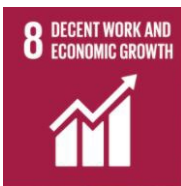


Fishing methods

Sustainability Goals:



Subject links:

Science, Geography, Design
Technology, PE, Citizenship

Ages 7-11

Curriculum key words:

Habitats, human impact, modern world, industry,
business, natural resources, food, sustainability

Ocean Literacy Principles:

6. The ocean and humans are inextricably interconnected

Learning objectives:

- To understand where seafood comes from and how it's caught
- To understand the balance needed between meeting human needs and protecting the environment
- To learn through play and make connections between scenarios and real-world examples

Resources provided:

- [Overfishing Fact File](#)
- [Stop overfishing animated video](#)
- [Fishing methods illustrations and notes](#)
- [Let's go fishing game instructions](#)
- [Fishing research sheet](#)
- [Good Fish Guide](#)

Extra resources required:

Hoops, cones, long rope or string

Step 1

Background

Today, over 90% of world fish stocks are fully or over-exploited from fishing. When we catch fish faster than they can reproduce, fishers can't make a living and fish populations struggle to recover.

There are many different ways to catch or farm fish and shellfish, and some have a much lower environmental impact than others. In this lesson, we'll investigate some of the different fishing methods used here in the UK and how we can make more sustainable seafood choices.

Learn more about overfishing and its impacts in the [fact file](#).

Step 2

Set the Scene

10 minutes – Seafood sources

Start by having a class discussion about the types of seafood pupils have eaten or have seen others eating. Can the group name any fishing methods or any ways that seafood might reach our plates?

Then, watch the introductory animated video about [overfishing](#). Explain that today you'll be looking at where our seafood comes from and some of the different methods used to catch it.

Step 3

Activities

Activity 1: 20 minutes – Fishing methods research

Split the class into small groups and display the [fishing method illustrations](#) on the board. Pupils should look at each fishing method and spend a couple of minutes discussing how they think the seafood species are caught using each method. You could use an A3 piece of paper for each table or group to draw and write on.

Then, display the [fishing methods notes](#) to reveal information about how each method works and which species they typically catch. Can the group think of any positives or negatives for each method?

Activity 2: 25 minutes – Let's go fishing!

Head to a large open space and play the [let's go fishing game](#) (full instructions included). This game introduces different fishing methods and how overfishing can happen to different seafood stocks.

If there's time, the second part of the game asks pupils to think creatively about how we can manage fishing practices to increase sustainability and reduce the potential for overfishing.

Activity 3: 10 minutes – Fishing research

Pupils could then work individually or in pairs to complete the [fishing research sheet](#) and revisit the fishing methods learned earlier.

Step 4

Extend

10 minutes – Sustainability ratings

In the UK, about 80% of seafood sold is from just 5 species groups (cod, haddock, salmon, tuna and prawns). Ask pupils to consider why this could be a problem for seafood stocks.

Then, use the [Good Fish Guide](#) to search for the sustainability rating of one of the Big 5 species. How do the ratings differ by fishing method?

Step 5

Reflect

5 minutes

What does 'overfishing' mean? What did the game show about the impacts of overfishing? Revisit the [fishing method illustrations](#) to discuss how they were represented in the game to check pupils' understanding.

Step 6

Follow up

Become [Seafood investigators](#) and search for sustainable swaps for the Big 5 seafood species in the UK in this lesson.

Our [Fish farming](#) resource introduces the term 'aquaculture' and explores how our seafood is farmed.

Overfishing Fact File

Fish are central to the health of our ocean and the livelihoods of fishing communities.

Many fish stocks are in a state of serious decline. With added pressure from climate change and pollution, we're moving into dangerous waters when it comes to the fish of the future.



Threats from unsustainable fishing

Overfishing

Overfishing happens when we catch fish faster than they can reproduce. Today, over 90% of world fish stocks are fully or over-exploited from fishing. The more that fish stocks become depleted, the greater the risk that they won't recover at all, which can be devastating for fishers' livelihoods and the marine environment.

Damage to marine habitats

A wide range of fishing methods are used throughout the world to catch different types of fish. Fishing methods like trawling or dredging can cause long-lasting damage to the sea bed and marine habitats. Although the UK has 377 Marine Protected Areas (MPAs), which cover over a third (38%) of UK seas, only 38 of the designated MPAs have bans in place that stop the use of bottom-towed gear across the whole of the site.

Bycatch

In UK waters, thousands of rare and threatened marine animals continue to be caught, killed or injured as 'bycatch' in fishing gear every year, caught on fishing hooks, entangled in nets, or wrapped up in ropes.

These animals can include dolphins, sharks, whales, seabirds, skates and rays, as well as young fish deemed too small. Longlining, gillnets, trawl fisheries and creel pots are largely responsible for bycatch in the UK. An estimated 40% of global marine catches consist of bycatch.

