



Ice cover and the bacterioplankton community structure in Antarctic freshwater lakes

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Ice cover can affect freshwater lake systems both directly and indirectly in a variety of ways: it insulates the lake from temperature fluctuations, prevents freshwater dilution and the further entry of nutrient and organisms from the catchment, it influences photosynthetically available radiation and hence indirectly alters both the compensation point and the chlorophyll maximum, but perhaps most significantly, it reduces wind induced mixing to allow vertical stratification of the water column. In this study, variation in the bacterioplankton community structure of three Antarctic freshwater lakes of different nutrient status, was determined in relation to physical and chemical gradients at both depth and at time intervals, across the seasonal transition from winter ice-cover to the summer ice-free period. The presence and loss of ice cover had a significant effect on the structure and stability of the bacterioplankton community.