



# MARINE HABITATS AND OVERFISHING

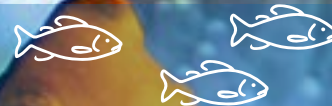


**Teacher Resources - Lesson Plan**

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## Australian Curriculum Objectives

### Years 5 & 6 (Stage 3) - Science

- [AC9S5U01](#)  
Examine how particular structural features and behaviours of living things enable their survival in specific habitats
- [AC9S6U01](#)  
Investigate the physical conditions of a habitat and analyse how the growth and survival of living things is affected by changing physical conditions
- [AC9S5H02](#) / [AC9S6H02](#)  
Investigate how scientific knowledge is used by individuals and communities to identify problems, consider responses and make decisions
- [AC9S5I01](#) / [AC9S6I01](#)  
Pose investigable questions to identify patterns and test relationships and make reasoned predictions
- [AC9S5I06](#) / [AC9S6I06](#)  
Write and create texts to communicate ideas and findings for specific purposes and audiences, including selection of language features, using digital tools as appropriate
- [AC9S5I05](#) / [AC9S6I05](#)  
Compare methods and findings with those of others, recognise possible sources of error, pose questions for further investigation and select evidence to draw reasoned conclusions

#### Extension only

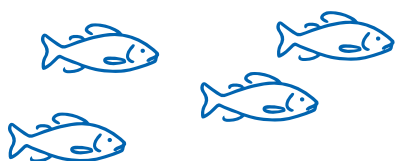
- [AC9S5I02](#) / [AC9S6I02](#)  
Plan and conduct repeatable investigations to answer questions, including, as appropriate, deciding the variables to be changed, measured and controlled in fair tests; describing potential risks; planning for the safe use of equipment and materials; and identifying required permissions to conduct investigations on Country/ Place
- [AC9S5I04](#) / [AC9S6I04](#)  
Construct and use appropriate representations, including tables, graphs and visual or physical models, to organise and process data and information and describe patterns, trends and relationships
- [AC9S5I05](#) / [AC9S6I05](#)  
Compare methods and findings with those of others, recognise possible sources of error, pose questions for further investigation and select evidence to draw reasoned conclusions



In this lesson for learners aged 10+ students explore what it looks like under the ocean and learn about different marine habitats. Students discover how fish species have developed special adaptations to live in their unique marine environments.

### Key terms

- Marine
- Species
- Adaptation
- Habitat
- Coral reef
- Sea floor
- Overfishing
- Marine Stewardship Council



### You will need

- A printed or projected copy of the Ocean Connection cards (pages 5 to 8)
- Access to [Google Earth Oceans](#)
- A printed or projected copy of the Marine Habitats factsheet (page 10)
- Access to [Attenborough's Reef](#)
- Access to [Overfishing](#)
- Access to the [Marine Habitats game](#)
- Or - A printed or projected copy of the Marine Habitats game (pages 11 and 12)
- A printed or projected copy of the Scientific Key

### Key questions

- How are we connected to the ocean?
- What are some different marine habitats?
- What does life look like under the ocean?
- What are some of the human activities impacting the Great Barrier Reef?
- How can science help to prevent overfishing?
- What adaptations have different fish species developed to live in their habitat?

### Class Activities

- Learners describe their favourite sea creatures and seafood, and consider why the ocean is important
- Learners journey under the ocean on Australia's coast using Google Earth
- Learners explore the Great Barrier Reef and discuss some of the impacts humans have had on this unique marine ecosystem
- Learners understand how Overfishing can impact on marine habitats
- Learners play a game using a scientific key to discover the different adaptations that fish species have to their marine habitats





# LESSON PLAN: MARINE HABITATS AND OVERFISHING

## Review (5-10 mins)

If you have already completed the lesson **What is a Fish** begin the class by asking students to recall what they learned in that lesson. Consider

- *How are we connected to the ocean?*
- *How can we describe a fish?*
- *Why do fish have fins?*
- *What kinds of adaptations do fish have to live in their favourite ocean habitats?*

## Starter (5-10 mins)

Begin by asking students to consider their personal connections to the ocean, using the Ocean Connection cards (pages 5-8) to kick start ideas:

- *What is the ocean?*
- *What are their favourite marine creatures?*
- *What are their favourite seafoods?*
- *What might it feel like to live underwater?*

## Main activity (30-60 mins)

Introduce students to the topic of 'Marine Habitats and Ocean Creatures'. Complete columns 1 and 2 of the Prior Knowledge Chart on page 9 as a class.

As a class, log on to [Google Earth Oceans](#) and select 'Australia'. Here you can explore a 360 degree view of underwater sites on Australia's East coast! Spend 5-10 minutes looking through the underwater imagery, and discuss what types of creatures are living in these habitats.

Next, ask students to read about Marine Habitats (page 10). Students then go on an interactive journey through 'Attenborough's Reef'.

