



WHY DO WE NEED THE OCEAN?



Teacher resources - Lesson plan

Image credit: Sereja Ris



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Australian Curriculum Objectives

Years 9 & 10 (Stage 5) - Geography

- [AC9HG9K01](#)
The distribution and characteristics of biomes as regions with distinctive climates, soils, vegetation and productivity
- [AC9HG9K02](#)
The effects on environments of human alteration of biomes to produce food, industrial materials and fibres
- [AC9HG9K04](#)
Challenges to sustainable food production and food security in Australia and appropriate management strategies
- [AC9HG9K08](#)
The impacts of the production and consumption of goods on places throughout the world, and strategies to manage sustainability in these places
- [AC9HG10K01](#)
The human-induced changes that challenge the sustainability of places and environments
- [AC9HG10K02](#)
The environmental world views of people and their implications for environmental management
- [AC9HG9S03](#) / [AC9HG10S03](#)
Evaluate geographical data and information to make generalisations and predictions, explain patterns and trends and infer relationships
- [AC9HG9S04](#) / [AC9HG10S04](#)
Evaluate data and information to justify conclusions
- [AC9HG9S05](#) / [AC9HG10S05](#)
Develop and evaluate strategies using environmental, economic or social criteria; recommend a strategy and explain the predicted impacts



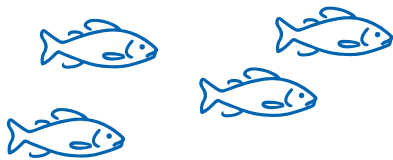
In this 30-45 minute lesson for ages 14+, learners will explore why we need the ocean, what global fishing activities look like around the world and some of the pressures on it from overfishing.

Key terms

- Ocean Ecosystem
- Marine Biome
- Overfishing
- Sustainable Fishing
- Global Food Security
- Fishing Pressure
- Fishing Fleet
- Marine Protected Areas

You will need

- Access to the Shorthand story – [How my dad fishes for the future](#)
- Access to the short film [My dad the fisherman](#)
- Access to the [Global Fishing Watch](#) map
- Access to the Kahoot quiz [Why do we need the Ocean?](#)



Key questions

- What characterises the marine biome?
- What challenges is the ocean facing?
- What is the difference in fishing pressure between the Australia and Asia? Why?
- Which parts of the world have the highest fishing pressure? Why?
- What do protected areas of the ocean mean for fishing?
- What are the implications of overfishing for global food security?
- What can we all do to protect the ocean?

Class Activities

- Learners discuss why the ocean is important, and the different ways in which we use it and need it
- Learners watch a film that introduces ocean sustainability and some of the threats to our ocean from overfishing
- Learners use an interactive map to draw conclusions about global fishing patterns
- Learners identify ways in which we can prevent overfishing, and help to protect the ocean

Optional extensions

- Learners use graphs to compare global fish production over time, and identify reasons for change
- Learners take a virtual reality tour of a fishing vessel in the UK



LESSON PLAN: WHY DO WE NEED THE OCEAN?

Starter (5-10 mins)



Begin by asking learners to consider as a class:

- *What characterises the **ocean ecosystem (marine biome)**? What makes it unique?*
- *What are the different ways that we use and enjoy the ocean?*
- *Where does the seafood we eat come from? Is it only Australian waters?*

If time allows, you could sort their answers into environmental, economic and social factors such as:

Social: People catch fish for their families; we do sports like swimming and sailing; we visit the ocean to have fun

Environmental: The ocean helps regulate the earth's temperature through ocean currents transporting warm water to colder parts of the world; the ocean absorbs carbon dioxide which would otherwise heat up the earth; the oceans are home to a huge number of different species of animals and plants; the ocean produces oxygen for us to breathe

Economic: Our fishing industry involves millions of people; tourism companies make money offering cruises or activities; we transport many of the foods and products we use every day by ship across the world

Cultural: Fishing or hunting activities carried out by Aboriginal Australian and Torres Strait Islander persons for education, ceremonial or traditional purposes; Inspiration for art and design; Spiritual, sacred or religious practices

Main activity (20-25 mins)



Display the first part of the Shorthand Story [How my dad fishes for the future](#), introducing the girl and her dad, and read together.

Show the short film [My Dad the Fisherman](#) (14:45) and then finish reading the first part of the Shorthand, which focuses on the significance of our ocean to life and our survival.

