



# Optimisation of protocols employed by NZ government fisheries observers for protected species data collection

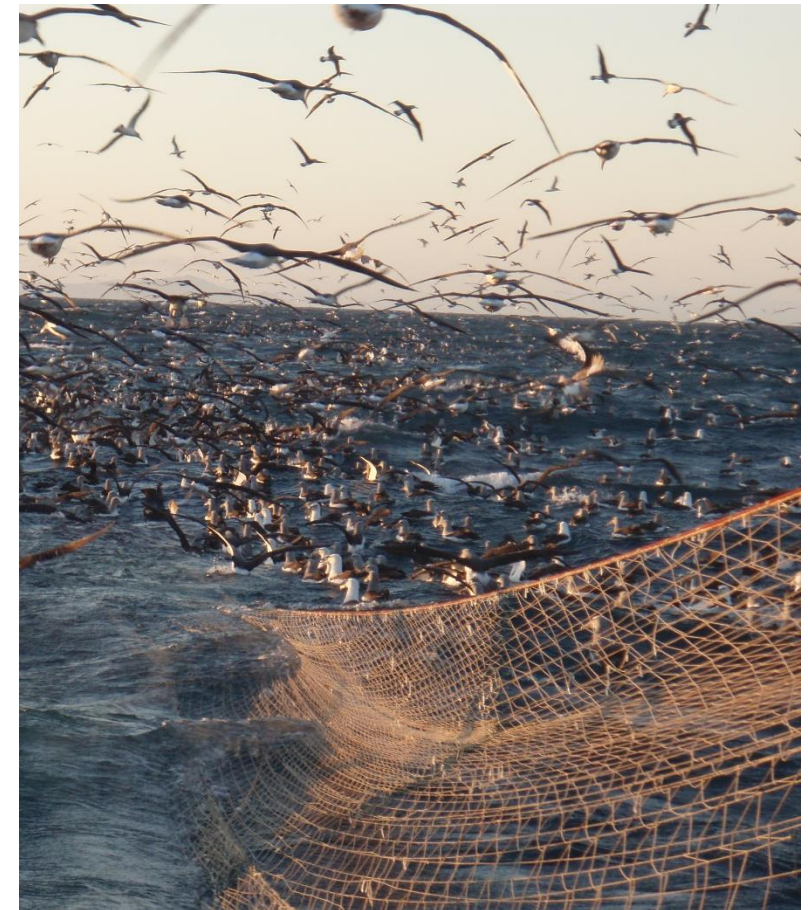
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# Introduction

- Deployment of independent fisheries observers is part of best practice fisheries management
- In NZ commercial fisheries since the 1990s
- Protocols relating to protected species (PS) have become more detailed over time, covering:
  - more PS
  - more fishing gears
- Two components to this project:
  - Review of the strategic framework generating information needs
  - Observer protocols relating to those info needs





# Objectives

## Overall objective:

- To review the data collected by fisheries observers in relation to understanding interactions with protected species, and refining efficient protocols for future data collection

## Specific objectives:

- To examine the information historically collected by observers on factors relevant to protected species interactions
- To provide recommendations on refinement or development of data collection protocols to allow for more informative and efficient data collection

Information needs relating to PS identified by reviewing:

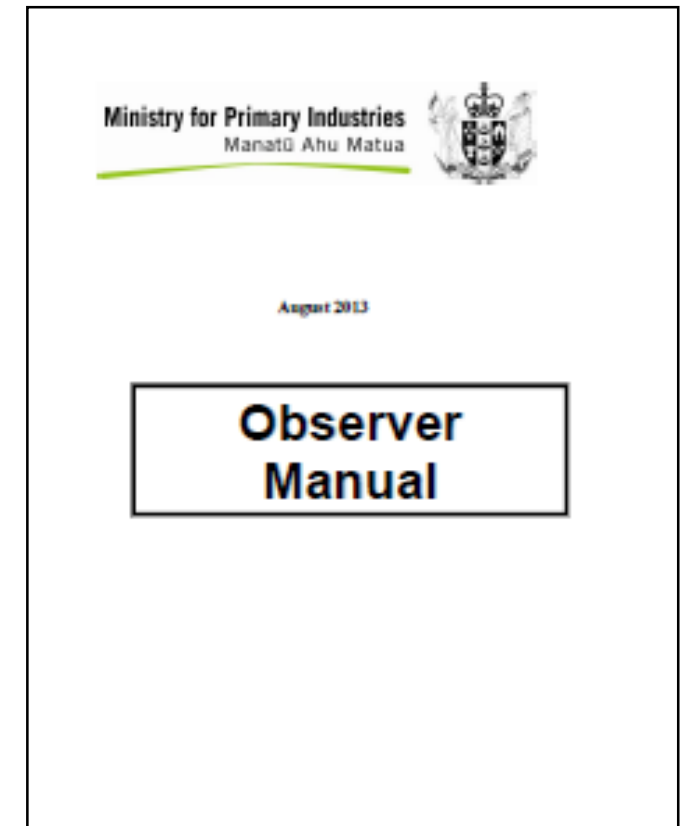
- International agreements relating to biodiversity and fisheries management NZ is party to (10)
- Legislative Acts (4)
- Government policy documents (4)
- Management strategies (20)
- Risk assessments (2)



