Conservation Services Programme Annual Research Summary 2012-13

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1. Introduction

1.1 Purpose

This report outlines the research carried out through the 2012/13 Conservation Services Annual Plan, and provides updates on multi-year projects started in previous years.

1.2 Background

The Conservation Services Programme (CSP), part of the Department of Conservation (DOC), originated in 1995 after an amendment to the Fisheries Act 1983 allowed for a Conservation Services Levy to be charged to the fishing industry, to recover the costs of research related to the impact of commercial fishing operations on marine protected species in New Zealand waters, and the development of ways to mitigate bycatch. The Minister of Conservation can also require the production of population management plans, which can include the setting of maximum-allowable levels of fishing-related mortality for threatened species.

1.3. CSP Vision and Objectives

The CSP vision is that:

> "Commercial fishing is undertaken in a manner that does not compromise the protection and recovery of protected species in New Zealand fisheries waters".

The suite of research and other conservation services delivered as part of the CSP falls into three categories:

1. Understanding the nature and extent of adverse effects on protected species from commercial fishing activities in New Zealand fisheries waters.
2. Developing effective solutions to mitigate adverse effects of commercial fishing on protected species in New Zealand fisheries waters.
3. Developing population management plans, where appropriate.

Detailed outcome-based objectives for CSP are provided in the Conservation Services Programme Strategic Statement 2013[1].

1.4 Development of the Annual Plan

The Conservation Services Programme Annual Plan 2012/13[2] describes the conservation services to be delivered as the Conservation Services Programme (CSP), and subject to cost recovery from the commercial fishing industry. As such, this Annual Plan forms the basis for levying the commercial fishing industry under the Fisheries Act 1996. For further background information on CSP, including extracts of relevant legislation, refer to the Conservation Services Programme Strategic Statement 2013. In the development of this Annual Plan a series of discussions were held with Ministry for Primary Industries (MPI) staff to harmonize the CSP and MPI research programmes for 2012/13 and to ensure there was no duplication. A formal consultation process was also used as described below. Note also that this Annual Plan included a project directly relevant to commercial fishing-protected species interactions but not considered within the levy framework for 2012/13 (POP2012-08).

[1] Available to download from http://www.doc.govt.nz/csp-strategic-statement-2013
[2] Available to download from http://www.doc.govt.nz/csp-annual-plan-2012-13

However, it did have allocated (crown-funded) administration components, to reflect staff time involved in delivery.

1.5 Consultation process

The Annual Plan took account of feedback from stakeholders, and was approved, along with the final costs to be levied, by the Minister of Conservation.

The collaborative processes used to develop the 2012/13 Annual Plan are as follows:

Inshore observer coverage is based on a continuation of delivering objectives identified by a process conducted in preparation for the CSP Annual Plan 2012/13. This process was developed jointly by the CSP team at the DOC and the Inshore Fisheries team at MPI in consultation with the Seafood Industry Council and the Federation of Commercial Fishermen.

Deepwater observer coverage was developed jointly by the CSP team at DOC and the deepwater fisheries team at MPI.

The public consultation process on the entire plan was as follows:

23 April 2012	Draft Conservation Services Programme Annual Plan 2012/13 released for public comments.
5 June 2012	Public comment period closes
18 June 2012	Summary of public submissions and response to comments completed.
20 June 2012	Director-General of Conservation conveys the Conservation Services Programme Annual Plan 2012/13 as amended in accordance with public comments to the Minister of Conservation.

1.6 Explanation of reporting structure

This report first describes the objectives and rationale for each project, then provides an update on Project status and a summary of the key results and recommendations from the projects. A project logistics summary statement is included detailing the agency that provided the services, the project budget (excluding administration costs), identification of the relevant provisions within the Fisheries (Cost Recovery) Rules 2001 that determine cost allocation and review milestones. Finally, a citation and weblink are provided to enable ease of access to the final research reports.

Conservation Services Programme activities in 2012/13 were divided into three main areas:

1. Fisheries interactions projects
2. Population studies
3. Mitigation projects

2. Interaction Projects

2.1 INT2012-01 Observing commercial fisheries

Overall objective

To understand the nature and extent of protected species interactions with New Zealand commercial fishing activities.

Specific objectives

1. To identify, describe and, where possible, quantify protected species interactions with commercial fisheries;
2. To identify, describe and, where possible, quantify measures for mitigating protected species interactions;
3. To collect other relevant information on protected species interactions that will assist in assessing, developing and improving mitigation measures.

Rationale

Understanding the nature and extent of interactions between commercial fisheries and protected species can identify where the most significant interactions are occurring and can be used to inform development of ways to mitigate those interactions and adverse effects. Such data contribute to assessments of the risks posed to protected species by commercial fishing and whether mitigation strategies employed by fishing fleets are effective at reducing protected species captures.

The CSP Observer Programme will continue to purchase baseline services for "offshore" fisheries from MPI Observer Services, given the scale of their operation, which allows observers to be placed strategically across New Zealand Fisheries. Where data collection involves using techniques beyond observation and recording, providers with specific expertise and/or equipment will be considered. For the purposes of providing costings, the rate provided by MPI Observer Services has been used. As such, for the purposes of planning, costings for observer coverage are based on those provided by the MPI Observer Services to provide a best estimate.

Project status

Completed.

Summary of the methods and key findings

Observer coverage is, where possible, planned jointly with the Ministry for Primary Industries to ensure that coverage objectives are aligned For the purposes of planning observer coverage, fisheries are divided into two broad categories: firstly, those fisheries that are poorly known and generally characterised by small vessel, owner operated fleets (see 2.1.1). While the majority of these vessels operate in the inshore area (i.e. to around 200 m depth), some small vessels, particularly bottom longline vessels under 36 m, will operate in deeper waters such as the Chatham Rise. Details of the approach used to set days in these fisheries is described in the Joint Department of Conservation/Ministry of Fisheries Inshore Observer Programme 2011/12 plan. In general, coverage in these fisheries was aimed at reducing uncertainly around the risk to particular protected

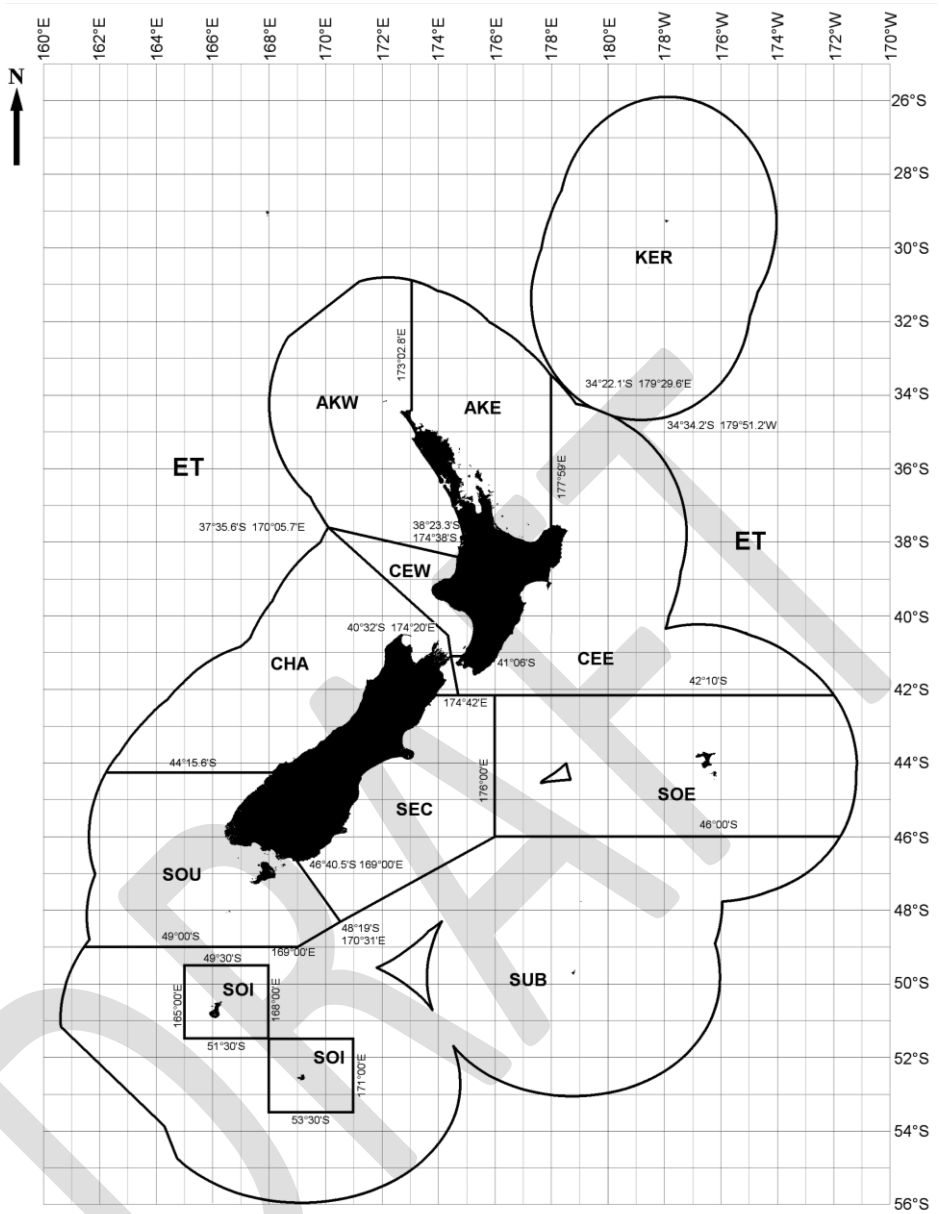
species which was identified in both the level 1 and level 2 risk assessments (Rowe 2010, Richards et. al. 2011), and assessing mitigation options for interactions identified.

One of the tools to gain a better understanding of the nature and extent of interactions between commercial fisheries and protected species is the placement of Government observers onboard commercial fishing vessels operating within the New Zealand Exclusive Economic Zone (EEZ) in order to monitor interactions with protected species. The observers collect both quantitative and qualitative information on interactions, both of which can and have been used to identify key areas of importance. The observations can also help in the development and assessment of mitigation strategies aimed at reducing the impact of commercial fisheries on protected species.

The observer coverage presented in this report extends work conducted in previous years (e.g. Rowe 2009, 2010 Ramm 2011, 2012).

The remainder of this document follows Rowe (2010) and is divided into separate 'fisheries' where certain target species are grouped according to fishing method. For each 'fishery' an overall summary of commercial effort, observer effort and protected species bycatch is provided by Fisheries Management Area (Figure 1). Protected species interactions are then broken down by fate of the animal (live or dead) and method of interaction.

Figure 1: New Zealand Fisheries Management Areas (source: Ministry of Fisheries)



Key:

AKE	FMA 1	East North Island from North Cape to Bay of Plenty
CEE	FMA 2	East North Island from south of Bay of Plenty to Wellington
SEC	FMA 3	East coast South Island from Pegasus Bay to Catlins
SOE	FMA 4	Chatham Rise
SOU	FMA 5	South Island from Foveaux Strait to Fiordland
SUB	FMA 6	Subantarctic including Bounty Island and Pukaki Rise
SOI	FMA6A	Southern offshore islands – Auckland and Campbell Islands
CHA	FMA 7	West Coast South Island to Fiordland including Kaikoura
CEW	FMA 8	West North Island from South Taranaki Bight to Wellington
AKW	FMA 9	West North Island from North Cape to North Taranaki Bight
KER	FMA 10	Kermadec

ET	Outside NZ EEZ

Middle Depth Trawl Fisheries

Hoki, Hake, Ling and Warehou species

Summary

FMA	Effort Tows	Observed Tows	Coverage (%)	Seabird Captures*	Seabirds per 100 tows	Mammal Captures	Mammals per 100 tows	Protected Fish	Protected Fish per 100 tows	Coral catch (kg)	Coral catch per 100 tows (kg)
1. AKE	330	0	-	-	-	-	-	-	-	-	-
2. CEE	1,796	209	11.64	3	1.44	10	4.78	0	0.00	0.00	0.00
3. SEC	3,402	1,064	31.28	30	2.82	9	0.85	2	0.19	9,757.27	917.04
4. SOE	2,080	864	41.54	27	3.13	1	0.12	1	0.12	30,112.20	3,485.21
5. SOU	1,667	849	50.93	74	8.72	2	0.24	2	0.24	1,107.89	130.49
6. SUB	1,117	671	60.07	18	2.68	5	0.75	1	0.15	614.17	91.53
7. CHA	5,672	1,605	28.30	22	1.37	26	1.62	1	0.06	1,181.00	73.58
8. CEW	31	0	-	-	-	-	-	-	-	-	-
9. AKW	42	0	-	-	-	-	-	-	-	-	-
Total	**16,137**	**5,262**	**32.61**	**174**	**3.31**	**53**	**1.01**	**7**	**0.13**	**42,772.53**	**812.86**

Protected species interactions

Species name	Alive	Dead	Decomposing	Grand Total
Birds				
Albatross (Unidentified)		1		1
Buller's albatross	6	17		23
Cape petrels	4			4
Common diving petrel	1			1
Greater albatross	2	1		3
New Zealand white-capped albatross	12	28		40
Petrel (Unidentified)	4			4
Petrels, Prions and Shearwaters	1	1		2
Prions (Unidentified)	4			4
Salvin's albatross	13	11		24
Sooty shearwater	2	23		25
Southern royal albatross		1		1
Storm petrels	5			5
Westland petrel		1		1
White-chinned petrel	7	27		34
White-faced storm petrel	2			2
Birds Total	**63**	**111**		**174**
Marine Mammals				
Dusky dolphin		1		1
New Zealand fur seal	6	42	2	50
New Zealand sea lion	1			1
Pilot whale			1	1
Marine Mammals Total	**7**	**43**	**3**	**53**

