Banding and monitoring of oystercatchers on the Chatham Islands, January 2007

A report prepared for the Department of Conservation's:

Chatham Islands Area Office
Chatham Island Oystercatcher Recovery Group

Report prepared by:

John Dowding
DM Consultants
PO Box 36-274
CHRISTCHURCH

Rex Williams
PO Box 1699
NELSON

APRIL 2007

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Dowding, J.E.; Williams, R. 2007. Banding and monitoring of oystercatchers on the Chatham Islands, January 2007. *Unpublished report to Chatham Islands Area Office, Department of Conservation*. 24 pp.

As part of the Chatham Island oystercatcher (CIO) recovery programme, we visited Chatham Island and Pitt Island in January 2007. RW was present from 05-19 January and JED was present from 16-29 January.

Routine replacement of colour bands was undertaken in areas where monitoring will continue (Maunganui-Tioriori, Wharekauri, and the east coast of Pitt Island). To reduce future band-replacement work and to minimise the risk of band-related injuries, colour bands were removed from birds in other areas.

On Chatham Island, 41 birds in the monitored areas had colour bands renewed, and 27 birds in other areas had colour bands removed. Seventeen unbanded birds were banded with metal bands (8 adults, 1 juvenile, and 8 chicks). On Pitt Island, colour bands were replaced on 8 adults. Four unbanded birds were banded with metal bands (1 juvenile and 3 chicks), and one metal-banded adult in the east coast managed area was colour banded. At the end of January 2007, at least 56 birds on Chatham Island still had colour bands that needed to be replaced or removed.

Territory maps were updated, and observations were made on recruitment, changes in pairings, productivity, and identity and numbers of non-breeding birds (floaters) in the population.

Further observations will be required to determine productivity for the season in the north coast study areas, but it appears to be considerably lower than it was during management. Adult survival also appears to be lower now, particularly at Wharekauri, where there is much cat sign on the beach and in the dunes.

The total population appears to have declined in the 2 years since management ceased. The number of breeding pairs is at an all-time high, but will probably start to fall again in the near future without management. The pool of floaters is much smaller than it was at the end of the management era. Simple modelling suggests that with current levels of survival and productivity, the population will decline by at least 3% annually.

Recommendations include:

- Improve monitoring of survival and productivity in the previously managed areas at Maunganui and Wharekauri.
- Either re-instate annual management at Wharekauri from 2007/08, and assess whether this is sufficient to reverse the overall population decline, *or* set minimum thresholds for the size of the population and when these are reached, re-instate management at both Maunganui and Wharekauri.
- Explore means to improve productivity in the managed area on Pitt Island.
- Continue the programme of colour-band replacement in monitored areas and removal in other areas.

1 Introduction

1.1 BACKGROUND

For the six seasons 1999/00 – 2004/05, intensive management of Chatham Island oystercatchers (CIO, *Haematopus chathamensis*) was undertaken in two study areas (Maunganui-Tioriori and Wharekauri) on the north coast of Chatham Island (Moore 2005a). During this programme, many breeding adults and juveniles were colour-banded to assist with monitoring of survival, productivity and recruitment.

Following this pulse of management, birds in the previously managed areas are to be monitored to determine whether there are differences in survival and productivity between managed and unmanaged regimes. To minimise the risk of band-related injuries, colour bands on these birds will be renewed at approximately 5-year intervals. Following management, it was also decided to remove colour bands from birds banded in (or recruited in) unmanaged areas of Chatham Island. Apart from reducing the risk of band-related injuries, this measure also reduces the amount of band-replacement work that will be required in future.

CIO have also been colour banded on Pitt, Mangere and South East Islands, and colour bands on those birds are also scheduled to be replaced at approximately 5-year intervals.

We visited the Chatham Islands from 05-29 January 2007, to replace or remove colour bands, and to update information on survival, pairings and recruitment of CIO on Chatham and Pitt Islands.

