

PERIPHYTON INHABITING REED, *PHRAGMITES AUSTRALIS* AND ARTIFICIAL
SUBSTRATE IN THE EUTROPHICATED LUBOWIDZKIE LAKE

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Summary

Periphytic organisms inhabiting biotic and artificial substrates in Polish Pomeranian lakes have been poorly recognized, so far. Within the frame of interdisciplinary studies on the revitalization of eutrophicated Lubowidzkie Lake, a study on different ecological formations, including the periphyton formations inhabiting *Phragmites australis* (CAV.) TRIN. ex STEUD, and artificial substrates (foil), was carried out in 2003. It was demonstrated that the average concentration of periphytic algae on reed from spring to autumn in Lubowidzkie Lake amounted to $23.4 \cdot 10^6$ cells m^{-2} , periphytic microfauna – $184.9 \cdot 10^3$ individuals m^{-2} ; and macrofauna – $27.5 \cdot 10^3$ individuals m^{-2} . The concentration of periphyton on the studied biotic substrate was considerably lower in comparison to the organisms growing on the artificial substrate (foil). The average density of periphytic algae on foil amounted to $34.8 \cdot 10^6$ cells m^{-2} , periphytic microfauna – $451.3 \cdot 10^3$ individuals m^{-2} , and macrofauna $62.7 \cdot 10^3$ individuals m^{-2} . The highest microperiphyton taxa number in Lubowidzkie Lake was six in spring and for macroperiphyton – two in autumn. The Shannon-Wiener biodiversity index was also the highest with $H' = 1.773$ in summer up to $H' = 2.445$ in spring, however it was lower for zooperiphyton inhabiting artificial substrate than biotic substrate. The periphytic formation will play a significant role in the project of lake revitalization by purification and deeutrophication of the waters, and in creating additional, abundant food base for ichtiofauna in Lubowidzkie Lake.