THE FIRST DATED PREGLACIAL DIATOM RECORD IN LAKE LADOGA, NW RUSSIA

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Lake Ladoga is the largest lake in Europe (18740 km^2, maximum depth 235 m) with a very large catchment area of >282000 km^2. It is located in northwestern Russia, close to the city of St. Petersburg and the Baltic Sea within the limits of Scandinavian ice-sheets. The lake bottom sediment record is therefore a valuable archive of regional environmental and climatic changes. During the Eemian (Mikulino) Interglacial and after the Last Glacial Maximum, for instance, the Ladoga basin became a part of huge waterbodies, which have occupied the deglaciated Baltic basin, the Eemian Sea and the freshwater Baltic Ice Lake (BIL), respectively. The BIL sediments are widespread at the bottom and in the vicinity Lake Ladoga, while the sediments older than the Late Glacial are very poorly investigated in the Lake Ladoga depression.

This study presents the first dated preglacial (MIS5, Late Eemian – Early Weichselian) diatom record obtained in Lake Ladoga, and thus contributes to Russian-German research project '**P**aleo-**l**imnol**o**gical **T**ransect' (PLOT) initiated to investigate the Late Quaternary climate and environment history across Northern Eurasia. Within the scope of the PLOT project, a 22.75 m long sediment core (Co1309) was retrieved from the northwestern deep-water part of Lake Ladoga (111 m water depth) in order to provide new information on the regional climatic and environmental history during Late Quaternary.

The diatom record in the preglacial part of the Co1309 sediment core OSL-dated between ~118 and 80 ka has a number of marine and brackish-marine species and marine flagellates common with other marine Eemian records in the region, but some differences also exist.

Generally, unstable sedimentation environments, unfavourable for the diatom preservation and accumulation prevailed in the coring site during the Late Eemian and the Early Weichselian. Such environments are characterised by unstable/variable sedimentation rates, high current velocities, and wave action in the shallow-water part of the basin. The salinity in the Ladoga basin could have been slightly higher from ~118 to 113 ka, but starting from ~113 ka the influence of fresh water masses increased. No major salinity changes related to the regression of the Eemian Sea can be inferred from our diatom data. Thus, reworking of marine Eemian sediments is thought to be a source of allochthonous diatoms into the basin during the Late Eemian and Early Weichselian from ~113 ka to ~80 ka, obscuring possible salinity shifts, if there were any.

The period from ~113 to 90 ka is characterized by lower sedimentation rates, increased freshwater supply, and apparently increased input of allochthonous siliceous microfossils. These changes might have been related to the climatic and environmental changes with the onset of the Weichselian glacial epoch. From ~90 to 80 ka, the environments in the Ladoga basin became progressively unfavourable for the diatom growth and preservation. Increased sedimentation rates are also suggested.

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