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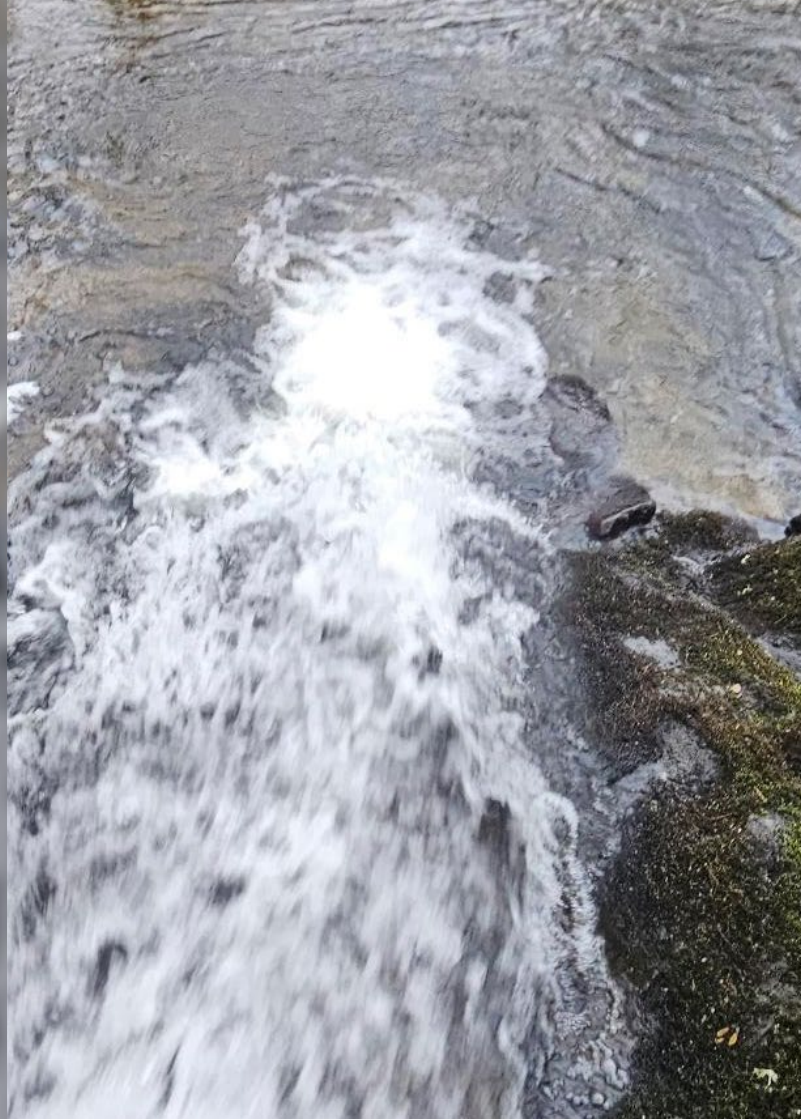
CASE STUDY

