



© Thomas Millot

Subject links:

Geography, Design Technology,
PE, Citizenship, Health and wellbeing

Ages 5-7

Curriculum links:

Habitats, Human impact, Economic activity, Natural resources, Food, Sustainability, Topical issues

Ocean Literacy Principles:

6. The ocean and humans are inextricably interconnected.

Learning Objectives:

- To understand where seafood comes from and how it is caught
- To begin to develop an understanding of human impacts on the environment
- To be able to learn through play and make connections between scenarios and real-world examples

Resources provided:

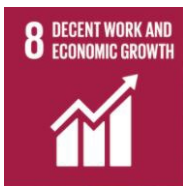
- Fisheries Fact File
- Fishing methods
- Fishing methods – teacher's notes
- Let's go fishing game instructions
- Curriculum links

Extra resources required:

Hoops, P.E cones, long rope or string

Let's go fishing

Sustainability Goals:



Step 1

Background

'Overfishing' means catching fish faster than they can reproduce. Overfishing is a significant and growing threat to marine biodiversity and many fish stocks are in a state of serious decline. Overfishing decreases fish populations until there are so few fish that fishers can't make a living. See the [Fisheries Fact File](#) for more information. You could complete our lesson, [What is seafood?](#), to introduce sustainable fishing to students.

Step 2

Set the Scene

5 minutes – Where does food come from?

In pairs, students should consider the question, 'where does food come from?' before sharing ideas as a class. Discuss how a lot of the food we eat from land is grown on farms. Explain that seafood can be either farmed or caught in the wild.

Step 3

Activities

Activity 1: 10–15 minutes – How do we catch fish?

First, ask the students if they know how fish are caught. Then, split the class into small groups and hand out a [Fishing methods](#) sheet to each group. Students should look at the picture of the different fishing methods, and for each method discuss how they think fish are caught. Encourage students to think of any positives and negatives of each method. After five minutes, students should share their thoughts. Use the [Teacher's notes](#) to add extra information to a group discussion.

Activity 2: 20–30 minutes – Let's go fishing game

Head to a large open space and play the [Let's go fishing game](#) (full instructions included). This game introduces different fishing practices and the term 'overfishing'.

Step 4

Extend

10–20 minutes – Avoiding overfishing

The second part of the game allows students to think creatively about how we can manage fishing practices to reduce overfishing.

Step 5

Reflect

5 minutes

Ensure that children have made the connections between the simulation in the game and fishing in real life. Show the [fishing methods pictures](#) again to discuss how these methods were represented in the game. Ask what will happen if too many fish are caught.

Step 6

Follow up

Complete the lesson [What is seafood?](#) to learn more about different types of seafood, what makes a fish a fish and how we can eat sustainable fish. Take a look at our [Protect the ocean](#) lesson to learn more about how we can all look after our seas.

Fisheries Fact File

Fish are not only important for the overall health of marine ecosystems, but also provide protein and livelihoods for billions of people. Globally, fisheries supply over 3.3 billion people with at least 20% of their average animal protein intake. (1)



Threats from unsustainable fishing

Overfishing

Overfishing means catching fish faster than they can reproduce. Due to overfishing, many fish stocks are in a state of serious decline. Overfishing pushes the fish population into smaller and smaller numbers, until there are so few fish that fishers can't make a living, and fish populations find it harder to grow again. Approximately 90% of large predatory fish such as tuna, swordfish & sharks have been lost. (2)

Damage to marine habitats

A wide range of fishing methods are used throughout the world, with different methods used to catch different types of fish. Some of these methods – like bottom trawling and dredging – involve scraping heavy machinery along the seafloor, which can be very destructive to marine habitats. Less than 2.5% of UK waters are closed to bottom trawling. (3)

Bycatch

During fishing, animals accidentally caught along with the 'target species' are known as bycatch. These animals can include dolphins, turtles, sharks and whales, as well as young fish deemed too small. In many parts of the world, bycatch are usually thrown back into the sea either dead or dying. In order to reduce the number of fish harmed in this process, in the UK it is illegal to throw some species of fish back into the sea. Approximately 10% of fish caught worldwide is bycatch. (4)



Fishing trawler ©
NarissaFotoSS
via Shutterstock



Species caught as
bycatch © Ivan Sarenas
via Shutterstock

1. Food and Agriculture Organisation of the UN 2020
2. Myers and Worm 2003

Fisheries Fact File



Sustainable fishing

We need to end overfishing in order to maintain healthy marine ecosystems, and to sustain livelihoods and food security into the future.

