
TRENDS IN DEVELOPMENT OF PHOSPHORUS CONCENTRATIONS IN ORLÍK AND SLAPY RESERVOIRS

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Based on existing phosphorus data series in the Slapy and Orlik reservoirs and their main tributaries, we reconstructed P inputs to the reservoirs from the catchment during 1961–2016 and compiled empirical models of P retention. P concentrations in both reservoirs increased from the 1960's to 1991 and then declined, with the Slapy Reservoir having a significantly increased year-on-year variability. Trends in the increase and decrease of P reflected the socio-economic development in the Vltava river basin, in particular sewerage, wastewater discharges, fertilizer application, livestock, and fishpond fisheries. Analysis of P retention P in reservoirs showed that P accumulated in sediments during the 1961-1990 period of increasing P-load from the catchment was again partly released into water in the subsequent period of decreasing P load and dampened the effect of decreasing P concentrations in the reservoir tributaries. In the Slapy reservoir after 1991, the P concentrations increased during wet summers and created conditions for growth of phytoplankton, whereas in dry summers they decreased to mesotrophy. Climatic and hydrological processes have now apparently begun to compete with a generally decreasing P pollution and support eutrophication despite the drop in P loads from the catchment.