INT 2019/02 IDENTIFICATION OF SEABIRDS CAPTURED IN NEW ZEALAND FISHERIES

QUARTERLY REPORT: 1 July 2019 to 31 March 2020.

Elizabeth Bell [1] and Mike Bell[2]

1. Corresponding author; Wildlife Management International Ltd, PO Box 607, Blenheim 7240, biz@wmil.co.nz
2. Wildlife Management International Ltd, PO Box 607, Blenheim 7240

Scope of work completed:

New Zealand waters support a diverse range of seabird species, but much of the commercial fishing activity in the region overlaps with their ranges. The accurate identification of seabirds captured in New Zealand fisheries is vital for determining the potential impact of fisheries on these populations.

This report summarises identification work completed on dead birds caught and returned and/or identifications using photographs or Central Observer Database ("COD") records from Ministry of Primary Industries from 1 July 2019 to 31 March 2020.

There have been 212 seabirds from 21 taxa necropsied from this period. These seabirds were caught on 54 vessels: 35 trawl vessels (164 seabirds), 13 longline vessels (43 seabirds) and five setnet vessels (5 seabirds). Due to the length of some fishing trips and subsequent transport it is possible 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. Government observers correctly identified 75.5% of the seabirds that were returned for necropsy.

Examination of the Central Observer Database (COD) extract or images provided for this period (1 July 2019 to 31 March 2020) gave a total of 149 birds that were reported captured (i.e. *Interaction; n* = 87) or photographed (i.e. *Photo*; *n* = 62) as seabird interactions from 38 fishing vessels (130 seabirds on trawl, 17 on longline and two on setnet) and may include some non-capture interactions such as vessel impacts. Due to a lag between Observer data and images being entered into COD, it is possible some interactions within this period may not have been received at the time of writing. Any further specimens will be reported at a later date.

Details relating to each specimen are available on request from the Manager, Conservation Services Programme, DOC (email: csp@doc.govt.nz).

In some necropsy cases (i.e. those specimens damaged by fishing gear and machinery, or by sea lice) it was not possible to collect all data; these are reported as 'unknown' and appear as such in the relevant tables.

Individual seabirds (i.e. necropsy, photo or interaction birds) were allocated a unique necropsy number. If multiple photographs are received of an individual bird, the best image is used to match to the corresponding Access database entry, but all images are used to confirm species identification. All data and associated information (such as vessel name, position, date of capture, time of capture, possible identification, etc.) for each seabird specimen, photograph or interaction was entered into an Access database.

Table 1 Common and scientific names of seabirds captured and returned or photographed from New Zealand fisheries between 1 July 2019 and 31 March 2020.

