

MINIMISING IMPACTS FROM FISHING (4.4) & REVIEW (4.5)

OVERVIEW

Innovation is a big part of the current culture of Aotearoa New Zealand's fishing industry. Recently a new fishing method, the Tiaki Precision Seafood Harvesting (PSH) Method was developed. This new method reduces bycatch and brings fish to the surface, and on board, in better condition than is possible with many conventional forms of fishing.

In these activities we take a peak at some of the innovations in Aotearoa New Zealand that are currently helping to reduce environmental impacts of fishing and the role that MSC plays internationally in protecting the marine environment. The final activities review key learning from all of Topic 4. See also slide sets [Minimising impacts from fishing](#) (4.4) and [Review](#) (4.5).

LEARNING OBJECTIVES

- Investigate how one or more fishing methods impact on marine habitats and non target species
- Identify how fishing methods can be modified or new methods created to reduce bycatch and impacts on habitats
- Use scientific and fishery related vocabulary

FOCUS QUESTIONS

- *What impact do different fishing methods have on marine habitats and non-target species?*
- *How can fishing methods be modified and new fishing methods created to reduce bycatch and impacts on habitats?*
- *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

Other topics:

- Topic 5 Fishery
Management



MATERIALS

- [Reducing Impacts slide set \(4.4\)](#)
- [Review slide set \(4.5\)](#)
- [Teacher Outline \[this\]](#)
- Something to write with
- Internet access [for film clips]
- Copies of [Write a story Worksheet](#) (see page 6)

PROCEDURE

1. WATCH the short film from Seafood New Zealand about [Innovation – We’re Fishing Smarter](#) [4:45] and ANSWER the questions [slide 35]
2. INVESTIGATE Tiaki Precision Seafood Harvesting (PSH) as an example of a new fishing method that reduces the impact of fishing on the environment by reducing bycatch [slide 36-37]
3. WATCH the short films [there are three links on slide 37] illustrating [how this fishing method works](#) [slide 37]
4. EXPLORE how the Marine Stewardship Council works to help reduce bycatch by reading the [Beating Bird Bycatch story](#) [slide 38]
5. Use [Write a Story Worksheet](#) (or see page 6) and use one or more of the following ideas to facilitate learners to WRITE a script for a booklet about Marine Stewardship Council’s Principle 2 [slide 39]:
 - a. Watch the short [2:56] Marine Stewardship Council film on [Marine habitats and species protection: Principe 2](#) [the images and transcript are taken directly from this short film]
 - b. Break into small groups. Decide on the level of difficulty most suitable to your learners (Activity 1 is easiest; Activity 4 is hardest).
 - c. Explain to learners their task, to help write a script for a booklet on fishing methods, marine habitats and species protection [Marine Stewardship Council Principle 2] to accompany this short film. The audience is a group of young people of similar age to them.
 - d. OR Give them one or more pictures and let them reflect on their learning and then write a creative story to accompany the image(s).
 - e. Once complete, present back to the wider group. Encourage questions.



- f. What new words did we learn? Are any words hard to understand? Any that you don't know the meaning of?
- g. Review: What did we learn about:
- Marine habitats and species and how these can be affected by fishing?
 - Different methods of fishing?
 - How different methods of fishing affect habitats?
 - How fishing can affect non target species?
 - What more would we like to learn?
 - Where might we find this information?

KEY WORDS

Trawl

Pelagic

Certification

Bycatch

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)

- Ecology
- 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

Technology

- Nature of technology

Pūtaiao

- 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 ākonga 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

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

WRITE A STORY WORKSHEET

ACTIVITY 1: FILL IN THE GAPS

MARINE STEWARDSHIP COUNCIL PRINCIPLE 2

This is a draft of a Marine Stewardship Council booklet about fishing methods, marine habitats and species protection [Marine Stewardship Council Principle 2].

YOUR TASK: Select the most appropriate word from the word bank provided in a square to fill in all gaps in that square



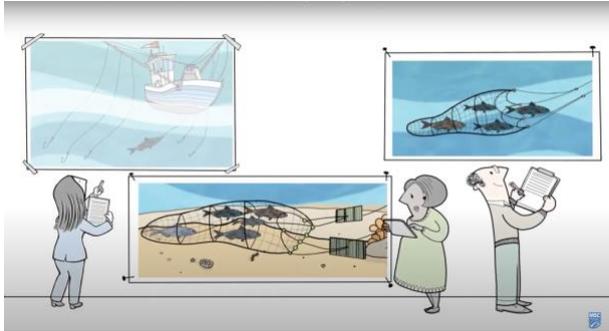
What does the MSC label mean? It means that marine habitats and species are _____ for the _____. A fishery is only certified to the Marine Stewardship Council standard if it minimises its _____ on marine ecosystems.

