eutrophication.

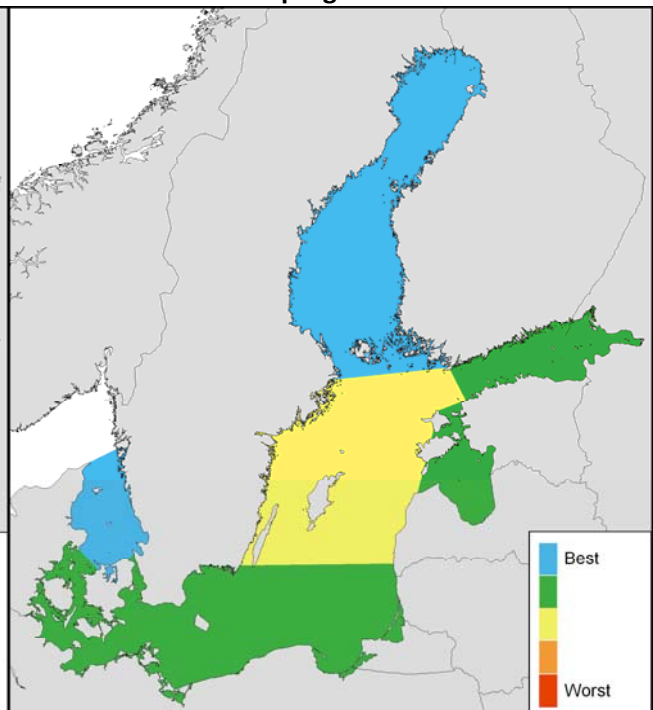
Eutrophication will gradually decrease and water quality improve until it reaches the state in the map on the right in 2050.

[Click here](#) if you want to see the water quality scale.

Baltic Sea in 2050 without the program



Baltic Sea in 2050 with program 2



26. What is the most you would be willing to pay every year to reduce eutrophication in the Baltic Sea as shown in the maps? Please consider your disposable income carefully before answering the question.

<input type="radio"/> 0 €	<input type="radio"/> 25 €	<input type="radio"/> 120 €	<input type="radio"/> 600 €
<input type="radio"/> 5 €	<input type="radio"/> 35 €	<input type="radio"/> 170 €	<input type="radio"/> 900 €
<input type="radio"/> 10 €	<input type="radio"/> 50 €	<input type="radio"/> 250 €	<input type="radio"/> over 900 €
<input type="radio"/> 15 €	<input type="radio"/> 75 €	<input type="radio"/> 400 €	<input type="radio"/> don't know

Very uncertain Very certain

1 2 3 4 5 6 7 8 9 10

- ☐ I have used the Baltic Sea for nature experiences and recreation
- ☐ I plan to use the Baltic Sea for nature experiences and recreation in the future
- ☐ The existence of healthy marine ecosystems and plants and animals is important
- ☐ Other people in my generation are able to enjoy the water quality improvements
- ☐ Future generations will be able to enjoy the water quality improvements
- ☐ You can do a lot for environmental protection with a small contribution
- ☐ Other reason, please specify _____

- ☐ The current level of eutrophication in the Baltic Sea is satisfactory
- ☐ I can't afford to pay
- ☐ I do not believe a program to reduce eutrophication would work
- ☐ I am prepared to pay for reducing eutrophication in the Baltic Sea, but not by paying an extra tax
- ☐ I am prepared to pay for reducing eutrophication in the Baltic Sea, but I think that those who pollute more should pay more
- ☐ I am prepared to pay for reducing eutrophication in the Baltic Sea, but I think that the payment should be income dependent
- ☐ I do not care about the Baltic Sea
- ☐ I have received too little information
- ☐ Other problems are more significant
- ☐ I do not believe the money will be used for the purpose
- ☐ Other reason, please specify _____

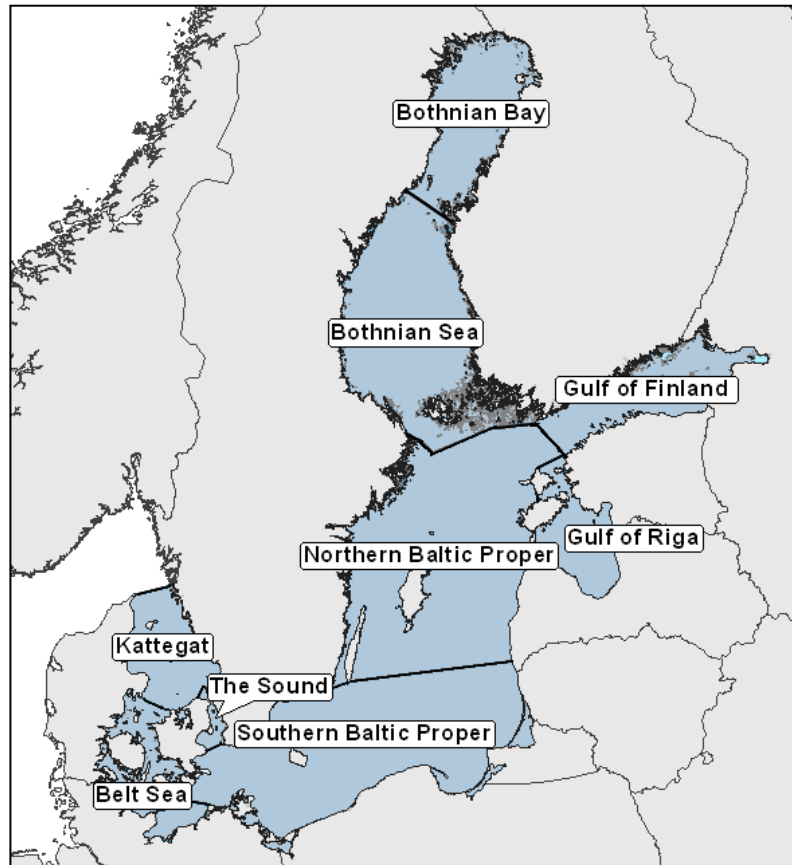
- ☐ I am not sure whether I can afford to pay
- ☐ I am not sure whether the program to reduce eutrophication would work
- ☐ I am not sure that I care about the Baltic Sea that much
- ☐ I have received too little information
- ☐ The question was unclear
- ☐ I am not sure whether the money will be used for the stated purpose
- ☐ Other reason, please specify _____