River Irfon Monitoring Programme for Freshwater Habitats

River Irfon, Wales

2022-2025

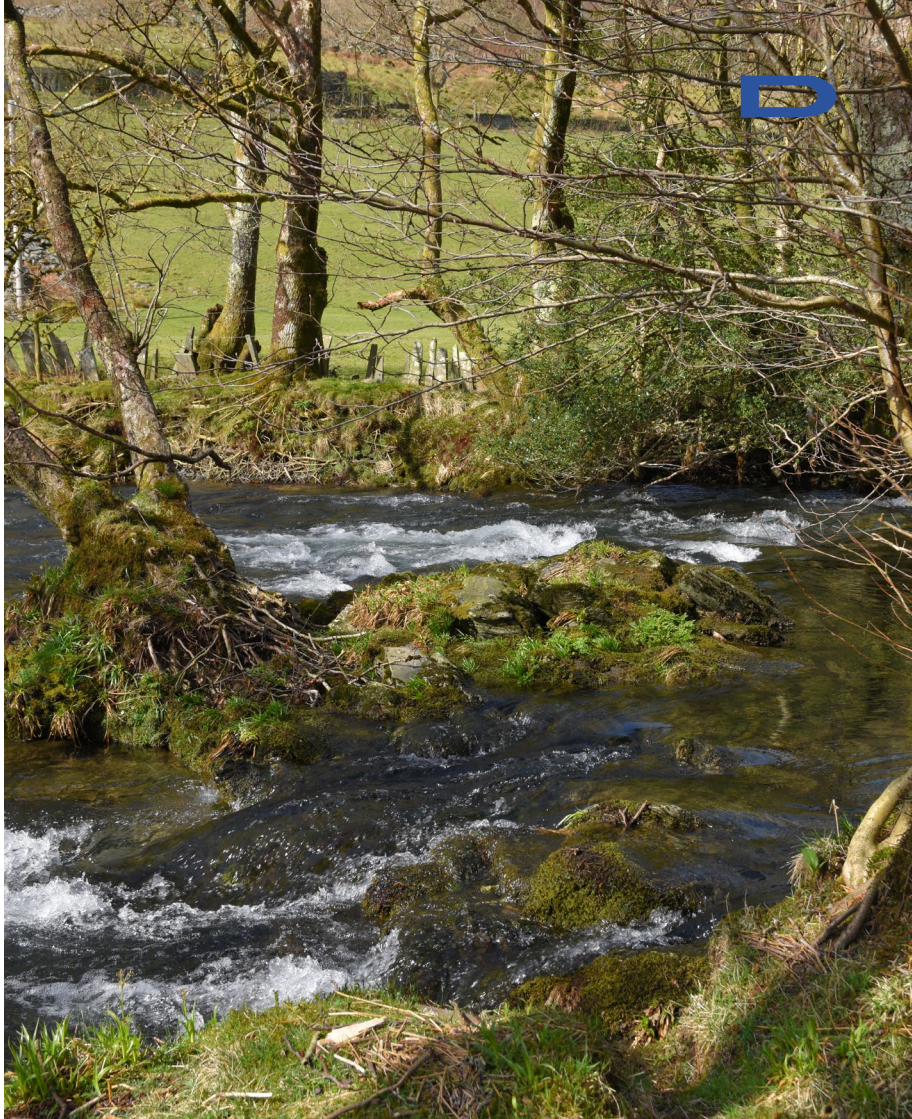
Freshwater Habitats

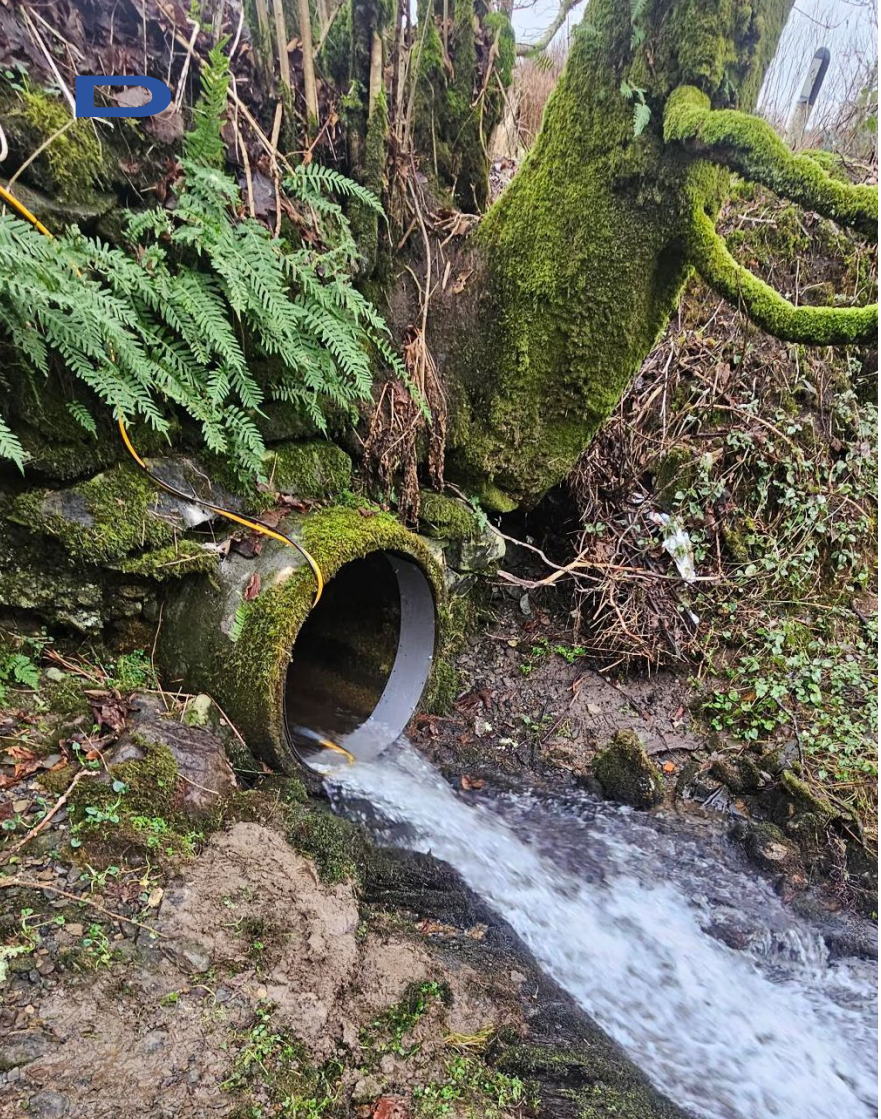


Project Overview

In 2022, a three-year river monitoring programme was initiated on the River Irfon and its tributary, the Dulas, in Wales.