If you don't have time to watch the whole film, show two clips:

1. [The life of a fisherman](#) (3:02) and
2. [The most traded food in the world!](#) (0:57)

Then scroll through the rest of the introduction, which finishes with exercise 1 [Tracking the Global Fishing Fleet](#).

To complete the exercise, learners will ideally need access to the Shorthand story in small groups, navigating around to find the answers to the questions in the story themselves.

However, it would also work to complete it as a class, asking learners some questions about it while they look at it together.





Some extension questions include

- Some parts of the ocean have been designated as **marine protected areas**. What would this mean for fishing? Can you find some of those areas using the map?
- What are the implications of overfishing for our **global food security**?

Discussion (5-10 mins)

At the end of the film, the narrator asks us what we can all do to help protect the oceans. Ask learners what they think about this question:

- Do they think it is everyone's responsibility to protect the ocean?
- What can we do to **prevent overfishing** as individuals and collectively?
- How might this create a change for our oceans in the future?

Learners could share their answers with a partner or write them on a note or the board, to capture everyone's responses.

Review

Host a 5-minute Kahoot challenge on this topic at [Why do we need the Ocean?](#)

Extension Activities

1. Students use the Global Fish Watch map to describe *How do fishing activities in Australia compare with neighbouring countries in the Asia-Pacific region?*
 2. Students write a creative story in which they consider what might fishing look like in Australia in 50 years from now? Students may choose to write about a sustainable future in which fish are plentiful, or they could imagine a future in which global fish stocks have collapsed.
- In their story, ask students to consider
- Social, environmental, political and economic consequences of their imagined future world
 - What are some of the actions we can take to change our future for good?





EXERCISE 01

TRACKING THE GLOBAL FISHING FLEET

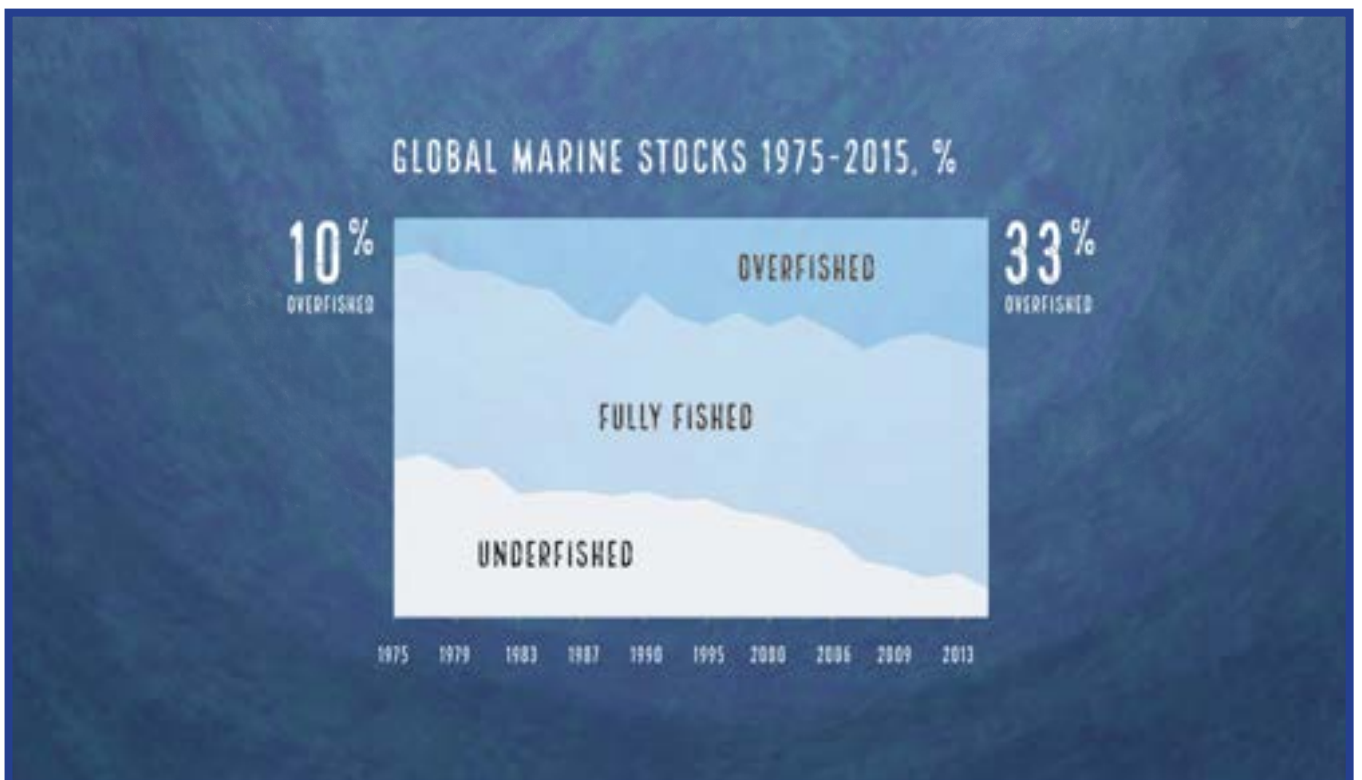
It can be difficult to imagine just how vital fishing is to us. To help you get some idea, take a look at Global Fishing Watch's interactive online map. It uses cutting-edge technology to track where larger boats catch fish all over the world. The map doesn't show us everything, because many fishers, especially in developing countries, fish on foot in the shallows, or in boats that are too small to be tracked.

