Co-financed by the European Union
Connecting Europe Facility

FAIRway Danube

Use cases and Mockups

Workshop on WAMOS

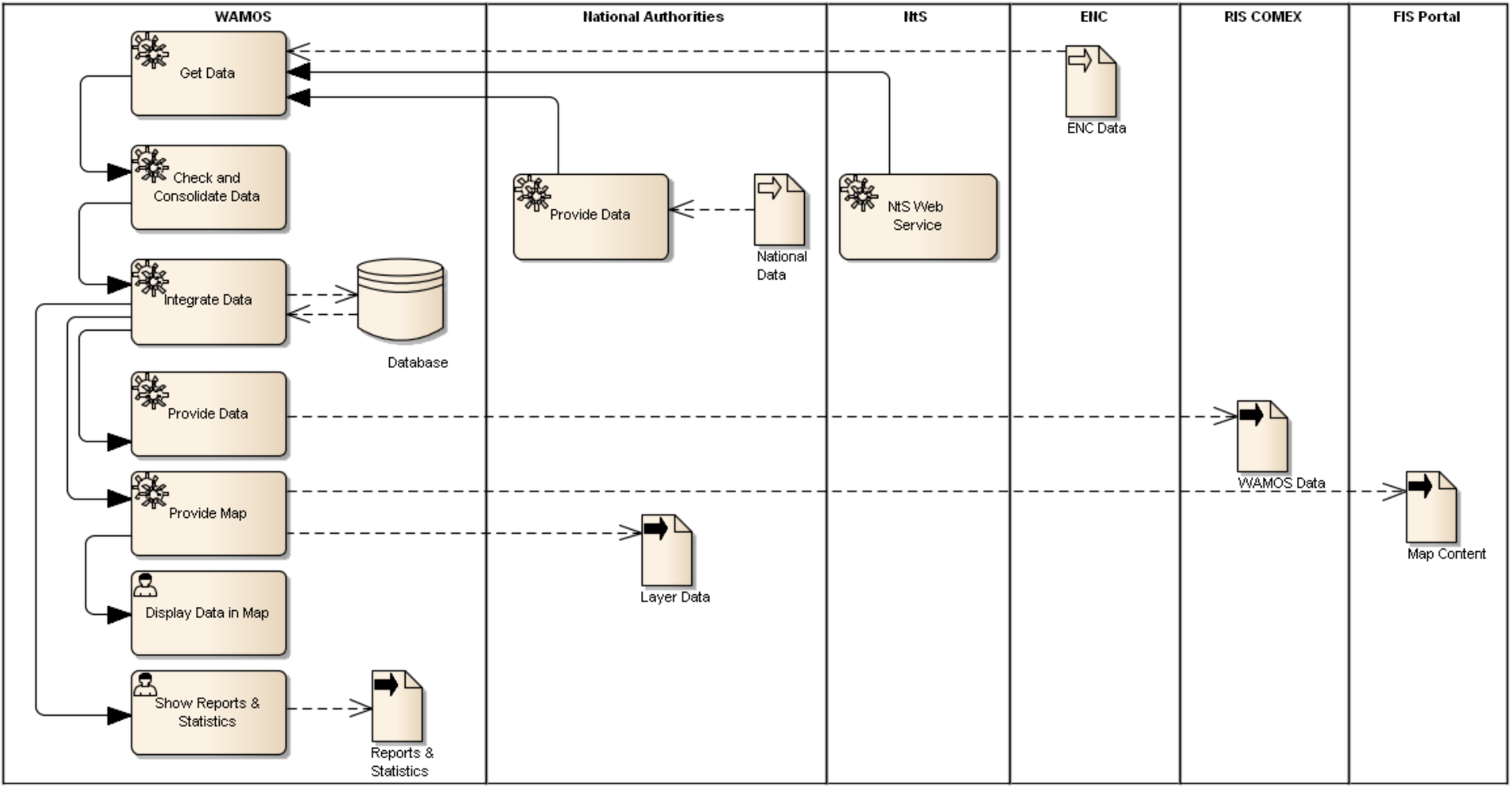
28.2.2017 Michael Uschnigg

Introduction Use Cases

- In software and systems engineering, a **use case** is a list of **actions or event steps**, typically defining the interactions **between a role** (known in the Unified Modeling Language as an *actor*) and **a system, to achieve a goal.**
- **Actors** are the users of the system being modeled. Each Actor will have a well-defined role, and in the context of that role have **useful interactions with the system.**
- An Actor role may be performed by **a non-human system**, such as another computer program.

https://en.wikipedia.org/wiki/Use_case

Business Process WAMOS

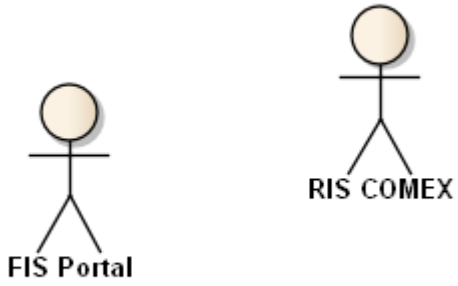


Actors WAMOS

- The **waterway administrator** is **the primary target group** of WAMOS. The system shall support this user in aligning national fairway improvement strategies and shall ease the reporting of needs to national and international decision makers.
- The **system administrator** has the permission to access an administration site where he can **manage the users, roles and privileges**.

Actors WAMOS

- The system **RIS COMEX** provides relevant information for fairway users in order **to increase efficiency of inland navigation.** Therefore the services of RIS COMEX need up-to-date data from WAMOS.
- The **FIS portal** is an existing web-portal to **provide online transnational, fairway-related information** from all Danube countries. WAMOS should publish relevant data to this portal.

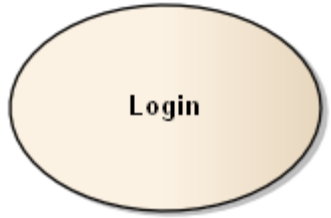


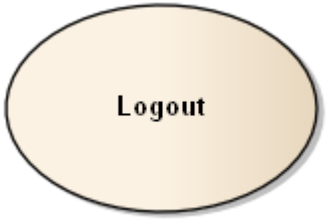
Use cases WAMOS

- The **administrator** wants to **manage the users.** Therefore he starts the administration site and he **creates, updates and deletes the users.** Users are assigned particular roles, and through those role assignments the application permissions are assigned.
- The **administrator** wants **manage the roles** and the **privileges.** Therefore he starts the administration site and **creates, updates or deletes a role.**

Use cases WAMOS

- The user opens the WAMOS application in a browser window and in sense of an role-based access control he has to enter **login** and **password** in a login page. After the authentication the WAMOS application starts and shows the base information.
- The user wants to **logout** of the WAMOS application. Therefore he can choose logout function in the application and will be redirected to the login screen.
- The user can set a **language** for the WAMOS application. In a drop down field, he has several languages to choose from.



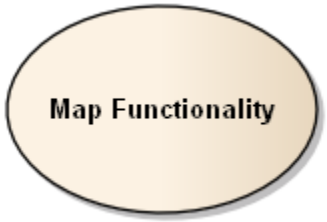


Use cases WAMOS

- The user gets an overview of the situation and therefore the **base data layers** are shown:
  - Background map (roadmap, satellite, hybrid, terrain)
  - Fairway
  - River
  - River Axis
  - Critical Locations
  - Natura 2000 Areas
  - ….

Use cases WAMOS

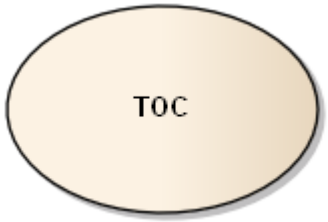
- The user wants **to navigate through the map** using general map user interactions.
    - zoom in/out
    - zoom full extent
    - zoom last/previous
    - pan
    - print the current map content
    - identify tool



- The user wants to **measure on the map**. He chooses a measure geometry type -line or polygon- and a corresponding unit. He draws the geometry in the map and can read the length or area in a measurement window.

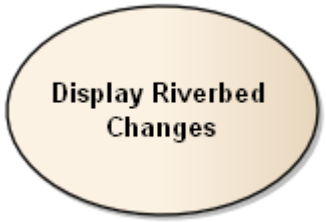
Use cases WAMOS

- The user wants to **navigate** to a certain **river kilometer**, **location**, **section**, **stretch**, **build-up area or infrastructure** of the river Danube. The system searches the different layers and fields in the database and displays a result list ordered by the match score.
- The user can **manipulate** the **content of the map** by switching on/off the layers in the table of content (TOC).
- The user wants to identify the **map content** at any time of usage through a **legend**. The legend has to be displayed all the time and should be adjusted **automatically** when the map content changes.



Use cases

- The user wants to **display** the **riverbed morphology** of a certain section of the river danube. The WAMOS application **shows a list** of all existing riverbed surveys. This list can be **sorted** by all available fields or it can be **searched** the content by certain strings.
- The user wants to **analyze** the **riverbed changes** (sedimentation, erosion) by intersecting two morphology surveys from different dates. The result is a visualization with a **uniform color scheme** defining the need of dredging measures.



Use cases

- The user wants to display **the fairway dimensions** in the map. This information will be presented in two different ways. On the one hand the extent of **Level of Service (LOS)** 1 and 3 will be shown, on the other hand the user can display the **vertical profile** for a certain location of the danube.
- The user wants to display the **number of days** per month/quarter/year with a fairway depth **below 20 dm, 21 dm, 22 dm, …** over a defined width. This information should be available for all critical locations.

