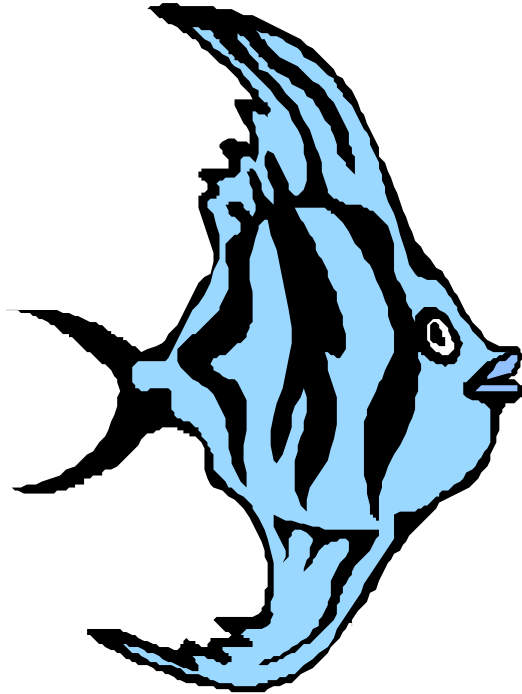


# Fishing for the Future



## A Social Studies Unit for Curriculum Level 4

This unit has been prepared as an outcome of a visit to Antarctica by the authors.  
The visit was funded and organised by Antarctica New Zealand as part of the  
strategic links with Christchurch College of Education.

**Vikki Pink and Tania McBride**  
**Christchurch College of Education® 2002**



**CHRISTCHURCH  
COLLEGE of EDUCATION**

*Tē Whare Whai Matauraka Ki Otautahi*



**Antarctica New Zealand**

New Zealand Antarctic Institute

# FISHING FOR THE FUTURE

## EXPERIENTIAL - LEVEL 4-8

### INTRODUCTION

The objective is to help students come to the realisation that with a bit of co-operation, a resource can be made to last indefinitely. It should also illustrate that if a resource is exploited faster than it can recover then the resource is depleted forever.

### RESOURCES

- 1 dice (per group)
- 30 Fish Cards (per group)
- 4 Processing Cards

### WHAT TO DO

Assign students to groups of four, within each of which there will be:

- three fishers,
- a banker who looks after the resource

### ROUND ONE - THE FISHING RACE

The winner is the player who ends up with the most fish.

- place all 30 fish into a "pool" looked after by the banker
- each player throws the dice in turn
- they can "catch" as many fish from the pool as the number they threw on the dice
- at the end of the round the banker totals up the catch for each player
- if there are fewer fish remaining in the pool than the number you threw you get to take all the remaining fish, and the game ends
- the banker does a final tally. The winner is the one with the most fish
- the banker keeps a tally of the number of rounds completed before the fish were all gone

### ROUND TWO - FISHING FOR THE FUTURE

This game is to be partly designed by the students, and then played. It is a team game rather than individual and should be played by a group who has just completed Round One. The objective this time is to work out a system for fair catching of fish, where each player has a fair go, and to make the game last longer than round one did.

- before you start work out some rules to add to the basic rules described, so that the game will last as many rounds as possible
- when you have designed your rules, play the game and record how many rounds it lasted
- at the start of each game there are only six fish in the pool. The banker retains the remaining 24 fish
- after each round the banker feeds another 6 fish into the pool
- if at the end of the round there are not enough fish in the pool then your fishery has been depleted (the game ends)
- the banker keeps a tally of the number of rounds completed before the fish were all gone
- the winning team is the one that has made their game last the most rounds

# FISHING FOR THE FUTURE

## EXPERIENTIAL - LEVEL 4-8

### PROCESSING (SUMMATIVE)

What are resources?

*The raw materials that we need to survive.*

What are some examples of resources?

*Food, water, shelter, air, coal, fish, electricity, metals*

What is the difference between renewable and non-renewable resources?

*Renewable resources can be replaced at the rate at which we use them.*

Are fisheries resources infinitely renewable?

*If they are appropriately managed and we only take out what the system can replace without damage.*

What did this game tell us about catching fish?

*That it needs to be managed effectively.  
That we do need rules.*

Do we have rules like the ones that you wrote for our fisheries?

*Yes, written and implemented by our government.*

What are the differences between this game and the real world?

*Small population, no seasonal variation, costs ignored, small grounds of interested parties.*

How can we manage fisheries so that they continue to be available for future generations?

*Take only the least that we can manage on.*



# FISHING FOR THE FUTURE

## EXPERIENTIAL - LEVEL 4-8

# *FISHING FOR THE FUTURE*

## PROCESSING QUESTIONS

- 1 This activity used fish but what other natural resources are there?
- 2 Why do these resources need to be looked after (managed)?
- 3 Who is responsible for looking after this, or any, natural resource?
- 4 What can you do to help make sure that there are fish in the sea for future generations?