COMMON NAME	SCIENTIFIC NAME	**TOTAL**	NECROPSY	PHOTO	INTERACTION
Albatross (unidentified)		**5**			5
Antipodean albatross	*Diomedea antipodensis antipodensis*	**4**	4		
Black (Parkinson's) petrel	*Procellaria parkinsoni*	**5**	5		
Broad-billed prion	*Pachyptila vittata*	**1**	1		
Buller's and Pacific albatross	*Thalassarche bulleri*	**3**			3
Buller's albatross	*Thalassarche bulleri bulleri*	**28**	22	6	
Cape petrel	*Daption capense*	**2**		2	
Cape petrels	*Daption* spp.	**9**			9
Common diving petrel	*Pelecanoides urinatrix*	**2**	1		1
Fairy prion	*Pachyptila turtur*	**2**	1		1
Flesh-footed shearwater	*Puffinus carneipes*	**12**	7		5
Fluttering shearwater	*Puffinus gavia*	**1**			1
Great albatross (unidentified)	*Diomedea* spp.	**2**			2
Great-winged petrel	*Pterodroma macroptera*	**1**	1		
Grey petrel	*Procellaria cinerea*	**27**	2	4	21
Grey-backed storm petrel	*Garrodia nereis*	**1**	1		
Grey-headed albatross	*Thalassarche chrysostoma*	**1**			1
Little blue penguin	*Eudyptula minor*	**1**	1		
New Zealand white-capped albatross	*Thalassarche steadi*	**48**	34	4	10
Northern giant petrel	*Macronectes halli*	**1**	1		
Northern royal albatross	*Diomedea sanfordi*	**3**	2	1	
Prion (unidentified)	*Pachyptila* spp.	**2**		1	1
Procellaria (unidentified)	*Procellaria* spp.	**3**			3
Red-billed gull	*Larus scopulinus*	**1**			1
Salvin's albatross	*Thalassarche salvini*	**48**	27	13	8
Seabird (unidentified)		**1**			1
Small albatross (unidentified)	*Thalassarche* spp.	**2**			2
Sooty shearwater	*Puffinus griseus*	**40**	23	15	2
Southern giant petrel	*Macronectes giganteus*	**2**	2		
Southern royal albatross	*Diomedea epomophora*	**3**		1	2
Stewart Island shag	*Phalacrocorax chalconotus*	**3**	2		1
Storm petrel (unidentified)		**2**			2
Westland petrel	*Procellaria westlandica*	**11**	5	4	2
White-chinned petrel	*Procellaria aequinoctialis*	**82**	69	11	2
Yellow-eyed penguin	*Megadytes antipodes*	**1**	1		
TOTAL		**458**	**212**	**62**	**87**

Table 2 Species and numbers of seabirds killed and returned from observed fishing vessels between 1 July 2019 and 31 March 2020, by sex (M = male, F = female, U = unknown) and age (A = adult, BA = breeding adult, N = non-breeding adult, SA = sub-adult, I = immature and J = juvenile, U = unknown).

SPECIES	SEX			AGE							TOTAL	% TOTAL
	M	F	U	A	BA	N	SA	I	J	U		
Antipodean albatross	4								4		**4**	**1.9%**
Black (Parkinson's) petrel	5			4						1	**5**	**2.4%**
Broad-billed prion	1			1	1						**1**	**0.5%**
Buller's albatross	16	5	1	22	4						**22**	**10.4%**
Common diving petrel	1			1							**1**	**0.5%**
Fairy prion		1		1							**1**	**0.5%**
Flesh-footed shearwater	4	3		7							**7**	**3.3%**
Great-winged (Grey-faced) petrel		1		1							**1**	**0.5%**
Grey petrel	2			2							**2**	**0.9%**
Grey-backed storm petrel	1			1	1						**1**	**0.5%**
Little blue penguin		1		1							**1**	**0.5%**
NZ white-capped albatross	21	10	3	29	15	1		3	1	1	**34**	**16.0%**
Northern giant petrel			1	1							**1**	**0.5%**
Northern royal albatross		2		2							**2**	**0.9%**
Salvin's albatross	9	15	3	26	15		1				**27**	**12.7%**
Sooty shearwater	17	6		23							**23**	**10.8%**
Southern giant petrel		2		2							**2**	**0.9%**
Stewart Island shag	1	1		1				1			**2**	**0.9%**
Westland petrel	4	1		5							**5**	**2.4%**
White-chinned petrel	45	11	13	65	4		1			3	**69**	**32.5%**
Yellow-eyed penguin		1		1							**1**	**0.5%**
TOTAL	**131**	**60**	**21**	**196**	**40**	**1**	**2**	**4**	**5**	**5**	**212**	
% TOTAL	**61.8%**	**28.3%**	**9.9%**	**92.5%**	**18.9%**	**0.5%**	**0.9%**	**1.9%**	**2.4%**	**2.4%**		

Table 3 Stomach contents of seabirds killed and returned on fishing vessels between 1 July 2019 and 31 March 2020.
Note: Birds can have multiple items in the stomachs resulting in higher content figures than the total number of seabirds killed and returned (*n* = 212).

