



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

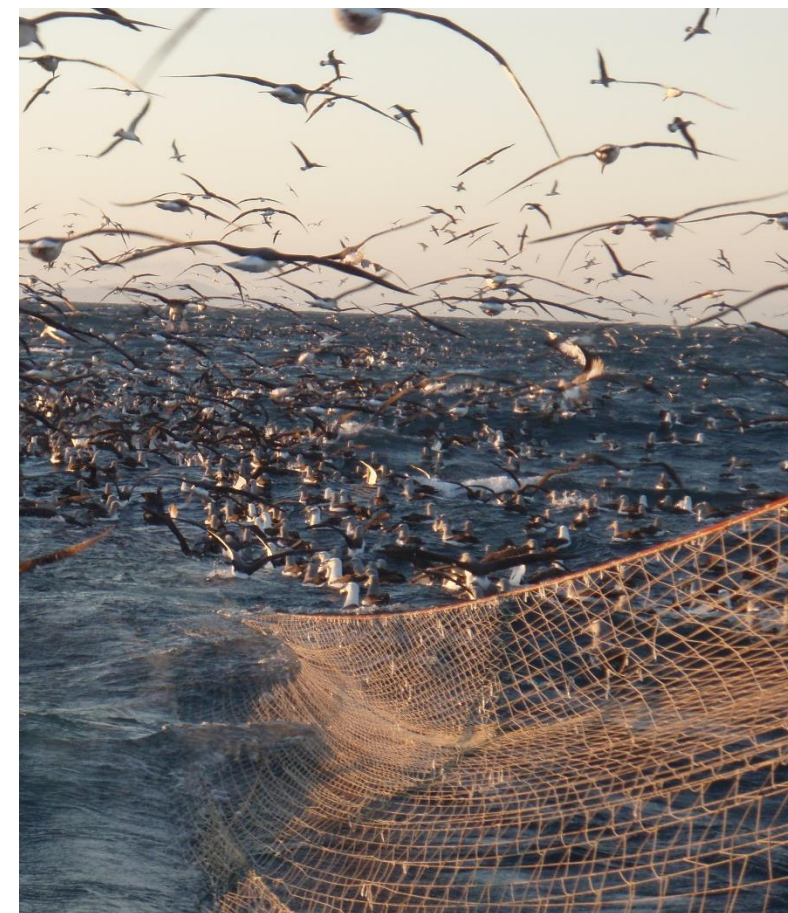
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Introduction

- 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)