Word bank: impact, safeguarded, future



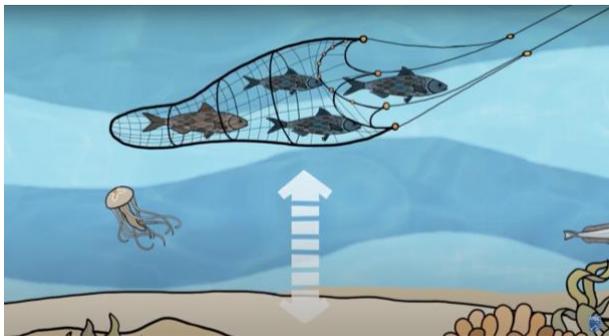
But how do we know what impact a fishery has on marine _____ or habitats? Among other things the fishing _____ and its impact play an important role.

Word bank: technique, species



These factors are _____ by independent _____ as part of an MSC assessment.

Word bank: experts, evaluated



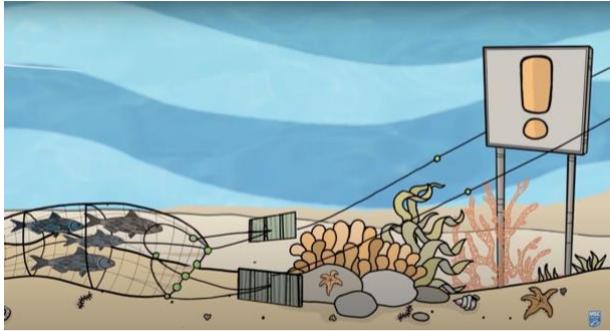
_____ trawl nets for example are pulled through open water they have _____ impact on the seabed because the nets usually do not touch the ocean floor.

Word bank: pelagic, little



_____ trawls on the other hand can be used on or above the seabed to catch bottom-dwelling fish they can vary in _____ and weight and have varying impacts on the seabed.

Word bank: bottom, size



The impact also depends on where that particular type of fishing _____ is being used. For example in areas with strong currents or tides the seabed and its inhabitants are accustomed to regular _____. Here the impacts of bottom _____ are often less significant than in areas with more sensitive ecosystems such as coral reefs.

Word bank: gear, disturbance, trawling



Whether or not a certain fishing technique can be used _____ depends on _____ factors.

Word bank: many, sustainably



It is also important to consider bycatch, the catch of non-target species such as marine mammals sea turtles and _____. In order to achieve MSC certification fisheries must ensure that bycatch is investigated and _____ when possible.

Word bank: minimised, seabirds



The MSC certified hake fishery in South Africa, for example, took action to lower the number of _____ accidentally caught in its trawl lines. To keep the birds at a safe distance they used coloured _____ above their nets and trawls to scare them away. This simple measure led to a 99 percent _____ in the number of Albatross caught accidentally into lines.

Word bank: reduction, seabirds, ropes



So whenever you see the MSC _____ on a product you can be sure that marine habitats and species are being _____ for the future. Choosing seafood with the label helps to _____ the marine environment.

Word bank: label, protect, safeguarded,

ACTIVITY 2: USE THE WORDS PROVIDED

MARINE STEWARDSHIP COUNCIL PRINCIPLE 2

YOUR TASK: Create a script for this Marine Stewardship Council booklet about fishing methods, marine habitats and species protection [Marine Stewardship Council Principle 2]

You need to: Use the words / phrases provided and write one or two sentences to accompany each image.



