

The SturNet Digital Mapping Tool for Environmental Monitoring and Sturgeon Conservation in the Danube–Black Sea Region

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BACKGROUND

Developed within the **Interreg NEXT Black Sea Basin BSB00172-SturNet** project to support environmental monitoring, sturgeon conservation, scientific cooperation, spatial interpretation and stakeholder communication in the Danube–Black Sea region. It combines three components:

- 1 SturNet website** — project communication, public visibility, partner information, access to outputs.
- 2 Digital Mapping Tool** — interactive visualization of environmental, habitat, monitoring and biological information.
- 3 Mobile application** — structured reporting of accidental sturgeon bycatch and sightings.

OBJECTIVES

Main objective — to develop an integrated digital platform that centralizes environmental and biological information, supports structured field reporting, visualizes monitoring information geographically and improves communication among partners, authorities and the public.

Specific objectives

- standardized reporting of bycatch and sightings;
- observations linked to photographs, context and optional GPS coordinates;
- visualization of eDNA-based indications of sturgeon presence;
- coordinated conservation across the region.
- illustrated species-identification support;
- integration of monitoring, habitat and biological information;
- improved spatial interpretation among locations;

DIGITAL MAPPING TOOL

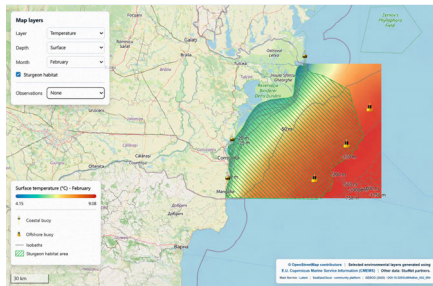


Figure 1. Digital Mapping Tool overview. Interactive visualization of surface temperature, sturgeon habitat areas, bathymetry and buoy locations in the western Black Sea and Lower Danube.

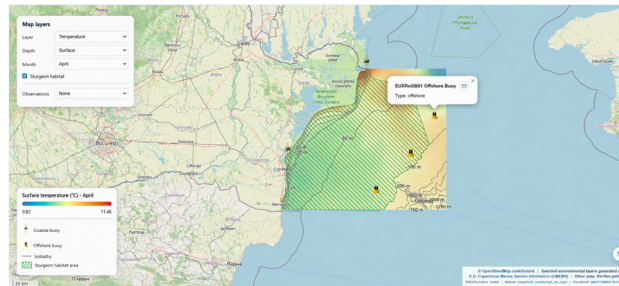


Figure 2. Environmental and habitat layers. Surface-temperature data, sturgeon habitat area, bathymetric information and monitoring infrastructure displayed through selectable map layers.

A web-based interactive interface for visualizing environmental, biological and geographical information relevant to sturgeon conservation. Selectable layers show habitat areas, monitoring and sampling locations, buoys, environmental parameters, bathymetry and monitoring periods, with interactive legends, markers and location-specific popups.

Environmental monitoring — information is presented by monitoring location and time period; average, minimum and maximum values and monthly, seasonal or yearly summaries can be displayed, supporting comparison among locations.

ADDITIONAL ENVIRONMENTAL PARAMETERS



Figure 3. Current velocity distribution. Spatial variation in surface current velocity across the western Black Sea monitoring area in February.

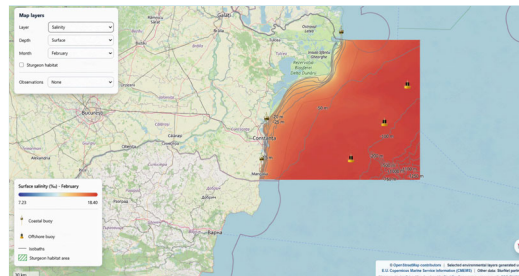


Figure 4. Surface salinity distribution. Spatial variation in surface salinity across the same monitoring area and period.

MAIN RESULTS — STURNET DIGITAL PLATFORM

- Interactive Digital Mapping Tool with environmental, habitat and monitoring layers.
- Monitoring stations, buoy locations and sampling areas visualized.
- eDNA-based sturgeon-presence indicators integrated.
- Mobile bycatch and sighting reporting workflow with identification support.
- Mobile reports connected with a website-based reporting dashboard.

MOBILE APPLICATION

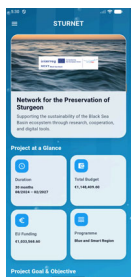


Figure 5. Mobile homepage with access to the reporting workflow.

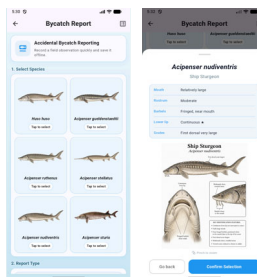


Figure 6. Species selection for bycatch and sighting reports.



Figure 7. Illustrated morphological identification guidance.

Users record report type, species, fish condition, visible disease signs, length and weight, notes, photographs, **optional GPS coordinates** and date/time. Records are **submitted for review** and interpreted together with environmental, habitat and biological information. A mobile-first, multilingual interface with offline saving supports accessibility across the region.

WEBSITE & REPORTS DASHBOARD

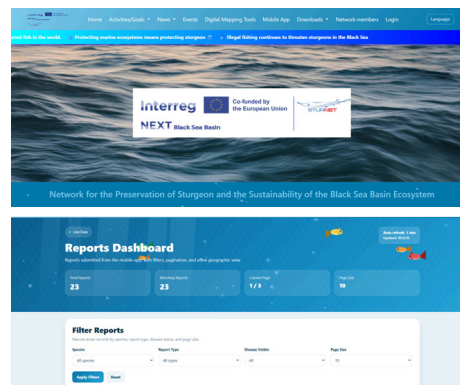


Figure 8. SturNet website. Project objectives and activities, partners, news and events, results, the Digital Mapping Tool and mobile-application information.

Figure 9. Reports Dashboard. Summary statistics, filters, tabular records and a map of submitted reports. Demonstration records are shown to illustrate platform functionality.

INTEGRATED WORKFLOW

REPORT

INTEGRATE

MAP

INTERPRET

COMMUNICATE

SUPPORT CONSERVATION

Field observations through the mobile application + scientific monitoring and eDNA datasets → centralized SturNet digital information → interactive visualization in the Digital Mapping Tool → review and spatial interpretation → communication through the SturNet website → stakeholder awareness and evidence-based conservation support.

CONCLUSION

The SturNet digital platform creates a connected framework for sturgeon conservation in the Danube–Black Sea region. The mobile application supports structured field reporting and species-identification guidance; the Digital Mapping Tool integrates environmental, habitat, monitoring and eDNA-based information in an interactive spatial interface; the website communicates project activities, results and digital outputs. Together, these components strengthen reporting, interpretation, cooperation, public awareness and **evidence-based conservation support**.

ACKNOWLEDGEMENTS

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EXPLORE THE
STURNET DIGITAL
PLATFORM

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