FISHING METHODS (4.1)

OVERVIEW

A range of gear and methods are used in commercial fishing. Every type of gear has some effect on the ocean environment. However, if carefully managed, virtually all gear types can be used responsibly and sustainably.

Here we explore some common gear and fishing methods used to catch fish including trawl, purse seine, gill net, pole and line, pots and long line.

See also slide set **Fishing Methods** (4.1)

LEARNING OBJECTIVES

- Identify one or more fishing methods; the type of fish they might catch and from which habitat
- Investigate how one or more fishing methods impact on marine habitats and non target species

FOCUS QUESTIONS

- *What different methods are used to catch fish?*
- *What type of fish are caught and in what habitat?*
- *What new words and concepts have we learnt?*

LOCATION

Indoors

DURATION

45+ minutes

LEVEL

Level 3 - 5+

CURRICULUM

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

Key competencies: Thinking; Managing Self; Relating to others

NEXT STEPS

This topic:

- Protecting the marine environment (4.2)
- Tāiko (black petrel) as bycatch (4.3)
- New & modified fishing methods (4.4)

Other topics:

- Well managed fisheries (5.1)

Prior learning:

- Topic 1 - Overfishing (1.2); Sustainable fishing (1.4)

MATERIALS

- **Fishing Methods slide set**
- **Teacher Outline** [this]
- Copies of **Fishing Methods Worksheet** (separate file)
- Something to write with
- Internet access [for film clips]
- Copies of pre-cut Fishing Method Cards (below) (one per group) (page 5)

PROCEDURE

1. Take a moment to CONSIDER what fishing methods you have used? Have you ever caught a marine animal that you didn't mean to catch? What happened? How did you feel? [slide 8]
2. READ and ANSWER questions about fishing methods using the Fishing Method Worksheet [slide 9]
3. MATCH fishing methods to names [slide 10]
4. EXPLORE different fishing methods and WATCH short film clips illustrating each of the different methods [slides 11-25]
5. PLAY the Tricky Trawling Game [slide 14]
6. TEST knowledge and MATCH fishing method descriptions with picture of fishing gear and habitat/species caught cards [slide 26] (PAGE 5):
   a. Make enough copies of the fact sheet and pre-cut matching cards for one per group.
   b. Have learners match the images with the type of fishing and the species targeted.
   c. Discuss the possible environmental impacts of each type of fishing and how these might be reduced or improved.

EXTENDING

Research one or more types of fishing. Write a story or make a poster that

   a. Describes how it is done (include diagrams).
   b. What species are targeted?
   c. What environmental effect it can have?
   d. What has been done to reduce environmental impact?

KEY WORDS

Purse seine	Demersal
Gill net	Pelagic
Long-line	Dredge
Bycatch	

CURRICULUM LINKS

Nature of Science (Level 3-5)

- Investigating in science
- Communicating in Science
- Participating and Contributing

Social Studies (Level 3-5)

- Understand how people make decisions about access to and use of resources (Level 3)
- Understand how people's management of resources impacts on environmental and social sustainability (Level 5)

Geography (Level 6, 7, 8)

Relevant achievement standards related to:

- Geographic research
- Geographic issue of a global scale
- New Zealand contemporary issue
- Geographic concept: Sustainability

Pūtaiao

- The Natural World: The Biological Environment: Investigate the effect of human actions, and natural processes, on an Aotearoa ecosystem (Level 6)

Hauora

- Place and Environment: Explain how exploration presents opportunities and challenges for people, places, and environments (Level 4)

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 ākona 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

FISHING METHOD CARDS
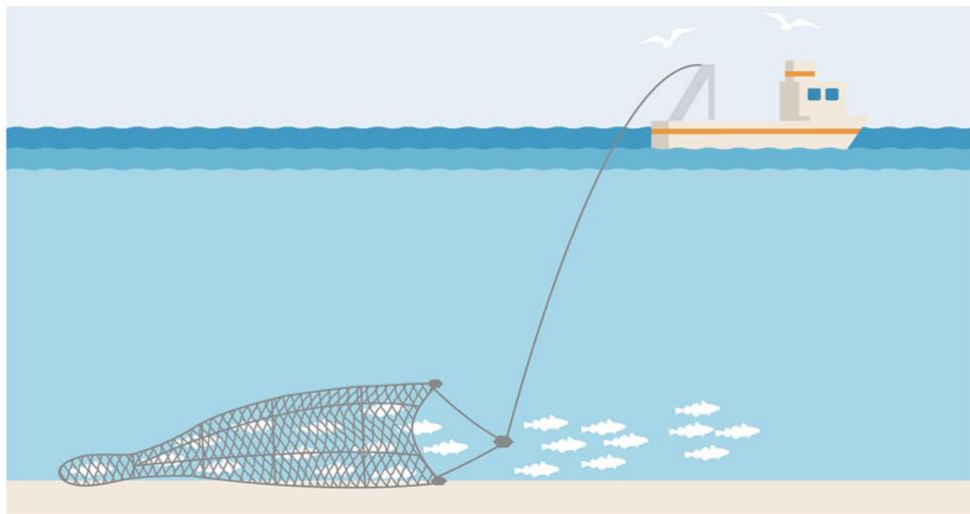
DEMERSAL OR BOTTOM TRAWLING

