

## SSC DIVE IN ! SEABIRDS





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Hello, and welcome to the Scottish Seabird Centre "Dive In" Packs of resources providing some seaside fun directly into family homes and classrooms.

#### This pack's theme: Seabirds

Seabirds are birds that spend most of their time at sea. They are adapted to life on the ocean and find their food there, often quite far from land. Seabirds vary greatly in appearance, behaviour and lifestyle. Although generally hardy and long-lived, seabirds today are vulnerable to a number of threats.

Dive into this pack to discover more about Scotland's amazing seabirds.

#### Inside this pack:

- Factfile: Seabirds
- Map: Where to see seabirds in Scotland
- Discover: Seabird feeding techniques
- Discover: Seabird migration
- Craft: Collage Seabirds

- Discovery sheets: Species information
- Factfile: Threats to seabirds
- Activity: Seabird counting
- Factfile: Helping seabirds
- Glossary

We'd love to hear from you! If you've had fun having a go at activities, experiments and crafts, let us know. Any comments or pictures can be sent to marineengagement@seabird.org. More resources are available on our website.

**Enjoy using our packs and want to see more?** The Scottish Seabird Centre is an environmental conservation and education charity. Every penny we raise helps us deliver our important education and conservation work. If you enjoy using our resources and would like to support our work, please consider making a donation to our <u>JustGiving</u> page. Thank you.

We hope you enjoy diving in to the pack!

#### Scottish Seabird Centre Learning Team





#### WHAT ARE SEABIRDS?

Seabirds are birds that live by, or on, the sea and rely on food from the sea to survive. Just like the birds in your garden or nearby park, all seabirds share the same characteristics, including:

- Bodies covered in feathers
- Wings and light, hollow bones for flying
- They lay eggs
- They have beaks
- They are warm-blooded

However, seabirds are adapted to life at sea. They have to cope with salt water, high winds and rough seas.



#### HOW MANY SPECIES ARE THERE IN SCOTLAND?

With a staggering 18,000km of coastline, and over 900 islands and productive seas that provide an abundance of places to nest and a plentiful supply of food, Scotland is the perfect place for seabirds to breed and raise healthy chicks. We have more than 5 million seabirds arriving here each year and some species occur in huge numbers. In total, 26 different species of seabird that currently breed in Scotland.



In recent years, changes to the environment have caused some species of seabird to adapt to life away from the sea. <u>Cormorants</u> can be seen hunting in rivers, whilst some species of <u>gull</u> are now nesting on rooftops in towns and cities. Though they aren't by the sea all the time, they are still regarded as seabirds.







#### WHAT ARE THE DIFFERENT TYPES OF SEABIRD?

Seabirds are grouped into families that look similar and feed and breed in similar ways. These are:



Images (c) Emily Burton, Susan Davies & Chris Gomersall/2020VISION

#### HOW CAN I TELL WHICH SPECIES IS WHICH?

It can be a little tricky to tell seabirds apart when they are far away or flying past you quickly. However, if you're lucky enough to visit a seabird colony up close or have a pair of binoculars, it gets a lot easier to identify them.

Watch out for:

- Any colours and patterns on their bodies.
- Size of their bodies.
- Shape, colour and size of their beaks.
- Behaviour- how are they hunting for prey?



You can then use an identification guide, like our <u>spotter sheet</u>, to help work out which species you are looking at.











## SEABIRD COLONIES

#### WHEN & WHERE IS IT BEST TO SEE SEABIRDS?



Some species of seabird can be seen throughout the year, but the number of species and the number of individuals is much higher in spring and summer. This is because most seabirds migrate to Scotland to breed and rear their chicks when conditions are good. June to August is generally the best time as this is when chicks are feeding and **fledging**.

Some species form colonies — areas where lots and lots of birds all nest close together. These are fantastic places to

visit as you get to experience the sights, sounds and smells of thousands of seabirds all together.

