



## ANTARCTICA NEW ZEALAND INFORMATION SHEET

# PENGUINS

### Introduction

Penguins are flightless birds found in the Southern Hemisphere from the Antarctic to the equator. Of the eighteen species, there are four that live in Antarctica and they account for 85 percent of the region's bird population. The Adelie and Emperor Penguins breed on the Antarctic shores and are the only two species found in the Ross Sea area. Chinstraps breed on islands around Antarctica and Gentoos are found from the Antarctic islands to the sub-Antarctic. Another three species (the King, Rockhopper and Macaroni) live on the sub-Antarctic islands.

Because ice covers almost all of Antarctica, penguins have to get all their food from the sea, where they spend about half their time. They are able to dive very deeply (emperors can dive to 250 metres) and all are excellent swimmers. The feet and tail act as a rudder and the flippers as propellers. They feed mostly on small fish and krill, each one captured individually. The penguins are also food for other ocean predators: leopard seals and killer whales. On land their main predator is the skua, a bird which takes both eggs and chicks.

### Coping with Cold

Penguins have to be well adapted to the cold. They have short, overlapping feathers (like tiles on a roof) to minimise heat loss. Under the feathers is a layer of down and beneath the skin is a thick layer of fat for extra insulation. Their stocky bodies with small extremities (flippers, feet and head) minimise body surface area over which heat loss can occur. Heat loss from their feet is minimised while they are standing. Their social behaviour also conserves warmth - Emperor penguins; huddle together in large groups during incubation and chicks of all species often group together in creches.

### Adelie penguin - *Pygoscelis adeliae*

The Adelie is the most numerous penguin in Antarctica. It stands 60-70 cm tall and weighs about 5.5 kg. Males and females look the same and have a black head, neck and back and a white ring around their eyes.

They spend the winter on the edge of the sea ice and come onto land in early spring, sometimes having to walk up to 50 kilometres over the ice to reach their nesting ground. They return to the same colony every year and usually to the same mate. The males arrive first and rebuild the nests. After mating, the female lays two eggs in early November and returns to the sea for 8-15 days while the males incubate the eggs. This means the males fast for about four weeks and lose about half their bodyweight by the time the females return and take over the incubating duty.

For the rest of the incubation period and after hatching, they take turns to return to the sea to feed for 2-3 days at a time. They bring back fish and krill in their crops, which they regurgitate to feed the chicks.

The Adelie penguins at Cape Crozier have been studied and it was found the adults make approximately 40 feeding trips while raising their chicks, each time bringing back half a kilogram of food. As there are 175,000 pairs at Cape Crozier, about 3500 tonnes of food is brought onto the colony for the chicks! The largest rookery is at Cape Adare, which has about quarter of a million pairs.

Adelie penguins can swim very quickly - up to 15 kilometres per hour. This gives them the momentum to leap out of the water onto the shore or ice floes. They can leap up to two metres, which is also a useful way to escape from predators.

### **Emperor penguins - *Aptenodytes forsteri***

Emperors are the largest of all penguins. They are about one metre tall and weigh approximately 30-40 kilograms. They have a black head, a bluey-grey neck with a bright orange patch near the ears and pale yellow breast fading into white.

Emperors are bigger and chick-rearing takes longer than it does for the smaller Adelies. Chicks need to be independent by summer, when food sources are most plentiful, so the eggs have to be laid early. In autumn (April-May), colonies assemble on the sea ice in sheltered bays. A single egg is laid in May or early June and is incubated by the male for two months over the coldest part of the year. The egg is kept on top of the male's feet, covered by a flap of blood-rich skin and feathers to keep it warm in temperatures down to - 50°C. The male doesn't eat during this time; it would use too much energy to go back and forth across many kilometres of ice to the sea if incubation duty was shared with the females. Instead they have adapted to these extreme conditions by huddling together in huge groups and using their fat reserves for energy and insulation.

The females return to the colony when the chicks hatch and then both parents take turns crossing the ice to the sea to feed and to bring back food for the chick. By January or early February the chicks lose their downy feathers and, although not fully grown, are ready to fend for themselves in the sea. They spend their first two years at sea or on the pack ice.

### **FURTHER READING**

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