



SSC DIVE IN! ELASMOBRANCHS





WELCOME!

Hello, and welcome to “SSC Dive In!”. Packs of resources providing some seaside fun directly into family homes and classrooms.

This pack’s theme: **Elasmobranchs**

Did you know, Scotland has recorded 66 species of elasmobranchs (sharks, skates and rays in its waters)? That each summer, the second largest fish on the planet can be seen swimming off the shore? Or that sharks have an extra sense that humans don’t have?

Dive into this pack to discover more about the fascinating world of sharks, skates and rays!

Inside this pack:

- **Fact file: Elasmobranchs**
- **Discovery sheets: Species information**
- **Guest blog: The Shark Trust**
- **How to: Great Eggcase Hunt**
- **Craft instructions: Paper plate skate**
- **Craft instructions: Clothes peg sharks**

Important note: *If you are going outdoors, please follow the social distancing protocols and government advice.*

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 available on our [website](#).

Enjoy using our packs and want to see more? The Scottish Seabird Centre is an environmental education and conservation 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 the our [JustGiving page](#). Thank you.

We hope you enjoy diving in to the pack!

Scottish Seabird Centre Learning Team

The Scottish Seabird Centre would like to thank the Shark Trust for their kind contributions to this pack.



Discover more about their work here:

www.sharktrust.org

Many thanks also to others who contributed photographic images for use in this pack.

Hint: The meaning of words in **purple** can be found in the Glossary at the end of the pack. Words in **blue** contain links to websites.

FACTFILE

ELASMOBRANCHS

WHAT ARE ELASMOBRANCHS?

'Elasmobranch' (pronounced "ee-las-mo-brank") is the name given to the group of animals containing sharks, skates and rays. Elasmobranchs are **fish** meaning they are cold-blooded and breathe using gills underwater.

They are grouped together because they share a lot of the same characteristics, including:

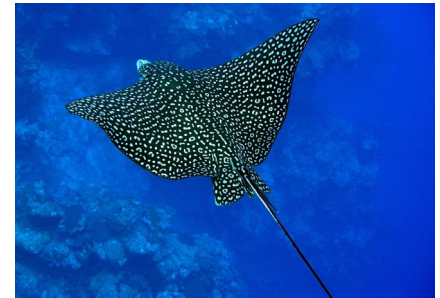
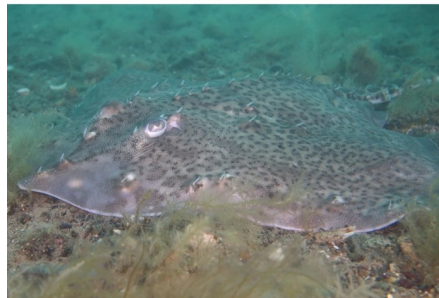
- They are '**cartilaginous**' (pronounced "cart-ee-la-jee-nous"). This means their skeletons aren't made-up of bone, like yours, they're actually made of cartilage - the same thing your ears are made of!
- They are **top-predators**, meaning they are at the top of the food chain.
- They have rough skin that feels like sandpaper.

WHAT IS THE DIFFERENCE BETWEEN SHARKS, SKATES AND RAYS?

Sharks look similar to typical fish with fins, a torpedo-shaped body and gills on the side of their head.

Skates have flattened bodies with broad "wings" and gills underneath.

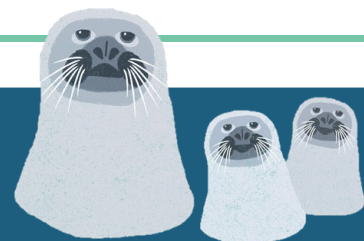
Rays are similar to skates but have thinner, whip-like tails. Some species of ray also have a stinging spine near their tail.



HOW MANY SPECIES ARE THERE IN SCOTLAND?

Scotland has recorded 66 species of sharks, skates and rays in its waters*! Some visit our seas at certain times of the year, whereas some live here all year round. Some live in deeper waters, like the Portuguese dogfish (see species information on page 11), whilst others live in shallower places, like the [Thornback ray](#).

**Source: MASTS 'SIORC Community Project'*





FACTFILE

ELASMOBRANCHS (CONTINUED)

HOW DO ELASMOBRANCHS BREATHE?

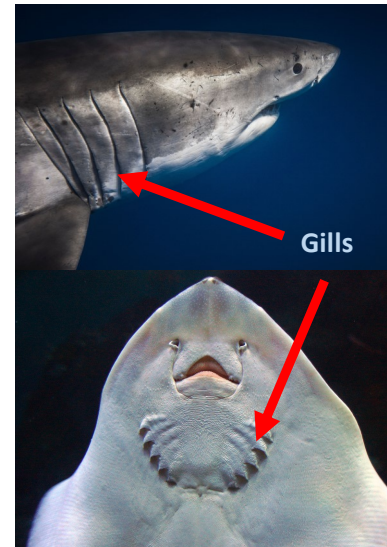
Differently to us.

When we breathe, air flows into an organ inside our bodies called the **lungs**. Here, **oxygen** (a gas) is taken out of the air and used by cells to make energy.

In the sea, oxygen is dissolved in the water so, instead of lungs, elasmobranchs have structures called **gills** that are able to take dissolved oxygen out of the water.

