

NEW AUSTRALIAN MARINE MAMMAL PROJECTS

Technology development is a feature of many of the new marine mammal projects to be undertaken in 2008 through the Australian Centre for Applied Marine Mammal Science (ACAMMS) – based at the Australian Antarctic Division. Eleven projects, worth \$790 000, were approved by the Australian Government in late 2007. They follow on the heels of 15 projects undertaken during the Centre's first year of operation (*Australian Antarctic Magazine* 12: 29-31).

All projects have to address at least one of four priority research areas, one of which is the development of powerful, new, non-lethal technologies and methodologies to support marine mammal conservation and management. The following articles on pages 24-26 highlight three such technology-driven projects.

Other projects to be conducted in 2008 include:

- A census of Australian fur seal pups;
- Investigating the movement patterns and population size of Western Australian pygmy blue whales;
- Using aerial and land-based surveys to determine the population status of Western Australian humpback whales; and
- Determining the diet of Australian fur seals through DNA analysis of faeces.

The ACAMMS supports research that focuses on understanding, protecting and conserving marine mammals from tropical, temperate and Antarctic waters. The work is critical to the Australian Antarctic Division's broader research and advisory role within the Department of the Environment and Water Resources. More information about ACAMMS research can be found at www.aad.gov.au/acamms.



AMANDA HODGSON, UQ

Humpback whale identi-kit more than a fluke

Just as humans can be identified by their facial features, humpback whales have identifying features on their tails or 'flukes'.

Captured on film, these features can be used by biologists to estimate the abundance of whales and to monitor individuals in a population year after year. Tens of thousands of photos of the flukes of Southern Hemisphere humpback whales have been taken over the years, providing an incredible database of information. But as the number of photos increases, so does the difficulty of manually comparing images to find a match.

Through the Australian Centre for Applied Marine Mammal Science, Dr Eric Kniest, of the University of Newcastle, and Professor Peter Harrison and Mr Daniel Burns, of the Southern Cross University Whale Research Centre, will complete development of the first computerised fluke matching system for humpback whales in Australia and the South Pacific region.

The system will standardise each fluke image for computer matching – scaling and rotating images onto a common reference system. This means that

photos taken from different angles, at different distances, or with water obscuring parts of the fluke, will all fit a standard template. The database will also record visual and measurable elements of each fluke, such as the pattern of black and white patches, the distance between the fluke tips, and the shape of the fluke tips. When a new photo needs to be matched against those in the database, researchers will simply need to enter information on some of these common visual or measurable points.

'There will also be scope to include additional features in the database, such as scratches, to improve the matching process,' Dr Kniest says.

In a database of 1000 flukes, the photo-identification matching system will take only a few minutes, compared to up to an hour for an experienced operator comparing photos manually.

A working version of the system has already been developed through a previous pilot study in 2004, but will now be refined for more efficient searching of larger fluke catalogues. In the future, Dr Kniest says the system could be adapted for Northern Hemisphere humpback populations and other whale species.

WENDY PYPHER
Information Services, AAD



JOSHUA SMITH AND MICHAEL NOAD

A computerised fluke matching system will reduce the time needed to match fluke photos in large databases from hours to minutes.