Conservation on Lake Cerknica, Slovenia

Year of issue

2025

Summary

The project aimed to create suitable conditions for protecting and conserving species and habitats at Lake Cerknica, Slovenia’s largest intermittent lake, while promoting sustainable agriculture, forestry, fishing, tourism, recreation, and education in harmony with natural values. Coordinated by Notranjska Regional Park with the Biotechnical Faculty, the Municipality, and Inženiring za vode d.o.o., it was funded by the LIFE programme.

Following the initial actions (2007–2009) – including land purchase, riverbed restoration, and wet grassland management – successive LIFE projects have continued and expanded this work. LIFE STRŽEN (2017–2023) restored over 2 km of the Stržen riverbed, improved hydrological conditions over 60 ha, enhanced habitats for priority bird species such as the bittern, and reduced tourism pressures. The ongoing LIFE TRŠCA (2023–2029) focuses on managing marsh habitats for waterfowl, adapting mowing regimes, removing excess biomass, reducing disturbance, and introducing innovative biomass use. Recent monitoring combines field surveys and satellite imagery to track water levels and reedbed dynamics, ensuring long-term ecological resilience and adaptive management of this Natura 2000 site.

Photo Gallery



Location

45.7425, 14.363

Project

NWRM

National ID

Slovenia_03

Sector

Hydromorphology

Installation Date

2009-12

Implementation status

Completed

Contact

Jovanka Ignjatovic, REC

Overview

Location of the project

Lake Cerknica (Cerkniško jezero), within Notranjski Regional Park, Municipality of Cerknica, Inner Carniola, Slovenia.

Country

Slovenia

NUTS2 Code

Zahodna Slovenija

Sponge measures implemented in the case study

Re-meandering

Wetland restoration and management

Stream bed re-naturalisation

Objectives

The project aims to ensure long-term favorably conditions for the conservation of turloughs and other endangered habitat types and associated plant and animal species at Lake Cerknica. It simultaneously promotes sustainable development of local agriculture, forestry, fishing, tourism, recreation and education in accordance with natural values.

Involved partners

Authority type	Authority name	Authority role	Comments	Authority responsibility

Nature park	Notranjski regijski park	Initiation of the measure	Public institute established by municipality of Cerknica. Project coordinator and manager (LIFE Cerknica, LIFE STRŽEN, LIFE TRŠCA). Landowner of purchased parcels. Oversees maintenance (mowing, biomass removal). Leads monitoring programmes (hydrology, habitats, species, visitor impact).	Responsible
Research institute / University	Biotechnical Faculty, Department for Biology	Implementation	Faculty under University of Ljubljana	Supporting
Other	Inženiring za vode	Determination of design details of the measure	Private company	Supporting
National water authority	Ministry of Environment	Financing	Ministry	Supporting
Local water authority	Municipality of Cerknica	Financing	Support for land-use planning, infrastructure for visitor management	Responsible

Site Information

Climate Zone

Cool temperate moist

Precipitation

1700.00 mm

Temperature (°C)

8.00 °C

Evapotranspiration

708.00 mm

Runoff

6.00 mm

Elevation range

553

Vegetation class

Cerknica Lake is one of the most important Slovenian Karst sights. When the water level is highest it covers over 29 km2. Lakes most significant characteristic is its intermittent nature. Due to this variability, special ecological conditions were created on the lake that enables rich diversity of animal and plant species and their habitats. The area is mostly covered with permanent pasture areas and marshy areas. Due to frequent flooding the extensive agricultural land use is dominated (wet meadows, pastures, fields).

WFD Ecological status

Good

WFD Chemical status

Failing to achieve good

Water quality status

Historic channelization and sinkhole works altering the regime

Design and Implementation

Project scale

Meso

Project scale specifications

It covers the Lake Cerknica and Cerkniško polje area within Notranjski Regional Park, a Natura 2000 site of regional importance. The interventions (river re-meandering, wetland and marsh management, habitat restoration) target a sub-basin and its floodplain rather than a single point site, but are not at the scale of an entire national catchment.