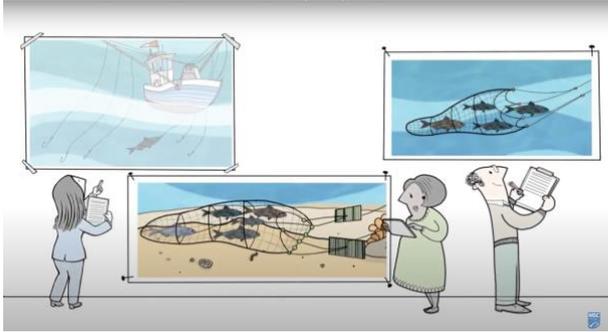
Words / Phrases to include in your text to accompany this image:

MSC label; Safeguarded;
Marine habitats and species

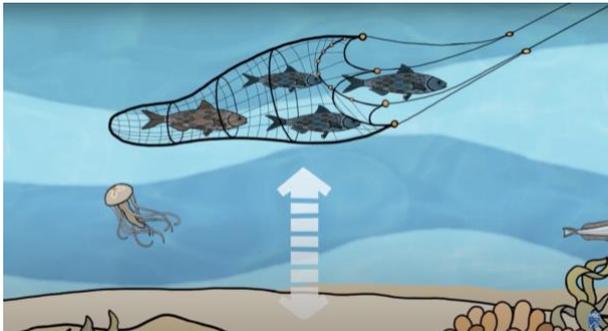


Words / Phrases to include in your text to accompany this image:

Impact; Fishing technique



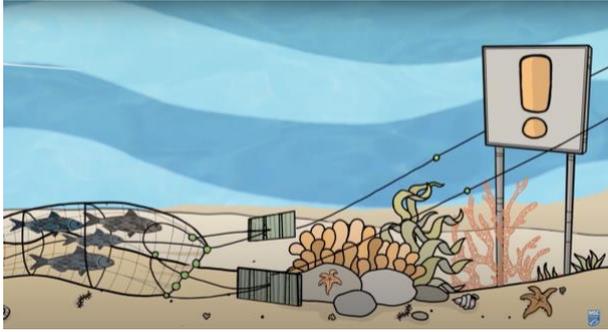
Words / Phrases to include in your text to accompany this image:
MSC assessment; Independent experts



Words / Phrases to include in your text to accompany this image:
Impact; Seabed; Open water; Pelagic trawl nets



Words / Phrases to include in your text to accompany this image:
Impact; Seabed; Bottom trawls;
Bottom dwelling fish



Words / Phrases to include in your text to accompany this image:

Strong currents; Seabed; Impacts; Sensitive ecosystems



Words / Phrases to include in your text to accompany this image:

Fishing technique; Sustainably; Many factors



Words / Phrases to include in your text to accompany this image:

Bycatch; Non-target species; Marine mammals; Seabirds



Words / Phrases to include in your text to accompany this image:

Seabirds; Accidentally caught; Coloured ropes;
Reduction



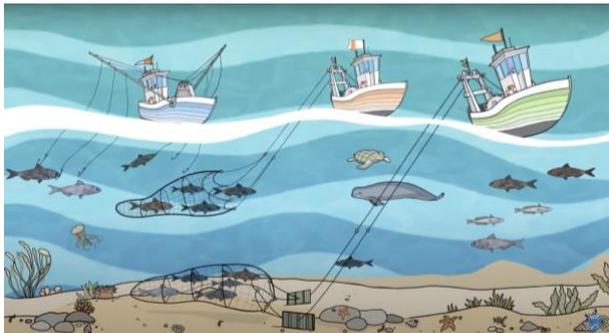
Words / Phrases to include in your text to accompany this image:

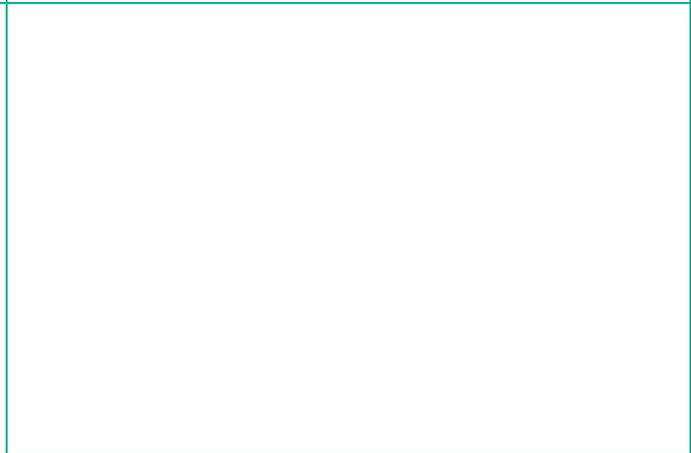
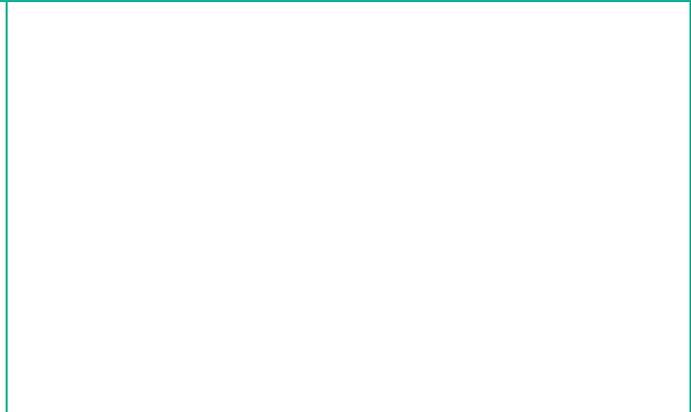
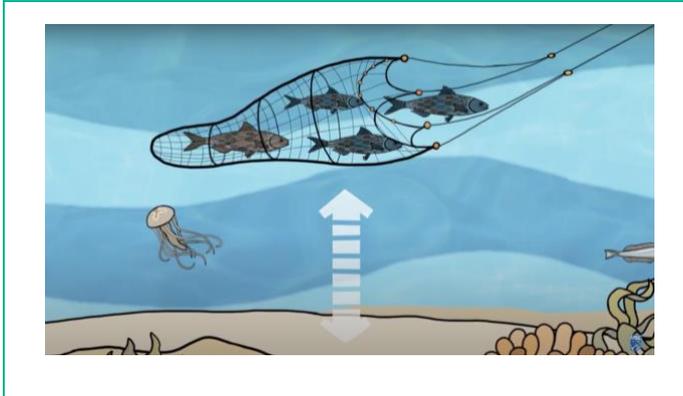
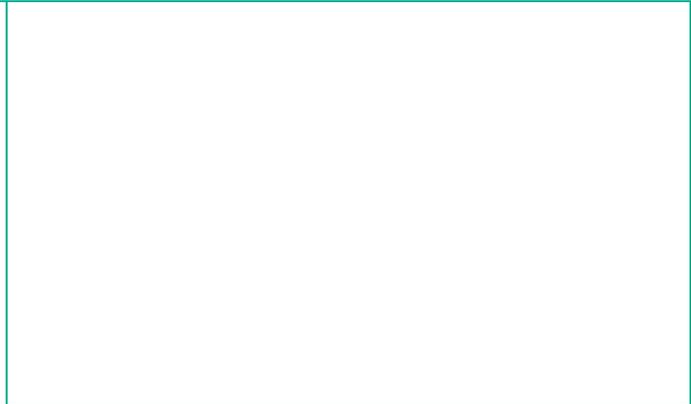
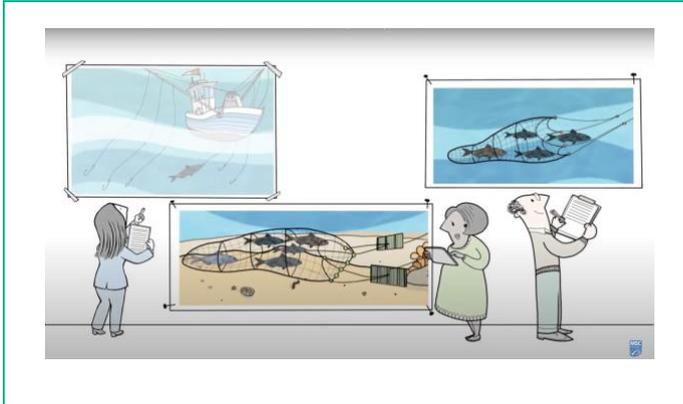
MSC label; Safeguarded; Marine habitats and
species

ACTIVITY 3 (TRICKY): WRITE A SCRIPT

MARINE STEWARDSHIP COUNCIL PRINCIPLE 2

YOUR TASK: Write some text to go with each image to create a script for this Marine Stewardship Council booklet about fishing methods, marine habitats and species protection [Marine Stewardship Council Principle 2]. A checklist of words that you should include is provided. Once done, check you have used all words on the checklist somewhere in your text.