Use cases

- The user wants evaluate the effectiveness of interventions by the waterway managers, by displaying the number **of days on which the LNWL** was reached or exceeded and **the actual fairway depth was 24 dm / 25 dm or deeper**.
- The user wants to display for each **ford or lateral sedimentation** a **timeline** which indicates the periods in which the **fairway was available** (color gradations according to different service levels). The date of rehabilitation and maintenance measures at the same ford shall be shown on a separate bar.

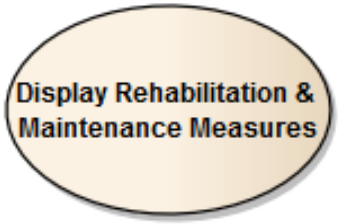
Use cases WAMOS

- The user wants to see the **current and historical water level of the reference gauges** and interpolated for the **critical stretches**. To get this information all gauges and virtual gauges (with interpolated values) are **displayed in the map** showing the **latest measured or interpolated value** direct in the map. When clicking in the map a chart with the historical values is displayed.

  In addition for some decisive gauges water level characteristics like **LNWL** and **HNWL** are also displayed in the chart. Furthermore a **3 to 5 days-ahead forecast** plus a confidence interval is also displayed in the chart.

Use cases WAMOS

- The user wants to see **all maintenance activities classified** by the type (dredging, relocation of the fairway, groyne and rehabilitation) in the map. On the one hand the **location** should be **displayed** in the map, on the other hand **further information** like type, description, date, permission etc., can be shown when clicking on the geometry.
- The user wants to **display** all **fairway marks** of the current map extent. He wants to **combine** this information **with other layers** in the application e.g. riverbed morphology or fairway boundary to check the consistency and actuality of the marks.

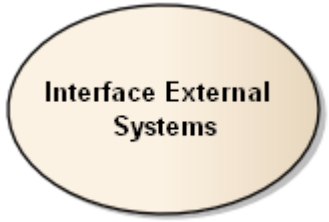


Use cases WAMOS

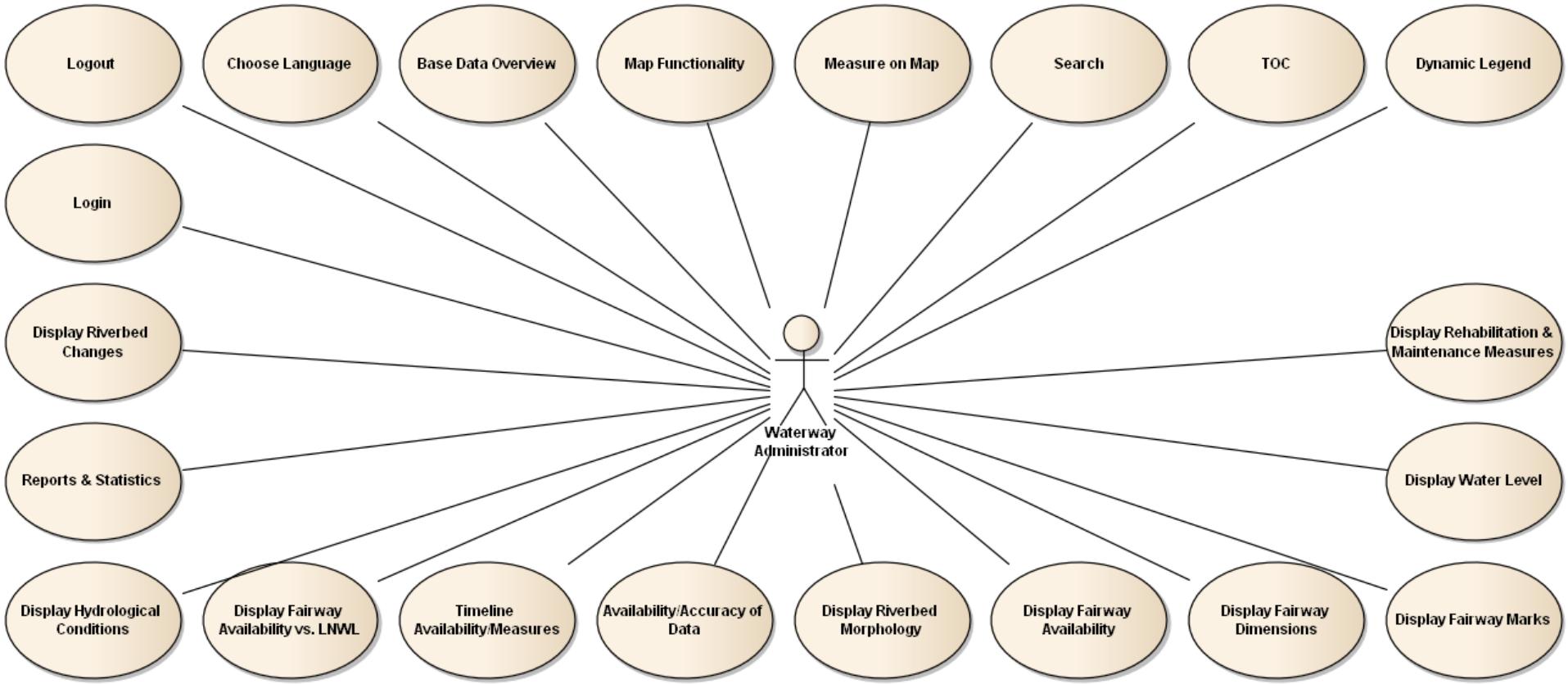
- The user wants to judge the **reliability** of the available **data** in WAMOS and provide feedback to the waterway managers. For **each critical location** the user wants to see on first sight
    - if riverbed measurements are up-to-date,
    - if current and continuous water level measurements are available and
    - if the water level forecast is accurate.
- The user wants to **export any desired contents** from the WAMOS application in editable formats (e.g. .docx). In addition he wants to **export predefined reports and statistics** like national action plans.

Use cases WAMOS

- The **external system** wants to use **relevant data** from WAMOS for **publishing** on already existing Web-Portals or for internal use.