Project area

2900

Area subject to Land use change or Management/Practice change (ha)

3.00 ha

Size

1400.00

Size unit

m

Financing

Total cost

6803449.00 €

Costs other information

Initial LIFE project – LIFE06 NAT/SLO/000069 (2007–2009) : €1,813,010
Follow-up LIFE project – LIFE16 NAT/SI/000708 (LIFE STRŽEN, 2017–2023) : €1,776,122
Current LIFE project – LIFE22 NAT/SI/LIFE TRŠCA (2023–2029) : €3,214,317

Financing authorities

Authority name	Type of funding	Comments	Financing share
European Union	EU-funds: LIFE+	Initial LIFE project – LIFE06 NAT/SLO/000069 (2007–2009) : €1,324,492 (73 %) Follow-up LIFE project – LIFE16 NAT/SI/000708 (LIFE STRŽEN, 2017–2023) : €1,333,708 Current LIFE project – LIFE22 NAT/SI/LIFE TRŠCA (2023–2029) : €2,410,737	74 %
Slovenia	National funds	Initial LIFE project – LIFE06 NAT/SLO/000069 (2007–2009) : €488,518 Follow-up LIFE project – LIFE16 NAT/SI/000708 (LIFE STRŽEN, 2017–2023) : €442,414 Current LIFE project – LIFE22 NAT/SI/LIFE TRŠCA (2023–2029) : €803,580	23 %

Policy and Governance

Policy description

The Cerknisko Jezero project substantially improved the quality of the Cerknica Lake Natura 2000 site and raised awareness of the sites importance locally and beyond. It demonstrated new approaches to nature conservation in Slovenia, particularly the purchase of farmland for permanent protection and advanced mowing and mulching techniques on wetlands.

Land ownership

A mix of ownerships: part of the land was purchased for conservation by Notranjski Regional Park. The rest includes private parcels (farmers, local residents) and other public land within the Natura 2000 site.

Policy targets

Improved Biodiversity

Groundwater Recharge

Increase Water Storage

Runoff control

Oher Societal Benefits

Part of a wider plan

Yes

Wider plan

Wider plan type	Name
National	Spatial Development Strategy of Slovenia
Regional	Decree on the spatial and social components of a long-term plan of the municipality Cerknica
Local	Amendments to the general planning conditions Municipality of Cerknica

Public consultation

No

Consultation activities

Activity stage	Activity type	Key issues	Comments

Implementation phase	Popularization of the project	The project was highly active in engaging the public, including through information notices in a shopping centre, published materials and lakeside boards.	Public was informed about the course of the project on more different levels: Lectures and other activities for local and general public (31 lectures for professional, local and general public were performed that had very good media support both on local and national level), Articles in local and national newspapers (102 articles in printed media, mostly in local newspapers were published. 22 articles were also published in the monthly bulletin eNatura under the Ministry of Environment and Spatial Planning), Announcements on radio and TV stations (There were 117 publications on local and national TV and radio stations, concerning the LIFE project. The project group regularly cooperated with local radio stations, the public was informed about the importance of nature protection and conservation. The project group also cooperated in radio show named Rompompom for young people, for which 5 broadcasts were prepared), Contributions concerning the nature protection and conservation were published monthly on the local TV station (the project and work within was presented in several talk shows on the local TV station. The advertisement for buying agricultural land in the area of Lake Cerknica was also regularly transmitted).
Implementation phase	Work with youth	Project conducted nature protection actions with a network of schools.	As a future investment, one of the project team's goals was to meet all schoolchildren that live in Notranjska Regional Park and present them the project and actions within it. The following activities within this action were carried out: Establishment of Nature protection network of schools and kindergartens of Notranjska Regional Park, Educational activities, Preparation of educational materials, Summer research camps).

Has contractual arrangements

No

Impacts and Monitoring

Monitoring System

Monitoring requirements

Monitoring is carried out by Notranjski Regional Park with support from project partners and experts. It is required under LIFE projects to assess habitat conditions, species populations, and hydrological dynamics.

Monitoring parameters

Parameters include hydrological conditions (lake water level, duration of inundation, reedbed flooding) monitored both in the field and via satellite imagery; vegetation dynamics in wet meadows and reedbeds, assessed through biomass surveys, mapping, and phenological observations; and target species populations, notably waterfowl such as the bittern (Botaurus stellaris), ferruginous duck, and red-necked grebe, monitored during breeding seasons. Socio-environmental factors such as visitor numbers and disturbance levels are also recorded to evaluate the effectiveness of access management measures.

Maintenance

Maintenance requirements

The ongoing maintenance consists mainly of seasonal mowing of wet meadows and marshes to prevent overgrowth, and periodic removal of excess biomass in targeted reedbeds and marsh habitats.

