The influence of different recultivation methods on the water buffer capacity in a degraded urban lake

The object of study was Długie Lake, which is located in northeastern Poland. This lake was restored by two methods: artificial aeration and phosphorus inactivation. The aim of this study was to determine the effect of the two methods of rehabilitation on the water buffer properties of the lake. Both of the restoration methods had an impact on the lake's buffer properties. Artificial aeration reduced the production processes in the reservoir and caused the destruction of the vertical stratification of alkalinity, total hardness and calcium concentration. The phosphorus inactivation method caused a significant decrease in the concentration of phosphorus in the lake water and the further limitation of the production processes. Similar to the state before the lake aeration, a vertical stratification of alkalinity, total hardness and calcium was observed, with increasing values towards the bottom. However, the differences in the values of these parameters between surface water and bottom water were significantly lower than those recorded prior to the remediation. The observed changes after restoration of Długie Lake are very positive in that they are optimal for construction of plant cell walls, shells and fish bones.

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