

TOPIC PLANNER: TE KAWA O TANGAROA FISHERIES MANAGEMENT



NZ Curriculum:

Key competencies

Thinking; Managing Self; Using language, symbols & texts; Relating to others

Science

Level 3: *The Nature of Science: Participating and contributing:* Use their growing science knowledge when considering issues of concern to them. *Living World: Ecology:* Explain how living things are suited to their particular habitat and how they respond to environmental changes, both natural and human-induced.

Level 4: *The Nature of Science: Participating and contributing:* Use their growing science knowledge when considering issues of concern to them.

Level 5: *The Nature of Science: Participating and contributing:* Develop an understanding of socio-scientific issues by gathering relevant scientific information in order to draw evidence based conclusions and take action where appropriate. *Living World: Ecology:* Investigate the interdependence of living things (including humans) in an ecosystem.

NZ Curriculum: Social Sciences

Level 3: Understand how people make decisions about access to and use of resources differently

Level 4: Understand how producers and consumers exercise their rights and meet their responsibilities.

Level 5: Understand how people's management of resources impacts on environmental and social sustainability

This resource can also be used to support the teaching of Achievement Objectives in:

- Te Reo Māori
- English
- Maths

Geography

Level 6, 7, 8: Geographic research
Contemporary New Zealand geographic issue
Geographic topic at a global scale
Application of geographic concepts

Te Marautanga o Aotearoa

Pūtaiao Level 4+: Uses of Science

Level 4+: Philosophy and History of Science

Level 4+: The Natural World

Tikanga-ā-iwi

Level 4+: Kotahi tonu te matua o te tangata Māori, ko Ranginui e tū nei, ko Papa-tū-ā-nuku e takoto nei. (Place and Environment)

Level 4+: E tama, e hine, tangata i ākona ki te whare, tū ana ki te marae, tau ana (The Changing World)

Level 4+: E kore e ngaoko te rākau ki te tīkina i te pūtake whakangaoko ai engari, me tiki ki te matamata (The Economic World)

Hauora Level 3+: Relationships to earth and sky (natural environments)

LEARNING OBJECTIVES:

- LO1 Describe some indicators of good (sustainable) fisheries management?
- LO2 Describe traditional fishery management tools used to manage fisheries sustainably in Aotearoa New Zealand
- LO3 Investigate key features of Aotearoa New Zealand's Quota Management System
- LO4 Investigate the concept of EEZ (Exclusive Economic Zone) and its relevance to fisheries management
- LO5 Use scientific and fishery related vocabulary

CONCEPTUAL UNDERSTANDINGS:

1. Good fisheries management ensures fishing is environmentally and economically sustainable
2. Traditional tools such as rahui and kaitiakitanga are used to manage fisheries sustainably in Aotearoa New Zealand
3. Fisheries in Aotearoa NZ are managed under a Quota Management System that sets yearly catch limits for fish stocks
4. Aotearoa New Zealand manages fisheries within its 200 nautical mile Exclusive Economic Zone
5. Specialised words and terms are used in fishery management / science

POSSIBLE WONDERINGS:

- How do I know if fisheries are well managed?
- How does fisheries management affect me?
- How does the Marine Stewardship Council decide if a fishery is well managed?
- If I catch a fish can I sell it?
- How do I know if the fish I catch is too small?

POSSIBLE ACTIONS:

- LOOK for the Marine Stewardship Council label when you buy fish
- ASK whānau - do they know their local fishing rules and SHARE your new knowledge with family
- FIND OUT if there are rāhui, taiāpure, mataitai or other Marine Protected Areas near where you live? Visit them. Find out why they were created and what the fishing rules are in these areas?
- MAKE a map to show the boundaries of any Marine Protected Areas near you
- SURVEY people you know to find out how much they know about fishing rules and QMS

LEARNING EXPERIENCES OVERVIEW

LESSON 1: Sustainable fisheries management

FOCUS QUESTION: *What are some indicators of 'good' (sustainable) fisheries management?*

- CONSIDER the concept of kaitiakitanga as it relates to sustainable fisheries management [slides 9-10]
- READ and ANSWER questions about Kaitiakitanga using the [Kaitiakitanga worksheet](#) [slide 10]
- INVITE a kaitiaki or tiaki to visit / speak [teacher notes slide 10]
- WATCH the short film on the [Marine Stewardship Council's standard](#) [0:52] [Slides 11 & 12]
- BRAINSTORM (using the prior knowledge chart) what we already know about fisheries management [slide 13]
- DISCUSS 'good' sustainable fisheries management [slide 14]
- WATCH the short film [The fishery is well managed](#) [2:11] [slide 15] & label the diagram provided on slide 15 [answers slide 16]
- BRAINSTORM indicators of good fisheries management [slide 17] [Answers on slide 18]
- Investigate and deepen the INQUIRY [see [Teacher Outline](#)]

LESSON 2: Traditional fisheries management

FOCUS QUESTION: *What are some traditional fishery management tools used to manage fisheries sustainably in Aotearoa New Zealand?*

