Improving Landscape Water Management in the Stechlin Lake Area

Clear water lakes, replenishment of groundwater, marsh restoration, biological permeability, forest conversion, EU-LIFE-project

Landscape Water Balance / Marsh Protection

(1) Significantly increased groundwater level at the Lake Teufelssee

*The unique diversity of lakes, marshes and streams in the land surrounding Stechlin Lake is affected by the eutrophication and lowering of groundwater levels in the area. Diverse rehabilitation efforts in and around water bodies have been combined with forestry, fishing, and tourism management plans within the framework of an **EU-LIFE-Project**. The results are expected to improve the **landscape water management and water quality of water bodies** in the region, **restore marshes and marsh forests** as well as **renaturate streams**.*

Area

The Stechlin Lake, the largest clearwater lake in Northern Germany, is located in the north of Brandenburg, between Rheinsberg and Fürstenberg. The landscape, much of which lies in the Mecklenburg Lake District, is dominated by vast forests, many clear water lakes and nutrient-poor bogs as well as many structured streams. The project area covers 9,400 hectares, including 7,400 hectares of forest and 1,200 hectares of lakes.

River basin district and state: Elbe; Brandenburg / Mecklenburg-Vorpommern
Coordination zone: Havel; processing area Oberhavel
Names of water bodies: Lakes: Stechlin See, Roofen See; Polzow Canal; creeks: Kleiner Rhin, Döllnitz
LAWA water types: Type 13 „Carbonate rich lakes with small catchment“ (Stechlin Lake), Type 21 „Lake outflows “ (Polzow Canal), etc.
Classification within the river basin and state analysis: „at risk“ (Stechlin Lake)
Protection status: Nature reserve, FFH and SPA area „Stechlin“; parts of FFH areas „Polzowtal“ and „Rheinsberger Rhin and Hellberge“

Reason / Cause

The protection status of the area could not fully compensate for the effects of past human influences. The historical development of the Polzow Canal for rafting, the construction of a nuclear power plant in Rheinsberg, forest use and many agriculture-related drainage activities in the catchment have led to negative changes in the area's water balance (groundwater and lake water level depletion). Overall the groundwater situation in Brandenburg is quite tense, a fact which should have led to an „at risk“ classification. Nutrient inputs from agriculture, fisheries and nearby settlements in addition to a decrease in groundwater level have **accelerated eutrophication** of many water bodies. Since many **natural water retention areas have been drained** and thus deprived of their true function as sinks, they can no longer serve as a buffer against harmful inflows. As a result, many substances held by **peat mineralization** over a long period have been set free.

(2) Natural succession after abandonment and restoration

Objective

A primary goal of this project is **improving the landscape water balance** by raising the ground- and lake water levels, improving water quality, restoring marsh and marsh forests, and restorating rivers.

Measures

The diverse measures in and around the water bodies were combined with forestry, fishing, and tourism management plans for water, forests, marshes, and grasslands under the EU-LIFE-project „Stechlin“ framework:

(3) The bypass on the Lake Roofensee weir allows biological permeabilitiy for aquatic organisms

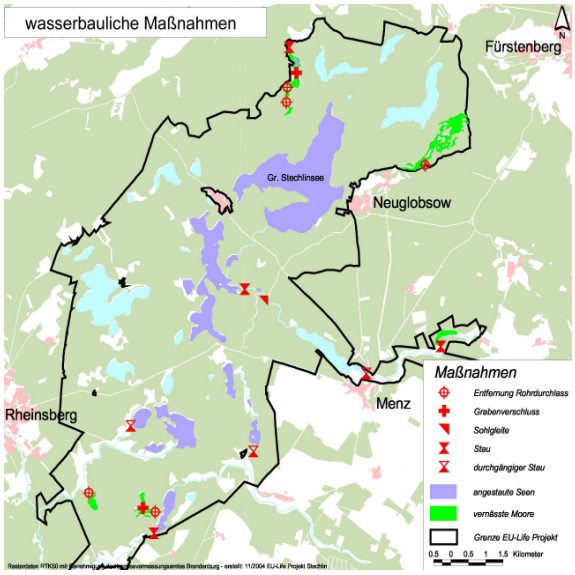
- Damming and securing a total of 833 hectares of lake area and restoring streams
- Improvement of water quality and lake-feeding streams in order to increase the water volume in dammed lakes and large-scale removal of bottom-dwelling fish as well as reduction of the nutrient input into nutrient poor lakes and streams though trench closures, control of sewage pits and construction of a public toilet
- Management plans whith analyses of reports on water status and measures for planning individual water bodies
- Re-establishment of a whitefish breeding program on Stechlin Lake to stock clear water lakes with indigenous wildlife
- Creation of ecological continuity in Polzow Canal and permeable design of dam projects on Lakes Roofensee, Zechow See und Großer Törn See to allow for species migration and the creation of secondary habitats

- Restoring a total of 17 ha of small marshes, around 93 ha wet grasslands and about 15 hectares of wet woodland through trench closure the removal of pipelines and weirs
- Removal of spruce to improve water management on about 105 ha of moorland as well as mowing wetlands (about 16 ha)
- The purchase of 214 ha of lake area (Peetsch See, Zechow See, Zeuten See, Kölpin See, Körpernitz See), 10 ha of pasture land and 3 ha of forest area to enforce differentiated fish management, biotope constructing measures and to implement total reserve conception
- Improvements in the collection of important hydrological parameters and
- Public relations and visitor information.

(4) Natural generation by migrant beeches – directed forest conversion at Lake Teufelssee

Actors / Procedure

The project ran from March 2001 to December 2005. Four plan approval procedures, a plan approval and four water-regulatory-approval processes were need for the restoration measures and lake level elevation. For three measures the consent of the owner was sufficient. Involved were the EU-LIFE-Project „Stechlin“ (initiator), the Stechlin-Ruppiner Nature Park Administration of the Brandenburg Environmental Authority, the Templin Office of Forestry, the Brandenburg Nature Conservation Fund and the Brandenburg Friends of the Stechlin and Menzer Landscape.



(5) Overview of the main hydraulic action. Period: 2001-2005

Costs / Financing

The costs totalled 1.91 million euros, 60 % of which came from EU-LIFE funding and 40 % from the state of Brandenburg in the form of non-cash employment benefits of the project partners Templin Forestry Office and the Conservation Fund Brandenburg.

Results / Assessment

Through detailed planning and scientific monitoring it was possible to efficiently succeed in decommissioning **hydrological „key points“**. In addition to structural measures, it was attempted to take into account all components that affected water quality and quantity. This included, in addition to forestry and fisheries **management plans**, a broad and intensive **public relations campaign**. These, as well as a professional moderation before measures were taken, led to an elimination or reduction of conflicts. This approach is exemplary for an active management of a medium sized catchment.

Conflict: The decommissioning of a nuclear power plant which has been performed since 1990 limits the amount of avaiable groundwater. The decommissioning shall be completed by 2011, so that the water level of Stechlin Lake and Nehmitz Lake at the Nehmitz Lake weir can be raised by another 15 cm.

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Literature / Links

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Picture sources: baerens & fuss (map); Andreas Jost (1)-(4); EU-LIFE-Projekt Stechlin, Anke Hollerbach (5)
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