

Seabird Autopsy Project: CSP INT 2007/02

Summary Report for the 2007-08 Fishing Year

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This summary report highlights the main findings from birds killed and returned for autopsy during the period 1 October 2007 to 30 September 2008 (the 2007-08 fishing year), ahead of a final report.

A total of 278 specimens have been returned for autopsy from the 2007-08 fishing year, comprising individuals from 20 identifiable species, from 63 observed trips. These totals include 27 birds returned from two unobserved trips. Eight vessels returned birds from two separate trips, a single vessel returned birds from three separate trips and two vessels returned birds from four separate trips. Most vessels and trips returned low numbers of birds, the maximum number returned was 26 for both vessel and trip (Figs. 1 and 2).

In keeping with previous years, six species made up 85% of all birds returned: sooty shearwater (72 birds, 26% of the total), white-chinned petrel (68, 24%), Buller's albatross (45, 16%), white-capped albatross (42, 15%), grey petrel and Salvin's albatross (both 6, 2%). All other species were represented by no more than six individuals (Table 1). The 42 white-capped albatross returned in 2007-08 continue the declining trend in this species over recent years (Fig. 3).

Specimens from the 2007-08 fishing year included the first seabird returned from the New Zealand Antarctic toothfish fishery – a single short-tailed shearwater, although this bird had likely hit the vessel rather than been killed by fishing gear, and one new species – a single cattle egret, that was similarly found dead on the vessel. Six birds returned were banded (two Buller's albatrosses, and singles of black petrel, Campbell albatross, Gibson's albatross and sooty shearwater).

Birds were predominantly male (68%), although all six grey-faced petrels returned were female. Adult birds (including breeding adults) made up 95% of the sample (Table 1).

A total of 87 birds (31%) were returned from longline fisheries, with nearly half of these from chartered boats targeting tuna (Table 2). All trawl fisheries returned 189 birds, of which 137 (72%) were from trawlers targeting squid. Only two birds were returned from set net fisheries (Table 2).

For those birds killed in longline fisheries, 57% were hooked in the bill or had swallowed the hook. Birds in this category comprised 73% albatrosses and only 27% non-albatross taxa. In contrast, of those birds hooked or entangled in the wing (20% of longline specimens), only 24% were albatrosses (Table 3). Of all birds returned from trawl fisheries, only 25 (14%) could be assigned to 'warp interaction' as the likely cause of death, and for white-capped albatross more birds were killed through entanglement with the net (24) than through interaction with the warp (15) (Table 3 and Fig. 4).

Table 4 summarises fat scores for the most commonly caught six species: overall, most species had slightly lower mean fat scores than in recent years.

Tables 5 and 6 summarise stomach contents for albatross and non-albatross taxa, respectively. Although sample sizes for some fishery-diet combinations were small,

offal (including all discarded material, e.g. fish tails) appears to be an attractant for many taxa.

For the record, observer identifications are summarised in Table 7. Accurate identifications were slightly lower than in recent years (69% of observed whole specimens: Table 7).

## Table Headings.

Table 1. Species and numbers of seabirds killed and returned from observed fishing boats between 1 October 2007 and 30 September 2008, by month of capture, sex (M = male, F = female, U = unknown) and age (BA = breeding adult, A = adult, N = non-breeding adult, J = juvenile (immature), U = unknown).

Table 2. Species and numbers of seabirds killed and returned from observed fishing boats between 1 October 2007 and 30 September 2008, by target fishery. \* - 2 trips returned birds but were unobserved.

Table 3. Species, number, percentage within longline or trawl fisheries, and percentage albatrosses and other, non-albatross taxa returned between 1 October 2007 and 30 September 2008 and assigned to a likely cause of death. Longline specimens were either hooked or entangled by the snood, 'not obvious' indicates that it was not possible to identify a specific part of the body where this occurred. Trawl specimens classified as 'net' were deemed to have been either entangled in, or recovered from, the net. \* - 3 birds trawled up tangled in fishing line.

Table 4. Comparison of numbers of different fat scores (1-5, U = unknown) for the most numerous six species returned historically.

Table 5. Stomach (proventriculous) contents of albatross taxa killed and returned from observed fishing boats between 1 October 2007 and 30 September 2008, by target fishery. Contents values are percentages.

