



Biodiversity and community structure of soft-bottom macrozoobenthos in Arctic glacial fiords (west Spitsbergen)

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Proximity to land and restricted water exchange with open seas are two main factors that make fiords ecologically distinct from the open sea areas. Bathymetric barriers (narrow entrances and submarine sills) can impact the connectivity of fiordic populations with open sea species pools. Terrestrial freshwater inflows, usually located at the fiords' heads, dictate the salinity gradients in surface waters as well as transport inorganic and organic material loads that can strongly affect fiordic systems functioning. All these factors and processes impact the benthic communities in fiords. Here we present the results of benthic studies of West Spitsbergen fiords and the Barents Sea shelf soft bottom macrofauna. Three fiords off west Spitsbergen (Kongsfjorden, van Mijnfjorden and Hornsund) and Barents Sea shelf are compared with regard to macrozoobenthic biodiversity, dominant species and functional groups composition. The fiordic data are divided into subsets representing outer and inner parts of the fiords (defined by major bathymetric barriers). The three ecological zones (shelf, outer and inner fiords) are clearly separated with regard to species composition. The species richness, species diversity and the functional groups diversity decrease as one moves from shelf towards the inner parts of the fiords. The changes of benthic species composition, diversity and biomass along the fiord axis (i.e. along the environmental gradients connected with the tidal glaciers activity) are documented in more detail for Kongsfjorden. It is concluded that the 'glacial disturbance' results in diversity and biomass decrease and simplification of the functional group composition of macrobenthic soft bottom communities.