Did you know about 80% of seafood sold in the UK comes from just 5 species groups? These are cod, tuna, haddock, salmon and prawns



Trawler

📷 NarissaFotoSS via Shutterstock



Species caught as bycatch

📷 Ivan Sarenas via Shutterstock

Overfishing Fact File



Sustainable seafood

We need to change how we fish, farm and purchase seafood to help protect our seas and sustain livelihoods and food security into the future.

There are several ways that better management of fishing can help:

- Quotas based on scientific evidence on how many and what type of fish can be caught can help limit overfishing
- Fishing practices and gear can be modified to avoid vulnerable species as much as possible, including avoiding fishing at certain times, adding sections for small fish to escape from nets, using specially shaped hooks or utilising visual and sound deterrents
- No-take zones (NTZs) or Highly Protected Marine Areas (HPMAs), where no fishing activity is allowed, can help fish populations to recover and support the protection and restoration of habitats
- Managing fishing activities to ensure everyone is sticking to the rules is challenging, which means technology plays a big part in fisheries management



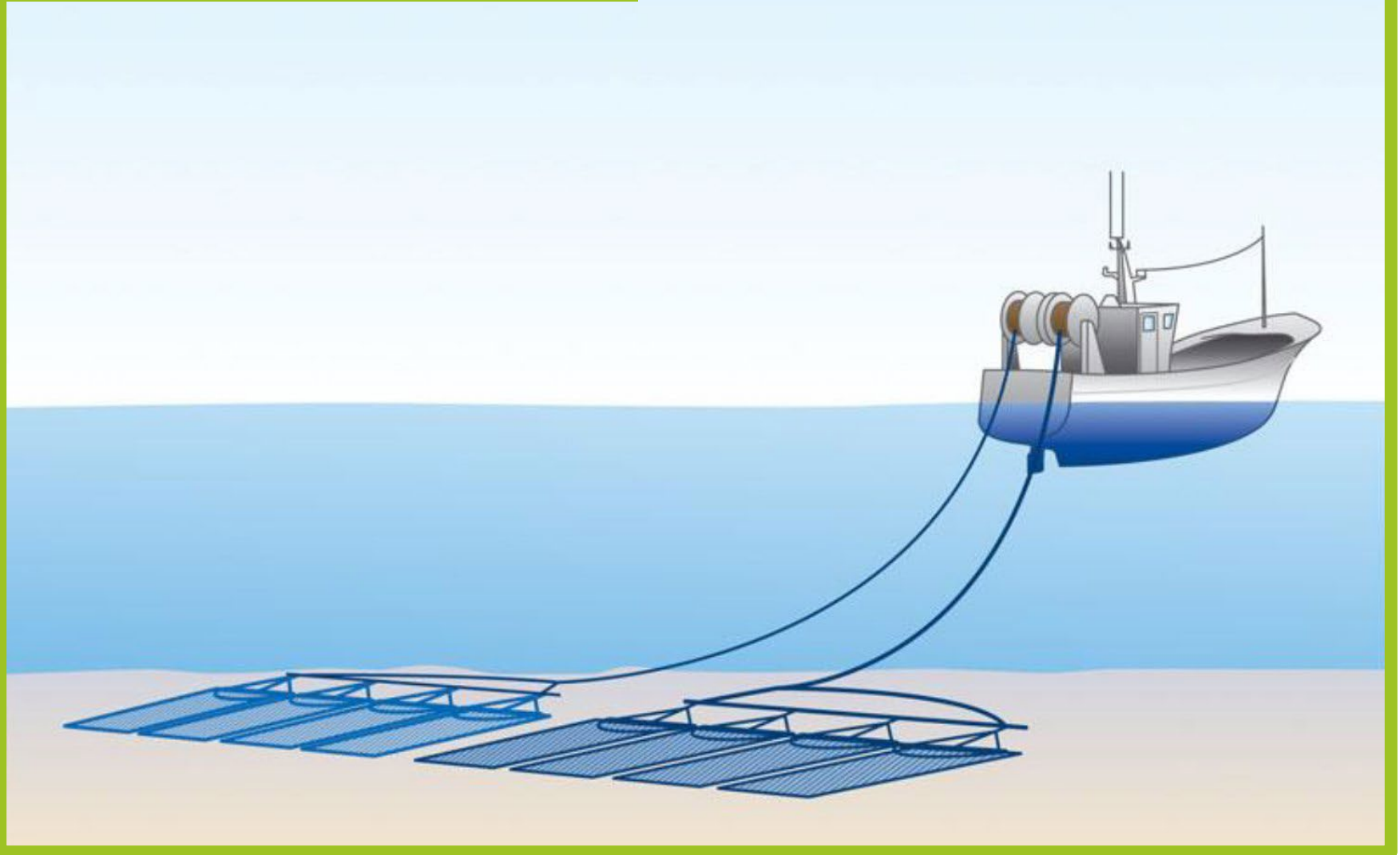
Responsible consumption

97% of UK households eat fish. When consumers choose sustainable seafood, it encourages supermarkets and restaurants to demand it from their suppliers. This demand can reward fishers and fish farmers who adopt sustainable practices and encourage governments to improve fisheries management.