#### WHY DO SEABIRDS FORM COLONIES?

- Staying in large groups provides safety in numbers— a predator has lots of birds to choose from, so the chances of a bird being caught in a crowd is small compared to if it was alone.
- Seabirds often nest in places where land predators can't reach them, i.e cliffs or islands. Seabirds are therefore drawn to these areas and congregate in these safer locations.
- It's easier to find a mate when there are lots of birds together.
- Young birds can learn by observing mature birds. For example, they may follow experienced foragers when they leave the colony to feed.





Image: Bass Rock, an island in the Firth of Forth, can have 150,000 gannets nesting on it each summer.



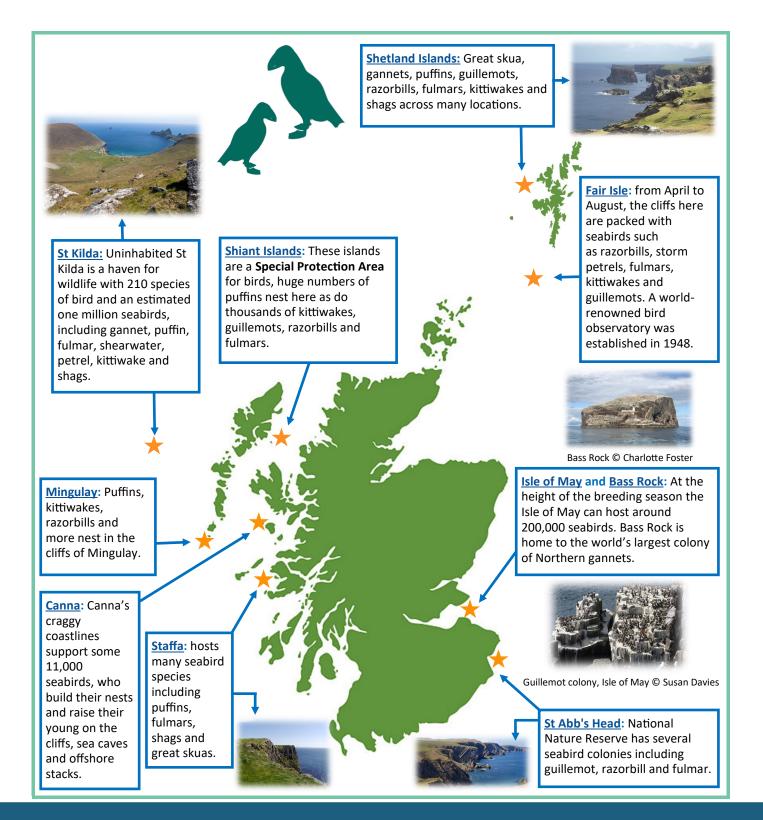


## MAP



## WHERE TO SEE SEABIRDS IN SCOTLAND

There are many locations around the country to see seabirds but some places stand out. Here are a few hotspots, identified for their importance. Click on the locations to learn more about each site.







## FEEDING TECHNIQUES

Schools of fish are easy targets for hungry seabirds. Did you know that different seabirds hunt in different ways? Their bodies are specially **adapted** to help them catch their favourite fish.

Some dive from great heights, some dip at food the surface, whilst some pursue their prey under the water.

#### NORTHERN GANNET - THE DIVE BOMBERS



Favourite fish: Medium-sized fish, e.g. mackerel and herring.

**Feeding technique:** Gannets fly up high and dive head-first into the school of fish.

Adaptations: Beak is streamlined (long and narrow) to help it enter the water without injury. Air sacs close to the eyes act like air bags and cushion the force when hitting the water.

#### ATLANTIC PUFFIN - THE SUPER SWIMMERS



Favourite fish: Small fish, particularly sandeels.

**Feeding technique:** 'Duck dive' from the surface then use their wings to swim and chase fish.

**Adaptations:** Beak is thick with jagged edges. Roof of the mouth has backward -facing spines for holding on to mouthfuls of slippery fish.

