



Conference Abstract

New data on the taxonomic composition of macroinvertebrates in marine habitats from the Livingston Island, Antarctica

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Abstract

Antarctic marine organisms are characterised by a significant level of endemism. This is due to geological, climatological and oceanographic reasons, such as the break-up of Antarctica from Gondwana during the Cretaceous; the formation of a circumpolar current; the extremely low water temperatures (close to freezing); the short summer seasons. The South Shetland Islands (West Antarctic Peninsula) are one of 29 known biogeographic areas in the Southern Hemisphere (Griffiths et al. 2009). King George Island is the largest island from the South Shetlands and eight countries have their polar bases there. Marine bottom macroinvertebrates from the surrounding seawaters are very well studied (Siciński et al. 2011). Less research was carried out in the region of the nearby Livingston Island. There are located two polar bases: "St. Kliment Ohridski" (Bulgaria) and "Juan Carlos I" (Spain). We can assume that in the seawaters of the South Bay we can also expect a rich bottom macroinvertebrate fauna because of the similar conditions and the close distance between the two islands.

The aim of this study is to present the first Bulgarian results on the taxonomic composition of marine macroinvertebrates from the South Bay, Livingston Island. The samples were

collected during the XXVIIth Bulgarian Antarctic Expedition (2018–2019 austral summer). Various sites in four areas were sampled: the coastal zone in front of the Bulgarian Polar Base (Costa Bulgara); a small bay south of Cape Hesperides (Reservnoto port); Johnsons Dock Bay near the Spanish research station and Walker Bay near Hannah Point. Samples were collected mainly through bottom trawling at depths of 2 to 20 meters on different types of bottom substrates using Zodiac boats. A total of 11 macrozoobenthos samples were collected.

Our preliminary results show that the main macrozoobenthic species are well known in the seawaters of the South Shetlands and usually they have a circumpolar distribution. At the site with soft muddy bottoms (Johnsons Dock Bay), the corrugated ribbon worm *Parborlasia corrugatus* (McIntosh, 1876) (order Heteronemertea, class Piliophora, phylum Nemertea) as well as ascidians (order Phlebobranchia, class Ascidiacea, phylum Chordata) had the highest biomass. The most abundant in the Johnsons Dock Bay were the Antarctic bivalve *Aequiyoldia eightsii* (Jay, 1839) (order Nuculanida, class Bivalvia, phylum Mollusca); the scale worm *Barrukia cristata* (Willey, 1902) and the catworm *Aglaophamus trissophyllus* (Grube, 1877) (both of order Phyllodocida, class Polychaeta, phylum Annelida). The seroid isopod *Spinoserolis beddardi* (Calman, 1920) (order Isopoda, class Malacostraca, phylum Arthropoda) dominated in the muddy / sandy bottom of Hannah Point. The habitats of the rocky bottom (Costa Bulgara) were inhabited mainly by crustaceans (order Aphipoda, class Malacostraca, phylum Arthropoda) and gastropods (phylum Mollusca). In the tidal zone of this habitat (0–2m), the predominant species was the Antarctic limpet *Nacella concinna* (Strebel, 1908) (order Patellogastropoda, class Gastropoda, phylum Mollusca).

Keywords

Maritime Antarctica, macrozoobenthos, meiobenthos, *Parborlasia corrugatus*, *Barrukia cristata*, *Nacella concinna*, *Aequiyoldia eightsii*

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Author contributions

L.K. - field research, identification of higher crustaceans and writing the abstract; V.E. - writing the abstract; P.M. - identification of macroinvertebrates; A.A. - writing the abstract; E. U - writing the abstract; M.K. - laboratory analysis and sample processing.

Conflicts of interest

The authors declare that there are no conflicts of interest.

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