# *FISHING FOR THE FUTURE*

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# Key Concepts and Words about Antarctica

Endangered species	Transantarctic Expeditions
Biodiversity	Antarctic Treaty/Rahui
Ross Ice Shelf	Tourism
Polar Plateau	Ecosystems
Science in Antarctic	Transport in Antarctica
Katabatic Winds	Scott Base
Clothing	South Pole
Greenpeace	Future Issues

Explorers and Expeditions

Environmental Stewardship

Physical Features of Antarctica

International Fishing Agreements

Sustainability of Resources

Global Warming/Temperature/Ozone

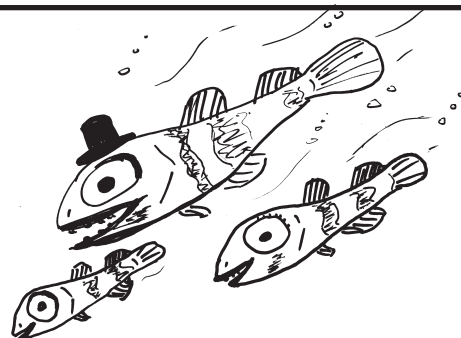
Wildlife in Antarctica

Adapting to the Environment

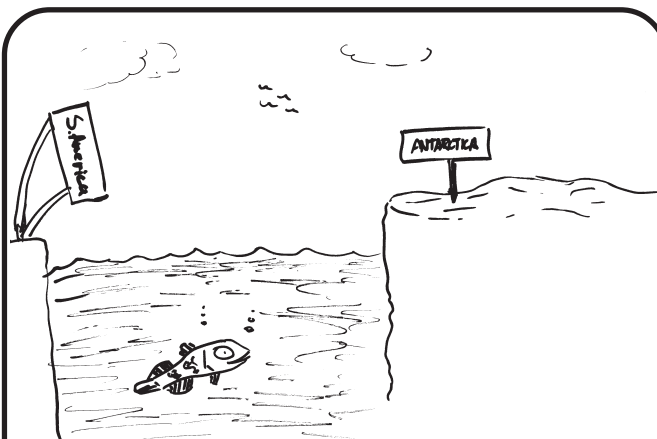
# "Pat the Patagonian Toothfish"



1 Hey there! Kia Ora!  
Who is that good-  
looking toothy-grinned  
son of a fish I hear you  
say! Well... I'm Pat -  
the Patagonian  
Toothfish and I'm in  
trouble! BIG TROUBLE!



2 But I'm getting a little ahead of  
myself. Firstly let me let me tell you  
about my family and myself.

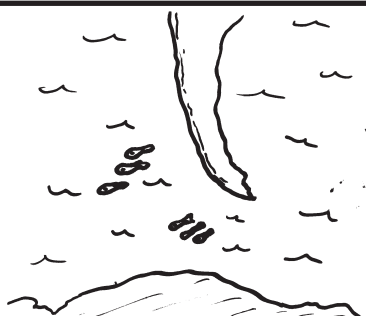


3 We hail from the southern oceans -  
specifically the deep blue waters of  
South American and the sub  
antarctic continental shelves.

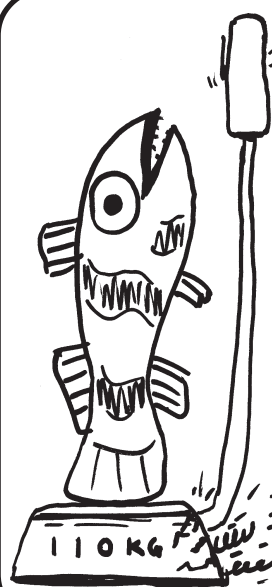
4 You probably know all about  
Antarctica being highly educated  
students! If you have a look on a  
map of Antarctica  
you will be able  
to check  
out the  
important  
historical  
sites. See  
if you can  
find these:



Scott Base; Amundsen/Scott Station; Ross Ice  
shelf; Lake Vostok; Mawson's Hut; The routes  
that Amundsen and Scott took to the South Pole  
Hilary's Transantarctic route I'm sure there are  
more... mark them on your map!



5 Well.... We don't live anywhere near  
there!!!!!! If you look at South  
America at the very bottom'- you  
will note that we frolic around there  
and also around the ice shelves of  
Antarctica. How many ice shelves do  
you note  
- who are they named after and why?



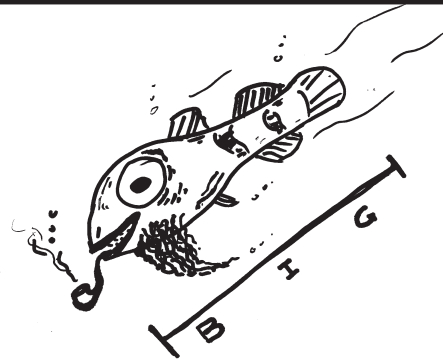
6 Why are we in  
trouble though?  
Well... the  
Patagonian Toothfish  
are the prized booty  
of fishermen as we  
fetch up to \$10



dollar a kilogram -  
that's 10 US dollars.  
Pretty lucrative  
when you can grow  
up to 110kg like my  
Aunt Petronius.



- 7 However, not only are we being fished illegally, but also the Pirates of the Southern Oceans are plundering our numbers by being greedy. We figure that if the fishing carries on at this rate then we will be extinct in 2 - 5 years



- 8 The problem is that we are slow starters when it comes to puberty!!! We don't begin spawning (ask your teacher what this means) until we are 8-10 years old. We do live to the ripe old age of 80 in some cases. (Imagine how big some of my relatives are!!!!!!)



- 9 What can YOU do! Well before you stick your fork into you next tasty feast of fish 'n chips you might want to consider the facts about you meal's Patagonian buddy....

