SHALLOW LAKES 2021

BOOK OF ABSTRACTS

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10th International Shallow Lakes Conference

Towards a landscape ecology of shallow lakes

Shallow lakes are important freshwater ecosystems worldwide, contributing in important ways to biodiversity and ecosystem services locally as well as at the landscape scale. In addition to the traditional topics addressed on previous shallow lakes conferences, we take the opportunity of this 10th meeting to devote special attention to landscape ecology and its importance to understand the structure and function of shallow lakes. Shallow lakes are embedded in heterogeneous landscapes, and their density and surface area are important determinants of landscape connectivity that influence metapopulation, metacommunity and metaecosystem dynamics. Landscape ecology focuses on the relationships between spatial pattern and ecological processes, and considers spatial scales that extend well beyond the individual system traditionally studied by ecologists. From a landscape perspective, conceptual frameworks have been proposed to emphasize the importance of ecosystem boundaries, including their permeability and resistance to flows of energy and materials and to dispersal of organisms, and the challenges of managing systems to maintain biodiversity and ecosystem services at the landscape scale. This fosters a view of land-water interactions that encompasses the integrated sets of lakes, streams and wetlands that occur in a landscape. Understanding the implications of the dynamic landscape mosaic for ecosystem processes remains a frontier in both ecosystem and landscape ecology, and is actualized also in the ongoing global change perspective. Despite the great advances in shallow lake ecology over the last decades, we do not yet sufficiently grasp all consequences of regional processes for the structure and function of shallow lakes. We think there is great opportunity to integrate ecological theories that address both the role of local and spatial processes for population, community and ecosystems dynamics in such lakes, and to consider the implications for their management. Thus, we invite shallow lake ecologists to join the 10th International Shallow Lakes Conference, to present their recent work on shallow lake ecology and discuss current challenges and opportunities toward a landscape ecology of shallow lakes.

In this book, you will find all the abstracts submitted to the conference and some video links to the work whose authors allowed us to include them in this book. Due to the covid-19 pandemic, the conference that would occur in June 2020 in Natal, Brazil, became a virtual (online) conference to guarantee the safety of all participants and democratize access to the conference. We hope you enjoy this first virtual shallow lakes conference from 1st to 5th March 2021 and thank you for your interest and participation in the conference.

José Luiz Attayde
President of the Organizing Committee

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APPLICATION OF TBI INDEX IN THE ECOLOGICAL STATUS ASSESSMENT OF THE SHALLOW EOLIAN LAKE LUDAŠ (SERBIA)

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SESSION 12

LINK TO THE STUDY VIDEO

Shallow saline lakes are unique habitats, highly susceptible to negative effects of climate change and adverse anthropogenic activities. Recently, several indices, including a trait-based index (TBI), have been developed for the assessment of their ecological status. The TBI index is calculated as a ratio of traits (diatom groups) that indicate good or excellent ecological conditions (motile species with small cell size and more elongated valves) and traits that are related to degraded ecological status (low and high profile ecological guilds and planktic life form). We tested the applicability of the TBI index in Lake Ludaš that was originally an alkaline saline lake. Epiphytic diatoms together with water samples for chemical analyses, were collected in June 2019 at the southern part of the lake where a dense population of Ceratophylum demersum was observed. A total of 35 diatom taxa were identified in this hyposaline lake. The highest number of species belonged to the genus Nitzschia. Typical sodic water taxa for this part of the Pannonian Plain, such as Nitzschia austriaca, Navicula veneta and N. wiesneri, were not observed. Instead, species characteristic for disturbed saline habitats, for example Navicula wendlingii and Tabularia fasciculata, were recorded. In Lake Ludaš, functional groups of diatoms connected with high conductivity reached only one-third of the total abundance. On the other hand, a higher percentage of low and high profile guilds and planktic diatoms were recorded. Consequently, the TBI index indicated the low ecological status of Lake Ludaš, and confirmed the negative effect of a disturbed hydrological regime.

saline lake diatoms TBI index ecological status assessment

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