

## **Microzooplankton grazing on nanoplankton in Potter Cove (Western Antarctic Peninsula) under contrasting exposure to glacier melting**

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Microzooplankton in Polar Regions consumes more than 50% of daily primary production, being a significant pathway of biomass loss. Grazing by microzooplankton on autotrophic preys has been typically quantified by the dilution method. In this work, we use an alternative method based on the incubation of two size-fractions of plankton (<20 and <135 µm), in order to estimate microzooplankton grazing on both autotrophic and non-autotrophic nanoplankton. Size-fractionation experiments were performed during summer in two sites exposed to high (S1) and low (S2) glacier melting within Potter Cove, Antarctica (62° 14'S, 58° 38'W). Contrasting plankton composition was found in both sites. Heterotrophic dinoflagellates were the dominant group of microzooplankton in S2, while in S1, dinoflagellates and ciliates showed similar abundances. Nanoplankton in S1 showed high concentration of Cryptophyceae and Prasinophyceae, while in S2 nano-sized diatoms and Prymnesiophyceae were the dominant groups. Average nanoplankton growth rate was low in both sites (<0.07 d<sup>-1</sup>), although it was significantly higher in S2. The percentage of prey production consumed daily by microzooplankton was 99% in S2 and 155% in S1. The filtration rate and the carbon specific ingestion rate were significantly higher in S1. Our finding showed that microzooplankton grazing is an important loss term of nanoplankton in Potter Cove during summer, and that the close predator-prey coupling is significantly important under high melt-water input scenario.

**Keywords:** Grazing, size-fractions method, microzooplankton, nanoplankton, Potter Cove, Western Antarctic Peninsula

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