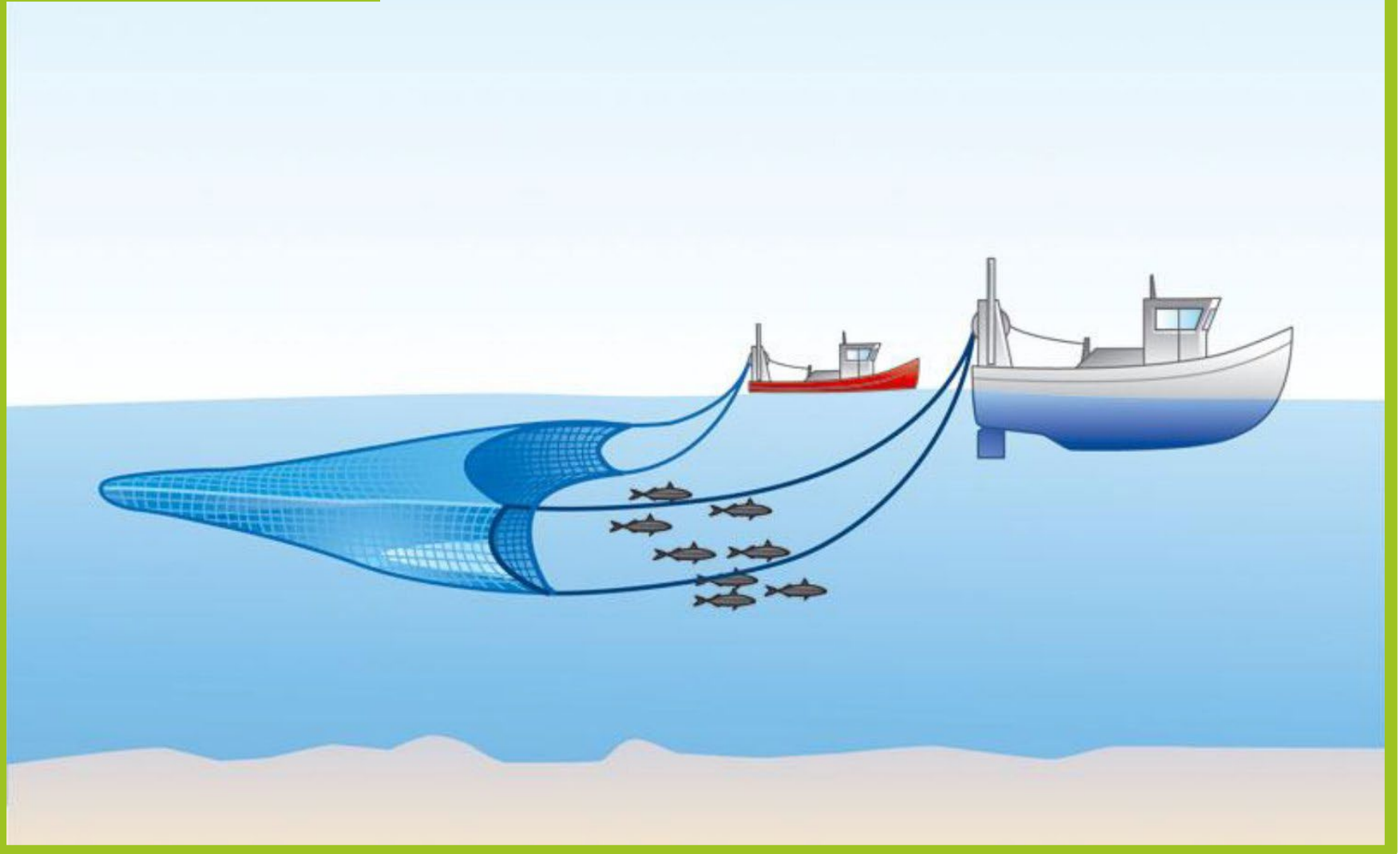
In the UK, about 80% of seafood sold is from just 5 species groups (cod, haddock, salmon, tuna and prawns). Diversifying your seafood choices can reduce pressure on wild populations and support local fishers and producers.

The [Good Fish Guide](#) can help! Use the simple traffic light system to make more informed choices about the seafood on your plate.

