

Effects of human activities and conservation on the Finnish – Swedish archipelago

– what do you think?

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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 1700 €

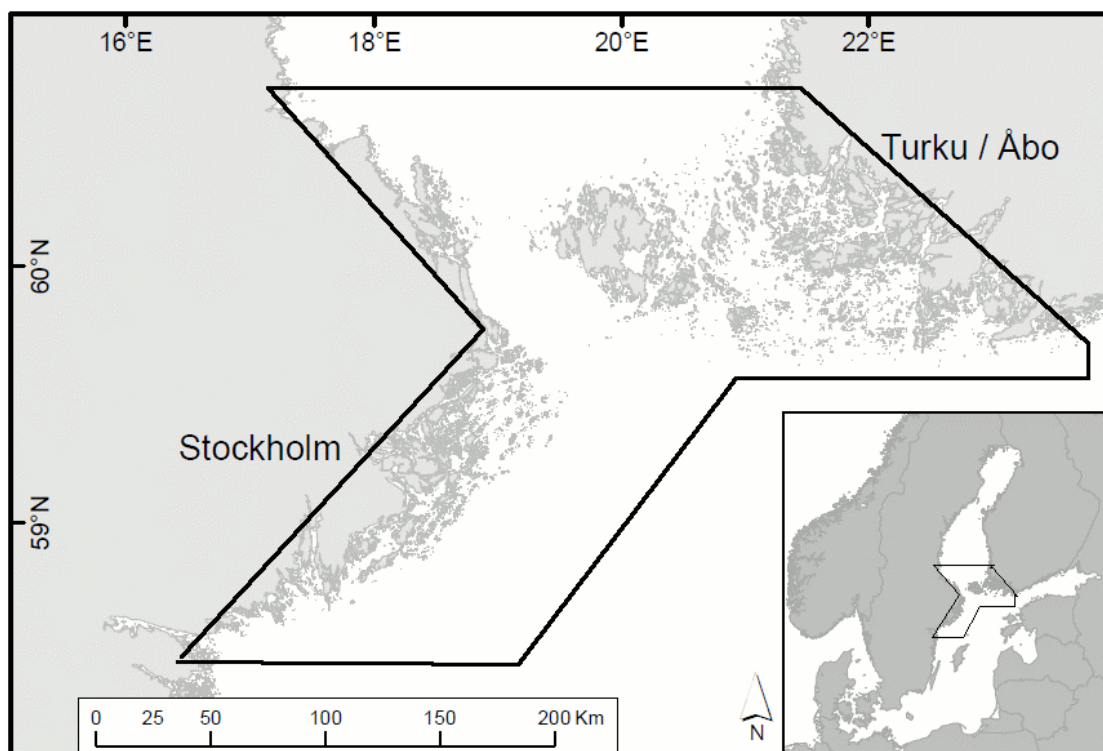
1700-2499 €

2500-3199 €

3200-4199 €

4200 € or more

1.7 What is your postcode? **POSTCODE**



The map above shows the area which in this questionnaire will be called the Finnish-Swedish archipelago. It is the world's largest archipelago in terms of the number of islands. The questions 2-14 in this questionnaire are related to this area.

2. What kind of connections do you have to the Finnish-Swedish archipelago?

Yes

No

I don't know

2.1 Do you live close to the coast of the Finnish-Swedish archipelago? If yes, how close? **KILOMETERS**

2.2 Have you lived before close to the coast of the Finnish-Swedish archipelago? If yes, how close?

KILOMETERS

2.3 Have you ever visited in the Finnish-Swedish archipelago?

2.4 Have you spent free time on the coast of the Finnish-Swedish archipelago? (For instance, walking, swimming, boating, fishing or spending time at summer cottage). If yes, please specify where and how you have spent free time.

