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**Title:** *Phytoplankton in the Laptev Sea: distribution, dynamics and environmental forcing (comparison two autumnal seasons 2008/2010)*

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The study provides data on the present state of the phytoplankton communities in the Laptev Sea with focus on taxonomical and ecological characteristics. Our research is the part of the environmental monitoring of the Laptev Sea ecosystem in the frame of the multidisciplinary Russian-German Program "Laptev Sea System". Analysis of the long-term data series will lead to a better understanding of changes in the pelagic ecosystem and provide background for the further assessment of ecosystem changes connected with climate variability in the Arctic.

The material was collected during expeditions "TRANSDRIFT XIV" (September 2008) and "TRANSDRIFT XVII" (September 2010) in the Laptev Sea. The main aims of our study were to analyze the basic structural characteristics of the phytoplankton communities including taxonomic composition, the spatial-temporal features of algal biomass and species abundances distribution in the study area. Moreover our focus was also to evaluate the influence of the Lena River on the state of the phytoplankton.

In September 2008 in total 82 taxa were identified: Bacillariophyceae (40 taxa), Dinophyceae (40 taxa), Chlorophyceae (1 taxon), Dictyochophyceae (1 taxon). Maximum algal abundance was observed in the vicinity of the Lena Delta. The lowest values were found in the westernmost part of the study area. Microalgal communities were characterized by a high abundance of dinoflagellates which exceeded the abundance of all other taxonomic groups. Dinoflagellates communities were dominated by heterotrophic and mixotrophic species of genera *Protoperidinium* and *Dinophysis*.

In autumnal season 2010 phytoplankton communities were composed of 80 taxa. Most of the species were diatoms (53 taxa), while dinoflagellates were represented by 26 taxa. Maximum values of algal abundance were observed in the central part of the Laptev shelf northwest of the Lena Delta. The lowest



phytoplankton abundances were found at the westernmost station and north to the Lena Delta. The diatoms of genera *Chaetoceros* and *Thalassiosira* were the main contributors to the total abundance. In 2010 we did not observe predominance of hetero- and mixotrophic dinoflagellates as it was in 2008.

Ecological analysis in relation to salinity showed that algal flora was represented mainly by marine species during both seasons. In terms of geographical analysis arctic-boreal, arctic-boreal-tropic and cosmopolitan species were characteristic of algal communities. As the Laptev Sea is the shallow shelf sea the neritic species were the most numerous group. Oceanic species are an indicator of the Atlantic water advection into the Laptev Sea shelf.