

# HISTORY OF ANTARCTIC FISHING

## WORKSHEET 1: SEAL HARVEST

### KŌRERO PUKAPUKA / READ

**Tangaroa: God of the Sea:** According to one Māori creation tradition the god of the sea and ancestor of fish is Tangaroa, the son of Ranginui (sky father) and Papatūānuku (earth mother). Tangaroa's son Punga was the father of Ikatere and Tūtewehiwehi. Ikatere went to the sea. He and his children became fish. Tūtewehiwehi journeyed inland, He and his offspring became reptiles. All sea creatures are part of this whakapapa or family tree. And this whakapapa or family tree connects us, with the ocean and creatures that live there.

**Why is sustainable fishing around Antarctica different to anywhere else in the world?** Te Moana-tāpokopoko-a-Tāwhaki or the Southern Ocean is the area of ocean that surrounds Antarctica. Making sure sea creatures are not over-fished or harvested in and around Antarctica is tricky as no one country 'owns' Antarctica. Looking after the marine life around Antarctica is also difficult due to Antarctica's isolation (it's a long way from anywhere) and extreme weather. Antarctica is the coldest, driest and windiest continent on earth. The coldest temperature ever recorded on earth was in Antarctica (-89 degrees Celsius). Given how cold and hard to get to it is, it is amazing that living creatures have been harvested from the Southern Ocean around Antarctica since 1790.



**Which sea creatures were harvested first from Antarctica and was the harvest sustainable?** The first animals to be harvested from the Southern Ocean around Antarctica were kēkeno / fur seals. They were hunted for their fur 'pelts' or skins. The fur seal 'harvest' was not sustainable. Seal numbers dropped dramatically. This is a sign that too many seals were taken. By 1825 some fur seals populations had been hunted so much they were close to extinction. Hunters then looked to harvest other animals like ihu koropuku / elephant seals and kōrorā penguins (Worksheet 2) and tohorā / whales (Worksheet 3). Seal harvesting did carry on into the 1900s but it was on a smaller scale due to less seals. In the 1870s the New Zealand government reduced harvests of seals by New Zealanders.

Common name: Antarctic Fur Seal  
or Southern Fur Seal

Māori name: Kēkeno

Scientific name:

*Arctocephalus gazella*

Eats: Fish, squid and krill

Size: 1.2 – 2m in length

Average weight: 133kg (male) &  
34kg (female)

Location: Sub-Antarctic Islands

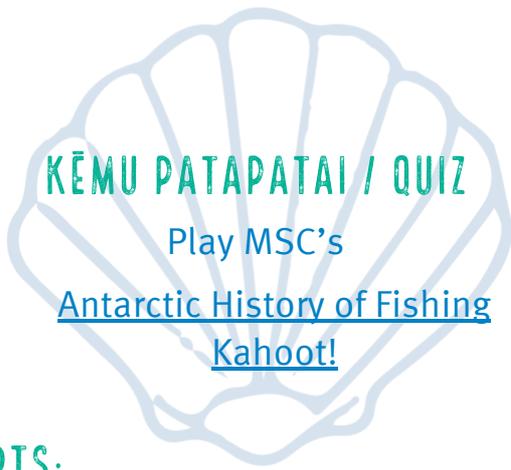
**How were Antarctic seal harvests managed and are seals still harvested today?** In 1972 a new set of laws called the Convention for the Conservation of Antarctic Seals was agreed to by all the countries with an interest in Antarctica. In this Convention countries agreed to make sure not too many seals were taken. Before this law there were no controls on how many seals were taken and too many were taken. There has been no commercial sealing in Antarctica since the 1950s.