Protected fish				
Basking shark	1	6		7
Protected Fish Total	**1**	**6**		**7**
Grand Total	**71**	**160**	**3**	**234**

Method of interaction - alive

Species name	Impact against vessel	Net capture	Other	Tangled in line	Unknown	Grand Total
Birds						
Buller's albatross		5				6
Cape petrels	3		1			4
Common diving petrel	1					1
Greater albatross		1	1			2
New Zealand white-capped albatross		11				12
Petrel (Unidentified)		4				4
Petrels, Prions and Shearwaters				1		1
Prions (Unidentified)	3					4
Salvin's albatross	3	9	1			13
Sooty shearwater		2				2
Storm petrels	5					5
White-chinned petrel	1	6				7
White-faced storm petrel	2					2
Birds Total	**18**	**38**	**3**	**1**		**63**
Marine Mammals						
New Zealand fur seal		6				6
New Zealand sea lion		1				1
Marine Mammals Total		**7**				**7**
Protected fish						
Basking shark					1	1
Protected Fish Total					**1**	**1**
Grand Total	**18**	**45**	**3**	**1**	**1**	**71**

Method of interaction - dead

Species name	Caught in warp or door	Net capture	Other	Unknown	Grand Total
Birds					
Albatross (Unidentified)		1			1
Buller's albatross	4	12	1		17
Greater albatross	1				1
New Zealand white-capped albatross	18	7	2	1	28
Petrels, Prions and Shearwaters		1			1
Salvin's albatross	2	9			11
Sooty shearwater		23			23
Southern royal albatross		1			1
Westland petrel			1		1
White-chinned petrel		27			27
Birds Total	**25**	**81**	**4**	**1**	**111**

Marine Mammals					
Dusky dolphin		1			1
Pilot whale		1			1
New Zealand fur seal		43	1		44
Marine Mammals Total		**45**	**1**		**46**
Protected fish					
Basking shark				6	6
Protected Fish Total				**6**	**6**
Grand Total	**25**	**126**	**5**	**7**	**163**

Southern Blue Whiting

Summary

FMA	Effort Tows	Observed Tows	Coverage (%)	Seabird Captures*	Seabirds per 100 tows	Mammal Captures	Mammals per 100 tows	Coral catch (kg)	Coral catch per 100 tows (kg)
1. AKE	912	0	-	-	-	-	-	-	-
2. CEE	402	0	-	-	-	-	-	-	-
3. SEC	8	0	-	-	-	-	-	-	-
4. SOE	2,311	0	-	-	-	-	-	-	-
5. SOU	0	0	-	-	-	-	-	-	-
6. SUB	1,136	664	58.45	4	0.60	25	3.77	1836.11	276.52
7. CHA	57	0	-	-	-	-	-	-	-
8. CEW	0	0	-	-	-	-	-	-	-
9. AKW	6	0	-	-	-	-	-	-	-
Total	**4,832**	**664**	**13.74**	**4**	**0.60**	**25**	**3.77**	**1,836.11**	**276.52**

Protected species interactions

Species name	Alive	Dead	Grand Total
Birds			
Campbell albatross		1	1
Grey-backed storm petrel		1	1
Seabird (unspecified)	1		1
Wandering albatross (Unidentified)	1		1
Birds Total	**2**	**2**	**4**
Marine Mammals			
New Zealand fur seal	3	22	25
Marine Mammals Total	**3**	**22**	**25**
Grand Total	**5**	**24**	**29**

Method of interaction - alive

Species name	Impact against vessel	Net capture	Other	Grand Total
Birds				
Seabird (unspecified)	1			1
Wandering albatross (Unidentified)			1	1
Birds Total	**1**		**1**	**2**
Marine Mammals				
New Zealand fur seal		3		3
Marine Mammals Total		**3**		**3**
Grand Total	**1**	**3**	**1**	**5**

Method of interaction - dead

Species name	Caught in warp or door	Net capture	Grand Total
Birds			
Campbell albatross	1		1

Grey-backed storm petrel		1	1
Birds Total	**1**	**1**	**2**
Marine Mammals			
New Zealand fur seal		22	22
Marine Mammals Total		**22**	**22**
Grand Total	**1**	**23**	**24**

Scampi

Summary

FMA	Effort Tows	Observed Tows	Coverage (%)	Seabird Captures*	Seabirds per 100 tows	Mammal Captures	Mammals per 100 tows	Coral catch (kg)	Coral catch per 100 tows (kg)
1. AKE	912	0	-	-	-	-	-	-	-
2. CEE	402	16	3.98	0	0.00	0	0.00	24.00	150.00
3. SEC	8	0	-	-	-	-	-	-	-
4. SOE	2311	145	6.27	4	2.76	1	0.69	374.30	258.14
5. SOU	0	0	-	-	-	-	-	-	-
6. SUB	1136	136	11.97	7	5.15	0	0.00	2,186.60	1,607.79
7. CHA	57	0	-	-	-	-	-	-	-
8. CEW	0	0	-	-	-	-	-	-	-
9. AKW	6	0	-	-	-	-	-	-	-
Total	**4,832**	**297**	**6.15**	**11**	**3.70**	**1**	**0.34**	**2,584.90**	**870.34**

Protected species interactions

Species name	Alive	Dead	Grand Total
Birds			
Buller's albatross	1	1	2
New Zealand white-capped albatross	3	3	6
Salvin's albatross	1	2	3
Birds Total	**5**	**6**	**11**
Marine Mammals			
New Zealand fur seal		1	1
Marine Mammals Total		**1**	**1**
Grand Total	**5**	**7**	**12**

Method of interaction - alive

Species name	Impact against vessel	Grand Total
Birds		
Buller's albatross	1	1
New Zealand white-capped albatross	3	3
Salvin's albatross	1	1
Grand Total	**5**	**5**

Method of interaction - dead

Species name	Net capture	Other	Grand Total
Birds			
Buller's albatross	1		1
New Zealand white-capped albatross	2	1	3
Salvin's albatross		2	2
Birds Total	**3**	**3**	**6**
Marine Mammals			
New Zealand fur seal	1		1
Marine Mammals Total	**1**		**1**
Grand Total	**4**	**3**	**7**

Squid

Summary

FMA	Effort Tows	Observed Tows	Coverage (%)	Seabird Captures*	Seabirds per 100 tows	Mammal Captures	Mammals per 100 tows	Protected Fish	Protected Fish per 100 tows	Coral catch (kg)	Coral catch per 100 tows (kg)
1. AKE	5	0	-	-	-	-	-	-	-	-	-
2. CEE	0	0	-	-	-	-	-	-	-	-	-
3. SEC	113	54	47.79	1	1.85	0	0.00	0	0.00	132.60	245.56
4. SOE	8	8	100.00	0	0.00	0	0.00	0	0.00	20.90	261.25
5. SOU	1,519	1,304	85.85	249	19.10	7	0.54	15	1.15	5,099.40	391.06
6. SUB	1,030	886	86.02	148	16.70	4	0.45	0	0.00	967.65	109.22
7. CHA	0	0	-	-	-	-	-	-	-	-	-
8. CEW	0	0	-	-	-	-	-	-	-	-	-
9. AKW	2	0	-	-	-	-	-	-	-	-	-
Total	**2,677**	**2,252**	**84.12**	**398**	**17.67**	**11**	**0.49**	**15**	**0.67**	**6,220.55**	**276.22**

Protected species interactions

Species name	Alive	Dead	Decomposing	Unknown	Grand Total
Birds					
Albatross (Unidentified)				1	1
Buller's albatross	12	14			26
Fairy prion	2	1			3
Greater albatross	1				1
New Zealand white-capped albatross	23	41	2		66
Petrel (Unidentified)	24	1			25
Petrels, Prions and Shearwaters	18				18
Prions (Unidentified)	1				1
Procillaria petrels	2				2
Salvin's albatross	2	2			4
Shearwaters (unidentified)	5				5
Shy albatross	1				1
Smaller albatross			1		1
Sooty shearwater	9	46			55
Southern royal albatross	1				1
White-chinned petrel	66	122			188
Birds Total	**167**	**227**	**3**	**1**	**398**
Marine Mammals					
Common dolphin		2			2
New Zealand fur seal		6	1		7
New Zealand sea lion		2			2
Marine Mammals Total		**10**	**1**		**11**
Protected Fish					
Basking shark	3	12			15
Protected Fish Total	**3**	**12**			15
Grand Total	**170**	**249**	**4**	**1**	**424**

Method of interaction - alive

Species name	Impact against vessel	Net capture	Other	Unknown	Grand Total
Birds					
Buller's albatross	2	10			12
Fairy prion				2	2
Greater albatross		1			1
New Zealand white-capped albatross	3	20			23
Petrel (Unidentified)		24			24
Petrels, Prions and Shearwaters		17		1	18
Prions (Unidentified)	1				1
Procillaria petrels		2			2
Salvin's albatross		2			2
Shearwaters (unidentified)		5			5
Shy albatross		1			1
Sooty shearwater	1	7		1	9
Southern royal albatross		1			1
White-chinned petrel	1	64	1		66
Birds Total	**8**	**154**	**1**	**4**	**167**
Protected Fish					
Basking shark				3	3
Protected Fish Total				**3**	**3**
Grand Total	**8**	**154**	**1**	**7**	**170**

Method of interaction - dead

Species name	Caught in warp or door	Net capture	Other	Unknown	Grand Total
Birds					
Buller's albatross	1	13			14
Fairy prion		1			1
New Zealand white-capped albatross	20	23			41
Petrel (Unidentified)		1			1
Salvin's albatross		2			2
Smaller albatross		1			
Sooty shearwater	1	45			46
White-chinned petrel		119	2	1	122
Birds Total	**22**	**205**	**2**	**1**	**227**
Marine Mammals					
Common dolphin		2			2
New Zealand fur seal		7			6
New Zealand sea lion		2			2
Marine Mammals Total		**11**	**0**	**0**	**10**
Protected Fish					
Basking shark				12	12
Protected Fish Total				**12**	**12**
Grand Total	**22**	**216**	**2**	**13**	**249**

Method of interaction - unknown

Species name	Unknown	Grand Total
Birds		
Albatross (Unidentified)	1	1
Grand Total	**1**	**1**

Pelagic Trawl Fisheries

Jack Mackerel and Barracouta

Summary

FMA	Effort Tows	Observed Tows	Coverage (%)	Seabird Captures*	Seabirds per 100 tows	Mammal Captures	Mammals per 100 tows	Coral catch (kg)	Coral catch per 100 tows (kg)
1. AKE	33	0	-	-	-	-	-	-	-
2. CEE	35	0	-	-	-	-	-	-	-
3. SEC	1,667	520	31.19	16	3.08	0	0.00	905.61	174.16
4. SOE	104	89	85.58	6	6.74	0	0.00	23.50	26.40
5. SOU	316	269	85.13	36	13.38	2	0.74	193.10	71.78
6. SUB	2	0	-	-	-	-	-	-	-
7. CHA	1,375	569	41.38	4	0.70	10	1.76	70.90	12.46
8. CEW	1,177	883	75.02	1	0.11	13	1.47	36.84	4.17
9. AKW	382	293	76.70	0	0.00	7	2.39	4.00	1.37
Total	**5,091**	**2,623**	**51.52**	**63**	**2.40**	**32**	**1.22**	**1233.95**	**47.04**

Protected species interactions

Species name	Alive	Dead	Grand Total
Birds			
Buller's albatross		2	2
Chatham Island albatross		1	1
Common diving petrel	3	2	5
Giant petrels (Unidentified)	1		1
New Zealand white-capped albatross	2	7	9
Salvin's albatross	3	4	7
Shearwaters (unidentified)	1		1
Sooty shearwater	8	4	12
Spotted shag	3		3
White-chinned petrel	4	18	22
Birds Total	**25**	**38**	**63**
Marine Mammals			
Common dolphin	1	15	16
New Zealand fur seal		11	11
Pilot whale		4	4
Risso's dolphin		1	1
Marine Mammals Total	**1**	**31**	**32**
Grand Total	**26**	**69**	**95**

Method of interaction - alive

Species name	Impact against vessel	Net capture	Other	Unknown	Grand Total
Birds					
Common diving petrel	2	1			3
Giant petrels (Unidentified)			1		1

New Zealand white-capped albatross		1		1	2
Salvin's albatross		2		1	3
Shearwaters (unidentified)	1				1
Sooty shearwater	2	6			8
Spotted shag	3				3
White-chinned petrel		4			4
Birds Total	**8**	**14**	**1**	**2**	**25**
Marine Mammals					
Common dolphin		1			1
Marine Mammals Total		**1**			**1**
Grand Total	**8**	**15**	**1**	**2**	**26**

Method of interaction - dead

Species name	Caught in warp or door	Impact against vessel	Net capture	Unknown	Grand Total
Birds					
Buller's albatross			2		2
Chatham Island albatross			1		1
Common diving petrel		1		1	2
New Zealand white-capped albatross	1		6		7
Salvin's albatross			4		4
Sooty shearwater			4		4
White-chinned petrel	1		17		18
Birds Total	**2**	**1**	**34**	**1**	**38**
Marine Mammals					
Common dolphin			15		15
New Zealand fur seal			11		11
Pilot whale			4		4
Risso's dolphin			1		1
Marine Mammals Total			**31**		**31**
Grand Total	**2**	**1**	**65**	**1**	**69**

