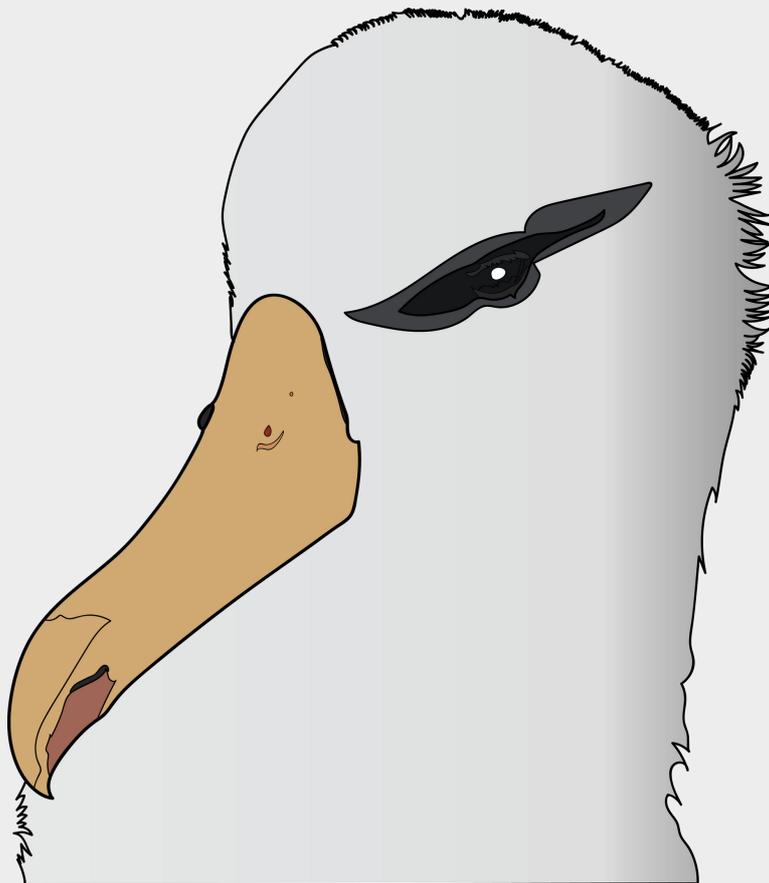




CONSERVATION EDUCATION  
ALBATROSSES AND PETRELS

# SEABIRD FACT FILE





## Why is the ocean important?

- The ocean covers **70%** of Earth's surface.
- The ocean regulates **our global climate** and weather - it plays a huge role in the **water cycle**, and marine habitats such as seagrass meadows store carbon (the same way a forest does). These habitats should be protected to reduce the negative effects of climate change.
- **Marine biodiversity** - the variety of plants and animals in the marine ecosystem - is important, as higher biodiversity means a healthier ecosystem. With more life in the oceans, it is better equipped to recover from damage such as from climate change.
- **Seafood**, such as fish, crustaceans and cephalopods, provide a source of nutrition for millions of people - the seafood industry also provides many people with jobs.
- The ocean provides us with essential **ecosystem services** - services naturally provided by the Earth that we need to survive and be happy, such as climate regulation, food and job opportunities.

## What harms the ocean?

A number of human activities can cause harm to the ocean and the species living in it:

- **FISHING** - **Overfishing** removes essential food for marine species. Some fishing methods harm marine habitats, or lead to the incidental capture (**bycatch**) of non-target (not seafood) species such as seabirds and turtles.
- **POLLUTION** - Litter, including **plastic**, harms sea life and releases harmful chemicals into the water. **Oil spills** harm marine life. Fuel emissions, noise pollution and litter dumping from **shipping** damage the environment and marine life.
- **CLIMATE CHANGE** - Warms the ocean, affecting the survival of sea life. Causes **extreme weather events**, damaging important marine habitats. Melts sea ice and land glaciers, causing **sea levels to rise**, which leads to **flooding**.



## Marine habitats



**OPEN OCEAN** - some animals use the open ocean to find food, such as seabirds which fly over it, and seals which live on beaches and swim into it, both to look for fish.

**CORAL REEFS** - one of the most diverse habitats (highest number of species) in the world, occurring in warmer climates.



**SEAGRASS MEADOWS** - shallow waters that get lots of sunlight, where many species of fish, starfish, bivalves and jellyfish live.

**continued... Marine habitats**

**DEEP OCEAN** - the deepest part of the ocean is 11,000 metre deep, at the Mariana Trench in the Pacific Ocean. Our oceans are so vast and deep that scientists have yet to explore over 80% of them - we have mapped and studied more of our moon and the planet Mars! The lack of light in the deep ocean means it is home to many weird and wonderful species. This photograph was taken at the bottom of the Mariana Trench.



**SEA ICE** - large sheets of ice formed by the freezing of ocean water. The largest is the Lambert Glacier in Antarctica, which is more than 400 kilometres long and 2.5 kilometres thick.

**What lives in the ocean?**

50-80% of all life on Earth lives in the ocean - scientists currently know of about 226,000 marine species, but they think that more than 90% of marine species are yet to be discovered (6). Marine fauna (animal) species include:

**MAMMALS**, including seals and whales.



**CRUSTACEANS**, including crabs, krill and lobster.



**FISH** - approximately 18,000 species of fish live in the ocean.



**PLANKTON** - a community of organisms, most of which are tiny, that are an essential part of the food chain, including phytoplankton (microscopic algae that photosynthesise) and zooplankton (microscopic animals that eat phytoplankton).



**REPTILES**, including turtles and some crocodile species.



**SEABIRDS**, including flightless seabirds such as penguins, and flying seabirds such as gulls, albatrosses and petrels.



**CEPHALOPODS**, including squid and octopuses.





## Introduction to seabirds

- Seabirds are birds that spend most of their lives **foraging** and **breeding in the marine ecosystem**.
- **Albatrosses and petrels** are placed in a group (taxonomic order) of **migratory** seabirds which spend most of their time flying over the open ocean to find food. They only come to land to breed, mainly on remote **offshore islands**. Migratory animals travel from their breeding site to find food or better living conditions when the seasons change.
- They are known for travelling enormous distances across oceans. These seabirds fly the largest distance without coming to land of all migratory birds - more than **16,000 kilometres** (7).
- They are also collectively known as **tubenoses**, as they have tubular nostrils - an adaptation that has many benefits.
- It is important to learn about these seabirds as they are particularly affected by **human activity**, causing their populations to **decline**. **15** of the **22** species of albatross are threatened with extinction. Albatrosses and petrels are perhaps the **most threatened** group of birds in the world (8).

## Biology and ecology of seabirds

### Evolution, adaptations and body parts

- **Adaptations** are physical or behavioural characteristics that allow a species to survive in their environment. Adaptations are caused by the process of **evolution**.
- Birds evolved from **dinosaurs** - from a group of carnivorous dinosaurs called theropods (the same group as the T-Rex!).
- Over approximately **150 million years**, birds have evolved from small, feathered dinosaurs with sharp teeth, to the birds we see today with **bills** (beaks) instead of teeth.
- There are now more than **11,000** bird species which are hugely varied - from ostriches to pigeons, from albatrosses to robins, from penguins to owls.