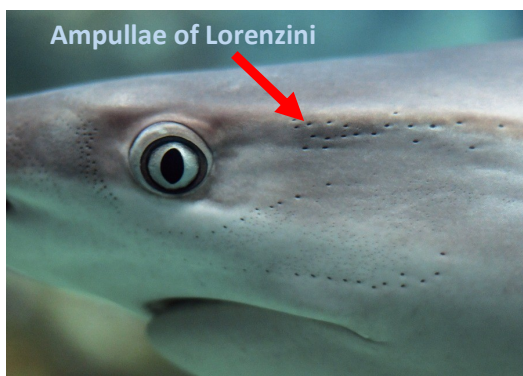
On sharks, gills are found behind their head on each side of their body. In skates and rays, they're found underneath their bodies, below the mouth.

To breathe, elasmobranchs take water into their mouths and then pass it over their gills. Elasmobranchs have to either constantly keep moving or take "gulps" of water as they rest on the seafloor to keep water flowing through the gills. Click [here](#) for more information on these two different ways of breathing.



HOW DO SHARKS, SKATES AND RAYS SENSE THE WORLD AROUND THEM?

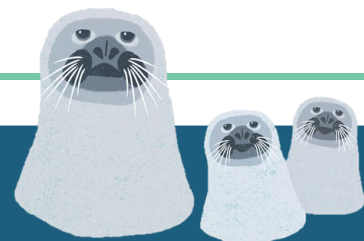
As well as having the same 5 senses as humans (sight, smell, taste, hearing and touch), elasmobranchs can also sense electricity!



Ampullae of Lorenzini look like dark spots on the heads of elasmobranchs

Animals give off faint electric signals when their hearts beat and muscles move. Elasmobranchs have evolved a very clever way of picking up this signal—through structures called '**Ampullae of Lorenzini**' (pronounced "amp-you-lie" and "lauren-zee-knee"). Ampullae of Lorenzini are **pores** on the nose and side of elasmobranch heads that contain a jelly-like substance that detects electric signals.

Discover more about shark senses [here](#).





FACTFILE

ELASMOBRANCHS (CONTINUED)



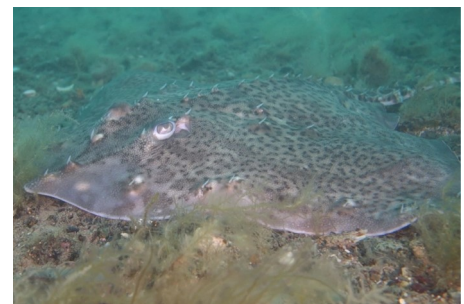
WHAT ARE BABY ELASMOBRANCHS CALLED?

Believe it or not, baby sharks, skates and rays are called **pups**.

Skates and most species of shark hatch out of eggs, like the photo, but rays and a few species of shark give birth to live young. Find out more about elasmobranch reproduction [here](#).

WHY ARE SKATES AND RAYS FLAT?

Skates and rays spend their lives on or close the seafloor. Being flat is a good **adaptation** for swimming low along the seafloor, finding food on the sea bed and hiding in **sediment** from predators. Their bodies typically have different patterns on them too, such as dots and stripes, to help them **camouflage** on the seafloor.



A Thornback ray lies camouflaged on the seafloor.

WHAT DO ELASMOBRANCHS EAT?

Different species feed on different things. Skates and rays tend to eat shellfish, crustaceans (e.g. crabs and lobsters) and fish close to the seabed.

Sharks eat all sorts, including fish, squid, octopus, carcasses (bodies of dead animals), and even other sharks!



Sharp, pointy teeth are designed for catching and slicing prey.

All elasmobranchs have powerful jaws for catching prey.

Some species of shark have rows of teeth that continuously replace old teeth at the front—a bit like a conveyor belt!

Whilst most sharks have sharp pointy teeth (like the ones in the photo), some species of shark, skate and ray have blunt teeth for crushing through shells of crustaceans and shellfish. Find out more about shark teeth from a shark expert [here](#).





FACTFILE

ELASMOBRANCHS (CONTINUED)

WOW, SO THEY'RE AMAZING PREDATORS—DOES ANYTHING THREATEN ELASMOBRANCHS?

Sadly, humans are the cause of huge declines of sharks, skates and rays in oceans around the world. They are now among the world's most threatened animals. Human activities that threaten elasmobranchs include:



- **Overfishing**— Sharks are **unsustainably** hunted for meat and other products in some parts of the world. People are also taking too many fish out of the ocean, meaning there isn't enough food left for elasmobranchs to feed on.
- **Ghost fishing**— when animals are accidentally caught in old fishing nets and rope that have been left in the sea.
- **Habitat destruction** — all animals need a healthy environment to eat, rest and breed. Habitats in the marine environment are being badly damaged by things such as **climate change** and **pollution**, meaning fewer animals, such as sharks, skates and rays, can live there.

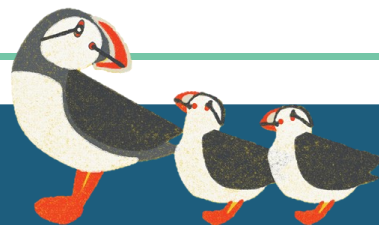
ARE ELASMOBRANCHS IMPORTANT?