#### ARCTIC TERN – THE SURFACE FEEDERS



Favourite fish: Small fish, e.g. Sandeels, herring and smelt.

**Feeding technique:** Dive from a small height and catch fish near the surface.

**Adaptations:** Beak is thin and pointy. Body is agile and can quickly dive to snap up fish.







## SEABIRD MIGRATION

#### WHAT IS MIGRATION?

The movement of animals from one place to another with the changing seasons. Like many birds, seabirds often migrate after the breeding seasons.

#### WHY DOES IT HAPPEN?

As seasons change, so does the weather and amount of food available for birds to eat. Birds can either stay and cope with the change, or migrate to find more food and better conditions.



In autumn, the **Northern hemisphere** (the top half of the Earth) starts to experience shorter days and colder temperatures. This makes the environment **less productive** — there is less energy from the sun for plants to grow and animals to survive. To avoid these conditions, some species migrate South for the winter. Some stay in the same country, whilst others travel to the other side of the world. After winter has passed, the same happens in reverse —birds leave the South in the spring and head back to their summer breeding grounds in the North.

#### HOW DO BIRDS KNOW WHEN IT'S TIME TO MIGRATE?

The gradual change in the length of day in autumn triggers glands in the birds bodies to release special chemicals, called **hormones**. The hormones make the birds behave differently—they become restless, gather in flocks, and eat more food. Some species also moult their feathers, growing new ones for the journey. Once their bodies are ready, the birds wait for a period of calm weather then off they go.

#### HOW DO BIRDS PREPARE FOR THE JOURNEY?

Eat, eat, and eat! Migration takes a lot of energy, so birds need a store a lot of fat to fuel them on their journeys. The hormones in the birds bodies make them go into a feeding frenzy, causing them to spend all the time they can eating and building up their fat reserves.







Below are a few examples of the extraordinary journeys seabirds make from the Firth of Forth, Scotland.



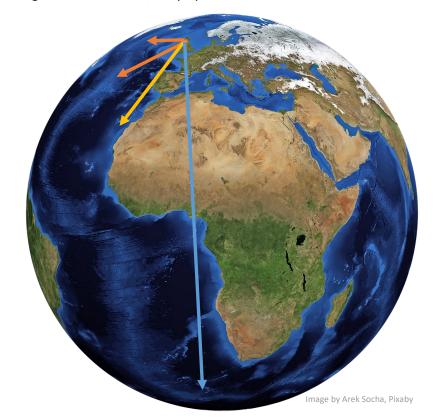
#### **ATLANTIC PUFFIN**

Puffins leave their UK summer breeding grounds in August and travel to the middle of the North Atlantic and Arctic Ocean for the winter. They stay on the open ocean, floating on the sea in groups called **rafts**. They return to their breeding colonies in March/early April.

#### Northern Gannet



By the end of October, all the gannets have left Scotland for their migration South. Some individuals travel as far South as the West coast of Africa, spending their time at sea until it's time for them to return to the UK in February.





#### **ARCTIC TERN**

Believe it or not, this little bird undertakes the longest migration on the planet. Some individuals travel from the Arctic to the Antarctic and back again in one year. That's between 44,000 and 59,000 miles each year—the same distance as flying to the moon and back three times over its lifetime!

Those that breed in Scotland leave in August and arrive back in May.









Pick you favourite seabird and create a piece of art using collage. This is where you overlap different materials and stick them onto a background, optionally adding some detail in paint, pens or crayons.

#### WHAT DO I NEED?

1

Newspaper
Scissors
Glue
Paper or card
Pencil
Water
Paints
Paint brush



Cut or tear out the shapes to make the head, body, wings and legs of your bird. Use as few or as many different pieces of paper e.g. the body can be one large piece or made up of many pieces, even individual feathers.

3

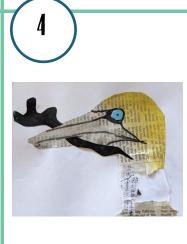
Glue the various parts of your bird into position on your background card or paper. Allow to dry.





