

Migration, transformation and accumulation of manganese in Onego Lake

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Geochemical peculiarities of migration and formation of environmental and geochemical anomalies of manganese in the Lake Onego were investigated. It is shown that the main source of manganese in the lake is the river water, where Mn concentration periodically reaches the MPC (0,01 mg/l). On the example of rivers flowing into the Petrozavodsk bay, was studied the forms migration of manganese in river waters. The characteristics of manganese spatial distribution in the water and sediments of Lake Onego are presented. Anthropogenic influence on the element distribution in the lake are estimated. It was found that the concentration of Mn in the water are very low, and in the sediments – high (average content exceed the clarks value eight times). The study of fractional composition of Mn sediments showed that most of it is contained in the form of inorganic compounds, which can be easily reduced in the decomposition process of organic matter. It is shown that the process of sedimentation and accumulation of Mn in sediments is a natural mechanism of self-purification of water body that supports a stable low concentration of manganese in water of Lake Onego. The study has been financially supported by the Russian Science Foundation (#14-17-00766).