Yes, they very important for a number of reasons:

- As top predators, sharks, skates and rays keep prey numbers balanced (not too few or not too many). This helps keep **ecosystems** healthy.
- Sharks are messy eaters, often leaving scraps or carcasses behind for other animals to eat.
- Those that swim big distances transport nutrients from one place to another by eating and poo-ing wherever they go!

HOW CAN I HELP ELASMOBRANCHS?

There are lots of ways you can help sharks, skates and rays. For example, you can avoid eating shark when on holiday, only buy fish that has been caught in shark-friendly way and helping to reduce the amount of plastic in the ocean by recycling or cutting down plastic use. You can also get involved in some of the fantastic **conservation** projects run by The Shark Trust. Click [here](#) for more information.





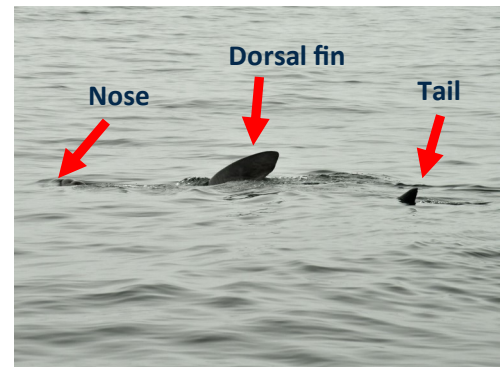
FACTFILE

ELASMOBRANCHS (CONTINUED)

CAN I SEE THEM IN THE WILD?

Yes, but unlike whales and dolphins, sharks, skates and rays don't need to come to the surface to breathe so spend all their time under the water. So, the best way to spot them—especially the species that live close to the seafloor - is to go diving or snorkelling.

However, some species come close to the shore or surface to feed and you can spot their fins above the surface. A Basking shark, for example, can be identified by 3 parts of its body sticking out of the water whilst they are feeding—the tip of the nose, dorsal fin and tip of the tail (like in the photo).



A Basking shark feeding at the surface

The best place to see Basking sharks in Scotland is on the West coast in the summer months.

SHOULD WE BE SCARED OF SHARKS IN THE UK?

Though they are top-predators and look quite fearsome, sharks prefer to eat other things to humans and tend to stay away. Basking sharks, for example, may look big and scary but they eat **plankton**. Plus, no potentially dangerous species have been reported in British waters. However, just like any other predator, all sharks should be treated with respect and people should keep their distance.

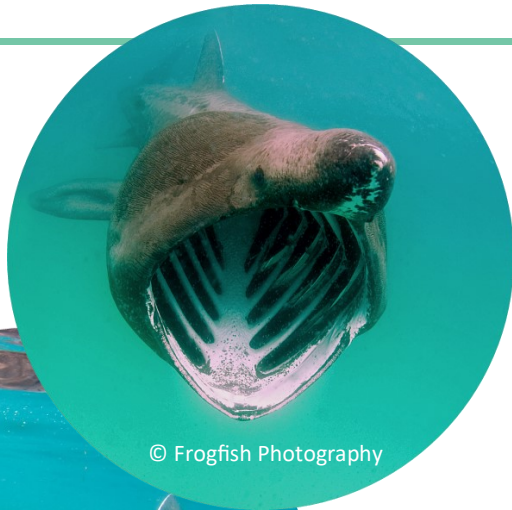
SUPER SHARKS! HERE'S SOME OF OUR FAVOURITE FACTS..

WOW!

- Sharks continually produce teeth throughout their lives. Older teeth that are broken or worn fall out and new teeth takes their place. Depending on the species, a shark can produce between 20,000 - 40,000 teeth in its lifetime!
- The earliest fossil evidence of sharks dates back to 450 million years ago!
- Megalodon (meaning "big tooth") is the name given to the biggest shark to have ever lived. Thanks to finding fossilised teeth, scientists have been able to estimate this shark lived 20 million years ago and reached a whopping 15 - 18 metres long—that's three times longer than the largest recorded great white shark!



ELASMOBRANCHS



© Frogfish Photography



© Frogfish Photography

Basking Shark

CETORHINUS MAXIMUS

SIZE: The largest shark in Scottish waters, the Basking Shark can grow up to 11 metres - longer than a bus!

DIET: **Plankton** – tiny animals and plants many of which are less than 1 mm long!

WHAT DOES IT LOOK LIKE?

The basking shark has a huge grey body and swims with its cavernous mouth wide open. It has a thick triangular dorsal fin two-thirds of the way down its back. Its tail fin is almost crescent-shaped. Five long gill slits run from the back of the head to below the throat.

WHERE DOES IT LIVE?

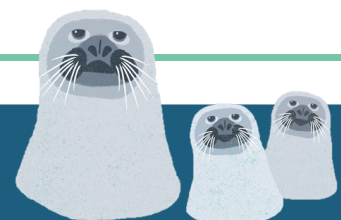
Found in all Scotland's seas between May and September but most frequently sited on the west coast. Can migrate long distances in the winter including to the Azores and Newfoundland.

FUN FACTS:

The basking shark is the second largest fish in the world, second only to the whale shark. Basking Sharks can detect the levels of plankton in the water and travel hundreds of miles to feed in areas that have high levels of plankton.

CONSERVATION STATUS:

The North East Atlantic population are classed as **Endangered** on the IUCN red List.



