

## ► RESEARCH PROFILE

Dr Sarah Mincks

Dr Sarah Mincks holds a Royal Society incoming USA/Canada fellowship, and hails from the Department of Oceanography at the University of Hawaii. She is hosted by Dr Adrian Glover, Researcher in Polychaete Systematics in the Zoology Department at the Natural History Museum.

Their research focuses on polychaetes – marine segmented worms that are a key component of sediment fauna around the Antarctic shelf. Through studying the reproductive behaviour of these worms, they hope to shed new light on how organisms colonise new habitats following disturbances such as glacial advances.

# Understanding Antarctic shelf fauna

► 'Polychaetes are extraordinarily diverse in the deep-sea, which is the largest yet most poorly sampled environment on the planet. A key component of sediment fauna, these worms indicate patterns of distribution and gene flow of sediment-dwelling invertebrates around the Antarctic shelf,' Dr Mincks explains.

'Historical cycles of glacial advance and retreat on the Antarctic continent are thought to have provided selective pressures, shaping the evolutionary history of the shelf fauna.'

'We hope that improving our understanding of reproductive strategies in shelf fauna will in turn help us to understand how, and on what timescales, organisms colonise new habitats following major disruptions such as glacial advances.'

'We are also investigating the question of whether polar shelf fauna have their



evolutionary origins in the deep-sea, or if deep-sea communities are in fact made up of invaders from the polar shelves.'

In the initial stages of the fellowship, Dr Mincks and Dr Glover focused on species descriptions, systematics, reproductive ecology and population biology for novel and highly abundant polychaete taxa.

They are now collaborating with international researchers involved in extensive field programs to collect material from around the Antarctic continent and in the surrounding deep-sea regions in an effort to describe the distributions of these taxa.

'We have already constructed molecular phylogenies for dominant taxa using material from our own collection and from our collaborators' collections. The next step is to conduct population-level studies of gene flow around the Antarctic shelf and into the deep-sea.'

'My fellowship has greatly enhanced our collaborative research, allowing us to make use of the collections, specialised facilities and expertise at the Natural History Museum. Specifically it has enabled us to analyse samples in the molecular lab, and via an electron microscope facility – something which we would not otherwise be able to do.'

'It has also led to us being invited to participate in four Antarctica cruises and two Arctic cruises – some of which are part of International Polar Year – during the next two years. We intend to submit proposals for additional funding to enable us to carry out this work.'

'I have personally benefited from a great deal of training through my fellowship, particularly in molecular methods. This training would have been much more difficult for me to obtain without access to the dedicated staff and facility that is available for communal use at the Museum.'

'I'm confident that the relationships I have established and the skills I have acquired will allow me to continue collaborating with Dr Glover and other scientists working in this field for many years to come.'

Incoming USA/Canada fellowships aim to encourage active and innovative American and Canadian postdoctoral scientists to undertake research of the highest quality in UK laboratories for extended periods of between one and three years.

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