Commissioned by Freshwater Habitats, the project aims to collect long-term hydrological data to support the conservation and management of freshwater ecosystems in the region.





Objectives

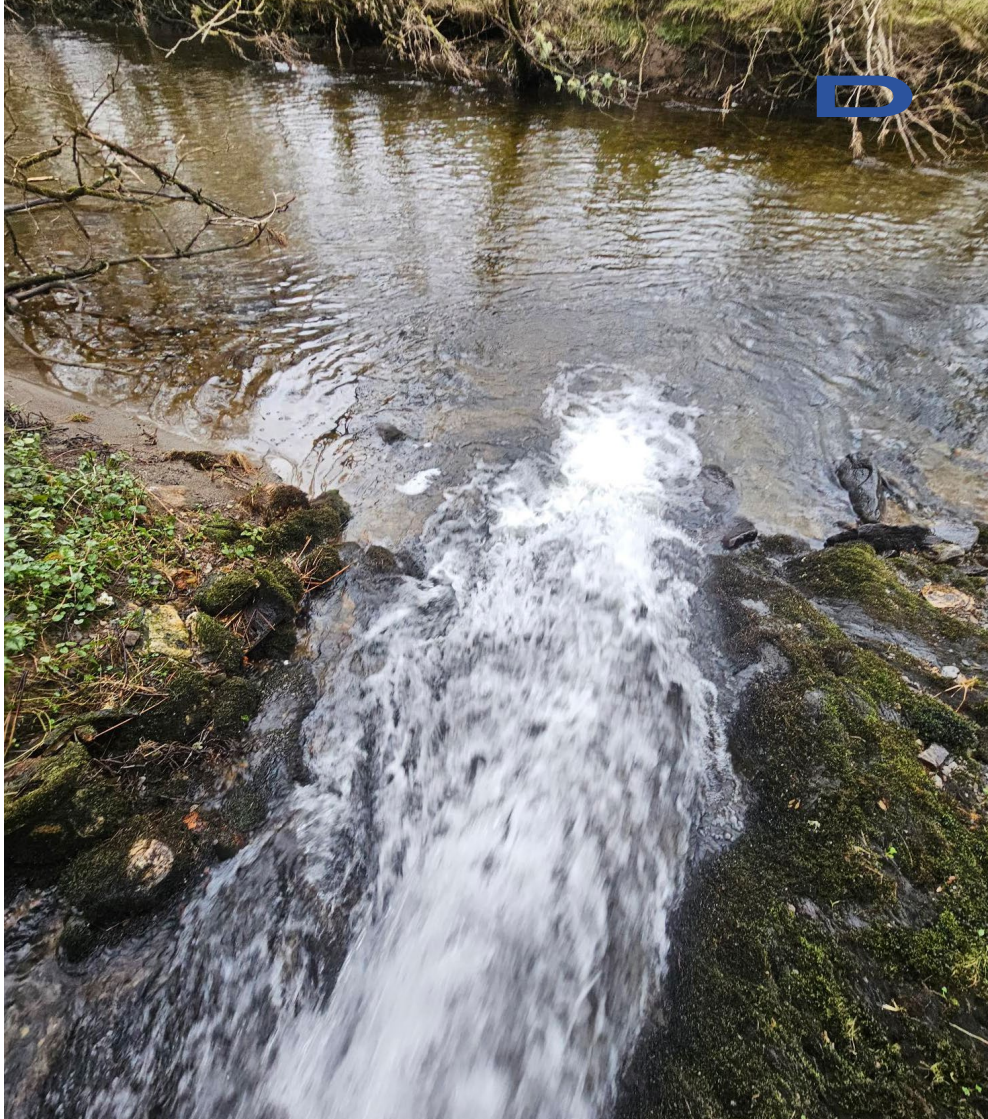
Monitor water level and flow dynamics in open channel river environments.

