

## **A new Arctic seepage site? Preliminary evidence from benthic community**

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The Kveithola Trough is an abrupt and narrow sedimentary system located in the NW Barents Sea. The hydrographic, bio-geochemical conditions and the possible existence of gas seepage activity of the area have been investigated during the Eurofleets 2- BURSTER cruise, conducted on board the German icebreaker RV Polarstern. The aim of our work is to characterize the benthic biota and more specifically the macrofaunal community structure coupled to the study of benthic foraminiferal meiofauna.

Preliminary qualitative results revealed that in the inner Kveithola Trough, the macrofaunal community is composed by abundant black worm tubes (Chaetopteridae worms and Siboglinidae-like taxa) with presence of Thyasiridae bivalve species. The occurrence of these macrofaunal taxa is usually associated to oxygen-reduced environments, hydrothermal vents and cold seeps. The living benthic foraminiferal assemblage in the same stations is characterized by the presence of typically oxygen-depleted environmental taxa including the calcareous species *Nonionellina labradorica* and *Globobulimina* spp.. Conversely, in the outer Kveithola trough, both benthic macrofauna and foraminiferal meiofauna assemblages are characterized by less opportunistic taxa with a higher biodiversity suggesting very distinct oceanographic sea bottom conditions.

The organic matter richness plays a large role in the Kveithola Trough environmental setting and may bring anoxic conditions that could affect the biota of the area. In fact, the benthic community structure of this area inhabits suboxic, anoxic and organic-enriched sediments and disturbed environments, forming assemblages with low diversity and high abundances of a few tolerant and/or specialized species.

This preliminary finding could be consistent with other studies examining benthic community structure around Svalbard and in particular cold seep and vents habitats where faunal characteristics are patchy, suggesting small-scale heterogeneity in the environment surrounding cold seeps. For said reasons we envisage the presence of a new Arctic seepage site having a strong local impact on the benthic system.