Use Cases Mapping



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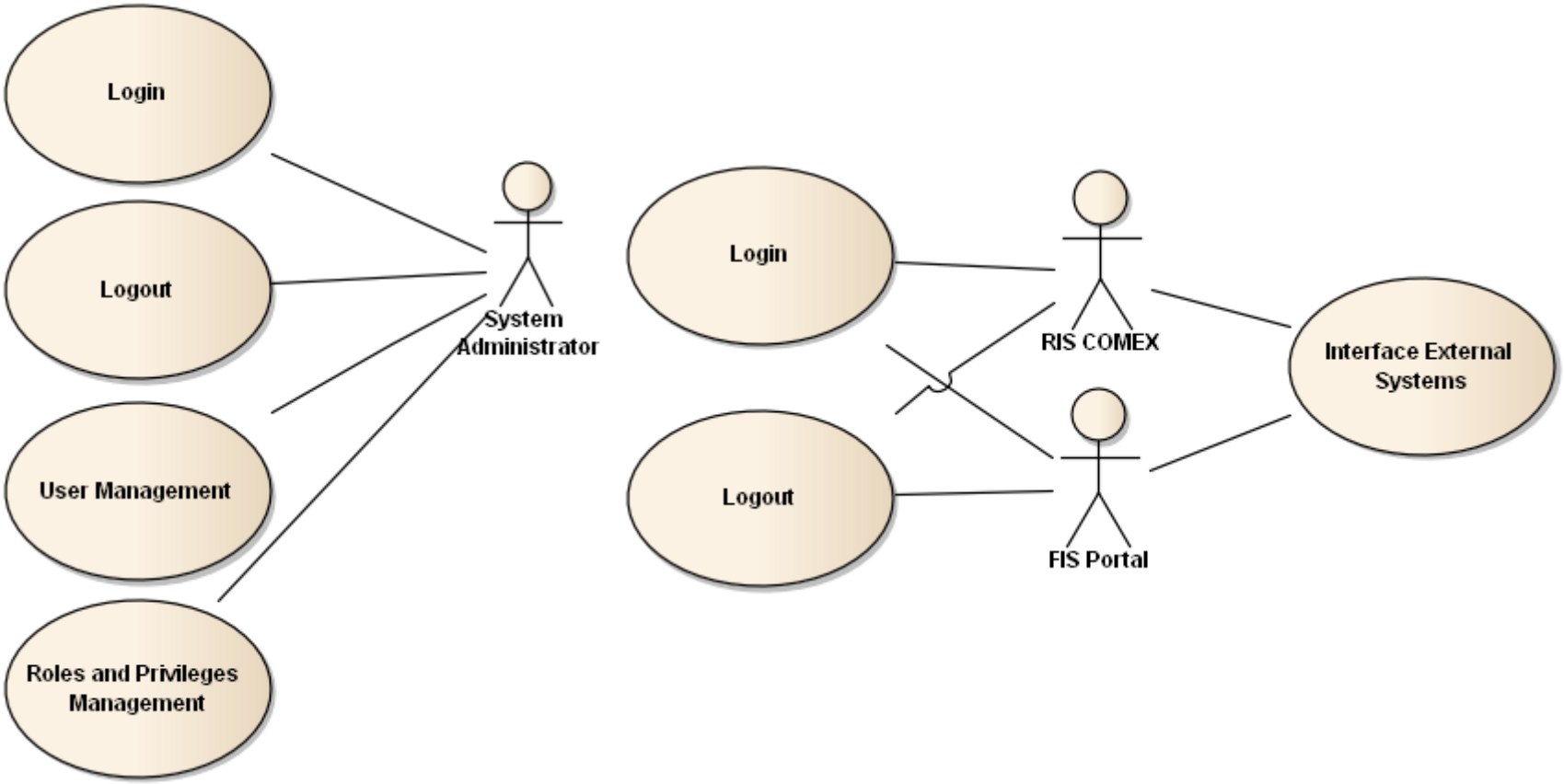
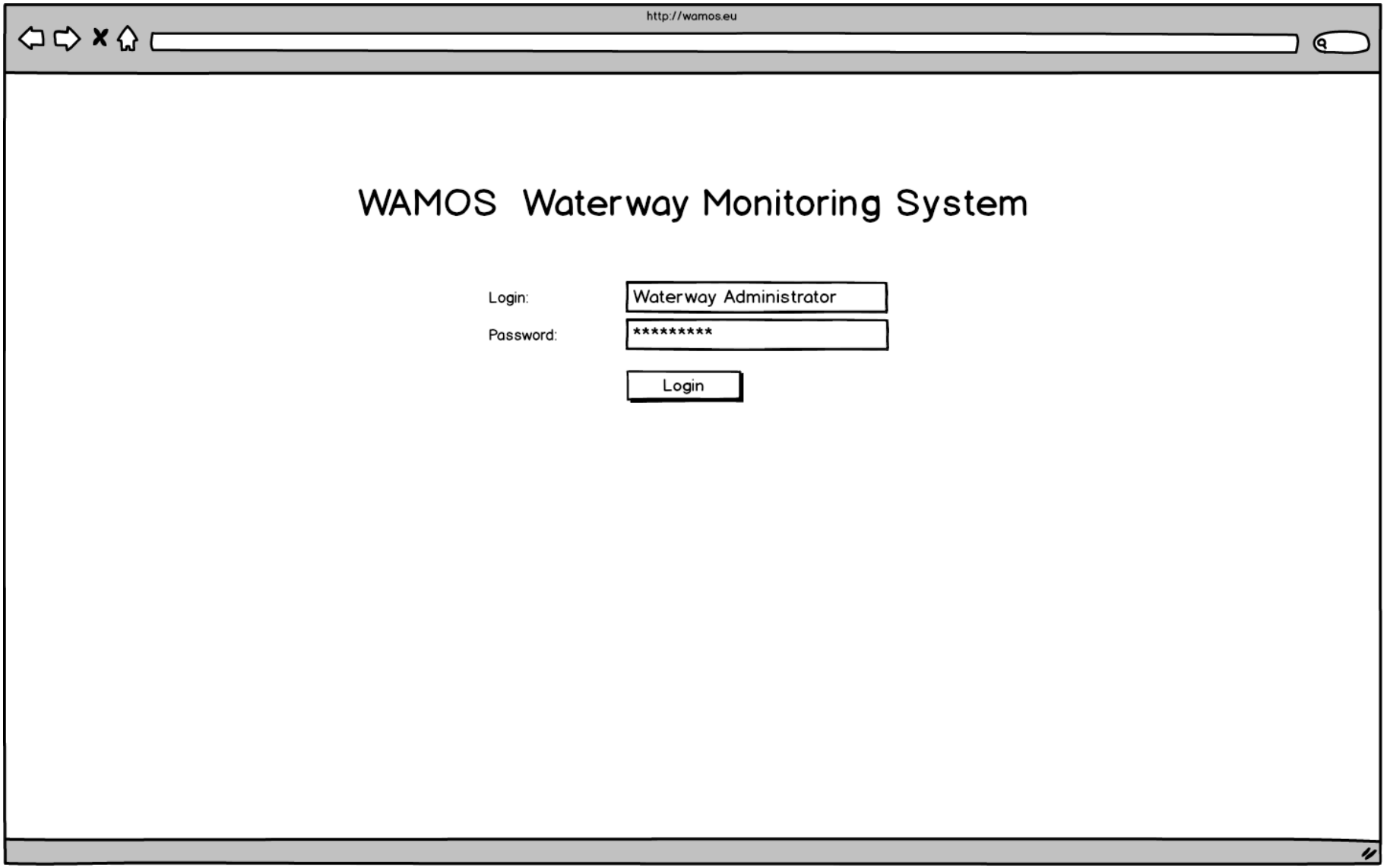


Mockups WAMOS



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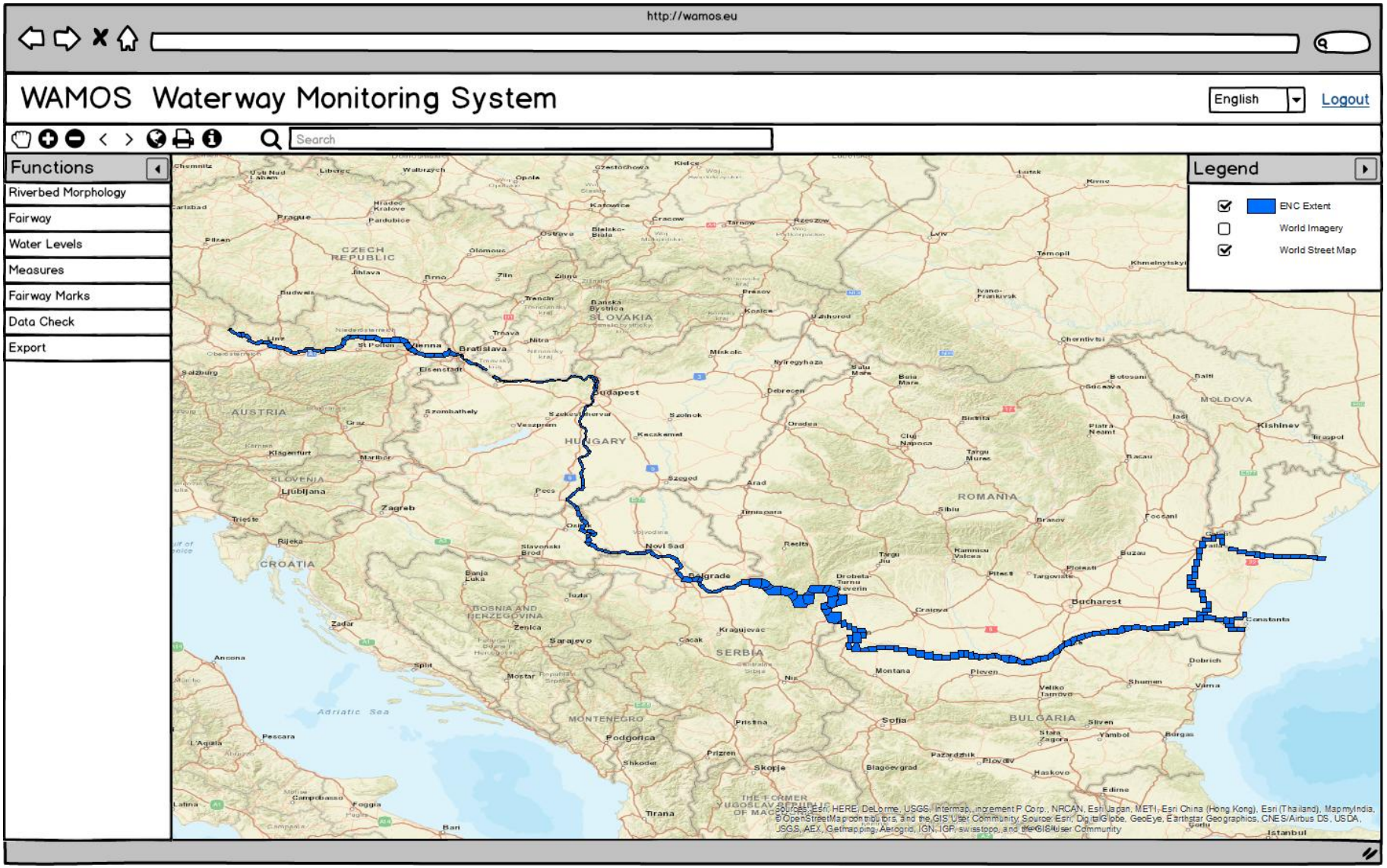