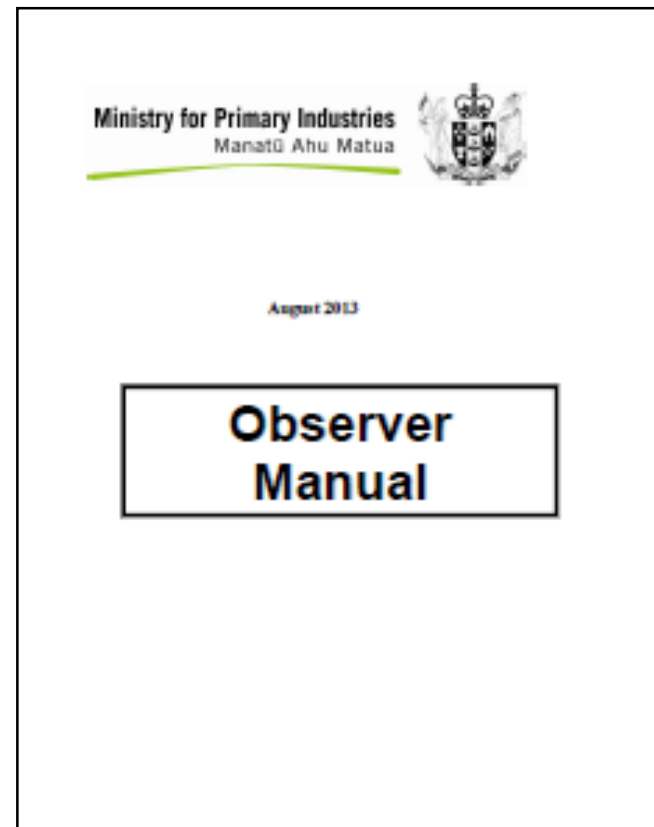
Photo: D. Goad



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





- Considering electronic approaches
 - Data collection, recording

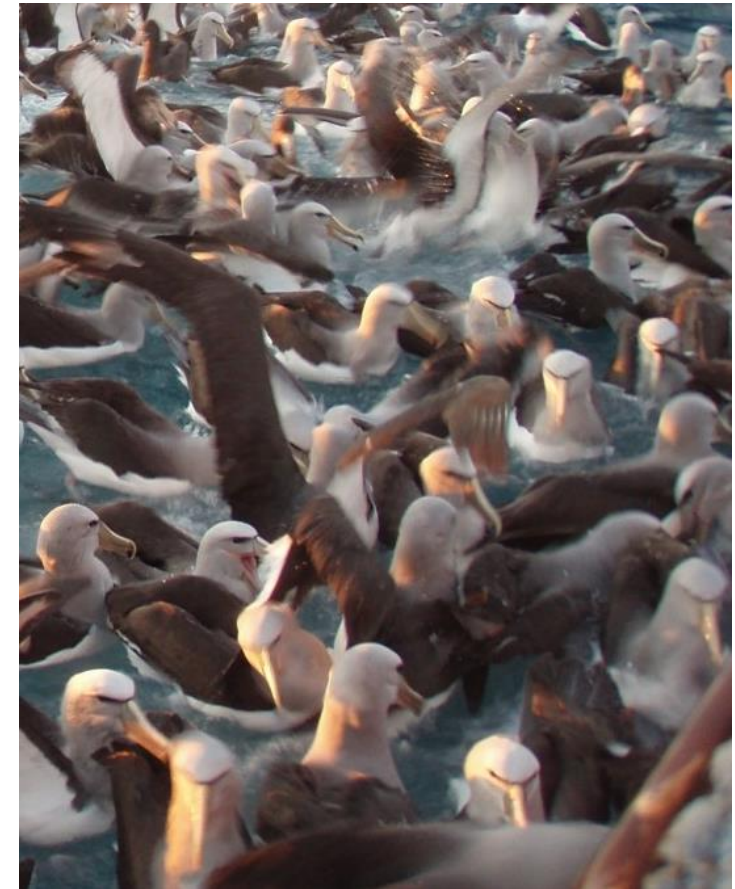
- Amendments to observer protocols
- Amendments to forms
- Development of new forms
- Amendments to briefing notes and observer manual

[illegible]



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



Photo: DOC



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

A Laysan Albatross is shown in flight against a grey background. The bird has white plumage on its head and neck, a yellow beak, and dark wings and back. It is looking towards the right.

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

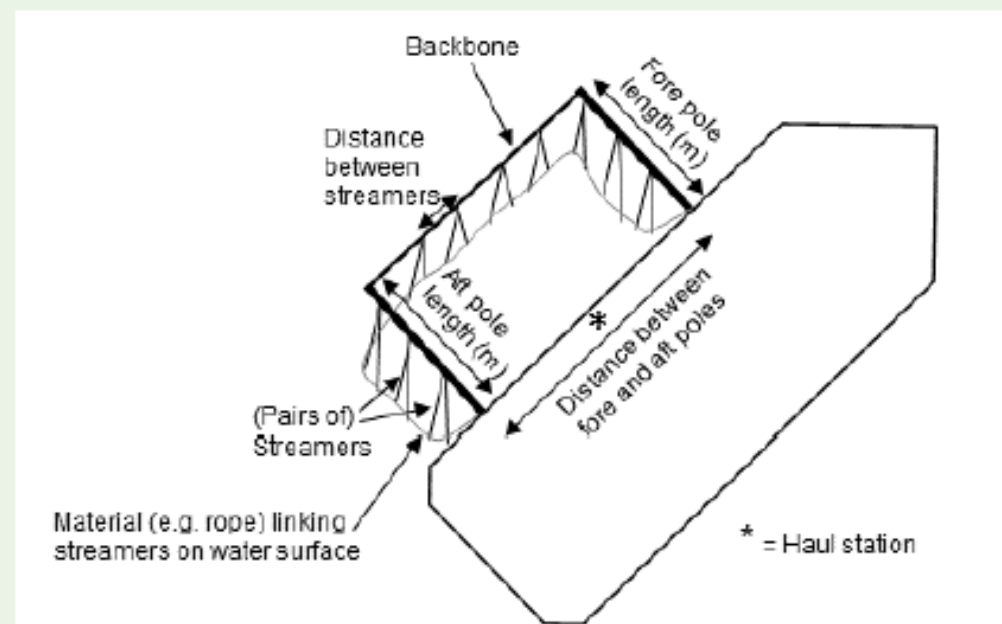


Figure 1. Example Brickle curtain showing dimensions to be measured and components to be described. Not to scale.

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			:	-	-							

Method of initial ray detection

OBS Observer

SPO Spotter plane or helicopter

CRE Crew

OTH Other (add description)

Ray location when first detected

SCH In amongst the school

PER On the periphery of school

>5M More than 5m away from school

NOT Not observed

OTH Other (add description)

Stage of fishing when ray first detected

BEF Before the set started

STA At the start of the purse

PUR During the purse

EPR At the end of the purse

ROL During the net rolling

SAK During net sacking

SBR At the start of brailing

DBR During brailing

EBR At the end of brailing

ABR After brailing (catch onboard)

OTH Other (add description)

Species code

RMB Manta ray

MJA Spinetail devil ray

MNT Unknown protected ray

Ray returned to sea

NET From the net

BRA From the brail

DEK From the deck

OTH From other location

Ray location in brail

SUR Surface

MID Middle

BOT Bottom

Sex code

F Female

M Male

U Unknown

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

Ministry for Primary Industries
Manatū Ahu Matua



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PHOTOGRAPHIC LOG

Trip Number	Camera Serial Number
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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.