## HE PĀTAI / QUESTIONS:

### How well did you read?

- (1) According to one Māori creation tradition, Ikatere went to the sea. He and his children became \_\_\_\_\_.
- Reptiles
  - Sea mammals
  - Wind and tides of the sea
  - Fish
- (2) When did the harvest of living creatures from Antarctica begin?
- 1790s
  - 1970s
  - 1820s
  - 1890s
- (3) What animals were first to be harvested from the islands around Antarctica?
- whales
  - fur seals
  - penguins
  - finfish
- (4) True or False. The early harvest of Antarctic fur seals is an example of sustainable harvesting.
- False
  - True
- (5) By the 1820s some fur seal populations had been hunted \_\_\_\_\_. And this meant there were \_\_\_\_\_ left.
- Less than expected; Lots
  - Close to extinction; Hardly any
  - Very little; Heaps
  - Hardly at all; Thousands
- (6) What did the 1972 Convention for the Conservation of Antarctic Seals aim to do?
- Make money from the harvest of seals
  - Stop the harvest of seals
  - Make sure not too many seals were being taken
- (7) True or False. There is currently no commercial harvesting of seals from Antarctica.
- False
  - True



## KĒMU PATAPATAI / QUIZ

Play MSC's

[Antarctic History of Fishing](#)  
[Kahoot!](#)



## KŌRERO PUKAPUKA / MORE READING FOR EXPERTS:

[Human impacts from sealing and whaling](#) - from [www.coolantarctica.com](http://www.coolantarctica.com)

[History of harvest of marine creatures from Antarctica](#) – from [www.ccamlr.org](http://www.ccamlr.org)

– from [www.bas.ac.uk](http://www.bas.ac.uk)

Paul Meredith, 'Te hī ika – Māori fishing - Tangaroa, god of the sea', Te Ara - the Encyclopedia of New Zealand, <http://www.TeAra.govt.nz/en/te-hi-ika-maori-fishing/page-1>

# HISTORY OF ANTARCTIC FISHING

## WORKSHEET 2: PENGUIN HARVEST

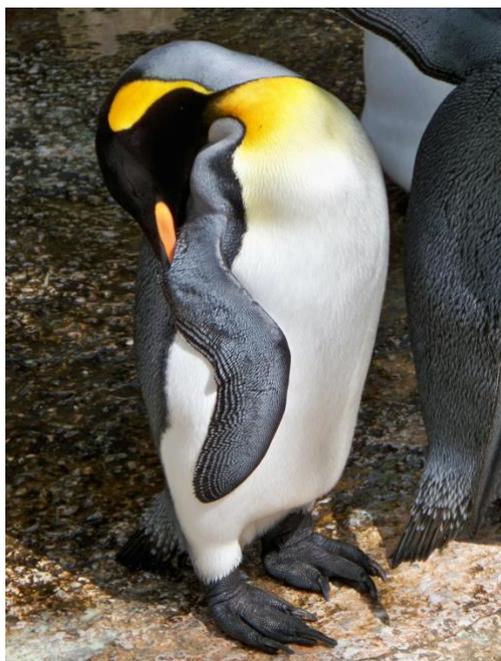
### KŌRERO PUKAPUKA / READ

#### Which sea creatures were harvested first from Antarctica and was the harvest sustainable?

The area of ocean that surrounds Antarctica is called the Te Moana-tāpokopoko-a-Tāwhaki or the Southern Ocean. Living creatures have been harvested from the Southern Ocean since 1790. The first animals to be harvested from the Southern Ocean around Antarctica were kēkeno / fur seals. By 1825 some fur seals populations had been hunted so much they were close to extinction. Harvesters then turned their attention to other species, like Ihu koropuku / Elephant seals and kōrorā / penguins!

#### Why were penguins harvested and was the harvest sustainable?

In the 1800s some types of penguins (including King Penguins and Royal Penguins from Macquarie Island) were hunted for their oil. The oil was used in oil lamps. Whilst penguins were relatively easy to catch, their oil wasn't as good quality as seal oil. Penguin oil was often contaminated with the likes of feathers. Some penguin populations, like the King Penguins of Macquarie Island came close to extinction. The massive drop in numbers shows the level of harvest was not sustainable. Penguins were overharvested.



When penguin harvesting was at its peak on Macquarie Island, around 2,000 penguins were being taken each day. Penguins were killed first and their bodies were boiled. Around 400ml of oil was created from each individual penguin.

Penguin hunting carried on for about fifty years on Macquarie Island. Some scientists and explorers eventually protested the slaughter and the hunting stopped around 1920. When the hunting stopped, there were about 4,000 King Penguins left on Macquarie Island.

