

**MESOSCALE ZOOPLANKTON DISTRIBUTIONS ALONG THE COAST OF TERRE ADÉLIE: RELATIONSHIPS WITH ENVIRONMENTAL VARIABLES**

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Planktonic fauna are key components of the Antarctic marine ecosystem. While the general distributions of zooplankton in the Southern Ocean are apparent, the underlying factors controlling these distributions are still poorly understood. To elucidate those factors which are important in structuring planktonic communities we investigated associations between zooplankton species composition and physical and chemical oceanography at 38 sites along the coast of Terre Adélie (139.004°E to 144.997°E), during January 2004. Total zooplankton abundance was highly variable between the sites, ranging from 2,000 to 35,000 individuals m<sup>-3</sup>. The assemblages were dominated by small copepods, in particular *Oithona similis* and *Oncaea curvata*, and appendicularians. An ordination method, Canonical Correspondence Analysis (CCA), was used to assess the influence of environmental factors on the distribution of zooplankton. The two major axes of the CCA explained 32% of the variation in the zooplankton-environment relationships, and CCA identified a minimal subset of 4 environmental variables that explained significant ( $p < 0.5$ ) proportions of variation in the species data. Latitude, surface salinity, water depth and nitrate showed statistically significant relationships with species distribution, but together these factors explained only 10% of the variation in zooplankton assemblages along the coast of Terre Adélie. While the distributions of species further offshore are generally driven by small differences in seawater temperature or silicate concentrations, in the coastal zone physico-chemical conditions tend to fluctuate more widely and so it is likely that a more complex array of features influences the distribution of inshore species.