More than $700 000 in funding for non-lethal whale research was announced by the Australian Government in June. A $267 000 Indo-Pacific Cetacean Research and Conservation Fund (IPCF) will support four three-year projects in Papua New Guinea, Pakistan, Fiji and Bangladesh while a $440 000 Bill Dawbin Postdoctoral Fellowship was awarded to Dr Amanda Hodgson of Murdoch University for applied cetacean research. The work will be administered through the Australian Marine Mammal Centre based at the Australian Antarctic Division. The international work of the centre recognises the large-scale movements of many marine mammal species and accommodates Australia's national and international obligations. The following pages provide an overview of some of the projects. For more information visit www.marinemammals.gov.au

Humpback Whales in Fiji. Photo Saras Sharma

SURVEYING PAKISTAN'S WHALES AND DOLPHINS

Surveys of whale and dolphin populations off the Balochistan coast of Pakistan will contribute to understanding and conserving marine mammals in the North Arabian Sea.

The project, headed by the World Wildlife Fund (WWF) in Pakistan and funded through the Indo-Pacific cetacean research initiative, will determine cetacean abundance, diversity, and seasonal habitat use along a 700 km coastal stretch.

The survey area lies within a WWF 'Global 200 eco-region' – a high priority conservation area – and within the Indian Ocean Whale Sanctuary. Despite this, there are currently no marine protected areas in Pakistan.

'The study will help to identify the important areas needing protection and management. The priority hotspots can then be assessed for possible declaration of Marine Protected Areas,' Deputy Director General of the WWF in Pakistan, Dr Ejaz Ahmad, said.

Throughout the duration of the project there will be an emphasis on awareness and capacity-building of local government staff, students and coastal communities in marine mammal conservation. Some of the preliminary survey work will be done in consultation with fishing communities, who will help researchers identify cetacean hotspots.

'A public awareness and education program within the project will help raise awareness about cetaceans and change the attitudes and behaviour of the general public,' Dr Ahmad said.

'Capacity-building of stakeholders that include government officials, fisher-folk and students will help and motivate them to understand cetacean conservation and participate in conservation efforts.'

Information gleaned from the surveys will help manage habitat destruction as a result of development activities on the Balochistan coast, and evaluate the impacts of these actions on marine life, particularly cetaceans.

Dr Ahmad said the project will contribute to a trans-boundary conservation program for cetaceans, involving non-government organisations of nearby countries, including the Green Front of Iran and the Oman Whale and Dolphin Research Group.

'We also hope that this work will contribute to the establishment of a sustainable ecotourism industry in the region focussed on dolphin and whale watching, which will benefit local communities,' he said.

JILL BROWN

Corporate Communications, Australian Antarctic Division

What is the IPCF?

The Indo-Pacific Cetacean Research and Conservation Fund aims to promote positive conservation outcomes for cetaceans in the Pacific and Indian Ocean regions by:

- building a stronger scientific base for cetacean policy and conservation in the Indo-Pacific region, particularly within developing countries;
- deepening the pool of academic expertise about cetaceans within developing countries in the Indo-Pacific region;
- contributing to cetacean research efforts for the global public good;
- developing partner country capacity to solve local cetacean research, conservation and management issues; and
- fostering linkages that encourage solutions to cetacean research and conservation challenges.

For more information contact ammccoordinator@aad.gov.au

Researchers in Pakistan will determine cetacean abundance, diversity, and seasonal habitat in a WWF Global 200 eco-region.

R & E MANSUR/BCDP/WCS

Fiji focuses on endangered humpback whales

Researchers will map the movements of endangered Oceania humpback whales (*Megaptera novaeangliae*) in Fijian waters to build a complete picture of the species' slow recovery from whaling.

The Oceania sub-population of humpback whales was classified as endangered in 2008, based on the small number of individuals present on tropical breeding grounds in comparison to pre-whaling abundance estimates, including comparisons between historical and land-based counts conducted in Fiji. These included surveys by Dr Bill Dawbin in the 1950s (who recorded 1648 humpbacks in three years), and surveys in 2002, 2003 and 2008.

Ms Saras Sharma from the Fiji Ministry of Fisheries said that establishing a consistent and long-term dataset on movement patterns is an important step in understanding the recovery, trend and status of this species within Fiji's national waters. This work builds on preliminary work on humpback migration and Fiji's first national cetacean survey in 2009.

'This project is different because it's on a broader and more intense scale and involves a lot of organisations and people. The Indo-Pacific Research funding has greatly assisted the project through training and capacity-building, equipment and logistics,' Ms Sharma said.

'We have been fortunate to engage various government and non-government organisations in the project, and have created a significant level of cetacean conservation awareness and effort throughout Fiji.'

The project will build the capacity of national government staff and researchers for cetacean conservation, and aims to be relatively low-cost and easy to replicate to ensure sustainability over the longer term.

