

B06-P04

MEIOFAUNAL COMMUNITIES ALONG AN OFFSHORE GRADIENT IN TWO GLACIAL SPITSBERGEN FJORDS

Katarzyna Grzelak (*Institute of Oceanology Polish Academy of Sciences, Poland*)

Marta Gluchowska (*Institute of Oceanology Polish Academy of Sciences, Poland*)

Klaudia Gregorczyk (*University of Gdansk Faculty of Oceanography and Geography, Poland*)

Jan Marcin Weslawski (*Institute of Oceanology Polish Academy of Sciences, Poland*)

kgrzelak@iopan.gda.pl

Spitsbergen marine ecosystems, located at the border between the North Atlantic and the Arctic Ocean, can be regarded as natural observatories of ecosystem modifications due to changes in environmental drivers influenced by climatic variability. West Spitsbergen fjords are characterized by a strong environmental gradient due to marine-terminating glaciers at the fjord head and advection of warm Atlantic water masses from the shelf. The cross-shelf water-mass exchanges are known to affect the physical and biological systems of the fjords, and make them particularly sensitive to environmental changes. An increased influx of Atlantic water into the West Spitsbergen fjords would alter the environment towards boreal, whereas glacial input and winter sea-ice formation would tend to make the inner part of the fjord more Arctic. Two high-latitude fjords were chosen for presented study: Hornsund and Kongsfjorden which are influenced by different oceanographic conditions. Hydrographic conditions in Hornsund are mainly influenced by the cold Arctic Water coming from the Barents Sea, whereas Kongsfjorden is to a larger degree under the influence of the warm Atlantic.

The meiofauna is an important component of the benthic fauna. Their size, high abundances and relatively rapid reproduction rates make them the model organisms in benthic system for environmental assessment. Significant part of the bulk of sediment phytodetritus is channelled through the meiofaunal component of the heterotrophic benthic organisms, what underline their role in benthic processes.

We hypothesized that different hydrological regimes occurring in Hornsund and Kongsfjorden determine organic matter flux and export to the seabed, what will lead to marked differences in meiofaunal assemblages. The present study was carried out in summer 2013 and sampling stations were located along both fjords axis. The studies revealed that meiofaunal community structure, their abundance and biomass were highly comparable between fjords, despite differences in organic carbon content and chlorophyll *a*, a proxy of food availability in the fjords' sediments. In both fjords discontinuity in the meiofauna community along the fjords' axis was observed and outer and inner/central basin assemblages were recognized. Lower meiofaunal densities and biomass characterized the outer basin communities, although higher number of taxa was found in this area. Obtained results indicate that differences in meiofaunal community structure in two hydrographically different fjords are smaller in comparison to differences across the fjords' axis.