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# MICROZOOPLANKTON COMPOSITION, BIOMASS AND GRAZING RATES ALONG THE WOCE SR3 LINE BETWEEN TASMANIA AND ANTARCTICA

K Safi[1], B Griffiths[2], J Hall[1]

*[1]NIWA, Hamilton, New Zealand, [2]CSIRO, Division of Marine and Atmospheric Research, Hobart, Australia*

Microzooplankton species composition and grazing rates on phytoplankton were investigated along the SR3 transect between ~ 46 and 67$^0$S of Tasmania. Experiments were conducted in summer between November 2$^{nd}$ and December 14$^{th}$ in 2001. The structure of the microbial food-web changed considerably along the transect and were associated with marked differences in the physical and chemical environment encountered in the different water masses and frontal regions. On average microzooplankton grazing experiments indicated that 91, 102, and 157%, (see results) of the phytoplankton production would be grazed in the <200, <20 and <2 µm size fractions respectively, indicating microzooplankton grazing was potentially constraining phytoplankton populations (<200 µm) along most of the transect. Small ciliates in general and especially oligotrich species declined in importance from the relatively warm, southern Subtropical Front waters (6.8 µg C/L ) to the colder waters of the Southern branch of the Polar Front (S-PF), (~0.5 µg C/L ) before increasing again near the Antarctic landmass. Large changes in microzooplankton dominance were observed with heterotrophic nanoflagellates (HNF), ciliates and larger dinoflagellates having significant biomass in different water masses. HNF were the dominant grazers when chlorophyll *a* was low in areas such as the Inter-Polar Frontal Zone (IPFZ), while in areas of elevated biomass such as the S-PF and Southern Antarctic Circumpolar Current Waters (SACC), a mix of Nauplii and large heterotrophic and mixotrophic dinoflagellates tended to dominate the grazing community. In the S-PF and SACC water masses the tight coupling observed between the microzooplankton grazers and phytoplankton populations over most of the rest of the transect was relaxed. In these regions grazing was low on the >20 µm size fraction of chlorophyll *a,* which dominated the biomass while smaller diatoms and nanoplankton in the <20 µm size fraction were still heavily grazed. The lack of grazing pressure on large phytoplankton in these areas has important implications for the export of carbon from this region.