

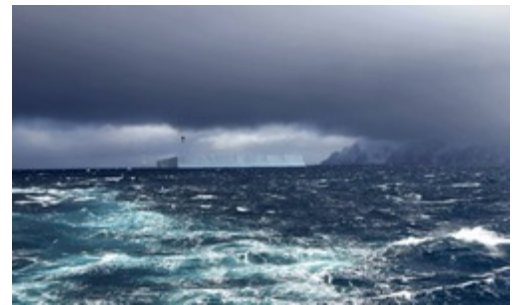
ANT-XXVIII/4, Weekly Report No. 4

2 April - 8 April 2012

The last week of our expedition showed, that the winter is approaching quickly in our working area at Joinville Island. After a calm and pleasant Sunday fishery was impacted during the next days by severe ice conditions and heavy weather with reduced visibility. We worked along the ice edge, searching for suitable trawling areas. The main drawback for trawling was the deep scrapes caused by the many icebergs from the Weddell Sea passing this region thereby changing the topography of the seafloor from year to year. Up to Tuesday a reasonable number of stations came together, allowing meaningful comparisons to the other two working areas. During the night *Polarstern* went back to Elephant Island at stormy sea conditions. As the weather calmed down during Wednesday, we were able to go for five trawls. Thursday became our final day of scientific station work. The day started with two large hauls, consisting mainly of mackerel icefish (*Champsocephalus gunnari*). These catches verified again our early findings about the recovery of fish stocks around Elephant Island. In the course of the day wind was increasing until storm levels, and we had to stop fishery even behind the protection of land. The station work was closed with a traditional last CTD. After the trawling doors were recovered and secured, the course was set to Punta Arenas. Very luckily the storm came from abaft, so that wind forces of 10 to 11 did not affect our progress.

Certainly, large numbers of samples were obtained during the past weeks, which have been conserved or frozen for later work at home. Beside, the physiologists on board aim to keep alive fishes and octopods, which they got from baited traps or bottom trawls, until *Polarstern* reaches Bremerhaven. Therefore, a special laboratory container is on board with an aquarium system keeping the natural water conditions of the Antarctic species even when passing through the tropical zone. In Bremerhaven growth experiments under certain temperature conditions are planned for example. These experiments will provide evidence for the performance of Antarctic species at extreme low temperature. Experiments at higher temperature will help to uncover sensitivities of these species upon climate warming. Afterwards the analyses of the samples by physiologists and molecular biologists aim to identify involved mechanisms and responsible genes. But as for many other projects onboard, the expedition is only the starting point on the long way until new scientific evidence.

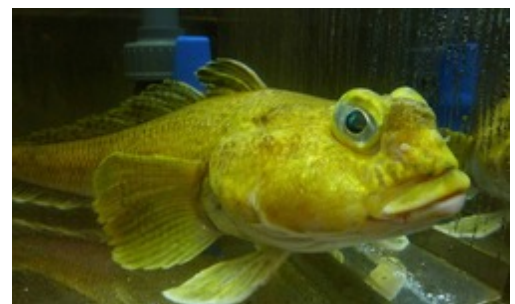
On Saturday afternoon we were approaching the tip of Fireland (Tierra del Fuego) again, and as we are now heading for Punta Arenas, it is time for a first reflection. Besides the difficult weather conditions, all projects could process samples and perform measurements mostly until the desired extent. This result does not only demonstrate the unique capabilities of *Polarstern*, but moreover the effectiveness of captain Wunderlich's crew. A special thanks has to be given to the



Stormy departure from Elephant Island (© S. Billerbeck)



Antarctic amphipod (*Epimeria spec.*) as bycatch (© E. Lazo-Wasem)



In the aquarium: *Gobionotothen gibberifrons* (© T. Sandersfeld)



Net repair between two hauls (© M. Lucassen)

deck's crew, working always with high spirits under adverse weather conditions.

The expedition ANT-XXVIII/4 found its exceptional successful end after the return of *Polarstern* to Punta Arenas on April, 09, 2012.

On behalf of all participants

Magnus Lucassen