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DISTRIBUTION OF SUSPENDED MATTER AND ITS ORGANIC CARBON
IN THE TREKHTSVETNOYE LAKE
(the Kandalaksha Bay, Coast of the Rugozerskaya Gulf)

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Bottom sediments carry information about the processes occurring in water bodies. Sedimentation processes are one of the most significant factors in the formation of bottom sediments. The quantitative distribution of suspended matter in the few meromictic water bodies is poorly studied. One of such bodies of water is Trekhtsvetnoye Lake, located on the shore of Rugozerskaya Bay (Kandalaksha Bay). The area of the Trekhtsvetnoye Lake is 3.2 *ha*, and its maximum depth is 7.5 *m*. The study, conducted for exploratory purposes, examined the vertical distribution of suspended matter in the deep-water zone of the Trekhtsvetnoye Lake. Sampling was carried out in September 2023. Water samples were collected using a horizontal bathometer with a volume of 5 *L*. The suspended matter contained in the water was deposited onto pre-weighed nuclear track filters (pore diameter 0.45 μm) and GF/F glass-fiber filters (for the determination of suspended organic carbon using Euro EA 3000 elemental analyzer) by vacuum filtration. The suspended matter concentration in the Trekhtsvetnoye Lake does not exceed 5 *mg/L* down to a depth of 2 *m* and reaches a maximum of 49 *mg/L* in the chemocline zone. Below the chemocline, the suspended matter concentration increases from 21 *mg/L* to 36 *mg/L* in the bottom layer. Despite the increase in suspended matter with depth (after the chemocline zone), its organic enrichment decreases with depth (from 29% to 11%). At the same time, the organic carbon content slightly increases in the bottom layer (16%). Thus, based on the high concentration of organic matter in water layers, where the suspended matter content is highest (in the chemocline zone) we can conclude that the Trekhtsvetnoye meromictic Lake is highly productive (due to the high number of microorganisms in the chemocline, where labile autochthonous organic matter is concentrated). The identified features of suspended matter distribution in the Trekhtsvetnoye Lake differ from those in freshwater lakes without stratification. This confirms the importance of studying the behavior and distribution of suspended matter in meromictic lakes.

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