



AFRICAN PENGUIN & SEABIRD SANCTUARY



*.... it is practically impossible to look
at a penguin and feel angry.*

Joe Moore

Penguin 101



Penguin Facts

Where do the name “penguin” originate from?

The origin of the word “penguin” has been a subject of debate. Two main theories. Direct reference to the amount of fat penguins possess.

Penguigo in Spanish

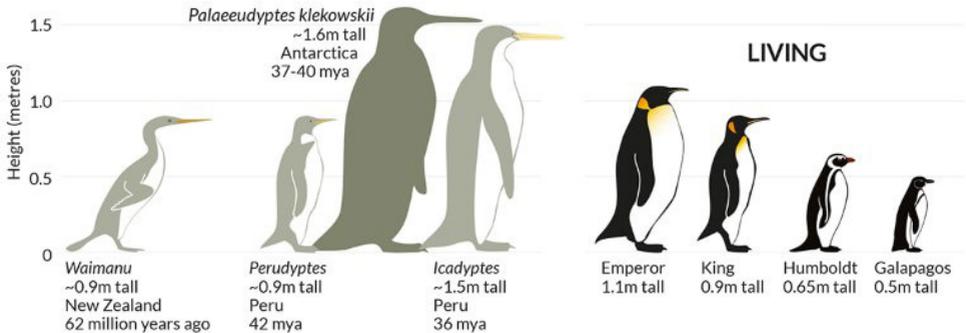
Pinguis in Latin

The most agreed-upon explanation is that the word was derived from two Welsh words “pen gwyn” meaning “white head”. “Penguin” was used as a name for the now-extinct great auk, which the modern-day penguin resembles and for which it was mistaken.



What are the origins of penguins?

The first penguin fossil to be discovered was that of *Palaeudyptes antarcticus*, found in rocks that were around 25 million years old, in New Zealand during the 19th century. Since then penguin fossils have been found that date back around 50 million years, which show many of the typical features associated with modern penguins. No penguin fossils have ever been found in the northern hemisphere. The largest penguin ever to have been discovered was similar in size to a man.



How are penguins different from other birds?

Skeleton:

Penguins differ from birds flying birds, by having a much heavier and more robust skeleton. Flying birds have bones that are paper-thin or hollow, often with internal honeycombing that combines adequate strength with low weight. For penguins such light weight skeletons hold no advantage, and they therefore have bones which are considerably denser, giving greater strength and reduced buoyancy.

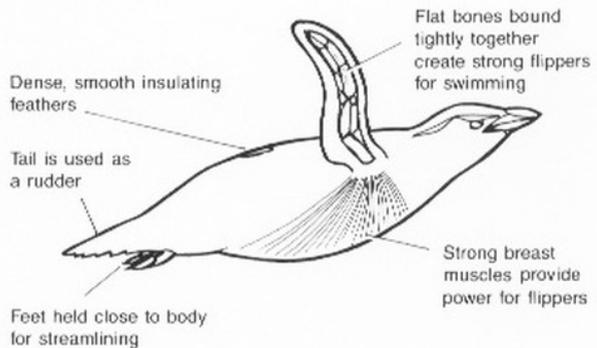
Feathers: Penguin feathers are waterproof and interlocking, providing an effective barrier to water. Each feather has small muscles which allow them to be held tightly down against the body whilst swimming, to form a thin water proof layer.

The waterproofing qualities of the adult plumage is maintained by constant preening. A waxy substance is produced from the uropygial gland at the base of the tail, and this is spread onto the feathers during preening to maintain their water-proofing qualities. Preening realigns the feathers, which interlock through microscopic hooks.

To remain waterproof the feathers must be renewed regularly throughout adult life. This is usually performed during an annual moult, when birds come ashore for a period of 2 - 4 weeks, while old feathers are pushed out by the new ones growing from underneath.

BIRD AQUABATICS

While penguins appear awkward on land and cannot fly like most other birds, they are well adapted for "flying" underwater.



Underwater flying:

All penguins look rather ungainly on land, but in the water they are graceful. Evolution has made their wings small and sturdy in order to "fly" in the dense medium of water. Penguins use their flippers with much the same action as other birds do in air, using their tails and webbed feet only for steering and braking.