Below are some adaptations of albatrosses and petrels.



**FEATHERS** - All albatrosses and petrels have thick, **waterproof** feathers that keep them **dry** and **warm** out at sea and in colder climates.



**BILLS** - All albatrosses and petrels have **large bills** (beaks) which allow them to catch food easily from the ocean. They also have **tubenoses** - tubular nostrils on their bills, an adaptation that has evolved to provide many advantages. It lets them detect **food** from far away in the ocean. It allows them to push out **salt**, as they drink salty sea water when feeding in the ocean. It helps them measure **airspeed** when flying, to decide what direction to soar when **dynamic soaring**.



**WINGS** - Albatrosses have huge **wingspans** - the **Wandering Albatross** has the largest wingspan of all birds on Earth, up to **3.6 metres**. Using two types of soaring techniques - **dynamic** and **slope soaring** - some albatrosses and petrels can travel **1,000 km** per day over the ocean without flapping their wings. All 22 albatross species, and the 2 species of giant petrel, have a large wing-to-body ratio allowing them to soar long distances across the ocean to find food. They also have a special **wing-locking system** to keep their wings open for a long time without using their muscles to save **energy**.



## Life cycle

- All animals are born, get older and change in size and appearance, and many breed to have offspring. Eventually, they die. This is called a **life cycle**.
- Albatrosses and petrels come to land - often on the coasts of remote offshore islands - to breed, either once a year (**annual**) or every two years (**biennial**).
- Like all birds, albatrosses and petrels lay **eggs**. They lay a single egg, and the pair take turns to **incubate** the egg for 2 to 3 months.
- After the egg has **hatched**, the pair take turns to guard and feed the chick. When the chick is 7 or 8 months old, it **fledges** - leaves the nest.
- Now an **ocean forager** of its own, the chick will explore the world whilst growing into an adult and return to land to breed in a few years. The **age of first breeding** varies between species - on average, albatrosses and petrels breed for the first time when they are **5-12 years old** (19).
- They have long **lifespans** - the oldest known bird in the world is a **Laysan Albatross** named Wisdom, who was **71** in 2023, breeding on the Midway Atoll in the Pacific Ocean (7). They breed for much of their lives.
- **Generation length** is the average age of parents in the population that are currently breeding.



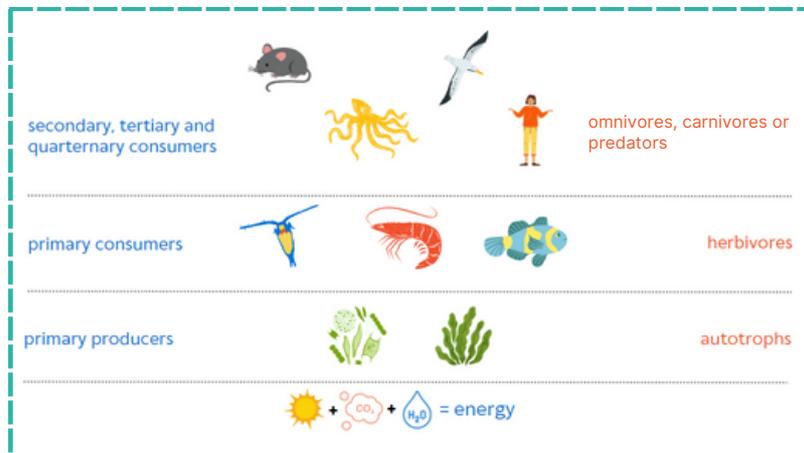
An adult **White-Capped Albatross** in its nest with its chick.



The oldest known bird in the world - Wisdom, a **Laysan Albatross**.

## Fishing and food webs

### Diet, food chains and food webs



- Animals need food to give them **energy** and grow.
- Some animals, like rabbits, are **HERBIVORES** - they only eat plants. Others, like cats and seabirds are **CARNIVORES** or **PREDATORS** - they only eat other animals. Some, like humans, are **OMNIVORES** - they eat both plants and animals.
- **FOOD CHAIN** - shows the flow of energy from one organism to another.
- **FOOD WEB** - a group of food chains in an ecosystem.

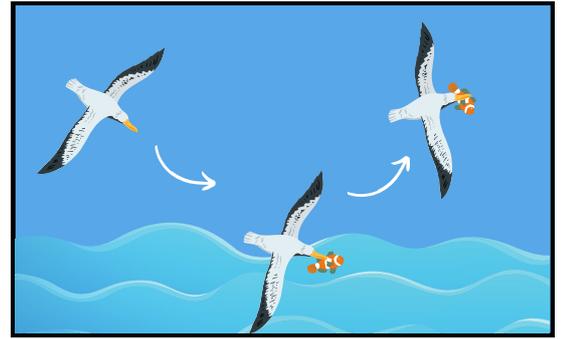
- The different levels of a food chain and web are called **trophic levels**. Approximately **10%** of energy is passed from each trophic level to the next.
- **PRIMARY PRODUCER** - organisms that **photosynthesise** to produce energy, using  $H_2O$ ,  $CO_2$  and energy from sunlight, also called **autotrophs**. Examples of primary producers are grass, algae and phytoplankton.
- **PRIMARY CONSUMER** - organisms that eat primary producers. These are **herbivores**, such as rabbits or some fish species.
- **SECONDARY CONSUMER** - organisms that eat primary consumers. These can be **carnivores** or **omnivores**, such as foxes, albatrosses or humans. In many food chains and webs, there are also **TERTIARY** and **QUARTERNARY CONSUMERS**.
- Animals that eat other animals are called **predators**, and the animals they eat are called **prey**.
- Albatrosses and petrels are predators, mainly eating fish, cephalopods and crustaceans. They do not always find food feeding on live animals - they also **scavenge** on animals that are already dead, which is called **carion**.
- Organisms in an ecosystem are **interconnected** - they depend on each other for survival. Any change in populations lower down in a food web can affect the whole ecosystem.
- **Human activities** can affect other species' food webs, and therefore the health of the whole marine ecosystem. Activities include **fishing**, **pollution** and **climate change**.



## How do seabirds catch their food from the sea?

Albatrosses and petrels are **ocean foragers**. Their tubenoses allow them to detect prey from far away in the ocean, using their large wings and wing-locking system to soar large distances until they find food. Once they find it, different species catch their food in different ways, including:

- **Surface seizing** - albatrosses and many petrel species plunge from the air into the water to take their food from the surface of the ocean, picking it up with their large bills. They may also catch their food by seizing it from the surface when resting on the water.
- **Pursuit plunging** - shearwaters and diving petrels dive quickly and vertically into the water to catch their food from deeper into the ocean - down to 35 metres for some species!
- **Underwater pursuit** - shearwaters, diving petrels and penguins catch their food by chasing it underwater.
- **Scavenging** - albatrosses and some petrel species do not only find food by catching and killing prey - they also scavenge on parts of animals that are already dead (carrion) (9) (19).



