

Comparative analysis of bottom deposits chemical structure in the lake system Kaban of the Kazan city

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Abstract

In this article was dissected the mucks of Kazan lakes system: Lower, Middle and Upper Kaban of the Kazan city which experienced different power of anthropogenic stress. Stress on the Average Kaban lake is carried out by sewage of the industrial enterprises (JSC “Generation Company” the Kazan heat electropower station – 1, JSC “Kazan Plant of Synthetic Rubber”, CJSC “Kazan Plant of Artificial Skin”, JSC “Kazan Electrotechnical Plant”, JSC “Plant of ferroconcrete items – 3”, JSC “Industrial construction materials”, JSC “Tatstroy”), warm waters of the Kazan heat electropower station – 1, superficial drain from municipal lands, private households, garden associations. The Upper Kaban lake is located in a green zone of the Kazan city and experienced insignificant influence from the urbanized territory. The Lower Kaban lake is experienced the average stress in comparison with the chosen lakes: sewage of the industrial enterprises and a superficial drain from municipal lands (lake is located in the central part of Kazan). Three types of mucks (fine aleurite silt, coarse aleurite silt and sand of various fractions) were observed. These types of mucks characterized fixed collection of the signs and properties (on fineness ratio). The research of the chemical composition of these types of soil and also the analysis of the heavy metals contents in them is conducted (Fe, Mn, Cu, Sr, Zn, Pb, Br, Cr). The obtained data have been analyzed during the different temporary periods and the conclusion is drawn on change of the chemical composition of ground deposits in comparison with 2012. Determination the sizes of losses have allowed to reveal amount of organic substance in the studied samples. In this regard the dependence of changing the concentration of heavy metals on amount of organic substance in bottom deposits has been established: concentration of heavy metals increases at increase in an organic part as a part of bottom deposits. The exception is the manganese concentration. Association between variability of chemical elements and degree of anthropogenic stress has been revealed: increasing the degree of anthropogenic stress the variability of chemical elements in the bottom deposits of lakes is also increased.

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