Rearing chicks:

Both parents take turns to incubate the eggs and care for the chicks. When the chicks reach about two weeks of age, the original thin plumage is replaced by a thicker plumage. This provides good insulation, the chick can now maintain its own body temperature.

Both parents go to sea in search of food, in order to meet the growing demand for food from the larger chicks. In most surface-nesting species, chicks whose parents are at sea form into creches, and this provides them with a certain degree of protection from cold weather and/or predators.

Returning adults identify their chicks by recognition of their distinctive calls. Chicks must beg for food in order to initiate a feeding response from the parent, and this is usually done by constant pecking around the parents bill.

Penguin Scientific Classification

Class: Aves

This class includes all birds.

- Birds have an outer covering of feathers
- Are warm-blooded
- Have front limbs modified into wings
- Lay eggs.

Order: Sphenisciformes

- This order includes all living and extinct penguins.

Family: Spheniscidae

- Spheniscidae includes all penguins, living and extinct, and is the only Family in the Order Sphenisciformes.

Genus, Species

Most scientists recognize 18 species of penguins.

Some scientists recognize a 19th species: the white-flipped form of fairy penguin, *Eudyptula albosignata*.

Emperor: *Aptenodytes forsteri*

King: *Aptenodytes patagonicus*

Adélie: *Pygoscelis adeliae*

Gentoo: *Pygoscelis papua*

Chinstrap: *Pygoscelis antarcticus*

Nothern rockhopper: *Eudyptes moseleyi*

Southern rockhopper: *Eudyptes chrysocome*

Macaroni: *Eudyptes chrysolophus*

Royal: *Eudyptes schlegeli*

Fiordland crested: *Eudyptes pachyrhynchus*

Erect-crested: *Eudyptes sclateri*

Snares island: *Eudyptes robustus*

Yellow-eyed: *Megadyptes antipodes*

Little (also known as Fairy or Little blue): *Eudyptula minor*

Magellanic: *Spheniscus magellanicus*

Humboldt: *Spheniscus humboldti*

African: *Spheniscus demersus*

Galápagos: *Spheniscus mendiculus*

Cold Climate Penguins	Warm Climate Penguins
Emperor Penguin	Yellow eyed Penguin
King Penguin	Rockhopper Penguin
Gentoo Penguin	Erect crested Penguin
Royal Penguin	Megallanic Penguin
Macaroni Penguin	Humbolt Penguin
Adelie Penguin	African Penguin
Chinstrap Penguin	Galapagos Penguin
Fjordland Penguin	Little Blue Penguin
Snares Penguin	

- All penguins reside in the Southern Hemisphere.
- There is a perception that most penguins live in Antarctica, this may be because of the success of movies like “The march of the Penguins” & “Happy Feet” but in fact, only two species actually live on the Antarctic coastline – the Emperor and the Adélie.
- You will find different penguin species in and around Australia, New Zea land along the tip of South Africa, up and around the coast of South America and in the Galapagos Islands.
- Located on the equator, the Galapagos Islands are the warmest penguin home of all. With average temperatures of around 23 degrees celcius, it’s a big difference from the average temperature in Antarctica, which is minus 14 degrees celcius!

Emperor Penguin *Aptenodytes forsteri*



Height	112cm
Weight	27-41 kg
Distribution	Circumpolar on Antarctic continent within limits of pack ice
Prey	Fishes, squids
Predators	Leopard seals, killer whales, skuas
Population	Estimated at about 238,000 breeding pairs
Status	IUCN - Near threatened
	The largest of all penguins. This penguin endures the harshest weater of any species on the planet

King Penguin *Aptenodytes patagonicus*



Height	94cm
Weight	13.5 - 16 kg
Distribution	Subantarctic & Antarctic islands and peninsulas, usually forage in ice-free waters
Prey	Fishes, squids
Predators	leopard seals, skuas, giant petrels, gulls, sheathbills
Population	about 2,000,000 adults
Status	IUCN classifies this species as "least concern"; population stable or increasing
	Kings are found in their colonies year round because it takes them 15-18 months to raise their single chick

Gentoo Penguin *Pygoscelis papua*



Height	61-76 cm
Weight	5.5 - 6.5 kg
Distribution	Circumpolar in subantarctic and antarctic waters; avoids pack ice and continental coasts (except near the Antarctic Peninsula)
Prey	Krill, squid
Predators	Skuas, leopard seals, antarctic fur seals, - Sea lions
Population	Estimated 387,000 breeding pairs
Status	IUCN - near threatened

The gentoo penguin belongs to a group of penguins commonly known as brush-tailed penguins, which also include the Adelie and Chinstrap penguins. The gentoo is the most timid of the three.

