

Resource utilisation by deep-sea megabenthos in the Canadian High Arctic (Baffin Bay and Parry Channel)

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Ongoing climate change in the Arctic is causing drastic alteration of the Arctic marine ecosystem functioning, such as shifts in patterns of primary production, and modifying the present tight pelagic-benthic coupling. Subsequently benthic communities, which rely upon organic matter produced in the top layers of the Ocean, will also be affected by these changes. The benthic megafaunal communities play a significant role in ecological processes and ecosystem functioning (i.e. organic matter recycling, bioturbation, food source for the higher trophic levels...). Yet, information is scarce regarding the main food sources for dominant benthic organisms, and therefore the impact of the ongoing changes is difficult to assess. The goal of this study is to investigate the preferential feeding of different carbon sources by megabenthic organisms in the Canadian High Arctic and to identify environmental drivers which explain the observed trends. In summer 2013, benthic megafauna was collected at 9 stations spread along latitudinal (58 to 81°N) and longitudinal (62 to 114°W) transects in the Baffin Bay and Parry Channel, respectively. Carbon and nitrogen bulk stable isotope analyses ($\delta^{13}\text{C}$ and $\delta^{15}\text{N}$) were performed on several species divided into groups according to their feeding type. This study highlights distinct trends in $\delta^{13}\text{C}$ values of benthic organisms suggesting the importance of both phytoplankton and ice algae as carbon sources for megafauna in the Canadian High Arctic. The importance of physical and biological parameters as drivers of food web structure will be furthermore discussed.