There are several ways of managing fishing practices:

- Quotas based on scientific evidence on how many and what type of fish can be caught can help limit overfishing
- The improvement of fishing gear can help reduce bycatch by increasing the selectivity of the fishing activity
- Limiting damaging fishing practices in sensitive and diverse areas can help reduce damage to the overall environment
- No take zones or Highly Protected Marine Areas where no fishing activity is allowed, will allow fish populations to recover and will help protect and restore the marine environment
- Managing fishing activities to ensure everyone is sticking to the rules is tricky in a large ocean environment, which means technology plays a big part in fisheries management

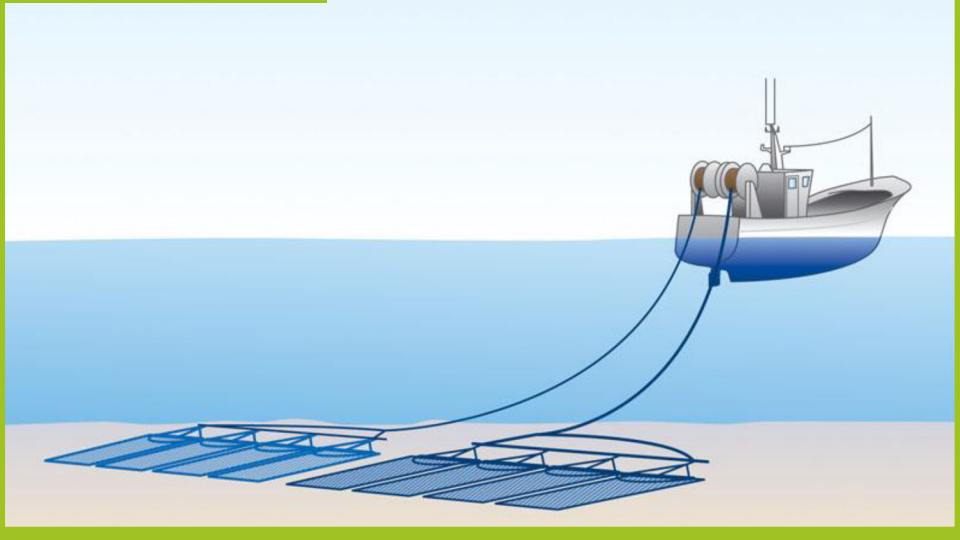


Be a responsible consumer

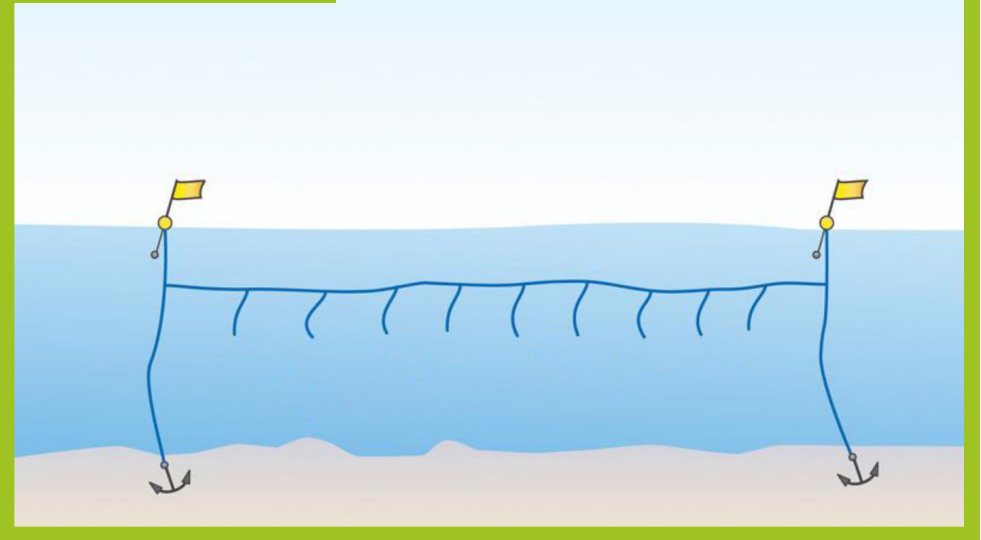
Consumer choice can influence overfishing. We tend to eat the same key species, which puts a lot of pressure on their stocks. Many people are unaware of where the fish they eat comes from or how it's caught, and when this information *is* included on food packaging, it's often hard to understand what it actually means.

