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Specific structural features of zooplankton of polygonal pond (Lena river delta, russia, arctic)

Nigamatzyanova G., Frolova L.

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© SGEM2017. This study is devoted to the investigation of zooplankton biodiversity and their adaptation to the short growing season of polygonal pond, located in the largest Arctic delta - the delta of the Lena River (Republic of Sakha (Yakutia), Russia). Samples were obtained within the Russian-German project "Expedition Lena" (August 2013, June-August 2014). Investigated polygonal pond with thickets of macrophytes shallow, well-oxygenated, weakly mineralized with low conductivity, slightly alkaline pH. The pond freezes in winter completely and flooded by river waters in the spring floods. Totally, 39 zooplankton species and forms were revealed, almost half of which belonged to the type Rotifera. The fauna was typical for zooplankton of arctic shallow ponds. Cyclops strenuus (Fischer, 1851), Daphnia pulex (Leydig, 1860), Kellicottia longispina (Kellicott, 1879), Camptocamptus glacialis (Lilljeborg, 1902) and juvenile Copepoda prevailed by frequency of occurrence. Structure-forming zooplankton species were determined by the morphology of the pond. Copepoda and Cladocera appear to dominate in terms of abundance and biomass. The average values of zooplankton abundance and biomass totally accounted for 59.4 thousand ind./m 3 and 1149.3 mg/m 3 respectively. We revealed and recorded the differences in the species composition and seasonal changes in the specific structure of zooplankton. Recently appeared zooplankton species in the Lena Delta have been observed in the studied polygonal pond (Paracyclops fimbriatus (Fischer 1853), and others). Water quality assessment according to Shannon index and saprobity index defined the β-mesosaprobic (1.6) and oligotrophic (1.1 g/m 3) levels and described the studied pond as moderately polluted (2.6 bits / ind.) with relatively low diversity of zooplankton.

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Keywords

Arctic, Permafrost, Polygonal lake, Zooplankton

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