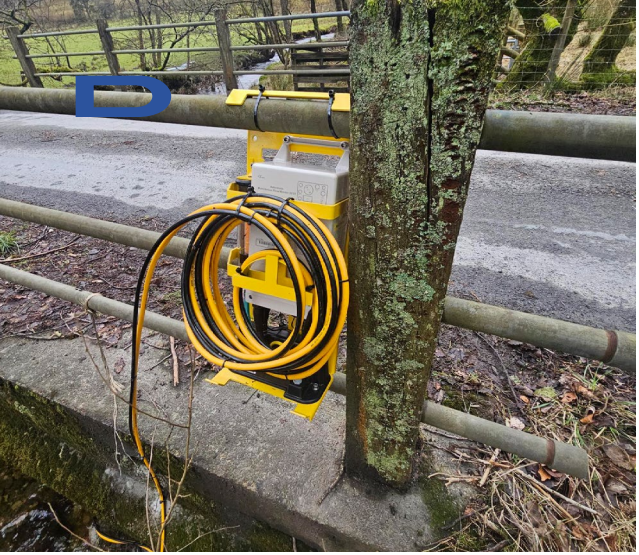
Generate reliable, long-term data to inform habitat protection strategies.

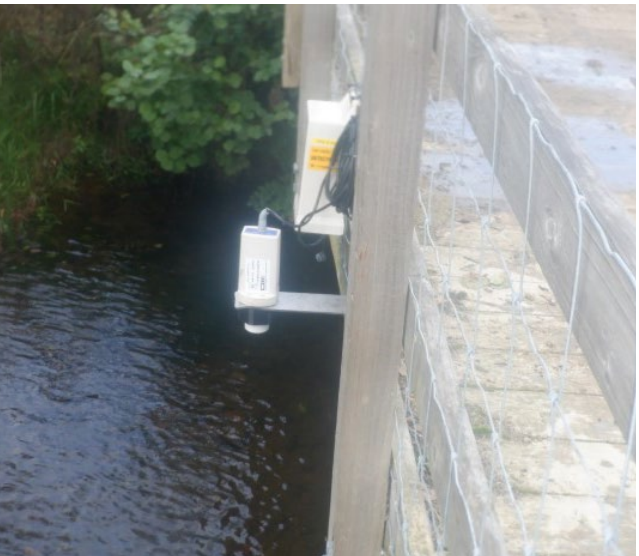
Adapt monitoring methods to suit the physical characteristics of the River Irfon and its tributaries.

Challenges

The original project specification called for the installation of flow monitors (FMs). However, during the initial site survey, it became evident that the open channel nature of the rivers made these devices unsuitable. The variability in riverbed structure and flow conditions limited the effectiveness of fixed flow monitoring equipment.







Solution

To overcome this challenge, the monitoring strategy was revised:

Installed Equipment:

- 3 x MSFM S2.5T Flow Monitors: Installed in locations where flow conditions allowed for consistent readings.
- 3 x Level Sensors: Deployed at key sites to continuously measure water depth.

Calibration Approach:

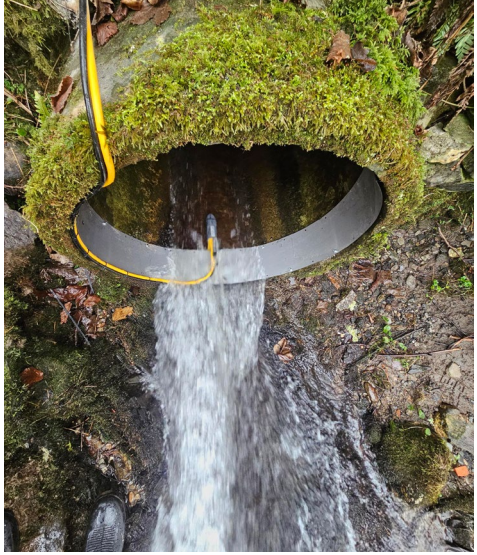
- Bi-monthly velocity checks are conducted at each level sensor location.
- These measurements are used to create depth-velocity calibration curves, enabling the calculation of flow rates from level data.