Deep Water Bottom Trawl Fisheries

Orange Roughy, Cardinal, and Oreo species

Summary					Seabirds		Mammals		Coral catch
FMA	Effort Tows	Observed Tows	Coverage (%)	Seabird Captures*	per 100 tows	Mammal Captures	per 100 tows	Coral catch (kg)	per 100 tows (kg)
1. AKE	234	16	6.84	0	0.00	0	0.00	3.20	20
2. CEE	612	18	2.94	0	0.00	0	0.00	0.00	0
3. SEC	637	59	9.26	0	0.00	0	0.00	4.30	7.29
4. SOE	1,365	88	6.45	0	0.00	0	0.00	11.10	12.61
5. SOU	46	35	76.09	0	0.00	0	0.00	0.00	0
6. SUB	162	44	27.16	0	0.00	0	0.00	93.70	212.95
7. CHA	427	58	13.58	0	0.00	0	0.00	2.60	4.48
8. CEW	0	0	-	-	-	-	-	-	-
9. AKW	470	27	5.74	0	0.00	0	0.00	25.40	94.07
Total	**3,953**	**345**	**8.73**	**0**	**0.00**	**0**	**0.00**	**140.30**	**40.67**

Inshore Fisheries

Inshore Trawl

Summary

FMA	Effort Tows	Observed Tows	Coverage (%)	Seabird Captures*	Seabirds per 100 tows	Mammal Captures	Mammals per 100 tows	Coral catch (kg)	Coral catch per 100 tows (kg)
1. AKE	6,855	28	0.41	0	0	0	0	8.6	30.72
2. CEE	9,102	0	-	-	-	-	-	-	-
3. SEC	13,105	4	0.03	0	0	0	0	0	0
4. SOE	15	15	100	0	0	0	0	2,052	13,680
5. SOU	3,827	0	-	-	-	-	-	-	-
6. SUB	5	0	-	-	-	-	-	-	-
7. CHA	13,903	1	0.01	0	0	0	0	3	300
8. CEW	1,677	1	0.06	0	0	0	0	0	0
9. AKW	3,813	6	0.16	0	0	0	0	0	0
Total	**52,302**	**55**	**0.11**	**0**	**0.00**	**0**	**0.00**	**2,063.6**	**3,752**

Inshore bottom longline – Ling, Bluenose, Häpuku, and Bass

Summary

FMA	Effort Lines	Observed Lines	Coverage (%)	Number of hooks observed	Seabird Captures*	Seabirds per 1000 hooks	Mammal Captures	Mammals per 1000 hooks
1. AKE	3,454	0	-	-	-	-	-	-
2. CEE	1,138	0	-	-	-	-	-	-
3. SEC	152	0	-	-	-	-	-	-
4. SOE	1,021	0	-	-	-	-	-	-
5. SOU	69	0	-	-	-	-	-	-
6. SUB	0	0	-	-	-	-	-	-
7. CHA	734	0	-	-	-	-	-	-
8. CEW	543	136	25.05	120,406	2	0.02	0	0
9. AKW	900	0	-	-	-	-	-	-
Total	**8,011**	**136**	**1.70**	**120,406**	**2**	**0.02**	**0**	**0.00**

Protected species interactions

Species name	Dead	Grand Total
Birds		
Black-backed gull	1	1
Flesh-footed shearwater	1	1
Grand Total	**2**	**2**

Methods of interaction

Species name	Hook capture	Grand Total
Birds		
Black-backed gull	1	1
Flesh-footed shearwater	1	1
Grand Total	**2**	**2**

Inshore Setnet

Summary

FMA	Effort Tows	Observed Tows	Coverage (%)	Seabird Captures*	Seabirds per 100 tows	Mammal Captures	Mammals per 100 tows
1. AKE	7,859	0	-	-	-	-	-
2. CEE	1,305	0	-	-	-	-	-
3. SEC	4,212	78	1.85	1	1.28	1	0.00
4. SOE	19	0	-	-	-	-	-
5. SOU	623	0	-	-	-	-	-
6. SUB	1	0	-	-	-	-	-
7. CHA	1,069	0	-	-	-	-	-
8. CEW	1,570	437	27.83	1	0.23	0	0.00
9. AKW	7,406	8	0.11	0	0.00	0	0.00
Total	**24,064**	**523**	**2.17**	**2**	**0.00**	**1**	**0.00**

Protected species interactions

Species name	Alive	Dead	Grand Total
Birds			
Flesh-footed shearwater		1	1
Sooty shearwater	1		1
Birds Total	**1**	**1**	**2**
Marine Mammals			
Hector's dolphin	1		1
Marine Mammals Total	**1**		**1**
Grand Total	**2**	**1**	**3**

Methods of interaction

Species name	Net capture	Grand Total
Birds		
Flesh-footed shearwater	1	1
Sooty shearwater	1	1
Birds Total	**2**	**2**
Marine Mammals		
Hector's dolphin	1	1
Marine Mammals Total	**1**	**1**
Grand Total	**3**	**3**

Surface Longline Fisheries

Charter Tuna

Summary

FMA	Effort Lines	Observed Lines	Coverage (%)	Number of hooks observed	Seabird Captures*	Seabirds per 1000 hooks	Mammal Captures	Mammals per 1000 hooks
1. AKE	4	0	-	-	-	-	-	-
2. CEE	0	0	-	-	-	-	-	-
3. SEC	0	0	-	-	-	-	-	-
4. SOE	0	0	-	-	-	-	-	-
5. SOU	38	34	89.47	80,962	2	0.02	2	0.02
6. SUB	0	0	-	-	-	-	-	-
7. CHA	99	42	42.42	102,603	0	0.00	2	0.02
8. CEW	0	0	-	-	-	-	-	-
9. AKW	7	0	-	-	-	-	-	-
Total	**148**	**76**	**131.90**	**183,565**	**2**	**0.011**	**4**	**0.04**

Protected species interactions

Species name	Alive	Dead	Grand Total
Birds			
Buller's albatross		1	1
White-chinned petrel		1	1
Birds Total		**2**	**2**
Marine Mammals			
New Zealand fur seal	3	1	4
Marine Mammals Total	**3**	**1**	**4**
Grand Total	**3**	**3**	**6**

Method of interaction

Species name	Hook capture	Grand Total
Birds		
Buller's albatross	1	1
White-chinned petrel	1	1
Birds Total	**2**	**2**
Marine Mammals		
New Zealand fur seal	4	4
Marine Mammals Total	**4**	**4**
Grand Total	**6**	**6**

Domestic Tuna and Swordfish

Summary

FMA	Effort Lines	Observed Lines	Coverage (%)	Number of hooks observed	Seabird Captures*	Seabirds per 1000 hooks	Mammal Captures	Mammals per 1000 hooks
1. AKE	1,146	27	2.36	24,860	8	0.32	0	0.00
2. CEE	599	6	1.00	5,305	2	0.38	8	1.51
3. SEC	0	0	-	-	-	-	-	-
4. SOE	0	0	-	-	-	-	-	-
5. SOU	1	0	-	-	-	-	-	-
6. SUB	0	0	-	-	-	-	-	-
7. CHA	485	12	2.47	12,850	2	0.16	0	0.00
8. CEW	15	0	-	-	-	-	-	-
9. AKW	306	7	2.29	8,010	0	0.00	0	0.00
10. KER	6	0	-	-	-	-	-	-
Total	**2,558**	**52**	**8.12**	**51,025**	**12**	**0.24**	**8**	**1.51**

Protected species interactions

Species name	Alive	Dead	Grand Total
Birds			
Black petrel		1	1
Black-browed albatross (Unidentified)		3	3
Buller's and Pacific albatross		2	2
Campbell albatross		1	1
Grey-backed storm petrel		1	1
Salvin's albatross		1	1
Wandering albatross (Unidentified)		3	3
Birds Total		**12**	**12**
Marine Mammals			
New Zealand fur seal	7	1	8
Marine Mammals Total	**7**	**1**	**8**
Grand Total	**7**	**13**	**20**

Method of interaction - alive

Species name	Hook capture	Grand Total
Marine Mammals		
New Zealand fur seal	7	7
Grand Total	**7**	**7**

Method of interaction - dead

Species name	Hook capture	Tangled in line	Grand Total
Birds			
Black petrel	1		1
Black-browed albatross (Unidentified)	3		3
Buller's and Pacific albatross	1	1	2

Campbell albatross	1		1
Grey-backed storm petrel	1		1
Salvin's albatross	1		1
Wandering albatross (Unidentified)	3		3
Birds Total	**11**	**1**	**12**
Marine Mammals			
New Zealand fur seal	1		1
Marine Mammals Total	**1**		**1**
Grand Total	**12**	**1**	**13**

Bottom Longline Fishery

Deep-sea Ling

Summary

FMA	Effort Lines	Observed Lines	Coverage (%)	Number of hooks observed	Seabird Captures*	Seabirds per 1000 hooks	Mammal Captures	Mammals per 1000 hooks	Coral catch (kg)	Coral catch per 100 tows (kg)
1. AKE	258	1	0.39	4,285	0	0	0	0	0	0
2. CEE	1,065	0	-	-	-	-	-	-	-	-
3. SEC	700	0	-	-	-	-	-	-	-	-
4. SOE	1,224	0	-	-	-	-	-	-	-	-
5. SOU	357	0	-	-	-	-	-	-	-	-
6. SUB	159	34	21.38	277,193	1	0.004	0	0	2	9.4
7. CHA	577	0	-	-	-	-	-	-	-	-
8. CEW	70	0	-	-	-	-	-	-	-	-
9. AKW	56	0	-	-	-	-	-	-	-	-
Total	**4,466**	**35**	**21.77**	**281,478**	**1**	**0.004**	**0**	**0.00**	**2**	**9.2**

Protected species interactions

Species name	Alive	Grand Total
Birds		
Southern royal albatross	1	1
Grand Total	**1**	**1**

Method of interaction

Species name	Other	Grand Total
Birds		
Southern royal albatross	1	1
Grand Total	**1**	**1**

Purse Seine Fisheries

Skipjack Tuna

Summary

FMA	Effort Tows	Observed Tows	Coverage (%)	Seabird Captures*	Seabirds per 100 tows	Mammal Captures	Mammals per 100 tows	Protected Fish Captures	Protected Fish per 100 tows
1. AKE	275	41	14.91	0	0.00	0	0.00	11	26.83
2. CEE	11	0	-	-	-	-	-	-	-
3. SEC	0	0	-	-	-	-	-	-	-
4. SOE	0	0	-	-	-	-	-	-	-
5. SOU	0	0	-	-	-	-	-	-	-
6. SUB	0	0	-	-	-	-	-	-	-
7. CHA	63	15	23.81	0	0.00	0	0.00	0	0.00
8. CEW	40	18	45.00	0	0.00	0	0.00	0	0.00
9. AKW	90	38	42.22	0	0.00	0	0.00	0	0.00
Total	**479**	**112**	**23.38**	**0**	**0.00**	**0**	**0.00**	**11**	**9.82**

Protected species interactions

Species name	Unknown	Grand Total
Protected Fish		
Spine-tailed devil ray	11	11
Protected Fish Total	**11**	**11**
Grand Total	**11**	**11**

Method of interaction

Species name	Unknown	Grand Total
Protected Fish		
Spine-tailed devil ray	11	11
Protected Fish Total	**11**	**11**
Grand Total	**11**	**11**

Project logistics summary statement

This project was 100% funded via Conservation Service Levies on the fishing industry. The planned cost for the project was $xxx. Services were provided by the Ministry for Primary Industries Observer Services.

Citation

XXX

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http:\\www.XXX

2.2 INT2010-02 Identification of seabirds captured in New Zealand fisheries

NOTE: This multi-year project (INT2010-02) was consulted on in 2010/11.

Overall objective

To determine which seabird species are captured in fisheries and the mode of their capture.

Specific objectives

1. To determine, through examination of returned seabird specimens, the taxon, sex, and where possible age-class and provenance of seabirds killed in New Zealand fisheries (for returned dead specimens).
2. To detail the injuries, body condition and stomach contents and, where possible, the likely cause of mortality (for returned dead specimens).
3. To report any changes in the protocol used for the necropsy of seabirds (for returned dead specimens).
4. To determine, through examination of photographs, the taxon and, where possible, sex, age-class and provenance of seabirds captured in New Zealand fisheries (for live captures or dead specimens discarded at sea).

Rationale

Large numbers of seabirds frequent New Zealand commercial fishing waters. Birds with significant differences in conservation status can appear morphologically similar. The accurate determination of the taxon of seabirds captured in New Zealand fisheries is vital for examining the potential threat to population viability posed by incidental fisheries captures. Government observers on commercial vessels are not always able to identify seabirds at sea with high precision, and the assessment of the age-class, sex and provenance of captured individuals requires autopsy in the majority of cases. To enable expert determination of taxon, sex, age-class, provenance and cause of mortality, government observers retain dead bird specimens (subject to any operational limitations), and photograph, where possible, bird captures either alive or dead.

Examining the causes of mortality and types of injuries incurred by individual seabirds returned from fisheries is necessary to help reduce future seabird captures in New Zealand fisheries by identifying gear risks. Linking this information to species, age- and sex-class, and breeding status, helps identify if different groups of seabirds are vulnerable to different risks in fishing interactions.

Information gained through this project will link to Ministry of Fisheries' databases and will inform ongoing risk assessment, research and modelling of the effects of fisheries bycatch on seabird populations. Further, the mode of capture and associated information will enable robust analyses to be made of the factors contributing to seabird capture events and inform the development of appropriate mitigation strategies.

