

# Supplementary Materials: Accessibility of Water-Related Cultural Ecosystem Services through Public Transport—A Model for Planning Support in the Stockholm Region

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A focus group discussion was arranged on 21 April 2016 at the Growth and Regional Planning Administration (GRPA), Norra Stationsgatan 69, Stockholm. The overall aim of this discussion was to identify water related, cultural ecosystem services important to Stockholm County on a regional level, and outputs that would be interesting to derive from the model. The discussion was divided into two 60 min sessions.

## Participants

The participants were representatives of GRPA and the Swedish Society for Nature Conservation (SSNC) according to Table S1.

**Table S1.** Participants of focus group discussion.

Participant Number	Organisation	Area of Expertise	Present during Session 1	Present during Session 2
1	GRPA	Regional planning, water, archipelagic and rural areas	Yes	Yes
2	GRPA	Regional planning, geographic information systems, geodata and mapping	Yes	Yes
3	GRPA	Regional planning and social sustainability	Yes	Yes
4	GRPA	Regional planning, urban and green structures	Yes	Yes
5	GRPA	Regional planning, energy and climate	Yes	No
6	GRPA	Regional planning, urban structure and geographic information systems	Yes	Yes
7	GRPA	Regional planning	Yes	Yes
8	GRPA	Regional planning	Yes	No
9	SSNC	Nature conservation and water related ecosystems	Yes	No
10	SSNC	Nature conservation	Yes	Yes

## Session 1: Water Related, Cultural Ecosystem Services (WCES)

The aim of Session 1 was to define which WCES would be of interest to include in the accessibility analysis. Session 1 consisted of three exercises. All participants took part in the first exercise (Exercise 1.1) in one group, while Exercise 1.2 and 1.3 were done in smaller groups. After individual group discussions in Exercises 1.2 and 1.3, participants were asked to present their findings to the rest of the group and discussions took place around these findings.

### 1.1. Identification of WCES

The purpose of the first exercise was to identify WCES that occur in the region, through brainstorming and open discussions with all participants. The participants listed the following water related activities and facilities, providing benefits from ecosystem functions:

- Parks located next to water
- Playgrounds located next to water
- Bathing places (beaches and piers)
- Feeding birds
- Ices for skating
- Fishing
- Boat riding
- Paddling (canoes, kayaks, stand-up paddle boarding)
- Cultural values located next to water
- Sunbathing
- Service facilities located next to water
- Bathing places for horses
- Bathing places for dogs
- Picnic spots next to water
- Partying next to water
- Walking along/access to waterfronts
- Barbeque sites next to water
- Restaurants next to water
- Restaurant boats
- Undisturbed, remote places next to water
- Diving
- Ports
- Marinas
- Boat clubs
- Bird watching next to water
- Cruise-ships
- Hostels and hotels next to water
- Public archipelago boat traffic
- Water sporting e.g., jet-skiing
- Combined swimming and running
- Viewpoints
- Waterfront walks
- Subaquatic walking tracks
- Water values located close to schools and densely populated areas
- Swimming schools