Table 6. Stomach (proventriculous) contents of non-albatross taxa killed and returned from observed fishing boats between 1 October 2007 and 30 September 2008, by target fishery. Contents values are percentages.

Table 7. Summary of identifications recorded by on-board observers at sea compared with autopsy identification for seabirds killed and returned from observed fishing boats between 1 October 2007 and 30 September 2008. \* excludes two birds recorded as 'unidentified *Thalassarche* albatross', and 27 birds returned from two unobserved trips.

## Figure Headings.

Figure 1. Frequency distribution of numbers of birds returned by vessel.

Figure 2. Frequency distribution of numbers of birds returned by trip.

Figure 3. Numbers of white-capped albatross, white-chinned petrel and sooty shearwater returned in each fishing year between 1996-97 and 2007-08.

Figure 4. Numbers of white-capped albatross, white-chinned petrel and sooty shearwater returned from trawl fisheries over the last three complete fishing years, and assigned to either 'warp interaction' or 'net' as the likely cause of death.

**Table 1.**

Species	Month												Sex			Age					Total	% Total	
	J	F	M	A	M	J	J	A	S	O	N	D	M	F	U	BA	A	N	J	U			
Antipodean albatross				3		1							2	2			2		2			4	1
Black petrel			1		3								3	1			4					4	1
Buller's albatross	1	3		27	4	2	5	3					25	18	2	25	17	1	2			45	16
Campbell albatross				2	3					1			5	1		1	1	2	2			6	2
Cattle egret				1											1		1					1	<1
Fairy prion						1					1		1	1		1	1					2	<1
Flesh-footed shearwater			3	1								1	4	1		1	4					5	2
Gibson's albatross	1			1									1	1		1	1					2	<1
Grey petrel						1	4	1					3	2	1	1	5					6	2
Grey-faced petrel					6									6		2	4					6	2
Salvin's albatross		1						1		1	3		4	2		3	2		1			6	2
Short-tailed shearwater		1											1			1						1	<1
Sooty shearwater	1	38	13	10	3					5	2		68	3	1	5	67					72	26
Southern royal albatross		1												1		1						1	<1
Unidentified <i>Thalassarche</i> albatross			1	1											2						2	2	<1
Wandering albatross						1								1				1				1	<1
Westland petrel								2					1	1			2					2	<1
White-capped albatross		7	22	12	1								21	12	9	10	30	1		1		42	15
White-chinned petrel	1	21	12	25	3					4	1	1	48	20		66	2					68	24
White-faced storm petrel		1											1				1					1	<1
Yellow-eyed penguin												1		1		1						1	<1
<b>Total</b>	4	73	52	83	23	6	9	7		11	7	3	188	74	16	55	208	5	7	3		278	
<b>% Total</b>	1	26	19	30	8	2	3	3		4	3	1	68	27	6	20	75	2	3	1			

**Table 2.**

Species	Chartered tuna, longline	Domestic tuna, longline	Ling, longline	Other, longline	Hoki, trawl	Squid, trawl	Scampi, trawl	Other, trawl	All targets, set net	Total
Antipodean albatross		4								4
Black petrel				3			1			4
Buller's albatross	27	3		2	9	2		2		45
Campbell albatross	1	1		3				1		6
Cattle egret						1				1
Fairy prion					1			1		2
Flesh-footed shearwater					1		4			5
Gibson's albatross	1	1								2
Grey petrel		1	4					1		6
Grey-faced petrel				6						6
Salvin's albatross		1					3	2		6
Short-tailed shearwater				1						1
Sooty shearwater			5	1	3	57	2	3	1	72
Southern royal albatross						1				1
Unid. Thalassarche albatross						2				2
Wandering albatross		1								1
Westland petrel					1			1		2
White-capped albatross	3					39				42
White-chinned petrel	10		7	1	8	34		8		68
White-faced storm petrel						1				1
Yellow-eyed penguin									1	1
<b>Total</b>	42	12	16	17	23	137	10	19	2	278
<b>% Total</b>	15	4	6	6	8	49	4	7	1	
<b>Obs. Trips</b>	4*	5	4	5	9	22	5	15	2	

