# SHALLOW LAKES 2021

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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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# ABANDONED ARTIFICIAL SALINE POND – SAFE PLACE FOR RARE/ENDANGERED SPECIES


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LINK TO THE STUDY VIDEO

Inland saline ecosystems are characterized by very specific and unique biodiversity. Still, biodiversity studies of saline habitats are mostly focused on lakes and ponds of natural origin. We investigated the biodiversity of submerged macrophytes, phytoplankton and phytobenthos in the saline pond near Kikinda city (in Vojvodina, the northern province of Serbia) that was artificially made by commercial clay digging and abandoned in the landscape of the city suburban over time. Collecting samples and field measurements were conducted in July 2018. The dense cover of macrophytes in the litoral area consisted of a carpet of Chara canescens with sparse specimens of Zannichellia palustris. This is the second currently known locality of C. canescens in Serbia which was recently rediscovered. Despite the relatively wide range of this typically brackish species, populations of C. canescens are isolated, and it is worldwide considered threatened/endangered and rare.A total number of 27 algal taxa were detected in phytoplankton. A few taxa characteristic for saline or brackish water were detected – Oocystis submarina, Merismopedia warmingiana, Euglena proxima. However, the majority of detected taxa can be characterized as halotolerant. In the phytobenthic community 15 diatom taxa were recorded. The most dominant genus was Nitzschia (4 species). Brackish water species were also recorded (e.g. Tryblionella hungarica, T. apiculata). Navicymbula pusilla, first recorded in Serbian flora in 2018, was also discovered here. Generally low diversity, typical for saline habitats, was observed in relation to all communities, however typically brackish, rare/endangered species were recorded. Since our preliminary results (obtained after one sampling occasion) indicate the potential for detecting specific biodiversity in macrophyte, phytoplankton, and phytobenthic communities in one artificial saline pond, we propose conducting a detailed study of this and other ponds of similar origin.

artificial saline pond, biodiversity, macrophytes, phytoplankton, phytobenthos

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