Upper Biebrza catchment, Poland

Year of issue

2026

Summary

For this case study the core objective is how to enhance the sponge functioning in a modern, optimized drained landscape. The goal is to improve the understanding of the system to increase groundwater levels, seepage, and stream discharge during summer. Some of the aspects that will be further explored include: stimulating groundwater recharge through infiltration and reducing drainage throughout the catchment.

Photo Gallery







Location

53.7372222, 23.3927777

Project

SpongeScapes

Sector

Hydromorphology

Implementation status

Ongoing

Overview

Location of the project

Located in the Podlaskie Voivodeship in north-eastern Poland, the Upper Biebrza region within the Biebrza National Park is characterised by its valuable and relatively untouched wetland ecosystems. These include alkaline fens, transitional peatlands, and bog woodlands. The peat soils prevalent in this area, combined with a largely unaltered hydrological system, contribute to its significant water retention and carbon storage capacity. This region plays a crucial role in maintaining unique biodiversity and ecological functions, making it a valuable reference for wetland conservation and sustainable management initiatives. The case study is located in regions that signed the Mission Charter of the EU Mission on Climate Adaptation.

Sponge measures implemented in the case study

Wetland restoration and management

Objectives

The study of the large peat wetlands of the Upper Biebrza aims to improve our understanding of the natural ‘sponge-like’ functions of these ecosystems. By investigating the interactions between groundwater and surface water and observing the effects of Nature-based Solutions (NbS) on them we aim to gain critical insights. This knowledge will be instrumental in developing effective conservation strategies for groundwater-dependent wetlands across Europe, ensuring their sustainable future.

Involved partners

Authority type	Authority name
Nature park	Biebrza National Park
Research institute / University	The Warsaw University of Life Sciences

Policy and Governance

Part of a wider plan

Yes

Public consultation

No

Has contractual arrangements

No

Impacts and Monitoring

Monitoring System

Monitoring parameters

We’re using an extensive monitoring network of water level, water temperature, surface water and groundwater gradient data to assess the area’s potential for optimal ‘sponge’ function. Advanced water modelling tools will be instrumental in our analysis. For the oldest water gauges we have hydrological daily observations since 1948- and meteorlogical observations since 1961.