DISCOVER

ELASMOBRANCHS



Photo: Spurdog shark having a tracking device fitted to help scientific research into sharks in Scotland

© James Thorburn.

Spiny Dogfish or Spurdog Shark

SQUALUS ACANTHIAS

SIZE: Up to 92 cm

DIET: Feeds on bony fish, and sometimes on smaller sharks.

WHAT DOES IT LOOK LIKE?

A slender shark with a pointed snout, large eyes, and spines in front of its dorsal fin. Grey/brown upper body with a lighter belly and rows of white spots down its sides.

WHERE DOES IT LIVE?

Widely distributed around Scotland's coast. It is a **migratory** species that spends the winter months in deep water, and the summer months in warm coastal waters.

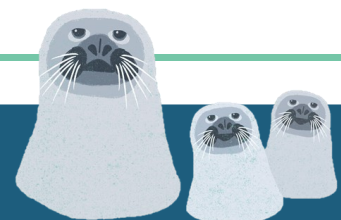
FUN FACTS:

This species can use its spines to defend itself. It will curl its spines in a bow and strike at a predator, shooting venom when attacked.

They are known to hunt in very large packs and have a variety of names including spiny dogfish, spurdog shark, piked dogfish rock salmon and spiky dog!

CONSERVATION STATUS:

The spurdog is listed as **Vulnerable** by the IUCN Red List and is a Priority Species under the UK Post-2010 Biodiversity Framework. Recovery from overfishing is difficult as spurdogs tend to only have one litter of pups every two years. Female spurdog sharks have one of the longest pregnancies of any vertebrate, lasting between 18-22 months.



ELASMOBRANCHS



© CSIRO National Fish Collection

Porbeagle Shark

LAMNA NASUS

SIZE: Up to 365cm

DIET: Hunts a range of smaller fish including mackerel, whiting and herring, as well as octopus, squid and cuttlefish.

WHAT DOES IT LOOK LIKE?

The porbeagle shark is a brilliant metallic blue colour with a white belly and characteristic white mark at the rear base of the dorsal fin.

Streamlined in form, this shark has a pointed snout and large black eyes. It has five large conspicuous gill slits.

WHERE DOES IT LIVE?

Found all around Scotland's coasts, in deeper water.

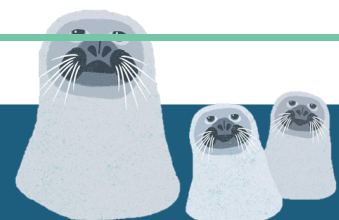
FUN FACTS:

The porbeagle shark is often mistaken for a great white shark, as it is a close relation. However, it is much smaller than the great white shark and much less of a threat to humans.

Porbeagle sharks are endothermic, meaning that they can stay warm by maintaining a higher body temperature than the surrounding water. This helpful ability allows them to reside in colder seas than many other sharks.

CONSERVATION STATUS:

Porbeagle sharks are listed as **Vulnerable** by the IUCN Red List and is a Priority Species under the UK Post-2010 Biodiversity Framework.



ELASMOBRANCHS



Portuguese Dogfish

CENTROSCYMNUS COELOLEPIS

© Jon Moore, Public domain, via Wikimedia Commons

SIZE: up to 1.2 metres in length

DIET:

Feeds on various fish, cephalopods, other sharks, gastropods and crabs. Will sometimes take plugs of flesh from live seals, dolphins and whales.

WHAT DOES IT LOOK LIKE?

Has a short and stocky body with a very short snout. Uniform in colour ranging from dark brown to golden brown. It also has very small spines on both its dorsal fins.

WHERE DOES IT LIVE?

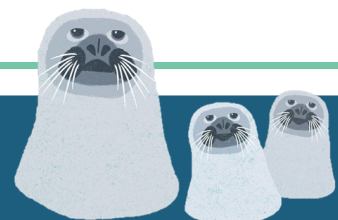
Found off the west coast of Scotland and as far north as the Shetland Isles.

FUN FACTS:

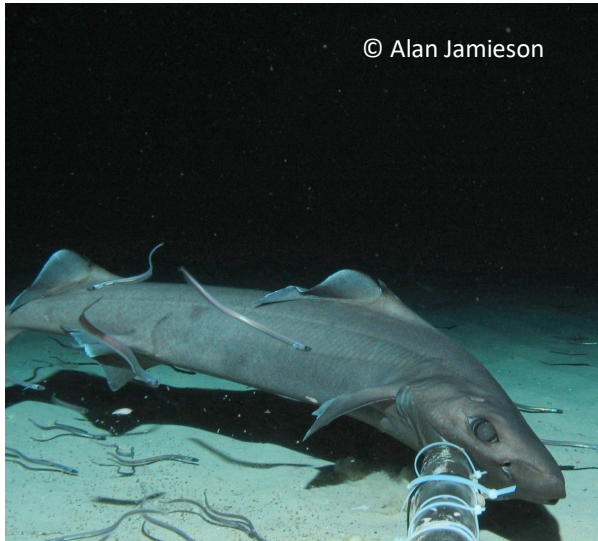
Found all over the world, this species has been reported down to a depth of 3,675 m (12,057 ft), making it the deepest-living shark known.

