

## **Changes of the phytoplankton assemblage and related characteristics in the Srebarna Lake (Northeastern Bulgaria) after restoration activities**

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The Srebarna Lake is located on the right-hand bank of the Danube River in Northeastern Bulgaria. It is a Protected Site from 1942 and after that a Nature Reserve (since 1948), Ramsar Site (1975), UNESCO Biosphere Reserve (1977) and from 1983 it is included in the List of the World Heritage Sites under the UNESCO Convention. Several stages in the development of Srebarna Lake depending on the man-induced changes can be marked off (Michev et al., 1998) but the main restoration activity starts in 1994 when the hydraulic system “the Danube – connecting canal – Srebarna Lake” was put into operation. After the reconnection of the lake with the Danube River the water level of the lake significantly increased. It follows only the large magnitude changes in the water level of the Danube River, while the lower variations did not influence lake level. This leads to decrease of the plankton primary production (which still remains within the borders of hypertrophy) and of the total phytoplankton numbers and biomass. The water level and nitrogen concentration were the main factors controlling the year-to-year fluctuations of the primary production and phytoplankton quantity. The total phytoplankton biomass shows a positive correlation with nitrates. With the water level raising, the share of Cyanophyta from the total biomass becomes smaller while that of Cryptophyta increased. The composition and dominant structure of phytoplankton remained relatively stable and predictable. Unpublished data about fishes and birds shows that the results from the restoration activities are far remote from the other countries with well managed wetlands. These results clearly show the need of additional restoration measures.