2

Add in some colour if you wish, using paint, pencils, crayons or anything else you have to hand. Use as much or as little colour as you want to. We made the gannet's head yellow and its eye blue.



Add in some detail using paint, pens, or more cut or torn paper. You could even add real feathers or other materials—be creative! Why not give your bird a nest or an egg.



### SEABIRDS





### Northern gannet

MORUS BASSANUS

**SIZE:** Wingspan: Around 172 cm Length: 87-100cm Weight around 2.4-3.6kg

#### LOCATION:

Scotland is home to around 60% of Europe's gannets between February and October. Key breeding sites around the coast include the Bass Rock which is the world's largest colony of Northern gannets. These seabirds favour coastal cliffs and remote islands, with large breeding colonies (known as "gannetries") established around Troup Head in Aberdeenshire, St Kilda and in the Northern Isles.

#### WHAT DOES IT LOOK LIKE?

One of Britain's largest seabirds, the adult Northern gannet is bright white with distinctive black wingtips and a yellow head. Its eye has a bright blue orbital ring with a pale blue-grey iris. A gannet's beak is long, strong and dagger-like.



- Gannets feed by circling high above the waves, before folding their wings back and diving into the water headfirst at speeds of up to 60 miles per hour. A closable gap in the beak of a gannet prevents water from coming in during high-speed dives.
- Northern gannets mainly eat fish found at the surface the sea, up to 15 m deep. They also eat squid and usually consume their food before taking off again.
- A female gannet lays a single egg and young gannet is known as a guga. Learn more about the life of a Northern gannet in our whiteboard animation—<u>click here</u>.



### SEABIRDS



## Arctic tern

STERNA PARADISAEA

SIZE: Wingspan: Around 80 cm Length: 33-35cm Weight around 95-120g

#### LOCATION:

The Arctic tern is a summer visitor to Scotland, nesting in colonies on sandy and shingle beaches, often on islands. Can be seen around most of our coasts.

#### WHAT DOES IT LOOK LIKE?

The Arctic tern (or 'sea swallow'), is a medium sized tern with a distinctive black cap which extends down the back of its neck. It is silvery grey across its wings and back, with a slightly darker grey underside and bright red legs. Often confused with the similar common tern, it can be distinguished by its longer tail streamers (see image above) and the absence of a black tip on its red beak.



- As mentioned on page 9, the Arctic tern holds the record for the longest migration of any animal on earth, travelling as far as the Antarctic every winter.
- They are well-known for their aggressive behaviour around nesting sites, dive bombing intruders to protect their eggs or chicks.





### SEABIRDS





### Fulmar Fulmaris glacialis

**SIZE:** Wingspan: Around 107 cm Length: 45-50cm Weight around 0.61-1kg

#### LOCATION:

Fulmars can be seen in a number of coastal locations around Scotland. They are a common sight in the Firth of Forth, on the north coast and out on the Northern Isles.

#### WHAT DOES IT LOOK LIKE?

Part of the petrel family, Northern fulmars look similar to some gull species, with a white head and underside, grey wings and dirty yellow beak. However, their thick neck, dark eyes and straight, stiff wings set them apart. They have a tube -like ridge visible at the top of their beak.



- When they feel threatened, nesting fulmars will spit a foul-smelling oily mixture on to intruders. In fact the name 'Fulmar' is a combination of Old Norse ful and mar meaning 'foul gull'.
- Fulmars feed in large flocks out in open water, catching small fish and crustaceans.
- They breed on rocky cliff faces and can often be found nesting amongst other seabird species.



### SEABIRDS





### Atlantic puffin

#### FRATERCULA ARCTICA

SIZE: Wingspan: Around 55 cm Length: 26-29cm Weight: around 320-480g

#### LOCATION:

Puffins can be seen at a number of locations around the Scottish coast, including the Isle of May, Fidra, Craigleith, St Kilda, Orkney and Shetland. In the breeding season they gather at nesting sites (puffinries), which are usually burrows located on grassy clifftops. Puffins spend the winter months at sea.