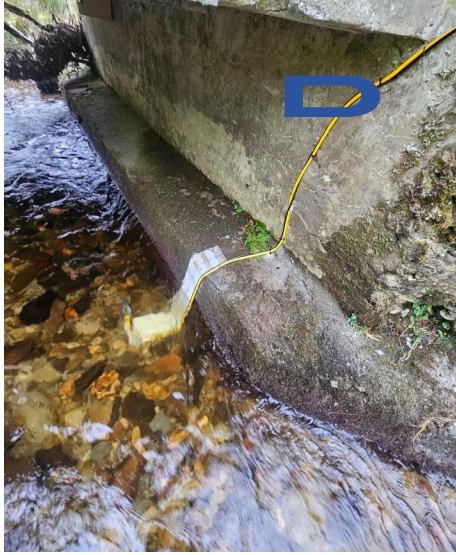
This adaptive approach allowed the team to maintain data quality and continuity despite the limitations of the original plan.

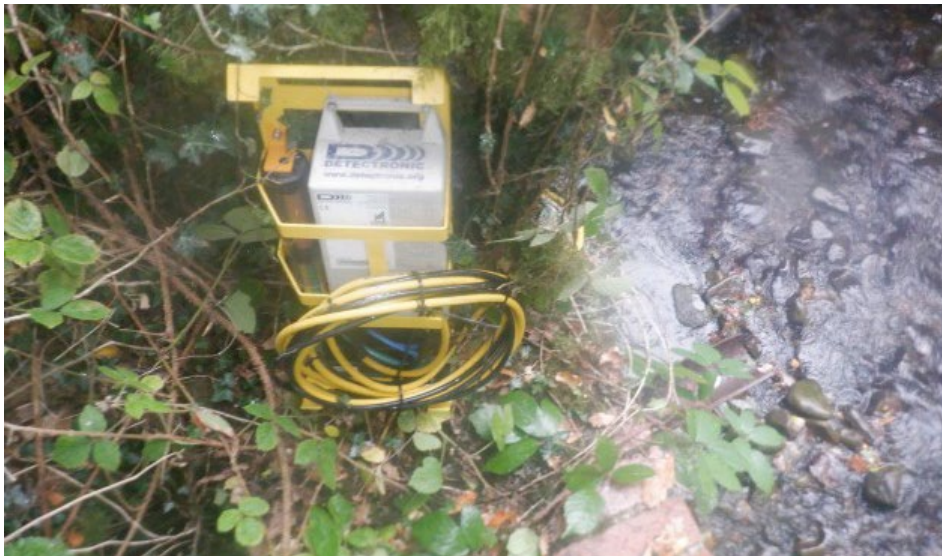
Outcomes

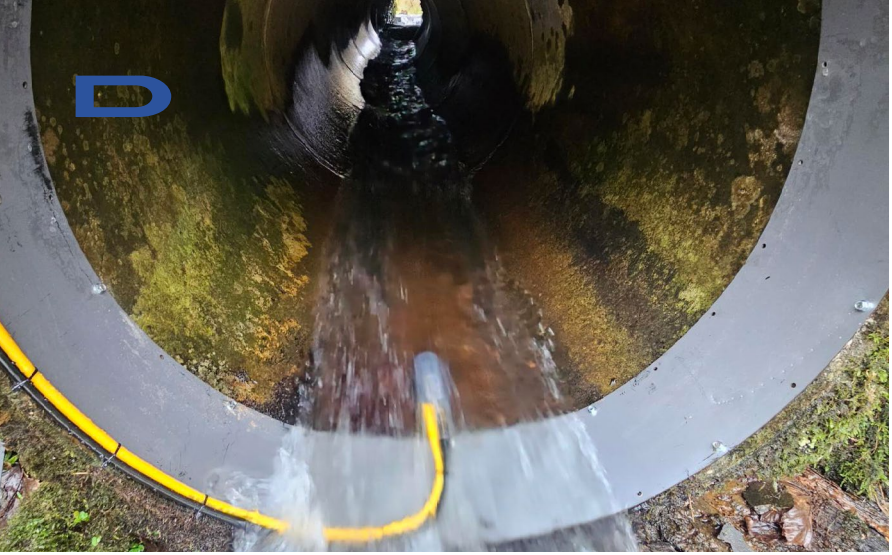
Continuous data collection has been successfully established at all six monitoring sites.