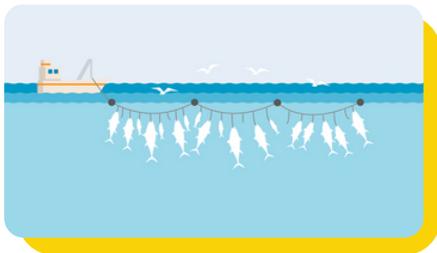
## Fishing and the marine ecosystem

- Fisheries provide over **3.3 billion** people with approximately **20%** of their animal **protein** intake. Around **38 million** people work in fisheries, relying on the fishing industry for their **income** (10).
- To protect the marine ecosystem, fishing must be done **sustainably** and with as little **harm** as possible to marine species.



## Fishing methods and bycatch

- **Bycatch** is the incidental capture of a non-target species, such as turtles, dolphins, albatrosses or petrels, by commercial fishing boats. Because they spend most of their life at sea looking for food, albatrosses and petrels are attracted to the bait around fishing boats as they see it as an easy meal. It is the main threat to these seabirds, causing populations to decline and many species becoming threatened with extinction.
- There are a few methods used by commercial fisheries that can cause seabird bycatch. The two main methods are **longline** and **trawl**.

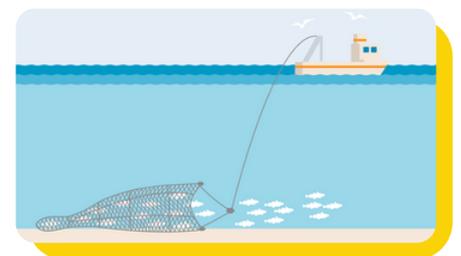


**LONGLINE** - Longline fisheries trail a long mainline behind a boat. **Baited hooks** are attached to the mainlines by branch lines at intervals to attract fish.

**Bycatch:** Seabirds are attracted to the bait on longline hooks as it is easy food. This can lead to them getting caught on the hooks and pulled underwater. It is estimated that between **160,000-320,000** seabirds are hooked in longline fisheries globally each year. This fishing method causes the **most** seabird deaths.

**TRAWL** - Trawl fisheries use a cone-like net with a closed end that holds the fish. The net is attached to two **trawl warps** - thick cables - which is towed by one or two boats.

**Bycatch:** Seabirds are attracted to the discarded fish waste (offal) thrown into the water - in the danger zone - behind the fishing boat as it is easy food. This can cause two problems for seabirds: they can collide with the trawl warp, or get entangled in the net when it is coming to the surface. It is estimated that **tens of thousands** of seabird deaths are caused by cable strikes in trawl fisheries every year.





## Bycatch mitigation methods

- Seabird bycatch can be prevented by using **bycatch mitigation methods** - modified fishing practices that reduce harm to seabirds whilst still catching the same number of fish. Fishers do not want to catch seabirds - they want to catch fish.
- By adopting these methods, fisheries can help to **prevent the extinction** of many albatross and petrel species. Some fisheries have already reduced bycatch by over **90%** using these methods.



**BIRD SCARING LINES** - Used in **longline** and **trawl** fisheries. Bird-scaring lines are long **lines** with **shiny streamers** attached at intervals, and a **buoy** attached to the end to weigh the line down into the water, attached to the boat above a longline or trawl warp. The streamers act like a **scarecrow**, or like shiny discs hanging above a vegetable garden, deterring birds from coming too close. **Success:** Bird-scaring lines reduced seabird bycatch by **99%** in a South African trawl fishery, and by **22,000** seabirds per year in a Namibian trawl and longline fishery.

**BIRD CURTAINS** - Used in **trawl** fisheries. Bird curtains consists of a horizontal **boom** with vertical **streamers** hanging down towards the water, attached to the boat above where the trawl warp enters the water. They are used **alongside bird-scaring lines** to prevent birds **colliding** with trawl warps. It acts as a barrier, preventing birds from flying in between the bird-scaring line, trawl warp and fishing boat, as this **danger zone** is where discarded fish waste (offal) are thrown into the ocean.

**Success:** During trials of this method, bird curtains reduced collision rates of **White-chinned Petrels** with trawl warps by **68%**, and with all seabirds by up to **84%**.



**HOKKPOD™** - Used in **longline** fisheries. Hookpods are small **bottle-shaped** contraptions that are attached to longlines to **encase** the baited hooks as they are lowered into the ocean. When they reach a depth that is **out-of-reach** for seabirds, the Hookpods automatically open to release the hook and attract fish.

**Success:** Since 2020, many of New Zealand's tuna longline fisheries have been using Hookpods, reducing bycatch to **zero**.

**NIGHT-SETTING** - Used in **longline** fisheries. Night-setting involves setting up longlines only at **night**. Most seabirds detect their food at close range by **sight**, so they mainly forage during daylight, so the risk of bycatch is lower when it is dark. This is most effective on nights when the moon is not bright - it is best used in combination with other bycatch mitigation methods. Some seabirds, such as the **White-chinned Petrel**, are partly **nocturnal**, so this would be less effective for these species.

**Success:** Near South Georgia (Islas Georgias del Sur)\*, longline fisheries that used both bird-scaring lines and night-setting reduced bycatch from **6000** albatrosses per year to almost **zero** (11).



## Plastic pollution and the marine ecosystem

- Plastic has only been around since the **1960s**. It is a very useful and cheap material, from medical equipment to packaging.
- **11 million tonnes** of plastic ends up in the ocean each year (12).
- It takes up to **450 years** for some plastics to degrade in the ocean. A plastic bottle takes 450 years, and a plastic straw 200 years, compared to a paper newspaper which only takes 6 weeks.
- Even when they've degraded, **microplastics** are formed - tiny pieces of plastic that are less than **5 mm**. They are difficult to see or remove from the ocean, and are found in our food and in the stomachs of animals.
- **Single use plastics** are worse for the environment.

## Causes of plastic pollution



Plastic pollution comes from sources both in the ocean, and on land, carried to the sea by **rivers**. Rivers are polluted from overflowing drains or landfill sites, or from illegal littering in rivers.

Some of the most common ocean plastic items from sources on **land** are:

- **Food wrappers and drink bottles**
- **Plastic straws, cups and plates**
- **Bottle caps**
- **Single-use bags**
- **Cigarette butts**

Some of the most common ocean plastic items from sources in the **ocean** are:

- **Fishing equipment**
- **Rubbish from commercial ships**
- **Rubbish from shipping container spills**
- **Rubbish from illegal 'ocean dumping'**

## Effects of plastic pollution

Marine animals, such as albatrosses and petrels, are at risk from plastic pollution. There are three main effects plastic pollution has on seabirds:

- They can become **entangled** in plastic items, such as fishing nets or food wrappers, which can cause **injury** or **death**.
- Toxic **chemicals** (pollutants) build up on plastic when in the ocean. When the floating plastic is swallowed, the toxic chemicals can build up in top predators such as seabirds and in the food web over time. Consequently, they can end up in **our stomachs** when we eat seafood.
- Many seabirds can **swallow** plastic items, mistaking them for food. This can lead to starvation, as they cannot digest plastic but there is no room in their stomach left for food. As adults feed their chicks before they fledge, chicks are also fed marine litter.