SPECIES	EMPTY	MISSING	BAIT	OFFAL (OR DISCARDS)	NATURAL	BARNACLES OR SEAWEED	PLASTIC	PROVENTRICULAR OIL	WORMS
Antipodean albatross	2			2					
Black petrel			1	2	1				
Broad-billed prion					1				
Buller's albatross	7	2		12	4				
Common diving petrel	1								
Fairy prion	1								
Flesh-footed shearwater	5		2						
Great-winged petrel			1						
Grey petrel	1		1						
Grey-backed storm petrel	1								
Little blue penguin				1					
NZ white-capped albatross	8	1		18	4				
Northern giant petrel		1							
Northern royal albatross	1			1					
Salvin's albatross	6	1	1	23	1				
Sooty shearwater	4		8	3	4				
Southern giant petrel					2				
Stewart Island shag	1			2					
Westland petrel	1		2	2	2				
White-chinned petrel	14		8	5	6				
Yellow-eyed penguin									
TOTAL	**53**	**5**	**24**	**71**	**25**	**0**	**0**	**0**	**0**
% TOTAL	**25.0**	**2.4**	**11.3**	**33.5**	**11.8**				

Table 4 Gizzard contents of seabirds killed and returned on fishing vessels between 1 July 2019 and 31 March 2020.
Note: Birds can have multiple items in the gizzard resulting in higher content figures than the total number of seabirds killed and returned (*n* = 212).

SPECIES	EMPTY	MISSING	SQUID BEAKS	OTOLITHS	EYEBALLS	BONES OR SKIN	PLASTIC	WORMS	STONES, BARNACLES, FEATHERS, SEAWEED
Antipodean albatross	1		3			1			
Black petrel			2	2	1	2			
Broad-billed prion	1								
Buller's albatross	8	2	2		1	8			1
Common diving petrel	1								
Fairy prion	1								
Flesh-footed shearwater			6				7		
Great-winged petrel			1						
Grey petrel			2						
Grey-backed storm petrel									1
Little blue penguin								1	
NZ white-capped albatross	9	1	9	3	3	9	1	2	1
Northern giant petrel		1							
Northern royal albatross			2	1	1		1		
Salvin's albatross	7	1	3	9	6	13			
Sooty shearwater			10	2		3	13		
Southern giant petrel			2				1		1
Stewart Island shag	1								
Westland petrel			5	2					
White-chinned petrel			30	10			6	1	
Yellow-eyed penguin	1								
TOTAL	**30**	**5**	**77**	**29**	**12**	**36**	**29**	**4**	**4**
% TOTAL	**14.2**	**2.4**	**36.3**	**13.8**	**5.7**	**17.0**	**13.8**	**1.9**	**1.9**

Table 5 Number of seabirds of each species killed and returned from observed fishing vessels between 1 July 2019 and 31 March 2020, by fisheries type and location of capture.

SPECIES	BOTTOM/MIDWATER TRAWL						SETNET	LONGLINE		TOTAL
	NET	COD-END	LENGTHENER	OTHER	WARP	DECK STRIKE		HOOK	DECK STRIKE	
Antipodean albatross								4		**4**
Black petrel	1							4		**5**
Broad-billed prion	1									**1**
Buller's albatross	8	2		5	3			4		**22**
Common diving petrel						1				**1**
Fairy prion						1				**1**
Flesh-footed shearwater					1			6		**7**
Great-winged petrel								1		**1**
Grey petrel	1					1				**2**
Grey-backed storm petrel				1						**1**
Little blue penguin							1			**1**
NZ white-capped albatross	17	1	1	8	1	1		5		**34**
Northern giant petrel	1									**1**
Northern royal albatross								2		**2**
Salvin's albatross	14	1		3	8			1		**27**
Sooty shearwater	13	2		1		1		6		**23**
Southern giant petrel	1				1					**2**
Stewart Island shag	1						1			**2**
Westland petrel							1	4		**5**
White-chinned petrel	54	2		6			1	6		**69**
Yellow-eyed penguin							1			**1**
TOTAL	**112**	**8**	**1**	**24**	**14**	**5**	**5**	**43**	**0**	**212**
% TOTAL	**52.8%**	**3.8%**	**0.5%**	**11.3%**	**6.6%**	**2.4%**	**2.4%**	**20.3%**		

Table 6 Number of seabirds killed and returned from observed fishing vessels between 1 July 2019 and 31 March 2020, by injury.
Note: Birds can have multiple injuries resulting in higher figures than the total number of seabirds killed and returned (*n* = 212).

