

Late Saalian–Eemian ostracods from the northern White Sea region

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We carried out a high-resolution investigation of the 4.5 m thick sequence of Eemian marine beds directly overlying Saalian till in Bychye, the White Sea Region. Ostracod assemblage variations reflect paleoenvironmental changes during the penultimate glacial-interglacial transition with the special emphasis on tracing Atlantic-derived water inflows.

Ostracods from this area have been previously investigated by O. LEV (1983). She studied Neogene–Quaternary deposits of the Western Arctic, and among others distinguished the assemblage corresponding to the Boreal transgression (Eemian in Western Europe) from the lower Mezen' and Northern Dvina rivers and Kazantsevo (simultaneous transgression in the western Siberia) assemblage on the east of the Western Arctic.

Three major assemblages of fossil ostracods can be established in the Bychye sediment section. (1) The first one is distinguished in the interval 450–350 cm. Ostracod valves found in the lower part of the core belong to the Arctic normal marine species *Normanicythere leioderma*, which is especially abundant in the lower 10 cm of the record. In modern Arctic environments it mainly occurs at depths less than 50 m (STEPANOVA et al. 2007). This assemblage is interpreted as a cold Arctic mid-outer shelf assemblage. It is interesting, that O. LEV (1983) considered *N. leioderma* an index-species for Atlantic water influence.

Close to the upper boundary of marine clays at the depth of 350 cm we notice introduction of a number of new species and a more diverse assemblage (2) is distinguished in the interval 350–160 cm. This is dominated by the Arctic shallow-water marine species *Elofsonella concinna*, *Sarsicytheridea punctillata*, *Cytheropteron elaei*, and *Acanthocythereis dunelmensis*, as well as euryhaline species *Heterocyprideis sorbyana*, these altogether are indicative of middle shelf environments. Similar assemblage was described by O. LEV (1983) as the oldest Neogene assemblage from the Timan-Ural region. According to LEV (1983), predominance of *S. punctillata* and *E. concinna* reflect marine moderately cold waters and no freezing conditions in winter, but according to our data from the Laptev and Kara seas, these species are abundant in the mid-outer shelf and upper continental slope settings of these ice-covered seas (STEPANOVA et al. 2003, 2007).

In the sample from 315 cm, we found relatively deep-water marine Arctic taxa *Krithe glacialis* and *Rabilimis mirabilis*, which are usually found at middle-outer shelf and upper continental slope (STEPANOVA et al. 2003, 2007). Upcore, relatively deep-water species disappear, assemblage (2) becomes more taxonomically diverse due to the introduction of other Arctic mid-outer shelf species such as *Cluthia cluthae*, *Sarsicytheridea bradii*, *Palmenella limicola*, *Robertsonites tuberculatus*, these taxa were also listed by LEV (1983) as a part of assemblage from Timan Ural region.

The most taxonomically diverse and abundant assemblage (3) found in the upper part of the section (160–0 cm) consists of both, marine Arctic taxa (*S. bradii*, *S. punctillata*, *E. concinna*, *R. tuberculatus*, *Cytheropteron latissimum*) and subarctic-boreal shallow-water marine species (*Finmarchinella finmarchica*, *Patagonacythere dubia*, *Cythere lutea*, *Hemicytherura clathrata*, *Semicytherura undata*, *Hemicythere villosa*). These subarctic shallow-water species are characteristic, for example, for the Baltic Sea (FRENZEL et al. 2010) and have not been recorded by us in the high Arctic Kara and Laptev seas (STEPANOVA et al. 2003, 2007). In some samples from the upper 100 cm of the section they dominate over Arctic species thus reflecting shallowing of the basin and summer water temperature rise. A very similar assemblage was indicated by O. LEV (1983) in the Kazantsevo deposits of the northeastern West Siberian Lowland. She also interpreted it as warmer compared to abovementioned assemblages.

It is interesting, that LEV's ostracod findings in the sediments of the Boreal transgression in the same research area of Mezen' River, recovered a different, lower salinity assemblage, probably reflecting an earlier stage of the transgression than recorded in our sediment sequence.

References

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