



The LifeWatch ERIC Biodiversity
& Ecosystem eScience Conference
PLOVDIV, BULGARIA 7-10 JULY 2026

Potential for the Application of Nature-based Solutions for the Sustainable Management of the Tundzha River and the Koprinka Reservoir

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Purpose of this study

To assess the theoretical and practical possibilities for implementing nature-based solutions in the Tundzha River watershed and the Koprinka Reservoir as a sustainable alternative for management, improving water quality, and reducing the risk of flooding.

Current Issues:

In recent years, Southeast Europe has been subjected to increased climate stress, characterized by more frequent and prolonged droughts.

The critically low water levels in the Koprinka Reservoir and the reduced flow of the Tundzha River during the dry summer and fall months highlight two critically interrelated problems:

- **Hydrological deficit:** Limited water resources for irrigation, energy, and industry.
- **Deterioration of water quality:** An environmental impact on biodiversity.

Materials and Methods:

Achieving the research objectives is based on a multidisciplinary approach. The methodological framework is structured in three consecutive stages:

- spatial identification of critical zones
- assessment of hydrochemical status
- assessment of the theoretical and practical possibilities for implementing nature-based solutions (NBS).



Koprinka Reservoir – June 2025
Critically low volume, daily monitoring by the Ministry of Environment and Water



TIMELINE OF WATER LEVELS (June 2025 – May 2026)

- Critical Decline Phase (June–September 2025)

Date	Available volume	% of the total volume	Notes
June 2025	~10,13% of the usable volume	~10%	Water levels are low; the irrigation season continues
August 2025	~32 milion m ³	~19%	Critically low water level; hundreds of dead fish
September 2025	~7,8 milion m ³	~5,5%	Absolute minimum; close to dead volume



TIMELINE OF WATER LEVELS (June 2025 – May 2026)

- Recovery Phase (October 2025 – January 2026)

Date	Available volume	% of the total volume	Notes
October 2025	33,214 milion m ³	23,35%	Improvement Following Fall Rainfall
November 2025	78,257 milion m ³	59,56%	Stabilizing Water Levels
February 2026	128,684 milion m ³	~90%	A sharp rise following heavy rainfall and snowmelt



TIMELINE OF WATER LEVELS (June 2025 – May 2026)

- Controlled Release Phase (February–May 2026)

Date	Available volume	% of the total volume	Notes
February 2026	~ 130,070 milion m ³	~ 91%	A controlled release is beginning
April 2026	~117 milion m ³	~ 82%	Inspection Confirms Stable Condition
May 2026	~ 122,75 milion m ³	~ 86%	Useful volume: ~85%;

When levels are critically low

Observed Negative Impacts

- Rise in water temperature
- Decrease in dissolved oxygen
- Mass fish deaths (hundreds of fish)
- Increased risk of eutrophication



Koprinka Reservoir – June 2025

Agriculture in the Study Area

- **Perennial Crops (Roses and Lavender)**
- **Fields and Grain Production**
- **Private Agricultural Properties Available for Lease**
- Almost the entire reservoir and its surrounding shores are located within **Protected Area BG0000261 “Koprinka Reservoir”** under the **Habitats Directive (Natura 2000)**



picture - <https://www.photomoments.bg/bg/post/pavel-banya>

Opportunities for Implementing Nature-based Solutions

- **Restoration of riparian wetlands**
- **Planting of riparian vegetation**
- **Creation of floodplains**
- **Construction of green buffer zones to prevent agricultural runoff and pesticides**
- **Erosion and sediment control**



Koprinka Reservoir – March 2026



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THANK YOU!

Questions?

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