#### Are penguins still harvested from Antarctica today?

Penguins are no longer commercially harvested from Antarctica or sub-Antarctic Islands. Macquarie Island was made a wildlife sanctuary in 1933. The Antarctic Treaty, signed by twelve nations in 1959 and reauthorized in 1991 protects Antarctica and preserves its living resources. Under the Treaty it is now illegal to harm, or in any way interfere with, a penguin or its eggs.

Common name: King Penguin

Scientific name: *Aptenodytes patagonicus*

Eats: Lantern fish, squid & krill

Height: 70cm – 100cm

Weight: 10-16kg

Location: Sub-Antarctic Islands



## HE PĀTAI / QUESTIONS:

### How well did you read?

- (1) What were the first animals that were hunted and harvested from the islands around Antarctic?
- whales
  - fur seals
  - penguins
  - finfish
- (2) Why were penguins hunted on such a large scale and what were they most often used for?
- Oil for lamps
  - Feathers for pillows
  - Meat to eat
  - Feathers for fuel
- (3) Which of the following is NOT a true reason why some hunters in the 1800s turned their attention to penguins?
- Fur seal numbers dropped
  - Penguins were easy to catch
  - Penguin oil was better
  - Fur seals became hard to catch
- (4) Sustainable Harvests make sure that NOT too many animals are taken. The harvest of King Penguins on Macquarie Island is an example of a \_\_\_\_\_ harvest or fishery.
- Sustainable
  - Unsustainable
- (4) Roughly how much oil could be extracted from one penguin body?
- 2 litres
  - 10 ml
  - 4 litres
  - 400 ml
- (5) How many King Penguins remained on Macquarie Island when harvesting ended?
- 1 million
  - 400,000
  - 4,000
  - 4 million
- (6) True or False. Penguins can no longer be commercially harvested from Antarctica.
- False
  - True

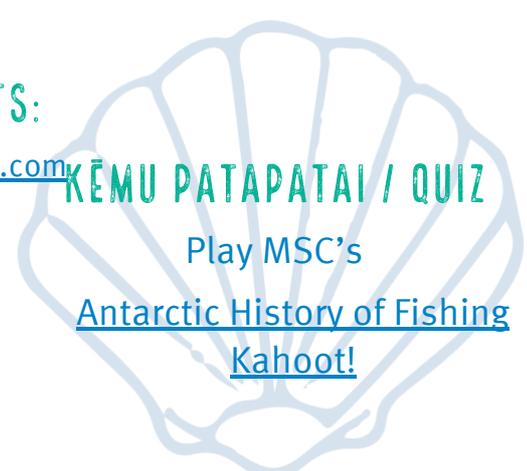


## KŌRERO PUKAPUKA / MORE READING FOR EXPERTS:

**Error! Hyperlink reference not valid.** - from [www.coolanarctica.com](http://www.coolanarctica.com)

[History of harvest of marine creatures from Antarctica](#)

- from [www.ccamlr.org](http://www.ccamlr.org)



## KĒMU PATAPATAI / QUIZ

Play MSC's

[Antarctic History of Fishing](#)

[Kahoot!](#)

# HISTORY OF ANTARCTIC FISHING

## WORKSHEET 3: WHALE HARVEST



### KŌRERO PUKAPUKA / READ

#### Which sea creatures were harvested first from Antarctica? Was the harvest sustainable?

The sea surrounding Antarctica is called Te Moana-tāpokopoko-a-Tāwhaki or the Southern Ocean. Marine creatures have been harvested by people from the Southern Ocean since 1790. Kēkeno / seals were the first to be harvested. By 1825 some fur seal populations had been hunted so much they were close to extinction. When seals became harder to find, people turned their attention to other species like kōrorā / penguins and tohorā / whales.

#### When did whaling start and what whales were harvested from the ocean around Antarctica?



Whaling in the Southern Ocean around Antarctica began in the early 1900s. Like the penguins and seals, whales were harvested mainly for their oil. Whalers could extract 120 barrels of oil from a single 30m long Tohorā Puru / Blue Whale.

Ngā Paikea / Humpback Whales were the first to be hunted. Blue Whales are bigger than Humpback Whales, but they swim fast and the boats couldn't catch them! Humpback Whales were slower swimmers and tended to swim close to land so they were an easier target.



