

USING THE OCEAN'S RESOURCES RESPONSIBLY



Teacher resources - Lesson plan



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Australian Curriculum Objectives



Years 9 & 10 (Stage 5) - Geography

- [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
- [AC9HG9S05](#) / [AC9HG10S05](#)
Develop and evaluate strategies using environmental, economic or social criteria; recommend a strategy and explain the predicted impacts



In this 40-60 minute lesson using the film [My Dad the Fisherman](#) as a starting point, learners will consider how people use, modify and change the ocean ecosystem to obtain food. Learners will examine some of the ways in which fishers try to look after the oceans and what sustainability means for the future of our oceans. This lesson is suitable for learners aged 14+.

Key terms

- Fishery
- Quota
- Overfishing
- Bycatch
- Food web
- Sustainable fishing
- Maximum Sustainable Yield
- Quota
- Fish stocks

You will need

- The film [My dad the fisherman](#)
- Access to Kahoot quizzes - [Key Terms \(Beginner\)](#) or [Key Terms \(Advanced\)](#)
- Or printed copies of the Key terms worksheet (page 6/7) for each learner
- Access to Kahoot quiz [Using the Oceans Resources Responsibly](#)
- A copy of the game Go Fish

Key questions

- What do sustainable oceans mean to you?
- What are some of the environmental, economic and social factors that affect our oceans?
- How do people impact on the oceans?
- What might be some responses to the challenges of overfishing?
- What is Maximum Sustainable Yield and how do fishers use it?

Class Activities

- Learners use the film to examine how people use, modify and change the ocean ecosystem to obtain food
- Learners understand some of the key terms and concepts in sustainable fishing
- Learners match key terms with the definitions provided, or write their own definitions
- Learners identify environmental, social and economic issues that relate to Overfishing
- Learners play a game to understand how scientists calculate their Maximum Sustainable Yield and maintain healthy fish stocks



LESSON PLAN: USING THE OCEANS RESOURCES RESPONSIBLY



Starter (5-10 mins)



Show learners the term **Sustainable Oceans** and ask them to spend five minutes in small groups writing down as many words and phrases they can think of to do with that term in a mindmap.

Encourage learners to reflect on the interconnections between humans and the ocean environment, and to make the link between the three pillars of sustainability – economic, environmental and social.

Main activity (30-40 mins)



Explain to learners that they are going to explore what sustainability means in practice by looking in more depth at **sustainable fishing**. Watch the film [My dad the fisherman](#) (14:45) and ask students to write down any terms they think are relevant to ocean sustainability in the film, along with ideas for definitions or explanations?



Beginner

Students can access the Sustainable Fishing Key Terms quizzes online - [Beginner](#) or [Advanced](#). Alternatively, distribute printed copies of the Key Terms worksheets (pages 5 and 6). There are two versions to choose from; pick the one that suits your setting best. Learners complete the key terms matching exercise, and review as a class.

Advanced

Based on what they've learned from the film, ask learners to explain:
What is Maximum Sustainable Yield and how do fishers use it?

Learners then work in groups to play Go Fish, a game that explores how the concept of **Maximum Sustainable Yield (MSY)** works.

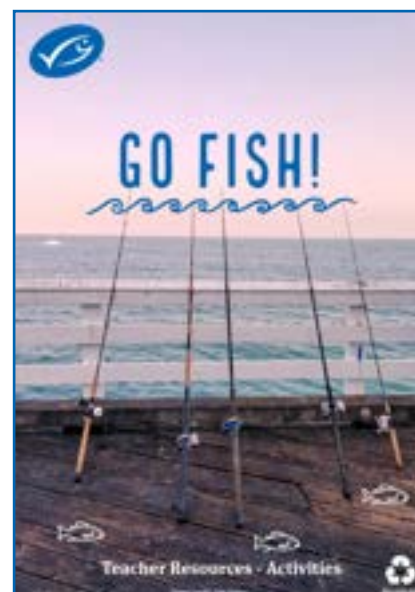
Follow the instructions on the sheets to run the game. The game includes a sheet with an explanation of MSY. If you are short on time, just run the first few rounds of the game, miss out the scenarios, and go straight on to the Maximum Sustainable Yield Challenge.

Discussion (5-10 mins)



Beginner

Ask students to generate some ideas and responses to some of the challenges of overfishing. If time allows, the whole class can then write new definition for the term 'Sustainable Fishing' which takes into account all of their discussions and new learnings.





Advanced

Finish up by asking learners what they think about MSY as a solution to overfishing?