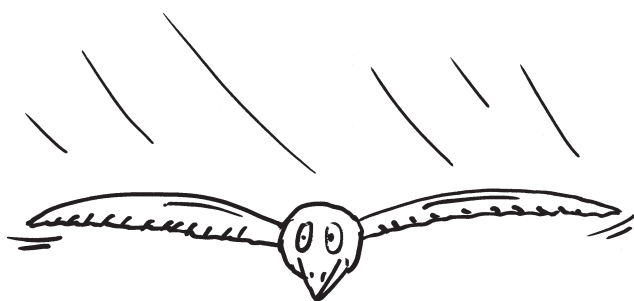
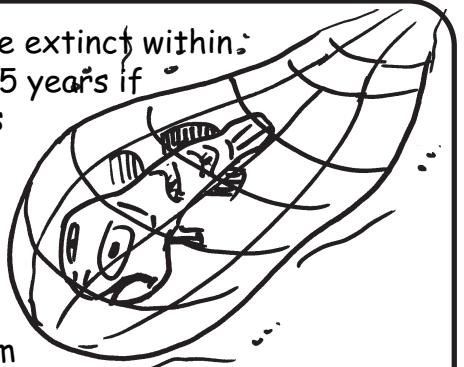
- 10 We will be extinct within the next 5 years if nothing is done...

We are a part of the marine ecosystem

- what other marine life will be affected?

Illegal fishermen and women will dry up our species and move onto the next (less tasty I can assure you) species....

Pirates of the Southern Oceans are making more money from illegal fishing than drug trafficking... When fishing boats drag up their nets - its not just fish they catch but seabirds such as the endangered Albatross.



- 11 These great oceans wanderers live to 85 years old and have an amazing wingspan of 5 metres



- 12 We need YOU!!!! We may not have the high profile of the "Save the Whales" campaign but we are just as important! You are young and clever - and we need as much brains and beauty as we can possibly get! Please help save the Patagonian Toothfish from the brink of extinction.



# Australia and New Zealand criticise lack of action over toothfish

AAP

McMurdo Sound - The Patagonian toothfish would be commercially extinct within three years without an immediate crackdown on the sale of illegally caught fish, Australian Environment Minister Robert Hill said today. The fish is marketed mainly in Japan, the United States and South East Asia, where a single fish can fetch \$950.

And the failure to stop the poaching was undermining international efforts to sustainably manage Antarctic waters, Senator Hill told his international counterparts at a meeting at Scott Base, Antarctica.

The slow-growing table fish, which can weigh up to 100kg, is important to the Ross Sea marine ecosystem, but stocks may be nearing commercial extinction.

As a result, New Zealand recently announced it would begin navy and air force monitoring for illegal fishing boats.

New Zealand has been increasingly vociferous over illegal fishing in the Ross Sea close to its Antarctica territorial claim, expressing particular concern over the fate of the toothfish.

Today Senator Hill joined the chorus of criticism.

"Patagonian toothfish will probably be commercial extinct in many areas of the Southern Ocean within the next two to three years if poaching continues at current levels", Senator Hill said.

He told the meeting - the first by the 24 Antarctic Treaty nations on the frozen continent - that toothfish poaching was threatening the Antarctic marine ecosystem.

The most effective way to hinder illegal

fishing was to make it difficult to sell illegally caught fish, he said.

"Effective market controls will take away the incentive to poach the fish. We have not yet met this challenge", Senator Hill said.

"The perceived lack of response to the problem by some nations active in Antarctica casts doubt on the effectiveness of the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) in meeting its objective of sustainably managing the living resources of the living ocean".

He also called for CCAMLR countries to crack down on the use of flag of convenience vessels to fish in the Antarctic.

"This allows nationals of contracting parties to participate in illegal, unregulated and unreported fishing in the convention area", he said.

The 24 Antarctic Treaty nations include the seven nations with territorial claims on Antarctica (Australia, New Zealand, Argentina, Chile, Norway, the United Kingdom and France) and five other nations with bases on the continent (Belgium, Japan, South Africa, the United States and the USSR).

The 1961 treaty froze all territorial claims on Antarctica, and banned military testing, military bases and mining on the continent.

*Accessed from: Ministerial on the Ice - An historic meeting; 1999 Antarctica New Zealand et al Fountain*

# Pirate Fishing in the Southern Ocean

Pirate fishing is out of control in the remote Southern ocean around Antarctica.

The Patagonian toothfish is being decimated and is headed for commercial extinction as a result.

Endangered albatross species are regularly hooked as bycatch by the pirates.

No one knows what impact this gold rush fishery will have on the rest of the already fragile and poorly understood ecosystem.

"If illegal and unregulated fishing continues at the current level, the population of Patagonian toothfish will be so severely decimated that within the next two to three years the species will be

commercially extinct. Some areas are already showing signs of this." - Press release by Australian Minister for Resources and Energy Warwick Parer and Minister for Foreign Affairs Alexander Downer, July 22, 1998.

The Patagonian toothfish can also be called different names in fish markets, restaurants and magazine food sections such as Chilean sea bass in the US and Antarctic sea bass in the UK.

Most consumers are unaware that the fish they order in restaurants or select from their fish counters is the same fish poached from the distant deep waters around Antarctica by pirates.

Nor are they shown the many thousands of endangered albatross routinely hooked and drowned in the pirate's fishing gear as bait is set to catch the fish.

The fishing companies and traders rely on their activities being mostly "out of sight, out of mind". Greenpeace is doing all it can to remedy this.

In the marketplace, it is still very difficult to know for certain whether the toothfish was caught by pirates or caught under a licence issued by the regional organisation responsible for conserving the toothfish, the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR).

Without government will to control the pirates and enforce the rules, it is impossible to be sure where each vessel catches toothfish.