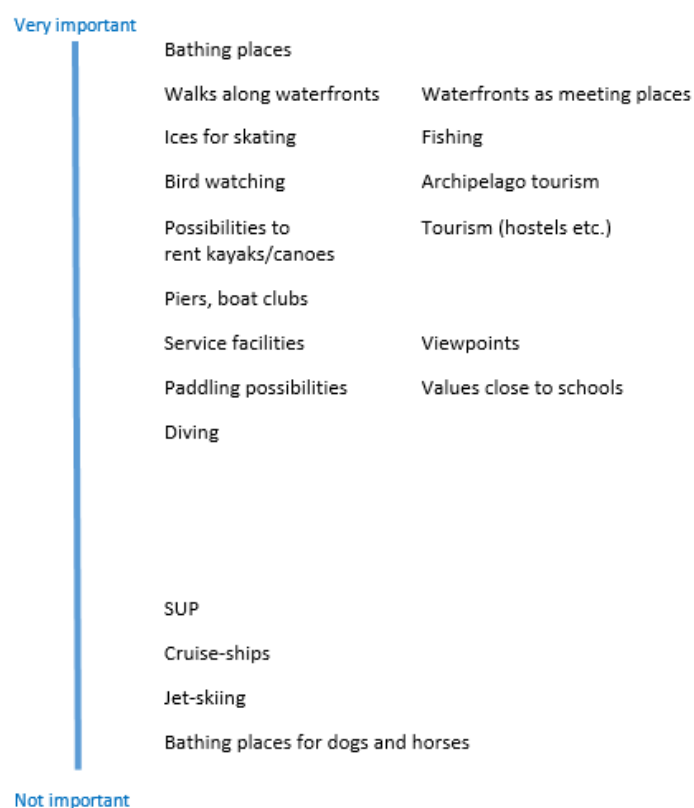
### 1.2. Evaluation of WCES

Once all the WCES were listed in Exercise 1.1., participants were divided into three groups (1A, 1B, and 1C) and asked to place the identified WCES along a line symbolizing a scale going from “not important” to “very important” for the region in the perspective of planning for year 2050. The results for group 1A, 1B and 1C are presented in Figures S1 and S2 and Table S3, respectively. Group 1B chose to instead group the WCES into three categories: those that require absence of disturbance, those that are used in the company of a lot of other persons and those in between. When asked about their four most important WCES, they replied according to Table S2. Bathing places, access to waterfronts, the archipelago and skating ices are WCES mentioned as being among the most important by more than one group. Other thoughts that were presented during this exercise:

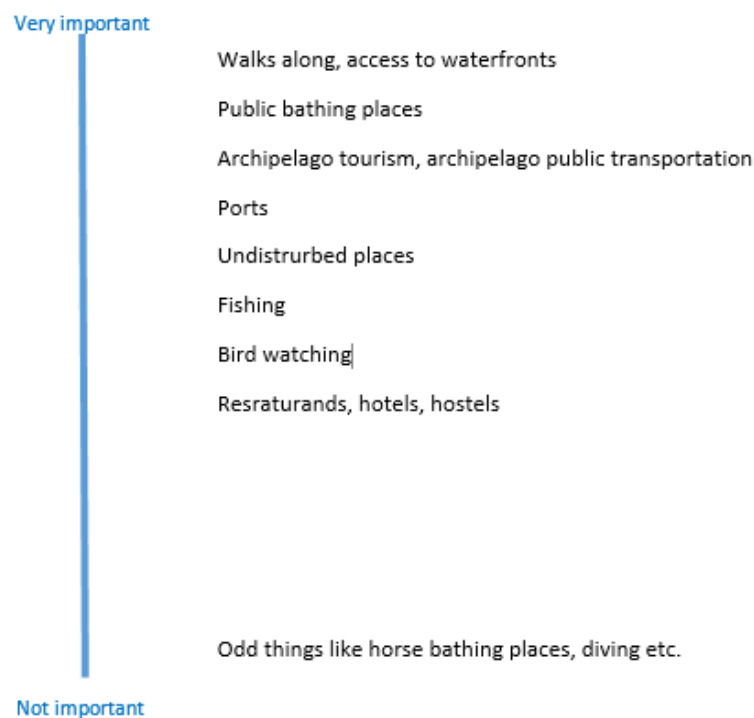
- From the perspective of regional planning it is interesting to consider recreational opportunities available to the public rather than private facilities such as boat clubs.
- Recreational opportunities that require natural or undisturbed areas are important, but maybe only a limited number of those are possible to supply in the region. It is also important to plan for more formal, arranged meeting places.
- In some cases, the problem is not that there is no water within an acceptable distance, but that it is hard to reach the waterfront due to physical barriers (exploitation) and lack of information (you get off the bus and know that the water is in a certain direction, but not how to get there).

**Table S2.** Most important WCES.

Group 1A	Group 1B	Group 1C
Bathing places	Bird watching	Walks along and access to waterfronts
Walks along waterfronts	View points	Public bathing places
Waterfronts as meeting places	Spontaneous meeting places like bathing places, ice-skating	Access to the archipelago, public transportation to the archipelago
Ices for skating	Service facilities, outdoor life equipment hiring	Undisturbed places
Access to the archipelago		

**Figure S1.** Evaluation by Group 1A.**Table S3.** Evaluation by Group 1B.

Experiences requiring absence of disturbance		Experiences involving many other persons
Bird watching	Viewpoints	Viewpoints
Undisturbed places	Playgrounds	Playgrounds
Viewpoints (Ice skating)	Bathing places for dogs and horses	Feeding birds
Fishing	Feeding birds	Ice skating
	Ice skating	Service facilities
	Fishing	Fishing



**Figure S2.** Evaluation by Group 1C.

### 1.3. Characteristics of Valuable WCES

Following Exercise 1.2, the groups were asked to discuss the WCES identified as important in Exercise 1.2 and what characteristics they could possess that makes them valuable. Table S4 presents the results of this exercise. Another thing that was mentioned was that geographical accessibility contributes to the value of a WCES.

