

Census of Antarctic Marine Life

The advent of the IPY in 2007–08 and the international Census of Marine Life currently underway <<http://www.coml.org>> provides the context for a Census of Antarctic Marine Life (CAML) to begin. CAML is approved by the Scientific Committee on Antarctic Research as an integral part of its Evolution and Biodiversity in Antarctica programme, and will be coordinated by the AAD using a five-year grant provided by the Alfred P Sloan Foundation in New York. A project manager, funded by the grant, has recently taken up duties in the AAD Science Branch.

The census will determine species biodiversity, abundance and distribution in as many places around Antarctica as we have ships available. Attention will be directed towards the animals of the sea floor; on the continental slope and in deep waters; under recently collapsed ice shelves; and in the upper sunlit zones where plankton abounds. Other surveys will focus on krill, whales, seals and sea birds. The census will employ the latest sampling and analytical techniques, including molecular biological assessment of biodiversity through the Barcode of Life programme <<http://www.coreocean.org/Dev2Go.web?id=263292>>. Remote video imaging will also be used to yield images of this fascinating and virtually unknown ocean realm.

CAML has been assigned preliminary IPY recognition as a core project. In the next 12 months work will begin to secure ship time and to build the detailed plans for the largest Antarctic marine project ever undertaken.

—MICHAEL STODDART
Chief Scientist, AAD

The International Polar Year will provide a framework within which researchers from different disciplines and countries can join forces to investigate questions at the frontiers of polar science.

THOMAS PICKARD

Antarctic marine protists captured in new book

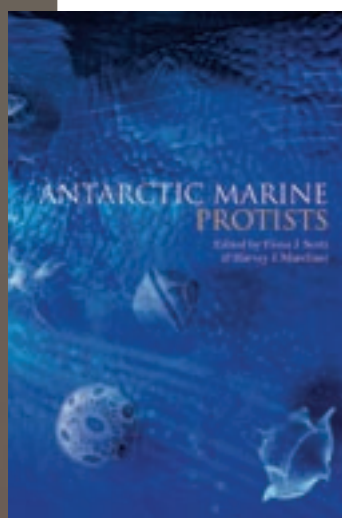
Protists are arguably the most important organisms in the world's oceans. These microscopic, single-celled plants (phytoplankton or algae) and animals (protozoa) comprise the base of the food web on which, essentially, all other marine life depends. Along with bacteria, they make up more than 95% of the biomass of living organisms in the sea. Marine protists also play a major role in the global carbon cycle, absorbing about 50% of the carbon dioxide produced by living things and producing about 50% of the oxygen we breathe. Some species even produce chemicals which, when released to the atmosphere, promote the formation of clouds.

At the level of single-celled organisms the distinction between plants and animals blurs, because of the strategies used to gain nutrients for growth. Plants derive their energy from sunlight, via photosynthesis, while animals gain theirs by consuming other organisms or organic detritus. While protists share these characteristics with either plants or animals, they also differ in many ways. For example, many phytoplankton can feed on bacteria and other algae, while several protozoa that usually graze on other single-celled organisms, generate their own food via photosynthesis. They do this by eating algae and digesting everything except the photosynthetic machinery (chloroplasts), which they sequester in special vesicles.

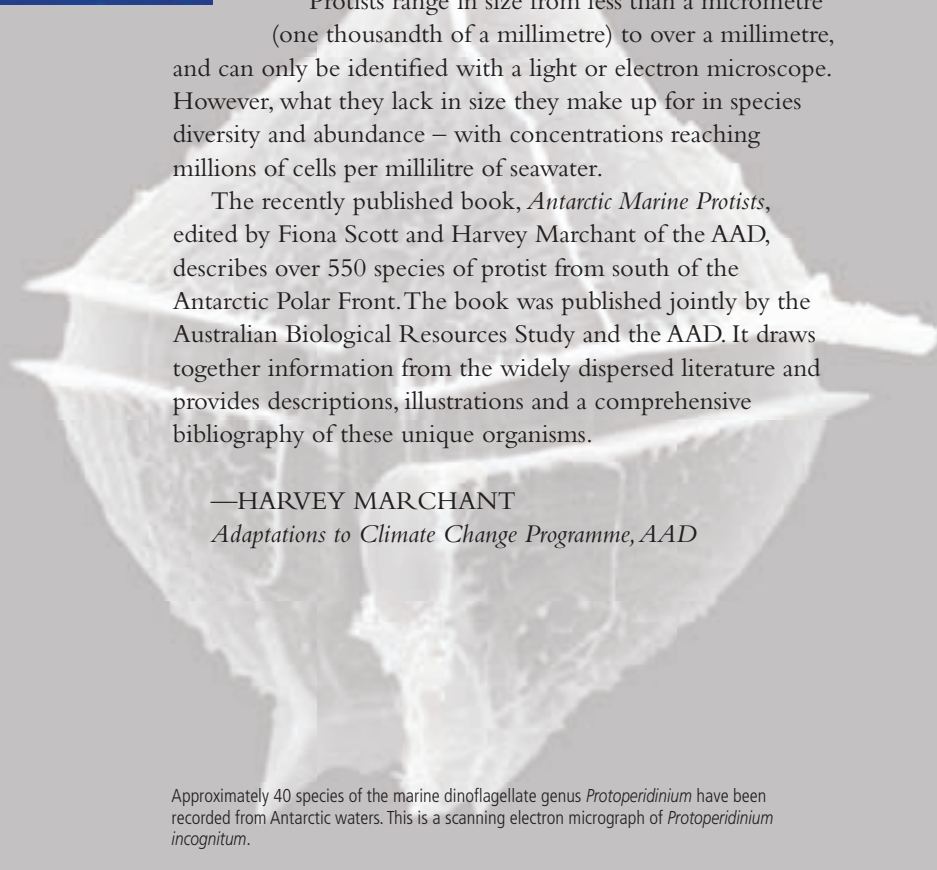
Protists range in size from less than a micrometre (one thousandth of a millimetre) to over a millimetre, and can only be identified with a light or electron microscope. However, what they lack in size they make up for in species diversity and abundance – with concentrations reaching millions of cells per millilitre of seawater.

The recently published book, *Antarctic Marine Protists*, edited by Fiona Scott and Harvey Marchant of the AAD, describes over 550 species of protist from south of the Antarctic Polar Front. The book was published jointly by the Australian Biological Resources Study and the AAD. It draws together information from the widely dispersed literature and provides descriptions, illustrations and a comprehensive bibliography of these unique organisms.

—HARVEY MARCHANT
Adaptations to Climate Change Programme, AAD



VANESSA TUCKER



Approximately 40 species of the marine dinoflagellate genus *Protoperidinium* have been recorded from Antarctic waters. This is a scanning electron micrograph of *Protoperidinium incognitum*.

FIONA SCOTT