**Table 3.**

Species	Longline – Hook, Snood					Trawl		Set Net	Deckstrike	Total
	Bill Throat	Wings	Legs Feet	Body	Not Obvious	Warp Interaction	Net			
Antipodean albatross	1				3					4
Black petrel		3					1			4
Buller's albatross	26	1			5	6	7			45
Campbell albatross	4	1					1			6
Cattle egret									1	1
Fairy prion									2	2
Flesh-footed shearwater							5*			5
Gibson's albatross	1	1								2
Grey petrel	1	2	1		1		1			6
Grey-faced petrel	1				5					6
Salvin's albatross	1					2	3			6
Short-tailed shearwater									1	1
Sooty shearwater	3	1		1	1	1	64	1		72
Southern royal albatross							1			1
Unid. Thalassarche albatross							2			2
Wandering albatross	1									1
Westland petrel							1		1	2
White-capped albatross	2	1				15	24			42
White-chinned petrel	8	7			3	1	49			68
White-faced storm petrel									1	1
Yellow-eyed penguin								1		1
<b>% of total longline or trawl</b>	57	20	1	1	21	14	86			
<b>Albatrosses (%)</b>	73	24	0	0	44	92	24	0	0	
<b>Others (%)</b>	27	76	100	100	56	8	76	100	100	



**Table 4.**

Species	Fat Score						Total	Mean± SD
	1	2	3	4	5	U		
Buller's albatross	2	4	17	15	3	4	45	3.3 ± 0.9
Grey petrel		1	4			1	6	2.8 ± 0.4
Salvin's albatross	1	2	2		1		6	2.7 ± 1.7
Sooty shearwater	6	23	38	4		1	72	2.6 ± 0.7
White-capped albatross	2	7	15	6	1	11	42	2.9 ± 0.9
White-chinned petrel	1	30	30	6	1		68	2.6 ± 0.7
<b>Total</b>	12	67	106	31	6	17	239	
<b>% Total</b>	5	28	44	13	3	7		

**Table 5.**

<b>Stomach Contents</b>	<b>Chartered Tuna, Longline</b>	<b>Domestic Tuna, Longline</b>	<b>Ling, Longline</b>	<b>Other, Longline</b>	<b>Hoki, Trawl</b>	<b>Squid, Trawl</b>	<b>Scampi, Trawl</b>	<b>Other, Trawl</b>	<b>All Targets, Set Net</b>
No Stomach	13	27			11	33			
Empty	53	64			22	31	33	40	
Natural?	13					2	67		
Sludge					11				
Bait	19	9		80					
Bait + Natural									
Bait + Offal									
Offal	3			20	56	33		60	
Offal + Natural									
Bait + Offal + Natural									
Number of birds	32	11	0	5	9	42	3	5	0

**Table 6.**

<b>Stomach Contents</b>	<b>Chartered Tuna, Longline</b>	<b>Domestic Tuna, Longline</b>	<b>Ling, Longline</b>	<b>Other, Longline</b>	<b>Hoki, Trawl</b>	<b>Squid, Trawl</b>	<b>Scampi, Trawl</b>	<b>Other, Trawl</b>	<b>All Targets, Set Net</b>
No Stomach			6			3			
Empty	10	100	13	25	54	49	14	21	50
Natural?	30		13	25	8	15	43	29	50
Sludge			6						
Bait	50		25	50					
Bait + Natural	10								
Bait + Offal									
Offal			38		38	29	43	50	
Offal + Natural						3			
Bait + Offal + Natural									
Number of birds	10	1	16	12	13	93	7	14	2

**Table 7.**

Species	ID correct	ID wrong	ID as correct 'spp.' group	ID as seabird large or albatross	ID as petrel or prion unidentified	ID as seabird, seabird small or seagull	ID not on label	Total
Antipodean albatross		4	(4)					4
Black petrel	3	1						4
Buller's albatross	24	1					1	26
Campbell albatross		4	(4)				1	5
Cattle egret							1	1
Fairy prion	1	1						2
Flesh-footed shearwater		5						5
Gibson's albatross				1				1
Grey petrel	6							6
Grey-faced petrel	6							6
Salvin's albatross	5						1	6
Short-tailed shearwater		1						1
Sooty shearwater	54	11			4		3	72
Southern royal albatross							1	1
Wandering albatross				1				1
Westland petrel		1					1	2
White-capped albatross	35	4		2			1	42
White-chinned petrel	38	6			12		6	62
White-faced storm petrel						1		1
Yellow-eyed penguin	1							1
<b>Total</b>	173	39		4	16	1	16	249*
<b>% Total</b>	69	16		2	6	<1	6	