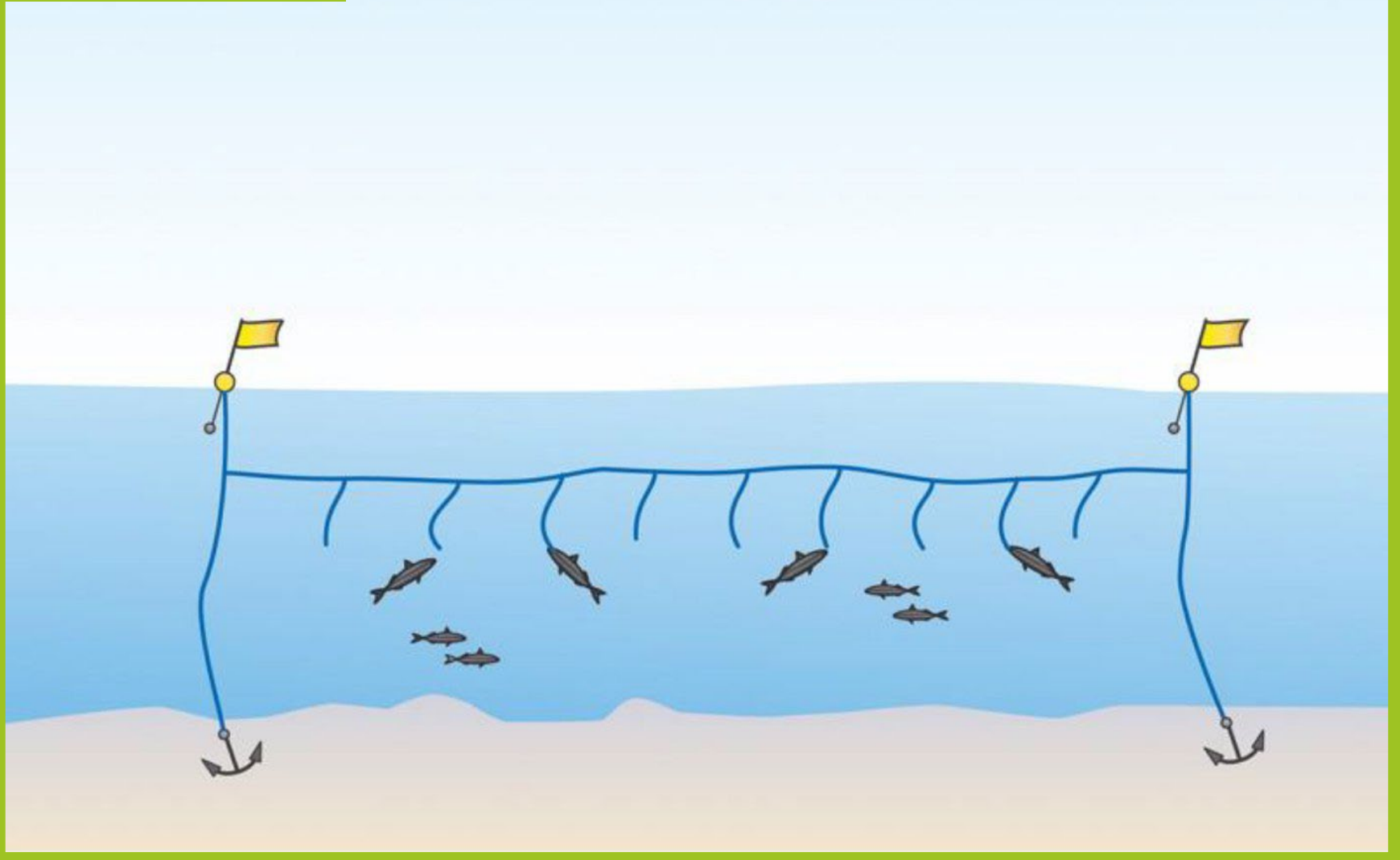
Bottom-towed fishing



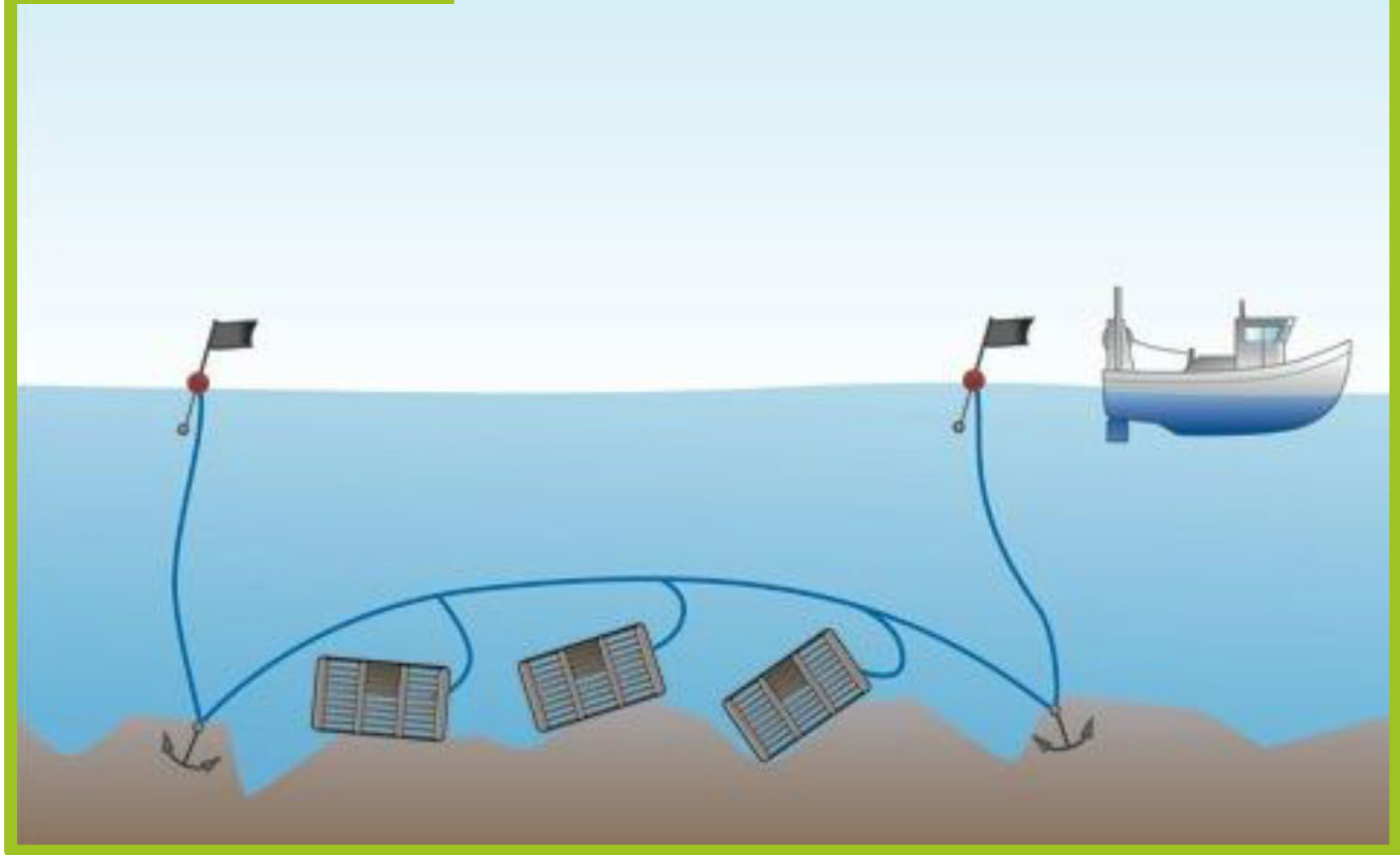
Pelagic nets



Longlining

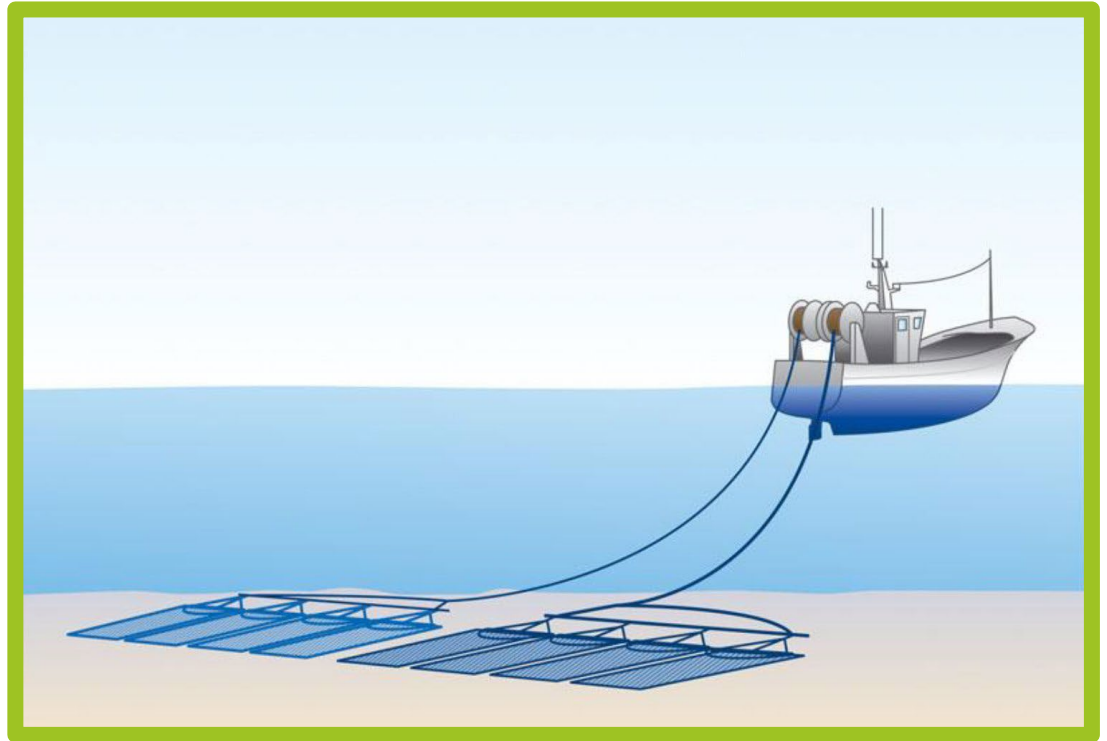


Pots and traps



Bottom-towed fishing

The term **bottom-towed fishing** is used to describe all fishing gear that is pulled along the seabed. It's the most-common way to catch fish in the UK and the main types are otter trawling, beam trawling and dredging.



