



RECI-OXBOW: Integrated management of the dual challenge (eutrophication and hydrological stress) at Lake Reci (ROSCI0111) using FERRO solutions

Reci Oxbow Lakes, Covasna, Romania

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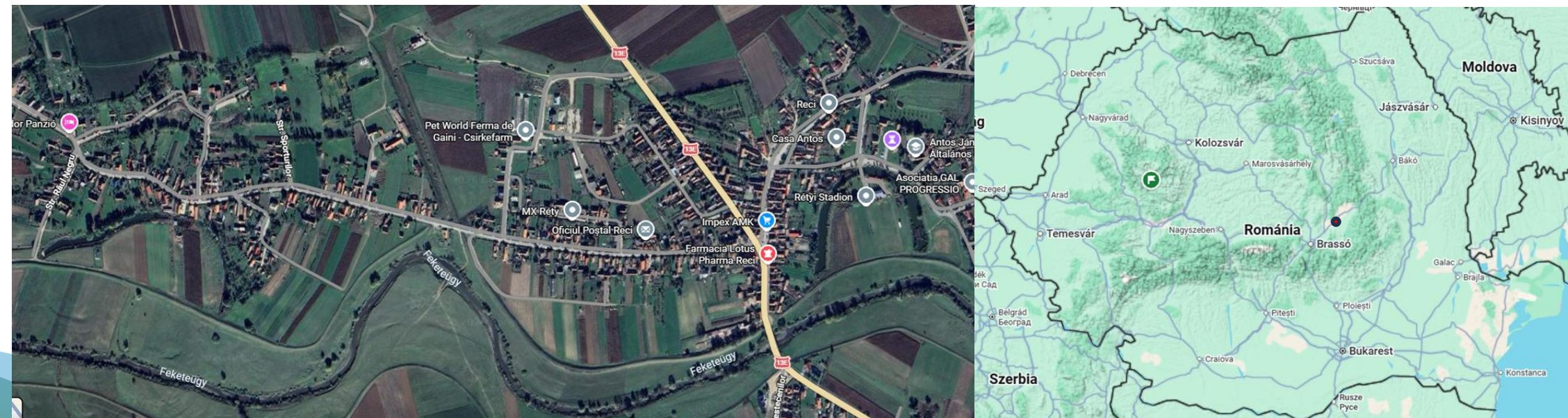
Who we are & the partnership



Green Life association: local NGO dedicated to nature conservation, habitat management, and community engagement in Covasna County.

Strong partnership: close collaboration with the Local Municipality of Reci (Lead Partner) and scientific support from Sapiientia Hungarian University of Transylvania.

Connection to FERRO: selected as an associated region under the FERRO initiative to demonstrate practical, scalable lake and wetland restoration



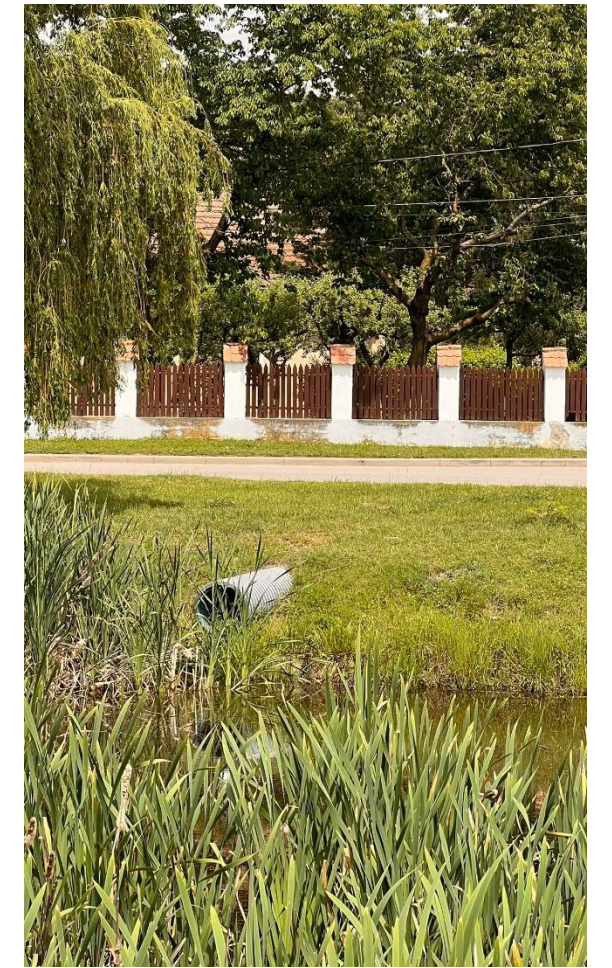
The paradigm shift: from flood defense to drought resilience

1970s–1980s river engineering: the channelization of the *Râul Negru* (Black River) successfully improved flood protection at the time.