1.2 ITINERARY

Our itineraries were as follows:

05 Jan	RW	Arrived Chatham Island
06-11 Jan	RW	Monitored/banded in Maunganui-Tioriori area
12-16 Jan	RW	Monitored/banded in Wharekauri-Taupeka area
16 Jan	JED	Arrived Chatham Island
17 Jan	RW/JED	Monitored/banded on SW coast
18 Jan	RW	Surveyed Whangamoe coast
	JED	Monitored/banded in Waitangi West-Cape Pattisson area
19 Jan	RW	Departed Chatham Island
	JED	Prepared for travel to Pitt Island
20 Jan	JED	Travelled to Pitt Island, banded/monitored on east coast
21-23 Jan	JED	Monitored/banded on Pitt Island
23 Jan	JED	Travelled to Chatham Island
24-25 Jan	JED	Monitored/banded in Whangamoe area
26 Jan	JED	Monitored/banded at Matarakau and Taupeka
27 Jan	JED	Monitored/banded in Whangamoe area
28 Jan	JED	Monitored/banded at Hanson Bay, Okawa Pt and Wharekauri
29 Jan	JED	Departed Chatham Island

2 Results

2.1 CHATHAM ISLAND

Previously managed areas

Maunganui-Tioriori
Twenty-seven breeding pairs were identified between Maunganui Bluff and Waikauia, a substantial increase on the 22 pairs present in this area in 2004/05. Pairings and territories in 2006/07 are shown in Table 1 and Appendix 8.3 respectively.

All colour bands were replaced on 19 breeding adults in this area (see Table 1). Two other birds were checked but their bands did not require replacement. Six unbanded birds (a floater and five chicks) were banded, each with a metal band on the left tibia (Appendix 8.1).

Of the 44 identifiable (banded) adults (in 22 pairs) present in the 2004/05 season, 4 have disappeared in the past two years. Two of these (G-WY and BO-M) were already absent in February 2006 (Dowding 2006). Several lines of evidence suggest that these birds have died – all have been replaced in their territories, none were seen during the December 2006 census, and none were seen elsewhere during band removal and replacement work in January 2007. This rate of loss suggests average annual mortality of about 4.5% in the Maunganui-Tioriori area over the past two years. Three of the 4 missing birds bred in a relatively short stretch of beach between Washout Creek and Ngatikitiki.

Wharekauri
Eighteen breeding pairs were identified between Cape Young and Okahu Creek, a slight increase on the 16 pairs present in 2004/05. Pairings and territories in 2006/07 are shown in Table 1 and Appendix 8.4 respectively.

All colour bands were replaced on 22 breeding adults in this area (Table 1). One additional bird was checked but its bands did not require replacement. One unbanded adult (a suspected breeder in WK18) was banded with a metal band on its right tibia.

Mortality of adults appears to have been particularly high in the Wharekauri area since management ceased. Of the 32 identifiable adults (in 16 pairs) present in the 2004/05 season, 9 have disappeared in the past two years. As at Maunganui, all appear to have died – all have been replaced, and none have been seen elsewhere. This suggests average annual mortality of about 14% in the past two years. There appeared to be considerable clumping of mortality at Wharekauri – no fewer than 6 of the 9 missing birds bred in a very small area between the Rocks and Rangitihi territories.

We noted that cat tracks were abundant on the beach at Wharekauri in January 2007. Cats must be suspected as the cause of the recent high adult mortality at this site. They are probably also affecting productivity – for example, at Okahu we noted that a brood of 2 small chicks in WK6 and a nest in WK11, both present on 16 January, had disappeared by 28 January.

Productivity
Productivity in the previously managed areas could not be assessed accurately during our visit, as some breeding was still under way when we left. However, it appeared that it will be very low; few nests were present and only five chicks or juveniles were banded (three at Maunganui, two at Wharekauri), many fewer than the 15-25 typically banded per season in these areas during the management era. If 5 chicks fledge from the previously managed areas, productivity will be 0.11 chicks/pair for the 2006/07 season.

TABLE 1: Breeding pairs present in 2006/07 in the previously managed territories at Wharekauri and Maunganui. Shaded combinations indicate birds that had all colour bands replaced in January 2007. Three birds shown in bold type had bands checked (replacement was not required). BRT = banded on right tibia.