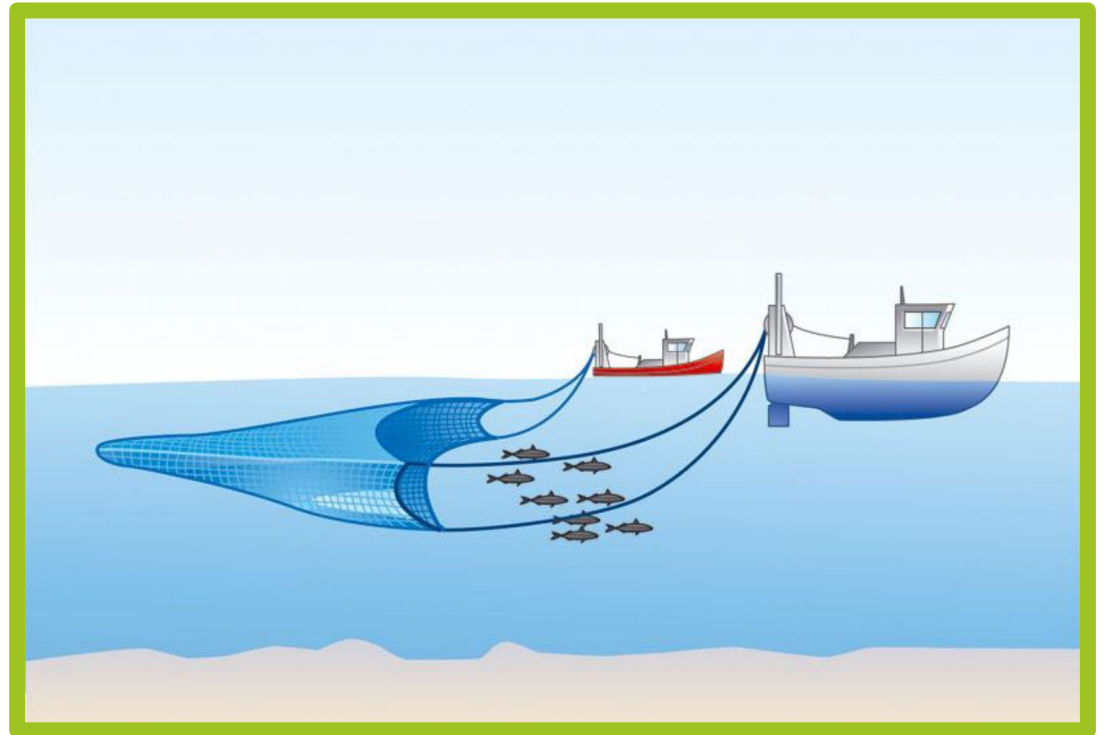
What's the impact?

The main impact of these fishing gears is on seabed habitats. The level of impact is different depending on which gear is used and where. Sandy seabed, for example, can recover very quickly, whereas cold-water corals and maerl can take decades or centuries to recover. Beam trawling and dredging are very heavy and can disturb buried sea life as well as what's on top of the seabed.

Pelagic nets

Mid-water fishing is where fishing gear is pulled through the water and doesn't touch the seabed.

Pelagic nets are towed through mid-water or at the surface and can be towed by one or a pair of boats. Shoals of fish are targeted using equipment such as sonar.