Project status

Project due for completion in December 2013.

Summary of the methods and key findings

The following results are sourced from the six-monthly progress report for the seabird identification project, and comprise the time period from 1 July 2012 to 31 December 2012. Due to the length of some fishing trips and subsequent transport it is possible that some birds captured in this period may not have been received at the time of writing. Any further specimens received will be reported at a later date.

Between 1 July 2012 and 31 December 2012 a total of 83 birds (comprising 13 taxa) were incidentally killed, from a range of Fishing Management Areas, and returned for autopsy by onboard New Zealand Government observers. Birds were returned from longline (*n* = 12) and trawl (*n* = 71) vessels, and were dominated numerically by four species (Salvin's albatross *Thalassarche salvini*, New Zealand white-capped albatross *Thalassarche steadi*, white-chinned petrel *Procellaria aequinoctialis*, and sooty shearwater *Puffinus griseus*. These four species accounted for 73.5% of all returns to date (*n* = 61). With the exception of Buller's albatross *Thalassarche bulleri bulleri* with 8 captures, the remaining 8 taxa had captures of three or less individuals.

The majority of all birds returned were males (*n* = 57); with only Campbell albatross, Chatham albatross and Southern royal albatross having more females returned than males. Also, with the exception of the black-backed gull, the majority of the birds returned were adults (*n* = 79).

Most of the returned birds exhibited a range of injuries. Ten birds had hooks either lodged in the bill or swallowed. Many birds (*n* = 49) had been caught in the trawl nets and were very wet and sandy. Other birds (*n* = 21) showed injuries suggesting entanglement and crush injuries from the trawl warp and blocks, many having heavy grease over the wings or parts of the body. One bird (common diving petrel, *Pelecanoides urinatrix*) exhibited deck strike or impact injuries. A number of seabirds (*n* = 23) were recorded as having an interaction with the vessel, but no images were taken of these birds and as a result, identification of these birds could not be confirmed. Recommendations were made to improve on future photo-identifications.

Project logistics summary statement

This project was 100% funded via Conservation Service Levies on the fishing industry. The planned cost for the project was $80,000. Services were provided by Wildlife Management International Ltd.

Review milestones: Quarterly report to 31/03/2011 tabled at the CSP TWG meeting on 21 June 2011; quarterly report to 31/06/2011 tabled at the CSP TWG meeting on 21 October 2011; draft final report 2010-11 presented at the CSP TWG meeting on 9 December 2011; six-monthly report for 1 July 2011 – 31 December 2011 presented at the CSP TWG meeting on 28 May 2012; draft final report 2011-12 presented at the CSP TWG meeting on 27 November 2012; and six-monthly report for July – December 2012 presented at the CSP TWG meeting on 1 August 2012.

Citations

Bell, E. 2012. Identification of seabirds captured in New Zealand fisheries: 1 October 2010 to 30 June 2011. Report prepared for the New Zealand Department of Conservation, Wellington, 27p.

Bell, E. 2013. Identification of seabirds captured in New Zealand fisheries: 1 July 2011 to 30 June 2012. Report prepared for the New Zealand Department of Conservation, Wellington, 40p.

Bell, E. 2013. INT 2010/02 Identification of seabird captured in New Zealand fisheries quarterly report: 1 July 2012 to 31 December 2012. Report prepared for the New Zealand Department of Conservation, Wellington, 15p.

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http://www.doc.govt.nz/Documents/conservation/marine-and-coastal/marine-conservation-services/int-2010-02-seabird-identification-jul-dec-2012-update.pdf

3. Population Projects

3.1 POP2011-02 Flesh-footed shearwater - population study trial and at-sea distribution

NOTE: This multi-year project (POP2011-02) was consulted on in 2011/12.

Overall objectives

To assess the feasibility of gaining improved estimates of key flesh-footed shearwater population parameters; and to investigate the at-sea distribution of flesh-footed shearwaters.

Specific objectives

1. To develop a project design for a population monitoring programme suitable for estimating key demographic parameters of flesh-footed shearwaters.
2. To provide recommendations on the extent of monitoring required to obtain robust estimates of key demographic parameters for flesh-footed shearwaters.
3. To collect detailed data on the at-sea distribution and foraging behaviour of flesh-footed shearwaters in New Zealand waters.
4. To identify areas where flesh-footed shearwaters are at highest risk of interactions with fishing gear by analysing data collected in Specific Objective 3 in relation to spatial and temporal fishing effort.

Rationale

Flesh-footed shearwater is classified as At Risk (Declining) (Miskelly et al 2008), and in New Zealand breed predominantly on islands off northern North Island. A recent population estimate of approximately 8,600 pairs at eight key breeding sites (Baker et al 2010) is considerably lower than the previous estimate of 25,000-50,00 pairs (Taylor 2000). Flesh-footed shearwaters have been observed captured in a number of longline and trawl fisheries, particularly inshore bottom longline targeting snapper and scampi trawl. Quantitative risk assessment found this species to be at high risk to commercial fishing impacts (Richard et al 2011).

Information on population parameters relevant to assessing the susceptibility of this species to human induced impacts is poor. Sensitivity analysis performed as part of recent risk assessment found much of the uncertainty around estimated risk came from uncertainty around estimates of adult survival Richard et al (2011). Developing a project design for a population monitoring programme (specific objectives 1 and 2) would provide a mechanism for gathering information to better estimate adult survival, and other key population parameters relevant to managing fishing impacts on this species (e.g. fecundity, age of maturity, juvenile survival). Flesh-footed shearwaters are a migratory species, and the extent of overlap of their foraging range with New Zealand commercial fishing activity is poorly understood. Collection and analysis of detailed at sea distributional data (specific objectives 3 and 4) will allow a quantification of this overlap and inform both further risk analyses (as a tool for fisheries management) and identify fisheries and areas where management of commercial fishing impacts on this species may be required.

Project status

Project extended to 2013/14 using additional DOC funding.

Summary of the methods and key findings

The following results are sourced from the annual report for the first year (2011/12) of the two year study of flesh-footed shearwater on three off-shore island breeding sites and foraging areas.

Three sites were surveyed during this study: Titi Island, Marlborough; Ohinau Island, Coromandel; and Lady Alice Island, Northland. Data for assessing survival rate was collected at Betthels Beach and Lady Alice Island and formatted for mark-recapture analyses to be conducted in July 2012. The data which we could collect in the part of the 2011-12 breeding season available for the study were completed as programmed. These consisted mainly of logger deployments (3 sites), and establishment of study colonies (3 sites), and population estimates (1 site only). Loggers deployed in April 2012 will not be recovered until 2012-13 or 2013-14 breeding seasons.

Transect surveys were used to assess burrow density and map colonies. Burrowscope surveys were used to assess burrow contents and assist in estimating the populations during the breeding season. Locational loggers were deployed, including GPS and GLS loggers, to assess foraging patterns. Blood and feather samples were collected to determine the trophic-level of prey items by stable isotope analysis. Results for this study are pending following a second year of data gathering and analyses.

Banding and recapture data have been prepared and formatted for survivorship analyses, to allow an assessment of the likely size of study populations necessary to robustly estimate changes in vital rates which may influence population trends. It should be noted, however, that the small size of the study populations from Bethells' Beach and Lady Alice/Mauimua, and sporadic nature of recaptures of burrowing birds means these datasets may not be sufficient to address this problem in isolation.

Plans for the 2012/13 season involve, revisiting the three survey islands, retrieving the data loggers deployed in April 2012, re-surveying the main colonies for density/occupancy information, deploying 30 GPS loggers at each site, collecting further blood and feather samples, and finally, conducting stable isotope analyses.

Project logistics summary statement

This project was 50% funded via Conservation Service Levies on the fishing industry. The planned cost for the project was $90,000. Services were provided by the Museum of New Zealand, Te Papa Tongarewa.

Review milestones: Presentation of proposed methodology at the CSP TWG meeting on 9 December 2011, and presentation of draft report for 2011/12 field season and update on methodology for 2012-13 at the CSP TWG meeting on 13 November 2012,

Citation

Waugh, S., and Taylor, G. 2012. Annual Report on Project POP2011-02 Flesh-footed Shearwaters – population study trial and at-sea distribution. Report prepared for the New Zealand Department of Conservation, Wellington, 18p.

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http://www.doc.govt.nz/Documents/conservation/marine-and-coastal/marine-conservation-services/pop-2011-02-flesh-footed-shearwater-draft-report-year-1.pdf

3.2 POP2012-01 New Zealand sea lions - Auckland Islands population study

Overall objective

To provide information on the population level and dynamics of the New Zealand sea lion at the Auckland Islands relevant to assessing the impacts of commercial fishing impacts on this population.

Specific objectives

1. To estimate New Zealand sea lion pup production at Enderby and Dundas Islands using aerial survey techniques.
2. To conduct ground-based estimates of New Zealand sea lion pup production at Enderby and Dundas Islands using established techniques, timed in such a way as to ground truth aerial-based methods deployed in relation to Specific Objective 1.
3. To conduct a ground-based estimate of New Zealand sea lion pup production at Figure of 8 Island using established techniques.
4. To mark New Zealand sea lion pups at the Auckland Islands following established techniques, and conduct a three to five week period of resighting previously marked animals at Enderby Island.

Rationale

New Zealand sea lions are classified as Nationally Critical (Baker et al 2010), and are incidentally killed each year in southern commercial trawl fishing operations targeting species including squid, scampi and southern blue whiting. The foraging areas of New Zealand sea lions at the Auckland Islands have been shown to overlap with commercial trawl fishing activity, particularly SQU6T and SCI6A (e.g. Chilvers 2008, 2010). Approximately 75% of New Zealand sea lions breed at the Auckland Islands, where population data have been collected since the mid-1990s, including estimates of pup production and resighting of marked animals. Over the last decade there has been a considerable decline in pup production at the Auckland Islands (Chilvers 2010, 2011), and while disease events have occurred over this period (Castinel et al 2007), direct fishing bycatch is the major known anthropogenic impact on the population. In contrast, pup production appears to have increased on Campbell Island, the second major breeding location for the species (Maloney et al 2009). A literature review to identify potential indirect effects of commercial fishing on the Auckland Islands population as part of CSP project POP2010-01 has recently been completed (Bowen 2012). The review highlighted a number of key information gaps that currently prevent a full understanding of any such potential indirect effects.

In order to manage the commercial fisheries impacts on New Zealand sea lions at the Auckland Islands it is critical to understand the population level and key demographic factors driving trends in the population. This project collects those data required to form such an understanding. In addition, the project has a focus on recommending the most cost effective ways of collecting such data in future years.

Project status

Completed.

Summary of the methods and key findings

The following results are part of an ongoing long-term study of New Zealand sea lions (NZ sea lion), *Phocarctos hookeri*, at the Auckland Islands that was begun in the 1995/96 breeding season, allowing for estimates of annual sea lion pup production from 1998 to 2010.

There are four pupping sites at the Auckland Islands; Sandy Bay (50°30'S, 166°17'E) and South East Point (SEP, 50°30'S, 166°19'E) on Enderby Island, Dundas Island (50°35'S, 166°19'E) and Figure of Eight Island (50°46'S, 166°01'E). New Zealand sea lion pup production at S.E. Point and Figure of Eight Island was estimated using direct counts, whereas at Sandy Bay and Dundas Island the primary estimation method was a mark-recapture estimate.

Based on the 2010 pup production estimates from the Auckland Islands and from Campbell Island, 76% of all NZ sea lions pups are born at the Auckland Islands. Over the last decade there has been a considerable decline in pup production at the Auckland Islands. This decrease is thought to be aggravated by a combination of incidental bycatch from commercial fishing activity and disease events.

In January 2013 aerial surveys were conducted to estimate New Zealand sea lion pup production at the Auckland Islands for the 2012/13 breeding seasons, thus reducing the need to access restricted sites where the sea lion colonies occur and minimising disturbance to the colonies. In order to verify counts from aerial photographs with ground truthing, we attempted to carry out the aerial photography at the same time as a ground team collected information on marked animals and conducted counts, to gain some level of understanding of the number of pups present in pup piles, and the proportion of pups that weren't visible from the photographs.

It has previously been suggested that aerial counts should be undertaken on more than one day to achieve a count that can be incorporated into the existing longitudinal dataset with confidence. Noting the pups and pup piles are not static and large piles that may present counting difficulties on one day are likely to break up over a day or two, we recommend that photographs are taken over three or four days and subsequently analysed, with the maximum count used to estimate pup production for a period of interest. Certainly, the results of both the 2011/12 and 2012/13 counts show that the maximum counts for both Sandy Bay and Dundas Islands were within 4% of the mark-recapture estimates in both years.

It is also important that future aerial surveys are timed to occur as close as possible to the dates historically used for the mark-recapture estimates, to ensure their usefulness in building on the considerable longitudinal data set that exists for the Auckland Island sea lion population and enabling effective monitoring of population trend. Future aerial surveys should also cover the South East Point colony on Enderby Island too. The site is in an area than could be easily checked and photographed annually.

The field component of the work was undertaken in the Auckland Islands between the 8th and 31st of January 2013. Pup production was estimated for New Zealand sea lion colonies at Sandy Bay (n = 374), Dundas Island (n = 1,491), Figure of Eight Island (n = 75) and South East Point (n = 0) with total pup production for the Auckland Islands in 2013 estimated as 1,940 – a 15.2% increase on the estimate from 2012. Seven hundred and eighty two pups were double flipper tagged at Sandy Bay (n = 347), Dundas Island (n = 400), Figure of Eight Island (n = 33), South East Point (n = 0) and elsewhere on Enderby Island (n = 21). Over 2,262 tag, brand and micro-chip resightings of individual sea lions were made. All of these resightings are still being verified and validated and, once that is completed, the exact number of resightings and the data itself will be available.

