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Patterns of macrofaunal community in intertidal sedimentary shores in South Shetland Islands, Antarctica

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INTRODUCTION

Sandy beaches occupy extensive coastal areas in temperate and tropical latitudes. However, in Antarctic regions, the scarce sedimentary river inputs and the presence of thick layers of ice above most of the coast line determines the poor presence of sedimentary shores in general and the scarcity of sandy beaches in particular. In the areas were ice cup disappear during summer period, most of the coastal sedimentary landscape is occupy by boulder and cobbles beaches, with sand or gravel fraction underneath. Thus, macrofaunal community that inhabits such an environment is a combination of boulder and sandy beach species.

MATERIAL AND METHODS

The intertidal benthic macroinvertebrate communities in two intertidal environments: South Bay, in Livingston Island, and Foster Bay, in Deception Island were studied during years 2004 and 2005. Species richness and abundance of the species, demographic parameters (size frequency plots, cohort analyses, etc) of the dominant macrofauna, as well as sedimentary characteristics were analysed at five sandy/boulder beaches at each island.

RESULTS AND CONCLUSIONS

Data indicates that both islands show clear differences in community composition in the studied beaches. Deception Island, with volcanic origin, shows lower values in species richness and abundances than that obtained in Livingston beaches (Fig. 1, 2). Species zonation concentrates most of the abundances and diversity in the lower tidal level as well as the swash. Singularity of Antarctic communities consist in the almost lack of intertidal species in the truly intertidal zone, inhabited only by Oligochaetes; Low temperature during winter period and ice scouring are hypothetical reasons for the biotic depletion of the mean and upper tidal levels. High diversity and abundance of amphipods is the main biotic characteristics of the lower intertidal and the swash zone. Lithorinid prosobranchs and Polychaetes are also relevant taxonomic groups of the low intertidal. The results obtained will supply biological data to elaborate a temporal long term series to provide a monitoring tool for the evaluation change in biotic environment and climate change effect on Antarctic beaches.

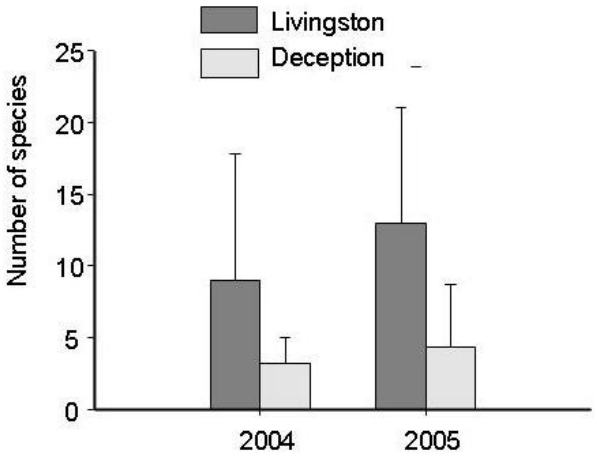

Figure 1: Mean number of macrofauanal species at Livingston and Deception islands beaches.

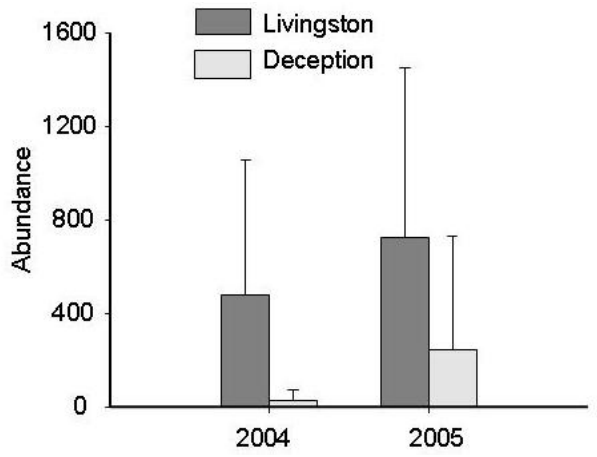

Figure 2: Mean number of macrofauanal abundances at Livingston and Deception inlands beaches.

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