

Bottom community associated with shallow-water methane seep in the Laptev Sea

Andrey Vedenin¹, Galkin Sergey¹, Kokarev Valentin², Andrey Gebruk¹

¹P.P. Shirshov Institute of Oceanology, Russian Academy of Sciences, Laboratory of ocean bottom fauna; agebruk@gmail.com

²P.P. Shirshov Institute of Oceanology, Russian Academy of Sciences, Laboratory of ecology of coastal bottom communities

Bottom fauna in the area of active methane seepage in Laptev Sea (76°46'N 125°49'E, depth 71 m) was studied using box-corer, 'Okean' grabs, Sigsbee trawl and video platform. In total 31209 specimens representing 252 species were collected in seep area and background zone. Significant differences in community structure between seep stations and background stations were revealed. Seep stations are characterized by higher total abundance and biomass compared with background stations (7652 ind. and 39.4 g/m² vs. 2273 ind. and 27.4 g/m² correspondingly). Species diversity was significantly higher in background zone. In seep zone the polychaetes *Cossura longocirrata*, *Ophryotrocha* sp., *Micronephthys minuta*, and *Pholoe longa* were abundant. Most bivalves including *Portlandia arctica*, *Yoldiella* spp., *Ennucula tenuis* were more abundant in background zone. On the other hand bivalves *Axinopsida orbiculata*, juveniles of *Macoma* spp. and gastropods *Frigidalvania* sp. nov. were attracted to seep area. Symbiotrophic siboglinids *Oligobrachia haakonmosbiensis* showing in seep zone remarkably high density (1020 ind. and 14,11 g/m²) were rare or absent in background community. It is worth noticing a complete absence of suspension feeders (sponges, bryozoans, ampeliscids, sabellids, etc.) in seep zone. In background area they were present in small amounts. The response of the macrofauna in the deep-sea reducing habitats is usually reflected in changes of integral community characteristics, or in presence of certain endemic symbiotrophic taxa. In our case the response of the fauna to the seepage processes is observable at a very shallow depth (~70 m). Possible causes of this phenomenon are discussed. The work was partially funded by the RSF Grant 14-50-00095.