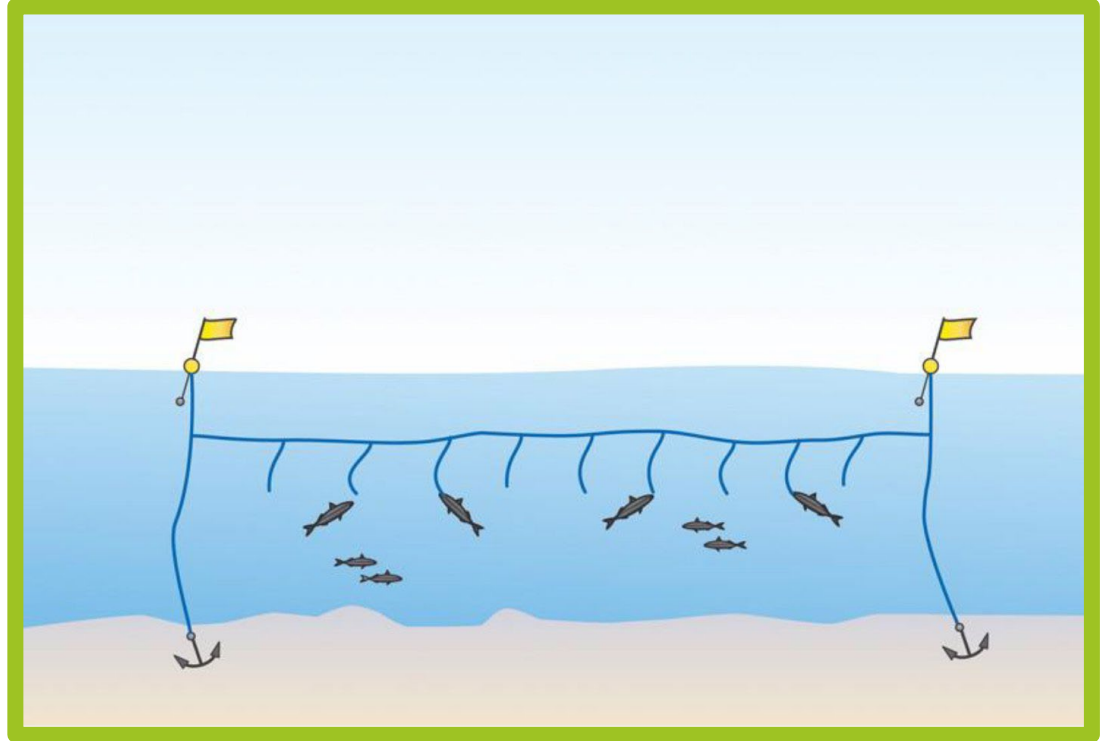


What's the impact?

Impacts of these fishing methods vary a lot, depending on how well the fishing is monitored and where it's happening. The main potential impact is bycatch of unwanted species. In some areas, this can include dolphins, porpoises and sharks.

Longlining

Longlining uses long fishing lines with baited hooks. There can be hundreds of hooks on one line, and some lines can be several kilometres long! The type of hook, bait, and position of the line (at the surface, mid-water, or on the sea floor) vary depending on what fishers are trying to catch.

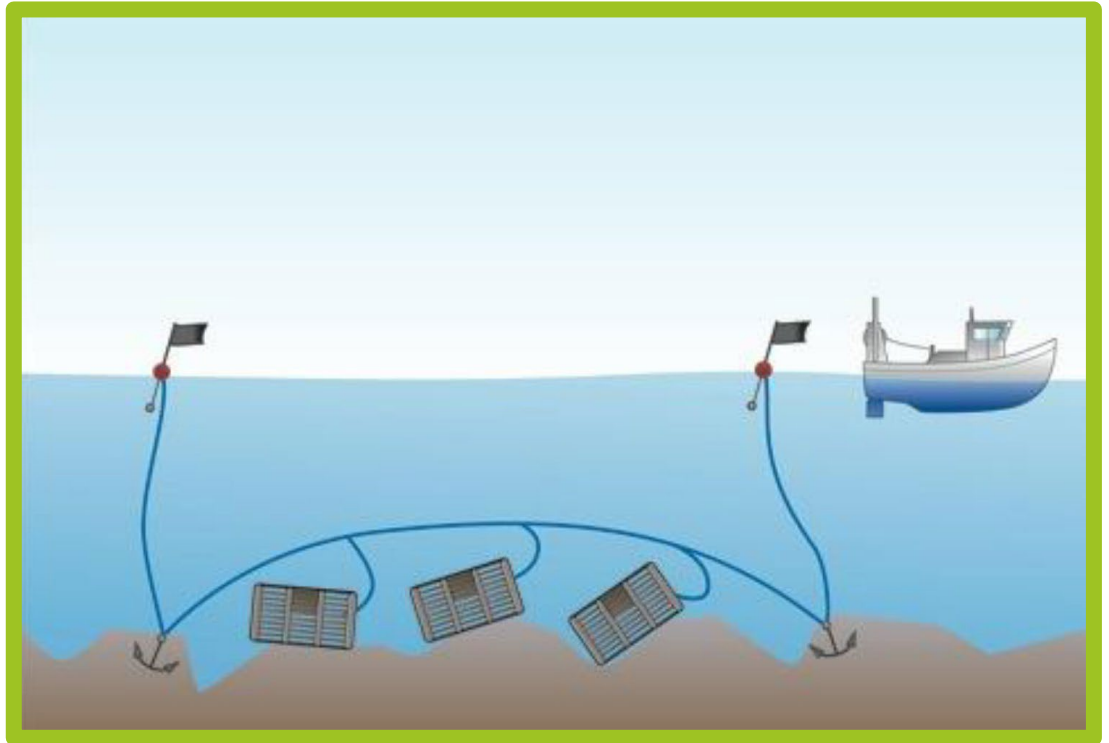


What's the impact?