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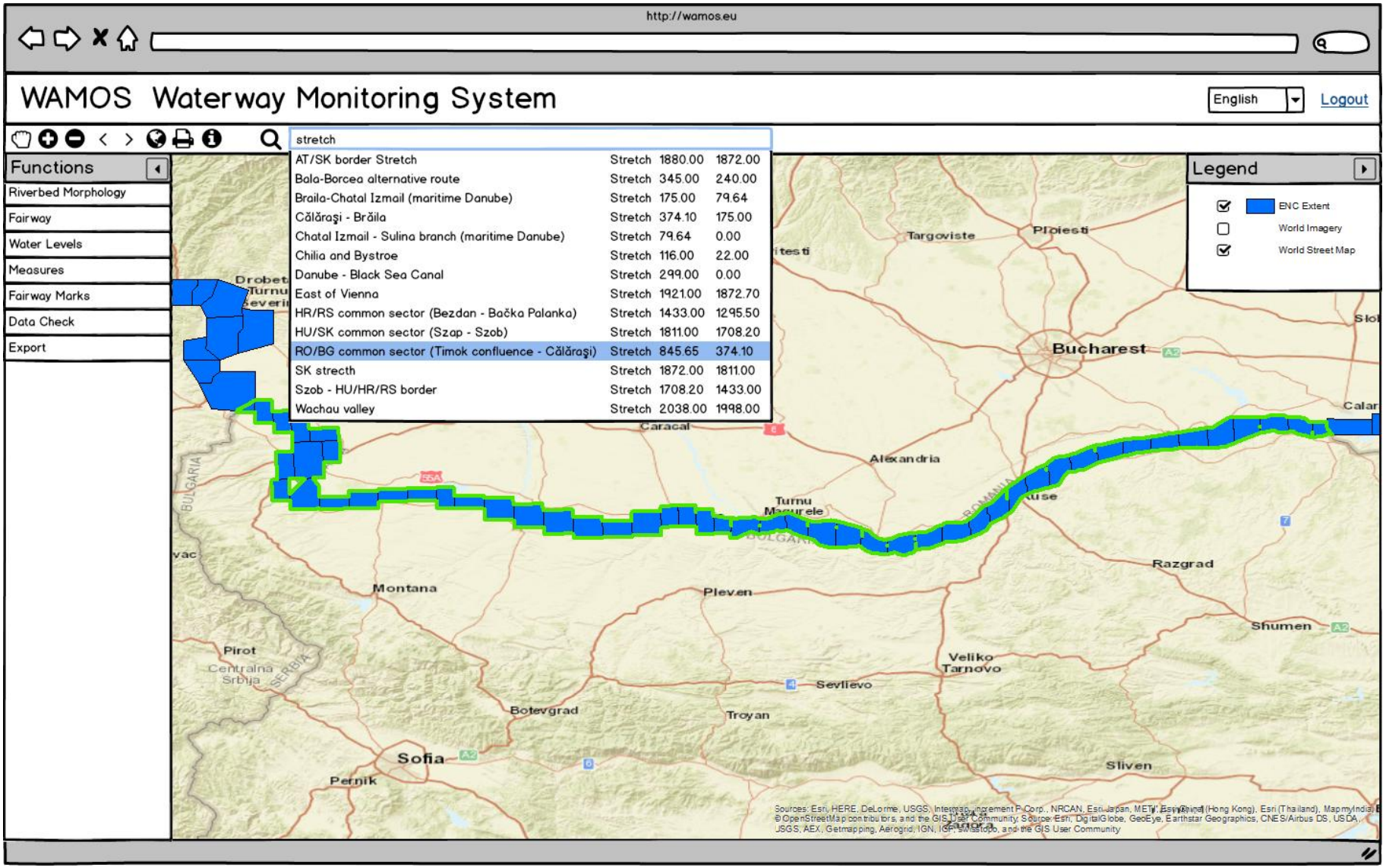

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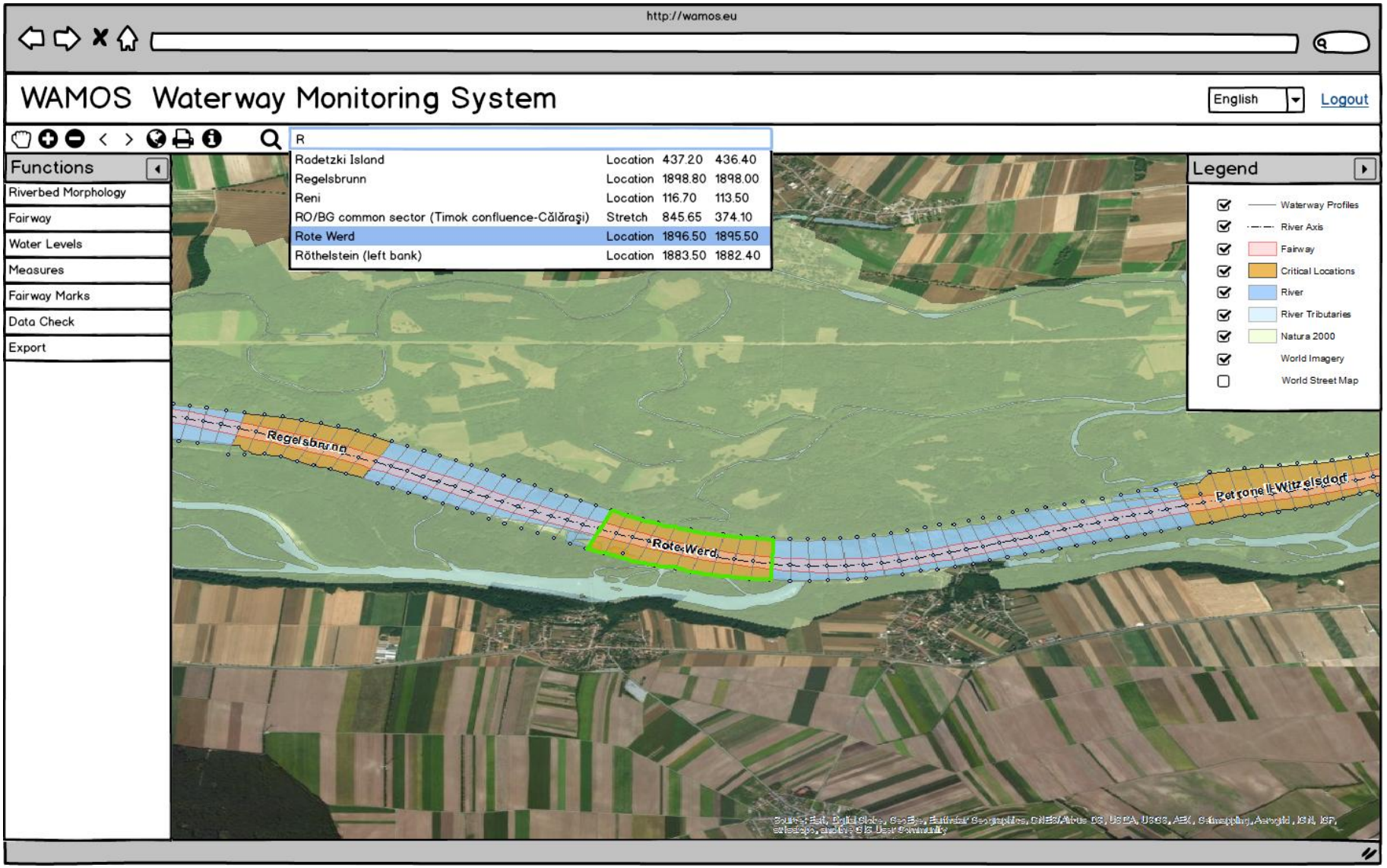

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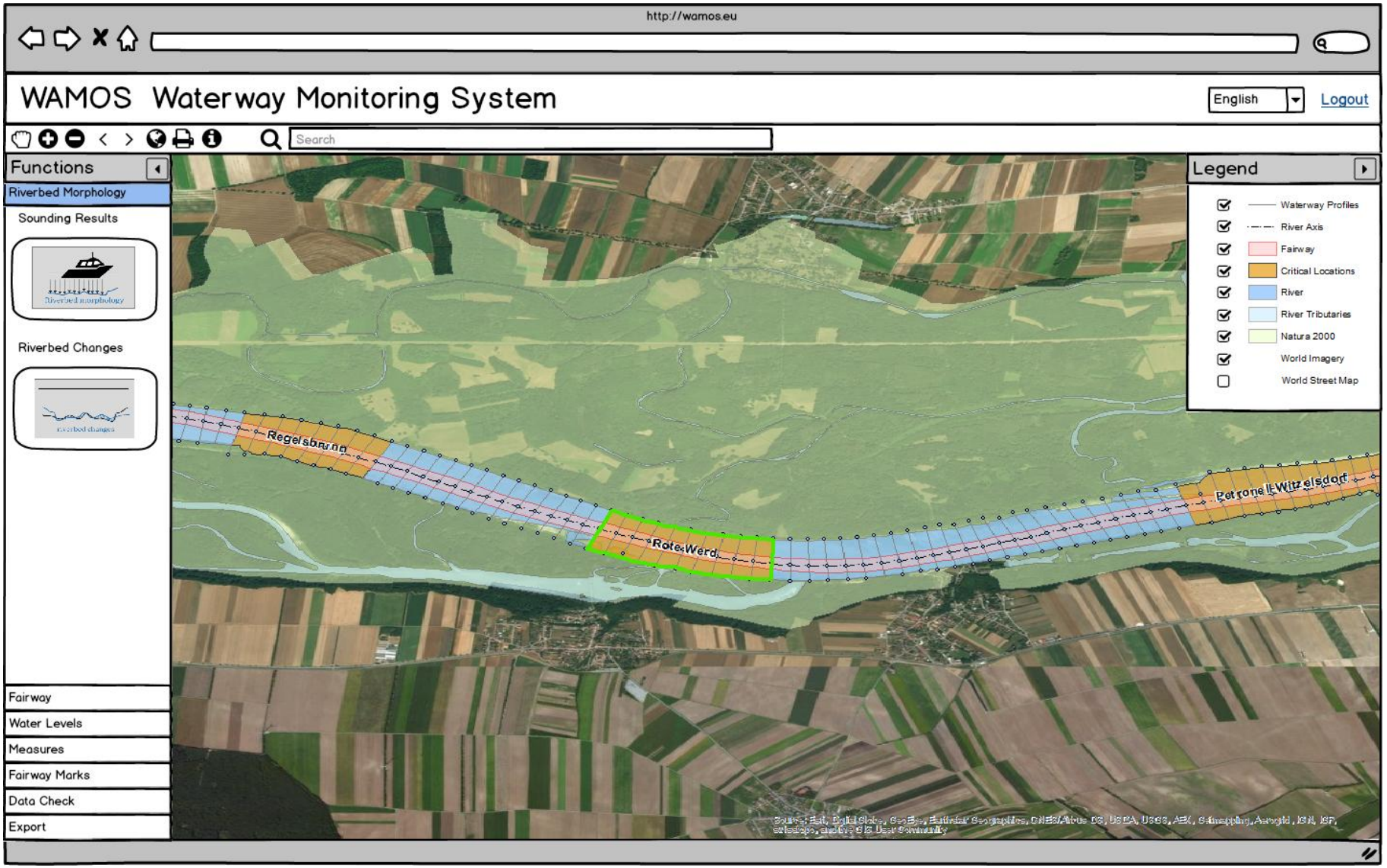