Māori name: Paikea

Common name: Humpback whale

Scientific name: *Megaptera  
novaeangliae*

Eats: Krill and small schooling fish

Size: 13 - 19m in length

Weight: 28 – 44 tons

Location: All of the ocean!



As technologies improved, boats got faster and hunting Blue Whales became easier. Thousands of Blue Whales were harvested in the 1920s and 1930s. Blue Whale numbers started to decline making them harder to catch, so whalers started targeting Fin Whales. When Raratahuhuri / Fin Whale numbers reduced then Sei Whales were targeted. Slowly the number of all whales around Antarctica declined.

Seven species of whales that are found in the Southern Ocean were hunted hard and at times there were just thousands or even hundreds remaining.

#### Is commercial whaling still happening in the ocean around Antarctica?

Fortunately, commercial whaling was stopped in 1986 and a whale sanctuary was created in the Southern Ocean. There are signs that whale numbers are slowly recovering, although total numbers of whales can be hard to estimate from sightings. The International Whaling Commission (IWC) is the international group that looks after whales in the Southern Ocean (and the rest of the world's ocean).



## HE PĀTAI / QUESTIONS

### How well did you read?

(1) What were the first animals that were hunted and harvested from the islands around Antarctic?

- a. whales
- b. fur seals
- c. penguins
- d. finfish

(2) When did whaling in the Southern Ocean around Antarctica begin?

- a. 1800
- b. 1700
- c. Early 1900s
- d. 2001

(3) Why were Humpback Whales and not Blue Whales (the largest of all the whales) targeted first by whalers?

- a. Humpback Whales had more oil
- b. Blue Whales swam too fast
- c. Humpback Whales tend to swim near the coast
- d. Blue Whale numbers were always low

(4) What did whalers do when the number of Blue Whales declined?

- a. They started to catch Fin Whales instead
- b. They kept hunting Blue Whales
- c. They went back to hunting Humpback Whales
- d. The whalers gave up and went home

(5) Roughly how much oil could be extracted from one Blue Whale?

- a. 1 barrel
- b. 10 litres
- c. 4 litres
- d. 120 barrels

(6) In what year did commercial whaling finally come to an end?

- a. 1986
- b. 1907
- c. 1887
- d. 2007

(7) Was the harvest of whales from the Southern Ocean around Antarctica sustainable or unsustainable?

- a. Sustainable
- b. Unsustainable



## KŌRERO PUKAPUKA / MORE READING FOR EXPERTS:

[Whaling in Antarctica](http://www.coolantarctica.com) - from [www.coolantarctica.com](http://www.coolantarctica.com)

[History of harvest of marine creatures from Antarctica](http://www.ccamlr.org)

– from [www.ccamlr.org](http://www.ccamlr.org)

The [Whales of Antarctica](http://www.worldwildlife.org) from the [World Wildlife Fund](http://www.worldwildlife.org) (WWF)



## KĒMU PATAPATAI / QUIZ

Play MSC's

[Antarctic History of Fishing](https://www.msc.org/tangaroa)  
[Kahoot!](https://www.kahoot.com)

# HISTORY OF ANTARCTIC FISHING

## WORKSHEET 4: FISHERIES

### KŌRERO PUKAPUKA / READ

#### Which sea creatures were harvested first from Antarctica and was the harvest sustainable?

Since 1790 living creatures have been harvested from Te Moana-tāpokopoko-a-Tāwhaki or the Southern Ocean surrounding Antarctica. The first animals harvested from the Southern Ocean were kēkeno / seals, followed by kōrorā / penguins, tohorā / whales and finfish. The history of fishing in Antarctica has many examples of unsustainable harvesting, where populations of fish, seals, penguins and whales were taken to the point that numbers significantly reduced. Fin fish weren't fished commercially from around Antarctica until the late 1960s.



Common name: Antarctica Krill

Māori name: Kōura rangi

Scientific name: *Euphausia superba*

Eats: Phytoplankton

Size: up to 6cm in length

Weight: up to 2 grams

Location: Antarctic waters,  
Southern Ocean

Photo credit: Professor Dr. habil. Uwe Kils



#### What species of Antarctic finfish have been fished commercially?

The first fishing efforts around Antarctica targeted lanternfish, Mackerel icefish, Marbled rockcod and Patagonian rockcod. Harvests of kōura rangi or krill began around 1978. By the late 1970s several species had been overfished.