If time allows, you could start this activity at [Chapter One: The Perfect Reef](#) (15-20 mins). This chapter involves a video introduction to the Great Barrier Reef, a time lapse of coral growing, vision of the mantis shrimp and more. Follow with Chapter Two. If you are short on time, go straight to [Chapter Two: Understanding the Reef](#) (15-20 mins)

Explore the different impacts on the Great Barrier Reef caused by human activities, and discuss as a class

- *What are the different ways in which humans impact the marine environment?*
- *How might science be used to help protect marine habitats?*

One way to prevent overfishing and damage to marine habitats is to choose seafood products with the Marine Stewardship Council (MSC) blue fish tick label. The MSC uses science to learn as much as possible about the species of fish we catch, and the habitat they live in.



To further explain, show students the video [Overfishing](#) (2:55) from the short film [My Dad The Fisherman](#). If you have the time you could also show students the complete 1-minute film to learn about how science is used to promote sustainable fishing practices.



### Discussion (10-15 mins)

To close the lesson, students play the [Marine Habitats game](#) using the scientific key. This game can be accessed online or on pages 11 and 12.

As a class, discuss the qualities of each habitat and what adaptations a fish might need to live in each one. Then split students into groups of 2-4 and assign each group a fish. Have groups match their fish with one of the four habitats, based on their observation of its adaptations.

### Review

Host a 5-minute Kahoot challenge on this topic at [Marine Habitats and Overfishing](#)

### Extension Activity

1. Students to apply their new knowledge to create an imaginary fish or shellfish! Their fish should have features adapted to one of the ocean habitats studied, or a habitat of their own invention. Students label the key features of their fish and write a paragraph explaining why it is well-suited to its ocean habitat.
2. To learn about a sustainable fish species found in Australia, ask students to read the Rock Lobster Fishery Factsheet and complete the Beginner or Advanced set of questions.
3. **Experts only!** Learn more about how science is used to prevent overfishing and protect the marine environment by watching the following videos  
MSC Fishery Standard Principle 1. [Sustainable Fish Stocks](#) (2:39)  
MSC Fishery Standard Principle 2. [Marine Habitats and Species Protected](#) (2:36)
4. Complete the Sustainable Fishing Class Field Trip - see activity sheet for more details





## 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



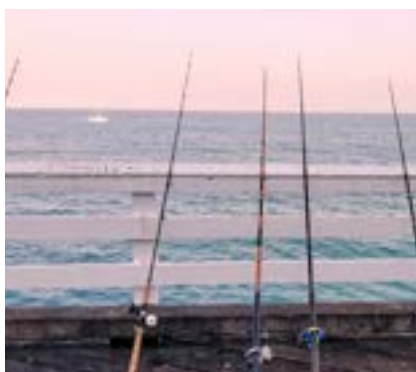
Surfing



Boating



Diving



Fishing



Aquariums



Relaxation



Fish Farming



Trade





## PRIOR KNOWLEDGE CHART

### WHAT DO WE KNOW ABOUT FISH?

What we know	What we would like to know	What we have learned





## Marine Habitats

Habitats are made up of physical things such as

- Light
- Depth
- Pressure
- Bottom type (substrate), and
- Temperature

These physical things then create an environment for a community of creatures, plants, algae to live.

Three main ocean habitat types are:

1. Open water (very large)
2. Soft sandy to muddy bottom (large)
3. Hard (rocky, coral) bottom (small area but has the most diversity / variety of life)



Open water



Soft sandy to muddy bottom



Hard bottom

Within each of the main habitat types there are many smaller habitats. Every habitat is home to many types of organisms (living things) and damage to habitat (from human activities like fishing or boating) can impact an entire marine community.

When large numbers of one type of organism are removed from a habitat it can cause the entire nature of the community to change. Overfishing can therefore be very destructive to the entire ocean habitat.

One example of this is the outbreak of Crown of Thorns Starfish on the Great Barrier Reef. The Crown of Thorns Starfish eats coral, and when they appear in large numbers they can destroy entire coral reefs. The outbreak of these starfish is thought to occur from the overfishing of the starfishes predators such as the Giant Triton snail.

Explore this and other impacts of human activities on the Great Barrier Reef in [David Attenborough's interactive reef journey](#).

Attenborough's Reef -

[Chapter One: The Perfect Reef](#)

[Chapter Two: Understanding the Reef](#)

Fisheries certified by the **Marine Stewardship Council** have been assessed to ensure fishing does minimal damage to ocean habitat.





## How do marine habitats differ from one another?

Use the Scientific Key to match these ocean creatures with their marine



Open water



Soft sandy to muddy bottom



Hard / Rocky



Deep water



# MARINE HABITAT CARDS

All of these species are found in Australia / New Zealand and can be found with the MSC Blue Fish Tick for sustainability.



Yellowfin Tuna



Hoki



Patagonian Toothfish



Blue Swimmer Crab



Silver-Lipped Pearl Oyster



Pink Ling



Australian Sardine



Mackerel Icefish



Orange Roughy





## Answers

### Marine Habitat Cards

1. Yellowfin Tuna - Open water
2. Hoki - Deep water
3. Patagonian Toothfish - Deep water
4. Blue Swimmer Crab - Hard/Rocky
5. Silver-Lipped Pearl Oyster - Hard/Rocky
6. Pink Ling - Soft sand to muddy bottom *and* Hard/Rocky
7. Australian Sardine - Open water
8. Mackerel Icefish - Deep water
9. Orange Roughy - Deep water