CONSERVATION STATUS:

The Portuguese Dogfish is on the IUCN Red List as **Near Threatened** globally and is endangered in Europe. Over the last century, the Northeast Atlantic population has reduced by an estimated over 80%. Bycatch by fisheries has contributed to this.



ELASMOBRANCHS



LEAFSCALE GULPER SHARK

CENTROPHORUS SQUAMOSUS

SIZE: A small shark, typically growing to a length of 100—125cm but can grow 1.6m long.

DIET: Fish, squid, octopus and crustaceans.

WHAT DOES IT LOOK LIKE?

Leafscale gulper sharks are typically grey to reddish-brown in colour. They have a short, thick and slightly flattened snout.

Both dorsal fins on their back have a large spine at the front.

WHERE DOES IT LIVE?

Leafscale gulper sharks are found off the far west and north-west coasts of Scotland in waters 1000m deep and below. It rarely comes above 1000m.

FUN FACTS:

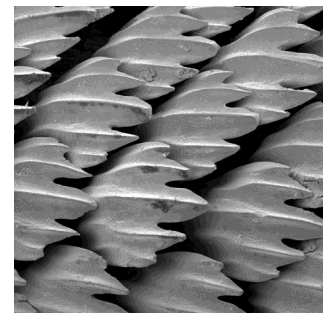
They get their name from the rough **denticles** (scales across their skin, as shown in the photo) that look leaf-shaped.

Leafscale gulpers can live to 70 years old.

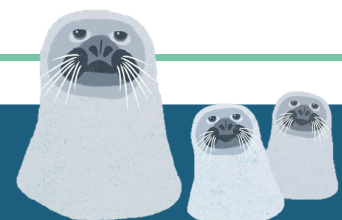
They give birth to litters of 5–8 pups.

CONSERVATION STATUS:

Leafscale Gulper Sharks are listed on the IUCN Red List and **Vulnerable** globally and **Endangered** in Europe.



A close-up photo of shark denticles.



DISCOVER

ELASMOBRANCHS



Photo: Common skate being examined as part of scientific research in Scotland © James Thorburn.

COMMON SKATE

DIPTURUS BATIS

- SIZE:** The largest skate in the world! Common skates can grow up to 2.8m long and weigh 97kg— that's the same weight as a baby elephant!
- DIET:** Mostly crustaceans but can also catch fish too.

WHAT DOES IT LOOK LIKE?

A large skate with a long, pointed snout. Common skates are often olive to dark brown in colour with light blotches on their backs.

Adults have rows of thorns on their tails.

WHERE DOES IT LIVE?

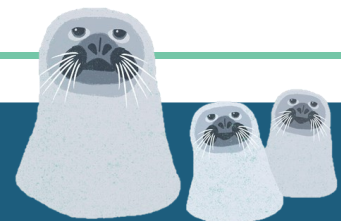
Common skates used to be found on all our shores but are now only seen off the South coast of Ireland and North-West coast of Scotland. They are typically found at depths on 600m on muddy seabeds.

FUN FACTS:

Research has found that common skates can actually be split into 2 species: the blue skate and the flapper skate. As it's a recent discovery, scientists are still finding out how they are different but one difference we know is their egg cases— the blue skate's egg cases can grow to 15cm long, whereas the flapper skate's egg cases are much larger, growing to 23cm.

CONSERVATION STATUS:

Even though its name is the "common" skate, sadly it is not as common anymore. In fact, they are **Critically Endangered**.



DISCOVER

ELASMOBRANCHS



© Frogfish Photography

BLUE SHARK

PRIONACE GLAUCA

SIZE: Typically they are between 2-3m long but can sometimes reach nearly 4m long.

DIET: Blue sharks are opportunist feeders, meaning they eat whatever they can find! They mostly feed on small fish and squid but have been known to take seabirds and other small sharks.

WHAT DOES IT LOOK LIKE?

Exactly as its name suggests—blue! They are dark blue on the top, metallic blue on their sides, and white underneath.

Their bodies are slim and streamlined with long, curved pectoral fins (the pair of fins behind the head that control direction of movement).

WHERE DOES IT LIVE?

The Blue shark is a **migratory** species that visits UK seas in summer months. At other times of the year, they are found far out to sea as they travel across the Atlantic Ocean.

FUN FACTS:

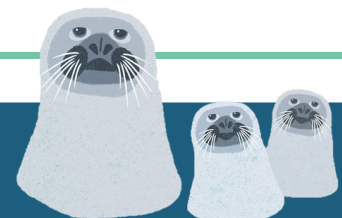
The different shades of blue and white act as **camouflage** in the ocean.

They give birth to large litters of living young, ranging from 4 to 135 pups!

They can migrate an amazing 9,000km - the longest migration of any species of shark. Find out more about their migration in this video by the Shark Trust [here](#).

CONSERVATION STATUS:

Blue Sharks are listed on the IUCN Red List and **Near Threatened** globally and **Critically Endangered** in the Mediterranean. Blue sharks are the most heavily fished shark on the planet. Overfishing has led to a global population decline of around 20–29% over 30 years.