Fiji declared its exclusive economic zone a whale sanctuary in 2003, providing protection to resident and migratory cetaceans. The information gathered through this survey will contribute to the formulation of practical actions to manage the sanctuary.

JILL BROWN

Corporate Communications, Australian Antarctic Division

Below: This Fijian double-hulled canoe is used for survey work and the recording of whale song. Long-term datasets on the movement of the endangered Oceania sub-population of humpback whales will allow Fijian scientists to monitor its recovery.

SARAS SHARMA

CAPACITY-BUILDING IN PAPUA NEW GUINEA

CRIBB/WDCS

Above: Spinner dolphins in waters near Madang, Papua New Guinea.

Field surveys around the islands, atolls and coral reefs of Papua New Guinea will provide some of the first baseline information about cetaceans in the region, while building the country's capacity for cetacean research and conservation.

Dr Cara Miller of the Whale and Dolphin Conservation Society International said the project would develop in-country capacity in terms of conducting research, developing appropriate management strategies and providing background information on cetaceans and their habitats.

'Activities will include information and awareness sessions, discussion and planning, and conducting whale and dolphin surveys in surrounding waters,' she said.

The project takes a three-pronged approach to cetacean conservation and management: the development of practical field research skills for a core group of in-country participants; the progression of a national management plan for cetaceans; and the roll-out of other education and awareness initiatives.

'My hope is that this project actively assists our in-country participants to effectively implement national and regional cetacean conservation initiatives and plans,' Dr Miller said.

'It will improve their capacity to design and undertake cetacean surveys and prepare them to engage in issues that have relevance and linkages to cetaceans and their habitats within the country's exclusive economic zone.'

The surveys will be the first to be conducted in Manus province, Papua New Guinea's smallest province, which has a vast sea area rich with marine life and coral reefs. The Papua New Guinea government is particularly interested in surveying this area as it works towards establishing a comprehensive picture of national biodiversity.

JILL BROWN

Corporate Communications, Australian Antarctic Division


R & E MANSUR/BCDP/WCS

DOLPHIN HOTSPOT A CONSERVATION PRIORITY

R & E MANSUR/BCDP/WCS

A project led by the Wildlife Conservation Society will improve understanding of the ecology and fisheries interactions of Indo-Pacific humpback dolphins (*Sousa chinensis*) and Indo-Pacific bottlenose dolphins (*Tursiops aduncus*) in the eastern Indian Ocean – a hotspot of cetacean diversity.

Using photo-identification survey methods in coastal waters of the Bay of Bengal, researchers aim to discover the nature and magnitude of conservation threats from fisheries interactions and global climate change, to the two species.

'The only previous information on humpback dolphins in Bangladesh was obtained opportunistically during photo-identification work on Indo-Pacific bottlenose dolphins,' Mr Brian Smith of the Wildlife Conservation Society said.

'Funds from the Indo-Pacific Cetacean Research and Conservation Fund will allow us to conduct dedicated fieldwork on humpback dolphins and fully analyse existing data on bottlenose dolphins. We can then apply this information to conservation management.'

Information on dolphin abundance, survival rates, habitat characteristics, ranging patterns, scars and mutilations from fishing gear entanglement, and the density and distribution of fishing gears will be used to develop an effective management plan for both species in the context of local human needs.

Mr Smith said there is wide-ranging support for dolphin conservation from both government, which is developing plans for a protected area network, and local fishing communities, who regard dolphins and other cetaceans as symbols of good luck and companionship. However, both the government and the local fishing communities lack the technical resources to design a science-based protected area network.

'This project will have a substantial positive impact on cetacean conservation in Bangladesh by providing a thorough base of knowledge on the status of two species that are vulnerable to human impact and by strengthening the capacity of local scientists and resource managers to address the conservation needs of marine species,' Mr Smith said.

'The latter benefit will be achieved through a strong emphasis on training and long-term mentoring, and the participatory approach we take while conducting all research activities.'

The capacity-building aspect of the project will also benefit other cetacean species that occur in Bangladesh in sufficient numbers for early management interventions to be effective in protecting them. The estuarine and marine waters of Bangladesh are contained within the International Whaling Commission's Indian Ocean Sanctuary and serve as a vital safety net for cetaceans that are generally less abundant, and at greater risk, in other parts of Asia. These species include the Ganges River dolphins (*Platanista gangetica*), Irrawaddy dolphins (*Orcaella brevirostris*), and finless porpoise (*Neophocaena pfhocaenoides*).