#### WHAT DOES IT LOOK LIKE?

Sometimes known as the 'clown of the sea', the Atlantic puffin is an iconic species easily identifiable in the summer months by its black and white feathers, brightly coloured beak and orange legs. Their beak colour does change with the seasons—being brightest in spring to attract a mate.



- The puffin is a small bird—around a third of the length of a gannet.
- Puffin tongues are specially adapted to keep many small fish firmly clamped within their mouths.
   On average a puffin will hold ten fish at once but a puffin has been seen with more than 60 in its beak at once.
- Puffins spend most of their lives at sea, only coming onto land to breed and raise young.
- To learn more about the life of an Atlantic puffin in our whiteboard animation—<u>click here</u>.



### SEABIRDS





### **Common guillemot**

URIA AALGE

SIZE: Wingspan: Around 67 cm Length: 38-45cm Weight: around 0.85-1.13 kg

#### LOCATION:

Guillemots are fairly wide-spread around the rocky coast of Scotland, breeding in vast seabird 'cities'; densely-packed, noisy colonies usually found on cliffs or rocky islands.

#### WHAT DOES IT LOOK LIKE?

A sleek auk species, a guillemot's summer **plumage** is dark brown on top with a white underside. A small number of birds (known as the 'bridled' form), display a delicate white line around their eye, which continues backwards and down towards the neck. In winter, their colouring becomes messier and they display a white patch on their face.



- Guillemots have very small territories on their cliff ledge—only a beak's length around the nest.
- At just three weeks old, a guillemot chick will jump off the cliff ledge into the sea with its father. They are known as 'jumplings' when they do this. The father will continue to look after the chick until it is ready to be independent.
- Although guillemots look similar to penguins, they are only distantly related.



### SEABIRDS





Image: Charles J. Sharp—Creative Commons

### **Storm petrel**

HYDROBATES PELAGICUS

**SIZE:** Wingspan: Around 38 cm

Length: 14-18 cm

Weight: around 25 g (around two £2 coins)



#### LOCATION:

Storm Petrels are true seabirds, spending the majority of their time out in open water. They have been known to breed on the west coast and western isles, as well as on Orkney and Shetland. They nest in burrows and rocky crevices, only returning to land at night. They can be spotted from almost anywhere around the Scottish coast during spring and autumn, when they are sometimes blown towards the shore whilst migrating.

#### WHAT DOES IT LOOK LIKE?

Part of the petrel family, sometimes referred to as the 'tubenoses', the European storm petrel is Britain's smallest breeding seabird. Not much bigger than a sparrow, they have dark brownish black feathers covering their entire body, apart from a white patch just above their tail and a white band on the underside of each wing.

- Flying low over the water, the tiny storm petrels' feet skim the waves as it searches for food, sometimes giving the impression that it is running across the surface.
- Nesting in burrows or crevices, they are vulnerable to **predation** from mammals such as rats. For this reason they are typically found on islands where these animals are absent.
- Storm petrels call and chatter from their burrows at night but rarely make noises when out at sea.



### SEABIRDS





Image: Ómar Runólfsson — Creative Commons

## Great skua

**STERCORARIUS SKUA** 

**\$12E:** Wingspan: Around 136 cm Length: 53-58 cm Weight: around 1.2-2 kg

#### LOCATION:

During the summer months, Great Skuas can be spotted around coastal **moorlands** on the north and west coasts of Scotland, as well as on St Kilda, Shetland and Orkney. They can also be spotted during spring and autumn from coastal locations, especially around other seabird colonies where they can readily access food.

#### WHAT DOES IT LOOK LIKE?

The Great Skua is the largest species of skua and is mostly a dark chocolate brown colour with lighter brown flecks. It has a thick, dark beak and prominent white patches are visible on its wings when in flight.