2.5 Does your occupation or work have a close connection to the Finnish-Swedish archipelago?

2.6 Have you or any member of your household participated in the protection of the Finnish-Swedish archipelago?

2.7 Does anyone in your household ever eat fish from the Finnish-Swedish archipelago?

2.8 Do you have any other connection to the Finnish-Swedish archipelago? If yes, please specify.

3. The Finnish-Swedish archipelago (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 archipelago 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 Finnish-Swedish archipelago (e.g. shells and amber)

3.17 Inspiration provided by the Finnish-Swedish archipelago

4. The Finnish-Swedish archipelago is shallow and productive. It provides a suitable environment for a diverse set of animal and plant communities. The catchment area is densely populated and cultivated and thus, the archipelago 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 construction (dredging, boating, housing, etc.) may permanently change the environments for animal and plant species.**
- **As a consequence of overfishing and modification of environment of the Finnish-Swedish archipelago, 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 Finnish-Swedish archipelago.

4.2 My current recreational use of the Finnish-Swedish archipelago is limited by poor water quality.

4.3 Currently I give money to finance the protection of the Finnish-Swedish archipelago.

4.4 The nutrient concentration (nitrogen and phosphorus) in the Finnish-Swedish archipelago should be close to the natural level (the level the sea sustains).

4.5 Environmental problems of the Finnish-Swedish archipelago are among the three most pressing environmental problems in my country.

4.6 All polluters of the Finnish-Swedish archipelago should pay for the improvement in the water quality.

4.7 The status of fish stocks in the Finnish-Swedish archipelago needs to be improved.

4.8 The environmental status of the Finnish-Swedish archipelago is now better than 10 years ago.

4.9 The maritime traffic in the Finnish-Swedish archipelago should not be restricted.

4.10 Securing the livelihoods of coastal communities that depend on the Finnish-Swedish archipelago is important.

4.11 I am ready to give more money for the protection of the Finnish-Swedish archipelago than what I already do.

4.12 The water of the Finnish-Swedish archipelago is too turbid.

4.13 I can influence the environmental status of the Finnish-Swedish archipelago.

4.14 The coastal construction in the Finnish-Swedish archipelago should not be restricted.

4.15 The protection of environments is more important than other activities in the Finnish-Swedish archipelago.

4.16 Good opportunities for recreational fishing in the Finnish-Swedish archipelago are important.

5. Human activities in the Finnish-Swedish archipelago 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 Finnish – Swedish archipelago are presented below.



Healthy vegetation



Harmful algal population

‘Healthy vegetation’ refers to the underwater vegetation that forms so called underwater forests. These areas are environments for many species. The loss of healthy vegetation decreases the amount of species. Currently, one third of healthy vegetation in the Finnish-Swedish archipelago is, due to eutrophication, covered by harmful algal populations. Harmful algal populations washed ashore in summertime cause nuisance for swimmers and other recreational users due to bad smell and slimy beaches.

5.1 Do you have experience of harmful algal populations?

Yes

No

Houses and other constructions in the Finnish-Swedish archipelago change permanently the sea bed. Jetties, piers and dredging enable boating and access to recreational areas. However, for instance sheltered and shallow marine areas are important for the sake of diversity of nature.



Pristine coastal area



Modified coastal area

5.2 Do you have experience of harmful effects of coastal construction or dredging?

Yes

No



Perch



Pike (pictures: www.ahven.net)

Increase the size of fish stocks provides an economic and cultural contribution to coastal inhabitants in the Finnish-Swedish archipelago. Stocks of many fish species have decreased due to environmental change and overfishing. For instance, large predatory fish species, such as perch and pike, 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 Finnish-Swedish archipelago until the year 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 Finnish-Swedish archipelago as it is currently.

- Along with new conservation, the amount of healthy vegetation increases. Healthy vegetation is an environment for many species. Harmful algal populations do **NOT** grow on

the surface of healthy vegetation. Unlike harmful algal populations, healthy vegetation does **NOT** cause nuisance for swimmers or other recreational users.

