

MARINE MAMMAL SCIENCE

The Australian Centre for Applied Marine Mammal Science, established at the Australian Antarctic Division (AAD) last year, is Australia's first major national research centre focused on understanding, protecting and conserving whales, dolphins, seals and dugongs. This national focus brings together mammals from tropical, temperate and Antarctic waters – an unusual mix for an Antarctic organisation, but critical to the AAD's broader research and advisory role within the Department of the Environment and Water Resources. Of the 15 projects funded in the Centre's first year, four involve dugongs, two involve sea lions and nine involve whales. The following three articles provide a snapshot of the projects being undertaken through the centre.



In the future, the ability to age tooth samples from the Indo-Pacific bottlenose dolphin (pictured) could provide vital information on the life history of the species, which is potentially threatened by increasing human activity in its inshore habitat.

Marine mammal research comes of age

To fully understand the biology and ecology of marine mammal populations and the impacts of humans on species, scientists need to know the age of individuals in a population.

Armed with this knowledge, we can determine rates of marine mammal growth, reproduction and mortality, age at sexual maturity, and how these may vary between populations. The ability to assess age-related aspects of marine mammal populations also allows us to determine the reaction of a population to environmental stresses – both natural and human-induced.

Teeth make good candidates for age estimation in marine mammals because layers are laid down in the dentine or cementum as the animals get older, much like the growth rings in trees. With the proper techniques these layers can be counted. Teeth have been used to derive age estimates in a large number of marine mammal species for over 50 years. However, little information is available for Australian marine mammals as there is limited experience in aging techniques in Australia. Australian researchers have had to either pay for samples to be aged by overseas laboratories, or travel overseas for training.

Now the South Australian Museum, in collaboration with researchers from the University of Tasmania, the University of Alaska and La Trobe University, have received \$42 000 from the new Australian Centre for Applied Marine Mammal Science, to help set up a centre of excellence for aging marine mammals.

The centre will greatly enhance the output of many Australian research projects studying threatened and poorly known species, such as the Australian sea lion, sperm whale, snubfin dolphin, Indo-Pacific humpback dolphin and spinner dolphin. Money for the initiative will also fund a workshop in August 2007, to train a collaborative network of researchers in tooth aging and produce a technical manual on tooth aging and structure.

The South Australian Museum houses the largest and most comprehensive marine mammal collection in Australia and has been actively involved in marine mammal research for many years, making it an ideal candidate to house a tooth aging research centre. Research through the centre will greatly enhance the management and conservation of marine mammal species. It is hoped that support for this national aging facility will be sustained, enabling critical research into the biology and ecology of Australian marine mammals now and into the future.

For further information on the workshop contact Catherine Kemper at Kemper.Cath@sau.gov.sa.gov.au

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The South Australian Museum's collection of whales and dolphins numbers in excess of 900 specimens and includes 35 species.



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*A sectioned sperm whale tooth showing growth layer groups. From *Journal of Cetacean Research and Management* (2002) 4(2):193-202.*