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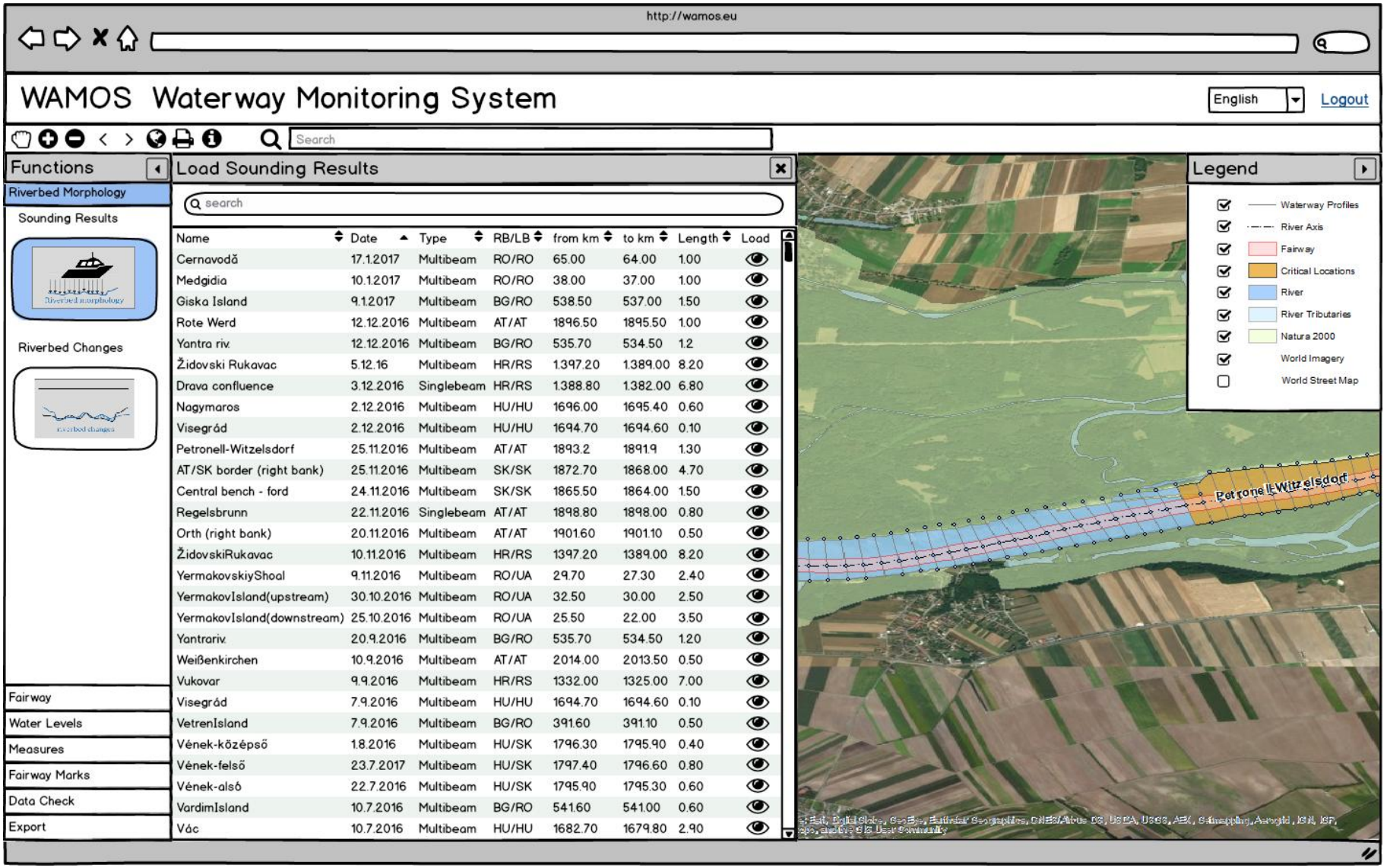

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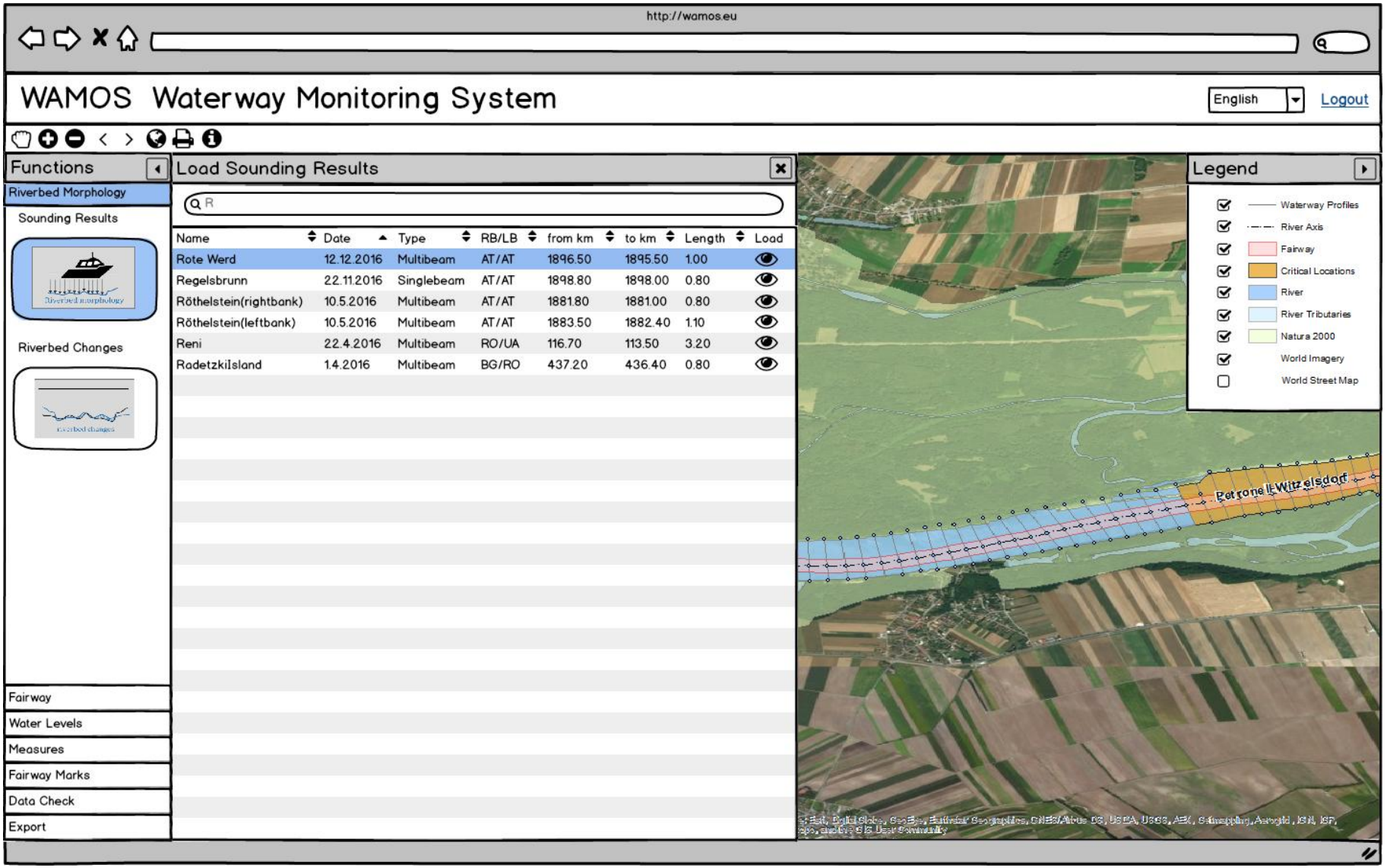

