

DIATOM FLORA INTER-ANNUAL VARIATION IN COASTAL WATERS AT ADMIRALTY BAY, KING GEORGE ISLAND, ANTARCTICA

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Temporal and spatial variations on shallow water diatom populations ($>20\mu\text{m}$) were observed during the early summers of 2002-03 and 2003-04 near the Brazilian Antarctic Station Comandante Ferraz (EACF) and three reference areas in Admiralty Bay, King George Island. A matrix of similarities (39 taxa from 72 samples) between each pair of samples was calculated using the Bray-Curtis similarity coefficient. The similarity percentages procedure (SIMPER) using the \log_{x+1} transformed diatoms abundance revealed the species that contributed to the separation between years and sampling areas. In the summer of 2002-03 the spatial heterogeneity was evidenced in four populations: 1) dominance of *Corethron pennatum* at Hennekin Point and EACF, except in the shallowest sites sampled (local depth 20m); 2) association of *Corethron pennatum* with the benthic species (*Pseudogomphonema kamtschaticum*, *Cocconeis* spp) at Arctowski, Hennekin Point and EACF; 3) dominance of pennate diatoms (*Cylindrotheca closterium/Nitzschia longissima*) especially the benthic ones (*Nitzschia* spp, *Pleurosigma/Gyrosigma*) at Botany Point; 4) co-dominance of *Cylindrotheca closterium/Nitzschia longissima* and chain-forming diatoms (*Fragilariopsis* spp) in the deepest site (local depth 60m) at Botany Point. However, during the summer of 2003-04 Admiralty Bay had a more homogeneous diatom population when the planktonic diatoms were dominant such as the centric ones, e.g., *Thalassiosira* spp, *Porosira pseudodenticulata*, *Stellarima microtrias*, and the pennates, e.g., *Pseudonitzschia* spp. Based on the weather data for Admiralty Bay it is known that the sea water surface froze during the 2002 winter, but not in 2003. It is suggested that the presence of sea ice sheet cover and melting in 2002-03 allowed the dominance of ice benthic diatoms in the water column. Whereas in the 2003-04 summer there was a predominance of typically oceanic planktonic diatoms, as the Bay did not freeze during the previous winter.