

Salt marsh foraminifera from the subarctic White Sea

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Foraminiferans are meiofaunal protists that occupy marine habitats from deepest part of the ocean to intertidal deposits including salt marshes. These nearly terrestrial vegetated biotopes at the interface of the land and the sea evolve at the upper intertidal in temperate and high latitudes. Being a part of the intertidal zone, salt marshes are largely influenced by tidal cycles that create a vertical zonation in a salt marsh. Tidewater supplies nutrients and oxygen which allow halophytic plants and marine organisms to inhabit these nearly terrestrial biotopes. The fauna of salt marsh foraminifera of mid-latitudes has been scrutinized, whereas in high latitudes they have not received much attention. Here, we report on species composition, abundances and vertical distribution of living salt marsh foraminifera from the subarctic White Sea. In total, we found 9 species. Most of them occur worldwide, except *Elphidium albiumbilicatum*, which is known to be a high latitude species. This is the most northern location, where *Balticamina pseudomacrescens* and *Trochammina inflata* were encountered. Foraminiferal fauna of the subarctic White Sea salt marshes was surprisingly abundant (up to 3000 living specimens per 10cm³). Applying the method of non-metric multidimensional scaling, we visualized the changes in foraminiferal assemblage composition from high marsh to tidal flat. Two distinct assemblages of high and low marsh of foraminifera were found in the White Sea salt marshes, each confined to certain vegetation belt. High marsh assemblages are represented by agglutinated species of *Jadammina macrescens*, *B. pseudomacrescens* and *T. inflata*, low marsh – by calcareous species of *E. williamsoni* and *E. albiumbilicatum* and agglutinated *Miliammina fusca* as well. The abundances of salt marsh foraminifera of the subarctic White Sea are higher than on other studied subarctic locations, but are comparable to temperate salt marshes due to relatively warm summer in the White Sea region.

Keywords: salt marsh; foraminifera; subarctic; the White Sea