**90%** seabirds have plastic in their stomachs (13). **29%** of **Black-browed Albatrosses** have been found with plastic, nylon, rubber and metal wire in their stomachs (14). **98%** of **Laysan Albatross** chicks are fed marine litter, including plastic beads, fishing lines, buttons, cigarette lighters, beach toys, plastic bags, marker pens and aluminium foil (15).



A **Southern Royal Albatross** on Whirinaki Beach on New Zealand's North Island was found with this whole plastic bottle in its stomach (16).



As **global citizens**, we can do our bit to reduce plastic pollution in our daily lives, and to try to get others to do the same. Solutions include:

- **Reduce, reuse, recycle**
- **Avoid buying plastic** where possible
- Use a **reusable bottle** for your drinks
- **Say no** to plastic bags and plastic drinking straws - use **reusable** ones
- Buy **unpackaged** food and **grow your own**
- Wear clothes made with **natural fibres**
- Try to avoid **glitter**, or only use eco-friendly glitter
- **Talk to friends and family** about how much plastic they use
- Don't use products with **microbeads** in them (look out for polyethylene and polypropylene on ingredients lists)
- **Pick up litter** - go on a beach clean or litter pick in your local area
- **Never flush** plastics down the toilet
- **Sign a petition** to your government to fix the plastic pollution crisis

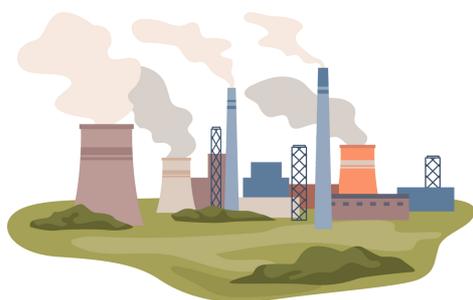
## Climate change

### Climate change and the marine ecosystem

- **Climate change** is change in the typical weather for a region — such as high and low temperatures and amount of rainfall — over a **long period of time**.
- Scientists have observed that Earth is warming. Many of the warmest years on record have happened in the past **20 years**. This rise in global temperature is sometimes called **global warming**.
- Climate is different to **weather**, which describes the conditions outside right now, or what the weather forecast predicts in the **short-term**.

### Causes of climate change

- Earth's climate has warmed up and cooled down many times over millions of years. This is because of the **greenhouse effect** - a natural process of greenhouse gases in the Earth's atmosphere, such as **carbon dioxide** and **methane**, trapping the Sun's heat on Earth. This keeps Earth warm enough for us and other species to live.
- **3 million years ago**, the whole world was probably underwater. **20,000 years ago**, much of the Northern Hemisphere (United States, Canada, Europe and Asia) was covered in ice.
- We have natural climate-regulating systems on Earth which absorb CO<sub>2</sub> through **photosynthesis**. This includes ecosystems, such as **forests** on land or **seagrass beds** in the ocean. When these systems are healthy, the global climate is kept in balance.



- Human activity has affected this balance. Everything on Earth is **interconnected** - we need resources from the Earth to survive, but this can have a negative effect on the whole world if not done sustainably.
- For hundreds of years, we have produced energy by burning **fossil fuels** - this releases extra greenhouse gases into the atmosphere, therefore **speeding up** the greenhouse effect and warming up our global climate much faster than the natural rate.

**continued... Causes of climate change**

Activities that release greenhouse gases and can cause climate change include:



**IMPORTING FOOD OR PRODUCTS**

Using planes or boats to send food or products, such as clothes, to other countries releases greenhouse gasses.



**DESTRUCTION OF CLIMATE-REGULATING ECOSYSTEMS**

Such as forests and seagrass meadows.



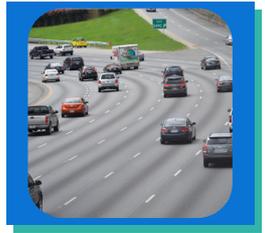
**EMISSIONS FROM ANIMAL AGRICULTURE**

Methane is released by cows.



**HOME ENERGY USE**

Using electricity in your house means more fossil fuels need to be burned.



**TRANSPORT**

The engines of cars or planes release greenhouse gases.

**Effects of climate change**

1 in 6 of Earth's species are at risk of extinction due to climate change (17) - including albatrosses and petrels. Climate change impacts albatrosses and petrels in three main ways:



**DESTRUCTION OF ISLAND HABITATS** - Climate change causes extreme weather events, such as storms. Strong winds and flooding destroys their breeding habitats. As the Earth warms, glaciers and sea ice melts, causing sea levels to rise which also causes flooding. Most breeding sites of Black-footed and Laysan Albatrosses are on low-lying islands. Storm floods have caused some of these islands to disappear into the sea (18). Storms, increasing temperatures and drying climate has destroyed much of the Northern Royal Albatross breeding habitat. Tropical storm Ita in 2014 destroyed half of the Westland Petrel's only breeding site in New Zealand.

**REDUCE FOOD AVAILABILITY** - Warming oceans make it difficult for some marine species to live there, so they travel north or to greater depths to cooler waters. This disturbs the food web - food for all trophic levels moves or reduces in number, so there is less food and more competition. This also increases the risk of bycatch, as seabirds are more desperate for food so follow fishing boats.



**INCREASE IN ISLAND PEST POPULATIONS** - Island pests (invasive alien species) prey on albatross and petrel chicks, eggs and sometimes adults. As they prefer warmer climates, their populations have increased, which increases their threat to seabirds. Up to 5% of the Grey-headed Albatross population on Marion is affected by mice. Mice on Gough Island have caused the Tristan Albatross population to decline over 50% in 3 generations. 25% of Balearic Shearwaters are affected by cat and rat predation. Green bottle flies, cats and stoats on Tairaroa Head in New Zealand are causing population decline of the Northern Royal Albatross (19).





## Solutions to climate change

As **global citizens**, we can do our bit to reduce climate change and help others to do the same.

