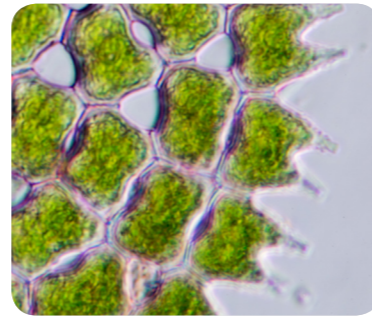


# Arctic ecosystem

The freezing temperatures and variable amounts of daylight in the Arctic make conditions harsh for living things. However, there is plenty of life in this remote region. The basis for this life is the abundant phytoplankton in the sea. These microscopic plants use energy from the Sun to make their own food. Phytoplankton are eaten by fish, which in turn are eaten by birds, seals, walruses, and whales. These animals feed the apex predator in the Arctic, the polar bear. This complex food web shows how all life in the Arctic region is interdependent.



phytoplankton  
(through a microscope)

## Plants

There are several hardy plants that can survive in the Arctic. There is only a thin layer of soil above the permafrost so only small plants with shallow roots can grow. Moss and lichen grow on rocks and provide food for caribou during the long winter. Some smaller flowering plants and shrubs can also grow. These include the Arctic poppy, bearberry, purple saxifrage, and cottongrass.



Arctic poppy



bearberry



purple saxifrage



cottongrass

## Fish

Fish, such as the Arctic cod, eat phytoplankton and algae. These, in turn, are eaten by bigger fish such as the Arctic char, which are eaten by seals, narwhals and whales. There are also freshwater fish in the rivers and lakes of the Arctic, such as the Arctic grayling. They are eaten by larger fish, non-aquatic animals and birds. Some sharks also live in the icy Arctic water, including the Greenland shark, which eats other fish and seals.



Arctic cod



Arctic char



Arctic grayling



Greenland shark

## Birds

There are a few hardy Arctic birds who live in these freezing conditions all year round. Other species migrate to the Arctic for the warmer summer months. The ptarmigan, Arctic skua and snowy owl remain all year. The Arctic tern and bald eagle are among those who visit the Arctic in the summer months.



ptarmigan



Arctic skua



snowy owl



Arctic tern

## Invertebrates

Some insects have adapted to life in the Arctic. These include the mosquito, Arctic bumblebee, Jutta Arctic butterfly and Arctic white butterfly. These insects provide food for birds and small animals and are also important for plant pollination.



Arctic white butterfly



Jutta Arctic butterfly

## Mammals

A range of mammals live in the Arctic. Herbivores, such as the caribou, Arctic hare and musk ox, eat shrubs, flowers and lichen. Terrestrial carnivores, including the Arctic fox and Arctic wolf, eat small animals and musk ox. There are also aquatic mammals, such as the polar bear, Beluga whale, ringed seal and narwhal, which live in the cold seas and feed on octopus, squid, seals and fish. Some mammals, such as the Arctic ground squirrel, escape the harshest winter weather by hibernating.



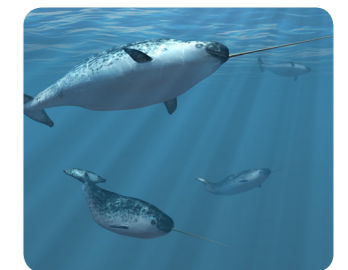
caribou



polar bear



ringed seal



narwhal



# Antarctic ecosystem

Antarctica is colder, drier and windier than the Arctic. It is surrounded by cold, nutrient-rich waters. These waters support phytoplankton, which feed Antarctic krill, small crustaceans with a hard outer shell. The krill feed larger animals, such as penguins, whales and seals.



Antarctic krill



humpback whale

## Plants

Apart from the phytoplankton in the sea, there is little plant life on this freezing, dry and windy continent. There are no trees or shrubs and only two species of flowering plant. These are Antarctic hair grass and Antarctic pearlwort. Moss and lichen are also adapted to life in this extreme environment.



Antarctic hair grass



Antarctic pearlwort

## Birds

Penguins are only found in the Southern Hemisphere. Many different species spend time on Antarctica, although only two make it their permanent home. The Adélie penguin is one of the most common species in the Antarctic. The emperor penguin also lives and breeds in these freezing temperatures. A few other birds are found in this icy land. The snow petrel lives in the Antarctic region all year round, eating krill from the sea. Other birds, such as the Arctic tern, visit during the summer months. The Arctic tern flies all the way from the Arctic winter to the summer on Antarctica, a journey of around 20,000km.



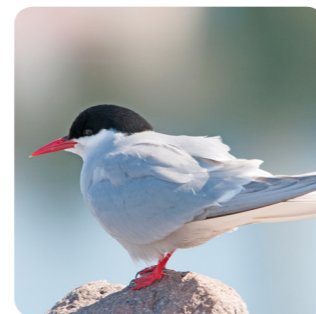
Adélie penguin



emperor penguin



snow petrel



Arctic tern

## Fish

Specially adapted fish, such as the crocodile icefish and Antarctic toothfish, can live in the freezing Antarctic waters. These fish have chemicals in their bodies that prevent them from freezing.



crocodile icefish



Antarctic toothfish

## Invertebrates

The only terrestrial animals that can survive on Antarctica are invertebrates (animals without backbones). The largest insect is the wingless midge, which can grow up to 13mm in length. Other invertebrates on Antarctica include earthworms and molluscs.



Antarctic midge

## Mammals

Although there are no Antarctic terrestrial mammals, there are many that live in the sea. There are several species of whale, including humpback, blue, and sperm which feed on the vast quantities of krill. There are also many types of seal in Antarctic waters, such as Weddell, crabeater, fur and leopard seals. They eat krill as well as fish and squid. Leopard seals also eat penguins and other seals.



humpback whale



sperm whale



Weddell seal



leopard seal