Increasing awareness amongst consumers is important in achieving sustainable fishing. **Our [Good Fish Guide](#) supports consumers in selecting sustainable fish to eat.**

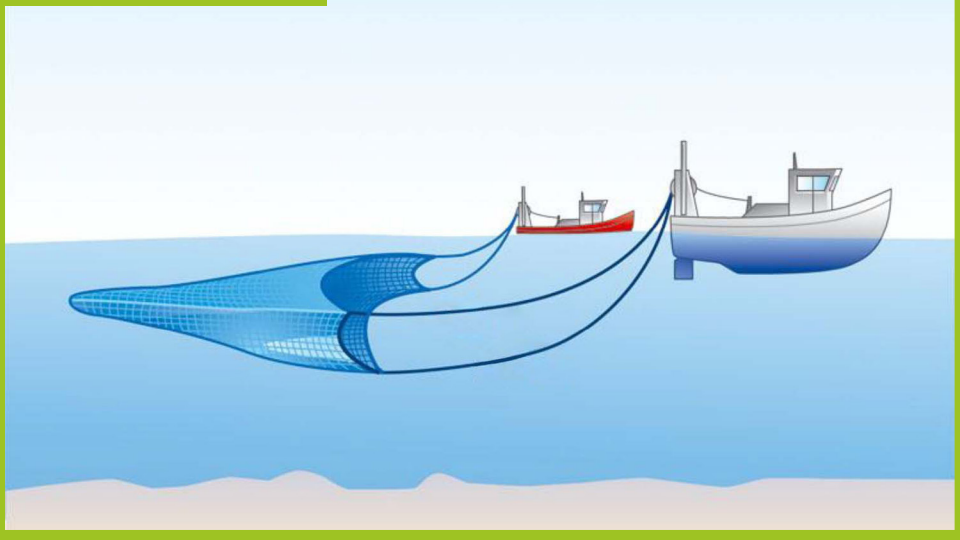
**Bottom trawling /
Dredging**



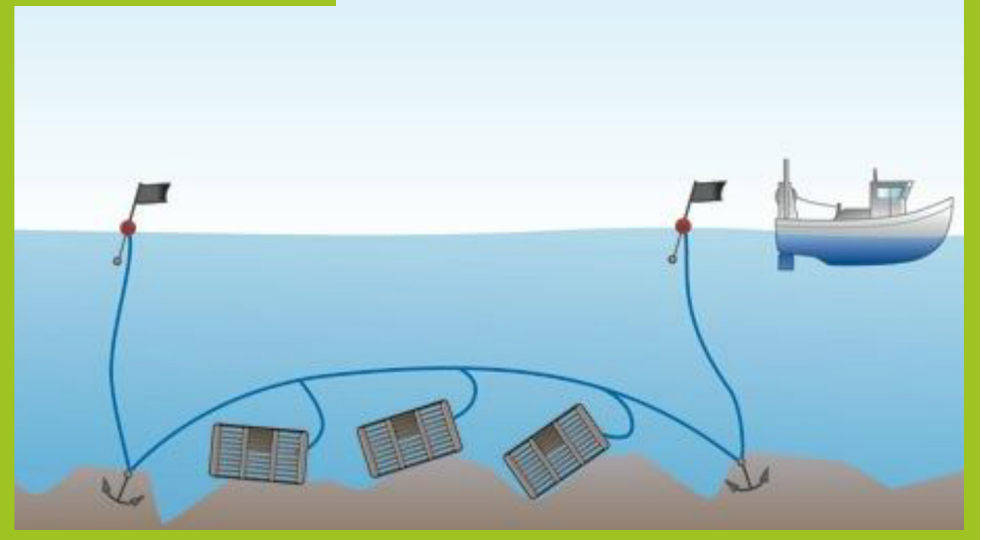
Lines



Pelagic Nets



Pots



Bottom trawling/ Dredging

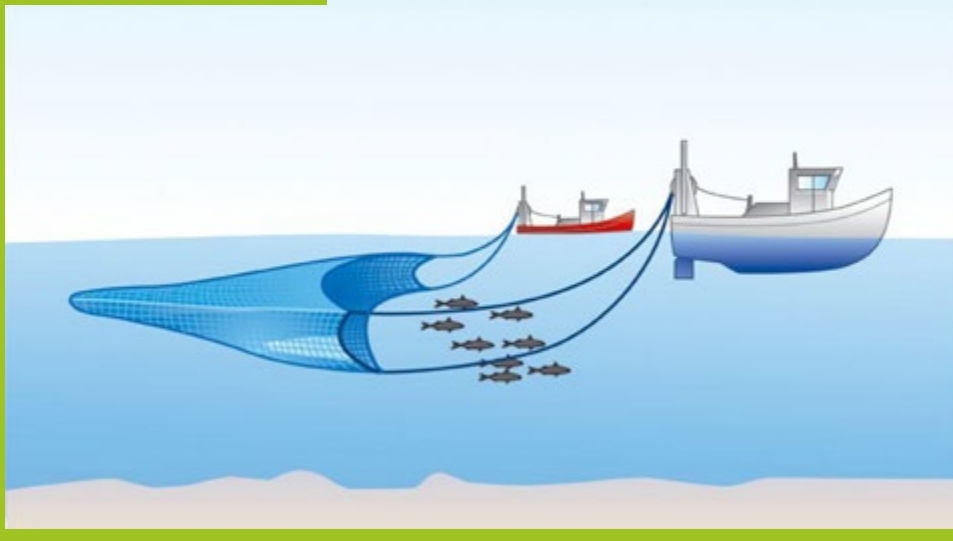


Bottom trawling/Dredging

This is called static gear. Boats drop the pots, mark them with a buoy and collect it at a later date. The pots have bait inside and a one way door.

They are thought to be one of the least destructive forms of fishing, causing less direct damage to the habitat compared to other bottom fishing methods. Any unwanted species that are trapped are returned to the sea.

Pelagic Nets

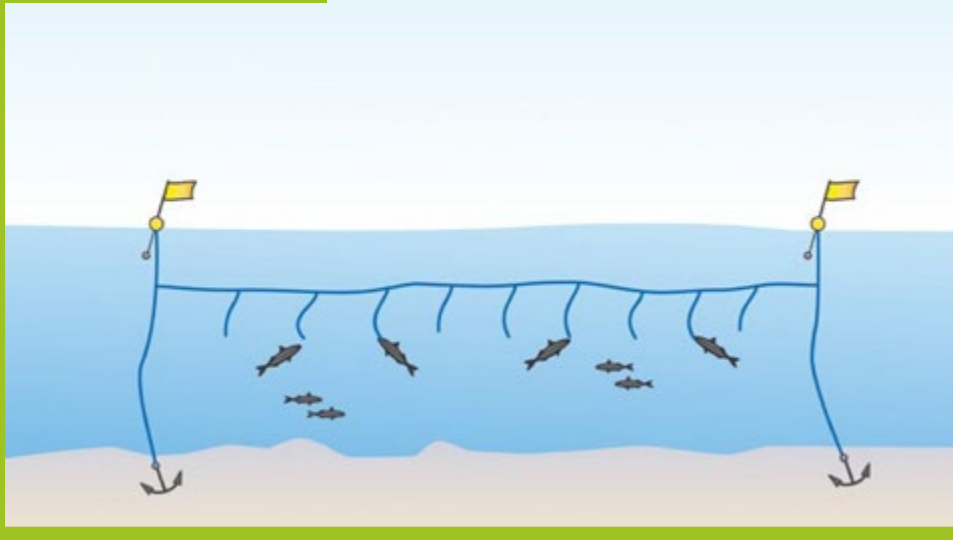