Area/territory	Code	Adult 1		Adult 2	
Maunganui					
Maunganui Bluff West	T19	YW-Y	K-11815	B-YR	K-12351
Maunganui Bluff East	T13	GY-M	K-11742	YG-M	K-11736
Washout West	T1b	- M	(Hoppy)	G-WG	K-11779
Washout East	T1a	WO-M	K-11659	**G-WB**	K-11777
Washout Beach	T11	G-YG	K-11949	BR-M	K-11739
Takehanga West	T1	B-WO	K-12365	RY-G	K-11922
Takehanga East	T2b	G-M	K-11737	WB-G	K-11923
	T15	M-GW	K-11675	M-WG	K-11745
Ngatikitiki West	T2a	YO-M	K-11686	M-OR	K-11685
Ngatikitiki Central	T14	W-GY	K-11710	**RO-M**	K-11661
	T20	K-OB	K-11879	K-RY	K-12404
Ngatikitiki East	T2c	RG-M	K-11657	BO-G	K-11924
Dieffenbach	T16	W-GB	K-11708	YW-M	K-11735
Boulders West	T2	G-BY	K-11788	M-OW	K-11687
	T21	WR-B	K-12370	K-GO	K-11873
Boulders East	T9	M-OB	K-11689	G-OW	K-12411
	T18	M-YB	K-11668	BRT	
Creek	T3	YO-G	K-12356	YG-G	K-12353
Pounamu	T4	RB-M	K-11690	GO-G	K-11925
Dune	T5	BW-G	K-12368	M-OG	K-11688
Narrows	T10	G-BW	K-11787	M-RO	K-11653
Cliff	T6	G-BG	K-11794	G-BO	K-11795
Grotto	T8	YR-G	K-11915	OG-M	K-11732
	T22	B-YG	K-12363	B-RW	K-11943
Tutuiri	T7	G-GB	K-11834	OB-G	K-11835
Tangipu	T17	W-GR	K-11793	BO-Y	K-11820
Waikauia	T12	M-RG	K-11662	GB-M	K-11741
Wharekauri					
Okahu Creek	WK6	B-WY	K-12357	M-BY	K-11684
Mabel	WK12	M-BW	K-11678	OK-Y	K-11857
Edward	WK11	M-RY	K-11664	M-RW	K-11656
Okahu Point	WK7	G-RW	K-11763	G-RB	K-11764
Bob's	WK15	W-BO	K-11783	L-WO	K-12439
Lantry	WK14	M-WO	K-11859	M-WB	K-11743
Third Creek	WK19	RB-Y	K-11825	L-WR	K-12440
Rangitihi	WK9	W-YG	K-11791	K-OG	K-11880
Island	WK5	BG-M	K-11962	BY-M	K-11961
	WK18	K-RW	K-12403	BRT	K-11961
Rocks (East)	WK20	W-YO	K-11792	YG-Y	K-11817
Rocks (West)	WK4	-RY	?	**RO-Y**	K-11828
Gate	WK10	WR-M	K-11651	WY-M	K-11658
Woolshed	WK3	B-GO	K-11945	M-R	K-11670
Awamutu Creek	WK8	G-RY	K-11767	W-WR	K-11768
Mairangi Creek	WK2	M-BG	K-11666	W-RO	K-11766
Splatter Rock	WK13	W-BG	K-11782	BY-G	K-11914
Cape	WK1	G-YB	K-11909	RO-B	K-11909

Unmanaged areas

Whangamoe
There has been significant recruitment in this area, which now has 13 pairs (compared to 6 in 2004/05). Pairs (with birds shown before colour band removal) are listed in Table 2, and territories are shown in Appendix 8.5. In late January, the 9 pairs between Port Hutt and Ohira Bay had between them 1 juvenile, 1 large chick (almost flying), and two nests.

Waitangi West
The three pairs present at this site in 2004/05 were still present and there has been no recruitment (Table 2). W-WO and B-RB had one chick (too small to band) on 18 January 2007.

Cape Pattisson
Birds seen in this area on 18 January were recorded as floaters (Table 5), but some appeared to be pairing and/or establishing territories. BW-Y and L-OR were acting as though paired and were behaving territorially on the west side of the Cape. Just east of the Cape (where the sandy beach starts) GO-Y was acting territorially and may have been pairing with L-OK; GO-Y was also seen here on 09 January. At the tip of the Cape, a third pair may also have been establishing; this appeared at times to consist of L-GY and BRT, and at other times L-GY and KO-Y. L-GY was also seen here on 09 January.

Taupeka
Four pairs were present. On 26 January, the pair in TP3 had a 1-egg nest, the pair in TP2 had a small chick, the pair in TP1 had no nest, chicks or juveniles, and the pair in TP5 had a medium-large chick.