Uses a cone-like net with a closed end (cod-end) that holds the catch

Designed to catch fish living at great depths or on the bottom of the sea

In Aotearoa NZ:
Orange Roughy
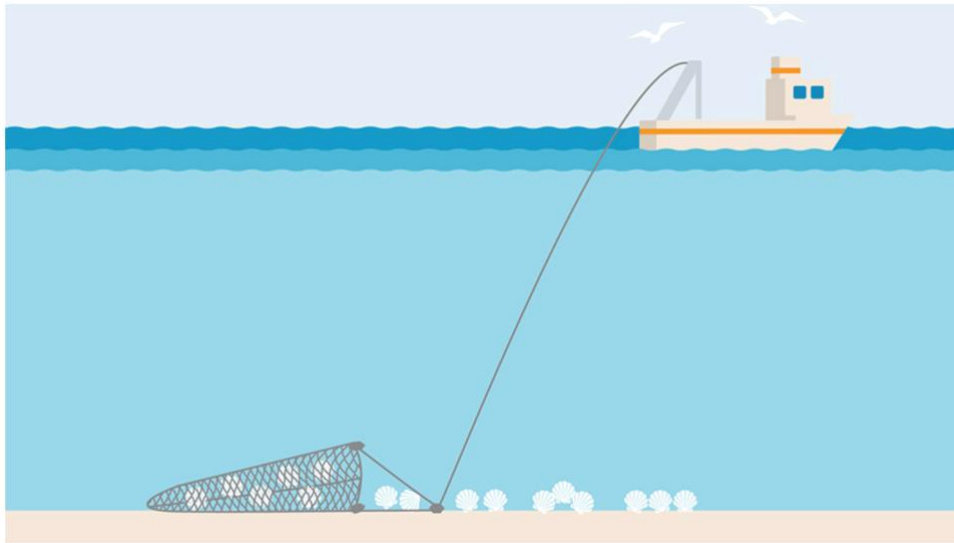

Orange Roughy
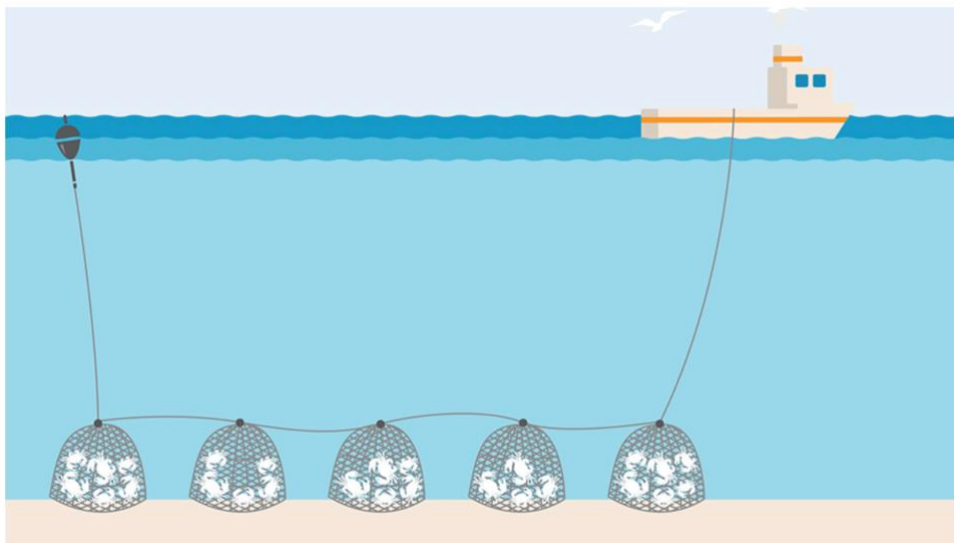
FISHING POTS & TRAPS

Stationary traps, or pots, typically made from wood, wire netting or plastic Usually set on the seafloor

