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Trace elements in Lake Onega

Natalia Belkina, Natalia Kulik, Petr Lozovik & Natalia Efremenko

Karelian Research Centre RAS, Institute of Northern Water Problems, Petrozavodsk, Russia

We have investigated the content of biogenic microelements (Fe, Mn, Zn, Cu, Co, Ni, Pb, Cd) in water Onega Lake and its tributaries, and their distribution in the surface layer of sediments. A metal concentration (total content) in rivers varies considerably, increasing their content characteristic of the rivers of south-eastern and southern coasts. Dissolved forms of metals prevail in winter, during the period of open water increases the proportion of suspended forms. Trace elements in the waters of lake unevenly distributed. Maximum concentrations of metals are typical for areas subject to anthropogenic influence, minimum - for the central areas of the lake. The determining factor in maintaining a stable concentration of the investigated elements in the water is the process of sedimentation of insoluble forms of the elements. The distribution of trace elements in sediments of Lake Onega observed a close relationship with the granule size and the depth of the lake. High concentrations of iron and manganese in the sediments reflect the peculiarities of the local geochemical province. Clarke values observed excess Ni, Cu, Cd, Zn in areas subjected to anthropogenic influence. High content of Zn, Cu, Co, Ni, Pb, Cd in the surface layers of sediments of the deep lake indicate an increase in the rate of their income from the fine fraction of particulate matter in the last hundred years, which may be a consequence of how human activities and climate change. The study has been financially supported by the Russian Science Foundation (#14-17-00766)