

# PCBs AND HEAVY METALS IN WATER AND BOTTOM SEDIMENTS OF THE KOZŁOWA GÓRA DAM RESERVOIR

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**Abstract:** The aim of the presented research was to analyse the pollution of the Kozłowa Góra Dam Reservoir with PCBs (28, 52, 101, 118, 138, 153, 180) and heavy metals (Zn, Cu, Ni, Cd, Pb, Cr). The investigated water and bottom sediments were sampled from two sampling points in November, 2009. The sampling points were located in the southern part of the Kozłowa Góra Dam Reservoir. The samples of bottom sediments were taken from the surface layer of 5 cm thickness. The extraction of PCBs from the bottom sediments was performed according to the EPA 3550B standard. For the sequential extraction analysis of metals from the sampled bottom sediments, the method suggested by Tessier was applied. Based on the obtained results the water and bottom sediments from the Kozłowa Góra Dam Reservoir were polluted with polychlorinated biphenyls. The highest concentration of the investigated PCB congeners in bottom sediments was determined in the sampling point No. 1 (2.78 µg/kg d.m.), whereas in the sampling point No. 2 this level was over 20-fold lower which might result from the inflow of these compounds with the waters of the Brynica river. In both sampling points the investigated bottom sediments were predominated by higher chlorinated PCBs with comparable contents of 86% and 85%, respectively. The level of pollution in the investigated bottom sediments (calculated per dry matter) with polychlorinated biphenyls did not exceed the level of TEL (< 0.02 mg/kg).

The PEL value (3.5 mg/kg) was exceeded in the case of cadmium in the bottom sediment from the sampling point No. 2 and also lead (91 mg/kg) from both sampling points. The first two fractions with the mobile forms of metals are the most sensitive fractions to any changes of the environmental conditions in the benthic zone. In those fractions significant contents of lead, cadmium, nickel and zinc were observed.