

Abstract

The diploma work is a complex limnological study dealing with the history and the present situation of the oxbow lake of Doleháj near Kolín.

The research included different ways of investigation – genesis and evolution of the lake, morphography, water level fluctuation, physical parameters of water, basic chemical analysis of water, quality and quantity of phytoplankton and zooplankton, size structure of zooplankton and heavy metals in sediments.

The oxbow lake came into existence during the canalization of the Elbe River in the half of the 19th century. It was divided into three parts in the past. The last one, with an island, was chosen for the research. This part has an area of 77 500 m² and it is quite shallow - mean depth is 1,08m, maximum depth is 2,70 m (the altitude of water surface was 191,754 m above sea level). The water level fluctuated between 191,544 m and 191,754 m above sea level during the hydrological year 2000/2001. The Secchi disk depths varied from 30 to 40 cm. The water of the lake was polluted with organic compounds (BOD₅ = 6,12 - 12,62 mg/l; COD_{Mn} = 14,08 – 41,60 mg/l). According to the low concentration of phosphate phosphorus, it is possible, that primary productivity in this lake can be limited by this element. Total dissolved inorganic nitrogen varied between 1,05 mg/l and 7,53 mg/l. Mean saturation of oxygen was quite high (104,29%). The representation of phytoplankton and zooplankton changed very much during the period of measurements. Chlorophyll *a* concentration was higher than is typical for the oxbow lakes of the Elbe River. The absence of large species of zooplankton was connected with high predation pressure of planktivorous fishes. The sediments of the lake were particularly contaminated by silver, cadmium, lead and zinc.