#### FACTS:

- This bird is sometimes known as a 'Bonxie', which derives from a word on Norse origin.
- It feeds by chasing seabirds like gulls and gannets in order to steal their fish, which is why they are sometimes referred to as 'pirates'.
- They can be aggressive around their breeding grounds and are not afraid of humans. Great skua will frequently dive-bomb people that venture too close.

Learn more about other seabird species on <u>our website</u>.





#### **DOES ANYTHING THREATEN SEABIRDS?**

Sadly, many species of seabird around the world are either in decline (becoming fewer) or are at risk from human activities. Things that threaten seabirds include:

- Overfishing Humans fish for the same species that seabirds eat and sometimes take too many out of the sea. This reduces the amount of food available for seabirds.
- Climate change As sea temperatures warm with rising air temperatures, some fish species such as sandeels are moving northwards and deeper, in search of cooler water. Many seabirds therefore have to travel further to find their prey food and can't provide enough to feed their chicks. Harsher (colder and wetter) conditions can also affect seabirds ability to breed and makes it harder for young birds to successfully fledge. Climate change also increases the number of bad storms that can blow birds off course and damage their homes.
- Pollution Birds can get caught-up in fishing gear, rope and other rubbish in the marine environment. They can also mistake floating pieces of rubbish as food and eat it, causing their bellies to fill-up with rubbish. Seabirds are also at risk from toxic chemicals and materials that are accidentally spilt into the sea— oil spills, for example, are very bad for birds as their feathers get covered in oil so they can't fly or keep themselves warm.
- Collision with objects As more and more buildings and structures are built by and in the sea, there is an increased risk of birds hitting them as they fly past. Wind turbines, for example, can be built in large numbers at sea (forming a wind farm).
- **Disease** Just like us, seabirds can catch viruses that cause illness. Bird Flu is a virus that has recently been causing large numbers of seabird deaths around the UK.

















## SEABIRDS THREATENED

FACTFILE

#### HOW WELL ARE SEABIRDS DOING?

Experts conduct surveys to record the number of seabirds around the country. This allows them to understand how populations are changing over time and whether we should be concerned by any changes. Different species are then put into different categories - Green, Amber or Red—to show how well the species are doing. Most species in Scotland are on the Amber list.



#### Least concern



A species is given a Green status when they are considered to be doing well. This can be because their numbers are increasing or are stable (not going up or down), and there are plenty of birds of the same species found elsewhere in Europe.



#### Medium concern



A species is given an Amber status when they aren't doing so well and they are at risk of bad decline (drop in numbers) in the future. This can be due to decreasing numbers of individuals, bad declines in the past, or the number living in the UK is 20% of the total number of birds in Europe.



Cormorants are in

the Green category

<u>Razorbills</u> are in the Amber category

# Red

#### Greatest concern



A species is given a Red status when they are considered to be doing very badly. This can be due to a very big decline in the number of individuals, the species is at risk of **extinction**, there have been very big declines in the past, the number of birds breeding is half of what it used to be, or the range (how big an area) birds are breeding in is half of what it used to be.



<u>Kittiwakes</u> are in the Red category. Their numbers have dropped by 70% since 1986.







## ACTIVITY

## SEABIRD COUNT



You are a seabird scientist wanting to know how many gannets are living on a small island. Can you correctly count how many gannets there are from the photos you take with your camera?

Look at the photographs below and count the birds. Answers can be found on the next page.

Рното 1





Рното 2

Hint! Counting heads is the easiest way to count the gannets in these photos.







## ACTIVITY

## SEABIRD COUNT-ANSWERS



Рното 1

Answer: 16 gannets





#### PHOTO 2 Answer: Between 90-100 gannets

Don't worry if you get a slightly different answer—counting lots of birds close together is tricky! Some are hidden, or you might accidentally count the same bird twice. Because of this, scientists have designed special ways of counting big colonies so their counts are more accurate.

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#### SEABIRD SURVEYS

Scientists conduct counts, also known as surveys, so they can monitor populations of seabirds over time. Without this data, we wouldn't know how

many live in Scotland, if they are doing well, where they breed, where they feed, and at what time of year. All this data can be used as evidence (information that can prove) when seabirds need better protection.