1. Go to <http://globalfishingwatch.org/map/>
2. Click the play button in the bottom left hand corner of the screen to see who's fishing where over time (the blue dots). You can change the dates, zoom in and out, and move around the world to learn more.
3. Find somewhere on the coast that you've visited, either in Australia or overseas. How does the **fishing pressure** there (the number of blue dots over time) compare to The Pacific? Is it higher? Lower? Why might this be?





More and Less





Answers to exercises

How does fishing pressure compare between Australia and The Pacific?

Fishing pressure is higher (there are more dots) in The Pacific compared to around Australia. Some reasons for this may include:

- There is a much greater ratio of ocean to land in The Pacific than Australia, as well as greater populations which rely on fish as a source of food and income.
- There are a number of small island territories in The Pacific, each with their own fishing zones and entitlements.
- Pacific States are more reliant than Australia on fisheries for trade export (for example, Tuna).
- Australian fisheries may travel further afield, to areas such as Macquarie Island and Heard and McDonald Islands, between Australia and Antarctica.
- There is greater foreign competition in the Pacific waters, whereas the whole of Australia is surrounded by an Exclusive Economic Zone (EEZ).
- Australia is surrounded by a number of Marine Protected Areas.

More and Less

Between 1950 and 2016, what happened to global fish production?

- It increased from 19 million tonnes to 92 million tonnes, an increase of 384%. And what has happened to the proportion of global stocks that are overfished, fully fished and underfished? Why do you think this might be?
- The proportion that are overfished increased from 10% to 33%.
- The proportion that are fully fished has increased from 51% to 60%.
- The proportion that are underfished has reduced from 39% to 7%. Why might this have happened?
- Global demand for fish has increased, due to a growing global population as well as a growing middle class with more disposable income to buy fish. More boats are therefore on the water to meet this demand.



OCEAN CONNECTIONS - OCEAN CREATURES



Shark



Stingray



Sea lion



Seahorse



Whale



Sea turtle



Clown fish



Octopus



Jellyfish





OCEAN CONNECTIONS - SEAFOODS



Tuna Sandwich



Fish Curry



Fish, Calamari and Chips



Fish Taco



Sushi



Prawn Dumpling



Seafood Pasta



Panfried Salmon



Oysters





OCEAN CONNECTIONS - SPACES (GEOGRAPHIES)



