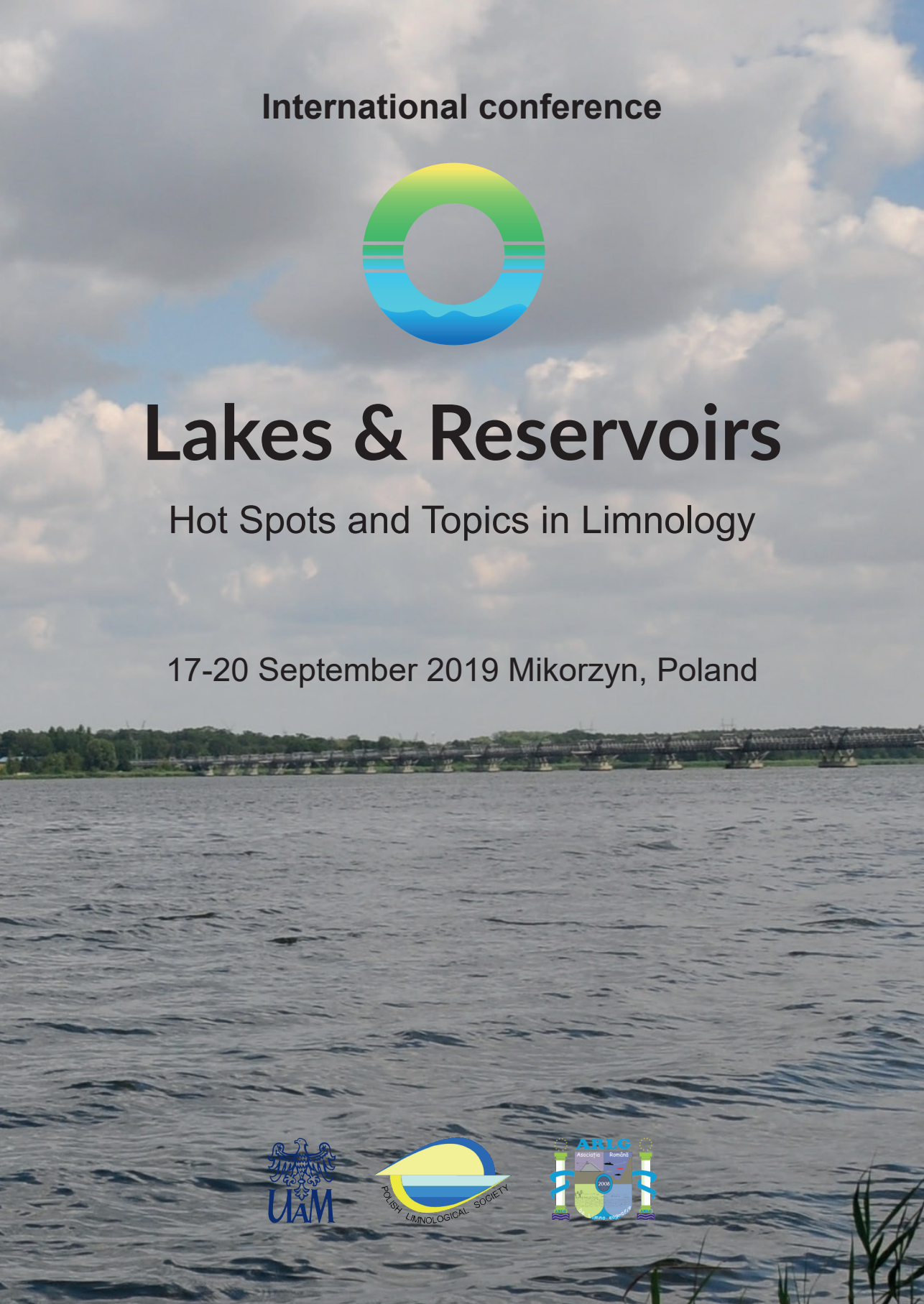
International conference

Lakes & Reservoirs

Hot Spots and Topics in Limnology

17-20 September 2019 Mikorzyn, Poland



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Book of abstracts

Editors

Renata Dondajewska-Pielka, Piotr Klimaszyk, Piotr Rzymski

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Multiproxy Study of the Early Holocene Limnic Deposits of the Batizovské Lake (High Tatras, Slovakia)

Vidhya M[1], Žatková L[1], Chamutiová T[2], Trnková K[3], Milovský R[1], Starek D[1], Šurka J[1], Dhavamani R[1], Hamerlík L[2], Pipík R[1], Bitušík P[2]

[1] Earth Science Institute, Slovak Academy of Sciences, Banská Bystrica, Slovakia
[2] Department of Biology and Ecology, Matej Bel University, Banská Bystrica, Slovakia
[3] Department of the Environment, Matej Bel University, Banská Bystrica, Slovakia
e-mail: vmarina@savbb.sk

We analyzed four biological proxies (diatoms, pollens, chironomids and biomarkers) in limnic deposits of Batizovské lake (1886 m asl)for reconstructing the paleo-environmental conditions during the deglaciation and manifested as changes in biota. The sonar and coring investigations show the glacial moraine at the bottom of the lake, 3.5 m thick late-glacial sequence of fine rhythmically laminated silt that gradually transformed to Holocene gyttja up-core. One large and two small sub-bottom springs affect the lake sedimentation processes. The lake underwent seasonal stratification changes of the water column since the origin of the lake as documented by biomarkers.

The cold stenothermic, ultraoligotrophic and extremely poor chironomid assemblages dominated the 14C-dated sequence between 12,500 to 9,375 cal y. BP in the laminated silt and transitional deposit from silt to gyttja. The chironomid assemblages are characterized by abundance of littoral *Micropsectra radialis*-type and cold profundal *Pseudodiamesa nivosa*. *Pinnularia nodosa, Stauroneis smithii, Stauroneis producta* prevailed in the diatom assemblage and indicate a stream influence, low nutrient and low pH conditions. In the pollen assemblage dwarf shrubs *Betula* and *Salix,Pinus sylvestris*t. and of herbs *Artemisia* and *Gramineae*were dominantbut from9,895 cal y. BP their dominance decreased and showed an appearance of trees *Picea*and*Ulmus*.

Above the horizon 9,375 cal y. BP, taxa richness increase up-core along with the remarkable appearance of thermally plastic chironomid taxa *Procladius* sp., *Zavrelimyia* sp. and *Micropsectra contracta*-typeand gradual decrease in the abundance of *Pseudodiamesa nivosa*. The sedimentary record is rich in freshwater diatoms of genera *Sellapohora, Pinnularia*, *Encyonema* followed by *Staurosirella pinnata,Gomphonema pumilum*, *Pseudostaurosira brevistriata,Caloneis* sp. and showing a common trophic tolerance ranging within oligotrophic to mesotrophic and preferably a low to medium electrolyte conditions. The peak chain length of alkanes changes upwards towards longer chains (31 and 33 carbons) which indicates shift to higher air temperature and supported also by an appearance of the temperate forest trees *Corylus, Quercus, Alnus, Tilia* in the valley. Despite a prevalence of conifers in pollen spectrum, lack of resin terpenoids in sediment extracts indicate no presence of conifers around the lake.

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