The community structure of benthic organisms in the Antarctic peninsula

Engelbrecht Jacobus and Kochzius Marc

Vrije Universiteit Brussel (VUB), Ecology and Biodiversity, Marine Biology, Pleinlaan 2, 1050 Brussels, Belgium
E-mail: quintoneng555@gmail.com

The Bransfield Strait is a body of water located between the South Shetland Islands (a group of Antarctic islands) and the Antarctic Peninsula and it is about 100 kilometers wide. The Bransfield Trough (61°30′S 54°0′W) has a depth of 2 km and the basin has a length of approximately 400 km. Admiralty Bay is located at (62°10′S, 058°25′W) and is an 8 km wide irregular bay at King George Island, which is the largest island of the South Shetland Islands. The Bransfield Strait has an influx of moderately warm and nutrient-rich water, which is transported through a deep trough by The Antarctic Circumpolar Current (ACC). The distance between suitable habitats and the isolation of water masses, created by the ACC, are all important in creating species ranges that affect the overall structure of the communities in these areas. Also, there are relatively broad temperature ranges in the Bransfield Strait, however, the southern part is characterized by lower temperatures due to the influence of glaciers and the even lower temperatures in the north are due to the influx of cold water from the Weddle Sea.

During the Peruvian ANTARVII expedition to Antarctica with the research vessel BAP CARRASCO, the plan is to do a benthic sampling of several locations in the Bransfield Strait and Admiralty Bay at King George Island. The aim of this is to identify the benthic community structure at these locations and the impact of environmental parameters on it. Sampling will be done by using a small dredge and/or a Van Veen Grab Sampler (capacity = 0.1m3), after which the samples will be sorted, photographed and identified (as much as possible) by using taxonomic keys. Samples will then be placed in labeled sampling pots ranging from 200 ml to 500 ml (depending on the size of the samples) and filled with ethanol (95/99%). Information that will be gathered onboard includes sampling location, method, depth, and dredge speed. Samples will then be brought back to the laboratory in Belgium (Brussels) to be examined further. When all the samples have been critically analyzed (e.g. species richness and abundance) various diversity indices will be done (Shannon and Simpson's diversity test) along with multivariate statistics (cluster analysis or multidimensional scaling based on Bray-Curtis similarities). Once everything has been done and visual representations presented, we would be able to identify the community structure of the benthic organisms in those areas.

Keywords: Antarctica; Bransfield Strait; Admiralty Bay; Community structure; Benthic organisms; Environmental parameters; Sampling; Analysis; Antarctic Circumpolar Current; Species richness; Abundance