Matarakau
Access to the pair west of the point (WO-G and RW-G in MA1) was not possible, but they may have disappeared, as neither was reported in the December 2006 census (Leseberg, 2007a). East of the point there were 3 pairs, one more than in 2004/05 (Table 2). On 26 January, the new pair (in MA4) had a nest, the pair in MA2 had no nest, chicks or juveniles, and the pair in MA3 had one large chick.

Okawa-Omutu
On 28 January, the usual pair of G-OR and UB at Okawa Point (OK1) had a 1-egg nest. On Omutu Beach, there has been a change in the pair in OK2. In February 2006, this pair consisted of BLT and BLT (Dowding 2006), but by January 2007 one of these birds had been replaced by L-GO. This pair had no nest, chicks or juveniles.

Southwest Coast
This area was visited on 17 January. The pair at Stony Hill had no nest, chicks or juveniles. Two searches at Kauaeroa failed to locate any birds. This area has apparently not been searched for two seasons and the pair here in 2004/05 (reported as RW-R and UB) may have disappeared. In any case, the colour combination recorded must be suspect, as RW-R has been a resident breeder on Mangere Island since at least 2002/03. At Kiringe Creek, the usual pair of G-GW and G-YR had a large chick, and a second pair (both birds UB) had established. Another pair of UB birds was in SW8 (Co's Creek). At Point Gap, both birds of the pair that has bred since 2002/03 (G-GY and W-WY) had disappeared, and been replaced by 2 UB birds. The remains of K-11908 G-GY were found below the usual nesting island, as were the remains of K-11869 WW-Y. Note that the latter bird is not the mate of G-GY, but has a very similar colour combination. Another pair of UB birds was at Moriori Creek. A further pair has been reported at Sweetwater, but that

site was not checked on 17 January. Southwest coast pairings are shown in Table 2 and territories are shown in Appendix 8.6.

TABLE 2: Breeding pairs and probable pairs seen in January 2007 in previously unmanaged territories on Chatham Island. Birds are shown with their original colour combinations; colour bands were removed from many of them (see Table 3) and metals were added to 5 of the unbanded adults (see Table 3 and Appendix 8.1). UB = unbanded, BLT = banded on left tibia.

Area/Territory	Code	Adult 1		Adult 2	
Whangamoe					
Long Beach (upper)	B5	R-M	K-7456	W-YB	K-11790
Paritu East	B4	G-WR	K-11773	G-RO	K-11772
	B12	WB-B	K-12371	BLT	?
Paritu West	B3	OW-G	K-11850	OR-G	K-11851
Old Quarry	B11	G-OB	K-12373	OY-G	K-12374
Ohira Bay	B2	YK-Y	K-11858	UB	
Basalt Columns	B10	BG-Y	K-11822	UB	
Whangamoe Pt East	B9	YO-Y	K-11860	B-GY	K-11946
Whangamoe Pt Central	B1	G-BR	K-11785	G-WO	K-11784
Whangamoe Pt West	B8	YR-Y	K-11810	KW-K	K-11871
Whangamoe Inlet East	B1a	M-GY	K-11677	RW-W	K-14256
Whangamoe Inlet West	B7	GK-Y	K-11847	K-RG	K-11885
Whangaroa	B6	GW-Y	K-11839	BK-Y	K-11849
Waitangi West					
Waitangi West	WW1	YW-G	K-11921	RB-G	K-11920
Waihi	WW2	W-WO	K-11775	B-RB	K-11941
South End	WW3	M-WY	K-11744	RW-M	K-11701
Taupeka					
Taupeka	TP1	WR-G	K-11863	UB	
Taupeka	TP2	OR-Y	K-11846	BLT	?
Taupeka	TP3	RK-Y	K-11844	UB	
Taupeka	TP5	B-RO	K-12352	UB	
Matarakau					
Matarakau	MA1	WO-G	K-11913	RW-G	K-11912
Matarakau	MA2	WY-G	K-11917	RO-G	K-11916
Matarakau	MA3	YB-G	K-11918	BR-G	K-11919
Matarakau	MA4	K-WG	K-11898	UB	
Okawa-Omutu					
Okawa	OK1	G-OR	K-12372	UB	
Omutu	OK2	BLT	?	L-GO	K-12427
Southwest coast					
Stony Hill	SW2	RG-G	K-11862	UB	
Kauaeroa	SW3	no birds seen		no birds seen	
Kiringe Creek North	SW4	G-YR	K-11905	G-GW	K-11906
Kiringe Creek South	SW9	UB		UB	
Co's Creek	SW5	UB		UB	
Point Gap	SW6	UB		UB	
Moriori Creek	SW7	UB		UB	

Bands removed

To reduce further band maintenance, colour bands were removed from 27 breeding adults in previously unmanaged areas; unbanded birds in these pairs were metal-banded where possible (Table 3).