Used to catch crustaceans such as lobsters and crabs

In Aotearoa NZ: pāpaka (paddle crab) and koura (rock lobster)
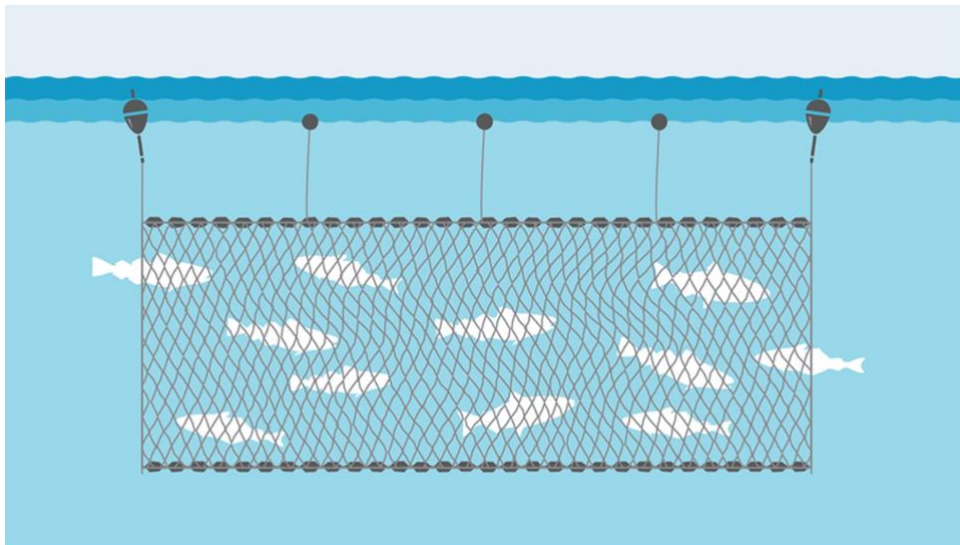

Koura / Rock Lobster

DREDGING

Dredges are rigid structures that are towed along the seabed

Harvests bivalves [shellfish with two shells] such as scallops, oysters & clams

**In Aotearoa NZ: Bluff oyster & tupa or scallop**

Scallop / Tupa

TE KAWA O TANGAROA
TANGAROA'S WORLD

WWW.MSC.ORG/TANGAROA

GILL NETTING

A gillnet is a wall or curtain of netting that hangs in the water

The term covers several types including set gillnets (anchored to the seafloor)

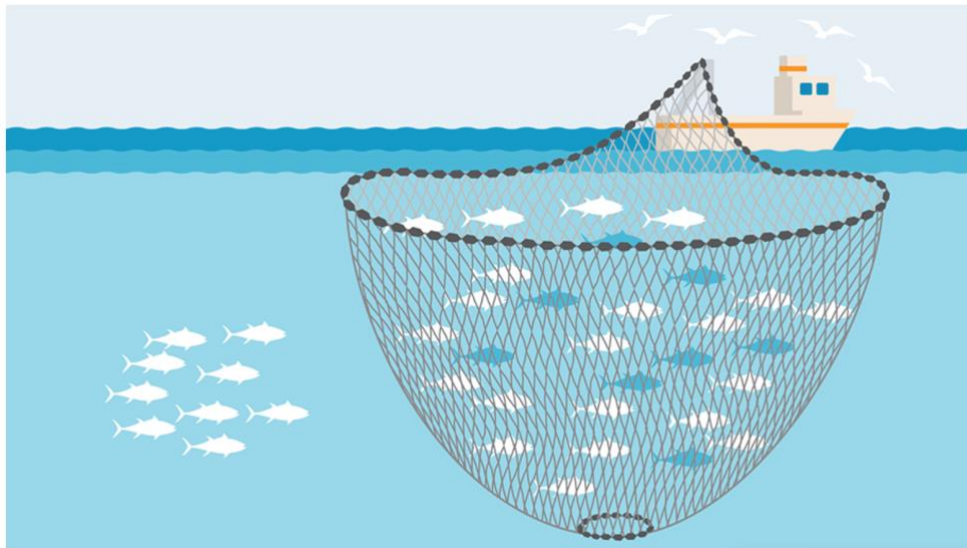**Schooling fish (e.g. sardines) and large pelagic fish (e.g. tuna).**