Ocean wave



Estuary



Coral Reef



Maritime Harbour



Sea floor



Beach



Aerial ocean



Under the sea

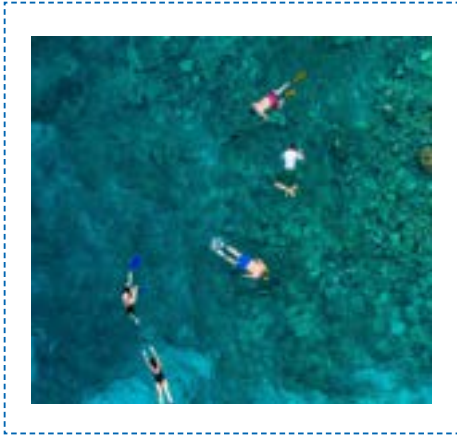


Sea Ice

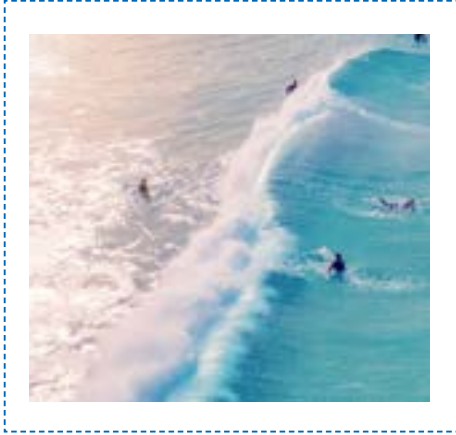




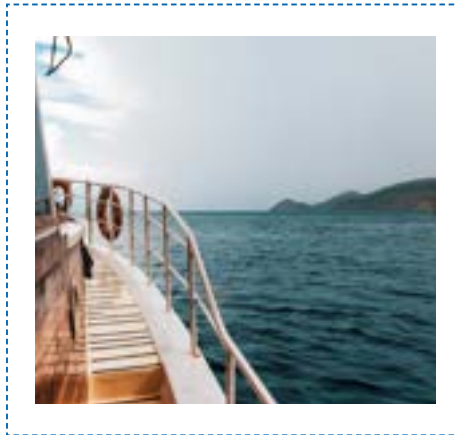
OCEAN CONNECTIONS - ACTIVITIES



Snorkelling



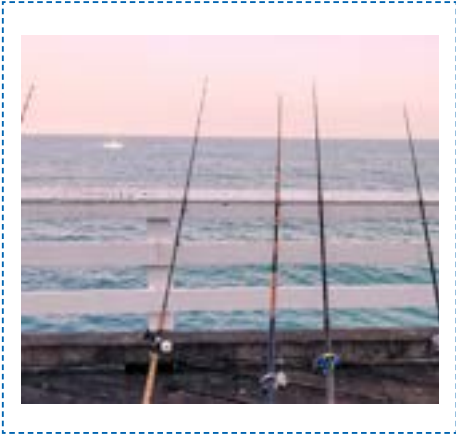
Surfing



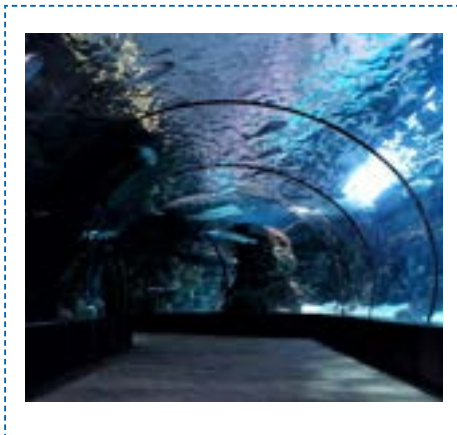
Boating



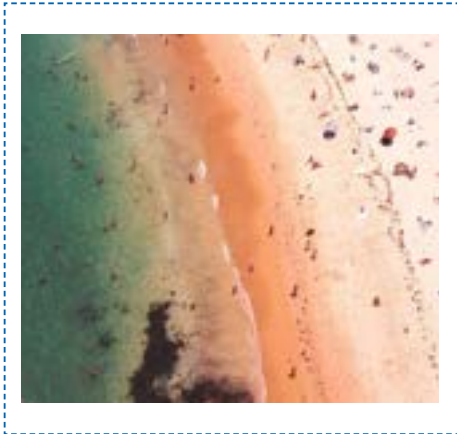
Diving



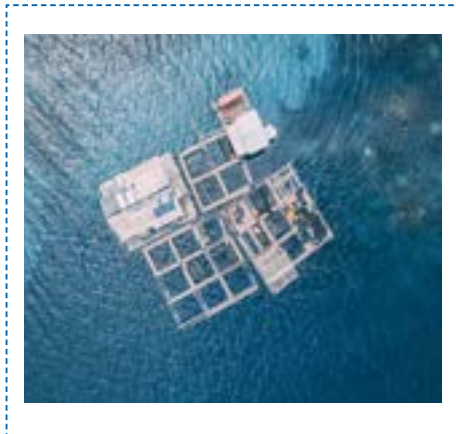
Fishing



Aquariums



Relaxation



Fish Farming



Trade