Royal Penguin *Eudyptes schlegeli*



Height	66-76 cm
Weight	5.5 kg
Distribution	Macquarie, Bishop, and Clerk Islands in the Southern Ocean near New Zealand
Prey	Krill, squid
Predators	New Zealand fur seals, skuas, giant petrels
Population	about 850,000 breeding pairs
Status	IUCN - Vulnerable
	The Royal Penguin is the only crested penguin to have a white face & throat

Macaroni Penguin *Eudyptes chrysolophus*



Height	51-61 cm
Weight	4.5kg
Distribution	Subantarctic islands in the Atlantic and Indian oceans
Prey	Krill, squid
Predators	Leopard seals, antarctic fur seals, skuas, sheathbills
Population	About 9 million breeding pairs
Status	IUCN - Vulnerable

The name macaroni describes their yellow crest feathers, which resemble an eighteenth century hat fashion worn by young Englishmen. Macaronis are the largest crested penguin. They breed closer to Antarctica than any other crested penguin, and even have one breeding colony on the Antarctic peninsula.

Adelie Penguin *Pygoscelis adeliae*



Height	46-61 cm
Weight	3.5 - 4.5kg
Distribution	Circumpolar on Antarctic continent within limits of pack ice
Prey	primarily krill, also squids and fishes
Predators	Leopard seals, skuas, sheathbills
Population	estimated at about 2,370,000 breeding pairs
Status	IUCN - near threatened

The Adelie penguin is the characteristic “tuxedo” penguin of Antarctica. This species, along with the emperor penguin, is restricted to Antarctica and the surrounding waters.

Chinstrap Penguin *Pygoscelis antarcticus*



Height	46-61 cm
Weight	4kg
Distribution	Antarctic and South American islands
Prey	krill, small fishes
Predators	Leopard seals, skuas, sheath-bills
Population	About 8,000,000 individuals
Status	IUCN - Species of least concern

The chinstrap penguin is the second-most numerous penguin in the world. This penguin belongs to a group of penguins known as the brush-tailed or stiff-tailed penguins.

Fiordland Penguin *Eudyptes pachyrhynchus*



Height	61 cm
Weight	2.5 - 3kg
Distribution	Subantarctic islands and New Zealand
Prey	Small fishes, crustaceans, cuttlefish
Predators	New Zealand fur seals, stoats (weasel relatives), weka (rail bird)
Population	estimated 5,000 to 6,000 adults
Status	IUCN - vulnerable

The Fiordland penguin is considered the most timid and the most rare of the crested penguins.

Snares Penguin *Eudyptes robustus*



Height	64cm
Weight	2.5 - 3kg
Distribution	South of New Zealand in the Snares Islands
Prey	Fishes, squids, krills
Predators	New Zealand sea lions
Population	About 46,500 birds
Status	IUCN - Vulnerable

The Snares Island penguin breeds only on the densely forested Snares Islands. It is the only penguin that actually roosts in low trees.

Yellow-Eyed Penguin *Megadyptes antipodes*



Height	76cm
Weight	6kg
Distribution	South-east New Zealand
Prey	Fishes & squids
Predators	New Zealand sea lions
Population	4,000-7,000 birds. Population has decreased by 40% over the last 40 years.
Status	IUCN - Endangered

The yellow-eyed penguin is the most reclusive of all penguin species. These penguins seek out sheltered nests completely isolated from their neighbors. In fact, if two pairs are within sight of each other, both will experience an unsuccessful breeding season.

Southern Rockhopper Penguin *Eudyptes chrysocome*

Northern Rockhopper *Eudyptes moseleyi*



Height	41 - 46cm
Weight	2.5 - 3kg
Distribution	Southern Rockhopper: Subantarctic Islands - Falklands & island offshore of Chile & Argentina Northern Rockhopper: South Atlantic Ocean on Gough Island & islands of Tristan da Cunha
Prey	Fishes, squids, krills
Predators	New Zealand sea lions, fur seals, Southern sea lionsskuas & gulls
Population	Southern: 950,000 adults Northern: 700,000 adults
Status	IUCN - Southern: Vulnerable Northern: Endangered

The name rockhopper describes the way this species hops around the steep, rocky places where they live for part of the year.