TABLE 3: Changes made to band status of breeding birds in previously unmanaged territories on Chatham Island, January 2007. CB = colour bands, UB = unbanded, BLT = banded on left tibia, BRT = banded on right tibia.

Metal	Combination	Date	Location	Change to band status
K-11858	YK-Y	24-01-07	Ohira Bay	All CB removed
K-11058	M-	24-01-07	Ohira Bay	Was UB, date of banding, BLT
K-11822	BG-Y	24-01-07	Basalt columns	All CB removed
K-11057	M-	24-01-07	Basalt columns	Was UB, date of banding, BLT
K-11860	YO-Y	24-01-07	Whangamoe Pt	All CB removed
K-11946	B-GY	24-01-07	Whangamoe Pt	All CB removed
K-11785	G-BR	24-01-07	Whangamoe Pt	All CB removed
K-11784	G-WO	24-01-07	Whangamoe Pt	All CB removed
K-11871	KW-K	24-01-07	Whangamoe Pt	All CB removed
K-11707	RW-W	24-01-07	Whangamoe Inlet	All CB removed
K-11847	GK-Y	24-01-07	Whangamoe Inlet	All CB removed
K-11885	K-RG	24-01-07	Whangamoe Inlet	All CB removed
K-11839	GW-Y	25-01-07	Nappers Pt	All CB removed
K-12373	G-OB	27-01-07	Old Quarry	All CB removed
K-11921	YW-G	18-01-07	Waitangi West	All CB removed
K-11920	RB-G	18-01-07	Waitangi West	All CB removed
K-11775	W-WO	18-01-07	Waitangi West	All CB removed
K-11941	B-RB	18-01-07	Waitangi West	All CB removed
K-11863	WR-G	12-01-07	Taupeka	All CB removed
K-12352	B-RO	12-01-07	Taupeka	All CB removed
K-11844	RK-Y	26-01-07	Taupeka	All CB removed
K-11062	-M	26-01-07	Taupeka	Was UB, date of banding, BRT
K-11846	OR-Y	26-01-07	Taupeka	All CB removed
K-11917	WY-G	26-01-07	Matarakau	All CB removed
K-11916	RO-G	26-01-07	Matarakau	All CB removed
K-11918	YB-G	26-01-07	Matarakau	All CB removed
K-11898	K-WG	26-01-07	Matarakau	All CB removed
K-11061	-M	26-01-07	Matarakau	Was UB, date of banding, BRT
K-11862	RG-G	17-01-07	Stony Hill	All CB removed
K-12448	-M	17-01-07	Stony Hill	Was UB, date of banding, BRT
K-11905	G-YR	17-01-07	Kiringe Creek	All CB removed
K-11906	G-GW	17-01-07	Kiringe Creek	All CB removed

Band replacement/removal remaining
At the end of January 2007, at least 56 birds still had colour bands that need to be replaced or removed (Table 4). Some further replacement and removal will also be required as remaining colour-banded floaters in the population are recruited. These birds are now mostly 2 and 3 years old.

TABLE 4: Numbers of breeding adults in each area on Chatham Island that still need to have colour bands (CB) replaced or removed.

Area	Actions required
	Band replacement
Maunganui (west side)	20 birds have CB 4 years or older that need replacing 3 birds have CB 3 years old that will need replacing
Maunganui (Tangipu side)	6 birds have CB 4 years or older that need replacing
Wharekauri	13 birds have CB 4 years or older that need replacing 2 birds have CB 2 years old that will need replacing
	Band removal
Port Hutt-Paritu	10 birds have CB 4 years or older that need to be removed
Waitangi West	2 birds have CB 4 years or older that need to be removed
Matarakau	1 bird E of point has CB 4 years or older that need to be removed 2 birds W of point have CB 4 years or older that need to be removed if they are still alive (currently no access W of point)
Okawa-Omutu	1 bird has CB 4 years or older that need to be removed 1 bird has CB 2 years old that will need to be removed
Owenga	1 bird has CB 4 years or older that need to be removed
South-west coast	No action currently required
Taupeka	No action currently required

Floaters seen
Colour-banded floaters seen on Chatham Island in January 2007 are listed in Table 5. The pool of floaters appears considerably smaller than during the management era.

