



Complex Study into Toxic Effects of Heavy Metals Discharged from Closed Landfill on Neighbouring Aquatic Ecosystem[#]

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Abstract: Heavy metals (HMs) are common persistent aquatic pollutants, which have the ability for bioaccumulation. Obviously, HMs could perfectly represent ecotoxicological effects of permanent pollution by persistent toxicants of aquatic ecosystems in general. Results of complex study into ecotoxicological effects of priority HMs (Cu, Zn, Ni, Cr, Pb, Cd, Hg) discharged from closed Kairiai landfill on neighbouring aquatic test–ecosystem (TE) using complex hydrochemical–experimental (bioassay testing)–field (fish community structure analysis and bioaccumulation) methods have been generalized. Correlation analysis between HM concentration in water, content in bottom sediments, fish body tissues and various external and internal biotic and abiotic factors has been performed to characterize ecotoxicological status of aquatic TE of permanent pollution for prediction of possible negative consequences of persistent pollutant migration effects on the neighbouring water bodies. Data analysis showed that a strong correlation exists between the distance from pollution source and various HM ecotoxicological effects (water quality and toxicity, HM bioaccumulation patterns and fish community structure and state). Summarizing obtained results it should be pointed out that the Kairiai landfill still remains a serious source of permanent pollution, which continues negatively affect neighbouring aquatic ecosystem.

Keywords: *test–ecosystem, landfill, physico–chemical characteristics, bioassay testing, bioindication, heavy metals, accumulation*

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