

# A FISHERIES SCIENTIST STORY

## GONE FISHIN' [Adapted from NIWA Taihoro Nukurangi article: [Gone Fishin'](#)]

Dr Rosemary Hurst is a fisheries scientist. She works for NIWA or Taihoro Nukurangi (National Institute of Water and Atmospheric Research). NIWA and the Ministry of Primary Industries play a big role in looking after Aotearoa New Zealand fisheries.

As a little girl Rosemary Hurst used to love swimming in the sea and walking on the beach and finding treasures. She never thought she would end up working in fisheries! Rosemary first went to sea on research boats when studying at University. She soon realised that she loved being at sea.

Rosemary says “science is fundamental to sustainable fisheries management”



Rosemary says “science is fundamental to sustainable fisheries management”. Scientists play a really important role in working out sustainable yields, keeping an eye on natural changes in fish stocks and tracking the impact of fishing over time.



As a young scientist Rosemary spent many months at sea working on Russian and Japanese fishing vessels (NIWA Taihoro Nukurangi)

Rosemary started work as a fisheries scientist in the 1970s and remembers there was a lack of understanding about fisheries in Aotearoa New Zealand. Rosemary spent a lot of time on fishing boats, often working a long way out at sea. She worked on one Japanese [trawler](#) boat where she got to eat raw fish for the first time ever.

Rosemary remembers in the 1970s there was a big increase in the number of boats fishing in

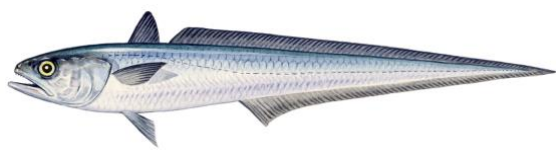
our waters. Rosemary says it was an exciting time when in 1986 the Quota Management System (QMS) was introduced. The QMS brought in new systems where commercial fishers



must buy their own quota to catch fish (Individual Transferrable Quota (ITQ)). It also put in place a limit on how much fish could be caught through commercial fishing (Total Allowable Commercial Catch (TACC)).

Fisheries scientists have a big role to play in looking after fisheries under the QMS. Scientists have had to figure out how many fish there are in New Zealand waters in order to know how many fish can be caught without overfishing. Rosemary says that working as a fisheries scientist is a big responsibility as commercial fishers livelihoods and the sustainability of our fish are at stake. It can also be hard as “communities, individuals and businesses all have their own interests and viewpoints [in fisheries] and balancing those while ensuring sustainable stocks is not an easy task”.

Rosemary says there is no easy way to work out the absolute biomass [total number and weight] of fish. She says “it’s not like counting sheep in a paddock, or trees in a forest – we’ve had to develop robust scientific systems for estimating fish populations”.



New Zealand Hoki

Sometimes there are unexplained changes in a fish population. Scientists like Rosemary then look at the whole ecosystem for answers. This happened when hoki catches declined in the early 2000s. Scientists found an increase in

predator species, less hoki reproduction, water temperature changes, a shift in ocean currents, as well as fishing pressure were all reasons why hoki catches were down.

Rosemary feels we should be proud of how our fishery management has improved over the past 30 years. She says the QMS has helped us monitor and manage many of the not so good effects that fishing can have. The next challenge is to improve our understanding of the entire ecosystem and manage our fisheries using ecosystem plans rather than just fishery plans.



# QUESTIONS

## How well did you read?

### Multiple choice

*Circle the correct answer*

1. What job does Dr Rosemary Hurst do? She is a
  - (a) Biologist
  - (b) Commercial fisher
  - (c) Fisheries scientist
  - (d) Manager
2. What was introduced in 1986 to manage commercial fishing in Aotearoa New Zealand?
  - (a) Quota Management System (QMS)
  - (b) NIWA Taihoro Nukurangi
  - (c) Ministry of Primary Industries
  - (d) Individual Transferable System (ITS)
3. The QMS brought in a system to limit how much fish could be caught through commercial fishing called
  - (a) TACC (Total Allowable Commercial Catch)
  - (b) QMA (Quota Management Allocation)
  - (c) (ITS) Individual Transferable System
  - (d) MPA (Marine Protected Area)
4. Rosemary says that working as a fisheries scientist is a big responsibility as commercial fishers livelihoods and \_\_\_\_\_ are at stake.
  - (a) The value of fish
  - (b) The sustainability of our fish
  - (c) The value of science
  - (d) Overfishing
5. Rosemary says that working as a fisheries scientist can also be hard as “communities, individuals and businesses all have their own interests and \_\_\_\_\_ [in fisheries] and \_\_\_\_\_ those while ensuring sustainable stocks is not an easy task”.
  - (a) Taste in fish, maintaining
  - (b) Financial stakes, ignoring
  - (c) Agendas, avoiding
  - (d) Viewpoints, balancing



### Sentence questions

*Write the answer to each of the following\_making sure you include the question in the\_answer you write down. The first one has been started for you.*

1. Why does Rosemary say scientists are really important in sustainable fisheries management?

Answer: Scientists play a really important role in working out ...

2. Why do fisheries scientists have a big role to play in looking after fisheries under the QMS?

3. What did scientists find contributed to the decline in hoki catches in the early 2000s.





### True or false

*Read the statement and circle or underline the correct answer – either 'true' or 'false'*

1. Rosemary says there are no methods to work out the absolute biomass [total number and weight] of fish. True or False
2. Sometimes there are unexplained changes in a fish population. True or False
3. Rosemary feels we should be ashamed of how our fishery management has declined over the past 30 years. True or False

### Extra for fast finishers!

*Use the space below and the back of this sheet of paper to...*

1. Write a paragraph explaining: Why scientists have a big role to play in the QMS?
2. Make a list of reasons why counting fish in the sea is harder than counting sheep in a paddock.
3. Write three sentences. Each sentence should explain a new or interesting fact that you learnt from this article.
4. Write a paragraph (or two) about what you think you would like and not like about working as a fishery scientist.
5. Make a list of new science / fishery related words and next to each word write your own definition of that word.

### Class discussion

- How is the QMS a key tool for ensuring sustainable fisheries in NZ?



Extra space for writing answers





# FOR TEACHERS

## Answers

### Multiple choice

1 (c); 2 (a); 3 (a); 4 (b); 5 (d)

### Sentence questions

Q 1. Why does Rosemary say scientists are really important in sustainable fisheries management?

A 1. Scientists play a really important role in working out sustainable yields, keeping an eye on natural changes in fish stocks and tracking the impact of fishing over time.

Q 2. Why do fisheries scientists have a big role to play in looking after fisheries under the QMS?

A 2. Scientists have a big role to play under the QMS as they have had to figure out how many fish there are in New Zealand waters in order to work out how many fish can be caught without overfishing.

Q 3. What did scientists find contributed to the decline in hoki catches in the early 2000's.

A 3. Scientists found that an increase in predator species, less reproduction in hoki, water temperature changes, a shift in the way that currents flowed, as well as fishing pressure were all part of the reason why hoki catches were down.

### True or False

T, T, F