# Methods

Approaches taken to address these needs were investigated by:

- Reviewing international observer programmes
  - Observer manuals, data collection, forms
- Considering MPI observer documents
  - Manual, briefing notes, data collection forms
  - Observer comments recorded on data collection forms
- Technical reports on marine protected species
  - Recommendations on observer data collection

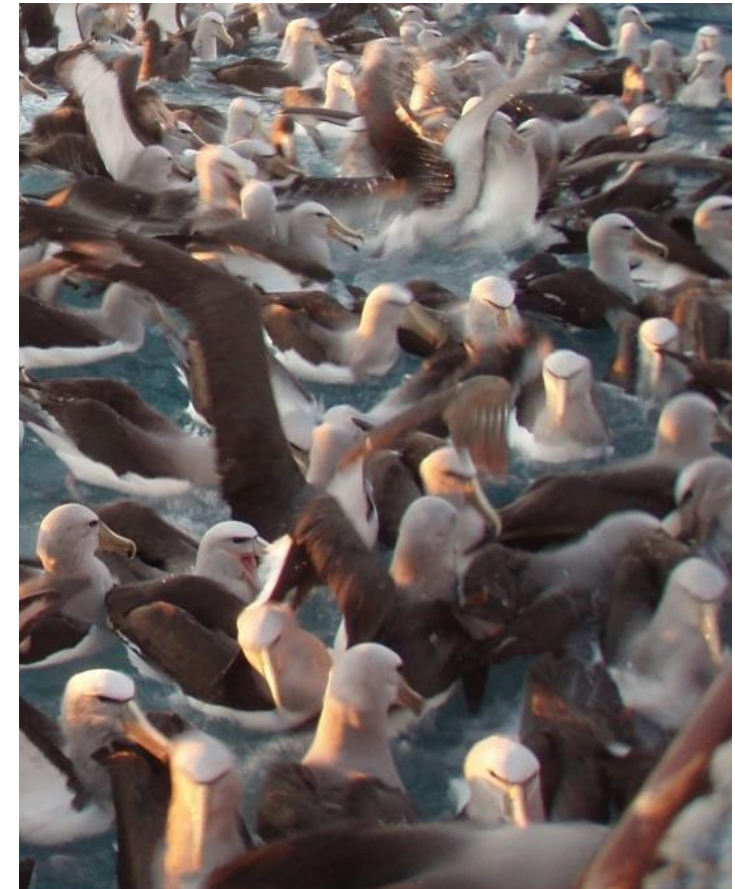






# Results: Review of strategic documents

- International instruments had a range of objectives: generic to specific, e.g.,
  - Convention of Biological Diversity 1992: “conservation of biological diversity and sustainable use of its components”
  - Agreement on the Conservation of Albatrosses and Petrels: measures to be taken to reduce or eliminate fishing-related mortality of 30 species
    - Use of observers identified as a key method for data collection



# Results: Review of strategic documents

- NZ Acts of Parliament
  - Fisheries Act: maintenance of biological diversity and associated or dependent species
    - Population management plans
    - Conservation Services
  - Wildlife Act, Marine Mammals Protection Act
    - PMPs
    - Conservation Management Strategies
    - Conservation General Policy







## Results: Review of strategic documents

- NZ Acts of Parliament
  - Conservation Act
    - Conservation General Policy: long-term viability, marine protected species' recovery throughout natural range
    - Conservation Management Strategies: variable scope, focus on distribution and abundance of marine mammals at sea
- Government policy
  - Conservation Services Programme Strategic Statement
  - National Plans of Action – seabirds, sharks



# Results: Review of strategic documents

- Management strategies
  - Species focus
  - Generic information needs (interactions with commercial fisheries)
- Risk assessments
  - L1 and L2 seabird risk assessments
  - Highlight particular information gaps





