



Penguins

Distribution

Penguins are flightless sea birds of the Southern Hemisphere. Worldwide there are 17 species of penguins, found in Antarctica, South Australia, New Zealand, and off the coasts of Peru, Chile, and South Africa. Some species live as far north as the equatorial Galapagos Islands, but penguins are primarily cold-weather birds. There are seven species of Antarctic penguins: the Adelie, Gentoo, Macaroni, Chinstrap, Rockhopper, King, and Emperor. The Adelie, Emperor, Chinstrap, and Gentoo penguins are the only four penguins that breed on the Antarctic continent.



Physiology

Penguins have a heavier skeleton than most birds, oily waterproof feathers, and specialized glands that extract and excrete excess salt. Their feathers, which even cover their bills and feet, combine with a thick layer of fat to insulate them. This works so effectively that the birds frequently overheat in the frigid waters. Their size varies by species, from the sixteen inch, two and a half pound Little Blue penguin of Australia to the truly Antarctic sixty-six pound Emperor penguin, which stands more than three and a half feet tall.

Talented Swimmers

Penguins swim like other birds fly. Their wings have not disappeared, nor have they become vestigial, useless appendages. Instead, they've evolved into flippers. When underwater penguins use highly developed muscles to flap their wings to move forward, and they guide themselves with their tail. They are the only bird to "porpoise." Meaning, they launch themselves out of the water, momentarily flying in fluid arches as they continue to swim forward at high speeds like dolphins. Gentoo penguins are thought to be the fastest of all swimming birds, achieving speeds of thirteen to seventeen miles per hour.

The Hunter and the Hunted

Penguin's predators include: leopard seals, sea lions, and killer whales. Skua gulls are the greatest natural threat to chicks and eggs. In turn, penguins dive to hunt fish, squid and krill -- a small shrimp-like crustacean. Penguins' dependence on krill was demonstrated in dramatic fashion in 1995, when thousands of Adelie and Emperor chicks died due to unusual movements of krill swarms. While hunting most penguins only submerge for about 1 minute, but Emperors can dive as deep as 180 feet for up to 18 minutes.



Species Characteristics

The Macaroni and Rockhopper penguins are in the same genus, *Eudyptes*. Both have yellow crests decorating and

distinguishing their heads. In fact, the Macaroni gets its name for this feature after "Macaroni Dandies," resplendently dressed eighteenth century Englishmen. Some Macaronis breed on the Antarctic Peninsula. The five and a half pound Rockhopper is the smallest Antarctic species, but it compensates for its smallness by being the most aggressive of all penguins.

The Gentoo, Chinstraps, and Adelies are the southernmost representatives of the genus *Pygoscelis*. These three species are roughly the same size. The Gentoo is the rarest of the three, with a population of about 350,000 and is mostly found on South Georgia, an island northeast of the peninsula. The Chinstrap gets its name from markings on its head and neck, and it is considerably more abundant, at about ten million. Some Chinstrap penguins breed on the Antarctic Peninsula. The Adelie is the most numerous of the Antarctic penguins. Adelie penguins have the classic penguin look, being white and black with no adornments. On average, an Adelie weighs about 11 pounds and stands a little less than thirty inches tall. The Adelie breeds widely on the continent proper and its colonies can number in the millions.

The Emperor and the King penguins belong to the genus *Aptenodytes* and look more alike than different. However, the Emperor is considerably larger, weighing twice as much on average. They both have yellow and orange markings around the neck, black heads, white bellies, and blue-gray backs. The King penguin breeds on the subantarctic islands, while the Emperor breeds on the continent's ice. The Emperor is the only bird that will live its entire life on ice.



Colonies

Penguins breed in colonies and can be fiercely territorial. They breed closely together mostly because there is very little ice-free space. But they are also highly social animals that recognize individuals and return as adults to the rookery where they were born. The colony helps these birds guard, protect, and defend their young. Within these colonies, penguins build rookeries with pebbles and guano. The one exception to this is the Emperor penguin who does not build a nest at all because it breeds on the ice.

Breeding

Six of the seven Antarctic species breed during the summer; the Emperor breeds during the unbelievably cold, dark Antarctic winter. The Emperor has a longer gestation period than other penguins, so it must time its cycle in order to ensure its chicks become independent during the summer when food is abundant. Once the female lays the egg she leaves for two months to hunt and feed in the sea. The male is left behind to incubate the egg, which requires a two to three month fast that results in the male losing from a third to half of his body weight. Upon hatching the female returns to rear the chick and the male ventures out to sea to regain his weight.

Threats

Today, penguins are economically important in South America and South Africa for their guano, used for fertilizer, and as tourist attractions. In the past, commercial egg collecting caused severe damage to rookeries. Around the turn of the century, penguins were also

slaughtered for their blubber -- especially the King. However, present day Antarctic penguins find their greatest human threats from inadvertent interference.

Direct Threats

Nearly all of Antarctica is covered in ice, this results in a competition for breeding areas among different breeding groups. This competition is intensified when humans begin utilizing the same ice-free areas. Tourism and airstrips on the continent can affect penguins in unpredictable and dangerous ways. Unfortunate incidents, like the building of the French airstrip Dumont d'Urville on the rocky Adelie coastline, have ruined some of the best bird breeding areas on the continent. (In 1994, a tidal wave washed away a good deal of that airstrip.)

Indirect Threats

Penguins are also threatened by the over-fishing of their main food source, krill. Krill are considered a keystone species, meaning that they form a base upon which an entire ecosystem is dependent, conversely, if the krill stocks are depleted the effects are seen through the entire ecosystem, including penguins. There have also been discussions regarding the impact of climate change on krill abundance. While the global average temperature has increased by an average of .6°C it has increased in Antarctica peninsula by 2.5° C in the last 50 years. This rise in temperature is behind the decreasing sea-ice cover, which decreases the amount of algae which krill feed upon, thus reducing their abundance. With increasing awareness of climate change and its effects on melting ice, ocean currents, and overall temperatures, there are some scientists who are concerned that penguins will be especially hard hit by climate change. Scientists have now begun to explore the possibility that climate change is responsible for the population decline of the Adelie penguin by 33% over the last twenty years.

Protection

Penguins are protected under the [Antarctic Treaty System](#), the Agreed Measures for the Conservation of Antarctic Fauna and Flora (Recommendations III-8 of 1964), which prohibits killing, wounding, capturing, or molesting any native mammal or bird in Antarctica without a permit. Also governed by the [Convention on the Conservation of Antarctic Marine Living Resources](#), which is part of the Antarctic Treaty System. The Convention takes a unique approach by managing from a complete ecosystem perspective and with a precautionary approach. Therefore decisions are made based on the health and wellbeing of the entire ecosystem and aimed at preventing damage instead of reacting to an already present situation.

Antarctic & Southern Ocean Coalition

1630 Connecticut Ave. N.W., 3rd Floor
Washington, D.C. 20009-1053

T: (202) 234-2480 • F: (202) 387-4823

Email: info@asoc.org • www.asoc.org