Pelagic Nets

Nets can vary in design and shape but are all dragged behind a boat to collect species that live in mid water. Due to the size of these nets and where they are within the water column, they can also catch other species not intended to be caught.

This is what is referred to as bycatch and can include other species of fish and sharks. These nets also accidentally catch turtles and dolphins that are feeding on the same fish being targeted by fishers; being unable to surface for air they eventually drown.

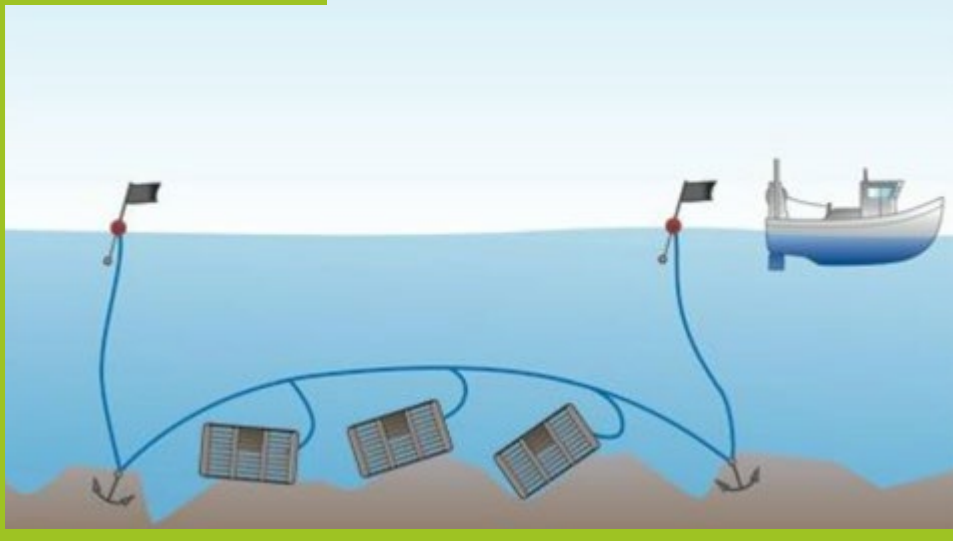
Lines



Lines

This method involves towing lots of lines containing baited hooks. It is used when trying to target particular species. One negative of this method is that birds trying to catch fish can get accidentally caught on the hooks.