Solutions include:

### Reduce your personal carbon footprint

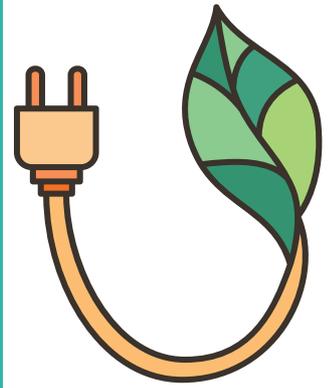
- Use more sustainable transport, such as public transport, carsharing, walking or cycling
- Buy local and organic food
- Grow your own food
- Buy second-hand
- Reduce your electricity use - turn lights and switches off when you're not using them

### Reduce your family's carbon footprint

- Go on 'staycations', or holidays where you do not have to take an aeroplane
- Make your house more energy efficient - install insulation, buy energy efficient appliances, or install renewable energy sources such as solar panels

### Take action

- Support renewable energy, such as wind farms and solar panels
- Plant a tree
- Tell your friends and family about what they can do to reduce climate change



## Definitions

- Adaptation** = physical or behavioural characteristics that allow a species to survive in their environment, caused by the process of evolution.
- Bycatch** = the incidental capture of non-target species by commercial fishing boats.
- Biodiversity** = the variety of plant and animal life in the world or in a particular habitat.
- Carbon footprint** = a measure of the amount of carbon dioxide released into the atmosphere as a result of the activities of an individual, organization, or community.
- Carnivore** = an animal that feeds on other animals.
- Carrion** = parts of dead animals used as food by some carnivores.
- Cephalopods** = a group of marine animals which includes octopus and squid.
- Circumnavigate** = travel all the way around something.
- Climate** = the long-term weather conditions of an area.
- Crustacean** = a group of marine invertebrates which includes crabs, lobsters, shrimp and krill.
- Degradation** = the process of a material breaking down.
- Ecosystem** = a community of living things, such as animals and plants, and non-living things, such as soil, water and air, interacting with each other.
- Ecosystem services** = the essential services that nature provides humans, such as climate regulation, water, food and jobs.
- Endemic** = a species that is restricted to one place.
- Evolution** = the way that living things change over time.
- Fledge** = the process of birds developing wings large enough for flight.
- Food chain** = a network showing the flow of energy between organisms that are dependent on each other in an ecosystem.
- Food web** = a group of food chains in an ecosystem.
- Foraging** = a feeding behaviour where animals search for wild food resources.
- Fossil fuels** = hydrocarbons such as coal, oil or natural gas that are formed from fossils.
- Generation length** = the average age of parents in the population that are currently breeding.
- Greenhouse effect** = the process of greenhouse gases in the Earth's atmosphere, such as carbon dioxide and methane, trapping the Sun's heat on Earth.
- Habitat** = the place where living things naturally live and grow.
- Herbivore** = an animal that feeds on vegetation.
- Incubation** = the process of a bird keeping its egg warm until it hatches.
- Island pests** = invasive alien species on the island breeding sites of seabirds, including mice, rats and cats, that threaten seabird populations by preying on chicks, eggs or adults.
- Life cycle** = the series of stages a living things go through, from being born, growing, reproducing and dying.
- Migration** = when an animal travels when the seasons change to find food, better living conditions or to breed.
- River mouth** = the point where a river empties into the sea.
- Nocturnal** = animals that are active at night (opposite of diurnal).
- Ocean** = large bodies of water, covering 70% of the Earth's surface.
- Omnivore** = an animal that feeds on both vegetation and other animals.
- Photosynthesis** = the process in which primary producers use sunlight, H<sub>2</sub>O and CO<sub>2</sub> to make their own food (energy), which is passed on through the whole food chain.
- Plastic** = a malleable manmade material that resists damage by water, heat and chemicals.
- Population trend** = the direction of change of a population.
- Salps** = a group of translucent, barrel-shaped plankton.
- Sea** = smaller than an ocean, typically partially enclosed by land, where the land and ocean meet.
- Territory** = an area of land belonging to or under the political rule of a government.
- Trophic level** = the levels of an organism in the food chain.
- Wingspan** = the length across the wings of a bird, from tip to tip.

## Species profiles

The following pages provide profiles of 16 albatross and petrel species. These species profiles can be used to conduct research into the suggested case studies for the Lesson activities.





**PHYSICAL CHARACTERISTICS**

*Wingspan:* 300 cm  
*Body length:* 110 cm  
*Weight:* 8.5 kg  
*Identification:* My species have a variety of colours, depending on the individual. Some of us have brown bodies with black upperwings, white faces and white underwings. Others are mostly white with some black on their upper wings. All of us have pink, hooked bills.



**POPULATION**

*Adult population:* 50,000  
*Population trend:* Decreasing

**LIFE CYCLE**

*First breeding age:* 12 years old  
*Generation length:* 27.4 years

**DIET**

I eat cephalopods and fish.

**BREEDING SITES**

We only breed in *New Zealand*, in the Antipodes, Campbell, Chatham and Auckland Islands.

**THREATS**

My species is threatened by *bycatch* in *longline* fisheries in Australasian, South American and international waters. My foraging route overlaps with tuna fisheries in these oceans. Because we like to eat cephalopods and fish, my species often follow longline boats to eat bait from their hooks, but this is dangerous as it can lead to us getting caught. In 2006, 58 birds of my species were accidentally caught in one fishing trip.



**PHYSICAL CHARACTERISTICS**

*Wingspan:* 93 cm  
*Body length:* 39 cm  
*Weight:* 500 g  
*Identification:* My body and wings are dark brown on top and white-brown marked underneath. My tail is pale white-brown. I have a black bill.

**POPULATION**

*Adult population:* 19,000  
*Population trend:* Decreasing

**LIFE CYCLE**

*First breeding age:* 4-6 years old  
*Generation length:* 15 years  
*Breeding season:* eggs laid in March, hatching in April-May, chicks fledged in July.  
*Breeding frequency:* annual  
*Generation length:* 15 years

**DIET**

I eat small fish, cephalopods, crustaceans and plankton.

**THREATS**

The main threat to my species is *bycatch* in *longline* and *trawl* fisheries in the Mediterranean and Atlantic oceans. This is because my foraging route overlaps with these fisheries. Also, we like to eat fish, cephalopods and crustaceans, catching them by diving up to 35 metres underwater, which can lead to us being caught in fishing hooks or nets. 50% of deaths of my species are caused by bycatch. We are also threatened by *island pests* - 25% of us are affected by cat or rat predation in our breeding colonies on the Balearic Islands.

**BREEDING SITES**

We are *endemic* breeders to *Spain*, in the Balearic Islands.

**MIGRATION ROUTE**

During breeding we forage around the Balearic archipelago, the Mediterranean, or further away to Algeria and Morocco. After breeding, in the summer and autumn we leave the Mediterranean to forage on the Atlantic coasts of south-west Europe, including Spain, Portugal, France and the United Kingdom.

# Black-browed Albatross



## LIFE CYCLE

*First breeding age:* 10 years old  
*Generation length:* 21.5 years

## PHYSICAL CHARACTERISTICS

*Wingspan:* 250 cm  
*Body length:* 95 cm *Weight:* 4.7 kg  
*Identification:* I have a white body and head with a black line - or brows - on top of my eyes which gives me my name. My upperwings are black and my underwings are black and white. My bill is yellow and pink and hooked in shape.

## DIET

I eat crustaceans, cephalopods and fish.

## BREEDING SITES

We breed in **6** territories: *Chile, Falkland Islands (Malvinas)\*, French Southern Territories, Australia* (Heard Island and McDonald Islands, and Macquarie Island), *New Zealand* (Campbell and Antipodes Islands), and *South Georgia (Islas Georgias del Sur)\**.

## MIGRATION ROUTE

After breeding, those of us breeding on the Falkland Islands (Malvinas)\* migrate to the east coasts of Argentina and Brazil. Those of us breeding in South Georgia (Islas Georgias del Sur)\* migrate to South African waters for winter.