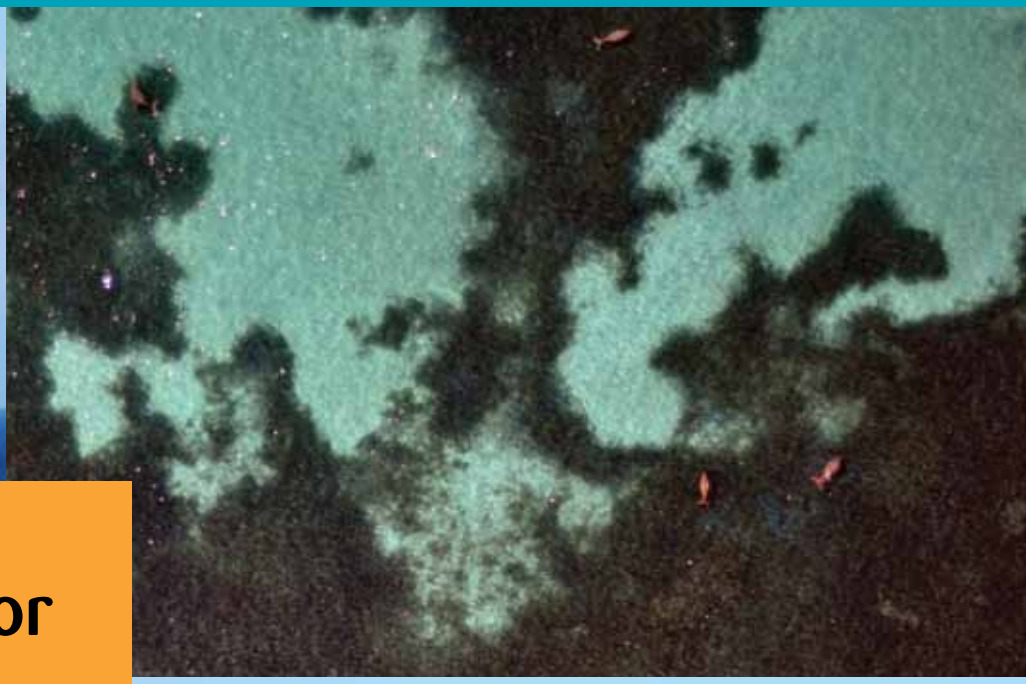
JILL BROWN
Corporate Communications, Australian Antarctic Division

Above: Indo-Pacific humpback dolphins and Indo-Pacific bottlenose dolphins (insert) are a focus of research in Bangladesh.

Below: Fishing activities pose a threat to cetacean conservation in many parts of the world.


R & E MANSUR/BCDP/WCS


INSITU PACIFIC



Unmanned aircraft count for conservation

Unmanned aircraft have captured high-quality images of dugongs in Australia's first trial to see whether the military-style drones can help scientists manage and conserve marine mammals.


NEIL SMITH

Murdoch University's Dr Amanda Hodgson – recipient of the Bill Dawbin post-doctoral fellowship for applied cetacean research – enlisted the help of Insitu Pacific and its ScanEagle Unmanned Aerial Vehicle (UAV) to investigate whether UAVs are a cost-effective and capable alternative to fixed-wing, manned aircraft for counting and surveying marine mammals.

'The conservation and management of many marine mammal species is largely dependent on monitoring habitat use and population status by conducting aerial surveys from manned aircraft,' Dr Hodgson said.

'We've shown that a stills camera mounted on normal planes can provide dugong sighting data equivalent to human observers and after this first direct trail of UAV technology it looks like the photos from the UAV are just as good.'

The ScanEagle is a low-cost, long-endurance system designed specifically for surveillance and flexible, rapid deployment on land and at sea. It can operate up to an altitude of 20 000 feet for up to 28 hours at a time.

UAVs like the ScanEagle eliminate the risks posed to human observers by flying low over large areas of ocean in small planes, and the ability to review photos (rather than relying on observer counts alone) should enable more accurate detection, location and identification of species.

'During this first trial we've focused on dugongs and collected images of them with various camera adjustments, while flying the UAV at various heights, air speeds and in different environmental conditions to assess the best way to use this technology to survey dugongs,' Dr Hodgson said.

Dr Hodgson will work with Insitu Pacific over the next three years to fine-tune its UAV camera systems with the objective of improving surveys of dugongs and humpback whales. These animals have been routinely surveyed for a number of decades in many sites around Australia and the datasets produced have formed the basis for conservation management.

Once the camera system is fully developed, Dr Hodgson will directly compare the results from traditional manned and UAV surveys of dugongs and humpback whales to test the efficacy of the UAV surveys.

'Eventually we hope UAVs will allow us to survey large and remote areas where manned surveys are logistically challenging,' she said.

'Large areas of Australia's coastline have never been surveyed for dugongs or humpback whales and UAVs capable of flying long distances may allow us to access these remote areas.'

Adapted from an article published by Murdoch University www.murdoch.edu.au

Dr Hodgson's UAV research has previously featured in Australian Antarctic Magazine *13: 25, 2007.*

Top left: The ScanEagle in flight.

Above: Amanda and the five Insitu Pacific UAV operators in Shark Bay (L-R): Pete Cassimatis, Amanda Hodgson, Marty Evans, Carl Brown, Neil Smith and Rich Clifford.

Top right: An image from the ScanEagle UAV showing four dugongs in Shark Bay.