Project logistics summary statement

This project was 90% funded via Conservation Service Levies on the fishing industry. The planned cost for the project was $150,000. Services were provided by Latitude 42 Environmental Consultants Pty Ltd and Blue Planet Marine.

Review milestones: Presentation of proposed ground survey methodology for 2012/13 and proposed aerial survey methodology for 2012/13 at the CSP TWG meeting on 13 November 2012, presentation of draft ground count results at the CSP TWG meeting on 7 March 2013, presentation of draft aerial survey results and tabling of the ground count results report at the CSP TWG meeting on 5 June 2013.

Citations

Baker, B., Jensz, K., and Chilvers, L. 2013. Aerial survey of New Zealand sea lions - Auckland Islands 2012/13. Report prepared for the New Zealand Department of Conservation, Wellington, 11p.

Childerhouse, S. J., Amey, J., Hamer, D., and McCrone, A. 2013. Final report for CSP Project 4426 New Zealand sea lion ground component 2012/13. Report prepared for the New Zealand Department of Conservation, Wellington, 22p.

Weblinks

http://www.doc.govt.nz/Documents/conservation/marine-and-coastal/marine-conservation-services/pop-2012-01-sea-lion-aerial-survey-final-report.pdf

http://www.doc.govt.nz/Documents/conservation/marine-and-coastal/marine-conservation-services/pop-2012-02-sea-lion-ground-survey-final-report.pdf

3.3 POP2012-02 New Zealand sea lions – demographic assessment of the cause of decline at the Auckland Islands

Overall objective

To determine the key demographic factors driving the observed population decline of New Zealand sea lions at the Auckland Islands.

Specific objectives

1. To identify which demographic parameters are the key drivers of the observed population decline of New Zealand sea lions at the Auckland Islands.
2. To identify potential demographic mechanisms through which both direct and potential indirect effects of fishing can impact on the population level of New Zealand sea lions at the Auckland Islands, or increase the susceptibility of the population to such effects.

Rationale

New Zealand sea lions are classified as Nationally Critical (Baker et al 2010), and are incidentally killed each year in southern commercial trawl fishing operations targeting species including squid, scampi and southern blue whiting. The foraging areas of New Zealand sea lions at the Auckland Islands have been shown to overlap with commercial trawl fishing activity, particularly SQU6T and SCI6A (e.g. Chilvers 2008, 2010). Approximately 75% of New Zealand sea lions breed at the Auckland Islands, where population data have been collected since the mid-1990s, including estimates of pup production and resighting of marked animals. Over the last decade there has been a considerable decline in pup production at the Auckland Islands (Chilvers 2010, 2011), and while disease events have occurred over this period (Castinel et al 2007), direct fishing bycatch is the major known anthropogenic impact on the population. In contrast, pup production appears to have increased on Campbell Island, the second major breeding location for the species (Maloney et al 2009). A literature review to identify potential indirect effects of commercial fishing on the Auckland Islands population as part of CSP project POP2010-01 has recently been completed (Bowen 2012). The review highlighted a number of key information gaps that currently prevent a full understanding of any such potential indirect effects. In order to manage the commercial fisheries impacts on New Zealand sea lions at the Auckland Islands it is critical to understand the key demographic factors driving trends in the population and how fishing impacts on these parameters, or how any demographic processes influencing the population may alter its susceptibility to fishing impacts. This project aims to both identify these key parameters and identify the mechanisms through which fishing impacts are influencing these parameters and hence influencing the population trend.

Project status

On-going (scheduled completion June 2014).

Summary of the methods and key findings

The following summary is from the demographic model options report, August 2013.

State space demographic models were developed using NIWA's demographic modelling package, SeaBird, in order to estimate time-varying survival, pupping rates, tag shedding, and age at first pupping of New Zealand sea lions at the Auckland Islands. The main data used were: mark-resighting data from animals tagged as pups at Sandy Bay, Enderby Island from 1990-2011, annual pup

production at Sandy Bay from 1990-2012, and age-frequencies of breeding individuals by year were fitted to age distribution observations of lactating females at Sandy Bay from 1998-2001.

Preliminary model runs were used to find the best parameterisation based on Akaike information criterion (AIC) (model 7a). A Monte Carlo Markov Chain (MCMC) was run to assess variability of the parameter estimates. The model was expanded to estimate tag shedding, but no MCMC was performed on this model due to resource constraints. Model 7a was also used to estimate demographic rates for animals that were tagged and resighted at Dundas Island.

Declines in survival of ages 0 and 1, as well as cohort effects on survival at age 6-14 may be sufficient to explain the long-term declining trend in annual pup census counts at Sandy Bay. Similarities in survival estimates at Dundas indicate that juvenile survival is a strong candidate for a proximate cause of the decline in pup production there also. Intermittent one and two-year declines in pup production (e.g. 2002 and 2009) are coincident with years when the probability of pupping was low. In addition, inter-annual variation in the age at first pupping could also cause long term increases and decreases in pup production, which do not instantaneously affect the number of animals at breeding age.

An array of candidate models have been selected for the identification of demographic processes (proximate causes) which may be driving inter-annual variation and the longer-term decline in pup counts at the Auckland Islands breeding rookeries of NZ sea lions. A correlative assessment in the next phase of the project aims to take these long term trends and to identify mechanisms that may ultimately be driving variation in key demographic rates, for example: the potential direct and indirect effects of fishing, disease, predation and variation in ocean climate. This assessment will be the primary focus of the project workshop planned for December 2013.

Project logistics summary statement

This project was 90% funded via Conservation Service Levies on the fishing industry. The planned cost for the project was $60,000 for the period 1 July 2012-30 June 2013 and $50,000 for the period 1 July 2013-30 June 2014. Services were provided by the National Institute of Water and Atmospheric Research.

Review milestones: Presentation of data summary and proposed methodology at the CSP TWG meeting on 7 March 2013, and presentation of model options at the CSP TWG meeting on 1 August 2013.

Citation

Roberts, J., Fu, D., Doonan, I., and Francis, C. 2013. Progress Report. Demographic model options. Report prepared for the New Zealand Department of Conservation, Wellington, 40p.

Weblink

http://www.doc.govt.nz/Documents/conservation/marine-and-coastal/marine-conservation-services/pop-2012-02-sea-lion-demographic-model-selection.pdf

3.4 POP2012-03 Black petrel – at-sea distribution and population estimate

Overall objective

To describe the population trend and detailed at-sea foraging distribution of black petrels during the breeding season.

Specific Objective

1. To provide detailed at-sea foraging distributional data of black petrels during the breeding season, suitable for inclusion in fisheries risk assessments.
2. To estimate the black petrel population size at Great Barrier Island and describe the population trend by comparing the estimate to relevant existing data.

Rationale

Black petrels are endemic to New Zealand and breed only on Great Barrier Island (Aotea Island) and Hauturu/Little Barrier Island. Black petrels have been observed caught in trawl, surface longline and bottom longline fisheries. Recent observer coverage found relatively high numbers of captures in inshore bottom longline fisheries in Fisheries Management Area 1 (e.g. Ramm 2010). Considerable research on black petrels on Great Barrier Island has now been completed, including CSP projects POP2009-01, POP2008-01, POP2007-02, POP2005-04, POP2004-4, BRD2003-1, BRD2002-5 and BRD2001-3. This research has included the collection numerous tracking data from coarse-scale geologgers (e.g. Bell et al 2011a), and some more detailed tracking data using GPS devices (e.g. Freeman et al. 2010). Good estimates of key population parameters for Great Barrier Island have been made (e.g. Bell et al. 2011b, Francis & Bell 2010), though estimates of juvenile survival remain highly uncertain (Bell et al 2011b). Population modelling in a fisheries context (Bell et al 2011b) concluded that uncertainty in population trajectory was driven by uncertainty over juvenile survival, but that repeated transect surveys showed an apparent decline in total population. In order to improve our understanding of the population dynamics further time-series data are necessary on the population level. The spatial data will inform detailed future fisheries risk assessment for black petrels at a within-New Zealand waters scale.

Project status

Complete.

Summary of the methods and key findings

The project formed part of an ongoing long-term study of the black petrel, *Procellaria parkinsoni*, on Great Barrier Island (Aotea Island) that was begun in the 1995/96 breeding season.

During the 2012/13 breeding season, 409 study burrows within the 35-ha study area near Mount Hobson were examined and intensively monitored. Of these, 273 were used by breeding pairs, 101 by non-breeding adults, and the remaining 35 burrows were unoccupied. By 30 April 2013, 213 chicks were still present in the study burrows and 7 had already fledged, corresponding to a breeding success of 81%.

Nine census grids were monitored within the study area and accounted for 156 of the inspected burrows and 151 study burrows, with 90 burrows being used for breeding. Eighty-five chicks from

earlier breeding seasons were recaptured within the Mount Hobson colony area this season (a total of 149 'returned chicks' have been caught since the 1999/2000 season).

Twenty-six random transects were surveyed in the study area and when compared with transects conducted in the 2004/05 and 2009/10 seasons showed an apparent 110% increase in the number of breeding birds since 2009/10, and a 65% increase since 2004/05. Much of this difference is likely attributed to changes in breeding rate and success. Analysis of the census grid and transect data estimated the black petrel population from the 35-ha area around Mount Hobson to be in the range of 3974 to 4233 birds.

Fifty-five high-resolution GPS i-Got-U™ data-loggers and 36 Lotek™ LAT1900-8 time-depth recorders were deployed between December 2012 and February 2013 on breeding black petrels to obtain at-sea distribution and foraging behaviour. The at-sea distribution of black petrels was derived from 16 full and/or partial GPS tracks. Birds were found to forage around the northern New Zealand, East Cape and into the Tasman Sea. Foraging behaviour showed black petrels dived to a maximum depth of 27 m, with over 80% of dives being less than 5 m. The majority of dives (90%) occurred during the day.

Project logistics summary statement

This project was 50% funded via Conservation Service Levies on the fishing industry. The planned cost for the project was $40,000. Services were provided by Wildlife Management International Ltd.

Review milestones: Update on proposed methods presented at the CSP TWG meeting on 27 November 2012, and presentation of draft final report at the CSP TWG meeting on 1 August 2013.

Citation

Bell, E., Sim, J. L., Scofield, P., Francis, C., and Landers, T. 2013. At-sea distribution and population parameters of the black petrels (Procellaria parkinsoni) on Great Barrier Island (Aotea Island), 2012/13. Report prepared for the New Zealand Department of Conservation, Wellington, 95p.

Weblink

http://www.doc.govt.nz/Documents/conservation/marine-and-coastal/marine-conservation-services/reports/pop-2013-03-black-petrel-population-study-final-report.pdf

3.5 POP2012-04 Campbell Island and grey-headed albatrosses – population estimates

Overall objective

To estimate the population size and trend of Campbell Island and grey-headed albatrosses at Campbell Island.

Specific objectives

1. To estimate the population size of Campbell Island and grey-headed albatrosses at Campbell Island.
2. Determine the population trend of Campbell Island and grey-headed albatrosses at Campbell Island with reference to historic data.

Rationale

The Campbell Island albatross is endemic to New Zealand and breeds only at the Campbell Islands, which is also the only New Zealand breeding site of the grey-headed albatross. Campbell Island albatross has been reported bycaught mainly in surface longline fisheries, and also trawl, and although there have been very few observed captures of grey-headed albatross in New Zealand commercial fisheries, the risk ratio of Richard et al. (2011) is high, and substantial declines have been documented (e.g. Waugh et al. 1999). Population size is a parameter contributing a large proportion of uncertainty to the risk ratio of Richard et al. (2011), and thus updated information on the population size and trend will allow a more precise assessment of the impact of commercial fishing on these species.

Both Campbell Island albatross and grey-headed albatross are currently subject to tracking work as part of a National Institute of Water and Atmospheric Research Limited (NIWA) research project (D. Thompson, pers. comm.). This provides a research platform that allows for collection of additional information required to estimate the population size of these species at relatively low cost as the substantial overhead logistical costs related to work at Campbell Island do not have to be met.

Project status

Substantially complete. Final report in preparation following review of progress report by the CSP TWG.

Summary of the methods and key findings

The following results are from the progress report of July 2013.

The Campbell Island albatross (*Thalassarche impavida*), an annual breeder, is endemic to New Zealand, breeds only on Campbell Island, and is present at colonies from August to April. The Grey-headed albatross (*Thalassarche chrysostoma)* is a circumpolar species within the southern hemisphere that breeds biennially on Campbell Island within the New Zealand Exclusive Economic Zone, and is present at colonies from September to May.

Substantial declines in both species have been previously documented. In 2004, counts of occupied nests in photographs taken since the 1940s plus ground counts completed during the 1990s were

used to estimate population trends over the period 1942-1997. Continuous decreases were shown of 82-88% (1.5- 2.7%/annum) in the numbers of grey-headed albatrosses based on counts from the 3 colonies with the longest record. Changes in numbers of Campbell albatrosses were more variable over the same period, with numbers in 1 colony apparently increasing by 11% between the 1942 and 1966, before declining 47% by the 1980s, and then recovering at 3.2%/annum through to 1997. The decline in numbers of grey-headed albatrosses was attributed to natural environmental processes, whilst trends in Campbell albatross numbers coincided with the development of longline and trawl fisheries within their foraging range.