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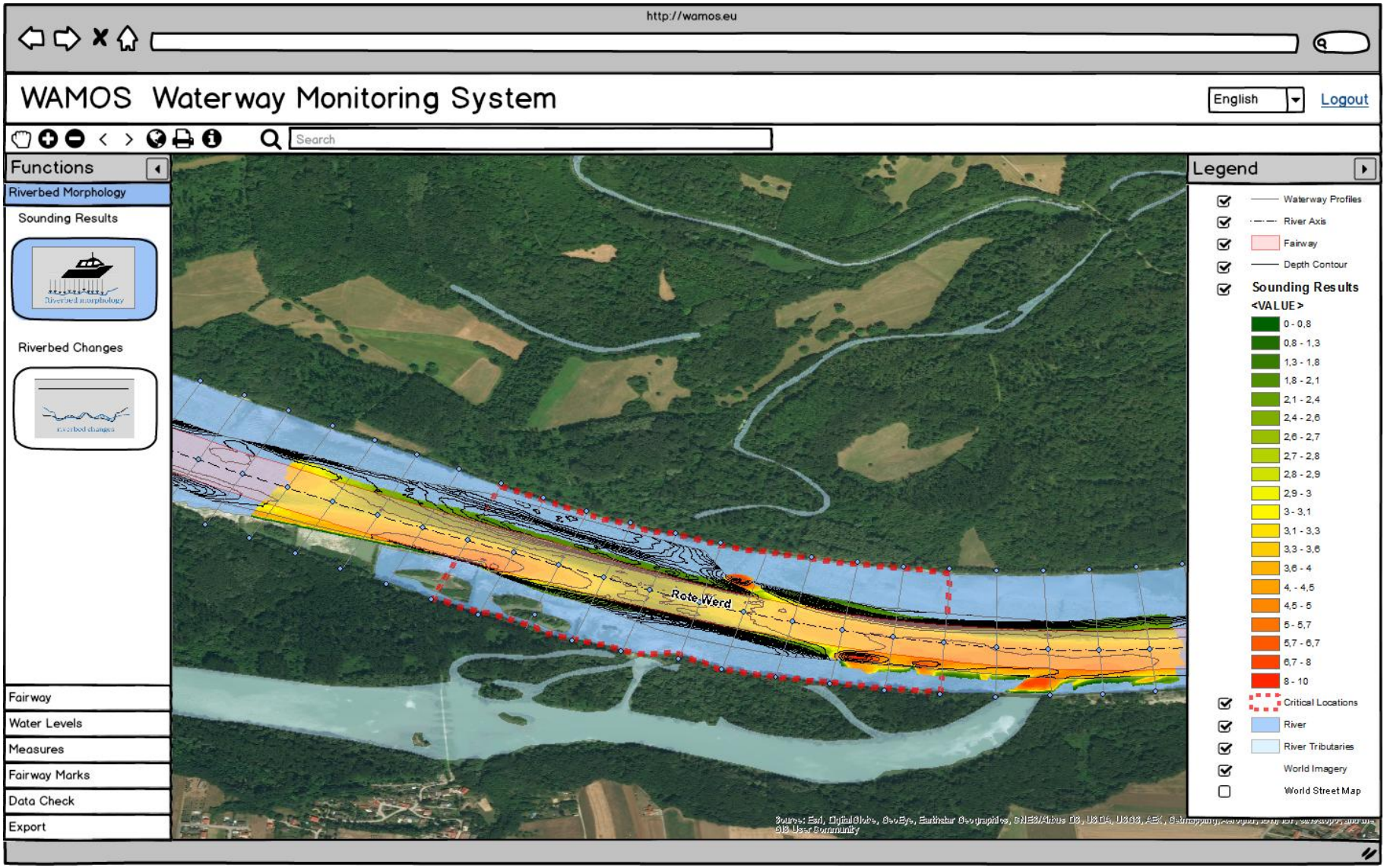

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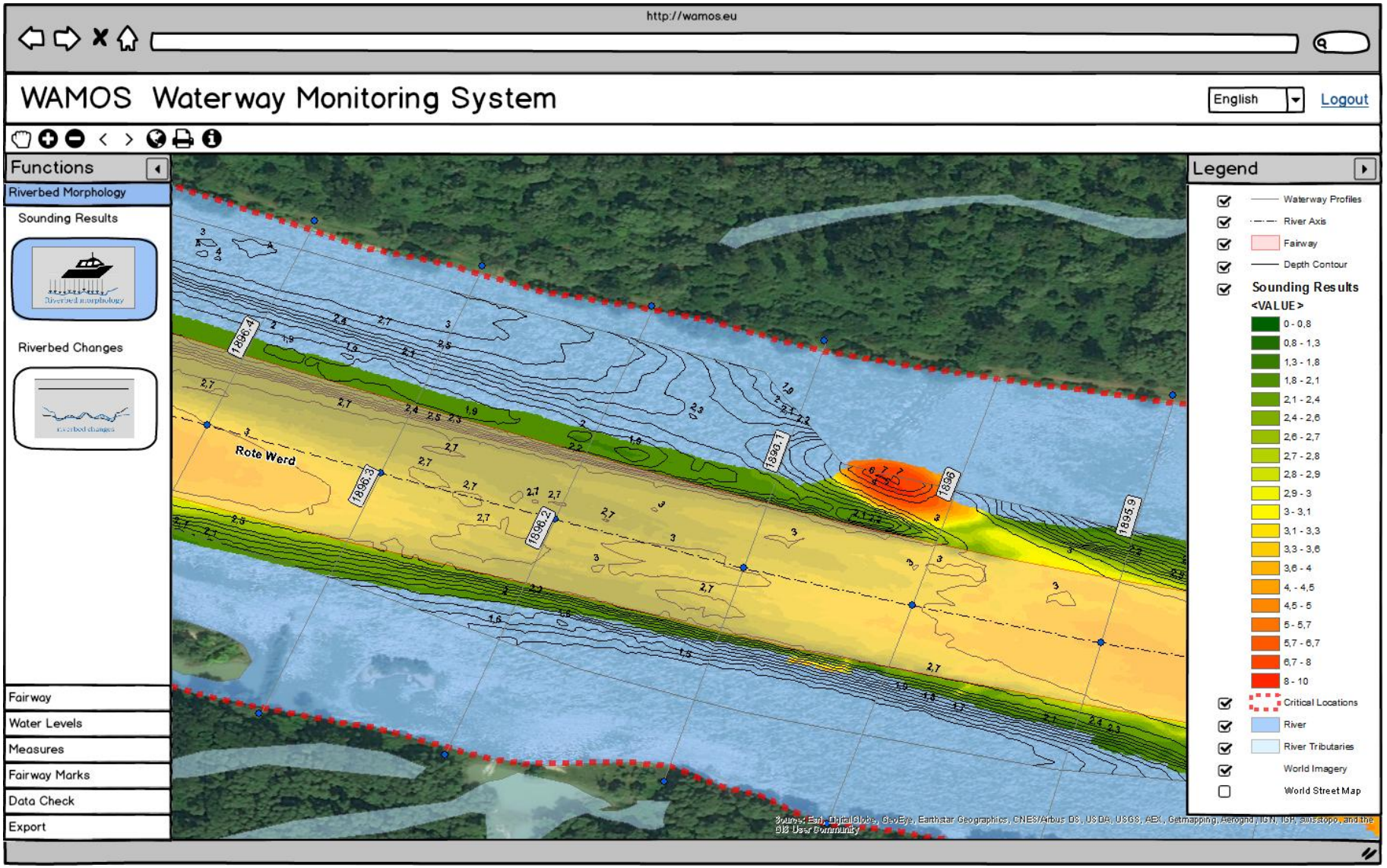

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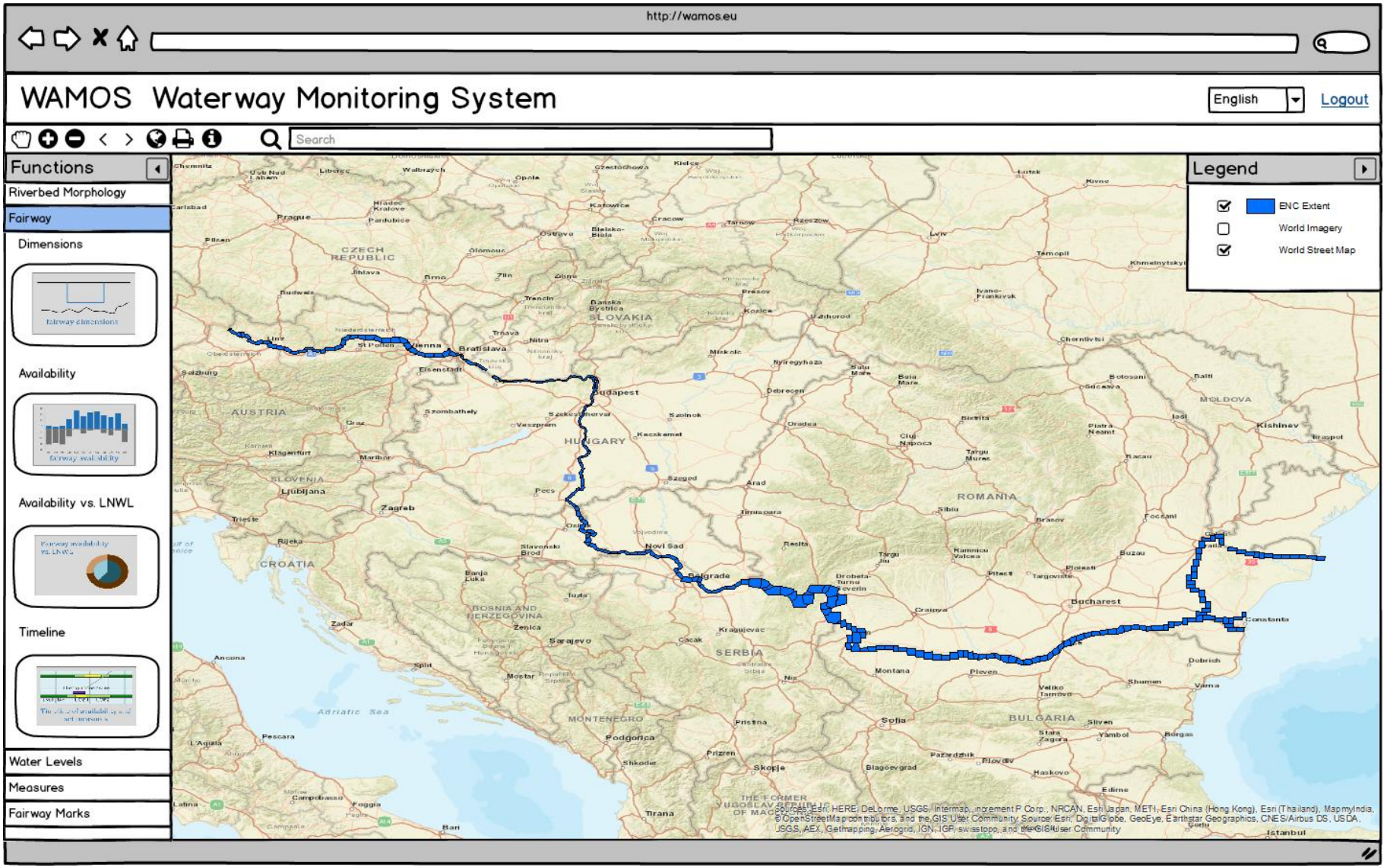