WORD CHECKLIST

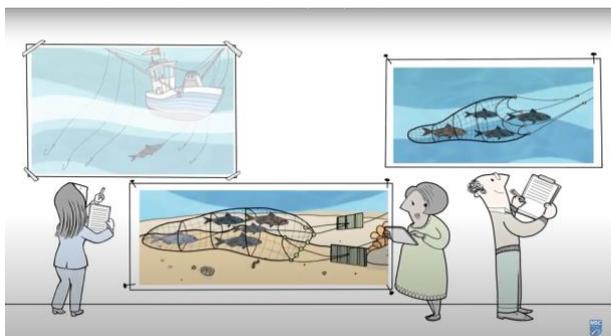
- MSC label
- Safeguarded
- Marine habitats and species
- Fishing technique
- Impact
- Independent experts
- MSC assessment
- Pelagic trawl nets
- Open water
- Seabed
- Bottom trawls
- Bottom dwelling fish
- Pelagic trawl nets
- Open water
- Seabed
- Bottom trawls
- Bottom dwelling fish
- Strong currents
- Sensitive ecosystems
- Sustainably
- Many factors
- Bycatch
- Non-target species
- Marine mammals
- Seabirds
- Accidentally caught
- Coloured ropes
- Reduction

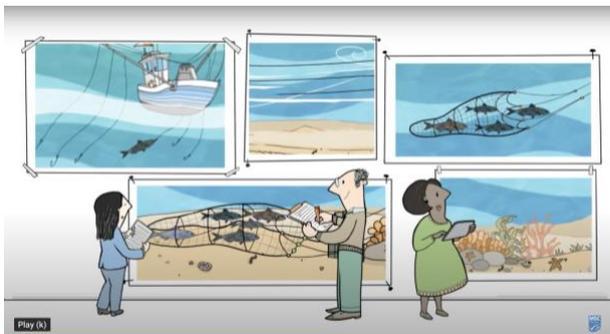
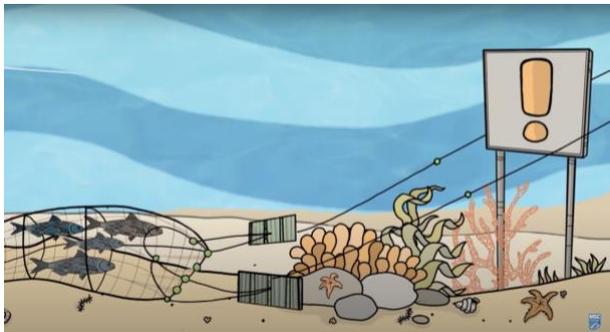
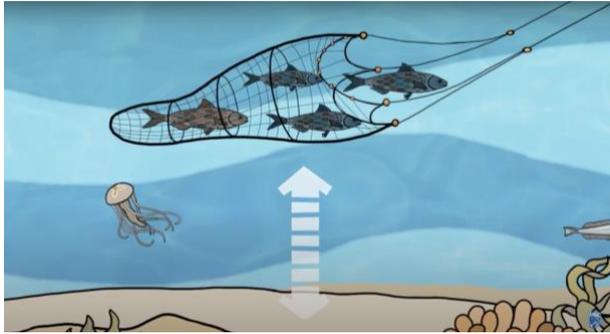


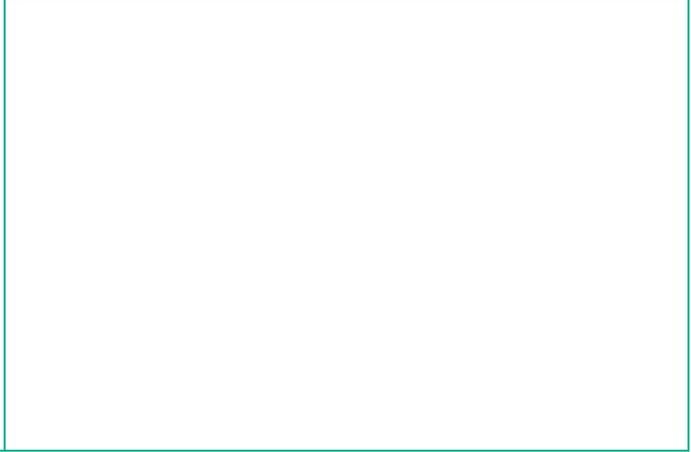
ACTIVITY 4 (EXPERT): WRITE A SCRIPT

MARINE STEWARDSHIP COUNCIL PRINCIPLE 2

YOUR TASK: Write some text to go with each image to create a script for this Marine Stewardship Council booklet about fishing methods, marine habitats and species protection [Marine Stewardship Council Principle 2].