- Along with new conservation, the currently pristine areas will not be built or dredged. These areas are important for robust communities of plants and animals.
 - 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 Finnish-Swedish archipelago. The whole management fee will be used to the protection of the Finnish-Swedish archipelago.
- The idea in the questions 6-13 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.

6

Characteristic	Alternative A	Alternative B
Amount of healthy vegetation	no change 	increase by one and half 
Preservation of pristine areas	no change 	protection of three quarters 
Size of fish stocks	increase by double 	increase by one and half 
One-time management fee (€)	10 	20 

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 areas

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 Finnish-Swedish archipelago, would you still choose the present situation: the current level of conservation of the Finnish-Swedish archipelago 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.

7

Characteristic	Alternative A	Alternative B
Amount of healthy vegetation	increase by double 	increase by one and half 
Preservation of pristine areas	protection of one quarter 	protection of three quarters 
Size of fish stocks	no change 	no change 
One-time management fee (€)	100 	50 

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 areas





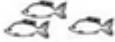
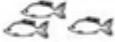


7.2.3 Size of fish stocks

7.2.4 One-time management fee

7.3 If the two alternatives above were the only options to conserve the Finnish-Swedish archipelago, would you still choose the present situation: the current level of conservation of the Finnish-Swedish archipelago 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 	no change 
Preservation of pristine areas	protection of one quarter 	no change 
Size of fish stocks	increase by one and half 	increase by one and half 
One-time management fee (€)	50 	300 

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 areas









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 Finnish-Swedish archipelago, would you still choose the present situation: the current level of conservation of the Finnish-Swedish archipelago 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 pristine areas	protection of three quarters 	no change 
Size of fish stocks	no change 	increase by double 
One-time management fee (€)	100 	100 

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 areas





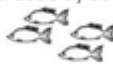
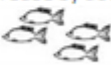


9.2.3 Size of fish stocks

9.2.4 One-time management fee

9.3 If the two alternatives above were the only options to conserve the Finnish-Swedish archipelago, would you still choose the present situation: the current level of conservation of the Finnish-Swedish archipelago 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 pristine areas	protection of one quarter 	no change 
Size of fish stocks	increase by double 	increase by double 
One-time management fee (€)	20 	200 

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 areas






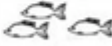


10.2.3 Size of fish stocks

10.2.4 One-time management fee

10.3 If the two alternatives above were the only options to conserve the Finnish-Swedish archipelago, would you still choose the present situation: the current level of conservation of the Finnish-Swedish archipelago 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 pristine areas	no change 	protection of three quarters 
Size of fish stocks	no change 	increase by one and half 
One-time management fee (€)	300 	300 

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 areas









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 Finnish-Swedish archipelago, would you still choose the present situation: the current level of conservation of the Finnish-Swedish archipelago 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 pristine areas	no change 	protection of three quarters 
Size of fish stocks	increase by one and half 	no change 
One-time management fee (€)	50 	100 

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 areas









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 Finnish-Swedish archipelago, would you still choose the present situation: the current level of conservation of the Finnish-Swedish archipelago 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 pristine areas	protection of one quarter 	protection of three quarters 
Size of fish stocks	increase by double 	no change 
One-time management fee (€)	200 	100 

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 areas

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 Finnish-Swedish archipelago, would you still choose the present situation: the current level of conservation of the Finnish-Swedish archipelago 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 Finnish-Swedish archipelago and no management fee), which one(s) of the following are the reason(s)?

- 14. 1 I don't care about the condition of the Finnish-Swedish archipelago.
- 14. 2 It's not my responsibility to pay for improving the condition of the Finnish-Swedish archipelago.
- 14. 3 I don't believe that measures would result in improvement in the Finnish-Swedish archipelago.
- 14. 4 Other countries should take care of improving the condition of the Finnish-Swedish archipelago.
- 14. 5 I'm interested in the conservation of the Finnish-Swedish archipelago but the management 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!