Vertical and horizontal distribution of zooplankton and polar cod in southern Baffin Bay (66-71°N) in September 2009

Zooplankton are the link connecting primary producers to higher trophic levels, and knowing their distribution and community is important for predicting the distribution of predator species, like fish, seabirds, and marine mammals. However, data from open Arctic oceans are still scarce. In autumn, tens of millions of the planktivorous little auks (Alle alle) (about 75% of the world’s population) and millions of thick-billed murres (Uria lomvia) pass through the Baffin Bay. To investigate their potential food sources, we investigated the spatial and vertical distribution of zooplankton and small fishes in the upper 500 m of southern Baffin Bay in September 2009. The zooplankton community was dominated by copepods (55% of abundance in the upper 500 m), primarily of the genus Calanus. Other important zooplankton taxa included Limacina helicina, Chaetognatha, and Cirripedia nauplii. On the Greenland Shelf, most Calanus were late copepodite stages and most were found at the depths of >200 m, suggesting they were in diapause. On the Canadian Shelf, there were relatively more Calanus in the near-surface layers, which were probably still actively feeding and which were available to visual predators such as seabirds and fish. The acoustic survey showed the highest density of polar cod Boreogadus saida in the upper 50 m on the western part of the Greenland Shelf. A particularly high biomass of both zooplankton and polar cod was found in the central part of the basin in association with a local relatively shallow area.
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