



There are over 200 species of sea spiders or pycnogonids in Antarctica, many of which are endemic. Sea spiders grow much larger in Antarctica than elsewhere. This specimen is about 20 cm in diameter, more than 10 times the size of sea spiders from other regions. The Census of Antarctic Marine life will help scientists understand, among other things, the processes that have led to the large size and radiation of these species in Antarctic waters.

## The Future of Antarctic marine biodiversity

As polar regions currently experience greater rates of climate change than elsewhere on the planet, their uniquely adapted flora and fauna may be vulnerable to shifts in climate. Thus, there is an urgent need to establish the state of these communities, and their diversity, so that we can understand the impact of climate change as well as changes wrought by human activity such as overfishing, species invasions and pollution.

The five-year Census of Antarctic Marine Life (CAML), being coordinated by the Australian Antarctic Division (*Australian Antarctic Magazine* 8:11), will survey the Antarctic slopes, abyssal plains, open water and under disintegrating ice shelf. It aims, to determine species biodiversity, abundance and distribution and establish a baseline dataset from which future changes can be observed. These activities will be supported by ships from more than 15 nations participating in the International Polar Year, which runs from 2007-2009.

The CAML is part of the larger 10-year world-wide Census of Marine Life, currently underway, which aims to assess and explain the diversity, distribution and abundance of life in the oceans (from viruses to whales) and to answer three questions: What lived in the oceans? What lives in the oceans? What will live in the oceans?

One of the 17 projects that make up the Census of Marine Life – the Future of Marine Animal Populations (FMAP) – will help answer these questions, particularly the last one. The project will play a critical role in interpreting the baseline data gathered during the Census of Marine Life (and CAML) and available through the Oceanographic Biogeography Information System (page 22). FMAP will use mathematical models to predict future changes in marine animal populations, based on varied environmental and human impacts on the oceans. These models could be used, for example, to assess the effect of ocean acidification and increased ultraviolet light levels on Antarctic marine organisms, and how this will shape ecosystems in the future.

An understanding of the possible effects of changes in global climate or human activity will help to improve management of our Southern Ocean ecosystems and resources. Models developed in the FMAP project will also help to define the limits of our knowledge in Antarctica and elsewhere – what is known, what may be unknown but knowable, and what is likely to remain unknowable with our present technology.

### More Information

CAML: <<http://www.caml.aq>>

FMAP: <<http://as01.ucis.dal.ca/fmap/>>

—VICTORIA WADLEY

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