## POPULATION

*Adult population:* 1,400,000 *Population trend:* Increasing

## THREATS

We're threatened by *bycatch* in *longline* fisheries in waters east of Argentina, and *trawl* fisheries on the south coast of South Africa, Namibia, Chile and east of Argentina. Between 2008-2010, **13,584** of us were caught in trawl fisheries near Argentina. We're also the most common bycatch species in several longline fisheries around the world. Because we like to eat fish, crustaceans and cephalopods, we often follow fishing boats to eat bait or discards, but this is dangerous as we can get caught. *Plastic pollution* is also a risk - **29%** of us have been found with plastic, nylon and rubber in our stomachs. *Climate change* has caused ocean temperatures to increase, which has caused a shortage of our prey species.

# Grey-headed Albatross



## PHYSICAL CHARACTERISTICS

*Wingspan:* 220 cm *Body length:* 81 cm *Weight:* 3.25 kg  
*Identification:* My body is mostly white, with a brown-black back, upperwings and tail, and white underwings with brown-black edges. My head is grey, which is where I get my name. My bill is hooked, with brown-black side parts and bright yellow stripes above and below - some of us have a pink-orange bill tip.

## LIFE CYCLE

*First breeding age:* 8 years old  
*Breeding season:* egg laid in October, hatching in December, chicks fledge April-May. *Breeding frequency:* biennial  
*Generation length:* 30 years

## DIET

I mostly eat cephalopods, fish and crustaceans.

## POPULATION

*Adult population:* 250,000 *Population trend:* Decreasing

## BREEDING SITES

We breed in **6** territories: *Australia* (Macquarie Island), *Chile, French Southern Territories, New Zealand* (Campbell Island), *South Africa* (Prince Edward Islands), and *South Georgia (Islas Georgias del Sur)\**.

## MIGRATION ROUTE

Between breeding seasons, we spend up to 16 months at sea *circumnavigating* the Antarctic continent, travelling approximately **240,000 km** to find food. Those of us breeding on Prince Edward Islands, in the Indian Ocean, fly directly past the South Atlantic Ocean to avoid competition for food with birds in South Georgia.

## THREATS

*Climate change* is a significant threat to us. Increase in sea temperature means a shortage of our prey and an increase in *island pests* - such as mice on Marion Island (Prince Edward Islands, South Africa) where up to **5%** of our population is affected by mice that prey on our chicks. The Mouse Free Marion project will hopefully remove these pests soon. We used to be at risk from *bycatch* in *longline* fisheries in the Southern Ocean and Indian Ocean. Between 1989-1995, **400** of us were caught each year in longline fisheries near Australia. Successful bycatch mitigation means we are now less at risk.

**Did you know?**  
 Some of us have CIRCUMNAVIGATED the Earth, around the Antarctic, in just 46 days!

**PHYSICAL CHARACTERISTICS**

*Wingspan:* 200 cm *Body length:* 76 cm

*Weight:* 2.55 kg

*Identification:* My body and tail are dark grey on top, and white underneath. My upperwings are dark grey, and my underwings are white with black tips and edges. My head is white or pale grey. My bill is black on the sides, with a red tip and a yellow stripe on top, which is where I get my name.



**LIFE CYCLE**

*First breeding age:* 8 years old

*Generation length:* 23.7 years

**MIGRATION ROUTE**

When breeding, we forage in the southwest Indian Ocean around southern Africa. During the non-breeding season, we feed in South African or Australian waters.

**DIET**

I mostly eat fish and cephalopods, sometimes crustaceans.

**Did you know?**

I am the **LIGHTEST** (in weight) of all albatross species!

**POPULATION**

*Adult population:* 82,000

*Population trend:* Decreasing

**THREATS**

**Bycatch** in *longline* and *trawl* fisheries is the main threat to my species. Our migration route overlaps with fisheries south of Africa, including toothfish fisheries near Prince Edward Islands (South Africa) where **600** of us are caught per year. During the non-breeding season, our foraging route means we also come into contact with fisheries near South Africa and Australia. Because we like to eat fish and cephalopods, we follow fishing boats to catch their bait or discards, but sometimes get caught in the hooks or nets.

**BREEDING SITES**

We breed in **2** territories: *South Africa* (Prince Edward Islands) and the *French Southern Territories*.



**PHYSICAL CHARACTERISTICS**

*Wingspan:* 200 cm *Body length:* 81 cm *Weight:* 3.2 kg

*Identification:* I have a white body with a black back, upperwings and tail. My underwings are mostly white with black edges. My head is white with dark patches around my eyes. I have a very long, pink bill with a grey-black tip.

**LIFE CYCLE**

*First breeding age:* 7-9 years old

*Generation length:* 28.5 years

**DIET**

I mostly eat cephalopods, and sometimes fish and crustaceans.

**POPULATION**

*Adult population:* 1,600,000 *Population trend:* Stable

**Did you know?**

This Laysan Albatross is named Wisdom, and is the **OLDEST** known bird in the world - she was 71 in 2023. She breeds on the Midway Atoll in the Pacific Ocean.

**BREEDING SITES**

My species breeds in **3** territories: the *United States* (Hawaiian Islands, and the Minor Outlying Islands), *Japan* and *Mexico*.

**THREATS**

My species is threatened by **plastic pollution**. Adults accidentally swallow objects at sea, mistaking them for food, meaning **98%** of our chicks are fed marine litter, including plastic beads, fishing lines, buttons, cigarette lighters, beach toys, plastic bags, marker pens and aluminium foil. **Climate change** is also a problem for our population. As most of our breeding sites are on low-lying islands, flooding caused by sea-level rise and storms has destroyed much of our breeding habitats, meaning it is difficult for us to breed. Storm floods have caused at least one small island that they once bred on to disappear into the sea.



**PHYSICAL CHARACTERISTICS**

*Wingspan:* 220 cm  
*Body length:* 85 cm  
*Weight:* 3.1 kg  
*Identification:* My body is almost entirely dark brown, with a pale greyish-brown back. I have pointed wings and a long pointed tail. My head is dark brown, with a white crescent around my eye. My bill is black with a pale blue strip.

**THREATS**

My species is threatened by **bycatch** in longline fisheries. **Island pests** also impact our population - pigs on the Auckland Islands, mice on Marion Island, and cats in the French Southern Territories prey on chicks, eggs and sometimes adults.

**BREEDING SITES**

My species breed in **5** territories: *Australia* (Heard and MacDonal Island and Macquarie Island), *South Africa* (Prince Edward Island), *South Georgia* (Islas Georgias del Sur)\*, *New Zealand* (Auckland Islands, Campbell Islands, and Antipodes Islands), and the *French Southern Territories*.

**Did you know?**

My species migrates the **FURTHEST SOUTH** of all albatross and petrel species.

**POPULATION**

*Adult population:* 58,000  
*Population trend:* Decreasing

**LIFE CYCLE**

*First breeding age:* 12 years old  
*Breeding season:* eggs laid October-November, hatching December-January, chicks fledge May-June.  
*Breeding frequency:* biennial  
*Generation length:* 44 years

**MIGRATION ROUTE**

When not breeding, we migrate to the edge of the Antarctic ice and over cold Southern Ocean waters to find food.

