

NITROGEN AND PHOSPHORUS COMPOUNDS IN LAKE PLUSZNE

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Summary

The studies were carried out in Lake Pluszne which is one of the largest (903.3 ha) and deepest (52 m) lakes in the Olsztyńskie Lakeland. The lake can be found approximately 6 km east of the town of Olsztynek, at 53°35'9''N and 20°24'5''E, in the drainage basin of the Marózka – Łyna – Pregoła Rivers. Total phosphorus content in the waters of Lake Pluszne ranged from 0.014 mg P/dm³ to 0.488 mg P/dm³. Higher concentrations of total phosphorus were noted in the near bottom waters. In the whole study, the dominant form of total phosphorus was organic, which was measured in the range from 0.006 to 0.256 mg P/dm³. Such phenomenon is typical for eutrophic lakes. Total nitrogen in Lake Pluszne waters oscillated between 0.83 mg N/dm³ and 3.73 mg N/dm³. The dominant organic form accounted for 60 to 99% (0.35 mg N/dm³ to 2.79 mg N/dm³) of the total nitrogen. The mineral nitrogen concentrations varied between 0.058 mg N/dm³ and 0.837 mg N/dm³ and for most of the year the highest content revealed the nitrate nitrogen(V). The reason for the ongoing eutrophication is the excessive recreation, annual growth of the number of tourists and swimmers, development of the leisure centers on the lake shores as well as of Pluski and Zielonawo villages. The unique landscape and richness of the natural environment in the lake's vicinity are the reasons for its protection that would prevent the water (quality) from further deterioration.