Captain Scott's century-old collections suggests marine life is capturing more carbon

February 22 2011

Tiny Antarctic marine creatures collected 100 years ago by Antarctic explorer Captain Robert Falcon Scott give new clues about polar environmental change. By comparing present-day bryozoans – a sea-bed filter-feeding animal that looks like branching twigs – with specimens from Scott's expeditions scientists have found the first conclusive evidence of increased carbon uptake and storage by Antarctic marine life.

Reporting this week in the journal *Current Biology* an international team of scientists explain how they examined annual growth bands in skeletons of specimens of bryozoans (*Cellarinella nutti*) collected from Antarctica's Ross Sea during the Census of Antarctic Marine Life. When compared with museum collections in the UK, US and New Zealand - including specimens from Scott's expeditions – they found that since 1990 bryozoans grew more rapidly than at any time before. The most likely explanation is greater availability of food (phytoplankton). The findings suggest that this new growth is an important mechanism for transferring carbon into the sea bed.

Lead author, Dr Dave Barnes, of the British Antarctic Survey (BAS) says,

"For the first time we've been able to use the longest record of animal growth as evidence of rapid recent change to life on the seabed. Scott's biological collections are considerable in quality and quantity and will continue to become even more valuable for determining how life

responds to change across time. Few biological studies in Antarctica go back more than 30 years, so these data are invaluable and highlight the importance of long-term monitoring."

The spurt in growth means that animals reach the size earlier at which ocean currents snap them off. As the animals topple over they bury carbon, therefore increasing the seabed's potential as a carbon sink.

More information: Scott's collections help reveal accelerating marine life growth in Antarctica by David A. Barnes, Piotr Kuklinski, Jennifer A. Jackson, Geoff W. Keel, Simon A. Morley and Judith E. Winston is published in *Current Biology* on 22 February 2011.

Provided by British Antarctic Survey