**DIET**

I eat cephalopods, krill, fish and carrion.



**PHYSICAL CHARACTERISTICS**

*Wingspan:* 210 cm  
*Body length:* 90 cm  
*Weight:* 5 kg  
*Identification:* Most of my body is grey-brown, with a pale grey face. My bill is huge, horned in shape and pink-yellow with a red-brown tip.

**DIET**

I eat krill, fish and cephalopods. I also eat the carrion of mammals, such as seals, and other seabirds, such as albatross chicks and penguins.

**Did you know?**

Southern & Northern Giant Petrels are the **HEAVIEST** of all petrel species!

**THREATS**

My species is threatened by **bycatch** in *longline* fisheries, and from collisions with *trawl* warps. We are also at risk from marine **pollution**, including from oil spills and eating marine plastic.

**POPULATION**

*Adult population:* 23,600  
*Population trend:* Increasing

**BREEDING SITES**

My species breeds in **5** territories: *South Georgia* (Islas Georgias del Sur)\*, *South Africa* (Prince Edward Islands), *French Southern Territories*, *Australia* (Macquarie Island) and *New Zealand* (Campbell, Antipodes, Chatham and Auckland Islands).

**LIFE CYCLE**

*First breeding age:* 10 years old  
*Generation length:* 17 years



## PHYSICAL CHARACTERISTICS

*Wingspan:* 305 cm  
*Body length:* 115 cm  
*Weight:* 9 kg  
*Identification:* My body is mostly white, with black upper wings and white underwings. My tail feathers are mostly white with a few black. My bill is hooked in shape, and pale pink bill with a black edge.

## THREATS

The main threat my species faces is **climate change**. Bad storms, increasing temperatures and drying of the climate has destroyed parts of my island breeding habitats, meaning breeding is much more difficult. **Bycatch** in *trawl* and *longline* fisheries also threatens our population. In the past, my species has also been negatively impacted by **island pests**, such as Green Bottleflies, stoats and cats, which preyed on albatross chicks, eggs and sometimes adults. Successful conservation actions - predator control on my breeding islands - have mostly reduced this threat now.

### Did you know?

Taiaroa Head is the only mainland albatross breeding site in the world - all other species breed on off-shore islands.

## POPULATION

*Adult population:* 17,000  
*Population trend:* Decreasing

## BREEDING SITES

We only breed in *New Zealand*, on Chatham Islands and Taiaroa Head.

## LIFE CYCLE

*First breeding age:* 8 years old  
*Breeding season:* eggs laid October-December, hatching January-February, chicks fledge in September-October.  
*Breeding frequency:* biennial  
*Generation length:* 27 years

## MIGRATION ROUTE

When not breeding, we **circumnavigate** the Southern Ocean, travelling long distances - as much as **190,000 km** a year - to find food.

## DIET

I eat cephalopods, fish, salps, crustacean and carrion.



## PHYSICAL CHARACTERISTICS

*Wingspan:* 260 cm *Body length:* 90 cm *Weight:* 4.4 kg  
*Identification:* I have a white body and neck. My head is white with a small dark patch in front of my eyes, and light-grey cheeks. My upperwings are black, and my underwings are white with black edges. My tail is white with a black tip. My bill is blue-grey with a yellow tip.

## THREATS

**Bycatch** in *longline* and *trawl* fisheries is one of the main threats to my species. We were the most common species caught in New Zealand trawl fisheries between 2004-2007. Between **7000-11,000** of us are caught per year in South African longline fisheries. We are also at risk from **disease** - in some years, many chicks on Albatross Island have died after being infected with disease.

## LIFE CYCLE

*First breeding age:* 6 years old  
*Breeding season:* eggs laid in September, hatching in December, chicks fledge in April.  
*Breeding frequency:* annual  
*Generation length:* 20.1 years

## POPULATION

*Adult population:* 31,600  
*Population trend:* Stable

### Did you know?

Confusingly, there is a species called the New Zealand White-capped Albatross which looks very similar to me. Whilst I only breed in Australia, the other guy only breeds in New Zealand! When I reach adulthood, I'm slightly smaller than him, and part of my bill is more yellow.

## BREEDING SITES

We only breed in *Australia*, on Albatross Island, Pedra Branca and the Mewstone.

## MIGRATION ROUTE

During breeding, we forage around the coast of New Zealand, towards Tasman sea to the south-east coast of Australia. After breeding, most of us stay in Australasian waters near our breeding sites, but **20%** migrate across the Indian Ocean to seas near South Africa and Namibia.

## DIET

I eat fish, cephalopods and crustaceans.



**POPULATION**  
*Adult population:* 95600-108000  
*Population trend:* Increasing



**LIFE CYCLE**  
*First breeding age:* 7 years old  
*Generation length:* 21.3 years

**DIET**  
 I eat fish, krill, cephalopods and carrion.

**PHYSICAL CHARACTERISTICS**  
*Wingspan:* 210 cm *Body length:* 87 cm  
*Weight:* 5 kg  
*Identification:* There are two colour forms in my species. Some of us are white all over with black speckling and dark brown eyes. Others are dark grey-brown with an off-white head and neck, speckled grey-brown wings, and pale eyes. All of us have a yellow, horn-shaped bill with a light-green tip.

**BREEDING SITES**  
 My species breeds in 9 territories: *Antarctica, Argentina, Australia* (Macquarie Island, and Heard and McDonald Islands), *Chile, Falkland Islands (Malvinas)\*, French Southern Territories, Tristan da Cunha* (British Overseas Territory) *South Africa* (Prince Edward Islands), and *South Georgia (Islas Georgias del Sur)\*.*

**THREATS**  
*Bycatch* in *trawl* fisheries used to be a major threat to my species. Between 2008-2010, 2463 of us were caught in trawl fisheries in waters east of Argentina. Successful bycatch mitigation methods means we are no longer at great risk from bycatch.

**Did you know?**  
 The Southern & Northern Giant Petrels are the HEAVIEST of all petrel species!



**PHYSICAL CHARACTERISTICS**  
*Wingspan:* 330 cm *Body length:* 115 cm  
*Weight:* 10 kg  
*Identification:* I am entirely white, except for my wings which are black and white. My bill is pink with a creamy tip.

**POPULATION**  
*Adult population:* 27,200  
*Population trend:* Stable

**BREEDING SITES**  
 We only breed in *New Zealand*, on Campbell Island, and Auckland Islands, and Tairaroa Head.

**LIFE CYCLE**  
*First breeding age:* 6-12 years old  
*Generation length:* 42.3 years

**DIET**  
 I mainly eat cephalopods and fish, and sometimes salps, crustaceans and carrion.

**THREATS**  
 We are threatened by *plastic pollution*. One Southern Royal Albatross was found on Whirinaki Beach on New Zealand's North Island with a whole plastic bottle in its stomach.