- *What are the advantages of this approach?*
- *Can you think of any drawbacks of it, for fishers lives, for the environment, or for us as consumers?*
- *What other ways might fishers prevent overfishing?*

Review



Host a 5-minute Kahoot challenge on this topic at [Using the Oceans Resources Responsibly](#)

Extension Activities



1. Students work in groups to create an infographic or short animation using an online tool such as [Canva](#) or [Moovly](#), in which they respond to the question:

What actions can we all take to respond to overfishing?

Infographics should demonstrate the various environmental, economic, political and social issues that relate to overfishing. Students then present their infographic to the class, explaining their proposed actions and what the imagined outcomes will be.

2. Imagine you have to explain sustainable fishing to a friend or family member who has asked what the MSC blue fish tick label means. Write an explanation of Maximum Sustainable Yield, outlining some of the advantages and any potential drawbacks of it.

3. Students watch the short clip [David Attenborough's favourite ocean memory](#) (1:47) and write a paragraph reflecting on their own favourite ocean memories and personal connection with the ocean or with seafood.





Answers to exercises

What is Maximum Sustainable Yield

Maximum Sustainable Yield is a scientific calculation that shows fishers how much they can catch without overfishing. It measures how much a fish population grows and shrinks over time, controlled by births, migrations in and out of the fishery, and deaths.

Extension Activity 2

Answers might include

- MSY means fishers can calculate how much fish they can catch without compromising fish stocks in the future
- Calculating MSY for one fish species ignores all the other negative impacts that fishing can have on the environment, e.g. bycatch
- MSY calculations allow governments to set quotas for fishers
- Using MSY means that we as consumers can continue to rely on wild caught fish as a source of protein, and that fishers can keep working
- Using MSY calculations may mean that fishers always want to catch the most fish they can, which might be more (or less) than they did before
- If the information that scientists and fishers get about what's going on in the ocean is poor, then their calculations may be inaccurate
- Gathering information may cost a lot of money, meaning that only fishers in richer countries can access the data, or that fish becomes more expensive

You may want to draw on the information in this blog:

[What does sustainable fishing really mean?](#) (an explanation of the science behind MSY)





Version A

KEY TERMS IN SUSTAINABLE OCEANS

Can you match these terms with their definitions?

Fishery

Quota

Maximum sustainable yield

Overfishing

Bycatch

Food web

Sustainable fishing

Fish stocks

1. When a certain species of fish, are fished too much, they are unable to reproduce their numbers back to a healthy number and begin to decline.
2. This happens when fishing boats catch fish and animals that they don't really want or shouldn't take. It can also include young or undersized fish.
3. Each animal relies on the others to survive.
4. The amount of fish living in our oceans that could be caught by fishers.
5. Fishing in a responsible way, making sure that fish populations don't drop below levels where they cannot reproduce and grow faster than they are caught.
6. An area of the sea where fish are caught for commercial purposes.
7. A scientific calculation that shows fishers how much they can catch without overfishing.
8. Fishing for a certain number of fish per year.





Version B

KEY TERMS IN SUSTAINABLE OCEANS

Can you write down terms that match these definitions?

1. When a certain species of fish, are fished too much, they are unable to reproduce their numbers back to a healthy number and begin to decline.

2. This happens when fishing boats catch fish and animals that they don't really want or shouldn't take. It can also include young or undersized fish.

3. Each animal relies on the others to survive.

4. The amount of fish living in our oceans that could be caught by fishers.

5. Fishing in a responsible way, making sure that fish populations don't drop below levels where they cannot reproduce and grow faster than they are caught.

6. An area of the sea where fish are caught for commercial purposes.

7. A scientific calculation that shows fishers how much they can catch without overfishing.

8. Fishing for a certain number of fish per year.





Answers - Key Terms

1. Overfishing

When a certain species of fish, are fished too much, they are unable to reproduce their numbers back to a healthy number and begin to decline.

2. Bycatch

This happens when fishing boats catch fish and animals that they don't really want or shouldn't take. It can also include young or undersized fish.

3. Food Web

Each animal relies on the others to survive.

4. Fish Stocks

The amount of fish living in our oceans that could be caught by fishers.

5. Sustainable Fishing

Fishing in a responsible way, making sure that fish populations don't drop below levels where they cannot reproduce and grow faster than they are caught.

6. Fishery

An area of the sea where fish are caught for commercial purposes.

7. Maximum Sustainable Yield

A scientific calculation that shows fishers how much they can catch without overfishing.

8. Quota

Fishing for a certain number of fish per year.