For the current study, population estimates were made using counts of occupied nests detected in digital photos. Photographs were taken from the 12 standard photo-points labelled MP1-MP12. In addition, the large and inaccessible colonies of the Courrejolles Peninsula were photographed from photo-view C1. In 2011, photos were taken from MP2-MP12 between 1000 and 1500h on the 28 October; and from MP1 and C1 1100-1200 on the 7 November. In 2012, photos were taken from MP5-MP11 on the 28 October, MP12 on the 4 November and MP1-MP4 & C1 on the 6 November. At this time both species of albatross were about the middle of their incubation stage.

A ground count of occupied nests and birds present was completed between 1000h and 1300h on the 26 October 2011 in the area between the Bull Rock South study colony and photo-point MP10. All birds occupying a nest with an egg in this area were sprayed with stock marker as they were counted. In addition, all loafing birds (those on the ground but not incubating) were also counted.

Following a period of decline in the 1940s to 1980s, numbers of breeding Campbell albatrosses increased from the mid 1980s through to 2012. Numbers of breeding grey-headed albatrosses declined during the period 1940s to the mid 1980s, but there appears to have no further declines and the population appears to have remained at this level through to 2012

Project logistics summary statement

This project was 50% funded via Conservation Service Levies on the fishing industry. The planned cost for the project was $20,000. Services were provided by the National Institute of Water and Atmospheric Research.
Review milestones: Progress report presented at the CSP TWG meeting on 31 July 2013.

Citation

Sagar, P. 2013. Progress Report. Campbell and grey-headed albatross population estimates. Progress report to CSP Technical Working Group, 31 July 2013.

Weblink

http://www.doc.govt.nz/Documents/conservation/marine-and-coastal/marine-conservation-services/csp-twg-31-7-2013-sagar-presentation-campbell-grey-headed-albatross.pdf

3.6 POP2012-05 White-capped albatross – population estimate

Overall objective

To estimate the population size and trend of white-capped albatross at the Auckland Islands.

Specific objectives

1. To estimate the population size of white-capped albatross at the Auckland Island.
2. Determine the population trend of white-capped albatross at the Auckland Island.

Rationale

White-capped albatross is endemic to New Zealand and breeds predominantly on the Auckland Islands. This species has been one of the most commonly recorded bycaught protected species in New Zealand waters, particularly in off-shore trawl fisheries. A small scale five-year population study as part of CSP project POP2005-02 has recently been completed, including collection of tracking data (Thompson et al. 2011, Torres et al. 2011). A series of aerial counts of all main colonies of this species have been completed as part of MPI project PRO2006/01, and show an apparent population decline (Baker et al. 2011). Additional photographic material has been collected in January 2012, under contract to DOC, but requires analysis. Population modelling in a fisheries context has been conducted as part of MPI project PRO2006/02 (Francis 2011) which concludes that global fishing bycatch (but not New Zealand fishing only) presents a risk to population viability and highlights the absence of information on juvenile survival and age at first breeding. Updated information on the population trend will assist in determining the susceptibility of this population to fisheries impacts as well as allow future assessment of ongoing fisheries management in regards to impacts on this species.

Project status

Completed.

Summary of the methods and key findings

White-capped albatrosses *Thalassarche steadi* are endemic to New Zealand, breeding on Disappointment Island, Adams Island and Auckland Island in the Auckland Island group, and Bollons Island (50-100 pairs) in the Antipodes Island Group. Population estimates suggest most (95%) of the global population breeds on Disappointment Island, an area where access is restricted to maintain environmental values at the site. Virtually all aspects of the biology and ecology of white-capped albatrosses are poorly known and although approximate population sizes have developed there have been no well-documented population estimates for any of the colonies.

Between 2006/07 and 2010/11 (hereinafter 2006 and 2010, respectively) repeated population censuses of the white-capped albatrosses breeding in the Auckland Islands, were carried out using aerial photography. These population censuses were performed in December of each year to estimate population size and track population trends. Two additional counts have since been undertaken at the Auckland Islands: on 11 January 2012 and 14 January 2013 (2011 and 2012 breeding seasons, respectively).

In 2011, it was estimated that there were 93,752 (95%CI 93,140 - 94,364), 5,846 (95%CI 5,604 - 5,999) and 178 (95%CI 151 - 205) annual breeding pairs at Disappointment Island, South West Cape, and Adams Island, respectively, giving a total for these sites of 99,776 (95%CI 99,144 - 100,408) breeding pairs. In 2012, it was estimated that there were 111,312 (95%CI 110,645 - 111,979), 6,571 (95%CI 6,409 - 6,733) and 215 (95%CI 186 - 244) annual breeding pairs at Disappointment Island, South West Cape, and Adams Island, respectively, giving a total for these sites of 118,098 (95%CI 117,411 - 118,785) breeding pairs.

To assess population trend in total counts, an appropriate Generalised Linear Model was used, where the response was specified as an over dispersed Poisson distribution and the link was logarithmic. To allow for possible non-linear trend effects, smoothing splines (with smoothing parameter set at 3) were employed for the variable 'Year'. We also assessed trend using software program TRIM (TRends and Indices for Monitoring Data), the standard tool used by the Agreement for the Conservation of Albatrosses and Petrels (ACAP).

Evidence from a series of 'close-up' photographs taken each year (2007-2012) indicates that the number of non-breeding birds present in the colonies differed somewhat between December and January. The proportion was very low in December counts (1-2% of birds present) to 7 and 15% for the January counts taken in 2011 and 2012, respectively. Estimated annual counts for all three breeding sites in the Auckland Islands were adjusted to account for the presence of non-breeding birds, giving adjusted total estimates of annual breeding pairs of 116,025, 90,036, 96,118, 73,838, 76,119, 92,692 and 100,501 for each year from 2006 to 2012 inclusive. These adjusted figures were used as inputs into models used for assessment of population trend.

The population size estimates computed from the TRIM model indicate an average growth rate of - 2.19% per year ($\lambda = 0.9781 \pm 0.001$); assessed by TRIM as moderate decline. However, it was noted that a simple linear trend analysis, as performed by TRIM, is not well suited to a data set with high inter-annual variability. Trend analysis using smoothing splines is more appropriate to such data sets, and showed no evidence for systematic monotonic decline over the 7 years of the study, therefore providing support to the null hypotheses of no trend (stability) in the total population.

In a global review of fisheries-related mortality of shy and white-capped albatrosses it was estimated that 8,000 white-capped albatrosses were killed each year as a result of interactions with trawl and longline fisheries in the Southern Ocean. This level of mortality highlights the need to continue to acquire accurate population estimates and trends for white-capped albatross populations to assess the impact of fisheries operations on this species. Although annual counts over the last seven years indicate the population is stable, ongoing population monitoring is recommended to clarify if current levels of fishing mortality are sustainable.

Project logistics summary statement

This project was 50% funded via Conservation Service Levies on the fishing industry. The planned cost for the project was $55,000. Services were provided by Latitude 42 Environmental Consultants Pty Ltd.

Review milestones: Presentation of proposed methodology at the CSP TWG meeting on 13 November 2012, and presentation of draft aerial count results at the CSP TWG meeting on 5 June 2013.

Citation

Baker, G. B., Jensz, K., and Cunningham, R. 2013. White-capped albatross population estimate - 2011/12 and 2012/13. Report prepared for the New Zealand Department of Conservation, Wellington, 22p.

Weblink

http://www.doc.govt.nz/Documents/conservation/marine-and-coastal/marine-conservation-services/pop-2012-05-white-capped-albatross-final-report.pdf

3.7 POP2012-06 Salvin's albatross – population estimate and at-sea distribution

Overall objective

To estimate the at-sea distribution and population size and trend of Salvin's albatross at the Bounty Islands.

Specific objectives

1. To determine the foraging range of Salvin's albatross at the Bounty Islands.
2. To estimate the population size of Salvin's albatross at the Bounty Islands.
3. To determine the population trend of Salvin's albatross at the Bounty Islands with reference to historic data.

Rationale

Salvin's albatross is endemic to New Zealand, with the main breeding population at the Bounty Islands. Salvin's albatross has been recorded bycaught predominantly in trawl fisheries, in relatively high numbers, and has been identified as at potentially high risk from commercial fisheries impacts (Richard et al. 2011). There is poor knowledge of Salvin's albatross currently, limited mainly to study of the small population at The Snares Islands (e.g. Sagar et al. 2011). In late 2011 an expedition to the Bounty Islands collected population information on Salvin's albatross on two islands, and initial results suggest a substantial population decline since 2004, in addition to apparent declines from 1997 to 2004 (J. Amey pers. comm.). The apparent decline in population combined with relatively high fisheries risk makes obtaining robust population information for this species a high priority requirement to ensure fisheries impacts can be adequately managed. An aerial census of the Bounty Islands was also completed in 2010 (Baker et al. 2011), and whilst this method showed promise as a suitable monitoring method, ground truthing is required. No tracking data has been collected for Salvin's albatross at the Bounty Islands. Determining the population trend and foraging ranges of the Bounty Islands population has also been recognised internationally as a research priority (ACAP 2011).

Project status

On-going. There are three components:

1. Population data review: substantially complete, final report in preparation following review by CSP TWG
2. At-sea tracking: scheduled completion June 2014.
3. 2013 Aerial survey: scheduled completion April 2014.

Summary of the methods and key findings

Population data review: results from the draft report of June 2013:

The Bounty Islands supports about 98.5% of the breeding population of the endemic Salvin's Albatross (*Thalassarche salvini*), but the population had not been counted using methods that can be replicated. Therefore, until now, there has been no means to determine population trends over time. To estimate population trend and examine the accuracy of ground counts, a whole-island survey of Salvin's Albatross breeding at Proclamation Island, Bounty Islands, New Zealand was undertaken in November 1997. Repeat counts using the same methods completed in November 2004 and November 2011 suggested that the numbers of Salvin's Albatross nests on Proclamation Island declined by 14% between 1997, and 2004, by 13% between 2004 and 2011, and overall by

30% between 1997 and 2011. On Depot Island there was an estimated decrease of 10% in the numbers of breeding pairs between 2004 and 2011.

Salvin's Albatrosses are annual breeders and the average length of incubation among *Thalassarche* species is 68 - 73 days. The only published studies of the laying and incubation period within the shy albatross group are for Shy Albatrosses *T. cauta* which has an incubation period of 73 ± 1 day. Assuming a 73-day incubation period, the average date for egg laying for Salvin's Albatrosses at the Bounty Islands would be on 2 September with most eggs being laid between 24 August and 14 September. Therefore, the optimal time to conduct a Salvin's Albatrosses census would be about the end of the egg laying period (14 September) because at this time all eggs have been laid and few nests are likely to have failed.

The numbers of Salvin's Albatrosses at the Snares Western Chain were estimated to be 1100-1200 annual breeding pairs during the period 2008-2010, while the main breeding population, an estimated 30,752 breeding pairs in 1997, is at the Bounty Islands. Elsewhere, in the New Zealand region, two occupied nests have been reported from The Pyramid in 1995 and a chick in 2006, and one chick from the Forty-Fours in 2007. Four breeding pairs were also recorded on Iles des Pingouins in the Crozet archipelago in 1986. Therefore, the Bounty Islands support an estimated 98.25% of the total breeding population of what is essentially an endemic species.

The scale of change measured in the Salvin's Albatross population on Proclamation and Depot Islands requires urgent investigation of the population and foraging biology of this nationally vulnerable New Zealand endemic species.

At-sea tracking: results from the year 1 (2012/13) progress report:

Due to their light weight (<4 g) and the ability to attach them to bands, geolocation loggers have become the usual means of tracking seabirds over long periods, even over several years. At the Bounty Islands, egg-laying of Salvin's albatrosses occurs in September and the peak of hatching in mid-November. Previously, at Toru Islet, Snares Western Chain, it had been discovered that the egg-stage is appropriate for deploying geolocators on Salvin's albatrosses, and so during October 2012 a trip was made to the Bounty Islands to undertake this task.

Landings were made on Proclamation Island, Bounty Islands, on both 16 and 17 October 2012. During this time geolocators, each of which was attached to a plastic leg band by cable ties and glue, were deployed on the legs of 50 breeding Salvin's albatrosses. Retrieval of the geolocators is planned for November 2013.

Project logistics summary statement

This project was 50% funded via Conservation Service Levies on the fishing industry. The planned cost for the project was $80,000 for the period 1 July 2012-30 June 2013 and $120,000 for the period 1 July 2013-30 June 2014. Services were provided by the National Institute of Water and Atmospheric Research (population data review and at-sea tracking) and Latitude 42 Environmental Consultants Pty Ltd (2013 aerial survey).

Review milestones: Presentation of draft results at the CSP TWG meeting on 31 July 2013.

Citation

Population data review:

Amey, J., and Sagar, P. 2013. Draft results. Salvin's albatross population trend at the Bounty Islands, 1997-2011. Report prepared for the New Zealand Department of Conservation, Wellington, 31p.

At-sea tracking:
Sagar, P., and Charteris, M. 2013. Progress Report. Salvin's albatrosses at the Bounty Islands – at-sea distribution – year 1 report. Report prepared for the New Zealand Department of Conservation, Wellington, 13p.

Weblink

Population data review:
http://www.doc.govt.nz/Documents/conservation/marine-and-coastal/marine-conservation-services/pop-2012-06-salvins-albatross-population-trend-draft-final-report.pdf

At-sea tracking:
http://www.doc.govt.nz/Documents/conservation/marine-and-coastal/marine-conservation-services/reports/pop2012-06-salvins-albatrosses-final-report.pdf

3.8 POP2012-07 Gibson's albatross – population estimate

Overall objective

To estimate the population trend and adult survival of Gibson's albatross at the Auckland Islands.