**MIGRATION ROUTE**  
 When not breeding, we migrate to the west and east coasts of South America to find food.

**Did you know?**  
 The Southern Royal and Wandering Albatross are the HEAVIEST of all albatross and petrel species!

**PHYSICAL CHARACTERISTICS**

*Wingspan:* 147 cm *Body length:* 55 cm

*Weight:* 1.3 kg

*Identification:* I am entirely black with white bands around my eyes, which is where I get my name. My bill is yellow.

**POPULATION**

*Adult population:* 20,000

*Population trend:* Increasing

**BREEDING SITES**

We are **endemic** breeders to Inaccessible Island in *Tristan da Cunha*, part of the British Overseas Territory in the Atlantic Ocean.

**DIET**

I mainly eat cephalopods, crustaceans and small fish.

**THREATS**

My species is threatened by **bycatch** in *longline* fisheries near Brazil - however, currently this is not having a major impact on our population. We also used to be threatened by **island pests**. Pigs on Inaccessible Island used to prey on our chicks, eggs and sometimes adults but they were successfully removed in the 1950s so our population is increasing.

**LIFE CYCLE**

*First breeding age:* unknown

*Breeding season:* eggs laid in October, hatching in December, chicks fledge in March

*Breeding frequency:* annual

*Generation length:* 25.8

**MIGRATION ROUTE**

When not breeding, most of us migrate to waters near southern Brazil, and some of us to the west coast of South Africa.

**PHYSICAL CHARACTERISTICS**

*Wingspan:* 350 cm *Body length:* 110 cm

*Weight:* 7.3 kg

*Identification:* I have a white body with some black feathers. My upperwings are black and white, with more black feathers towards the tip, and my underwings are mostly white with black edges and tips. I have a large pink bill with a pale yellow tip. I look very similar to the Wandering Albatross. Compared to the Wandering Albatross, my bill is 25 mm shorter, my body and wingspan is slightly shorter, and I am slightly darker in colour.

**BREEDING SITES**

I am an **endemic** breeder to Gough Island in *Tristan da Cunha*, part of the *British Overseas Territory* in the Atlantic Ocean.

**LIFE CYCLE**

*First breeding age:* 10 years old

*Generation length:* 28.7 years

**DIET**

I eat cephalopods & fish.

**MIGRATION ROUTE**

When not breeding, we migrate to the western South Atlantic Ocean, eastwards to South African waters, and northwards along the African Atlantic coast.

**POPULATION**

*Adult*

*population:*

3,400 - 4,800

*Population trend:*

Decreasing

**THREATS**

**Bycatch** in *longline* fisheries is the main threat to my species. Approximately 500 of us are caught per year in longline fisheries near our breeding site, as well as in Brazilian waters and south-east of Uruguay. Because we like to eat cephalopods and fish, and our foraging route overlaps with these fisheries, we follow fishing boats to catch their bait or discards, but this is dangerous as it can lead to us getting caught in the hooks. We are also threatened by **island pests** - mice on Gough Island have caused our population to decline over 50% in 3 generations.



**BREEDING SITES**  
 We breed in **4** territories: *Australia* (Macquarie Island), *French Southern Territories*, *South Africa* (Prince Edward Islands), and *South Georgia (Islas Georgias del Sur)\**.

**PHYSICAL CHARACTERISTICS**  
*Wingspan:* 360 cm *Body length:* 120 cm  
*Weight:* 10 kg  
*Identification:* I have a white body with some black feathers. My upperwings are black and white, with more black feathers towards the tip, and my underwings are mostly white with black edges and tips. I have a large pink bill with a pale yellow tip. I look very similar to the Tristan Albatross, but my bill is 25 mm longer, my body and wingspan is slightly longer, and I am slightly lighter in colour.

**Did you know?**  
 We have the **LONGEST WINGSPAN** of all birds on earth!

**POPULATION**  
*Adult population:* 20,100  
*Population trend:* Decreasing

**DIET**  
 I eat cephalopods & fish.

**LIFE CYCLE**  
*First breeding age:* 12 years old  
*Breeding season:* eggs laid December-January, hatching in March, chicks fledge in November.  
*Breeding frequency:* biennial  
*Generation length:* 23.3 years

**MIGRATION ROUTE**  
 Between breeding seasons, we **circumnavigate** Antarctica two or three times per year, covering more than **120,000 km**.

**THREATS**  
*Bycatch* in *longline* fisheries is one of the main threats to my species. Our population in the French Southern Territories decreased by **54%** between 1970-1986 due to bycatch, mostly in longlines in the Atlantic and Indian Oceans, and in Australasian waters, but fisheries moving northward contributed to a slight population recovery. Bycatch remains a major threat, and our population at South Georgia (Islas Georgias del Sur)\* is in steep decline. **Climate change** is also a threat, impacting over **90%** of our population. **Island pests**, including cats in the French Southern Territories, and mice on Marion (Prince Edward Islands, South Africa), are another problem for our population, preying on our chicks, eggs and sometimes adults.



**PHYSICAL CHARACTERISTICS**  
*Wingspan:* 147 cm *Body length:* 55 cm *Weight:* 1.25 kg  
*Identification:* I am sooty-black all over, except for a white patch on my chin or throat, which is where I get my name. My bill is short, and pale cream coloured with black stripes on top.

**Did you know?**  
 I am partly nocturnal!

**BREEDING SITES**  
 We breed in **5** territories: *South Georgia (Islas Georgias del Sur)\**, *South Africa* (Prince Edward Islands), *French Southern Territories*, *New Zealand* (Campbell, Antipodes and Auckland Islands), and the *Falkland Islands (Malvinas)\**.

**MIGRATION ROUTE**  
 This depends on where we breed. Those of us breeding on the Antipodes and Auckland Islands in New Zealand winter off the coast of Peru, Ecuador and northern Chile. Those of us breeding on South Georgia (Islas Georgias del Sur)\* winter in waters east of Argentina or near Chile. Those breeding on Marion Island (Prince Edward Islands, South Africa) and French Southern Territories winter near South Africa.

**THREATS**  
*Bycatch* in *longline* and *trawl* fisheries is our biggest threat. Approximately **17,500** of us were caught in a Namibian hake longline fishery in 2010, and **1,800** are caught per year in South African waters. In New Zealand trawl and longline fisheries, **14.5%** of all seabirds caught between 2003-2005 were White-Chinned Petrels. Successful bycatch mitigation methods have helped. I forage both during day and night, so night-setting is a less effective bycatch mitigation method for us. However, bird-scaring lines and weighted lines have reduced bycatch in Namibia's longline hake fishery by over **90%**. Bird curtains have reduced the collision rate with trawl fisheries by **68%**. In a toothfish fishery in the Indian Ocean, bycatch was reduced from **12,400** per year between 2001-2003 to **750** per year between 2008-2009 through mitigation methods.

**LIFE CYCLE**  
*First breeding age:* 6 years  
*Generation length:* 24.7 years

**POPULATION**  
*Adult population:* 3 million  
*Population trend:* Decreasing

**DIET**  
 I eat cephalopods, fish and crustaceans.