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ANNUAL CHANGES IN AN ANTARCTIC FAST-ICE MICROBIAL COMMUNITY

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Sea-ice microbial communities (SIMCO) contribute significantly to carbon cycling in polar waters but studies rarely extend over winter. We investigated intra-annual changes in protist composition, growth and protozoan grazing in a bottom-fast-ice SIMCO at an Antarctic coastal site. Phytoplankton commonly dominated, contributing up to 99% of the protistan biomass. Between formation and early winter the SIMCO was dominated by autotrophic nanoflagellates, though pennate diatoms concentrations increased in late autumn. Winter-time SIMCO was dominated by heterotrophic proto- and metazoa. Pennate diatoms rapidly increased in early spring and dominated until the ice disappeared, despite a late-spring increase in concentrations of phototrophic nanoflagellates. Protozoan grazing was low, suggesting environment controlled SIMCO composition and abundance.