

Changes of the Phytoplankton Abundance and Structure in the Biosphere Reserve Srebarna (Northeastern Bulgaria) in Relation to Some Environmental Variables

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Abstract: Phytoplankton of the Srebarna Lake was investigated during the period from 2002 to 2005 in respect to the total numbers, biomass and taxonomical structure. The interannual, spatial and seasonal variability of the different algal groups in relation with changes of the main chemical and physical factors were separately examined by means of RDA analysis. Interannual changes were the most pronounced and the main explanatory factor was the change of the water level. The increase of water level causes a decline of the total phytoplankton numbers and biomass, decrease of the share of Cyanophyta to the total biomass and its substitution by Cryptophyta. Pyrrhophyta showed strongly negative and Cryptophyta strongly positive relation with the water level. Total phytoplankton biomass showed a positive correlation with $\text{NO}_3\text{-N}$ on interannual basis. Chlorophyta and Cryptophyta were positively related to $\text{NH}_4\text{-N}$. Despite the shallowness and polymictic character of the lake, the stratification is also found to be an important factor for the phytoplankton development.

Key words: Srebarna, shallow lake, phytoplankton, Oscillatoriales, RDA analysis