

Effects of human activities and conservation on the Lithuanian coast

– what do you think?

University of Helsinki, University of Gothenburg, Finnish Environment Institute, Coastal Research and Planning Institute, Klaipeda University, Swedish Board of Fisheries, Åbo Akademi University

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1. First we would like to ask some background information for statistical purposes

1.1 Which year were you born? **YEAR**

1.2 Your gender? **FEMALE / MALE**

1.3 What is the highest level of education you have completed?(Elementary school, vocational school, college, university, licenciate/doctoral degree)

1.4 How many people live in your household, including you? **NUMBER OF PERSONS**

1.5 How many of them are younger than 18 years old? **NUMBER OF PERSONS**

1.6 What are your net monthly income after taxes? Include here all income sources such as wage, pension, child allowance, study grant, unemployment benefit and other forms of aid

under 700 LTL

701 - 1000 LTL

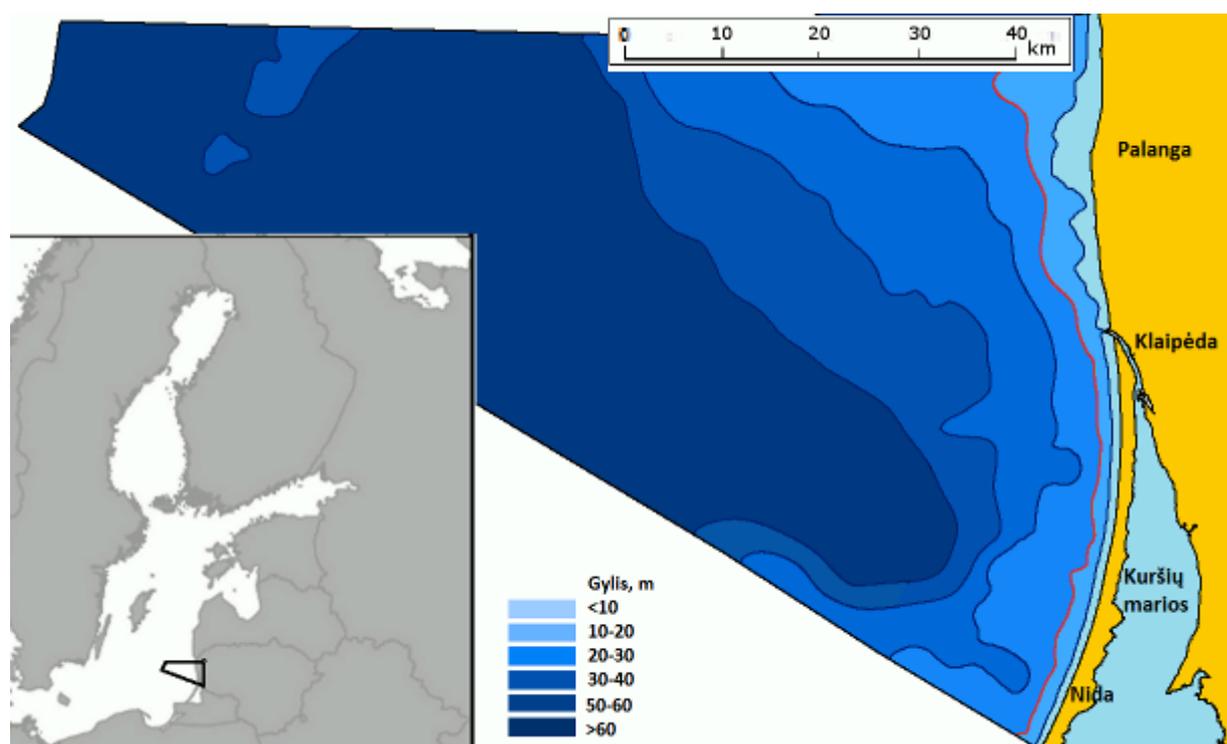
1001 – 1600 LTL

1601 - 2500 LTL

2501 LTL or more

1.7 What is your postcode or the closest town? **POSTCODE** or **NAME OF TOWN**

The map below shows Lithuanian economic zone of the Baltic Sea, red line indicates the coastal area. It is very exposed to any westerly wind directions, no islands and inlets. The coastal area is dominated by mobile sandy bottoms with poor biodiversity and sandy beaches. Only a small area of stony bottoms with highest biodiversity is situated between Karkle and Sventoji, which is part of NATURA 2000 marine protected areas. The questions 2-14 in this questionnaire are related to this area.