ELASMOBRANCHS

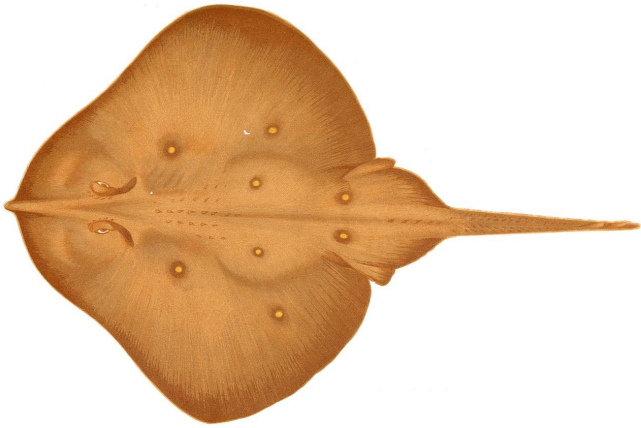


Image: Jonathan Couch, Public domain, via
Wikimedia Commons

SANDY RAY

LEUCORAJA CIRCULARIS

SIZE: Sandy rays typically grow to 70cm-1m wide. Sometimes they can reach 1.2m.

DIET: Diet consists of crabs, lobsters, squid and small fish.

WHAT DOES IT LOOK LIKE?

Sandy rays have short, blunt snouts and a tail that's slightly longer than its body.

As its name suggest, they are often a sandy-coloured, though can be red brown in colour too. They also have 4-6 creamy spots on top of its body.

WHERE DOES IT LIVE?

Not surprisingly, Sandy rays prefer to live on sandy or muddy seabeds. They are usually found at depths of 70-275m.

Mainly found of the North coast of Scotland and the Shetland Isles. Also off Western Scotland and Ireland.

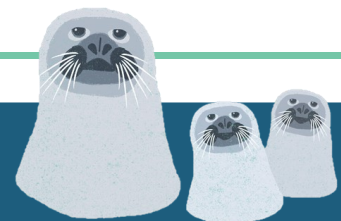
FUN FACTS:

Confusingly, Sandy rays are actually a species of skate. The name 'ray' and 'skate' are sometimes switched when they are named in different countries.

Their egg cases have long "horns" (thin, pointy ends), especially the ones on the top.

CONSERVATION STATUS:

Sandy rays are listed on the IUCN Red List and **Endangered** globally and **Critically Endangered** in the Mediterranean.





GUEST BLOG



THE WORK OF THE SHARK TRUST

By *Conor John, Science Communicator, Shark Trust*

Established in 1997, the Shark Trust is a UK-based, but globally active, charity that aims to secure a future where sharks thrive in a globally healthy marine ecosystem. We don't just deal with sharks, but all elasmobranchs – sharks, skates, rays. Elasmobranchs are cartilaginous fish, meaning they don't have bones – but cartilage. We also deal with chimaeras – which are also known as rabbit fish or ghost sharks. These are slightly different to sharks in their **physiology**, for example they have grinding tooth plates instead of teeth.

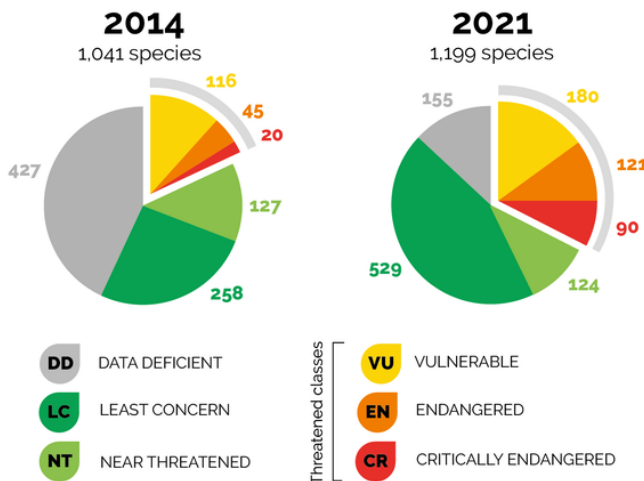
Conservation

Recent research has uncovered that 1/3 of all sharks, skates, rays and chimaeras are in one of the three IUCN threatened categories (vulnerable, endangered or critically endangered). Overfishing is the main factor impacting these species. Whether targeted or caught as bycatch, the issue is a problem across the world. Implementing and enforcing scientifically informed catch limits is essential to conserve species.

1/3

ONE-THIRD OF ALL SHARKS, SKATES, RAYS AND CHIMAERAS ARE THREATENED WITH EXTINCTION DUE TO OVERFISHING

Of 1,199 species assessed in 2021, 391 (32.6%) are threatened. This highlights a significant increase since the last global assessment conducted in 2014 - where of 1,041 species assessed, only 181 (24%) were threatened with extinction.



391 THREATENED SPECIES

OVERFISHING IS THE **MAIN THREAT AND IMPACTS**

100%

OF THE 391 THREATENED SPECIES.



Of the 391 threatened species:

Loss and degradation of habitat impacts

31.2%

Climate change impacts

10.2%

Pollution impacts

6.9%

Three species not seen in **>80 years** are **Critically Endangered** (possibly Extinct)





As an organisation we are at the forefront of conservation for sharks. Conservation requires a whole range of skills and solutions. Our conservation team work directly to influence policy makers and advocate for sharks. Recent conservation wins include a ban on the retention (that means catching and keeping) of Shortfin Mako Sharks in the North Atlantic. This was achieved through our work with the Shark League. The Shortfin Mako is an endangered species of shark – the fastest on the planet – that we get off the coast of the UK.

