

# Where Fish Live

## PUPIL FACTSHEET

### Where do fish live?

Fish can live in almost any place where there is water. As three quarters of the earth's surface is covered by water they have plenty of choice. Fish live in all the world's seas and oceans. Their habitats (the place where they live) include sandy sea beds, coral reefs and underwater forests.

Different fish live in very different places - they almost always have a good reason for choosing where to make their home.

Like birds, fish need a safe place to "nest" and breed. Small fish like the goby, anglerfish and plaice need hiding places to escape from bigger predators. Rays come to the surface of the water looking for plankton and small fishes to eat. Flatfish have flat bodies so they can rest on their sides on the sea bed. Benthic sharks live at the bottom of the deepest oceans and usually spend their whole lives without seeing daylight!

Not all fish can live in all kinds of water. Some fish live in warm tropical rivers, others live in cool lakes or cold mountain streams. A fish that is used to living in a warm sea could die in a cold sea.

The amount of salt in the water is the other important factor.

**Saltwater fish** cannot live in fresh water. Fish that live in the salty water of the oceans include bluefish, cod, flounder, sea trout, tarpon, tuna, halibut, rockfish, sea perch, lingcod and yellowtail.

**Freshwater fish** cannot live in salt water. Fresh water contains much less salt than the ocean. Most ponds, reservoirs, and rivers are fresh water. Some common freshwater fish are dace, chub, grayling, bream, rudd, barbell, sterlet, mirror carp, bluegills, catfish, crappie, bass, perch, trout and walleye. Not to mention the UK's biggest native fish, the pike.

A few fish can live in both fresh and salt water. Some live in saltwater, but swim up streams and rivers to spawn (lay their eggs). These fish are called **anadromous fish**. They include shad, salmon, smelt, striped bass, sturgeon and some types of trout.

A **catadromous fish** does the opposite – it lives in fresh water and enters salt water to spawn. Most eels are catadromous. Conger eels can be found in both shallow and deep waters. They like to hunt for food in shipwrecks and can be a threat to wreck divers. As they can grow to a massive 2.7 metres in length, make that a titanic threat!

An estuary is where fresh water streams and rivers meet the salt water from the ocean. The salt levels change daily with the movement of tides and level of rain. This water is called brackish.

Species found in brackish waters include mullet, flounder, redfish, sea trout, snook, brook charr, paradise fish and sea bass. It is also home to crustaceans like crabs and amphibians like frogs and toads. Other crustaceans are less adaptable. Fresh water is lethal for lobsters, an animal that has salty blood and tissue, and needs a seawater environment to stay alive.

Some sea creatures live almost the whole year out of the sea. They have adapted to very dry conditions, and may only get splashed with sea water twice a year at very high tides. The tiny black periwinkle has a shell a little bigger than a pinhead. It can live high up on the beach where the sea hardly ever reaches.

### Is there life at the bottom of ocean?

In the nineteenth century, scientists believed that marine life could not exist below 550 metres. That view was changed when a telegraph cable laid in the ocean bottom at 1,800 metres deep was found covered with many forms of marine life. In 1960, a swimming animal, resembling a sole or other flatfish about a foot long, was spotted at 11,000 metres deep.

# Where Fish Live (continued 1)

## PUPIL FACTSHEET

### Real water, please!

The Sea Life Centres have experimented with artificial sea water, but the animals and plants prefer the real thing. The water at the centres is kept at different temperatures for different fish.

#### *For example:*

- Tropical fish are comfortable at 22-24°C
- Native UK fish are comfortable at 15-18°C
- Catfish (a deep sea species) are comfortable at 10-12°C

The Sea Life Centre tanks are massive. If you have an aquarium at home it holds maybe six litres of water. The biggest tank at the Brighton Sea Life Centre contains 750,000 litres of sea water! The National Sea Life Centre in Birmingham contains a million litres of sea water.

### Low tide, bigger changes

If you go to a rocky seashore at low tide you will find thousands of rockpools where sea water is trapped when the tide goes out. Rockpools are home to many creatures - if you are lucky you will see crabs, fish, limpets, starfish, anemone and many more. These chaps are the most adaptable of all sea life.

Rockpools look peaceful enough but a huge change takes place twice every day when the tide comes in and goes out. When the tide is in, the pool may be full of cool water. When it goes out, the pool may become dry and very hot. Rockpool plants and animals have to survive these big changes - imagine how you would handle swapping a tropical climate for an Antarctic one twice a day!

So what do rockpool animals do when the tide goes out? How do they survive drying out in the hot sun? Some hide in the cool shade under rocks, others cover themselves in slime. Some close their shells and others crawl under wet seaweed.