The hidden cost: it cut off meanders, creating isolated, shallow oxbow lakes (mean depth ~1 m) that act as sediment and nutrient traps.

Today's climate crisis: rising temperatures, recurrent heatwaves, and severe droughts across Europe make water retention vital.

Urgent need: flood protection alone is no longer enough; active rehabilitation of isolated wetlands is critical to buffer against extreme droughts and heat.



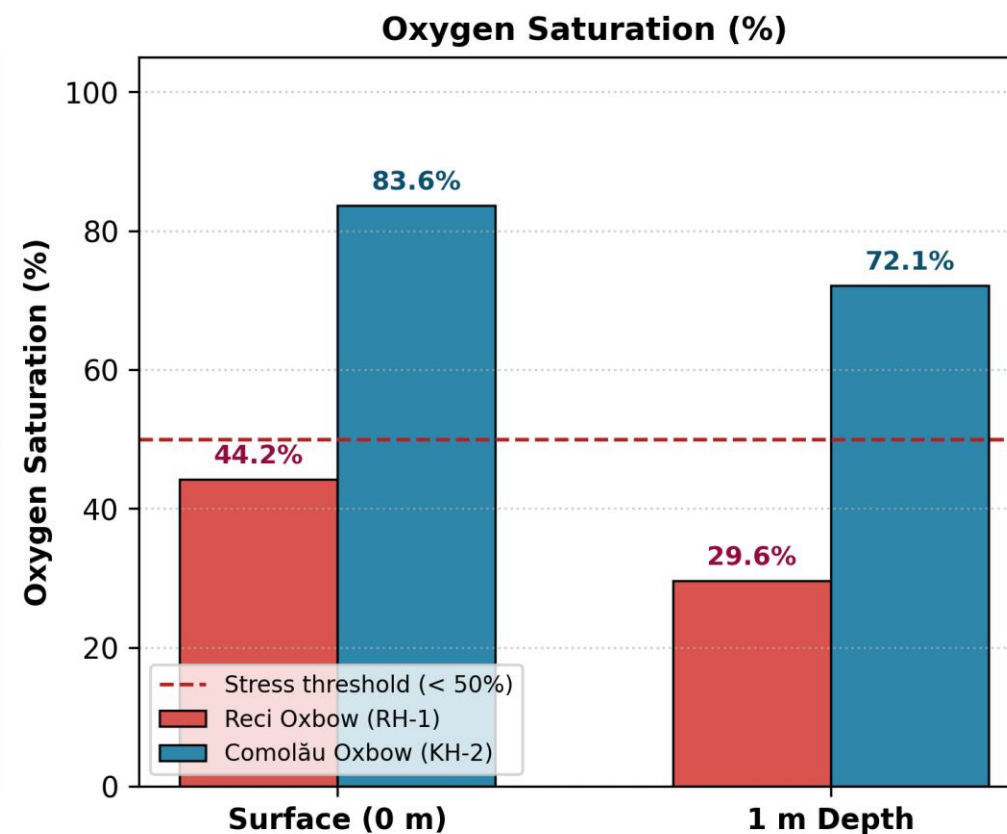
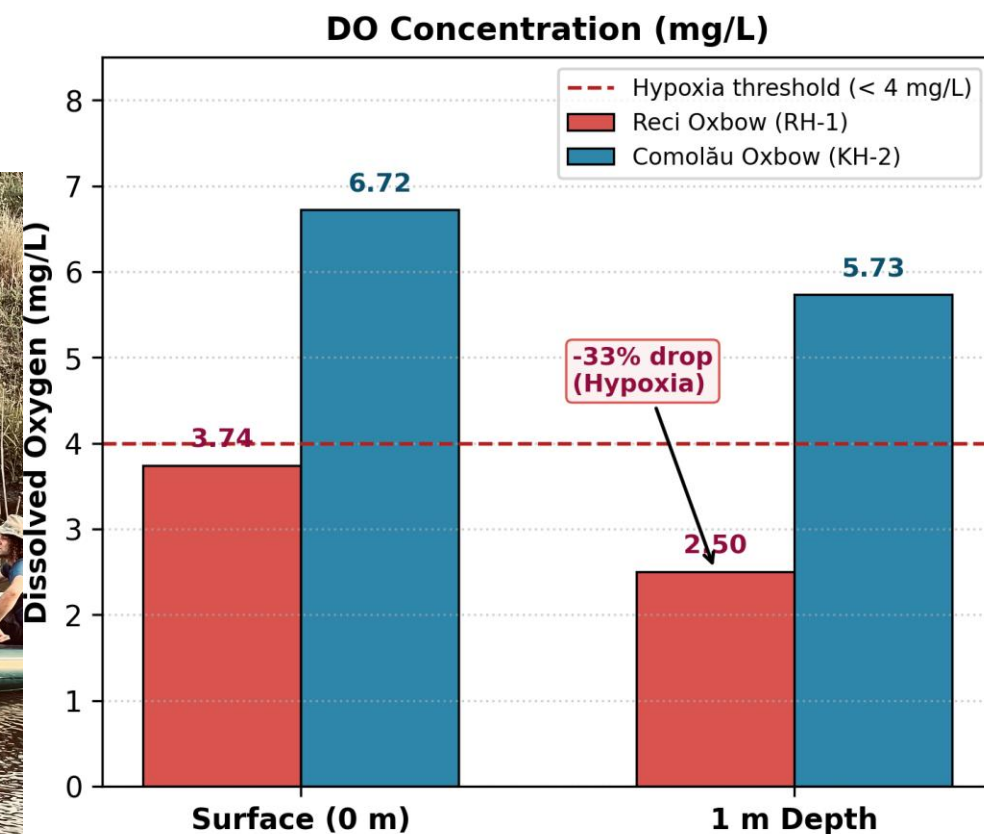
Lake 2