2. What kind of connections do you have to the coast of Lithuania?

Yes

No

- 2.1 Do you live close to the Lithuanian coast? If yes, how close? **KILOMETERS**
- 2.2 Have you before lived close to the Lithuanian coast? If yes, how close? **KILOMETERS**
- 2.3 Have you ever visited in the Lithuanian coast?
- 2.4 Have you spent free time on the Lithuanian coast? (For instance walking, swimming, boating, fishing or spending time at summer cottage). If yes, please specify where and how have you spent free time.
- 2.5 Does your occupation or work have a close connection to the Lithuanian coast?
- 2.6 Have you or any member of your household participated in the protection of the Lithuanian coast?
- 2.7 Does anyone in your household ever eat fish from the Lithuanian coast?
- 2.8 Do you have any other connection to the Lithuanian coast? If yes, please specify.

3. The Lithuanian coast (its ecosystems) provides many services for people and for other nature. How important are the following services for you?

Very Important

Quite important

Somewhat important

Not very important

Not important at all

I do not know

- 3.1 Supply of food (e.g. fish, shellfish, mussels)
- 3.2 Provision of opportunities for recreation and free-time activities
- 3.3 Cultural heritage related to old livelihoods of coastal areas
- 3.4 Provision of good environments for plant and animal species
- 3.5 Provision of space for energy production (e.g. wind power or wave power)
- 3.6 Provision of opportunities for maritime transportation of people and goods
- 3.7 Diversity of marine nature
- 3.8 The sea regulates the climate
- 3.9 Marine landscapes
- 3.10 The sea provides knowledge about how the sea functions as an environment
- 3.11 Legacy of the sea for future generations
- 3.12 Primary production (e.g. photosynthesis)
- 3.13 Resilience (the capacity of the Lithuanian coast to reorganize disturbances)
- 3.14 Marine environment breaks down and stores hazardous substances
- 3.15 Biological regulation (e.g. mussels help maintain water fit for swimming by filtering toxic substances)
- 3.16 Ornaments provided by the Lithuanian coast (e.g shells and amber)
- 3.17 Inspiration provided by the Lithuanian coast

4. The Lithuanian coast is shallow. The productive stony part (Karkle - Sventoji) provides suitable environment for a very diverse set of animal and plant communities, serves as a spawning grounds for Baltic herring. The catchment area is densely populated and cultivated and thus, the Lithuanian coast is strongly impacted by human activities.

- **Eutrophication is caused by an excess of nutrients (nitrogen and phosphorus) in the sea water. Eutrophication impairs the health and capacity of underwater environments.**
- **The coastal modification may permanently change the unique sandy beaches and dunes of the Lithuanian coast.**
- **As a consequence of overfishing and modification of environment of the Lithuanian coast, the fish stocks decline.**

Please answer following questions whether you agree / disagree / something in between.

Agree

Somewhat agree

Neither agree nor disagree

Somewhat disagree

Disagree

I don't know

- 4.1 Before receiving this questionnaire, I had knowledge on the services provided by the (ecosystems of) the Lithuanian coast.
- 4.2 My current recreational use of the Lithuanian coast is limited by poor water quality.
- 4.3 Currently I give money to finance the protection of the Lithuanian coast.
- 4.4 The nutrient concentration (nitrogen and phosphorus) in the Lithuanian coast should be close to the natural level (the level the sea sustains).
- 4.5 Environmental problems of Lithuanian coast are among the three most pressing environmental problems in my country.
- 4.6 All polluters of Lithuanian coast should pay for the improvement in the water quality.
- 4.7 The status of fish stocks in the Lithuanian coast needs to be improved
- 4.8 The environmental status of Lithuanian coast is now better than 10 years ago.
- 4.9 The maritime traffic in Lithuanian coast should not be restricted.
- 4.10 Securing the livelihoods of coastal communities that depend on Lithuanian coast is important.
- 4.11 I am ready to give more money for the protection of Lithuanian coast than what I already do.
- 4.12 The water of Lithuanian coast is too turbid.
- 4.13 I can influence the environmental status of Lithuanian coast.
- 4.14 The coastal construction in Lithuanian coast area should not be restricted.
- 4.15 The protection of environments is more important than other activities in Lithuanian coast.
- 4.16 Good opportunities for recreational fishing in the Lithuanian coast are important

5. Human activities in the Lithuanian coast and its proximity can be regulated and the sea can be protected. The HELCOM Baltic Sea Action Plan is a political agreement relating to all Baltic Sea countries. It aims at improving the status of the marine environment by the year 2021. Some potential changes in the Lithuanian coast are presented below.



High water transparency – underwater “forests” vegetation



Moderate water transparency – solitary



Low water transparency – no underwater vegetation

‘Healthy vegetation’ refers to the underwater vegetation that forms so called underwater forests. These areas are environments for many species. Eutrophication leads to excessive amounts of fast-growing algae which increase water turbidity. This leads to a decrease in the amount of ‘healthy vegetation’ as well as in the living environments of many species. In addition, the increased water turbidity limits the recreational opportunities in the Lithuanian coast.

