



OVERVIEW

In Aotearoa New Zealand commercial fisheries are managed under the Quota Management System (QMS). Commercial fishers must report their catches.

Sometimes fishery observers go out with commercial fishers to collect extra information and scientists use all this information to get an idea of how many fish there are (abundance).

These activities investigate how scientific data is used to assess the sustainability of fisheries in Aotearoa New Zealand.

See also slide set 'How fish stocks are assessed in Aotearoa'.

FOCUS QUESTIONS

- *How do we assess fisheries in Aotearoa New Zealand?*
- *What is the role of science in ensuring fisheries are sustainably fished?*
- *What new words and concepts have we learnt?*

LEARNING OBJECTIVES

- Describe how we assess the sustainability of fisheries in Aotearoa New Zealand
- Investigate the role of science in ensuring fisheries are sustainably fished
- Use scientific and fishery related vocabulary

LOCATION

Indoors

DURATION

45 mins +

LEVEL

Level 3 - 5+

CURRICULUM

Science, Social Science, Tikanga-ā-iwi, Geography, Pūtaiao, Hauora

Key competencies: Thinking; Managing Self; Relating to others

NEXT STEPS

- When fish stocks decline
- Reviewing key concepts

Other topics:

- Well managed fisheries
- Environmental impacts of fishing

Prior learning:

- Overfishing
- Sustainable fishing



MATERIALS

- Slide set [How fish stocks are assessed in Aotearoa](#)
- This [Teacher Outline](#)
- Copies of [A Fisheries Scientist Story](#)
- Internet connection [to watch film clip]
- Something to write with

PROCEDURE

1. DISCUSS management of commercial fisheries under QMS and the role of scientists in figuring out how many fish there are [slides 30, 31, 32]
2. WATCH the short film about [fishing observer Holly Lane](#) [1:15] [slide 30]
3. READ [A fisheries Scientist Story](#) and ANSWER the questions at the end of the story.
4. Ask a local fisheries scientist to come and talk about what they do [slide 32]
5. INVESTIGATE (using the links provided) how we determine the age of a fish and what we know about the status of NZ fisheries [slide 32]
6. REFLECT and DISCUSS – What role do scientists play in looking after fisheries under the QMS?
7. LIST new words learnt and write a meaning for each new word
8. REVIEW: Use the following inquiry to reflect on what we have learnt? What more would we like to learn. Where might we find this information?
 - What are some of the different viewpoints on the role and use of science and tools such as MSY to ensure fisheries are managed sustainably?
 - How can fishery science and tools like MSY impact you and your whānau?
 - How do we know if the science (and MSY calculations) are working?
 - Who has ultimate responsibility for deciding what data scientists collect and how fisheries are actually managed?
 - What might the job of a fisheries scientist actually look like?
 - Why do we need fisheries science and tools such as the MSY?



KEY WORDS

Scientist

Sustainable fisheries management

Fish stock

Commercial fisheries

Fishery observers

Quota Management System QMS

Abundance

CURRICULUM LINKS

Nature of Science (Level 3-5)

- Investigating in science
- Communicating in science
- Participating and contributing

Living World (Level 3-5)

- Ecology

Science (Level 6+)

- Participating and Contributing
- Ecology

Social Science (Level 3-5)

- Understand how people make decisions about access to and use of resources (Level 3)
- Understand how formal and informal groups make decisions that impact on communities (Level 4)
- Understand how people's management of resources impacts on environmental and social sustainability (Level 5)

Geography (Level 6, 7, 8)

- Geographic research
- Contemporary New Zealand geographic issue
- Geographic topic at a global scale
- Application of geographic concepts



Maths (Level 3-5)

- Statistics

Pūtaiao

- Uses of Science: Learn about the people and the work they do to produce science knowledge (Level 4+)
- Philosophy and history of science: Develop understanding of the processes by which science and society affect each other and co-evolve (Level 4+)
- The Natural World: The Biological Environment: Investigate the effect of human actions, and natural processes, on an Aotearoa ecosystem (Level 6+)

Tikanga-ā-iwi (Level 3-5)

- *Kotahi tonu te matua o te tangata Māori, ko Ranginui e tū nei, ko Papa-tū-ā-nuku e takoto nei.* Place and Environment
- *E tama, e hine, tangata i ākōna ki te whare, tū ana ki te marae, tau ana.* The Changing World
- *E kore e ngaoko te rākau ki te tīkina i te pūtake whakangaoko ai engari, me tiki ki te matamata.* The Economic World

Hauora

- Relationships to earth and sky (natural environments) (Level 4+)