

SEASONAL FLUCTUATIONS IN THE DIVERSITY OF MACROPHYTES AND THEIR ABUNDANCE IN LAKE PRESPA



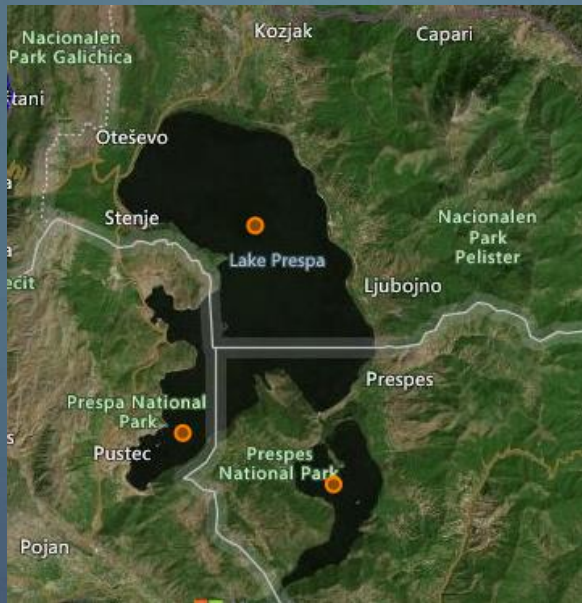
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INTRODUCTION

Lake Prespa is the second largest lake in north Macedonia. It is situated in the south-western part at an altitude of 853 m. Lake Prespa. Its a transboundary lake with surface area of 274 km², shared by the r. Macedonia (176.8 km²), Albania (49.4 km²) and Greece (47.8 km²). Its maximal length is about 28 km, and maximal width about 17 km, and deep 54 m. The lake is divided into two parts: Macro and Micro Prespa.



MACROPHYTE VEGETATION FROM LAKE PRESPA

Macrophyte vegetation has a significant role in the circulation of substances in the littoral zone of Prespa Lake. Macrophyte plants are important producers of oxygen and represent natural mechanical and biological filters of lake water. Macrophyte plants also provide food, habitat and shelter for a large number of invertebrate and vertebrate organisms from the coastal zone.

In the littoral region of Lake Prespa are distributed different populations of macrophyte vegetation which always presents vertical zonal reparation. Emergent macrophytes, and floating macrophytes, grow at smaller depths and closer to the coastline, and submerged macrophytes, grows at bigger depth.



MATERIAL AND METHODS

Standard limnological methods (Lind 1986; Wetzel 1975) were used to realize the project goals and tasks during the field research for the determination of the qualitative composition of the macrophyte vegetation from Lake Prespa. The assessment of plant abundance (density) was made using a five degree scale (Tüxen&Preising 1942 in Melzer 1999).



Van Veen Grab For Collecting The Samples

The sampling of macrophytes was conducted in 4 seasons (spring, summer, autumn and winter) in 2023., in 7 different localities in the lake (Oteshevo, Stenje, Ezerani, Asamati, Krani, Konjsko, and Nakolec).



PHOTOS DURING THE FIELD TRIPS FROM LAKE PRESPA



RESULTS

The results showed that a total of 10 macrophyte species were recorded during the research, with different densities at different depths and seasons.

The list of registered macrophyte species from the research:

Potamogeton perfoliatus L.,

Potamogeton lucens L.

Potamogeton crispus L.

Ceratophyllum demersum L.

Ceratophyllum submersum L.

Myriophyllum spicatum L.

Myriophyllum verticillatum L.