By the 1990s fishing focused on krill, Patagonian toothfish, Mackerel icefish, as well as squid and crab. New technology and new markets in recent years have increased fisher focus on Antarctic toothfish and krill.

#### What are some unique challenges about fishing and managing fishing around Antarctica?

Antarctica's location (far from anywhere) and its extreme weather (cold and storms) have made it tricky to manage the harvest of fish and other marine life from waters around Antarctica. Because Antarctica is so far away and can only really be reached in the summer months there have been intense short-lived times of harvest. The fact that no country 'owns' Antarctica has also complicated the management of fisheries. Because of this during the 1700s until the mid 1900s anyone could go to Antarctica and harvest freely.

#### How are Antarctic fisheries looked after today?

In the mid 1900s a group of countries (including Aotearoa New Zealand) started to work together to look after Antarctica by signing the Antarctic Treaty. Antarctic fishing is now managed under the Antarctic Treaty and the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR). CCAMLR was adopted in 1980 and by the end of the 1980s CCAMLR had banned fishing for most finfish species or put into place strict catch limits. Illegal, unregulated and unreported (IUU) is still a major concern.



## HE PĀTAI / QUESTIONS

### How well did you read?

(1) What were the first animals that were hunted and harvested from the islands around Antarctica?

- a. Whales
- b. fur seals
- c. penguins
- d. finfish

(2) When did commercial fishing for Antarctic finfish begin?

- a. 1960s
- b. 1800s
- c. 2000s
- d. 1700s

(3) True or False. By the late 1970s several species of fish had been overfished in some places around Antarctica.

- a. True
- b. False



## KŌRERO PUKAPUKA / MORE READING FOR EXPERTS:

[Overfishing](#) - from [Discovering Antarctica](#)

[Fisheries](#) – from [www.ccamlr.org](http://www.ccamlr.org)



(4) Two species that have been the focus of commercial fishing efforts around Antarctica in recent years are:

- a. Krill
- b. Whales
- c. Antarctic Toothfish
- d. King Penguins

(4) Which of the following is NOT a reason contributing to the challenging nature of fishing and managing fishing in Antarctica?

- a. Location & isolation
- b. Extreme weather
- c. Small area of ocean
- d. Not being a 'country' or owned by one country

(5) True or False. In the 1980s CCAMLR banned fishing for most finfish species or put into place strict catch limits.

- a. True
- b. False

(6) True or False. IUU poses no threat to the sustainability of fishing in Antarctica.

- a. True
- b. False



## KĒMU PATAPATAI / QUIZ

Play MSC's

[Antarctic History of Fishing Kahoot!](#)



## HE WHAKAUTU / ANSWERS FOR TEACHERS

### WORKSHEET 1: SEAL HARVEST

How well did you read? Answers:

- (1) d
- (2) a
- (3) b
- (4) a
- (5) b
- (6) c
- (7) b

### WORKSHEET 2: PENGUIN HARVEST

How well did you read? Answers:

- (1) b
- (2) a
- (3) c
- (4) b
- (5) d
- (6) c
- (7) b

### WORKSHEET 3: WHALE HARVEST

How well did you read?

- (1) b
- (2) c
- (3) b, c
- (4) d
- (5) d
- (6) a
- (7) b

### WORKSHEET 4: FISHERIES

How well did you read? Answers:

- (1) b
- (2) b
- (3) a
- (4) a & c
- (5) c
- (6) a
- (7) b

## KŌRERO PUKAPUKA / EXTRA READING FOR TEACHERS

Chapple, G. 2005. Harvest of Souls. New Zealand Geographic. Issue 074.

<https://www.nzgeo.com/stories/harvest-of-souls/>

[Whaling in the Southern Ocean](#) – from the [Wayfinders](#) Blog

[Southern Ocean Stories – The Whale’s Tale](#) – from the [UK Antarctic Heritage Trust](#)

## MAHI / ACTIVITY: ANTARCTIC FISHING HISTORY TIMELINE

Break learners into groups of eight. Complete Antarctic Fishing History worksheets (one worksheet per pair). Come together and create a timeline of key moments in the history of Antarctic Fishing. Share and discuss.