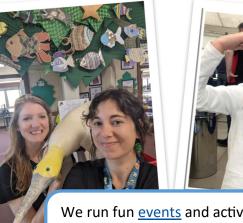






## HOW WE HELP SEABIRDS

As a **conservation** and education charity, there are lots of ways the Scottish Seabird Centre helps seabirds.





We run fun <u>events</u> and activities for all ages to teach people about seabirds and what they can do to help them.



We organise beach cleans to remove rubbish from the marine environment.







Our <u>Discovery Experience</u> is full of exhibits and games to help visitors learn about seabirds. We even have a Virtual Reality experience!

We get people involved in <u>conservation projects</u> that study, restore and regrow habitats that are important to seabirds and the fish they eat.



We run <u>boat trips</u> to give people the chance to see wild seabirds in a safe and environmentally-friendly way.





#### Scottish charity no. SC025837 www.seabird.org

#### HOW CAN YOU HELP SEABIRDS?

 $\checkmark$ 

#### Help keep their homes clean and tidy

- Reduce Cut back on the amount that's thrown away,  $\checkmark$
- e.g. food waste, single-use plastic & clothing.
- $\checkmark$ Reuse – Buy reusable items e.g. water bottle, coffee cup, cotton bag. Fix or turn old clothes into something new.
- Recycle Wherever possible!  $\checkmark$
- **Recover** Take rubbish out of the environment by safely picking up rubbish. Taking part in community beach cleans is a great way to do this with friends and family.

FACTFILE

HOW YOU CAN HELP SEABIRDS

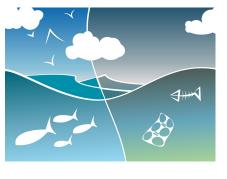
#### Support causes that help the ocean

- ✓ Get involved in citizen science and practical conservation. See our list of conservation projects and our Citizen Science Dive In! pack for more information.
- ✓ Write to your local member of parliament show your support for environmental policies.

#### Adopt a puffin or a gannet

Help protect the seabirds you love by gifting a wildlife adoption pack. All sales help support our vital conservation and education work.

When you adopt, you will receive your very own adoption gift pack including: postcards, an adoption certificate, a fact sheet, a bookmark, a cuddly toy and acknowledgement of your support for the Scottish Seabird Centre.

















### GLOSSARY

ADAPTED	When a living thing adjusts to its environment in order to improve their chances at survival in that environment.
BREED	When a male and a female bird form a partnership and raise a chick together.
CAMOUFLAGE	When animals conceal themselves by blending into their surroundings, either by the pattern, colour or texture of their skin, or the use of materials around them.
CONSERVATION	The protection of the Earth's natural resources for current and future generations.
CRUSTACEAN	An animal with a hard shell and several pairs of legs, which usually lives in water, such as crabs, lobsters and shrimps.
DIVERSE	Many different types of something.
DOWN	The down on birds is a layer of fine feathers, underneath the tougher exterior feathers. Very young birds have only in downy soft immature feathers.
EMBRYO	An animal in the early stages of development after fertilisation, still a tiny cluster of cells.
EXTINCTION	Extinction is when there are no more individuals of a certain species left alive anywhere in the world.
FLEDGE	When a bird is mature enough to fly independently.
INVERTEBRATE	An animal without a backbone or bony skeleton—ranging from microscopic mites to spiders, worms and even giant squid.
MOLLUSC	A subset of invertebrates, molluscs are soft-bodied animals including snails, slugs, octopuses, clams and oysters.
MOORLANDS	A type of habitat found in upland areas with poor quality soil and low- growing plants such as heather and bracken.
Plumage	The feathery covering of a bird.
POLICIES	A policy is a set of ideas or plans that guide decisions to achieve an outcome. Policies are important because they shape the way we do things.
PREDATION	When an animal hunts another animal for food.