"The problem is that this stuff is as liquid as bonds. It's impossible to track the fish that has been pirated and where it goes." (David Bengis, Icebrand Seafood in Maine USA, quoted in The Atlanta Journal and Constitution, 26 March 1999.)

Governments responsible for the conservation of marine life in the Southern ocean are failing to do what's needed to stop the pirates.

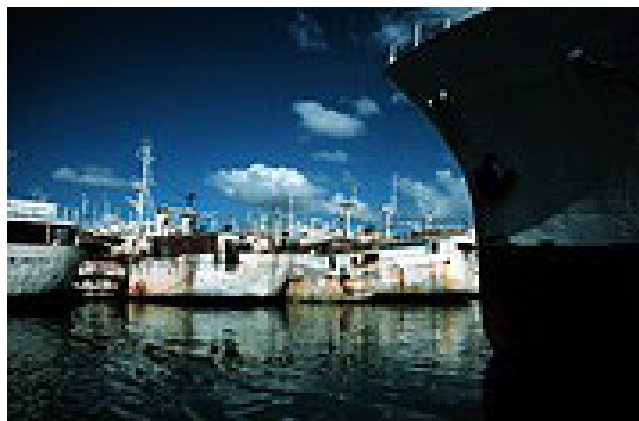
Countries that are members of CCAMLR are even expanding licensed fisheries despite the enormous pirate fishing problem and a poor scientific knowledge of this unique fish.

Unbelievably, some governments sitting around the CCAMLR conference table represent the pirates' home countries.

In some areas up to 90 percent of the total Patagonian toothfish catch have been taken by illegal and unregulated longliners.

In 1997, at the height of the pirate "goldrush", the total illegal catch of toothfish was around 100,000 tonnes with a value of over US\$500 million.

Greenpeace is calling for a moratorium on all fishing of toothfish and a trade ban until pirate fishing is stopped; more is known about the fish and whether commercial fishing can be sustained; and controls are put in place to make sure pirate fishing does not rage out of control again.



Illegal pirate fishing vessels that ply the Southern Ocean.

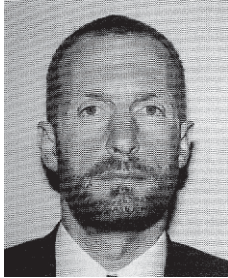
Source: Greenpeace (<http://www.greenpeace.org>)

# Trends and Discontinuities in Fisheries

*“The paradigm of inexhaustibility is over”*

## Stan Crothers

*Deputy Director, Ministry of Fisheries*



World fisheries are in crisis

Key trend towards 2010

Antarctic, fisheries management, research, administration, and enforcement is ineffective

The basic problem is management failure

New paradigms must emphasise long term sustainability over short-term gain

*“I believe that the cod fishery, the herring fishery, the pilchard fishery, the mackerel fishery and probably all the great sea fisheries are inexhaustible; that is to say, nothing we can do seriously affects the numbers of fish.”*

Thomas Huxley, 1883

*“... the total quantity of food material in the sea is far above that needed to meet the needs of the present world population, and even above amounts needed far into the future. It is probably realistic to hope that the sea will some day produce 200-250 million tons of usable food.”*

C P Idyll 1970, *The Sea Against Hunger*

## World fisheries -

Fish play a vital role in feeding the world. They account for nearly one-fifth of the total human consumption of animal protein. They provide direct or indirect incomes to about 200 million people world-wide.

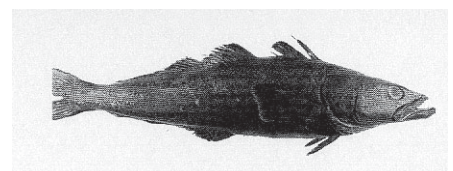
The total value of world fish trade a few years ago was \$40 billion, of which developing countries account for about one half. One-third of the world's catch is exchanged through international trade; the volume doubled between 1980 and 1990.

*As Stan Crothers recounted the sad story of the world and Antarctic fisheries, its course seemed a probably scenario for all human activity on the ice, perhaps anywhere, especially in an era when deregulation and self-supervision have been drummed home.*

*Some people don't accept that the New Zealand commercial fishing industry is up to controlling the fisheries*

**Most of our knowledge of the Patagonian toothfish comes from fishers.**

Extract from: Tetley, G. (Ed) (1998) *Antarctica 2010: A Notebook*. Proceedings of the Antarctic Futures Workshop 28-30 April 1998. Wellington, Freestyle Artworks.



### **- are in crisis**

Almost 50,000 Canadian fishers were laid off in 1992 and 1993 due to vanishing cod stocks in the North Atlantic waters.

Two years later, in response to chronic over-fishing leading to severely depleted stocks, the US New England Fisheries Management Council closed - indefinitely - more than 3000 square miles of Georges Bank, which historically had supported one of the world's most valuable cod and haddock fisheries.

Fisheries are being exploited at or beyond the maximum sustainable yield causing the widespread decline of many species and changing the biological composition of the sea.

As the fish go, so go the fishing jobs and the industries that depend on them.

### ***A tale of open access to what was seen as an unlimited resource***

Between 1950 and 1970, the world fish catch increased steadily by 6% annually, 3 times the rate of human population growth over those years.

The first alarm bells rang in the early 1970s when the Peruvian anchovy catch, the largest in the world, collapsed from 12 million to 2 million tons in just three years.