The main concern is that the baited hooks can attract various non-target species, including seabirds, sharks and turtles. As the line can be left out for some time, these animals may drown before they can be released. Longlining in some parts of the world is responsible for some species falling to endangered levels.

Pots and traps

Pots and traps are examples of static fishing gear. The pots and traps are small containers left on the seabed, marked by buoys, and later collected by boats. The pots have bait inside and use a one-way system to catch target species.



What's the impact?

This is a generally low impact fishing method, but one potential issue is that the ropes attached to the pots can entangle whales, dolphins or sharks in some areas. There are also concerns about the wild populations of the fish and shellfish being used for bait, and potential harm to seabed habitats where there are high levels of pots in one area.

Let's go fishing!

Play this game to demonstrate how different fishing methods work and how they can impact the number of fish caught. The game then asks pupils to think creatively about how we can manage fishing practices to increase sustainability and reduce overfishing.

Equipment: You'll need an open space, like a playground or assembly hall, and up to 5 hoops, some small PE cones and some long rope or string

Instructions:

- 1:** The open space will serve as the ocean. The aim of the game is for the players, or 'fish,' to get from one side of the ocean to the other without getting caught. Use cones to mark out the start and end points of the playing area. One player is a 'fisher' and has to try and catch as many fish as possible on their journey across the ocean. Players are 'caught' by being tapped on the shoulder. Any fish caught are out of the game until the next run. Call **'let's go fishing'** to start!
- 2:** In the next run, the fish who were caught will now turn into fishers. Observe as a class what happens to the number of fish who cross the ocean when fishing pressure is increased. Continue playing until there are no fish left.
- 3:** Discuss how this can be applied to real life and how overfishing can cause a decline in fish populations. Discuss how this negatively impacts the marine environment, fishers' livelihoods and availability of seafood.
- 4:** Then, ask pupils to think of ways to reduce the fishing pressure. Are there any changes to the game you could make to increase the number of fish safely getting to the other side, while still leaving enough fish for the fishers to catch and sell? See ideas below:

Safe zones: Pupils could include a 'safe zone' where fishers aren't allowed to catch fish. Discuss how this replicates Highly Protected Marine Areas or No Take Zones in our seas. Use hoops to mark out the 'safe zones' and start again. After a few rounds, observe how it changes the number of fish making it safely across the ocean.

Quotas: Pupils could add a rule where fishers can only catch one fish per round. Explain how this relates to fishing quotas in real life, where there are legal limits to how many of a particular fish species can be caught, or 'landed.' Play this version and discuss the results.



Let's go fishing!

Extension ideas

Fishing methods

If time allows you can extend this game further to discuss more fishing methods.

- **Pot fishing** is static so fishers would only be allowed to stand on the spot to try and catch fish - use cones to mark this area.
- To replicate **line fishing**, fishers should hold hands but must try and stay in a straight line
- For **net fishing**, the fishers could hold either end of a long rope to catch the fish

Play a few rounds focusing on one method and discuss how it affects the number of fish at the end of each game.

Bycatch

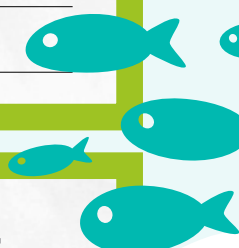
Play another round with the line and net rules, but this time hand out stickers to some of the 'fish.' Roughly 5% of the group should have green stickers to represent turtles and 5% blue to represent dolphins. Play again using the line and net methods and compare the number of turtles and dolphins caught using each method.

Explain that in reality these 'non-target fish' are called bycatch, and that many large sea animals can be accidentally caught in nets and are harmed in the process. Explain that, as our fishing methods have become more advanced, our fish stocks have suffered and we've seen higher levels of bycatch.

Overfishing research

Name:

1. What are some of the problems caused by overfishing?



2. Can you name one fishing method and briefly explain how it works?

3. Draw and annotate a picture of your chosen fishing method in the box below

A large, empty rectangular box with a light green border, intended for drawing and annotating a fishing method. The background of the box is a faint, light green pattern of fish and waves.

3. Can you name the Top 5 seafood species sold in the UK? Hint! Use the [Good Fish Guide](#) to help you

1.

2.

3.

4.

5.

4. Why is overfishing a problem for fishers?

5. Can you explain one way to reduce overfishing?