FOR TEACHERS: ANSWERS [ACTUAL SCRIPT]

MARINE STEWARDSHIP COUNCIL PRINCIPLE 2

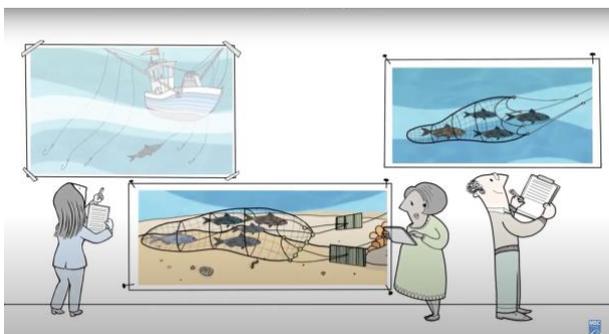
Full transcript – FOR TEACHERS



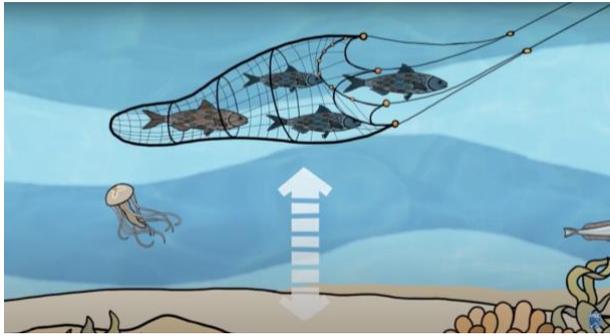
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But how do we know what impact a fishery has on marine species or habitats? Among other things the fishing technique and its impact play an important role.



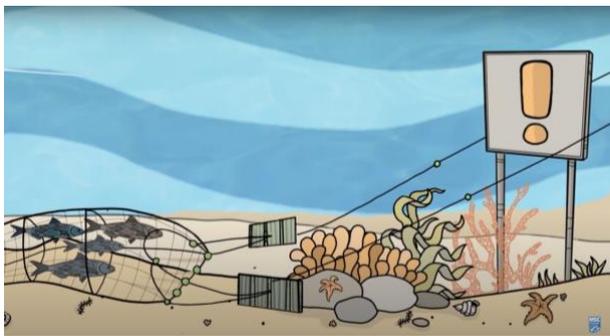
These factors are evaluated by independent experts as part of an MSC assessment.



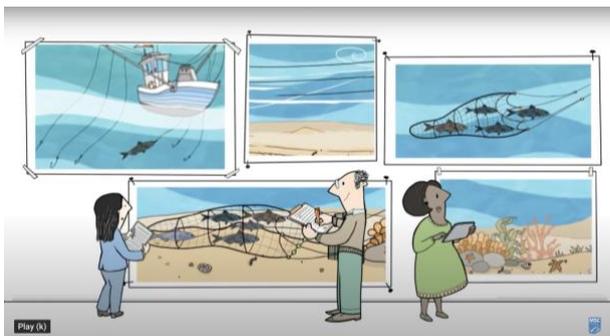
Pelagic trawl nets for example are pulled through open water they have little impact on the seabed because the nets usually do not touch the ocean floor.



Bottom trawls on the other hand can be used on or above the seabed to catch bottom-dwelling fish they can vary in size and weight and have varying impacts on the seabed.



The impact also depends on where that particular type of fishing gear is being used. For example in areas with strong currents or tides the seabed and its inhabitants are accustomed to regular disturbance. Here the impacts of bottom trawling are often less significant than in areas with more sensitive ecosystems such as coral reefs.



Whether or not a certain fishing technique can be used sustainably depends on many factors.



It is also important to consider bycatch the catch of non-target species such as marine mammals sea turtles and seabirds. In order to achieve MSC certification fisheries must ensure that bycatch is investigated and minimized when possible.



The MSC certified hake fishery in South Africa, for example, took action to lower the number of seabirds accidentally caught in its trawl lines. To keep the birds at a safe distance they used coloured ropes above their nets and trawls to scare them away. This simple measure led to a 99 percent reduction in the number of Albatross caught accidentally into lines.



So whenever you see the MSC label on a product you can be sure that marine habitats and species are being safeguarded for the future. Choosing seafood with the label helps to protect the marine environment.