Today, around the planet, wild fisheries are reaching their natural limits. The global fish catch, which quadrupled over the past 40 years, is no longer rising, seemingly because oceanic fisheries cannot sustain a greater catch.

The problem is made worse as ecosystems are damaged by pollution and as habitats are damaged or destroyed.

### ***In New Zealand we responded with an eco-systems based approach***

We have one of the best managed fisheries in the world under the pioneering Quota Management System established in 1986. This recognises that fisheries are a finite resource and are part of wider aquatic ecosystems and need to be managed together in ways that ensure their survival.

Evolving societal attitudes towards natural resources during the 1990s created a new level of awareness that natural systems are inter-connected.

During the 1980s, we developed sustainability policies within New Zealand's fisheries waters, based on a stock management framework. We are successfully re-building our inshore fisheries.

The ecosystems-based approach is a reflection of such key world-wide trends as growing environmental awareness and increasing globalisation. They bring a strategic focus for a natural resource like fisheries which, by its very nature, demands a long-term perspective.

### **Key trends towards 2010**

#### ***Social trends***

- Public awareness of environmental issues will rise
- Consumers will pay a premium for food products, such as seafood, that are healthy and have been produced in an ecologically sustainable way
- A change in values is occurring with increasing priority placed on the environment and non-human species for their own sake

*It's easy to tag commercial fishers with the same reputation as the pirates. Neither of them I am sure intend to spoil or exhaust the resource.*

**Key trends.** *I retained all Stan Crothers' predictions in my edit. They seemed to me considered, confident, reasonable and restrained. They have an official ring to them. I would not be surprised if someone got stoned for drawing them up.*

- There will be increasing recognition of the importance of upholding aboriginal fishing rights
- Society will become more diverse as a result of changes in ethnicity and age, family structures and types of employment
- Disparities in levels of participation in society and the economy will place fishery management systems under increasing pressure. This could add cost to the enforcement, justice and social welfare systems.

### ***Technological trends***

- Information technology - changes in work systems and patterns, and decision-making - increased transparency in decision-making and greater accountability of decision-makers.
- Virtual organisations, based around new technologies - video conferencing, the Internet and remote/mobile office technology
- New technologies will emerge for research, reduction of waste, ecosystem modelling, acoustics, and satellite navigation. Changes to aquaculture and fisheries enhancement technology are also likely.
- Developments in technology will also affect the way fish are caught, processed and marketed.

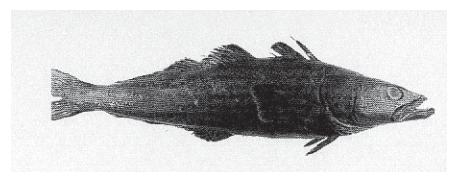
### ***Environmental Trends***

- Progressive degradation of the biosphere as a result of population growth and pollution will continue, unless sustainable development can be achieved internationally
- There will be moves towards ecosystem-based management of natural resources
- The quality of our environment will be critical in increasing exports of primary products. Sound environmental management will be a matter of enlightened self-interest
- Global warming and the warming of the sea will impact on aquatic life, cause changes in atmosphere and salinity, sea level and currents
- Key trends include the growth of population, habitat degradation, the erosion of biodiversity, over-fishing and pollution
- Rising prices from scarcity and demand, will provide incentives to reduce resource consumption to sustainable levels and to find alternatives

### ***Governmental trends***

- Open Government is here to stay. There will be pressure for openness and accountability in access to official information - eg: setting catch limits: determining funding for the management of fisheries resources
- Electoral changes will alter our system of government - minority or coalition government will become the norm
- A wider range of views will be reflected in decisions made at a political level
- Government agencies will be accountable to both the Minister and to select committee
- Demands for a more co-operative style of decision-making and a closer alignment of policy with New Zealanders' values
- The Treaty of Waitangi will continue to be recognised as the founding document of the nation and influence policy development and decision-making at all levels

**Since most fishing is carried out by vessels without fishing rights, it is difficult to collect information.**





- Greater responsibility to regional government, local communities and individuals
- Increasing recognition that nation states cannot manage environmental issues unilaterally, resulting in more collective action
- International arrangements such as UNCLOS (the United Nations Convention on the Law of the Sea), the Convention on Biological Diversity, will become more important in managing fisheries
- Governments will recognise the negative impacts of subsidies, but the socio-economic implications mean that changes will be slow in coming

### **The basic problem is one of management failure**

- 1 Nation states should be held far more accountable for desired outcomes. They must begin collaborating at a global level to find solutions. We need to start by controlling the access to valuable resources like fisheries.

We now need to establish new (global) institutional arrangements to deal with high seas fisheries

- 2 Fishers have recently spent nearly \$124 billion to catch \$70 billion worth of fish. Governments financed the difference of \$54 billion largely with low interest loans and direct subsidies for boats and operations - an expenditure that encouraged over fishing.

We need to address the problem of governments continuing to subsidise fishing fleets

- 3 One of the deadliest effects of subsidies is that they have helped bring about the huge over-capacity of the global fishing industry.

Global fleet capacity needs to be reduced substantially - perhaps by as much as half - to levels commensurate with sustainable resource productivity

- 4 Fisheries managers have to understand the problems they face. There is a vast lack of information. Population data and models tend to be uncertain and inadequate. The tendency to manage one species at a time makes the situation worse.

To think we can manage this eco-system is absurd in the extreme. Humans don't even fully understand how their own bodies work, let alone how thousands of aquatic species interact, or the impact of environmental problems like run-off pollution and global warming. All we can do is manage the impact of human activity on fisheries.

