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The research of the yamal peninsula lake bottom sediments by the implementation of subfossil cladocera assemblages analysis

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Abstract

© 2020 International Multidisciplinary Scientific Geoconference. All rights reserved. The Yamal Peninsula is one of the most important strategic oil and gas-bearing regions of Russia. Active development of the Far North territories threatens to have negative consequences for the delicate balance of Northern ecosystems, therefore their monitoring and comprehensive research are particularly relevant. In 2012-2013 during the expeditions on the Yamal, Yavay and Gyda peninsulas bottom sediments of the Unnamed lake (57.5 cm; 1300 cal yr BP), located in the catchment area of the Pyasedayakha river, were sampled. For Cladocera analysis 28 samples were selected from the column of bottom sediments. In total 24 taxa of Cladocera belonging to 7 families and 18 genera have been identified. The dominant of Cladocera taphocoenosis is B. (Eubosmina) cf. longispina (43.4 %), the subdominant is Chydorus cf. sphaericus (21.7%). B. longirostris (11.6 %) is relegated to a secondary role in the Cladocera taphocoenosis of the Unnamed lake. The average values of the Shannon-Weaver index are 2.39+0.09, of the Pielou index - 0.71+0.02. Hydrobiological monitoring conducted on the Yamal Peninsula since 1908 year, permits a comparative analysis of modern zooplankton with Cladocera taphocoenosis composition of the Unnamed lake. As a result, 8 taxa of Cladocera were not previously recorded in the modern zooplankton of the Yamal Peninsula lakes. Among them - Camptocercus rectirostris and Bythotrephes longimanus, whose appearance in the Arctic regions associated with warming. A significant increase of pelagic taxa over the past 100 years, revealed during the study of the column of bottom sediments, also indicates changes in the environmental and climatic conditions in the research region.

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Keywords

Environmental reconstructions, Holocene, Subfossil Cladocera, The Yamal Peninsula

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