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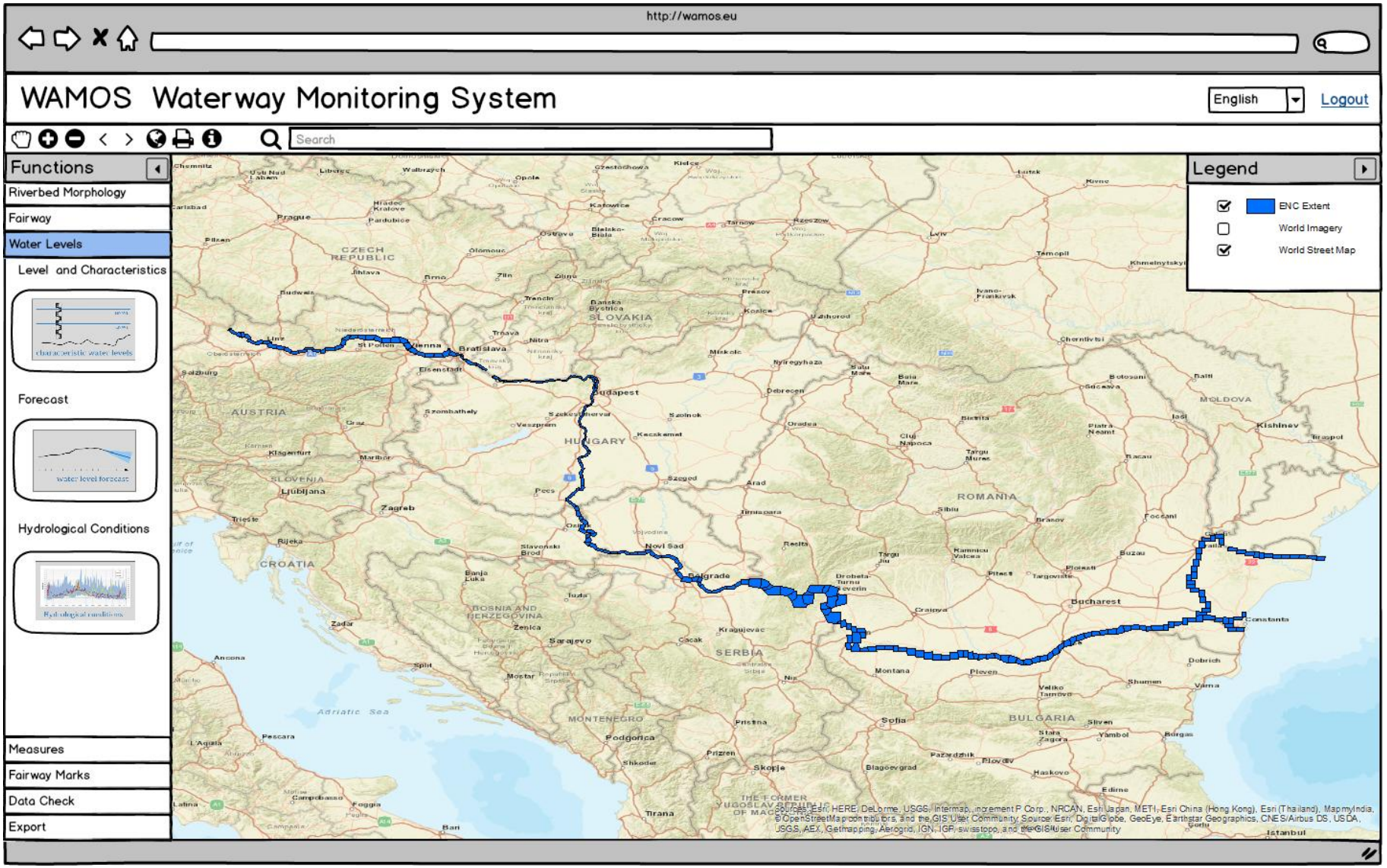

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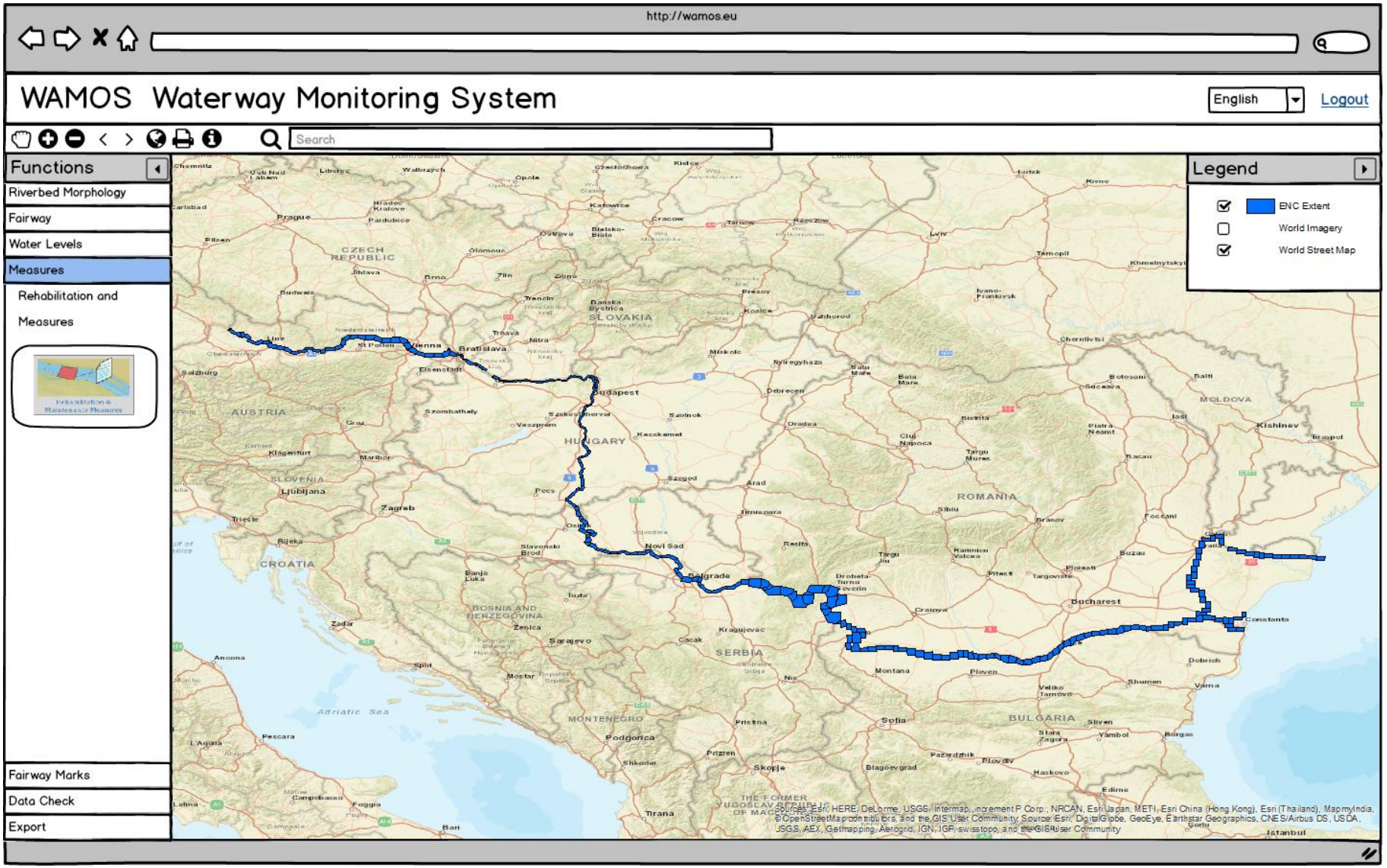