5.1 Do you have experience of turbid sea water?

Yes

No

As a result of modification of the Lithuanian coastal environments, in some areas the unique sandy beaches and dunes have changed permanently. This reduces recreational opportunities in the coast of Lithuania.



Pristine Lithuanian coast



Potential view from the modified Lithuanian coast

5.2 Do you have experience of the permanent change of sandy beaches or dunes?

Yes

No



Baltic cod (Picture: <http://kala-kassu.net/>)

Increase the size of fish stocks provides an economic and cultural contribution to coastal inhabitants in the Lithuanian coast. Stocks of many fish species have decreased due to environmental change and overfishing. For instance, large predatory fish species, such as Baltic cod, are important both for fishing and for coastal environment, plants and other animals.

5.3 Do you have experience of the change in fish stocks?

Yes

No

Please read here some background information and instructions for answering the questions 6-13.

The questions 6-13 map the opinions about the protection of the Lithuanian coast until 2021 and about the effects of new conservation measures on the characteristics of the marine environment. The effects are compared to the continuation of the conservation of the Lithuanian coast as it is currently.

- Along with new conservation, the water turbidity decreases and the amount of healthy vegetation increases. Healthy vegetation is an environment for many species. Decreased water turbidity is advantage for recreational users.
 - Along with new conservation, sandy beaches and dunes, that is also available for people, improve the recreational opportunities of recreational users.
 - Along with new conservation, the size of fish stocks will increase. This has economic and cultural significance for coastal communities.
 - New conservation measures need funding which will be collected as a voluntary one-time management fee for the Lithuanian coast. The whole management fee will be used to the protection of the Lithuanian coast.
- The idea in the questions is to compare the alternatives. Please think through each task separately.
 - When answering the questions, remember that the money used for the protection of the sea is not available for your other consumption.

Characteristic	Alternative A	Alternative B
Amount of healthy vegetation	no change 	increase by one and half 
Preservation of currently pristine sandy beaches and dunes	no change 	protection of three quarters 
Size of fish stocks	increase by double 	increase by one and half 
One-time management fee (LTL)	7 	12 

6.1 Which alternative is the most preferable for you?

Alternative A

Alternative B

6.2 How much did you note the following issues when choosing the most preferable alternative?

A lot

Somewhat

Not at all

6.2.1 Amount of healthy vegetation

6.2.2 Preservation of currently pristine sandy beaches and dunes

6.2.3 Size of fish stocks

6.2.4 One-time management fee

6.3 If the two alternatives above were the only options to conserve the Lithuanian coast, would you still choose the present situation: the current level of conservation of the Lithuanian coast and no voluntary management fee?

Yes. I prefer the present situation, no management fee.

No. I prefer more protection, better status and the management fee

Characteristic	Alternative A	Alternative B
Amount of healthy vegetation	increase by double 	increase by one and half 
Preservation of currently pristine sandy beaches and dunes	protection of one quarter 	protection of three quarters 
Size of fish stocks	no change 	no change 
One-time management fee (LTL)	70 	35 

7.1 Which alternative is the most preferable for you?

Alternative A

Alternative B

7.2 How much did you note the following issues when choosing the most preferable alternative?

A lot

Somewhat

Not at all

7.2.1 Amount of healthy vegetation

7.2.2 Preservation of currently pristine sandy beaches and dunes

7.2.3 Size of fish stocks

7.2.4 One-time management fee

7.3 If the two alternatives above were the only options to conserve the Lithuanian coast, would you still choose the present situation: the current level of conservation of the Lithuanian coast and no voluntary management fee?

Yes. I prefer the present situation, no management fee.

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Characteristic	Alternative A	Alternative B
Amount of healthy vegetation	no change 	no change 
Preservation of currently pristine sandy beaches and dunes	protection of one quarter 	no change 
Size of fish stocks	increase by one and half 	increase by one and half 
One-time management fee (LTL)	35 	210 

8.1 Which alternative is the most preferable for you?

Alternative A

Alternative B

8.2 How much did you note the following issues when choosing the most preferable alternative?

A lot

Somewhat

Not at all

8.2.1 Amount of healthy vegetation

8.2.2 Preservation of currently pristine sandy beaches and dunes

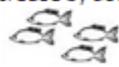
8.2.3 Size of fish stocks

8.2.4 One-time management fee

8.3 If the two alternatives above were the only options to conserve the Lithuanian coast, would you still choose the present situation: the current level of conservation of the Lithuanian coast and no voluntary management fee?

Yes. I prefer the present situation, no management fee.