## Results: Review of strategic documents

- Information needs relating to interactions between marine protected species (MPS) and commercial fisheries:
  - Characteristics of the fishing operation
  - Nature and extent of MPS captures
  - Status of captured animals
  - Operational and environmental factors contributing to captures
  - Measures in place to avoid or reduce captures



Results:

# Review of international observer programmes

- Data collected falls into these same five categories
- Objectives differ between programmes
- Data collection from basic to comprehensive
- All programmes reviewed collected data on the fishing operation:
  - Vessel, target species, sets/hauls
  - Seabirds, marine mammals, turtles well covered
  - Captures of these species: location, life status





Results:

# Review of international observer programmes

- Other MPS: Corals
  - VME indicator species approach
  - Recording capture, weight of selected species
- Photographing selected species and returning to shore
- Cryptic mortality:
  - Seabirds: warp strikes
  - Marine mammals: set net dropouts



Results:

# Review of international observer programmes

- Monitoring MPS occurrences around vessels
  - Opportunistic
  - Structured
- Bycatch reduction measures
- Photographs
  - Photographs labelled at sea with string of identifiers (gear, target, date, event recorded)





# Results: Data collection by New Zealand observers

- Longline fishery forms
  - Under review at MPI
  - Forms proposed to:
    - record set and haul mitigation
    - gear deployed
    - set and haul events





# Longline Tori Line Details

Trip number

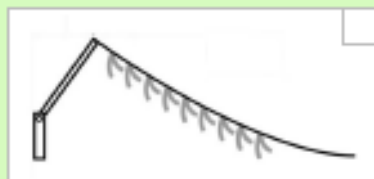
Observer Name

Vessel ID

Vessel Name

Tori line gear code

Tick the box by the diagram that is most like the tori line in use on the vessel. If the vessel's tori line does not resemble one of the four types show, draw it in the box provided.




## Overview:

Number of tori lines deployed

Single

Multiple

Measurements taken

Estimated

Actual

Pole length (m)

Tori line length (m)

Aerial extent (m)

Distance from stern to first streamer that reaches sea surface (m)

## Towed object:

Towed object code



Other towed object describe:

Deployment system used for multiple tori lines:

## Long streamers:

Paired

Single

Number of streamers (or pairs)

Distance between streamers (m)

Streamers reach sea (y/n)

Streamers cover aerial extent (y/n)

Maximum length (m)

Minimum length (m)

Diameter (mm)

Material

Colours

## Short streamers:

Paired

Single

Number of streamers (or pairs)

Distance between streamers (m)

Max height above water (m)

Streamers cover aerial extent (y/n)

Maximum length (m)

Minimum length (m)

Diameter (mm)

Material

Colours

Photo log numbers

Additional comments



## Instructions - Longline Brickle Curtain Details Form

1. Complete this form on the first haul of the trip, and then again each time modifications are made or a new Brickle curtain is deployed.
2. Give each Brickle curtain a Gear Code starting with "B1" for the first design deployed.
3. Complete cells describing the Brickle curtain in use on the vessel. Dimensions are shown in Figure 1.
4. If the arrangement on your vessel is significantly different to that in Figure 1, draw the design in the adjacent box.
5. Record any comments.

### Streamer colour codes:

P = pink  
R = red  
C = carrot (orange)  
Y = yellow  
G = green  
B = blue  
W = brown  
F = faded colour (any colour)  
O = other

