Species diversity of Rotifera, Crustacea (Copepoda and Cladocera) as the most common food for the omnivorous ichthyofauna of Lake Prespa

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INTRODUCTION

The great scientific importance of Lake Prespa, its multifunctionality as a reservoir for water supply, fishing, sports and recreation, imposes the need for permanent monitoring of water quality. Due to the fact that several rivers flow into Lake Prespa, that carry large amounts of allochtonous material, it is necessary to determine and monitor the impact of those rivers on the degree of water saprobity in the explored littoral region of the Lake. Within the PONT project, the species diversity of Rotifera, Crustacea (Copepoda and Cladocera), which are the most common food for the omnivorous ichthyofauna, was monitored.

MATERIAL AND METHODS

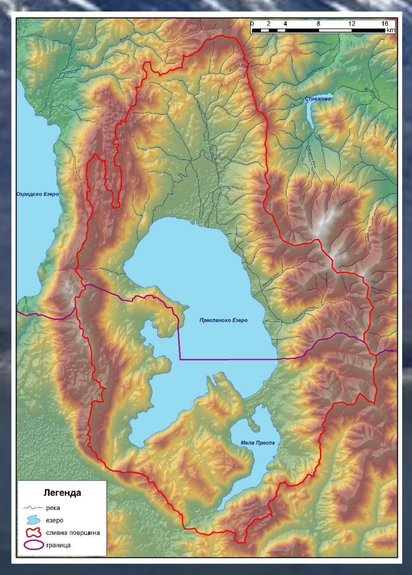


Figure 1. Lake Prespa map

Study site

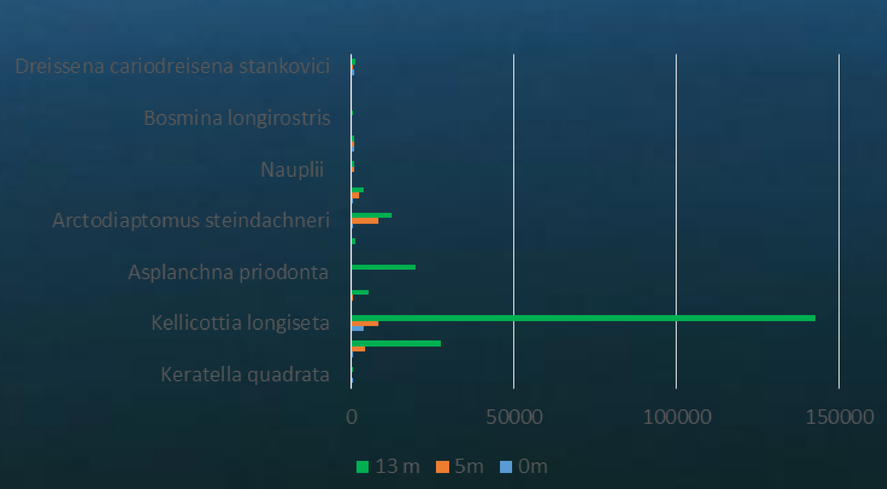
Lake Prespa (Fig. 1) is the second largest natural lake in Macedonia. Situated at an altitude of 853 meters, it covers an area of 284 km^2, sharing its borders with Greece and Albania. It lies in a tectonic valley, and like Lake Ohrid, it was formed in the Pliocene age. Lake Prespa is rich with 24 endemic taxa, 13 fish species, six of which are endemic. Due to its relative shallowness (its depth reaches only just over 50m), the lake can get quite warm, up to 25 C degrees in the summer. Since 1995, Lake Prespa is included on the Ramsar List of Important Wetlands.

Data collection

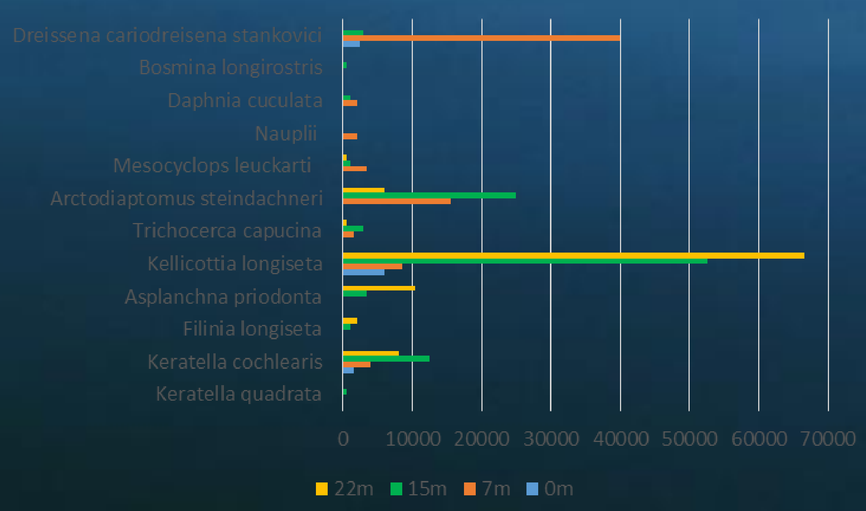
Zooplankton was collected by a 5-liter Ruttner sampler, filtered in situ through a sieve (45 µm mesh-size) and preserved in 4% formalin. The specimens were quantitatively analysed under a Laica DM IRB microscope (100 to 600× magnification). Identification of the species was undertaken according to the guides provided by Koste (1978), Amoros (1984) and Einsle (1993).

RESULTS AND DISCUSSION

Forty-four rotifers, 20 cladocerans, 5 Copepods and one representative from Mollusca were recorded in the littoral, while in the pelagic of the lake are recorded 9 rotifers, 5 cladocerans, 3 copepods and one representative from Mollusca. For all recorded species it is characteristic that they occur in waters rich in calcium, and acidic environment. While in terms of electrical conductivity they are present in both, in waters with low and in waters with high electrical conductivity. On the basis of Saprobic index, the recorded species range from 1.1 to 2.2.



Qualitative and quantitative composition of zooplankton in Lake Prespa central point (July, 2022)



Qualitative and quantitative composition of zooplankton in Lake Prespa, sampling site Kazan (July, 2022)

The obtained results, within this project, should be intensively used in the direction of preventing the accelerated eutrophication of the Lake. With the results of research on other projects in the future, they should complete the picture of the condition of the three sides of the Lake. This provides a starting point for highlighting the parameters and sites that should be incorporated in long-term and continuous monitoring of Lake Prespa.

CONCLUSIONS

- The eutrophication processes of Lake Prespa are qualitatively and quantitatively noticeable
- To introduce a special cadastre for the use of biodegradable pesticides on the three sides of the Lake
- To prohibit the use of pheromone preparations
- To animate the parameters that should be incorporated into long-term and continuous monitoring of Lake Prespa

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