**Figure 1.**

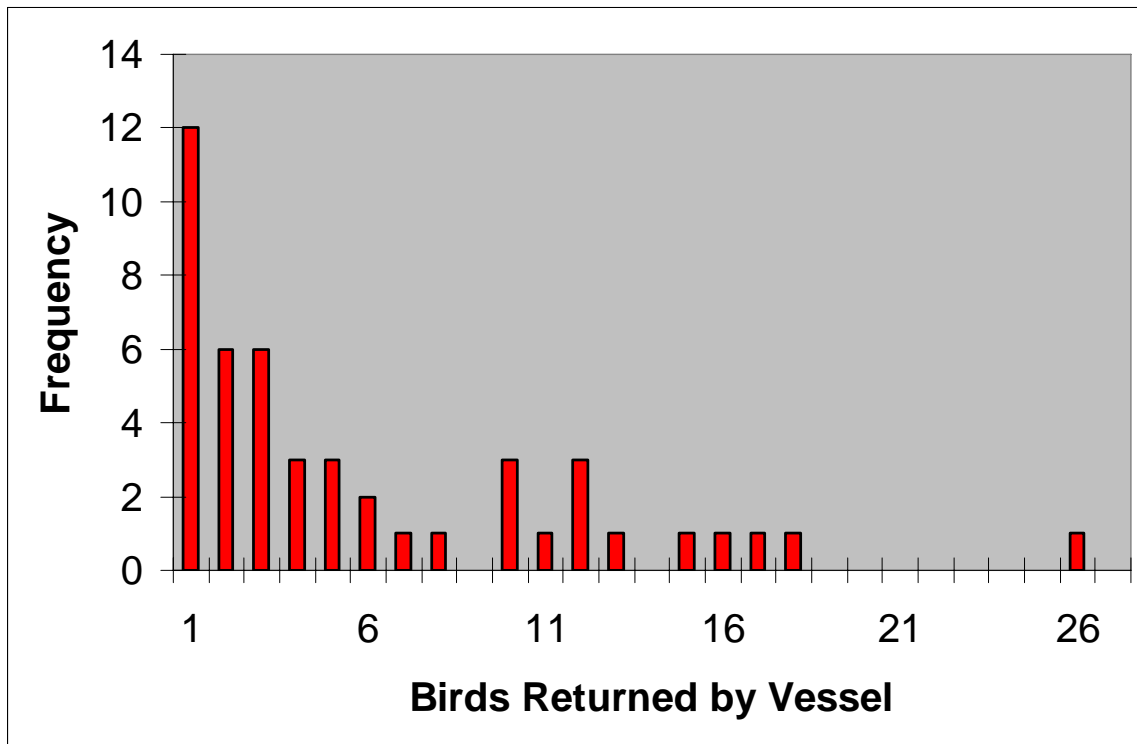


Figure 2.