Previously there have been good flocks of floaters at certain favoured locations, notably Cape Pattisson. On 18 January 2007 there were only 9-10 there, and many of those seemed to be pairing and becoming territorial in the area. No large groups of floaters were seen elsewhere in 2006/07, either during our visit or in the December 2006 census (A Leseberg, pers. comm.). On 28 January, 3 unbanded birds were seen near the northern end of Hanson Bay. On the same date, no CIO were seen at the lagoon mouth, a site that has regularly had floaters in the past.

Thirty-two banded individual floaters were seen alive, and one (WW-Y) was found dead (see Table 5). Most of the remaining banded floaters are relatively young: 44% are 2 years old (lime cohort) and 28% are 3 years old (black cohort).

TABLE 5: Colour-banded floaters seen on Chatham Island, January 2007. CB = colour bands

Bird	Date	Location	Observer	Notes
L-RB	06-01-07	Maunganui Tioriori	RW	CB checked, all OK
RY-Y	07-01-07	Maunganui Boulders	RW	CB checked, all OK
K-OY	08-01-07	Maunganui Takehanga	RW	CB checked, all OK
L-RW	08-01-07	Maunganui Takehanga	RW	CB checked, all OK
L-OR	08-01-07	Maunganui Takehanga	RW	CB checked, all OK
OB-Y	08-01-07	Maunganui Tioriori	RW	CB checked, all OK
L-OK	08-01-07	Maunganui Boulders	RW	
YW-L	08-01-07	Maunganui Boulders	RW	
L-WB	08-01-07	Tangipu	RW	
BY-Y	08-01-07	Tangipu	RW	
RY-Y	08-01-07	Tangipu	RW	
K-RK	08-01-07	Tangipu	RW	
KB-Y	08-01-07	Tangipu	RW	
K-OY	09-01-07	Maunganui Washout	RW	
WB-Y	09-01-07	Maunganui Tioriori	RW	
K-WY	09-01-07	Maunganui Tioriori	RW	
OB-Y	09-01-07	Maunganui Tioriori	RW	
KG-L	09-01-07	Maunganui Tioriori	RW	CB checked, all OK
GO-Y	09-01-07	Cape Pattisson East	RW	
L-GY	09-01-07	Cape Pattisson	RW	
L-WB	10-01-07	Maunganui Bluff	RW	
L-RB	10-01-07	Washout beach	RW	
KO-Y	10-01-07	Whangamoe Point	RW	
WO-K	10-01-07	Whangamoe Point	RW	
K-WB	12-01-07	Wharekauri Island	RW	
L-GK	12-01-07	Wharekauri Island	RW	
K-BO	12-01-07	Wharekauri Woolshed	RW	
WB-M	12-01-07	Wharekauri Woolshed	RW	
RW-Y	12-01-07	Okahu Point	RW	
K-BO	14-01-07	Wharekauri Lantry	RW	
RW-Y	14-01-07	Okahu Point	RW	
K-OK	14-01-07	Okahu Point	RW	
L-GR	14-01-07	Okahu Point	RW	CB checked, all OK
K-BO	14-01-07	Wharekauri Awamutu	RW	
WB-M	14-01-07	Wharekauri Awamutu	RW, AL	CB replaced
K-OK	14-01-07	Wharekauri Rocks	RW	
WB-Y	14-01-07	Wharekauri Gate	RW	
L-GB	14-01-07	Wharekauri Gate	RW	
WB-M	14-01-07	Wharekauri Island	RW	
K-WB	16-01-07	Wharekauri Rocks	RW	CB replaced
WW-Y	17-01-07	Point Gap	RW, JED, AL	Found dead
BW-Y	18-01-07	Cape Pattisson	JED	
L-OR	18-01-07	Cape Pattisson	JED	
L-OK	18-01-07	Cape Pattisson	JED	
L-WB	18-01-07	Cape Pattisson	JED	
L-GY	18-01-07	Cape Pattisson	JED	
GO-Y	18-01-07	Cape Pattisson	JED	
K-OY	18-01-07	Whangamoe Point	RW	
L-RY	18-01-07	Paritu West	RW	
RY-K	18-01-07	Whangatete	RW	
K-OY	24-01-07	Whangamoe Point	JED, PG	
L-OW	25-01-07	Nappers Point	JED	Inadvertent capture
RY-K	25-01-07	Whangamoe Inlet	JED	
L-GK	28-01-07	Wharekauri Island	JED	
GR-L	28-01-07	Wharekauri Bobs	JED	