29. Did you consider the whole Baltic Sea or a certain area of the Baltic Sea when answering how much you were willing to pay?

- ☐ Whole Baltic Sea → go to question 31
- ☐ A certain area of the Baltic Sea

30. Which area(s) of the Baltic Sea did you have in mind when answering how much you were willing to pay (see map below)? You may choose one or several areas.

- ☐ Bothnian Bay
- ☐ Bothnian Sea
- ☐ Gulf of Finland
- ☐ Gulf of Riga
- ☐ Northern Baltic Proper
- ☐ Southern Baltic Proper
- ☐ Belt Sea
- ☐ The Sound
- ☐ Kattegat



31. To what extent did you consider open sea and coastal areas when answering how much you were willing to pay? Please circle the extent you considered the open sea areas or the coast, given that 1 = open sea areas only, 4 = equally and 7 = coastal areas only.

Open-sea areas only		Equally		Coastal areas only
1	2	3	4	5
				6
				7

32a. Which of the effects of eutrophication did you have in mind when answering how much you were willing to pay? You may choose one or several alternatives.

- ☐ Water turbidity
- ☐ Blue-green algal blooms
- ☐ Underwater meadows loss
- ☐ Fish species composition changes
- ☐ Lack of oxygen in deep sea bottom areas

32b. (To those who marked blue-green algal blooms). **To what extent did you consider blue-green algal blooms in comparison to other effects of eutrophication, when answering how much you were willing to pay?** Please circle your response below, given that 1 = Mostly blue green algal blooms and 7 = Mostly other effects of eutrophication.

Mostly blue-green algal blooms							Mostly other effects of eutrophication
1	2	3	4	5	6	7	

BACKGROUND INFORMATION

To help us understand your answers, we need to know a little bit about you. The information you provide in this survey is completely confidential – this information cannot be connected to you personally. Please provide this information; otherwise we cannot use your other answers.

33. In what year were you born?

34. Are you

- ☐ Female
- ☐ Male

35. How many people live in your household, including yourself?

36. How many people in your household are under 18 years old?

37. What is your highest level of education?

- ☐ Compulsory school
- ☐ Vocational education
- ☐ High school
- ☐ University/Polytechnic
- ☐ Other, please specify _____

38. What is your current occupational status? Please choose only one option that best describes your occupational status.

- ☐ Employed full-time
- ☐ Employed part-time
- ☐ Retired
- ☐ Student
- ☐ Home-employed/Homemaker
- ☐ Self-employed
- ☐ Unemployed

39. What is the postal code area you live in?

40. What is your monthly net income (after taxes)? Please include all sources of income, including benefits, stipends, pension etc.

- ☐ 1st quintile and less
- ☐ 2nd quintile
- ☐ 3rd quintile
- ☐ 4th quintile
- ☐ 5th quintile and up

41a. Now that you have completed the questionnaire on the Baltic Sea, we would like to hear opinion on a final question. Think about the **questions about your willingness to pay** for reducing eutrophication in the Baltic Sea. **To which extent do you agree or disagree with the following statements?**

	I totally agree	I agree rather than disagree	I neither agree or disagree	I disagree rather than agree	I totally disagree
I read the question thoroughly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I understood the question completely	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It was easy to answer to the question	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

41b. Now think back to the programs to reduce eutrophication. **To which extent do you agree or disagree with the following statements?**

	I totally agree	I agree rather than disagree	I neither agree or disagree	I disagree rather than agree	I totally disagree
It was easy to understand the maps depicting eutrophication level	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I received enough information about the programs and their effects	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe it is possible to implement a program to reduce eutrophication	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe countries will commit to a program to reduce eutrophication	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I find it likely that a program to reduce eutrophication will be implemented	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

42. Any further comments?

If you would like to make a comment on the survey or anything else, please do so below.
