

Project Title

Remote and Field Monitoring of Oil Pollution Dynamics in the Kerch Strait and the Tuzly Lagoons Region (OIL-TRACE Black Sea)

Project Data

Duration	Funding	Project location/ Region
12 months	19 600 €	Ukraine, Black Sea

Project Partners

Who are the project partners?

- Institute of Geological Sciences of the National Academy of Sciences of Ukraine
- Tuzly Lagoons National Nature Park
- Zelenyi List, NGO
- National Ecological Centre of Ukraine, NGO
- Online Media “Zelenyi List”

What does each partner specifically contribute to the project?

- Host Institution. Provides laboratory support and scientific consultation.
- Scientific Partner. Provides field access and logistics for field surveys.
- Civil Society Partner. Assists in engaging local stakeholders and disseminating information at the local level.
- Civil Society Partner. Assists in conducting workshops, contributes to environmental education, and promotes public awareness of marine conservation
- Media Partner. Publishes analytical articles, reports, infographics, and visual content related to the project results. Ensures transparency and accessibility of scientific findings for the general public

About the Project

What is the problem – and what do you want to change about it? What are you doing specifically to achieve this goal?	The full-scale war launched by the Russian Federation against Ukraine has caused unprecedented environmental pressure on the Black Sea. One of the most severe ecological consequences is oil pollution caused by Russian oil tankers. This pollution has long-term effects not only on the marine ecosystem but also on coastal areas, including the valuable protected ecosystems of the Tuzly Estuaries National Park. OIL-TRACE Black Sea project aims to establish an integrated remote and field monitoring system to assess and document the dynamics of oil pollution in the Black Sea, combining data from different satellites with field verification and environmental communication activities.
What is special or new about your approach?	OIL-TRACE Black Sea project aims to provide scientific, visual, and publicly accessible evidence of oil pollution distribution and transformation under wartime conditions, thereby supporting both national and international efforts to protect the Black Sea ecosystem. The project focuses on dynamic, near-real-time observation of oil contamination patterns using open-access and commercial satellite platforms combined with targeted, low-cost ground truthing. The Key Innovative Aspects of the project are: • Multi-source satellite integration (combining radar and optical data at multiple spatial and temporal scales)/ • Back-tracking and meteorological modelling with incorporation of meteorological correction. • Field verification of satellite interpretations under restricted conditions in cooperation with Tuzly Lagoons National Nature Park. • Creating an open and publicly accessible interactive GIS map (uMap) as a citizen science tool. • Transforming scientific data into accessible media outputs, infographics, and policy briefs.
The figure: What does the project actually do?	The logical sequence of project activities leads to achieving the main objective. This includes:

	1. Satellite monitoring. Retrospective and operational analyses of Sentinel-1 (SAR) and Sentinel-2 (optical) data for the period 2024–2026 to track the spatio-temporal dynamics of oil pollution in the Kerch Strait and adjacent coastal zones. 2. High-resolution integration. Specifically, integrating high-resolution imagery to improve spatial precision in detecting oil slicks, shoreline residues, and potential accumulation areas. 3. Field verification. Conduct field expeditions along the sandbar of the Tuzly Lagoons National Nature Park, focusing on the documentation of degraded oil residues (GPS coordinates, photographs, video records, and visual description). 4. Back-tracking and modelling. Applying meteorological correction and back-tracking models to reconstruct potential drift trajectories and identify the origin or redistribution paths of oil plumes. 5. GIS integration and open data. Update the existing interactive uMap of oil pollution, create a structured open GIS database, and make datasets publicly available for scientific and policy use. 6. Dissemination and advocacy. Wide dissemination of results through media outreach, workshops, and policy briefs, in cooperation with the CSOs, ensuring the link between scientific findings and public awareness.
What remains? What concrete results are achieved, and who can use them in the future?	OIL-TRACE Black Sea project provides a scientifically validated, policy-relevant, and publicly accessible system for detecting and analysing oil pollution in the Kerch Strait and north-western Black Sea. The project's results have scientific, practical, and societal implications, with a particular focus on transparency and long-term integration into national and international mechanisms. The key scientific results are an adapted “Back-tracking and Modeling” methodology for the spread of oil pollution from underwater sources under Black Sea conditions, supplemented by an integrated database combining remote sensing, field observations, and laboratory analyses.



The **practical outcomes** are an updated interactive map (on the uMap platform) of pollution hotspots, providing access to collected evidence on their impact on ecosystems, as well as a concept for early warning of pollution risks to enable a rapid response in the event of such incidents.

Societal and educational results include increased environmental awareness among local communities and the general public regarding marine pollution and biodiversity conservation through informational and educational events and media campaigns.

The project's results are intended for use by researchers, environmental inspectors, conservationists, and other parties interested in detecting, monitoring, and localizing pollution.

During the project, its findings were already successfully used to assess two major sunflower-oil spills caused by Russian strikes on the Ukrainian ports of Pivdennyi and Chornomorsk.

See the project images
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