SPECIES	NO INJURIES	HOOK						BROKEN BONES, ETC.	LACERATIONS AND/OR SEVERED BODY PARTS	CRUSHED	GREASED	LICED	WATERLOGGED
		BODY	WING	BILL	THROAT OR SWALLOWED	FOOT	UNKNOWN[1]						
Antipodean albatross							4		4				
Black petrel	4												
Broad-billed prion	1												
Buller's albatross	5		1	1	1			5	7	4	2		2
Common diving petrel	1												
Fairy prion	1												
Flesh-footed shearwater	3			2					1	1			
Great-winged petrel	1			1									
Grey petrel								1	1	1			
Grey-backed storm petrel	1												
Little blue penguin	1												
NZ white-capped albatross	8			2	1			14	13	2	12	3	3
Northern giant petrel												1	
Northern royal albatross							1		1				
Salvin's albatross	5							19	5	5	6		4
Sooty shearwater	4		1				1	18	3	3			3
Southern giant petrel	1								1				
Stewart Island shag	1							1					
Westland petrel	5												
White-chinned petrel	42		3	1	1		1	12	3			4	6
Yellow-eyed penguin	1												
TOTAL	**85**	**0**	**5**	**7**	**3**	**0**	**7**	**70**	**39**	**16**	**20**	**8**	**18**
% TOTAL	**40.1%**		**2.4%**	**3.3%**	**1.4%**		**3.3%**	**33.0%**	**18.4%**	**7.5%**	**9.4%**	**3.8%**	**8.5%**

[1] An unknown hook location relates to a seabird caught and killed on a longline vessel but with no apparent hook injury anywhere on the body. No additional capture information was provided by the observer. These seabirds may have been tangled in the line rather than hooked.

Table 7 Comparison of fat scores in the returned birds between 1 July 2019 and 31 March 2020 (1= no fat to 5 = extremely fat, U = unknown).

SPECIES	FAT SCORE					
	1	2	3	4	5	U
Antipodean albatross	1		3			
Black petrel	3	2				
Broad-billed prion		1				
Buller's albatross	9	8	3			2
Common diving petrel			1			
Fairy prion				1		
Flesh-footed shearwater	2	3	2			
Great-winged petrel		1				
Grey petrel		1		1		
Grey-backed storm petrel	1					
Little blue penguin		1				
NZ white-capped albatross	6	6	8	5	4	5
Northern giant petrel						1
Northern royal albatross	1	1				
Salvin's albatross	4	6	6	7	1	3
Sooty shearwater	4	11	6	1	1	
Southern giant petrel		2				
Stewart Island shag			2			
Westland petrel	2	2	1			
White-chinned petrel	13	30	8	3	1	13
Yellow-eyed penguin		1				
TOTAL	**46**	**76**	**40**	**18**	**7**	**24**
% TOTAL	**21.7%**	**35.8%**	**18.9%**	**8.5%**	**3.3%**	**11.3%**

Table 8 Number of seabird interactions photographed or recorded on fishing vessels between 1 July 2019 and 31 March 2020.

	DEAD	ALIVE	TOTAL
Photographed and listed in MPI COD extract	54	8	**62**
Photographed but not listed in MPI COD extract to date			**0**
Photographed and listed in MPI COD extract, but image not received to date			**0**
Listed as an interaction only in MPI COD extract, but not photographed	8	79	**87**
Listed as an interaction in Observer spreadsheet data only (need a COD extract update), but not photographed			**0**
TOTAL	**62**	**87**	**149**
% TOTAL	**41.6**	**58.4**	