Specific objectives

1. To estimate the population size and trend of Gibson's albatross at the Auckland Islands.
2. To estimate the adult survival of Gibson's albatross at the Auckland Islands.

Rationale

This taxon (*Diomedea antipodensis gibsoni*) is endemic to New Zealand and breeds only at the Auckland Islands. Reported incidental captures have been predominantly from surface longline fisheries. Population studies have been conducted at the Auckland Islands, including work carried out as part of CSP projects (e.g. POP2004-02, BRD2001-01), with monitoring continued over recent years, as well as some tracking studies (K. Walker & G. Elliott, unpublished). Work is currently being completed to model the effects of fishing on this taxon as part of MPI project PRO2006/02. Whilst there were difficulties in assessing the effect of fisheries mortality on the viability of the population, initial results did reveal concern for the status of the population, with a marked decline in the population since 2005 due to reductions in adult survival, proportion of adults breeding and breeding success (Francis et al 2012). Adult survival was the parameter contributing most uncertainty to the risk ratio of Richard et al. (2011). Further information on population size and trend, and updated estimates of adult survival will inform updated fisheries risk assessment work.

Project status

Completed.

Summary of the methods and key findings

Gibson's wandering albatross (*Diomedea gibsoni*) are endemic to the Auckland Island archipelago, with approximately 95% of the population breeding on Adams Island, the southern-most island in the group. They forage largely in the Tasman Sea, but also along the continental shelf off southern and south eastern Australia, and off eastern New Zealand. The population is in decline, and is regarded as a 'Nationally Vulnerable" threatened species.

Gibson's wandering albatrosses are a rare, but regular by-catch in New Zealand long-line fisheries, with small numbers annually caught on observed domestic and chartered vessels. In 2012 it was estimated that from 1998-99 to 2008-09 in the New Zealand fisheries alone, between 35 and 65 Gibson's wandering albatrosses per year were caught. Of the 51 birds caught during this period which were autopsied, all but one were adults, and the sexes were evenly represented. Numbers actually caught are likely to be considerably higher than those reported, as many long-line hooks set in New Zealand and Australian waters are from small unobserved domestic vessels, and there are substantial unobserved long-line fleets in international waters in the mid Tasman Sea and the SW Pacific Ocean where the birds regularly forage.

Due to the vulnerability of this species, their survival, productivity, recruitment and population trends have been monitored during almost annual visits to Adams Island since 1991. In the 1990's

the population slowly increased following a major, presumably fisheries-induced, decline during the 1980's. However, in 2005 there was a sudden drop of more than 40% in the size of the breeding population. Since 2005, the adult population has been declining at 5.7% per year because of substantial reductions in three demographic rates: adult survival (from 0.95 to 0.89), proportion breeding (from 0.53 to 0.37), and the proportion of breeding attempts that are successful (from 0.60 to 0.25). The Gibson's wandering albatross population is now only about two-thirds of its estimated size in 1991, with slow increases since 2005 in adult survival and proportion breeding, but continuing low productivity.

Nearly all the population parameters with which one might assess the conservation status of Gibson's wandering albatross have been below average since 2004, and although there has been an improvement in recruitment, nesting success and survival from their low points in 2006, these parameters are still below their pre-2004 levels.

Analysis of tracking data from geolocator dataloggers indicates birds are travelling greater distances and foraging more widely than they did in 1994-2003. Breeding females, in particular have a much bigger foraging range. The combination of increased foraging range and poor breeding success suggests that these albatrosses are foraging more widely for a smaller amount of food, which in turn suggests a collapse in the abundance of the squid and fish populations they prey on, or at least a change in their distribution.

Tracking data lends some support to the theory that there have been deleterious changes to the marine environment west of New Zealand. Changes in the south Tasman Sea and the south west Pacific Ocean appear to have been of sufficient magnitude to significantly alter the distribution of Gibson's wandering albatrosses. Since birds are now foraging further from the breeding island than they used to, in oceans not used a decade ago, the opportunity to encounter long-line fishing fleets and the attractiveness of such fleets to birds may have increased. The energetic cost of rearing a chick has almost certainly risen. As such, monitoring the population of Gibson's wandering albatrosses on Adams Island remains an important conservation priority.

Project logistics summary statement

This project was 50% funded via Conservation Service Levies on the fishing industry. The planned cost for the project was $55,000. Services were provided by Graeme Elliot and Kath Walker (contractors).

Review milestones: Presentation of draft results at the CSP TWG meeting on 5 June 2013.

Citation

Elliott, G., and Walker, K. 2013. Gibson's Wandering albatross research Adams Island 2013. Report prepared for the New Zealand Department of Conservation, Wellington, 10p.

Weblink

http://www.doc.govt.nz/Documents/conservation/marine-and-coastal/marine-conservation-services/pop-2012-07-gibsons-albatross-admas-island-2013.pdf

3.9 POP2012-08 Pitt Island shags – foraging ecology

Overall objective

To describe the foraging ecology of Pitt Island shags.

Specific objectives

1. To describe the spatial distribution and dive profiling of Pitt Island shag foraging behaviour at the Chatham Islands.
2. To describe the diet of Pitt Island shags at the Chatham Islands.

Rationale

Pitt Island and Chatham Island shags are endemic to New Zealand and are both restricted to the Chatham Islands. There is limited knowledge on the breeding biology and demographic parameters of these species, and two censuses (1997/98 and 2003/04; Bell & Bell 2000, Bester & Charteris 2005) revealed apparent declines of 25% and 65%, respectively. A third census was completed in late 2011 as part of CSP project MCSPOP2010-02 has confirmed that significant declines of both species have occurred since 1997 (Debski et al 2012), and at-sea factors appear to be driving the declines of both species, though causal mechanisms remain unknown. The extent of potential captures in New Zealand fisheries remains uncertain, although Rowe (2010a) identified high-moderate risk, primarily from poorly observed set net and pot and trap fisheries. Results from CSP project INT2011-02 (Bell 2012) found that fishermen reported historic captures of Chatham Island shags in cray fish pots, but no captures in the last five years due to changes in fishing practice. No information exists on the foraging distribution or diet of Pitt Island and Chatham Island shags. In order to understand the mechanisms by which fisheries may affect Pitt Island and Chatham Island shags, and the extent of these effects, a proper understanding of the diet and foraging distribution is required.

This project focuses on Pitt Island shags as this species has been identified as an easier study species for foraging ecology study in comparison to Chatham Island shags. It is envisaged that methods developed may be applicable to comparative future studies of Chatham Island shags.

Project status

Substantially complete. Final report in preparation following review by the CSP TWG.

Summary of the methods and key findings

The following results are from the draft final report.

The foraging ecology of Pitt Island shags (*Stictocarbo featherstoni*) breeding from two areas on Chatham Island was studied using GPS loggers and time depth recorders. Pitt Island shags foraged up to 18km from breeding colonies, with mean foraging distance 5.2km. Most birds showed foraging area fidelity, returning to the same areas to feed during most foraging trips.

Pitt Island shags foraged in shallow waters, with mean dive depth 6.6m. With the maximum recorded dive being 24.4m; however 90% of all dives were to less than 13m deep. Mean dive duration was 22 seconds (max 69 seconds) and mean rest period 19 seconds. Mean time underwater

during foraging trips was 50.1%. There was no difference between sexes in dive depth, duration, rest period and time underwater.
There is a strong relationship between dive depth and dive duration, but only a weak relationship between rest period and dive duration of the proceeding dive.

Although there was little difference between the sexes, there was some difference in foraging parameters from different foraging areas, probably related to foraging depth and relative prey abundance.

This study suggests that the foraging range of Pitt Island shag is throughout inshore coastal waters of the Chatham Islands. This puts Pitt Island shag foraging in direct overlap with commercial rock lobster fishing, especially in January and February when pots are set in shallow water close to shore following the annual movement of rock lobster.

Project logistics summary statement

This project was not funded via Conservation Service Levies on the fishing industry. The planned cost for the project was $25,000. Services were provided by Wildlife Management International Ltd.

Review milestones: Presentation of draft final report at the CSP TWG meeting on 1 August 2013.

Citation

Bell, M. 2013. Foraging ecology of Pitt Island shag. Report prepared for the New Zealand Department of Conservation, Wellington, 19p.

Weblink

4. Mitigation Projects

4.1 MIT2012-01 Inshore bottom longline seabird mitigation - design and analysis

Overall objective

To design a process of experimental testing, and analyse results, to determine the effectiveness of seabird mitigation strategies used by inshore bottom longline fishermen in the Hauraki Gulf.

Specific objectives

1. To design suitable experimental techniques for testing of seabird mitigation techniques used by inshore bottom longline fishermen.
2. To develop forms for use by observers as part of INT2012-01 Inshore Objective 3
3. To collate and groom both quantitative and qualitative data collected by observers in inshore bottom longline fisheries.
4. To undertake statistical analyses of these data to determine the effectiveness of mitigation strategies used by inshore bottom longline fishermen and those factors contributing to their effectiveness.
5. To provide recommendations for possible improvements to mitigation strategies and their wider applicability throughout the fleet.
6. To provide recommendations for improvements to testing protocols and suitable generalised metrics for measuring effectiveness of mitigation techniques, including required sample sizes.

Rationale

Inshore fishers employ a number of strategies, both regulated and voluntary to mitigate against the capture of seabirds. These techniques have been observed to be varied between vessels and pervious observer coverage has shown large variation in the incidence of seabird bycatch, much of which has been qualitatively linked to mitigation practices (Rowe 2009, 2010a, Ramm 2010, 2012). To date, no quantitative assessments of the efficacy of these measures have been undertaken. This project will design the data collection work undertaken by observers as part of INT2012-01 Inshore Objective 3, utilising recommendations from the inshore bottom longline mitigation Technical Advisory Group (TAG) to the extent feasible, and analyse the resulting data.

Determining the effectiveness of different mitigation strategies over different vessels allows a wider suite of mitigation to be identified. This gives fishers the opportunity to apply the most appropriate measures to their specific operations with the aim of increasing both implementation rate and effectiveness of mitigation strategies over the entire fleet.

This work will feed in to practical recommendations for the most effective strategies to mitigate against seabird captures in the inshore bottom longline fishery.

Project status

Completed. This project was conducted alongside project MIT2011-03, and were reported jointly.

Summary of the methods and key findings

Seabirds of conservation concern, including the black petrel (*Procellaria parkinsoni*), are incidentally captured on bottom longline fishing gear deployed in inshore commercial fisheries in northern New Zealand. These fisheries target a variety of fish species, including snapper (*Pagrus auratus*), bluenose (*Hyperoglyphe antarctica*), hapuku and bass (*Polyprion oxygeneios, P. americanus*), and ling (*Genypterus blacodes*).

Using government fisheries observer coverage, an investigation was undertaken of the efficacy of operational practices in use in these fisheries for reducing seabird bycatch risk. In addition, potential new measures for reducing seabird captures were explored. Four main components of operational practices are expected to influence seabird bycatch risk in northern bottom longline fisheries. These are the time of day at which longlines are set, the use of weighted longlines, the deployment of streamer lines, and the retention of fish waste.

To reduce the risk of seabird captures in inshore bottom longline fisheries in northern New Zealand, the report recommends that the efficacy of line-weighting strategies in use is increased. This may involve adding more weight to lines and sinking hooks closer to the boat (e.g., using closer weight spacing, more even-sized weights, longer float-ropes, denser weights and slower setting speeds).

In addition, the report recommends that longlines are set prior to nautical dawn, fish waste is held on-board during hauling, the design and construction of streamer lines is improved, the improved streamer lines are deployed on all sets, and sinking longlines to 10 m at the end of streamer lines is considered as a minimum performance standard. In combination, these measures are expected to significantly reduce the risk of seabird captures in inshore bottom longline fisheries.

Project logistics summary statement

This project was 100% funded via Conservation Service Levies on the fishing industry. The planned cost for the project was $60,000. Services were provided by Johanna Pierre Environmental Consulting Ltd and Vita Maris Ltd for project MIT2011-03.

Review milestones: Update on proposed methodology presented at the CSP TWG meeting on 27 November 2012, and presentation of draft results at the CSP TWG meeting on 31 July 2013.

Citation

Pierre, J. P., Goad, D., Thompson, F. N., and Abraham, E. R. 2013. Draft Final Report. Reducing seabird bycatch in inshore bottom longline fisheries. Report prepared for the New Zealand Department of Conservation, Wellington, 84p.

Weblink

http://www.doc.govt.nz/Documents/conservation/marine-and-coastal/marine-conservation-services/mit-2011-03-mit-2012-01-draft-final-report.pdf

4.2 MIT2012-02 Inshore trawl warp-strike mitigation- analysis of effectiveness

Overall objective

To collate and groom data collected by Government observers in experimental trials of warp strike mitigation devices used by inshore trawl fishermen and provide statistical analyses of the efficacy of these devices.

Specific objectives

1. To collate and groom both quantitative and qualitative data collected by Government observers in inshore bottom longline fisheries.
2. To undertake statistical analyses of these data to identify the effectiveness of mitigation strategies used by inshore trawl fishermen and those factors contributing to their effectiveness.
3. To provide recommendations for possible improvements to mitigation strategies and their wider applicability throughout the fleet.
4. To provide recommendations for improvements to testing protocols and suitable generalised metrics for measuring effectiveness of mitigation techniques.

Rationale

Inshore trawl vessels (under 28m in length) are not required to employ any devices or techniques to mitigate against seabird captures. Despite this a number of fishers have been observed to have developed and implemented their own techniques to mitigate against seabird warp strikes. These techniques have been observed to vary between vessels in both design and function (Rowe 2009, 2010a, Ramm 2010, 2012). To date, no quantitative assessments of the efficacy of these measures have been undertaken. This project will support the data collection work undertaken by observers as part of INT2012- 01 Inshore Objective 2.