BLUE SHARK



© Frogfish Photography

BASKING SHARK



© Frogfish Photography

Get Involved

Here in the UK we have over 40 species of shark in our waters! From the elegant and highly migratory Blue Shark to the second largest fish in the ocean - the Basking Shark. We've also got a huge range of skates and rays, from the Thornback Ray to the Starry Skate.



It may not always be possible to see these species from dry land... but it is possible for anyone to get involved with shark conservation! We have several community science projects to get involved with. Our Great Eggcase Hunt is an amazing way to help us build a picture of where Sharks and Skates are in the world. Some species of Sharks and Rays lay eggcases when they give birth. Once the young shark or skate has hatched, these eggcases get washed onto beaches and shorelines around the UK. By reporting your sightings and sending in photos you can help add to our more than 315,000 records! We've also just launched our Great Shark Snapshot. Which will see participants recording what species they see during a week-long sightings survey. We're also preparing for the release of our brand-new Shark Trust recording app – so you'll be able to log on and submit records for all our projects, wherever you are.



Discover More

We're always producing new content and videos for our followers and members. Whether it's our latest [creature feature \(on the Spinetail Devil Ray\)](#) or our [latest episode of 60 Second Sharks \(on Tonic Immobility\)](#) – be sure to follow us on social media for more shark content! This year we're celebrating our 25th Anniversary, so there are events, projects and developments being announced very soon.

And if you're completely new to sharks and want to learn more – [check out our animated Shark Shorts on YouTube!](#)

Twitter: [@SharkTrustUK](#) Instagram: [@SharkTrust](#) Facebook: [The Shark Trust](#) YouTube: [The Shark Trust](#)



HOW TO

TAKE PART IN THE GREAT EGGCASE HUNT



It's a special moment when you find a 'mermaid's purse' washed up on the beach. If you do, you can to become a **citizen scientist** by participating in **The Shark Trust's Great Eggcase Hunt**. This project helps researchers gain a better understanding of the species around our shores. Here's how to take part....

1. FIND AN EGGCASE

A mermaid's purse is a tough leathery capsule with long curly tendrils or pointy 'horns' at one end. It would have contained a developing shark, skate or ray. See our Top Tips below for how to find one.

2. IDENTIFY YOUR EGGCASE

Eggcases vary in size and colour depending upon which species it belongs to. You can find a handy guide to identifying your eggcase at www.eggcase.org.

3. RECORD YOUR FIND

You can record your eggcase here:

www.sharktrust.org/recordyoureggcage

You will be asked to note your contact details, your location and position, the date, the species that you think you have found and to take a photo of your eggcase (to help verify the ID).



WELL DONE! YOU HAVE SUPPORTED SHARK CONSERVATION.

TOP TIPS

- ◆ Look for eggcases along the high tide line on the beach among the seaweed and other washed up debris.
- ◆ Also try the back of the beach, as eggcases can be blown up against grass, cliffs or dunes by the wind and even in rock pools where they can get trapped.
- ◆ Look really carefully as eggcases can be camouflaged among seaweed.
- ◆ Keep a look out all year round but after stormy weather is a great time to look.



CRAFT

PAPER PLATE SKATE

Turn a paper plate into a flappy skate. Use our guide below or adapt this using the materials that you have to hand.



WHAT DO I NEED?

- Paper plate
- Scissors
- Beads
- Cereal box
- Sticky tape
- Paint brush and paints
- Pencil
- Glue
- Pipe cleaners

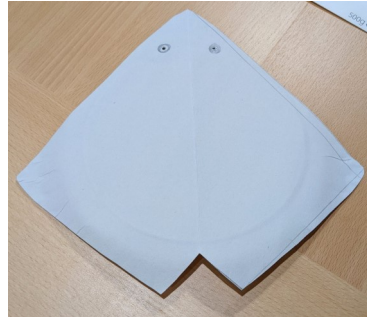
1



Fold the paper plate in half, so that the plate base is on the outside.

Mark on straight lines to create the outline of a skate.

2



Cut along the lines then cut out a 2cm V-shaped notch at the base of the skate. Mark two eye holes at the other end and make small holes through these.

3



For each eye, thread a bead onto a pipe cleaner. Push this through the eye hole before bending over the end of the pipe cleaner and feeding it back through the same hole. You could use string and buttons instead.

4



Secure the pipe cleaners ends with tape on the underside.
Pinch the nose of the skate.

Please always supervise children around scissors.

5

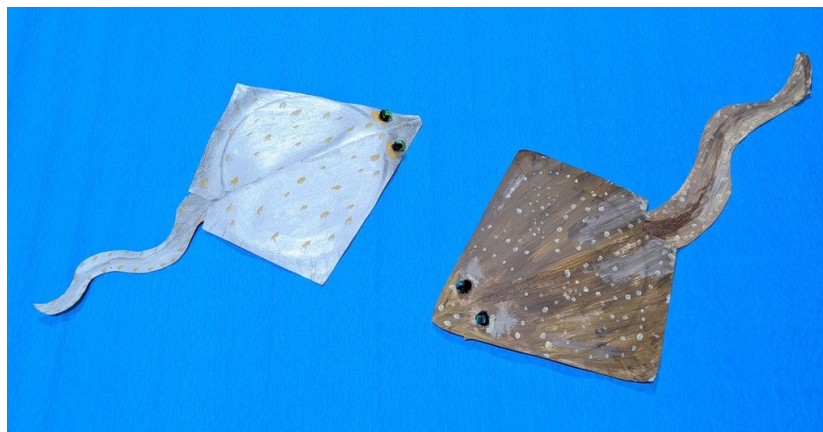


Cut a skate tail shape from a cereal box or similar. Glue it on to the underside of the skate body.