- DISCUSS traditional fisheries management tikanga and tools
- CONSIDER tikanga you might follow when fishing [slides 19, 20]
- WATCH the short film [Guardianship](#) [4:48] [slide 21] and CONSIDER the role you play in managing fisheries sustainably.
- INVESTIGATE the Te Ara webpage on [Traditional Practices](#), invite a kuia or Kaumātua and/or use your own knowledge of traditional fishery management practices.
- Make a list of traditional fishery management tools used by Māori [slide 21]
- READ [Te Kaitiaki Toheroa](#) and complete the [Te Kaitiaki Toheroa Worksheet](#).
- WATCH the short film MaraeTV film about [Toheroa](#) [8:12] [slide 22]
- To deepen learning about toheroa and the role of mātauranga Māori and science in fisheries management WATCH [Toheroa: Rejuvenating a Delicacy](#) [26:05]
- DISCUSS how traditional fisheries management is still alive and incorporated into the QMS [slide 23]

LESSONS 3 & 4: How fish stocks are assessed in Aotearoa

FOCUS QUESTION: *What are the key features of the Aotearoa New Zealand Quota Management System (QMS)?*

- WATCH the short Seafood New Zealand film [World Leading](#) about the QMS [3:52] [Slide 24]
- DISCUSS the Quota Management System [Slide 24 & 25] and how fish stocks are shared amongst fishers [slide 26]
- READ and ANSWER questions using [QMS worksheet](#) [slide 26]
- READ and ANSWER questions using [Customary & Recreational Fisheries Worksheet](#) [see slide 28]
- EXPLORE the idea that only commercial fishers can legally sell fish [slides 27 & 28]
- DISCUSS illegal fishing in Aotearoa New Zealand [slide 29] and watch the short film [2:07] about [illegal toheroa](#).
- Complete the GROUP ACTIVITY using illegal fishing articles and questions - [Teacher Outline](#) (pages 7 and 8)
- INVESTIGATE the idea that there are fishery management areas [slide 30]
- WATCH the film [Sustainable Oceans and Seas](#) film [15:42] and answer the questions on [Sustainable Oceans and Seas Worksheet](#) or play the Kahoot quiz called [Marine Stewardship Council NZ Sustainable Oceans and Seas](#) [slide 30]
- WATCH the short film [Fishy Business](#) [13:42] and complete the point of view and values continuum activities on [slide 31]
- Conduct an opinion SURVEY on the QMS [[Teacher Outline](#)] [Slide 31] Survey people's knowledge and opinions on Aotearoa NZ laws around marine fishing. Simple multi choice questions that could include: Are they fishers? How often do they fish in the ocean? What is the main reason for fishing/-fun/food/both? Do they know the daily limits and size on fish and shellfish? Should this be more/less? Are recreational fishers allowed to sell their catch? What % of fish is caught by recreational fishers?
- PLAY the [Go Fish!](#) Game with new rounds based on learning from this topic [see [Teacher Outline](#)]
- Investigate and deepen the INQUIRY [see [Teacher Outline](#)]

LESSON 5: EEZ & Law of the Sea & Reviewing Key Concepts

FOCUS QUESTION: *What is the EEZ and how is this relevant to fishery management? What new words and concepts have we learnt?*

- CONSIDER how far out to sea we can catch fish? And the boundaries associated with 12 and 200 nautical miles. Create your own map of Aotearoa New Zealand showing what rights we have in each zone [slides 33 & 34]
- EXPLORE the [interactive map](#) and look at different EEZs [slide 35] Complete the mahi on Slide 35
- INVESTIGATE the MSC [website](#) and review the different parts of the MSC story [slide 36]
- PLAY the fisheries management game (an open ended game designed to reinforce key learning about well managed fisheries and fisheries management [see [Teacher Outline](#)] [slide 37]
- Make and then take a QUIZ. Learners write two questions and answers. Select questions and conduct a quiz [slide 37]

KEY WORDS AND CONCEPTS (FOR TEACHERS)

Fisheries Management	Fisheries management is the process that creates and enforces the rules that are needed to prevent overfishing and help overfished stocks rebound
Kaitiakitanga	Guardianship / Stewardship / Custodianship
Rāhui	To put in place a temporary ritual prohibition, closed season, ban, reserve [for more detail see www.maoridictionary.co.nz]
Rohe moana	Tangata whenua defined customary fishing area
Kaitiaki / Tiaki	Guardian / Steward / Custodian
Tikanga	Correct procedure, custom, habit, lore, method
Sustainable fishing	Sustainable fishing means looking after the environment where fish live and not overfishing. Sustainable fishing means leaving enough fish in the ocean, respecting habitats and ensuring people who depend on fishing can maintain their livelihoods.
Sustainable stock	A particular harvested population of fish that is more or less isolated from other stocks of the same species and hence when fished in a sustainable manner is self-sustaining (a fish population becomes a stock when it is a fished or harvested population).
Sustainable fishery	A Sustainable fishery is a fishery that has been fished in such a way as to leave enough fish (from that fishery) in the ocean, respecting habitats and ensuring people who depend on fishing from that fishery can maintain their livelihoods.
TAC	Total Allowable Catch – includes all legal catches allowed under the Quota Management System and includes commercial, recreational and customary
TACC	Total Allowable Commercial Catch – includes only the commercial part of the TAC under the QMS
Environmental sustainability	Acting in a way that maintains natural resources and avoids jeopardizing the ability for future generations to meet their needs.
Economic sustainability	The ability of an economy to support a defined level of economic production indefinitely.
Fisheries science	Fisheries science is a branch of marine science that deals with studies on the life history and state of fish stocks.
QMS	Quota Management System. System used to manage commercial fisheries in Aotearoa New Zealand.