

**PHYTOPLANKTON RESPONSE TO EXPERIMENTAL THERMOCLINE
DEEPENING: A MESOCOSM EXPERIMENT**

A fitoplankton közösség termoklin mélyítésre adott válasza egy
mezokozmosz kísérlet során

Géza Balázs SELMECZY¹, Lothar KRIENITZ², Peter CASPER² & Judit PADISÁK^{1,3}

¹Department of Limnology, University of Pannonia, Egyetem u. 10, Hungary, H-8200 Veszprém, Hungary; ²Department of Experimental Limnology, Leibniz-Institute of Freshwater Ecology and Inland Fisheries, Alte Fischerhütte 2, 16775 Stechlin, Germany; ³MTA-PE Limnology Research Group, Egyetem u. 10, Hungary, H-8200 Veszprém, Hungary; e-mail: selmeczy.geza@gmail.com

A number of modelling results suggested thermocline shifts as a consequence of global climate change in stratifying lakes. Abundance and composition of the phytoplankton assemblage is strongly affected by the stratification patterns, therefore, change in the thermocline position might have a substantial effect on this community or even on the whole lake ecosystem. In this study, thermocline depths in large mesocosms installed in Lake Stechlin (Germany) were deepened by 2 meters and phytoplankton changes were analysed by comparing changes to untreated mesocosms. Higher amounts of SRP were registered in the hypolimnion of treatment mesocosms than in the controls, and there were no differences in the epilimnion. Small but significant changes were observed on the phytoplankton community composition related to the effect of deepening the thermocline; however, it was weaker than the yearly successional changes. The most remarkable differences were caused by *Planktothrix rubescens* and by chlorophytes. *P. rubescens* became strongly dominant at the end of the experiment in the mesocosms, and in the open lake as well. The results of the experiment cannot clearly support the proliferation of cyanobacteria in general; however, the deepened thermocline can modify the behaviour of some species, as was observed in case of *P. rubescens*.