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Impacts of sewage of a pulp and paper industry on the sediments of Vigozero water basin

Belkina Natalia

Northern Water Problems Institute Karelian Research Center RAS, A.Nevsky av. 50, Petrozavodsk 185030, Karelia, Russia (bel110863@mail.ru; fax+7142578464)

The studies of sediments of Vigozero reservoir with 1969 for 2009 are presented. Vigozero water basin belongs to pool of the White Sea. It's watershed area is 16 800 km2, water surface area is 1140 km2, volume of lake - 6,46 km3, average depth - 6,2 m, the maximum depth – 23 m, the water residence time –1,14 years. Northern part of Vigozero reservoir tests influence of sewage of Segeja pulp and paper mill, operating since 1938. Zones of pollution of a bottom are allocated: 1- solid waste; 2 – active silt, lignin, cellulose; 3 – transformed suspended solids. Distribution and stratification of deposits, their physical and chemical parameters is investigated. It is shown, that change of a chemical compound of sediments is connected with volume and qualitative of sewage. The tendency to the extension of polluted zones and to spreading of organic pollution all the bottom is considered. Maximum settling velocity was fixed in 1980 -1985. Accumulation of the organic compounds in sediments at that time resulted in the development of high internal loading. Change of an ecological situation in Vigozero water basin, connected with falling volumes of manufacture last 20 years, has affected sediment genesis processes, therefore the concentrations of organic substances and biogenic elements have decreased in a superficial layer of sediments, concentration of iron has increased. Now, transformation of the organic substances, which have been saved up earlier, demands significant amounts of oxygen. Variability of pH and Eh of sediments indicates unstable oxidation-reduction conditions. Ore formations on a redox-barrier interfere with transport of substances from deposits in water.
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