

ANT-XXVIII/4, Weekly Report No. 3

26 March - 1 April 2012

Since Monday, March 26th, the panorama of our working area should have changed considerably. Unfortunately, the South Shetland Islands remained largely hidden due to the changed weather conditions with lots of snowfall. With a respective sea state and muddy sea floor the bottom trawls became even tougher. Otherwise, these trawls provide information for the scientists working on the sediments. Because of the weather forecast we decided to move to the southernmost end of the South Shetland Islands, to investigate this area starting from the opposite side. Unfortunately, the plan became only partly reality, because we could hardly work on Wednesday. In return, Thursday presented itself an unforeseen calm day with sunshine. On Saturday we arrived back on our starting position, thereby finishing our second working area successfully.

Each howl is investigated according to a fixed scheme. Besides the fish groups mentioned so far Susanne Lockhart, (La Jolla, USA) together with Nerida Wilson (Sydney, Australia) and Eric Lazo-Wasem (Yale, USA) are processing all invertebrates, which come onboard as bycatch. All species will be sorted into 68 operational taxonomic groups. Special emphasis is given to those taxa, which indicate vulnerable marine ecosystems (VME). The stations which exceed the threshold will be proposed by the three scientists to the international Antarctic governing body, the „Convention for the Conservation of Antarctic Marine Living Resources” (CCAMLR) for inclusion in the VME registry. After registration any commercial fishery in that area will be forbidden. Along our cruise track the upper shelf south-east of Elephant Island is likely to get such a VME status due to the presence of an extensive demosponge community.

Our microbiologists from Oldenburg, Braunschweig and Göttingen with Meinhard Simon as head have already sampled a number of water and sediment samples along the cruise track to detect and characterise the predominating bacterioplankton. First studies already emphasise clear differences between locations: The samples from the shallow stations at Elephant Island showed an exceptional productivity for the time of the season, several times higher than at the same water depths at stations on the continental slope and in Drake Passage. The key players causing these tremendous differences between these adjacent locations will be identified only in the home laboratories. Until then, the tension remains high!

After successful fish trawls on Saturday we moved to our third working area at the tip of the Antarctic Peninsula, Joinville Island. We were surprised on Sunday morning by calm weather conditions with lots of sea ice and icebergs. The southerly winds of the days before had driven the ice from the Weddell Sea to the North, and air temperatures of around -10°C had caused a significant formation of new sea ice. We were welcomed to Antarctica by



Heavy weather at the South Shetland Islands (© S. Emde)



Exploring indicator taxa (© T. Kuhn)



Water sampling from the CTD rosette (© M. Simon)



Landscape at Joinville Island (© I. Wagner-Doebler)

numerous Adelie penguins, fur seals and crabeater seals. Even some killer whales passed our way. An unforgettable experience for those, being the first time in Antarctica, for all others at least satisfaction after the cloudy days at the South Shetland Islands!

The ice stopped our advancement to the South, and after two bottom trawls we moved to the West. Here, we are hoping for better fishing grounds.

With best regards from all participants of the *Polarstern* cruise,

Magnus Lucassen