Impact Assessment Methodology

Performance impact assessment method

Unknown

Socio-economic Impacts

Direct benefits information

Tourism management: LIFE STRŽEN reduced visitor disturbance to sensitive habitats by an estimated 80 %, thanks to rerouted trails, regulated access, and parking reorganisation.
Recreation and eco-tourism: improved visitor infrastructure (viewing points, information panels) supports nature-based tourism in a controlled way.
Agriculture: maintained traditional mowing and hay production (≈ 500 t/year from 26 ha), providing fodder for local farmers and preserving agri-environmental payments.
Employment: LIFE projects created jobs for restoration works, biomass harvesting, monitoring, and guiding (no exact number reported).

Biophysical impacts: Hydrology

Information on retained water

Raised groundwater level at Dujce fen through re-meandering of ~1.4 km of the Stržen riverbed (LIFE06). Improved hydrological conditions over 60 ha of turlough habitat after LIFE STRŽEN (2017–2023) restoration of 2.1 km of river meanders. Increased retention capacity in the restored area, extending flooding duration in certain zones and enhancing soil moisture.

Biophysical impacts: Biodiversity

Improved biodiversity

Yes

Information on improved biodiversity

Improved water regime has a positive impact on the prevalence and size of certain Natura 2000 habitat types (depressions on peat substrates, transitional bogs, meadows). Modified water regime has a direct impact on macrophyte, amphibious and wading species.
Slower flow of water and lower water level fluctuations affect a positive impact on the breeding of witnesses and reproduction and spawning green frogs, as well as spawning fish.
Modified water regime allows for long-term species diversity of dragonflies, water beetles and caddisflies.

Biophysical impacts: Water & Soil Quality

Water quality overall improvements

Not relevant for this application

Soil quality overall improvements

Not relevant for this application

Biophysical impacts: Others

Ecosystem impact climate regulation

No specific impact

Information on ecosystem impact climate regulation

Not relevant for this application

Lessons Learned

Key lessons

The project was aimed at ensuring long-term favorable conditions for the conservation of endangered habitat types and associated plant and animal species at Lake Cerknica. The main focus was given to the restoration of the natural watercourses with the aim of prolonging the drainage time and holding back the water in the driest summer months. This contributed to raising the level of groundwater, particularly close to riverbeds or watercourses, crucial for conserving endangered habitat types and species.

The project substantially improved the quality of the Cerknica Lake Natura 2000 site and raised awareness of the site’s importance locally and beyond. It demonstrated new approaches to nature conservation in Slovenia, particularly the purchase of farmland for permanent protection and advanced mowing and mulching techniques on wetlands.

A key lesson has been the importance of ensuring continuity through successive projects. The gains from the initial restoration were strengthened and expanded in later phases, showing that long-term planning is essential for complex wetland systems. Another is that integrating conservation measures with traditional land uses, such as seasonal mowing and haymaking, can align biodiversity goals with local livelihoods, improving acceptance and participation.

Visitor access management proved effective in reducing disturbance to sensitive bird species while still supporting nature-based tourism. Finally, combining traditional field surveys with modern tools like satellite imagery provided an efficient and scalable way to monitor hydrology and vegetation, enabling truly adaptive management.

Barriers

Comments
No barriers have been experienced

Drivers

Driver type	Driver role	Comments
Organisation committed to it	Main driver	Cerknica lake is one of the most important Slovenian Karst sights known worldwide. In the past people wanted either to drain or to flood the lake for their benefit. Many interventions were carried out on lakes watercourses and sinkholes that changed the water regime on the lake. The result of the changed water regime is a lower ground water level and faster drying of the lake that has a negative influence on water organisms and habitats. With the act and establishment of a public institution Notranjska Regional Park in 2002 the lake has gained the legal protection.

Success factors

Success factor type	Success factor role
Attitude of relevant stakeholders	Main factor
Financing possibilities	Main factor
Communication activities	Secondary factor

Sources

Sources

Cerknisko Jezero - Intermittent Cerknica Lake, Project Description

Case study: LIFE 06 NAT/SLO/000069 Intermittent Lake Cerknica

Project web site

Notranjski regijski park, Layman's Report

Action Plan for Renaturation of watercourses in the area of Cerknica Lake (Akcijski plan renaturacije vodotokov na obmoÄ ju Cerkniškega jezera) - available in Slovenian language

LIFE STRŽEN (LIFE16 NAT/SI/000708, 2017–2023)

LIFE TRŠCA (LIFE22-NAT-SI-LIFE-TRSCA, 2023–2029)

Cerknica Lake – Slovenia (DEIMS.iD entry)

Assessment of climatic and anthropogenic effects on flood dynamics in the Cerkniško Polje (SW Slovenia) based on a 70-year observation dataset

Cerkniško jezero