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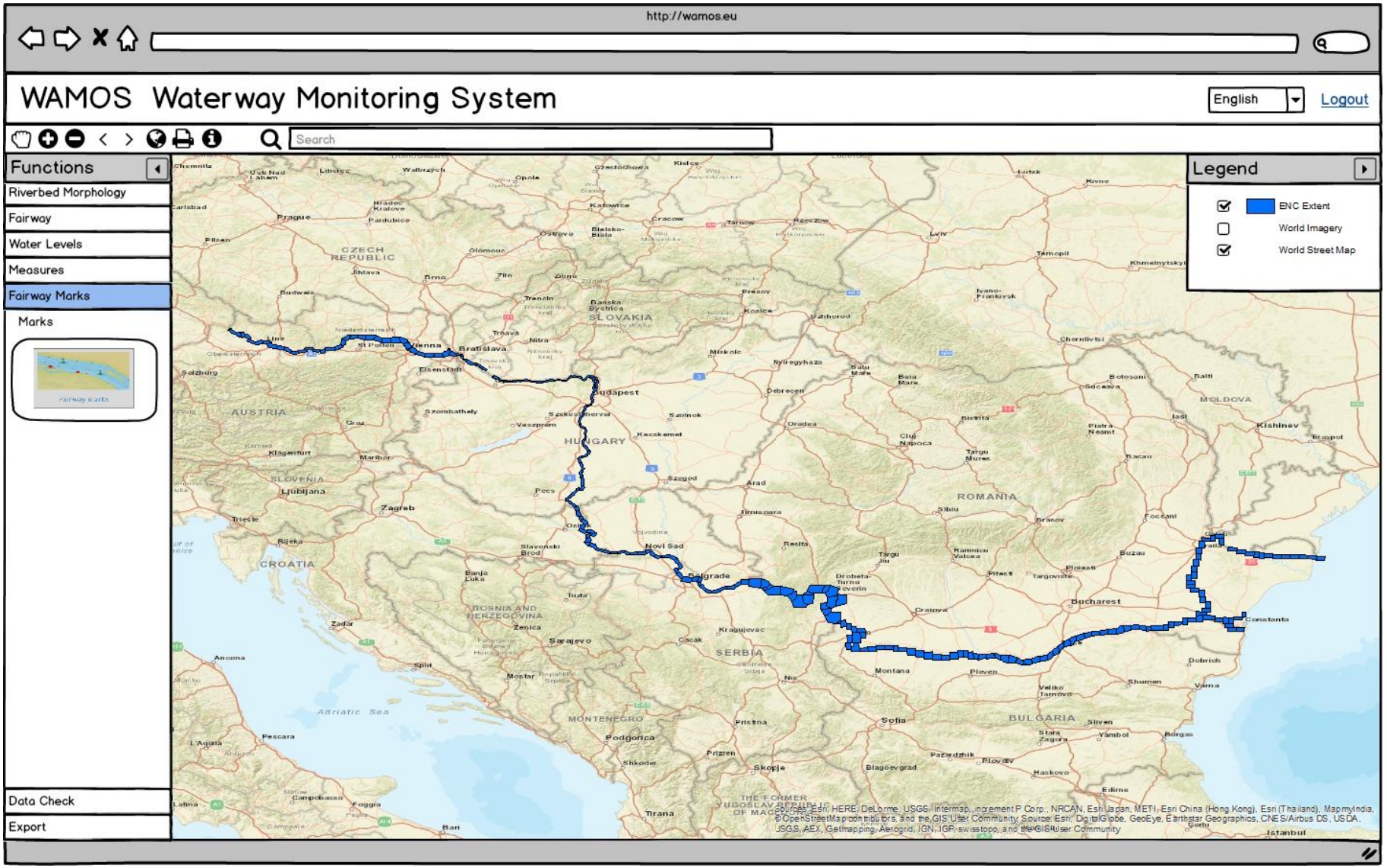

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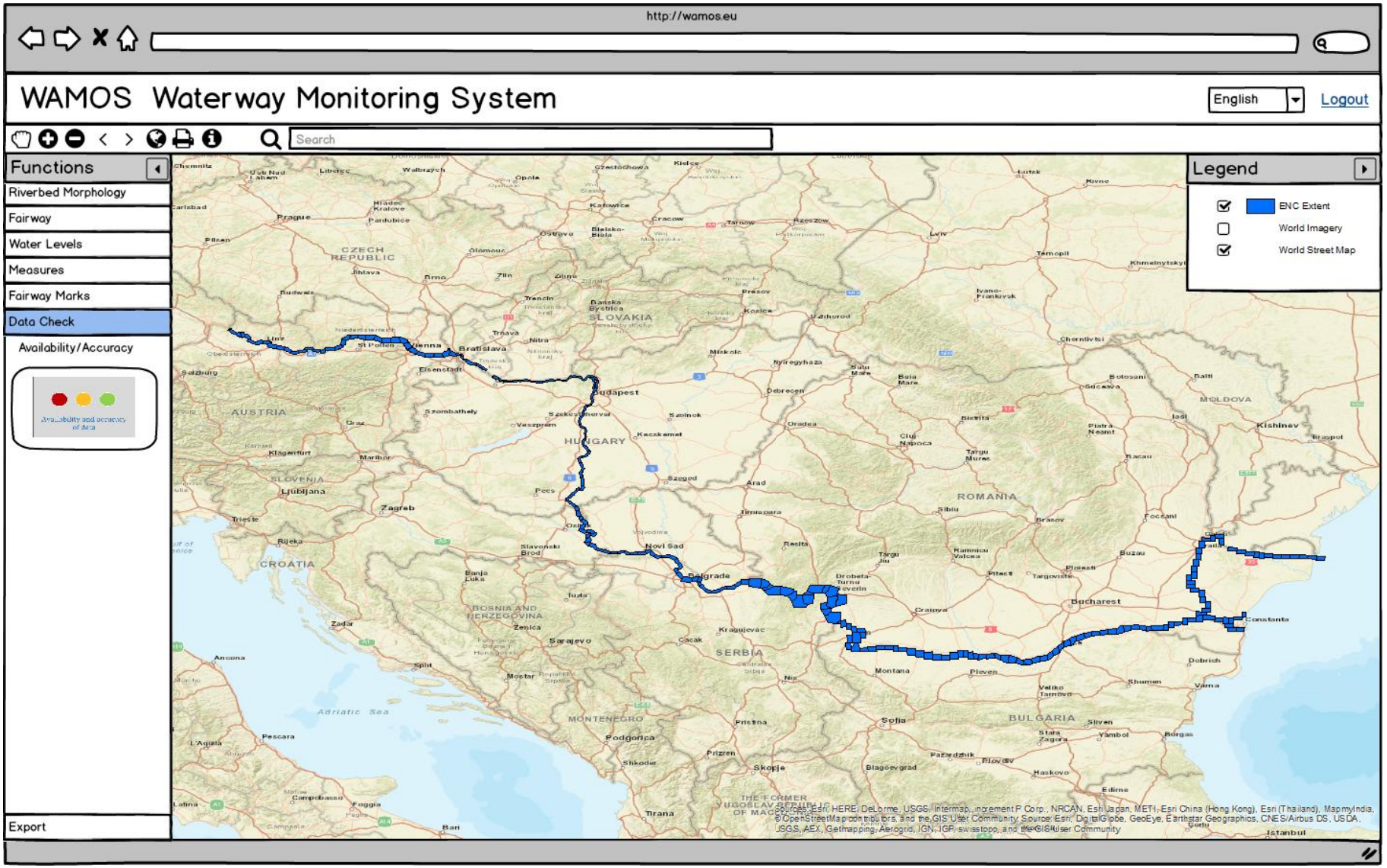

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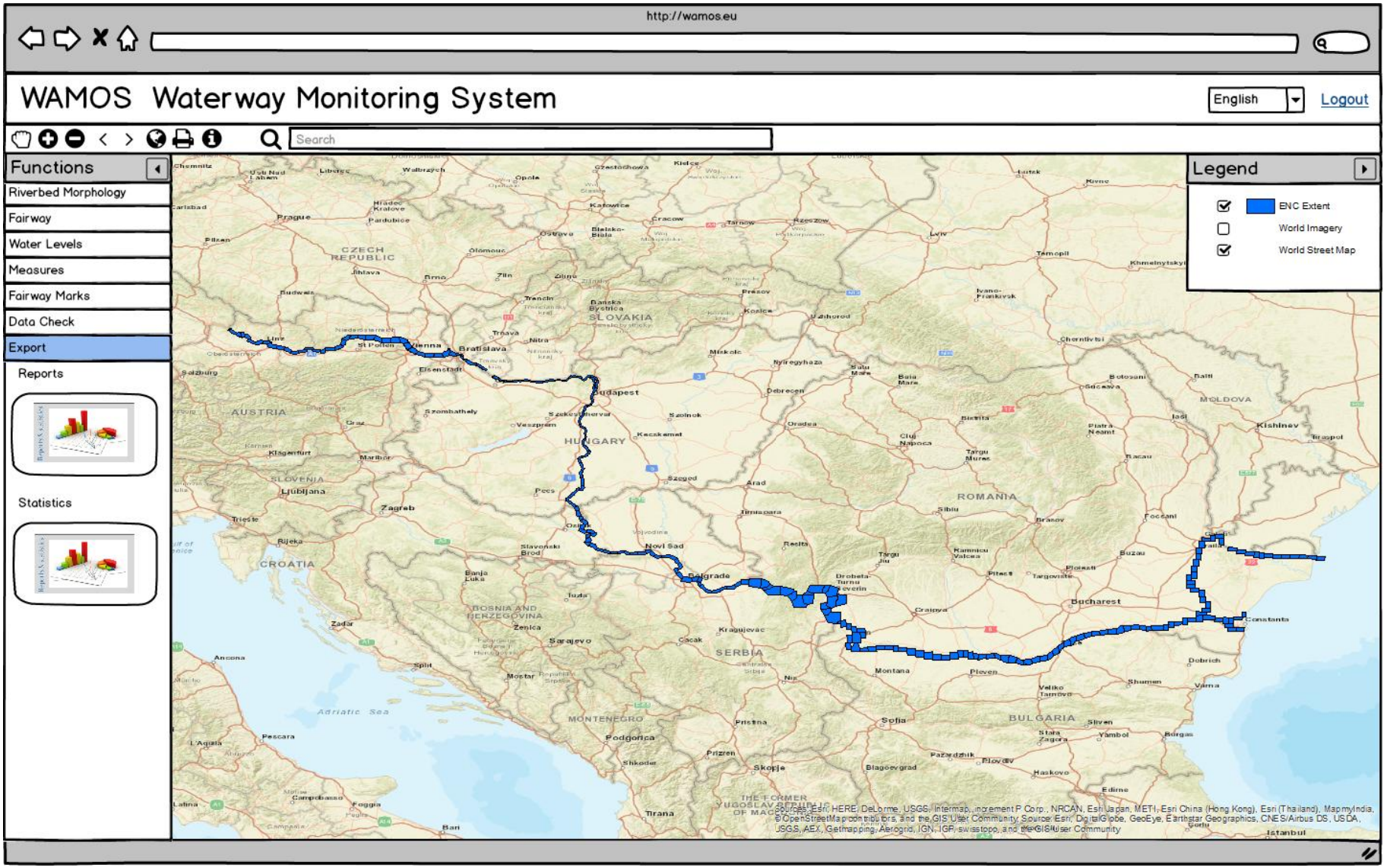

Thank you for your attention.