No. I prefer more protection, better status and the management fee

Characteristic	Alternative A	Alternative B
Amount of healthy vegetation	increase by one and half 	increase by one and half 
Preservation of currently pristine sandy beaches and dunes	protection of three quarters 	no change 
Size of fish stocks	no change 	increase by double 
One-time management fee (LTL)	70 	70 

9.1 Which alternative is the most preferable for you?

Alternative A

Alternative B

9.2 How much did you note the following issues when choosing the most preferable alternative?

A lot

Somewhat

Not at all

9.2.1 Amount of healthy vegetation

9.2.2 Preservation of currently pristine sandy beaches and dunes

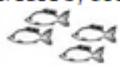
9.2.3 Size of fish stocks

9.2.4 One-time management fee

9.3 If the two alternatives above were the only options to conserve the Lithuanian coast, would you still choose the present situation: the current level of conservation of the Lithuanian coast and no voluntary management fee?

Yes. I prefer the present situation, no management fee.

No. I prefer more protection, better status and the management fee

Characteristic	Alternative A	Alternative B
Amount of healthy vegetation	no change 	increase by double 
Preservation of currently pristine sandy beaches and dunes	protection of one quarter 	no change 
Size of fish stocks	increase by double 	increase by double 
One-time management fee (LTL)	12 	140 

10.1 Which alternative is the most preferable for you?

Alternative A

Alternative B

10.2 How much did you note the following issues when choosing the most preferable alternative?

A lot

Somewhat

Not at all

10.2.1 Amount of healthy vegetation

10.2.2 Preservation of currently pristine sandy beaches and dunes

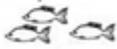
10.2.3 Size of fish stocks

10.2.4 One-time management fee

10.3 If the two alternatives above were the only options to conserve the Lithuanian coast, would you still choose the present situation: the current level of conservation of the Lithuanian coast and no voluntary management fee?

Yes. I prefer the present situation, no management fee.

No. I prefer more protection, better status and the management fee

Characteristic	Alternative A	Alternative B
Amount of healthy vegetation	increase by double 	increase by one and half 
Preservation of currently pristine sandy beaches and dunes	no change 	protection of three quarters 
Size of fish stocks	no change 	increase by one and half 
One-time management fee (LTL)	210 	210 

11.1 Which alternative is the most preferable for you?

Alternative A

Alternative B

11.2 How much did you note the following issues when choosing the most preferable alternative?

A lot

Somewhat

Not at all

11.2.1 Amount of healthy vegetation

11.2.2 Preservation of currently pristine sandy beaches and dunes

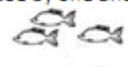
11.2.3 Size of fish stocks

11.2.4 One-time management fee

11.3 If the two alternatives above were the only options to conserve the Lithuanian coast, would you still choose the present situation: the current level of conservation of the Lithuanian coast and no voluntary management fee?

Yes. I prefer the present situation, no management fee.

No. I prefer more protection, better status and the management fee

Characteristic	Alternative A	Alternative B
Amount of healthy vegetation	increase by one and half 	increase by one and half 
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Size of fish stocks	increase by one and half 	no change 
One-time management fee (LTL)	35 	70 

12.1 Which alternative is the most preferable for you?

Alternative A

Alternative B

12.2 How much did you note the following issues when choosing the most preferable alternative?

A lot

Somewhat

Not at all

12.2.1 Amount of healthy vegetation

12.2.2 Preservation of currently pristine sandy beaches and dunes

12.2.3 Size of fish stocks

12.2.4 One-time management fee

12.3 If the two alternatives above were the only options to conserve the Lithuanian coast, would you still choose the present situation: the current level of conservation of the Lithuanian coast and no voluntary management fee?

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One-time management fee (LTL)	140 	70 

13.1 Which alternative is the most preferable for you?

Alternative A

Alternative B

13.2 How much did you note the following issues when choosing the most preferable alternative?

A lot

Somewhat

Not at all

13.2.1 Amount of healthy vegetation

13.2.2 Preservation of currently pristine sandy beaches and dunes

13.2.3 Size of fish stocks

13.2.4 One-time management fee

13.3 If the two alternatives above were the only options to conserve the Lithuanian coast, would you still choose the present situation: the current level of conservation of the Lithuanian coast and no voluntary management fee?

Yes. I prefer the present situation, no management fee.

No. I prefer more protection, better status and the management fee

14 If you, in each of the questions 6-13, chose the present situation (no new conservation of the Lithuanian coast and no management fee), which one(s) of the following are the reason(s)?

Yes

No

14. 1 I don't care about the condition of the Lithuanian coast

14.2 It's not my responsibility to pay for improving the condition of the Lithuanian coast

14.3 I don't believe that measures would result in improvement in the Lithuanian coast

14.4 Other countries should take care of improving the condition of the Lithuanian coast.

14.5 I'm interested in protecting the Lithuanian coast but the fee is too high for me.

14.6 Other, please specify?

15. Do you have any comments about this questionnaire?

Thank you for your answers!