Erect-Crested Penguin *Eudyptes sclateri*



Height	64cm
Weight	2.5-3kg
Distribution	Antipodes & Bounty Islands of New Zealand
Prey	Fishes & squids
Predators	New Zealand sea lions, fur seals
Population	330,000 birds
Status	IUCN - Endangered

All species of crested penguins have heads adorned with yellow feathers. Non-breeding range at sea is unknown.

Magellanic Penguin *Spheniscus magellanicus*



Height	61 - 71cm
Weight	5kg
Distribution	Falkland Islands & along the coasts of Chile & Argentina
Prey	Fishes, squids & cuttlefish
Predators	Sea lions, Leopard seals, Patagonian foxes
Population	2,600,000 birds
Status	IUCN - Near threatened

The Magellanic penguin is the most numerous of four species of the genus *Spheniscus*.

Humboldt Penguin *Spheniscus humboldti*



Height	56 - 66cm
Weight	4kg
Distribution	Islands of western South America & along the coasts of Peru and Chile
Prey	Anchovetta (Small fish)
Predators	Sharks & Southern sea lions
Population	13,000 birds
Status	IUCN - Vulnerable

Although the air temperature can be warm, the water of the Humboldt current is very cold. The Humboldt penguin populations have declined seriously during the past century due to many factors, including loss of good nesting sites, reduced food supply, predation and the impact of increasingly severe El Niño fluctuations

African Penguin *Spheniscus demersus*



Height	45 - 50cm
Weight	3 - 4.5 kg
Distribution	South African and Namibian coastline.
Prey	Sardines, anchovies, squid
Predators	Cape Fur Seals, sharks, gulls
Population	36 000 adult birds
Status	IUCN - Endangered

THREATS:

Natural: Sharks, Seals, Parasites

Human: Historically – Guano Scraping and Egg Harvesting

Modern – Commercial Fishing and Oil Pollution

EGG HARVESTING: African penguin eggs were once considered a delicacy. In 30 years (1900-1930) an estimated 13 million eggs were removed from the colonies. Our local Dyer Island colony has been particularly hard hit – In 1979 there were 23 000 breeding pairs compared to only 800 in 2015.

GUANO HARVESTING: Guano (bird droppings) was extensively harvested in the 19th and 20th centuries for use as agricultural fertilizer. This 'whitegold' as it was known was stripped from the islands leaving them barren. Now the penguins are forced to nest on the surface where often their eggs or chicks are left exposed to predators. The Dyer Island Conservation Trust established an artificial nest project to provide shelter for breeding penguins and improve fledgling success.

OIL: Oiling is still a threat and could be catastrophic considering the current population. Sanctuaries such as APSS aim to mitigate this threat as oil contingency plans are part of the strategy. Oil can kill a penguin very quickly. An oiled penguin loses its insulation against the cold seawater. An oiled penguin will eventually die of dehydration and starvation if not treated.

SEAL PREDATION: This can be quite severe around colonies like Dyer where a few mature seals will remove a penguin merely for its stomach contents.

FISH STOCKS: Studies to date have shown that African penguins may travel 50km or more for food. Results of these studies will provide data required for establishing marine protected areas around sensitive colonies.

Galapagos Penguin *Spheniscus mendiculus*



Height	53cm
Weight	2.5- 3kg
Distribution	Galapagos Islands of Fernandina and Isabela
Prey	Small fishes
Predators	Sharks, eared barn owls, Galapagos hawk, feral cats, dogs
Population	1200 mature individuals
Status	IUCN - Endangered

This penguin is a truly tropical weather penguin, living on the hot desert islands of the Galapagos at the equator—making it the most northerly penguin species.

Little Penguin *Eudyptula minor*



Height	35 - 45cm
Weight	1kg
Distribution	Southern Australia & New Zealand
Prey	Small fishes
Predators	Australian sea lions, fur seals, dogs, cats, ferrets
Population	700,000-1,200,000 birds
Status	IUCN - Least concerned

The little blue penguin is the smallest species of penguin in the world and is found exclusively in Australia and New Zealand. This penguin employs a wide range of songs more extensively than any other penguin species. From an evolutionary standpoint, the little penguin is also considered the most primitive.

