

Assignment 1: Water

The Municipality of Amsterdam would like to host a 5km swimming event within the canals of Amsterdam, ahead of the Paralympics 2024 in Paris.

In order to advise the Municipality of Amsterdam over the possibility of hosting an open water swimming event it is necessary to use and cross information from different databases.

Some of the required starting points are:

1. *The event can't have an impact on commercial water transport.*
 - For this, data on the water transport route is needed
2. *It would be appreciated if the event also has small impact on the routes of the canal boats.*
 - the database of touristic boat routes and logistic vessels (logistics, maintenance, waste collection) is needed
3. *What is the pollution level of the canals and is there data from all the canals?*
 - data from water quality is needed for this.

For water transport data, there are two important platforms, **data.amsterdam** (Gemeente Amsterdam, n.d.-a) (Gemeente Amsterdam, 2021) where information on official boat stops in the city is available, and the **GVB website** (GVB, n.d.) where routes of the existent ferries can be consulted. On these we could find:

- Data.Amsterdam:
 - *"ligplaatsen passagiersvaartuigen"* information of mooring points for passenger boats based on their size; this includes both touristic and public transportation stops
 - The data on this platform cannot be downloaded, but it is available as an interactive map. It is represented by points.
 - *"op- en afstaplocaties beroepsvaart"* information on all stops / boarding points for commercial shipping (people and products).
 - This data cannot be downloaded either but is also available as an interactive map. It is also represented as points.
 - Both show that there's a higher concentration of boat stops within Amsterdam historical canals, so an event in these may cause a lot of disturbances to existent boat traffic, from a tourism, waste collection and boat logistics standpoint.
- GVB Routes and Lines:
 - The interactive routes & lines map from GVB that public transport over water happens within the IJ; this dataset cannot be downloaded but can be consulted in an interactive platform; since this is geospatial data it is shown in sets of lines and points

Based on both platforms it is possible to conclude that the city center both within the IJ area and the canals is too busy for the swimming event. The outer canals and other water bodies can still be considered.

Pollution and water quality

Another useful data set is the one for Zwem- en Speelwater:

- <https://maps.amsterdam.nl/zwemwater/>
- By using its dataset for the Official outside swimming spots, it is possible to check which official locations can be considered for the event. These are locations where the water quality is frequently monitored. From this dataset a possible location is the Diemerpark, but this is not a canal which is preferred for the events.
- The information in this interactive map can be downloaded via https://maps.amsterdam.nl/open_geodata/ - zwemwater, in .json .csv and .mif formats. Both .json and .csv formats can be opened in python. The .csv file contains both alphabetical and numerical elements and the information is shown as points.

Adding to this, more information on water quality can be found at *Dataset Water in Amsterdam: Meetresultaten kwaliteitsonderzoek oppervlaktewater, 2019* (Gemeente Amsterdam, 2023)

- <https://onderzoek.amsterdam.nl/dataset/water-in-amsterdam>
- a .xlsx file can be downloaded with tabular data with both alphabetical and numerical elements. This can be open in python as well with the help of a library, like "openpyxl"

By looking at the locations with the best water quality scores it is possible to cross those locations with the previous info on water routes, outside swimming location and pick a viable location for the 5km swimming event.

Some possible locations could be:

- Diemerspark, an official swimming area
- Diempolder, enclosed area, 2 rounds complete 5kms, surrounded by nature and good water quality; no continuous boat routes on it;
- Amsterdam- Rijnkanaal between Nescioburg and the Diempolder; closer to the center, can hold a 5km swim competition and has no stop

For this exercise, we chose Diemerspark location since it does not affect recreational, or transport boat routes and its water quality is closely monitored. It also not as closed off as the Diempolder.

References:

Gemeente Amsterdam. (n.d.-a). *Data en informatie*. Data.amsterdam.nl. <https://data.amsterdam.nl/>

Gemeente Amsterdam. (n.d.-b). *Zwem- en speelwater*. Maps.amsterdam.nl. Retrieved October 18, 2023, from <https://maps.amsterdam.nl/zwemwater/>

Gemeente Amsterdam. (2021). *Op- en afstapplaatsen & ligplaatsen passagiersvaartuigen*. Maps.amsterdam.nl. <https://maps.amsterdam.nl/varen/>

Gemeente Amsterdam. (2023, March). *Dataset: Water in Amsterdam* / Website Onderzoek en Statistiek.

Onderzoek.amsterdam.nl. <https://onderzoek.amsterdam.nl/dataset/water-in-amsterdam>

GVB. (n.d.). *Lines* / GVB. Reisinfo.gvb.nl. Retrieved October 18, 2023, from <https://reisinfo.gvb.nl/en/lijnen>

I Amsterdam. (2023, August 3). *Outdoor swimming*

spots in Amsterdam. I Amsterdam. <https://www.iamsterdam.com/en/see-and-do/nature-and-active/outdoor-swimming-spots-in-amsterdam>

Zwemwater. (2023). *Vind een zwemplek* / *Zwemwater.nl*. Wwww.zwemwater.nl. <https://www.zwemwater.nl/>