- 5 Fisheries managers often seem to lack clear objectives. We have this enormous focus on using particular management tools - a quota system, total allowable catches, limited entry, specific input or effort controls. The real issues are value judgements about what society wants to achieve from sustainably utilising aquatic resources. Fisheries managers face a whole array of vested interest groups - commercial, recreational, cultural and environmental. Each place a different sort of value on fish.

The key issue is not just sustainability, but allocation.

### ***Implications for Antarctica***

As we speak, displaced fishing fleets from other parts of the world are busy plundering stocks of valuable Patagonian toothfish, sometimes described as "bars of gold".

All those displaced fishing fleets can't fish in the North Atlantic any more because it's uneconomic. The fish have gone. If they know there are very valuable fisheries down in the Antarctic and few enforceable controls, where are they going to operate?

*I have heard tell of "200 new Chinese fishing vessels (sometimes 2000) poised to come down into our waters". It is usually told with the same shrug and glance as when scientists talk about tourists.*

*It's another strong image - another bunch of villains. It's also an old one for New Zealand. "The Asian Peril" has played a big part in our sense of vulnerability down here. It's irrational - but then images whether personal or collective usually are.*



No-one owns harvesting and management rights down there. No-one has jurisdiction over the resources and so no-one is managing them. Rules are unenforceable. People will continue to fish there until species like the toothfish reach commercial extinction.

What sustainability and allocation objectives do we want for this unique and precious continent? Who owns this place and can make those decisions?

We rely on the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR). Negotiated under the Antarctic Treaty, it takes an ecosystem approach to the management of the Southern Ocean. The CCAMLR Treaty is just not robust enough to withstand the commercial pressures now coming on this valuable fisher. CCAMLR has faced difficulties getting its policy recommendations implemented. The jurisdictional regime applying in Antarctica is complex, with enforcement relying solely on the 23 member states.

As long as these resources belong to no-one, no-one can adequately protect them from over-exploitation.

We have a highly respectable convention in force that has no teeth. It is simply a matter of time before we face a sustainability disaster in Antarctica.

### **A new model for institutional arrangements**

We need to vest resource ownership and management rights of the frozen continent into the hands of all nations by way of an international convention similar to UNCLOS.

The sole ownership organisation would have similar powers and responsibilities for resource management as a sovereign state for the Antarctic area.

The organisation would have voluntary nation state shareholding. Shareholders would provide the capital base and share in the benefits produced by the organisation. The constitution or articles of association of the sole ownership organisation would be based on ecological principles such as biodiversity, the precautionary approach, and inter-and intra-generational equity.

In respect of governance, nation state shareholders would establish a board of directors, who would establish strategies to guide a chief executive in managing Antarctica's natural resources.

Resource management plans proposed by the chief executive and approved by the board, would include enforceable rules similar to rules and regulations of nation states.

Sanctions against non-performing individuals and nation states would be a feature of the compliance regime, supporting the resource management plan.

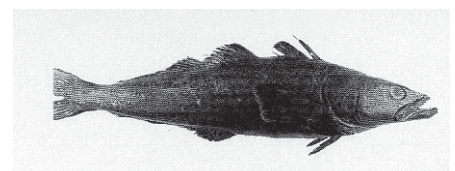
International institutions such as the World Court and Interpol could be enhanced to help operate the compliance regime.

In the meantime, time is running out for the Patagonian toothfish.

*David Lange reminded us on the second day "Our hemisphere that we can exercise particular moral sway in is that part which contains 3.5 billion people. There are only 25 million of them who look like most of you and all of me."*

*None of which is to say that the People's Republic of China does not have 200 (or 2000) fishing vessels poised and waiting.*

**The Patagonian toothfish is a deep sea fish which is fished to depths of 3500m. It appears to thrive best near land.**



## Who should own the fisheries?

## What do we want to achieve?

### At The Tables

Currently it's first in, first served. There is no precedent for the sort of control Antarctica demands.

Sustainability and enforceability are the keys

Enlarge the Treaty framework to include more nations - monitor remotely - set up protected areas (but how do we enforce it?) - remove subsidies.

Develop the notion of custodianship - the world community is the custodian and must develop management regimes so that all may share the resource. The UN should own and manage it.

You need an economic return to investors

Should fish be called a resource?

"Is ownership important? Isn't it management that is important?"

Suddenly there is cluster of sub-groups out there. **Fishers - Stakeholders - Owners - Treaty Signatories** - (There are no owners in Antarctica. All territorial claims have been set aside by Article 4 of the Antarctic Treaty). **Guardians - Markets** ("Let the market decide".) CCAMLR - (toothless CCAMLR) - **Custodians - Stewards - Investors - Companies - Partners - Pirates - Mavericks** ... And all of them are after the Little Black Hen ... **out there...**

"New Zealand has always refused to put anything into future generation needs!"

