

# Spatial and temporal photosynthetic compartments during summer in Antarctic Lake Kitiash

Montecino, V.

Pizarro, G.

Cabrera, S.

Contreras, M.

Four autotrophic compartments were recognised in Lake Kitiash, King George Island (Southern Shetland) at the beginning of the summer in 1987: snow microalgae, ice bubble communities, phytoplankton in the water column and benthic communities of moss with epiphytes. Chlorophyll a concentration and pigment absorption spectra were obtained in these four compartments before and/or after the thawing of the ice cover. During the ice free period, carbon fixation and biomass was measured in the phytoplankton and in the benthic moss *Campyliadelphus polygamus*. From these measurements we conclude that the benthic moss is the most significant autotrophic component in this lake in terms of biomass, chlorophyll a content and primary productivity. The integral assimilation number (The ratio of carbon fixation per unit area to biomass per unit area) values were similar for both phytoplankton and the moss, ranging from 3.6 to 5.4 mg C (mg Chl a)<sup>-1</sup>h<sup>-1</sup> in phytoplankton and from 4.0 to 6.4 mgC (mg Chl a)<sup>-1</sup>h