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## PUPIL WORKSHEET

### Key Stage 2 activity

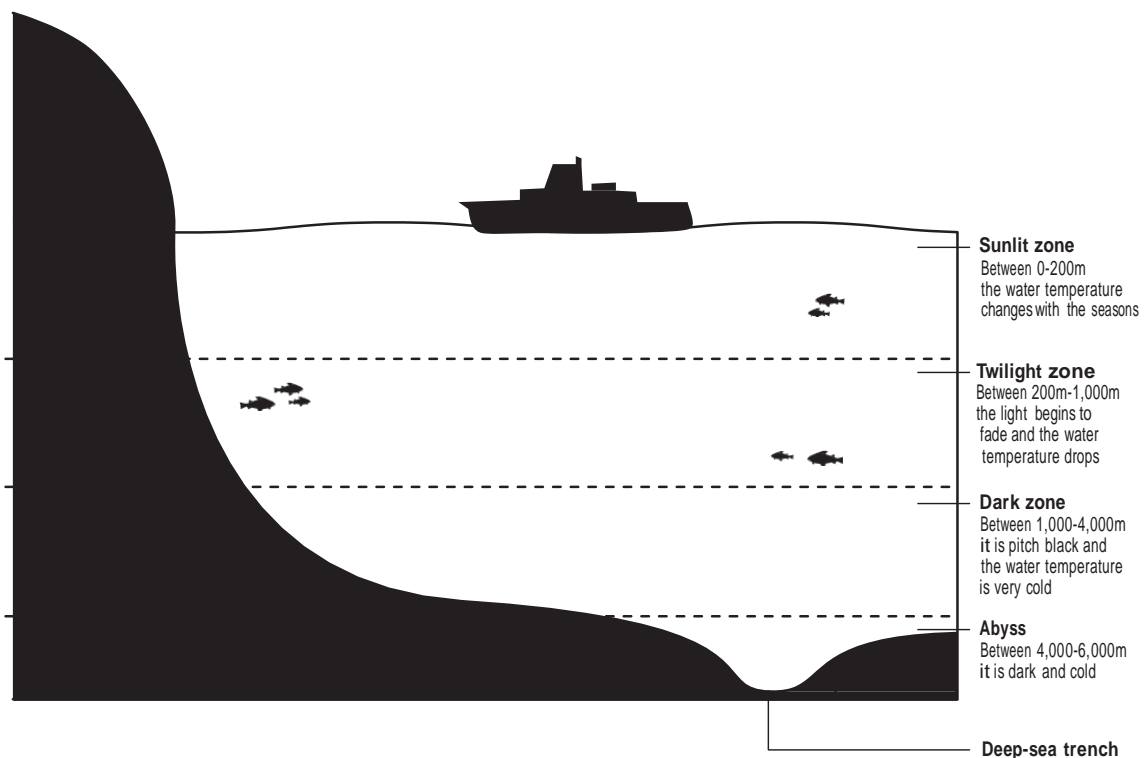
*How deep is the sea? The answer is very deep.*

Two thirds of the earth is covered in sea water more than 1,000 metres deep.

**What lies on the ocean bed?** The answer in many cases is, your guess is as good as mine! We know more about the moon than we do about the bottom of the ocean. There are better maps of the moon.

We do know that bottom of the sea is not flat like a swimming pool. It has many ups and downs - there are flat plains but there are also areas like an underwater mountain range. Imagine what Mount Everest would look like underwater and you start to get the picture!

*Let us go swimming together in deep water - your job is to fill in the gaps.*



Sea level is the surface of the sea. When you swim here, you are at a depth of 0 metres.

But if you start to dive ...

... at  metres below the surface of the sea you are in the so-called twilight zone (the area between light and dark). The sun's light cannot reach down this far.

At  metres you are on the sloping floor of the continental slope. From here, it is all downhill to the sea floor at  metres.

Now the floor drops quickly to the flat abyssal plain at  metres. Ridges rise out of it, especially between the continents. One of these may be  metres above the abyssal plain.

You pass a high mountain. It was once an active volcano. Now it is a sea mount that is  metres high.

Now you pass a deep ocean trench. This one is  metres deep. This is the deepest people have ever been. Jacques Piccard and Don Walsh dived to  metres in a special underwater vessel, the Trieste, in 1960.

# Where Fish Live (continued 1)

## PUPIL WORKSHEET

### Key Stage 1 activity

#### Animals in a tank

Estimate the number of animals in each tank when you visit the Sea Life Centre.

The tanks at every Sea Life Centre are carefully planned. They must not be over-crowded. The animals must be able to get along without eating each other!

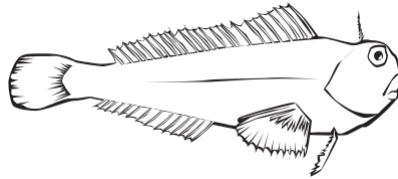
The Wrecked Galleon tank at the National Sea Life Centre, Birmingham, contains these fish - but how many of each?

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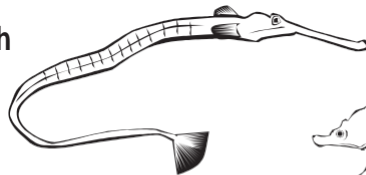
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Tompot blenny



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Pipefish



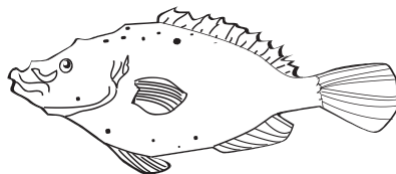
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Atlantic seahorse



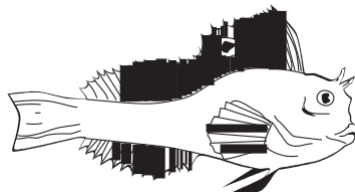
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Wrasse



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Butterfly blenny



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