Lake 1

Acute oxygen depletion in the Reci Oxbow Lakes

RECI-OXBOW: Baseline Water Quality Screening (31 August 2026)



Severe hypoxia at Reci (RH-1):

Dissolved oxygen drops by **33%** at just 1 m depth (from 3.74 mg/L to 2.50 mg/L, only 29.6% saturation).

Intense sediment oxygen demand:

Falling ORP values (+198 mV → +178 mV) indicate a strong shift towards an oxygen-consuming, reducing environment near the sediment bed.

Urgent need for intervention: While Comolău (KH-2) remains stable (>5.7 mg/L DO), Reci is under severe ecological stress—proving that **sediment removal (dredging)** and **water aeration** are critical to prevent total habitat die-off.



Project objectives: revitalizing the Reci oxbows

Target: two disconnected oxbow lakes facing hyper-eutrophication and terrestrialization.

Our goals:

- establish robust baseline data (water chemistry, sediment nutrients, biodiversity).
- Implement smart sediment dredging and biotechnology (FERRO solutions) to remove internal nutrient loads and increase water depth.
- Safe sediment reuse/recycling and mitigating agricultural runoff.
- Restore recreational and biodiversity value for the local community.



Integrated strategies across all levels

Local level: involving farmers to reduce diffuse nutrient runoff; community awareness and local ownership.

Regional level: coordinating with Natura 2000 custodians (County Council) and Water Basin Authorities.

National and cross-border/EU level: aligning with the *EU nature restoration law* and river basin management plans; sharing replicable models for regulated river basins across Central and Eastern Europe.

Expectations for the community of practice

Knowledge sharing: practical guidelines for sediment handling, permitting, and low-cost nature-based solutions.

Practitioner hub: accessible exchange between municipalities, NGOs, and technical experts across Europe.

Upscaling solutions: learning how other regions successfully adapt old hydrotechnical infrastructure for climate resilience.



Thank you for
your attention!