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THE SOURCES OF FOOD FOR BENTHIC COMMUNITIES IN THE TWO ARCTIC FIORDS CHARACTERISED BY DIFFERENT ENVIRONMENTAL CONDITIONS

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The aims of the study were to assess quantity and sources of food for benthic communities in two contrasting Arctic fjords influenced by water masses of different origin - Hornsund and Kongsfjorden (Svalbard). To establish food sources phytoplankton, zooplankton, macro- and microphytobentos, debris of terrestrial plants as well as suspension and surface sediments were collected. Different species of benthic fauna were collected to study functional diversity of the benthic community. Samples were analyzed for organic carbon and nitrogen and its isotopes ($\delta^{13}\text{C}$ and $\delta^{15}\text{N}$).

The $\delta^{13}\text{C}$ ranged from -26.2‰ to -17.6‰ while $\delta^{15}\text{N}$ ranged from 4.5‰ to 14.4‰. The lowest $\delta^{13}\text{C}$ (-25‰ to -26‰) characterizing high contribution of fresh terrestrial organic matter were found in suspension, sediments and several organisms. In most organisms however, higher $\delta^{13}\text{C}$ (-18‰ to -23 ‰) was measured suggesting largest influence of fresh marine organic matter. The results suggest that in Kongsfjorden that is influenced by Atlantic water masses the benthic biota is well coupled with pelagic biota while in Hornsund different sources of organic carbon constitute food for benthos.