2.2 PITT ISLAND

Twelve pairs of CIO were identified on the north and east coasts of Pitt Island (Table 6 and Appendix 2). A further 2 pairs were recorded on the west coast around Rangiauria Point in December 2006 (K Dix, pers. comm.); the only colour-banded bird in these 2 pairs was BO-R. This suggests a total of 14 pairs on the whole island during the 2006/07 season. However, BO-R was seen on South East Island in November, and later paired and bred on Mangere (Leseberg 2007b), so it may not have been paired on Pitt in December. No CIO were seen at Flower Pot on 23-01-07, or at Waihere Bay in December 2006 (K Dix, pers. comm.).

TABLE 6 Oystercatchers seen or handled on Pitt Island, 20-23 January 2007. CB = colour bands, UB = unbanded, BLT = banded on left tibia.

Territory/location	Bird	Date	Notes
Managed pairs			
P11 Sandy Point N	Y-RB	20-01-07	All CB replaced; no nest, chicks or juvs
	Y-WO	20-01-07	All CB replaced
P1 Sandy Point S	R-RY	22-01-07	All CB replaced; no nest, chicks or juvs
	R-RB	22-01-07	All CB replaced
P2 Woolshed	Y-GY	20-01-07	All CB replaced Feb 2006 (Dowding 2006)
	Y-WB	20-01-07	Incubating, capture not attempted
P16 Caravan Bush	R-WY	20-01-07	Was K-13708, re-banded K-11052 R-WY
	UB	20-01-07	No nest , chicks or juveniles (nest lost mid-Jan)
P3 Second Water Creek	M-	21-01-07	Nest hatching 21-01; 2 small chicks on 23-01
	M-	21-01-07	
P15 Waipaua	Y-RG	21-01-07	Alone. CB replaced Feb 2006 (Dowding 2006)
	L-KY	23-01-07	Prob pairing with Y-RG after disappearance of Y-RW
P12 Glory Bay	R-RO	21-01-07	All CB replaced
	O-YW	21-01-07	Banded Jan 2004, CB not due for replacement
	M-	21-01-07	Dependent juvenile, banded K-11053
Unmanaged pairs			
P13 Glory South	R-WB	21-01-07	Not caught, CB due for replacement
	O-RG	21-01-07	All CB replaced. No nest, chicks or juveniles
P4 Waikuri Bay	M- ?	21-01-07	Viewed from cliff-top; no chicks or juveniles
	M- ?	21-01-07	
P10 Tupuangi Island	M-	22-01-07	Adult (BLT)
	M-	22-01-07	Adult (BLT)
	M-	22-01-07	Dependent juvenile, banded K-11054
	M-	22-01-07	Dependent juvenile, banded K-11055
P9a Lake mouth	R-YG	22-01-07	All CB replaced
	M-	22-01-07	Adult (BLT)
	M-	22-01-07	Medium-sized chick, banded K-11056
P9 Motutapu	W-GW	22-01-07	All CB replaced
	YR-R	22-01-07	Incubating 2-egg nest, CB not due for replacement
Floaters			
Sandy Point	BW-R	20-01-07	Later at Woolshed
	YO-R	20-01-07	Also on 21-01-07
	2 UB	20-01-07	
	BY-R	22-01-07	
Woolshed	O-RY	20-01-07	

Two changes in pairings during the past two seasons were evident.

1. At Waipaua, the 2005/06 pairing of Y-RG and Y-RW was present until late December 2006. By late January 2007, Y-RW had disappeared and it seemed likely that L-KY, a 2-year-old floater, was pairing with Y-RG.

2. At Motutapu Point (P9), there is a new pairing of W-GW and YR-R, replacing the 2 unbanded birds present in 2004/05. In 2004/05, W-GW was recorded in Old Orchard (P14), immediately east of Motutapu Point, either unpaired or with an unknown mate. YR-R was banded as a chick on Mangere in February 2005; at 2 years old, it is very likely that this is its first breeding season.

