

Contribution of auto-and heterotrophic protozoa to the diet of copepods and krill in the Amundsen Sea, Antarctica

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In order to improve our understanding of the trophic link between protozoa and zooplankton in the Amundsen Sea, Antarctica, we estimated diet composition, ingestion rates and prey selectivity of two copepods and Krill. The results showed that three zooplankton preferentially grazed on ciliate and heterotrophic dinoflagellate with size ranging from 20 to 100 μm over autotrophic protozoa. In particular, ciliates comprised the major dietary component for the zooplankton in the study area. Although heterotrophic protozoa comprised only the average 15% of the total carbon available in the natural prey pool, heterotrophic protozoa accounted for > 60 % of the total carbon ration ingested by zooplankton. Our results indicate that the zooplankton feeding regime was influenced by the composition and size of natural plankton communities in this study area. Also, feeding behavior of zooplankton may control the populations of ciliates and heterotrophic dinoflagellates that are larger than 20 μm in size. Therefore, strongly selective feeding and high grazing pressure by zooplankton on heterotrophic protozoa implicate trophic coupling between zooplankton and the microbial food web in the pelagic ecosystem of the Amundsen Sea.

Key words: autotrophic protozoa, heterotrophic protozoa, Amundsen Sea, Antarctica

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