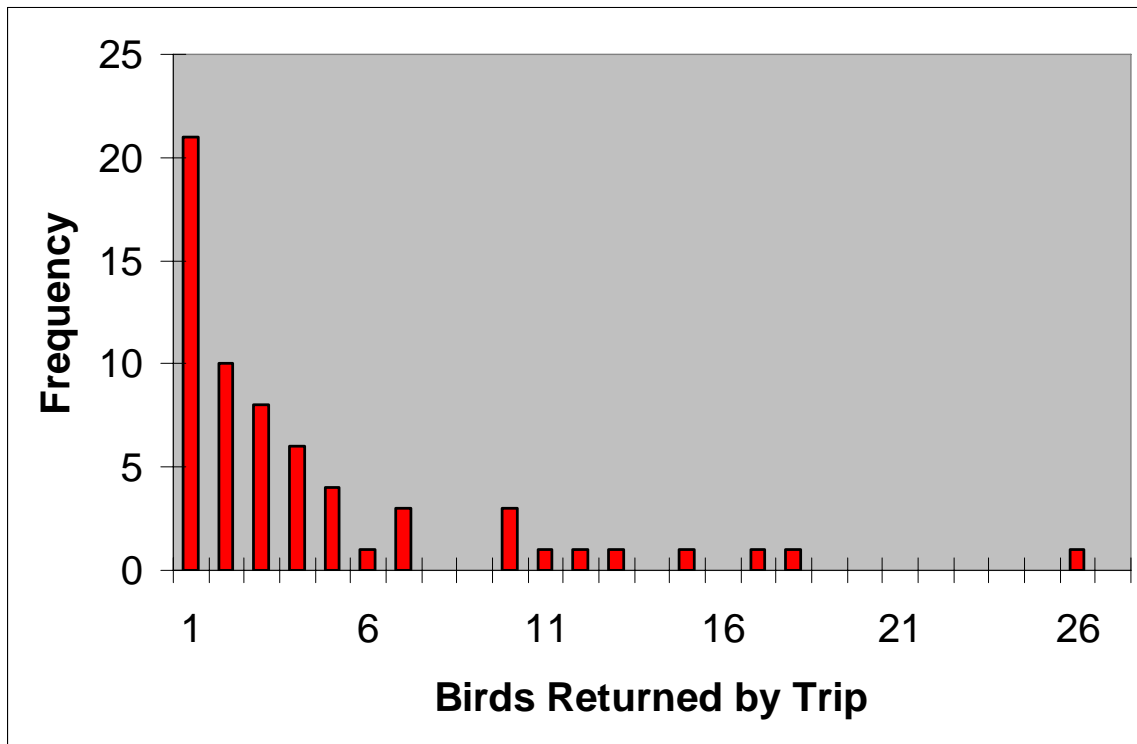


Figure 3.

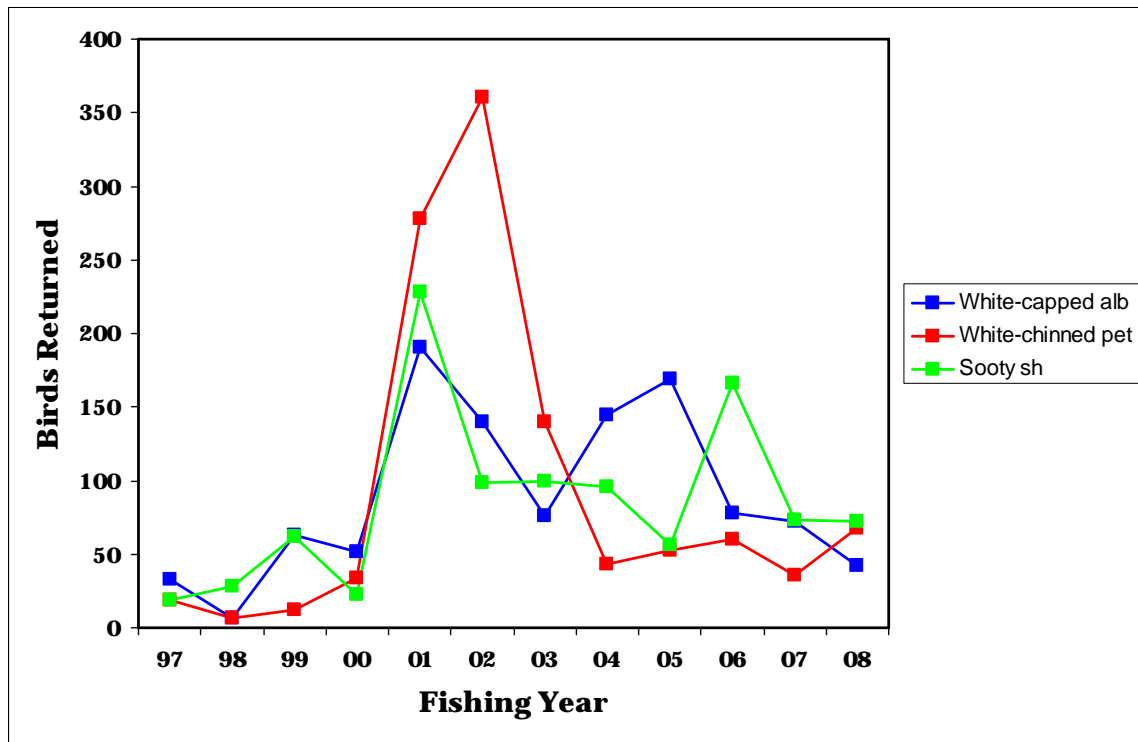


Figure 4.