6



Now you are ready to paint your skate. Start with a base colour and once that is dry, add on some detail such as shading and spots.



You could try to make your skate design match one of the species featured in this pack or go ahead and invent your own made-up skate species. If you have time, why not make more than one and create your own underwater display?



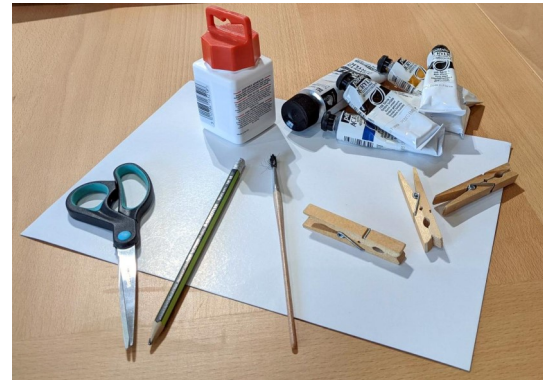
CRAFT

CLOTHES PEG SHARKS

Make your own snappy shark pegs. Find a grown-up to help you and remember that scissors are sharp!

WHAT DO I NEED?

- White card or paper
- Scissors
- Wooden pegs
- Paint brush and paints
- Pencil
- Glue



1



Draw a shark outline on the card. The front half of the shark is all you need to draw. Make it a bit bigger than your peg. Experiment with different styles of shark.

2



Carefully cut out your shark or sharks. Watch out for the fins, which can be fiddly.

3



Now it's time to add colour to your sharks. You can use paint or coloured pens or pencils.

Think about what colour your type of shark might be.

4



Once the paint is dry, add on some detail such as eyes, gills, markings and shading.

Sharp scissors are required to cut through card. Please always supervise children around scissors.

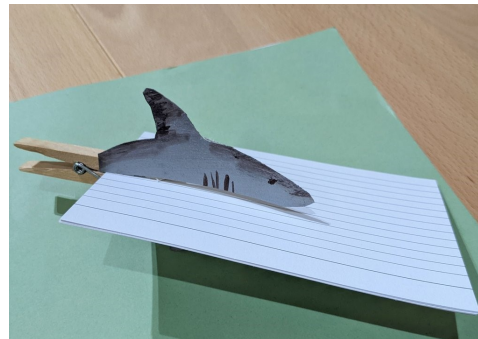
5



Cut your shark lengthways, all the way across. Line the cut up with where the shark's mouth would be.

6

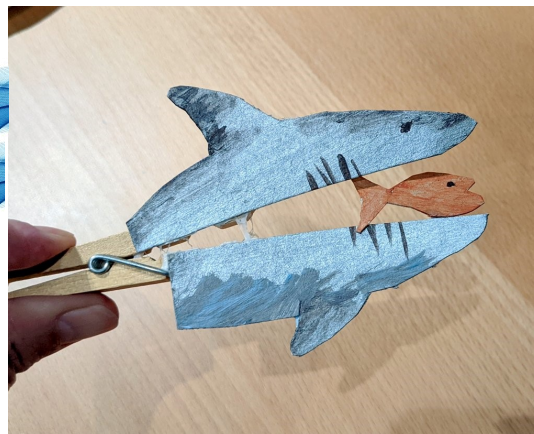
On the lower half of your peg, glue along each part of one side. Attach each shark part to the different peg half, lining it up carefully. Allow it to dry.



Why not base your shark design on one of the species featured in this pack?

You can use the peg as a decoration or to hold things together like a big paper clip.

ADD ON: Give your shark something to eat by making a tiny fish, squid or crab and securing this to the back of its mouth (as shown below)



DISCOVER

GLOSSARY

ADAPTATION	The evolutionary process where an organism becomes better suited to its habitat.
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.
CLIMATE CHANGE	Change in temperature and weather across the Earth that can be natural or caused by human activity.
CONSERVATION	Protecting environments and plant and animal life.
ECOSYSTEM	Living things in a particular environment that rely on one another—for example for food or shelter.
MIGRATORY	Moving from one place to another seasonally, sometimes over large distances.
PHYSIOLOGY	The structure of a living thing (both inside and out).
PLANKTON	Plants or animals unable to swim against a current, meaning they have no control over where they are taken around the world. Plankton are mostly microscopic in size but some larger animals, such as jellyfish, are classed as plankton too.
POLLUTION	Something harmful that gets into the air, a water source or soil.
PORES	Tiny openings in the skin of an animal or outer surface of a plant through which air, water, or sweat may pass.
SEDIMENT	The matter which falls to the bottom of oceans and lakes (e.g. sand, silt or soil).
UNSUSTAINABLY	Use of resources in such a way that they are likely to run out.