



The response of the Antarctic freshwater fauna to past environmental changes

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Palaeolimnological studies of environmental change focusing on select species are useful, yet cannot give information on changes in whole lake community structure and dynamics. This knowledge is important for understanding the adaptability of the Antarctic freshwater fauna to environmental change. Analysis of entire fossil zooplankton communities, in addition to interpretation of diatom, pigment and sedimentological data, can provide this community information and allow for the determination of a lakes palaeoecology. Through analysis of faunal microfossils from several Eastern Antarctic freshwater lake sediment cores, we have built up a detailed picture on the effects of both large and small-scale environmental events on Antarctic freshwater faunal communities.

Here we present the palaeoecology of three lakes; Waterfall Lake (Vestfold Hills), Lake Reid (Larsemann Hills) and Lake Terrasovoje (Amery Oasis) whose basal sediments range in age from pre-Last Glacial Maximum (LGM) through to Holocene. We identify species invasions and extinctions and provide the first direct evidence that components of the modern freshwater fauna survived on the continent throughout the LGM.