### Streamer material codes

T = plastic tubing  
S = plastic strapping  
O = other

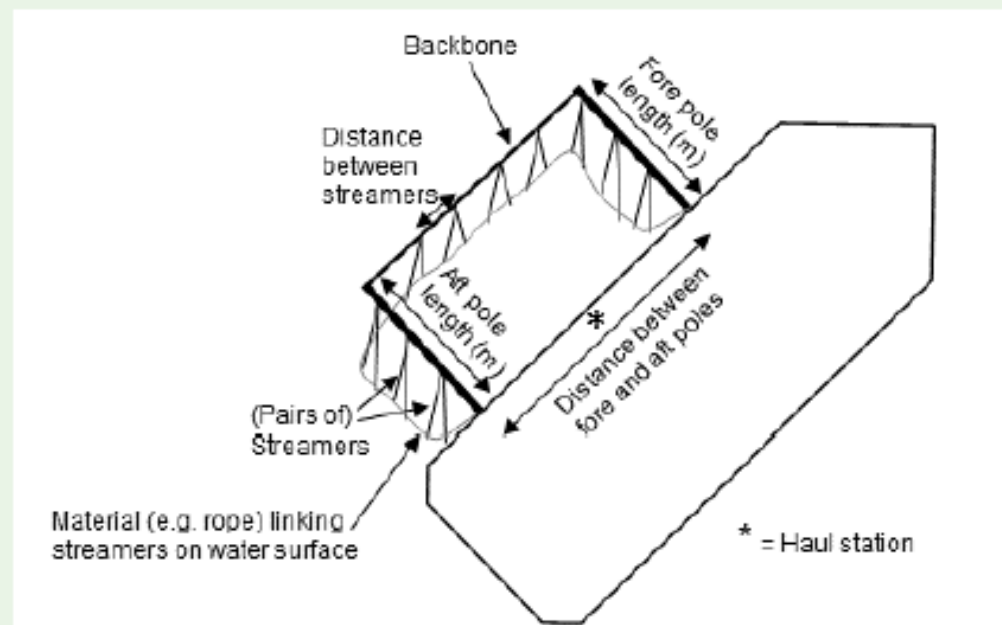


Figure 1. Example Brickle curtain showing dimensions to be measured and components to be described. Not to scale.

Diagram of brickle curtain on your vessel, if significantly different from Figure 1.

Additional comments



# Results: Data collection by New Zealand observers

- Trawl fishery forms
  - Minor amendments to data collection in the Trawl Catch Effort Logbook
  - Recommend new codes: mitigation, waste discharge





# Results: Data collection by New Zealand observers

- Purse seine fishery forms
  - Minor amendments to existing forms proposed
  - New gear form
  - New form for documenting protected ray interactions

### Protected Ray Interactions

Trip number  Observer name  Vessel name  Vessel ID  Set number

Method of initial ray detection  other  Ray location when first detected, in relation to target fish school  other  Stage of fishing when first ray detected  other

Sample number	Species code	Ray location in brail	Time ray out of water	Disc width (m)	Body length (m)	Sex	Ray returned to sea	Condition			Comments
								A	W	D R	
1			:	-	-						
2			:	-	-						
3			:	-	-						
4			:	-	-						
5			:	-	-						
6			:	-	-						
7			:	-	-						
8			:	-	-						
9			:	-	-						
10			:	-	-						
11			:	-	-						
12			:	-	-						

<b>Method of initial ray detection</b>	<b>Ray location when first detected</b>	<b>Stage of fishing when ray first detected</b>	<b>Species code</b>	<b>Ray returned to sea</b>
OBS Observer	SCH In amongst the school	BEF Before the set started	RMB Manta ray	NET From the net
SPO Spotter plane or helicopter	PER On the periphery of school	STA At the start of the purse	MJA Spinetail devil ray	BRA From the brail
CRE Crew	>5M More than 5m away from school	PUR During the purse	MNT Unknown protected ray	DEK From the deck
OTH Other (add description)	NOT Not observed	EPR At the end of the purse		OTH From other location
	OTH Other (add description)	ROL During the net rolling	<b>Ray location in brail</b>	<b>Sex code</b>
		SAK During net sacking	SUR Surface	F Female
		SBR At the start of brailing	MID Middle	M Male
		DBR During brailing	BOT Bottom	U Unknwn
		EBR At the end of brailing		
		ABR After brailing (catch onboard)		
		OTH Other (add description)		

Protected Ray Interactions Version 1, 22 October 2014



# Results: Data collection by New Zealand observers

- Set net fishery forms
  - Minor amendments to existing forms proposed
  - Document locations of pingers on net
  - Record net hanging ratio
  - Record tears/holes in net
  - Record use of integrated weight ground rope








# Results: Data collection by New Zealand observers

- Photographic log
  - Cameras set to correct date, time
  - Store photos with descriptive identifiers
    - Trip, target, key words, activity code
- Trip diary
  - Minimise info recorded there
  - Store to enable searches by data users
  - e.g., database activity codes by trip

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**PHOTOGRAPHIC LOG**

Trip Number		Camera Serial Number		
Frame No.	Tow No.	Keywords		Subject Description
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				

# Conclusions

- Proposed amendments to data collection better address NZ's information needs on MPS
- Priority areas for improving information collection include:
  - Longline fishing gear and mitigation
  - Purse seine gear and PS interactions
  - Trawl mitigation
  - Cryptic mortality
  - Coral bycatch



Photo: J. Pierre



# Acknowledgements

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Previous reports on this project:

Pierre, JP & Thompson, FN (2014) Optimisation of protocols employed by government fisheries observers for protected species data collection. Draft report for Department of Conservation, INT2013–04.