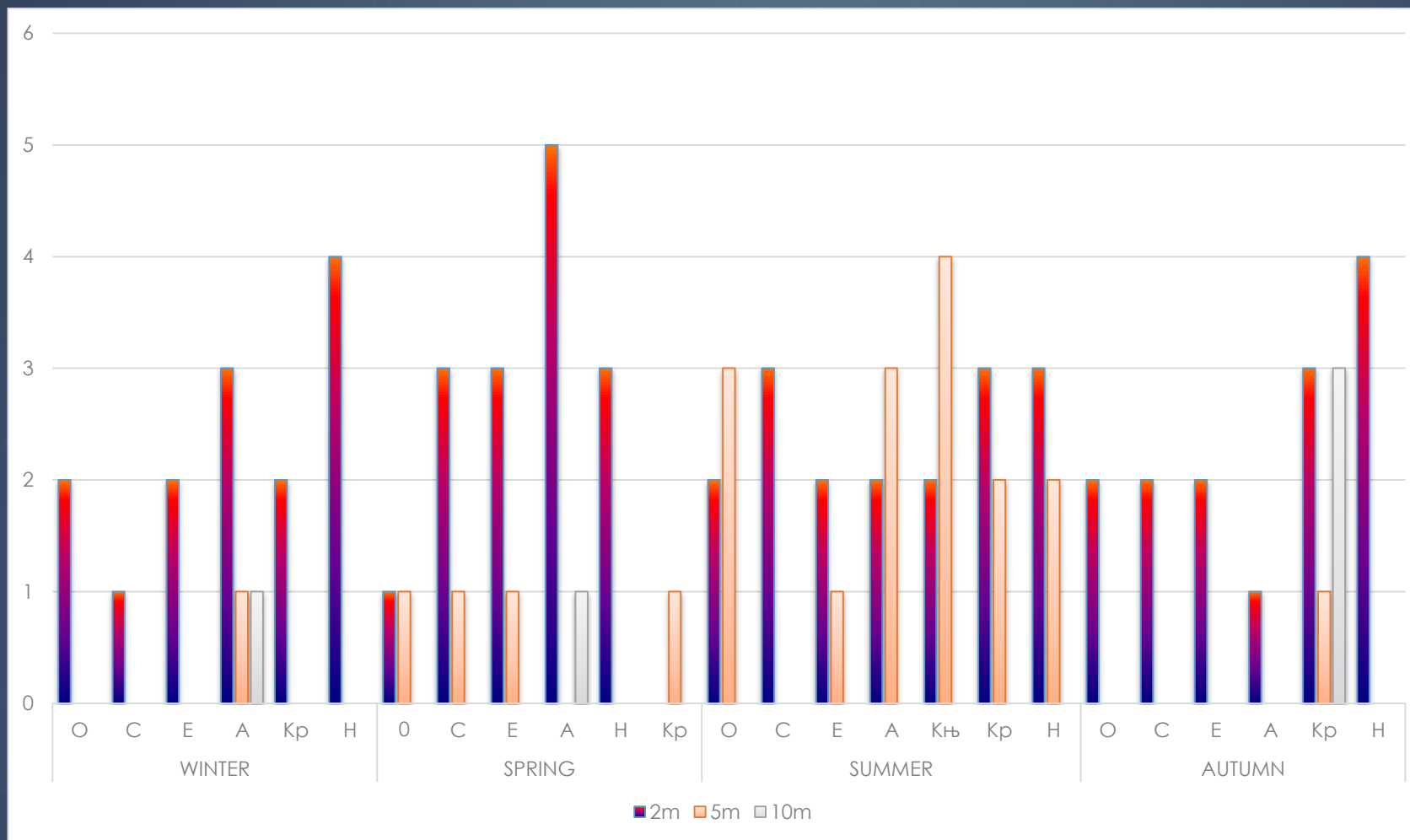
Vallisneria spiralis L.

Najas marina L.

Chara imperfecta A.Braun.



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CONCLUSIONS

- ▣ The data obtained from the investigations of the macrophyte vegetation from all seasons (winter, spring, summer and autumn 2023) show that the number of registered macrophyte species is the highest at a depth of 2 meters, and this is during the summer period. The smallest number of registered macrophyte species is recorded in the spring and winter period at a depth of 10m.
- ▣ The number and abundance of the registered macrophyte species, and therefore the biomass is the highest in the current summer period in all the investigated localities. In winter, macrophyte species are more absent and occur with a small number, low abundance, but also very low biomass.
- ▣ *Ceratophyllum demersum* and *Ceratophyllum submersum* are registered in all seasons with the abundance of 3 and 4. *Myriophyllum spicatum* was recorded with the highest abundance (5) during the summer period (in 2 localities).



CONCLUSIONS

- ▣ Differences in the diversity and abundance of macrophytes are the result of the environmental conditions present in the different regions of the littoral zone of the lake: the configuration of the bottom, the type of substrate, the water level, temperature, light, and above all, the amounts of nutrients, etc.
- ▣ The increased anthropogenic impact in Lake Prespa also affects the populations of the macrophytes.



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