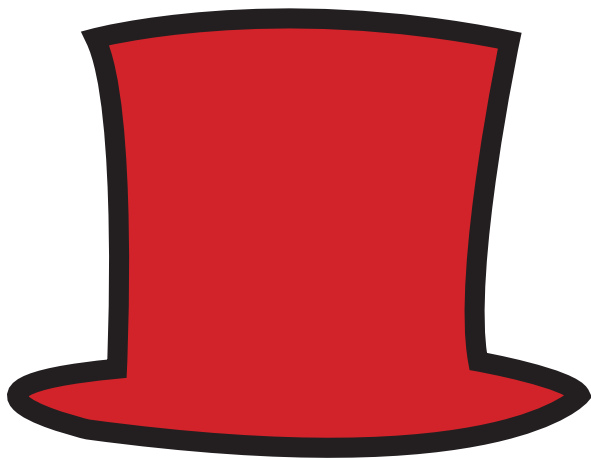
**"Lock it up until we can behave!"**

***out there.** We use this phrase a lot at the moment. Real life - earnest and raw in tooth and claw in happening "out there". "Out there" is a place we grit our teeth and visit to bring information back "in here". Its a perilous place. To have been and seen what is going on "out there" wins admiration. But to have been "out there" too long is a lapse of taste and a sign of failure. Do 'outlanders' live "out there"? Did Captain Oates go "out there"?*

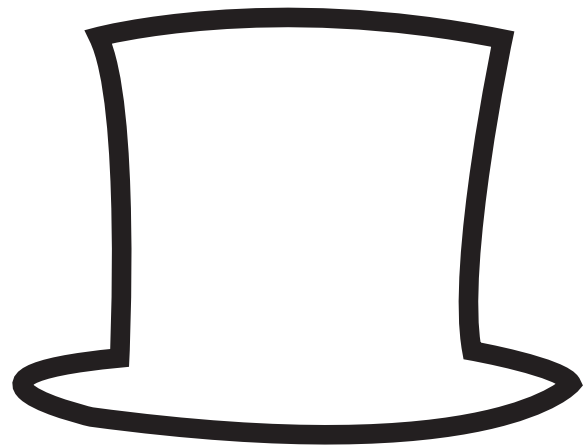
# Emotions

We can use this sequence when a situation arouses a strong emotional response. First we identify our feelings using the red hat. Then we look at the facts about the situation using the white hat. The green hat generates possible courses of action. Then the blue hat draw a conclusion.

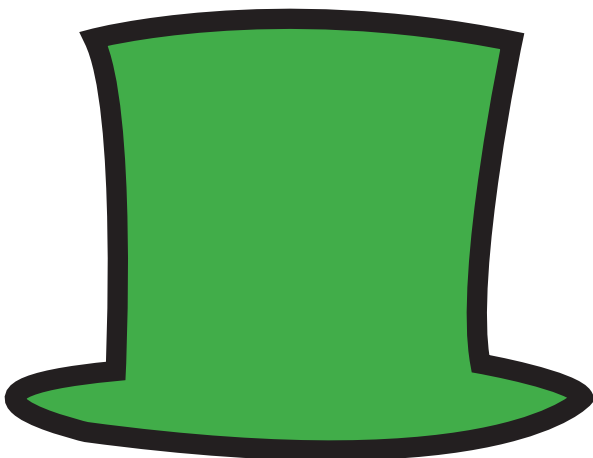
The conclusion may be that no action is required. But if a course of action is decided upon, then that course of action needs to be assessed. This can be done with just the black hat or with the yellow/black combination.



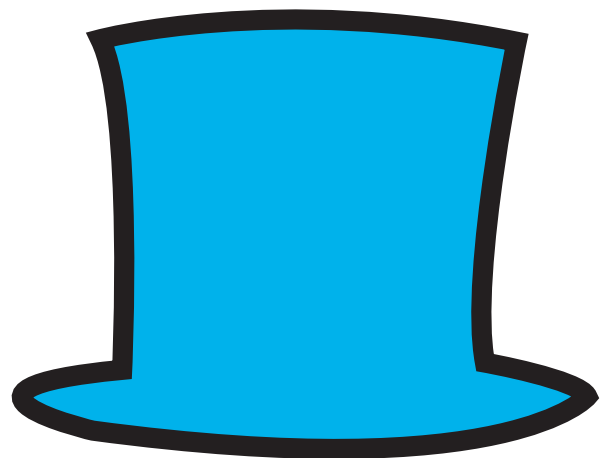
1 How do we feel?



2 What do we know about the situation?



3 What are the alternatives?



4 What is the conclusion?

*Adapted from "Six Thinking Hats: Book 4"*  
Edward De Bono

# “Antarctic Future Fishing Summit 2050”

## The Scenario

The Antarctic Environmental Protection League (AEPL) has called for a moratorium for 50 years on all fishing for the Patagonian Toothfish in Christchurch 2050.

AEPL has prepared a fact sheet (see earlier readings copymasters 7, 8, 9) about the Patagonian Toothfish and is concerned that regulated and unregulated fishing (and illegal pirate fishing) will see the species commercially extinct within the next 2-3 years.

The moratorium will mean that all fishing of the Patagonian Toothfish will stop until stocks have been monitored and the population levels begin to increase.

There are a number of people who have a vested interest in the Toothfish market including the commercial fisheries who are riding on the wave of demand for the Toothfish - otherwise known as “gold fish”. At present, prices for the Patagonian Toothfish range from \$10 - \$15 USD per kilogram.