Determining the effectiveness of different mitigation strategies over different vessels allows a wider suite of mitigation to be identified. This gives fishers the opportunity to apply the most appropriate measures to their specific operations with the aim of increasing both implementation and effectiveness of mitigation strategies over the entire fleet.

This work will feed into practical recommendations for the most effective strategies to mitigate against seabird captures in inshore trawl fisheries.

Project status

Postponed to 2013/14 due to insufficient inshore trawl observer coverage achieved in 2012/13.

Summary of the methods and key findings

Project postponed to 2013/14.

Project logistics summary statement

This project was intended to be 100% funded via Conservation Service Levies on the fishing industry. The planned cost for the project was $50,000.

4.3 MIT2012-03 Review of mitigation techniques in setnet fisheries

Overall objective

To identify and assess the current mitigation techniques for both marine mammal and seabird capture employed in set net fisheries both domestically and internationally and make recommendations as to their applicability to the New Zealand situation.

Specific objectives

1. To undertake a literature review of historic and current mitigation techniques used in setnet fishing around the world.
2. To produce a catalogue of these techniques defining their nature, strengths and shortcomings, and possible applicability to New Zealand fisheries.
3. To provide any relevant recommendations for testing within New Zealand fisheries.

Rationale

Setnet fisheries a have been observed to interact with a number of species of marine mammals and seabirds (Rowe 2009, 2010a, 2010b, Ramm 2010, 2012). To date, spatial closures are the only regulated form of mitigation applied to these fisheries in New Zealand. Through time, a number of techniques for mitigation against interactions in this fishery have been developed including differing net materials, acoustic deterrents, alterations to fishing practice and soak time (The Consortium for Wildlife Bycatch Reduction 2012). Much of the recent development work in this field has been conducted overseas.

Given that many of the bycatch events in this fishery involve species endemic to New Zealand it is timely and relevant to produce a review of international bycatch mitigation techniques and determine their applicability to New Zealand's fishery, in order to inform potential future management actions in the fishery.

Project status

Completed pending finalisation of report.

Summary of the methods and key findings

The conclusions drawn from this review are similar to those of the previous Conservation Services Programme (CSP) reviews dating from 2007 and 2011. There is no silver bullet for the mitigation of protected species bycatch, and no single method will work in all fisheries, for all areas, all species and at all times. Species- and fishery-specific solutions, therefore, need to be explored. In order to properly understand what mitigation methods are most likely to be effective we must both understand and have defined clear management goals, for both the fishery and the protected species.

Globally, mitigation research has focused on four main techniques: acoustic deterrents, spatial and temporal closures, gear modifications and operational modifications. Of the techniques reviewed, spatial and temporal closures, and acoustic deterrents (i.e. pingers) have the most research potential for application to New Zealand set net fisheries.

The report identified that there has been little research in mitigating the bycatch of protected species other than dolphins and this is an area of future work, including potential work on shearwaters, penguins and shags.

The Ministry for Primary Industries and the Department of Conservation have already been implementing spatial and temporary closures for mitigating bycatch of protected species such as Hector's and Maui's dolphins. There is excellent evidence demonstrating the effectiveness in reducing bycatch levels for all protected species. This mitigation method does carry a trade off – that fishing is prohibited, but this may be partly addressed by financial compensation to fishers in appropriate circumstances. These closures must be driven by clear management goals for both protected species and fisheries and thoroughly evaluated against them.

While acoustic deterrents have yielded variable success rates, there have been some significant examples of large reductions in dolphin bycatch. There have been some pinger trials conducted with Hector's or Maui's dolphins, but unfortunately no statistically robust experiments. However, Hector's and Maui's dolphins may not be good candidates for pingers to be effective. Prior to experiments, the effectiveness of pingers must be evaluated against what reductions may be achievable, and whether or not these are going to be sufficient to meet management goals. If pingers are implemented, dedicated enforcement and compliance regimes will be required.

Project logistics summary statement

This project was 100% funded via Conservation Service Levies on the fishing industry. The planned cost for the project was $30,000. Services were provided by Blue Planet Marine.

Review milestones: Presentation on proposed methodology at the CSP TWG meeting on 13 November 2012, and presentation of draft results at the CSP TWG meeting on 7 March 2013.

Citation

Childerhouse, S., and Steptoe, V. 2013. Presentation. Preliminary results for the review of mitigation methods in set net fisheries CSP Project 4438. Presentation prepared for the CSP TWG meeting on 7 March 2013.

Weblink

http://www.doc.govt.nz/Documents/conservation/marine-and-coastal/marine-conservation-services/mit-2012-03-setnet-mitigation-review-presentation-7-3-12.pdf

4.4 MIT2012-04 Surface Longline Seabird Mitigation

Overall objective

To test one or more mitigation method which reduces the availability of surface longline hooks to seabirds at line setting.

Specific objectives

1. To test the safe use and mitigation effectiveness of one or more mitigation methods, not currently in common use in New Zealand surface longline fisheries, which reduce the availability of surface longline hooks to seabirds at line setting.
2. To assess and quantify any impacts on catch rates between target and bycatch species between snoods with and without the target mitigation method.

Rationale

Surface longline fisheries globally have accounted for significant levels of seabird bycatch (Anderson et al. 2011). Despite the introduction of a number of mandatory mitigation methods for this fishing method in New Zealand[3], recent seabird risk assessment has identified that surface longline fisheries still poses considerable risk to seabirds in New Zealand waters (Richard et al. 2011).

International research into seabird mitigation measures has had a considerable focus on developing novel methods for surface longline fisheries (e.g. ACAP 2011), and a number of methods have recently been developed that show good potential to reduce the availability of baited hooks to seabirds, whilst not causing additional safely or operational difficulties for fishermen.

Project status

Ongoing. Due to limited surface longline observer coverage in 2012/13 this project was extended into 2013/14.

Summary of the methods and key findings

Characteristics of surface longline gear that exacerbate the risk of seabird bycatch include relatively slow-sinking hooks, which remain within reach of seabirds for significant periods, the use of baits attractive to birds, long snoods, and the very long lengths of lines that are deployed with hooks attached. Mitigation measures for this fishing method aim to reduce the availability of hooks to seabirds. Measures recognised as current global best practice for achieving this are line-weighting (which increases hook sink rates), deploying tori lines (which restricts bird access to hooks and lines during setting) and setting at night (when some species of seabirds, especially albatrosses, are less active). The implementation of these measures is required in specified forms and combinations in New Zealand surface longline fisheries.

Despite the existence of a number of measures to reduce bycatch in surface longline fisheries, continued captures in these fisheries demonstrate that the available measures do not preclude the existence of significant bycatch risk. This may be due to a variety of reasons e.g., inconsistent (or lack of) implementation, incompatibility with gear configurations, implementation of insufficient

[3] Details of current regulations can be found on the follow web page: http://www.fish.govt.nz/ennz/Environmental/Seabirds/default.htm?wbc_purpose=Basic%252526WBCMODE

measures (e.g., night-setting without line-weighting). In particular, safety concerns with line weighting appear to dissuade fishers from utilising this bycatch reduction method. Globally, research is ongoing into new measures aiming to reduce seabird bycatch in surface longline fisheries, including safe leads, hook pods, an underwater line-setter and double-weighted branchlines. Improved safety is a key component in the development of some of these methods. Following promising results from trials of such innovative devices, the overall objective of this project is to test one or more mitigation methods which reduce the availability of surface longline hooks to seabirds at line setting. The methods being tested are both variations of safer weighting systems; the Safelead and the Lumo lead. Both weights are designed to slide over the monofilament snood in the event of line breakages, therefore not causing potentially dangerous 'fly-backs' whereby the weight projects back at the vessel risking damage or injury.

Issues with achieving suitable levels of observer coverage and therefore collecting adequate sample sizes have meant that full quantitative results could not be reported here. However, preliminary issues were identified in transitioning to the new weighting systems including increased handling issues with heavier snood bins. Equally, positive indications were found in terms of safety, functionality and fish catch. The project identified that to allow more robust testing and achieve more efficient data collection options for partial chartering of vessels could be investigated. These options will b investigated in the 2013/14 year.

Project logistics summary statement

This project was 100% funded via Conservation Service Levies on the fishing industry. The planned cost for the project was $60,000. Services were provided by Johanna Pierre Environmental Consulting Ltd.

Review milestones: Update on proposed methodology presented at the CSP TWG meeting on 27 November 2012, and progress report presented at the CSP TWG meeting on 21 November 2013.

Citation

Johanna P. Pierre & David W. Goad (2013). Seabird bycatch reduction in New Zealand's inshore surface longline fishery. Progress report for Department of Conservation, MIT2012–04.

Weblink

http://www.doc.govt.nz/Documents/conservation/marine-and-coastal/marine-conservation-services/seabird-bycatch-presentation-27-nov-2012.pdf

Non-research mitigation project proposals

The following projects are for non-research services that aim to avoid, remedy or mitigate the impacts of commercial fishing on protected species.

4.5 MIT2012-05 Protected species bycatch newsletter

Overall objective

To produce a newsletter to communicate protected species-related information to trawl and longline fishermen.

Rationale

Reducing the impacts of commercial fishing on protected species relies on individual fishermen actively applying best practice mitigation methods to their fishing activity. Applying and developing mitigation methods in specific circumstances requires an understanding of the protected species that may be impacted, and the nature with which they interact with fishing activity. A range of relevant information exists, often the result of research projects, and the newsletter will serve as a vehicle for communication to fishermen, fishing companies, and other interested parties. An evaluation of previous examples of this work by Pierre (2012) indicates that this format shows promise in reaching a broad sector of the fishing community and wider stake holders, and provides recommendations for further development.

Project status

On-going. Scheduled completion June 2014.

Summary of the Methods and Key Findings

Six issues of Bycatch Bylines, the newsletter on protected species developed under Conservation Services Programme project MIT2012-05, have been produced since September 2012. Editions to date have included material covering protected species (seabirds, marine mammals, protected fish, and benthic protected species), bycatch reduction measures, legislative changes relevant to protected species, research on mitigation, and global contexts for these issues. Fishing methods relevant to content to date have included trawl, longline, set net, and purse seine.

The current distribution list of the newsletter comprises ~1,000 recipients. This includes 816 fishers who receive the newsletter by email or in hard copy, 16 regional offices of the Ministry for Primary Industries where Fisheries Officers are located, 10 industry associations and Commercial Stakeholder Organisations, ~145 stakeholders of the Conservation Services Programme, and 11 other recipients who have been added to the distribution list on request. In addition, the newsletter is sent to the Observer Services team at MPI, when there are stories particularly relevant to observer duties, e.g., legislative updates, and changes in the recommended design of streamer lines for trawlers. The number of readers is over 1,000, given multiple staff in MPI offices and any onward distribution from Fisheries Officers and CSOs to fishers.

The most effective method for communicating the newsletter to fishers appears to be direct contact through email or hard copy, rather than through secondary channels such as CSOs. One CSO has

requested to be removed from the mailing list. Seven fishers have requested removal from the mailing list.

Changes made to the newsletter content and format as a result of feedback on Bycatch Bylines' predecessor, the Ocean Guardian, have been incorporated in all issues produced. Feedback received has included fisher comments on mitigation measures, general support for the newsletter content and style from practitioners working on bycatch, and government fisheries observers advising that the newsletter has been seen on vessels at sea and that it is being read and discussed by fishers.

Feedback received has included fishers' comments on mitigation measures and government fisheries observers advising that the newsletter is being seen on observed vessels, as well as read and discussed by fishers. Ministry for Primary Industries staff in regional offices have also made contact to request more detail about the newsletter (e.g., how it originated and the scope). In addition, general support for the content and format has been expressed by several practitioners in the bycatch arena.

For the following year, the banner image will be updated. The format and style will be retained as is. Feedback from the Conservation Services Programme Technical Working Group will also be considered.

Project logistics summary statement

This project was 100% funded via Conservation Service Levies on the fishing industry. The planned cost for the project was $20,000. Services were provided by Johanna Pierre Environmental Consulting Ltd.

Review milestones: 2012/13 annual review presented at the CSP TWG meeting on 31 July 2013.

Citation

Johanna Pierre Environmental Consulting Ltd. 2013. Progress Report: MIT2012-05 Protected Species Bycatch Newsletter 30 June 2013. Report prepared for the New Zealand Department of Conservation, Wellington, 7p.

Weblink

http://www.doc.govt.nz/Documents/conservation/marine-and-coastal/marine-conservation-services/mit-2012-05-draft-progress-report-2013.pdf

4.6 MIT 2012-06 Protected species mitigation training for commercial fishing vessel crew

Overall objective

To educate crew of trawl and longline vessels >28 m in length in best practice environmental impact mitigation practices.

Rationale

There are a number of seabird and marine mammal mitigation requirements, both legislative and by industry code of best practice, for offshore trawl and longline commercial fishing vessels (>28 m in length). To ensure all these requirements are met, and applied in the most effective way for each vessel, it is important for crew to understand both the environmental issues to be mitigated, and the mitigation methods and how to implement them. Crews of these vessels include speakers of Russian and Korean, and translated information is required to ensure full understanding.

Project status

Project cancelled. The objective of this project was met by an industry funded initiative.

Summary of the methods and key findings

Not applicable.

Project logistics summary statement

This project was intended to be 100% funded via Conservation Service Levies on the fishing industry. The planned cost for the project was $30,000. Full return of funds will be processed.

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