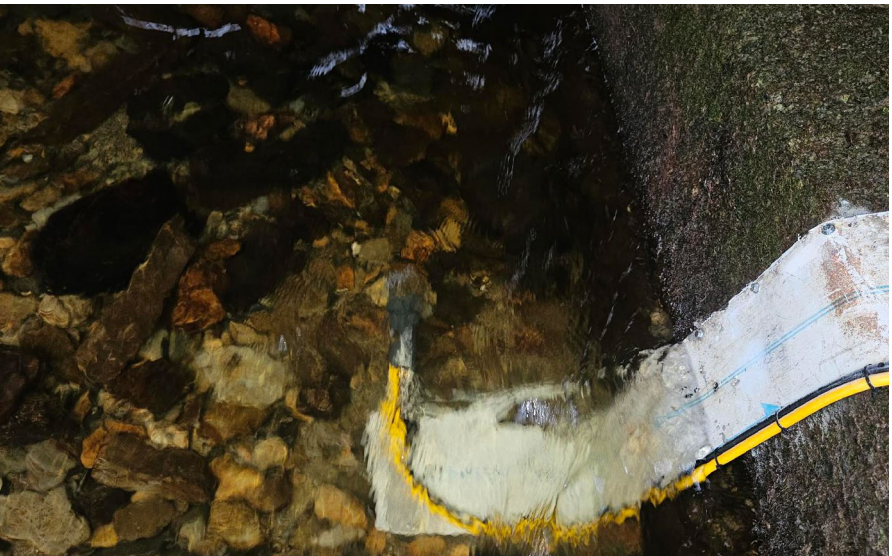
- The bi-monthly calibration regime has provided accurate flow estimates derived from level data.
- The project has demonstrated a flexible and effective model for monitoring in open channel river systems.









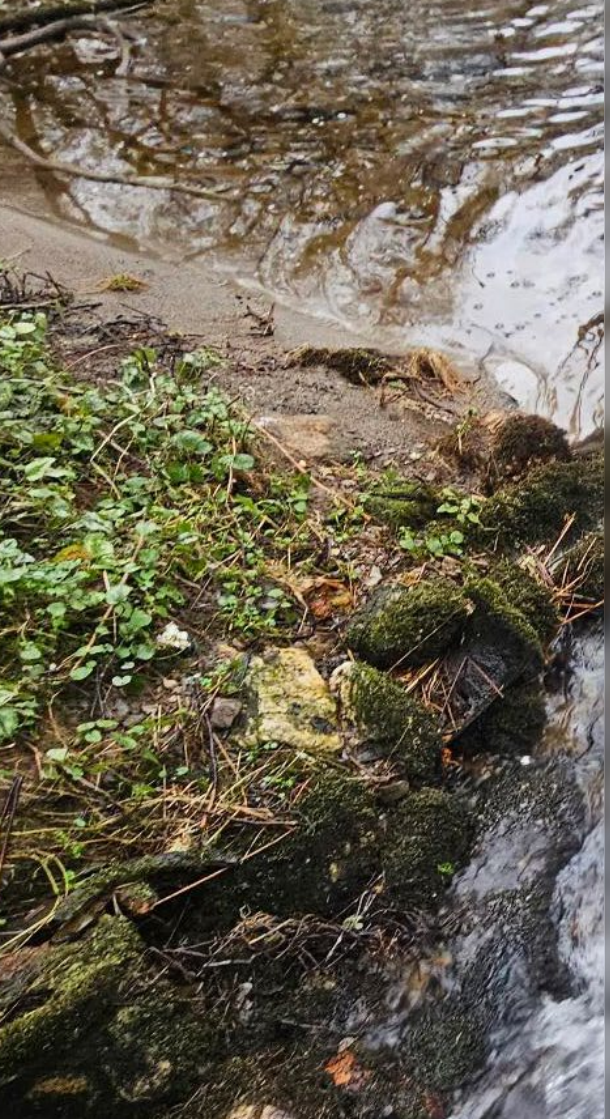


Next Steps

Continue bi-monthly calibrations and data validation through the end of the programme in 2025.

Analyze seasonal and interannual trends in flow and level data.

Share insights with stakeholders to support evidence-based conservation planning.



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