Delegates from a variety of perspectives have gathered to state their case in light of the proposed moratorium. They include:

- A Greenpeace Environmentalist
- A New Zealand Ministry of Fisheries Representative
- A representative from the commercial fisheries company “Red Herring” who have a legal fishing quota for a variety of Fish in the sub-Antarctic including the Patagonian Toothfish
- A representative from the prestigious international restaurant chain “Swish Fish”. Their speciality dish “Poached Patagonia” fetches exorbitant prices globally and is highly sought after in London, Paris, Tokyo and New York.
- A scientist from Antarctica New Zealand who can discuss the effects on the Antarctic ecosystem that the overfishing is having
- An AEPL Representative
- A Kaumatua from your local iwi: s/he is able to discuss the importance of fishing with regard to their experiences negotiating fishing rights in light of the implications of the Treaty of Waitangi. As the Antarctic Treaty is concerned with the environmental impacts and protection of marine ecosystems it is important to look at a variety of Treaties

All delegates will have time to research their view concerning the Moratorium for the Patagonian Toothfish and then present their findings to the summit arguing for or against the moratorium. The members of the summit will then be called upon to vote for the moratorium or against it.

## Greenpeace Environmentalist

You have a passion for this case. The Patagonian Toothfish is to you the “save the whales” issue of the future. You are a veteran of Greenpeace protests about fishing and whaling in the Southern oceans and feel strongly that not only must the “pirates” be stopped but that commercial fishing is also exploiting and overfishing its quotas. You have personally been involved with a conflict with fishing vessels on the southern oceans. You aim to persuade and influence other members of the summit to support the moratorium.



## Ministry of Fisheries Representative

You are a representative of the Ministry of Fisheries in New Zealand. Your role is to ensure that all fishing that occurs around New Zealand and in other areas in which New Zealand has international agreements is legal. You are to ensure that all quotas given are covered by the agreements of the Treaty of Waitangi and in this case under the Antarctic Treaty of which New Zealand is a member. You give advice on quotas for different species and areas for fishing bearing in mind the importance of environmental sustainability.



## Commercial Fisheries: Red Herring

As the owner of the commercial Fishing Company, Red Herring, you have been proud of your record of fishing within quota for all species of fish. Business had been steady up until 1994 when you received the “go ahead” to fish legally for the Patagonian Toothfish. Demand has always been higher than supply and the prices that you are fetching for the Toothfish have skyrocketed and made you and your company very prosperous. You are outraged that there is talk of a moratorium as hundreds of your workers rely on the Patagonian Toothfish to sustain their livelihoods. It is your right to fish in the southern oceans as a means of sustaining a livelihood for you and your employees.



## Antarctic Environmental Protection League

You are the representative for the commission, which sets limits for fishing target species in the southern ocean. You agree with the conservation measures aimed at reducing the environmental impacts of fishing within these areas including the Ross Sea Region. Manage, sets limits and approves the number of vessels that can operate in the areas under their jurisdiction. You are concerned with the lack of information about the Toothfish on the ecosystem and the large amounts of fishing/marine debris littering the southern ocean including plastics. AEPL has imposed a ban on plastic packaging in an attempt to start to rectify some of the unnecessary littering.

## Scientist

You have been working closely with the AEPL representative and agree with their concerns about illegal and unregulated fishing in the southern oceans. You are very concerned about the large yield of Toothfish, given that current fishing in the Antarctic is in the exploratory stages. As yet you are not sure what the effects on the ecosystem are of the large yields but know that it does take the Patagonian Toothfish many years to replenish its stocks. You are also concerned about the incidental mortality in other marine animals and sea birds particularly the Albatross and petrel. These birds tend to surface dive for fish, while the long lines are being set or hauled in, causing them to be entangled.



## “Swish Fish” CEO

Since Chilean fishermen bought in the first Patagonian Toothfish after the collapse of the other popular species, you have been riding high on the wave of success. The Patagonian Toothfish is highly sought after amongst world leaders, royalty and high society. You have even provided dishes of your famously “poached Patagonian in a seafood Mornay” to popstars such as....

You have made a ‘killing’ financially. Your restaurants, which are outrageously selective, located in London, Paris New York and Tokyo charge up to \$20USD per kilogram – a tidy sum considering the Toothfish can grow up to 110 kg! You are fervently opposed to any moratorium

“– these greenies have no idea how to run a business”.



## Kaumatua from local Iwi

You are a kaumatua from the local Iwi who has been highly active in protecting fisheries and the fishing rights of your people. Although Antarctica is not a part of the Treaty of Waitangi negotiations you believe that the lessons learnt by your local Iwi in maintaining fisheries and yet protecting species, has real merit in any decision that may come from this meeting. You believe that the Maori concept of rahui (restriction or prohibition, especially in relation to resources and environment) could be investigated and used by the Antarctic Treaty holders in the preservation of the Patagonian Toothfish.



# Antarctica The Future Perspective

**What do we know about this?**

Key ideas/issues? \_\_\_\_\_

How do we feel about this issue? \_\_\_\_\_

Who benefits from these issues? \_\_\_\_\_

Who is disadvantaged by these issues? \_\_\_\_\_

**Possible Solutions/Actions**

How can we make people more aware of the issue? \_\_\_\_\_

What needs to be done? \_\_\_\_\_

## ***Resources and Websites***

- Ross Sea Region 2001: A State of the Environment Report for the Ross Sea Region of Antarctica, Waterhouse, E; 2001 New Zealand Antarctic Institute, Chch, NZ.
- Guidelines for Environmental Education in NZ Schools
- [www.polar.org/antsun/Antarctic Sun](http://www.polar.org/antsun/Antarctic%20Sun) (a summer newsletter from McMurdon Station)
- Antarctica: The Complete Story 2001, McGonigal D & Woodworth, L. Randmon House, NZ
- The Whales Song 1993; Sheldon D, Red Fox Publications, London
- Dear Greenpeace, James, Simon; London, Walker Books