

Planning begins for Heard Island 2003-04

In the summer of 2003–04 the AAD will conduct a scientific expedition to Heard Island. A party of scientists including glaciologists, animal, bird and terrestrial biologists, and support staff will spend approximately two months on the island living in tents and huts while *Aurora Australis* conducts a marine science program in the waters around the island.

An important planning workshop was held in Hobart on 8–9 June 2002 for scientists to discuss the work to be achieved on the expedition and to consider the level of support required to ensure the work is done safely and in accordance with the strict environmental guidelines in the management plan for the World Heritage Area.

Operational support for the program will be coordinated by a planning project team in the AAD's Operations Branch. As the plans are developed, details will be posted on the AAD's website at <http://www.aad.gov.au/goingsouth/expeditioner/projects/heard.asp>

Heard Island predator-prey study

One ambitious and exciting project planned for the summer of 2003–04 will seek to better define the relationships between land-based predators of Heard Island and their prey. An understanding of these relationships is one of the essential steps towards the determination of ecologically sustainable levels of fishing activity in the Heard Island vicinity.

The study focuses on what we determined to be the most important consumers of prey in the nearby shelf waters around Heard and McDonald Islands; king penguins, macaroni penguins, Antarctic fur seals and juvenile elephant seals. Black-browed albatross and light-mantled sooty albatross will be included in the research because of their propensity to be drowned in long-line fisheries. A carefully selected group from each of these species will have specialised tracking and data-logging instruments glued to their fur or feathers and as they feed in the waters around Heard Island they will be tracked in almost real time. For 50 days scientists aboard *Aurora Australis* will conduct intensive marine research in the areas the animals use. Potential prey will be



sampled with echo-sounders and trawl nets and details of the physical oceanography of the area collected.

As well as the predator-prey study, scientists aboard *Aurora Australis* will also conduct research to map benthic communities and sediments to assist in the designation of marine protected areas.

A suite of new techniques will be applied to this large, ecosystem-scale experiment and the results will add greatly to our knowledge of, and ability to protect, this important area.

NICK GALES,
ANTARCTIC MARINE LIVING RESOURCES
PROGRAM, AAD

Heard Island terrestrial research

At the recent development workshop, significant interest was shown in future terrestrial biology and earth science research on Heard Island. Over 20 applications for research have been received and are currently being assessed by the Antarctic Research Assessment Committee.

Some projects have already received multi-year approval. These include a study which is looking at the impact of UV light on Antarctic plants, to see if such plants have good sunscreens or, if their DNA has been damaged by high UV exposure, if they have effective DNA repair mechanisms. Another project is establishing baseline information on the current distribution and abundance of seabirds

on Heard Island with a view to establishing population trends. Another ambitious project being planned will simultaneously look at variation in size, structure and developmental timing (such as flowering) in plants and insect on four subantarctic island groups (Heard, Kerguelen, Crozet and Marion). These islands have similar geological structures but currently different climates. This project will require carefully arranged logistics between the Australian, French and South African programs.

DANA BERGSTROM,
BIOLOGY PROGRAM, AAD

Working and surviving on Heard

Scientists engaged in field work on Heard Island will experience some of the most extreme climatic conditions on Earth. Strong winds and freezing rain, sleet and snow make the achievement of productive work particularly challenging. Drawing on the experience of the 2001–02 field season, scientists will use tents with a thick waterproof outer protective cover fitted. The two base camps at either ends of the island will use the plastic converted water tanks successfully trialled on the previous expedition for accommodation, laboratory and communications facilities.

Approximately 30 scientists will be delivered by inflatable rubber boats which will also be used to permit transfer between coastal field sites when the weather and sea conditions permit. Although *Aurora Australis* will be working in the vicinity, it will only rendezvous with the land-based field parties in an emergency. ■

ROB EASTHER,
HEARD ISLAND 2003-04 PROJECT MANAGER, AAD

Heard Island now world's biggest marine reserve

The Australian Government has proclaimed the world's largest fully protected marine reserve in Australia's remote subantarctic waters.

The new 6.5 million hectare Heard Island and McDonald Islands Marine Reserve is 4500 kilometres south-west of the Australian mainland and 1000 kilometres North of Antarctica. It falls within Australia's 200 mile Exclusive Economic Zone surrounding Heard and McDonald Islands. Heard and McDonald Islands was inscribed on the World Heritage List in 1997 for its outstanding natural universal values

The new park surpasses another Australian marine reserve, the 5.8 million hectare Macquarie Island reserve, as the world's largest.

In making the announcement, Federal Minister for the Environment and Heritage, Dr David Kemp, said the declaration would protect the conservation values of the region and provide an effective conservation framework to manage the region in an integrated and ecologically sustainable manner. ■

PHOTO & MAP CREDITS
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Opposite page top to bottom:
MODIS data provided by NASA/GSFC/DAAC
(Image by N. Young, AAD & Antarctic CRC)
Map Peter Boyer / Neal Young