**Table S4.** Positive characteristics of WCES.

Group	WCES	Characteristics
1A	Bathing places	Clean water, changing rooms, barbeque sites, snack shop, diving tower, shallow water for kids, pier with ladder, toilets, information, activities (e.g., canoeing)
	Waterfronts	Accessibility (for wheelchairs, baby strollers), connectivity, seating, information, cafés, restaurants
	Ice skating	Snow-ploughing, ice skates for hire, information
	Fishing	Information e.g., about fishing licenses, prohibitions
1B	Undisturbed places	Pedagogy, uniqueness, do not expect to meet other people, lower demand on accessibility and service, almost “asocial”
	“Middle”	Higher demand for accessibility and proximity to where people live and to schools, safety e.g., clean water, spontaneous meeting places,
	Formal, arranged meeting places	High demand for accessibility, safety, insensitive to disturbances, expect to meet a lot of people, service, multi-functionality
1C	Formal, arranged meeting places	More natural values than water, not too crowded, clean water, biologic diversity, high social value

## Session 2: Interesting Model Outputs

The aim of Session 2 was to ask the participants what kind of outputs they would like to see from the GIS based accessibility model, or, with other words, what questions they would like to ask the model. Session 2 was composed of three exercises, described below.

### 2.1. Definition of Accessibility

In Exercise 2.1, each group was asked to discuss the travel times considered accessible and not accessible for the WCES identified as important by the group members in Session 1.

#### Group 2A

- Bathing places: <30 min (>1 h means bad accessibility)
- Archipelago: reach a public archipelago boat within 1 h
- Waterfronts: <30 min
- Ice-skating: <1 h
- Undisturbed places: <1 h

#### Group 2B

- Formal, arranged meeting places: 45–60 or even 90 min, could spend the whole day there due to service facilities which means one is prepared to travel longer, typical weekend activities. Demand for planning.
- Spontaneous meeting places: 15–30 min, typical weekday activities.
- Undisturbed places: one is determined to find absence of disturbance meaning that one is prepared to travel longer e.g., 45–60 min, maybe necessary to go even further to “get away”.

### 2.2. Accessibility for Whom?

The purpose of this Exercise 2.2 was to discuss for whom it would be interesting to assess accessibility of the WCES. This exercise was an open discussion between all participants. Here follows a list summarising the discussion:

- It could be that people with low socioeconomic status have better access to water than others, which might be unique for the region.
- Children are important (due to e.g., pedagogy, health, recreation) but one could assume that children are evenly distributed among areas. It would be very interesting to use schools as origins to find targets available to schools. Children might demand some types of recreation more than adults, e.g., bathing places, and are more sensitive to long travel times. Other age groups are not interesting.
- It is very interesting to study accessibility of those with lower socioeconomic index, income or educational level—something capturing lower socioeconomic status. Socioeconomic index captures many interesting aspects.
- Spontaneous, accessible meeting places offer opportunities for integration and might be important for those that have recently moved to Sweden.
- It may be complicated to analyse the group with non-Swedish background due to a high variation within this group. For example, people from some areas are not familiar with recreational experiences in forests or by water which means that there are other factors than geography creating inaccessibility, while people from other areas are very used to the Swedish types of outdoor life.

### 2.3. Other Output Suggestions

During Exercises 2.1 and 2.2, some suggestions of outputs that the participants would be interested in emerged:

- Which specific WCES targets will be subject to a high potential demand in 2050, i.e., will be accessible to a lot of people? It would be motivated to plan in a manner that conserves these targets and their accessibility.
- Which areas will lack sufficient access to WCES? Are there any guideline values that could help distinguish sufficient from insufficient access? Are these located in a way that would make it possible to solve the problem e.g., by providing bicycles for hire?
- How many people can reach a specific formal, arranged meeting place? If many there is a need for planning, it is interesting to see which have a high number of potential visitors which could motivate, e.g., service facilities. Which meeting places should be prioritized? Which ones could be reached by people with lower socioeconomic status who might not own a car?
- Are there people who do not live close to water that can access water easily thanks to public transportation?