

# A ANTARCTIC SCIENCE FOUNDATION



Understanding the penguins' response to major environmental disruption is key to understanding how the species might react to future changes in the Antarctic ecosystem

## PENGUIN PURSUITS A bird's eye view of environmental change

There are few creatures in Antarctica as iconic as the Adelie penguin. They are the smallest of the four penguin species living on the frozen continent, and sport a characteristic tuxedo look: a black back and head, white chest, and a distinctive white ring around the eye.

Unfortunately, dramatic changes to the environment around Commonwealth Bay in East Antarctica have been impacting the nearby Adelie penguin population. Their feeding and breeding patterns have been disrupted, and they are under threat.

A one-off research expedition, involving specialist technology like remote cameras and tracking devices, will allow the penguin research team at the Australian Antarctic Division to investigate the health of the Adelie colony and monitor how the penguins have adapted to changes in their environment.

Understanding the penguins' response to major environmental disruption is key to understanding how the species might react to future changes in the Antarctic ecosystem.

The expedition can only take place with your support.

### Adapting to major change

In 2010, an enormous iceberg – 97km long – grounded offshore from Cape Denison, in Commonwealth Bay, blocking the Adelie penguins' access to their traditional food and breeding grounds.

Expeditions to the area in 2013-2014, led by scientists from the University of New South Wales, observed difficulties being experienced by the penguins. Because of the increased ice in the bay, the penguins had to travel further to forage and then return to feed their chicks. It was clear at this time that penguin numbers had fallen.

In 2016, the iceberg finally moved on, and Australian Antarctic Division scientists are keen to investigate how the penguin colony has adapted to the changed environment, with a view to setting up longer-term

### RESEARCH TEAM

#### Dr Louise Emmerson

– Seabird Ecologist at the Australian Antarctic Division

*Based at the Australian Antarctic Division since 2001, Dr Emmerson is a quantitative ecologist whose work focuses on the Adelie penguin and snow petrel populations of East Antarctica. Her research helps with predictions of what may happen to seabird populations in a changing climate. Dr Emmerson is also a passionate educator, who is actively involved in the Scientists in Schools program.*

#### Dr Colin Southwell

– Ecologist at the Australian Antarctic Division

*Dr Southwell has been with the AAD since 1994, having previously worked with the Federal Environment Department. His research focuses on developing cost-effective ways to monitor wildlife populations and understanding long-term changes in the Southern Ocean.*

Photos: (top) Chrissie Trousselot, Jessica Melbourne-Thomas; Louise Emmerson (right) and Phoebe Lewis (image: Marcus Salton); Louise Emmerson and Colin Southwell (Phoebe Lewis)





Map: TUBS CC BY-SA 3.0

monitoring to determine if there are any lingering effects.

## Seeking answers

Through the Antarctic Science Foundation, researchers are seeking funding for a research mission to Cape Denison to survey and monitor Adelie penguins and gain a deeper understanding of the environmental impacts on their population.

Learning more about the response of this specific colony will provide insights into how other colonies around Antarctica and the species overall may adapt to climate change.

Questions the researchers will be seeking to answer include:

- Is the colony adapting to the new environment?
- Are the penguins moving somewhere else or is the colony unsustainable with the lack of breeding success over multiple years?
- Has the population declined?
- How are the penguins responding to different ice conditions?
- What track are they taking to their feeding grounds?

Tracking devices will reveal how far the penguins are travelling to feed and nest, while remote cameras

will provide ongoing year-round information about the breeding colonies. All research is designed to minimise ongoing intrusion and disturbance for the penguins.

## A one-off opportunity

The two lead researchers, Dr Louise Emmerson and Dr Colin Southwell, have extensive experience in Antarctic research, including previous projects focusing on Adelie penguins.

However, first-hand visits to Commonwealth Bay – famous as the location of Mawson’s Huts – are difficult, and it is not a site that scientists can visit regularly. It is a remote and harsh area, even for Antarctica, and the safety of researchers is crucial. The team will include a doctor and a field training officer, who will have deep field experience.

In addition to the specialist technical equipment, the research team will require clothing, food and shelter for a significant period of time in one of the Earth’s most unforgiving environments. Your donation can help fund the extensive preparation and logistics associated with this unique expedition.

*As part of the Australian Antarctic Science Program, all research is ethical and designed to minimise ongoing intrusion and disturbance for the penguins.*

## HOW CAN YOU HELP?

The Antarctic Science Foundation is seeking to raise \$415,000 to fund this special research. By making a gift to the Foundation, your contribution will provide the research team with:

- logistics support to get to Commonwealth Bay
- satellite trackers which reveal where the penguins go, including what route they take to their feeding areas
- satellite transmission costs, so the team can track the penguins’ progress from the AAD headquarters in Kingston, Tasmania
- specially built, remote-controlled cameras, which can withstand the extreme cold for extended periods; these will stay with the colony, so the team can check its size over time
- satellite feed for photos taken by the camera
- a drone with operator, to view and photograph the colony from above

Snow petrel, penguin and iceberg (Chrissie Trousselot); Sunset over fast ice (Kerry Steinberner).

18% of your contribution to projects will go towards the operations of the Antarctic Science Foundation.

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