**In Aotearoa NZ:
set gill nets target Mullet, butterfish & pātiki flounder**
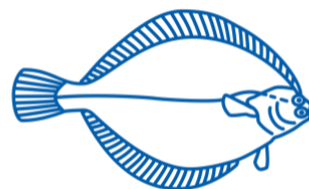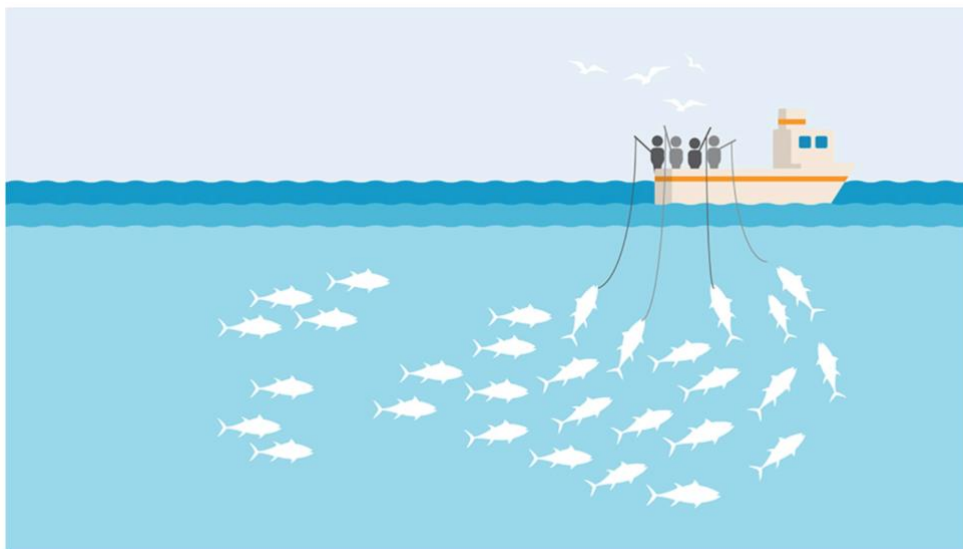

Pātiki / Flounder
Image: Seafood New Zealand

PURSE SEINING

A vertical net 'curtain' is used to surround the school of fish, the bottom is then drawn together to enclose the fish, rather like tightening the cords of a drawstring purse

Dense schools of single-species pelagic (midwater) fish like tuna and mackerel
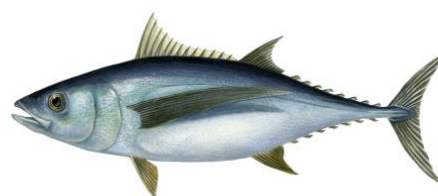**In Aotearoa NZ: kahawai**
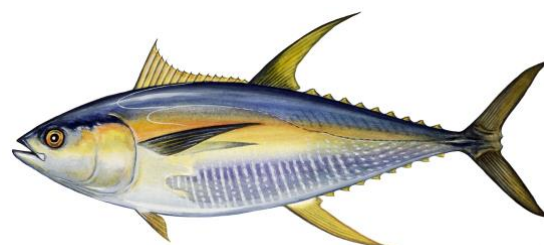
Yellow Fin Tuna
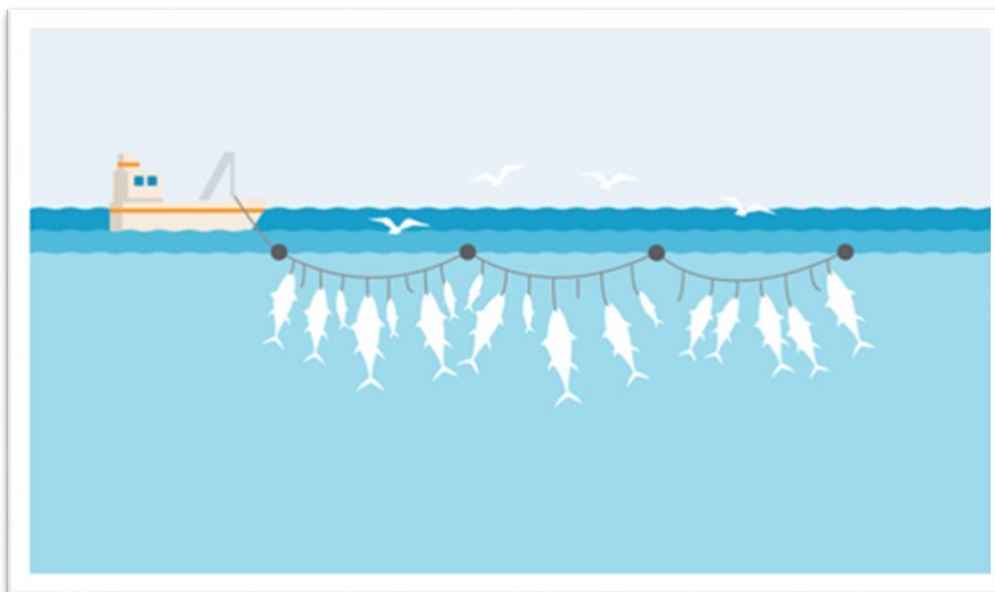
POLE & LINE FISHING

Pole and line is a fishing method that catches single fish one fish at a time!

Used to catch tuna and other large pelagic (midwater) species

In Aotearoa NZ: Albacore Tuna

Albacore Tuna

LONG LINING

Long liners trail a long line with many hooks, usually behind the boat, can be set for pelagic [mid-water] or demersal [bottom living] fish

Can be set for pelagic [mid-water] or demersal [bottom living] fish

In Aotearoa NZ: Tāmure/Snapper

Tāmure/Snapper