Pots



Pots

This is called static gear. Boats drop the pots, mark them with a buoy and collect it at a later date. The pots have bait inside and a one way door.

They are thought to be one of the least destructive forms of fishing, causing less direct damage to the habitat compared to other bottom fishing methods. Any unwanted species that are trapped are returned to the sea.

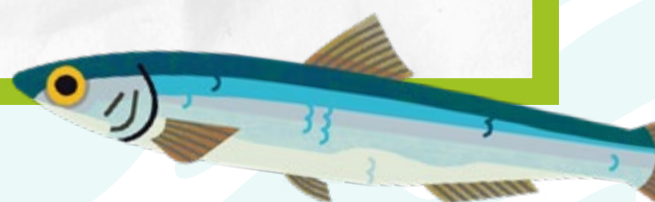
Let's Go Fishing

Aim: The game highlights how different fishing methods affect the number of fish caught. The games also introduces ideas for managing fishing practices

Equipment: You will need an open space such as playground or assembly hall. Up to 5 hoops, some small PE cones and some long rope or string.

Instructions:

- 1:** This is an adaptation of 'British Bulldogs'. The aim of the game is for the players to get from one side of the 'ocean' (playing area) to the other without getting caught (tapped on the shoulder). Use small cones to mark out play area. One player is a 'fisher' and has to try to catch the fish on their journey. Any fish caught are out of the game until the next run.
- 2:** In the next run fish who were caught will now turn into fishers. Observe as a class what happens to the number of fish surviving in the ocean when fishing pressure is increased.
- 3:** Carry on playing until there are no fish left. Discuss how this relates to real life, and how overfishing can cause a decline in fish populations. Discuss how this is bad for the environment and for people's livelihoods and food availability.
- 4:** Ask students 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 for their dinner.
- 5:** Students may suggest having a safe zone in-between the start and end, where fishers aren't allowed to catch fish. Use this to discuss how 'highly protected marine areas' or 'no take zones' replicate this in the wild. Use hoops to mark out these zones. Start the game again and play a few rounds of this and observe how it changes the number of fish making it to safety to the other side of the 'ocean'.
- 6:** Ask if students can think of any other ways we could reduce overfishing? Students may suggest that fishers are only allowed to catch one fish per round. Explain how this relates to fishing quotas in the real life. Play this version of the game and discuss the outcome.



Methods Extension

If time allows you can extend this game further to discuss fishing methods. Pot fishing is static so fishers would only be allowed to stand on the spot to try and catch fish (use cone to mark this area). To replicate line fishing, fishers should hold hands but must try and stay in a straight line. To demonstrate net fishing, fishers hold either side of a long rope. Play a few rounds focusing on one method and discuss how it affects the number of fish at the end of each game.

Bycatch Extension

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 using line method and then net method and compare number of turtles and dolphins caught with each method. Explain that in reality these 'non target fish' are called bycatch, and that many large sea creatures can get accidentally caught in nets and are harmed in the process. Explain that as fishing methods have become more advanced, our fish stocks have suffered and led to more bycatch.

Curriculum links

England

Design technology

- Understand where food comes from.

Citizenship

- Responsibility for themselves and their environment.

Wales

Humanities

- I am beginning to recognise the effects that I have on the natural world.
- I can describe how people and the natural world may impact on each other.
- I am beginning to appreciate and care for living things and my own environment.
- Within geography - Provide a rich context for exploring the issues of sustainability and food security.

Science and technology

- I can recognise that what I do, and the things I use, can have an impact on my environment and on living things.

Health and wellbeing

- I am beginning to make connections between my diet and my physical health and well-being.

Scotland

Social sciences

- I explore and appreciate the wonder of nature within different environments and have played a part in caring for the environment.
- I can consider ways of looking after my school or community and can encourage others to care for their environment.

Sciences

- I can talk about science stories to develop my understanding of science and the world around me.

Health and wellbeing

- I explore and discover where foods come from as I choose, prepare and taste different foods.