Of the 6 floaters seen on Pitt in late January 2007, 4 were colour banded. Two of these (BW-R and YO-R) were also recorded as floaters on Pitt in February 2006 (Dowding 2006); both are now 3 years old and both were banded as chicks on Mangere in January 2004. BY-R is 2 years old and was banded as a chick on Mangere in February 2005. O-RY was banded as a chick on South East in January 2001 and is now 6 years old.

Seven pairs of CIO bred within the east coast managed area in 2006/07. In 2005/06, the trap-line extended south of Glory Bay and covered eight pairs, while in 2006/07 it stopped at Glory Bay. In late January, there was one fledged chick (P12) from 7 pairs in the east coast managed area. In addition, there was one nest (P2) and a brood of two small chicks (P3).

2.3 TOTAL EFFECTIVE POPULATION SIZE

Observations made during our visit, coupled with records from the December 2006 census and from trips to Mangere and South East Islands (Leseberg 2007a, b; K Dix, pers. comm.), allow an estimate of the number of pairs in the whole population (Table 7).

TABLE 7: Estimated number of Chatham Island oystercatcher pairs during the 2006/07 season. A few of these pairs appeared to be forming and may not have bred yet.

Area	Number of pairs	Source
Maunganui-Tioriori	27	This report
Wharekauri-Okahu	18	This report
Taupeka	4	This report
Matarakau	4	This report / Dec 06 census
Okawa-Omutu	2	This report
Owenga-Manukau	2	Dec 06 census
South coast	2	Not surveyed, estimate from previous censuses
South-west coast	6-8	This report / earlier data
Whangamoe-Paritu	13	This report
Pt Somes-Ocean Bay	2-4	Dec 06 census
Waitangi West	3	This report
Pitt Island	13-14	This report / Dec 06 census
Mangere Island	3	A Leseberg, pers. comm.
South East Island	4	A Leseberg, pers. comm.
Total	**103-108**	

This is the highest number of pairs recorded in recent years (see Discussion).

3 Miscellaneous observations

3.1 CHATHAM ISLAND

On 28 January, 21 dead pilot whales (including 2 small calves) were found stranded at the northern end of Hanson Bay, Chatham Island (NZMS 260 Chatham Islands Sheet 1: 670 760).

Also on 28 January, a group of 94 CI shags was seen on rocks at the southern end of Omutu Beach (on the north side of Okawa Point).

3.2 PITT ISLAND

At the time of JED's visit to Pitt Island, 4 Chatham petrels were known to be on eggs in Caravan Bush. In burrow 58, the incubating bird was unbanded. On 23-01-07, it was banded D-181077 on the left tarsus by JED. It weighed 193 g.

4 Discussion

4.1 EFFECTS OF LACK OF MANAGEMENT

Following the 6 seasons of management on the north coast of Chatham Island, there have now been two seasons without management, and it appears an appropriate time to assess the effects of that lack of management. Estimated total population numbers, number of pairs and number of floaters in recent years are shown in Table 8.

TABLE 8: Estimated total population size, number of pairs and number of floaters in the CIO population in recent years.

Season	Est. total	Pairs	Floaters	Source
1998/99	142	34-41		Schmechel & O'Connor (1999)
1999/00	126	50		Moore *et al*. (2001)
2000/01	c 180	c 60	c 60	Moore (2005a)
2001/02	c 205	c 70	c 65	Moore (2005a)
2002/03	233	75	61-83	Moore (2003)
2003/04	287	85	116	Moore (2004)
2004/05	311	88	135	Moore (2005b)
2006/07	**253**	**103-108**	**44-53**	This report/Leseberg (2007a, b)

These figures suggest the following:
1. After peaking at over 300 individuals, the total population appears to have declined by roughly 20% to about 250 in the past two years.
2. The number of pairs has continued to increase since cessation of management, and is now at the highest level ever recorded. This is to be expected, as birds are normally recruited into the breeding population at 2-4 years of age, and birds produced during the management era are still being recruited.

3. The number of floaters in the population is often difficult to gauge accurately, but it does appear to have declined sharply from the peak levels of 2003 and 2004. This has almost certainly been caused by a combination of increased recruitment and a drop in productivity recently.

Annual adult survival at Maunganui and Wharekauri during the management era was estimated at 0.96 (Moore 2005). Over the past 2 years, the average at these sites was 0.914. The difference may not seem great, but results in a decrease in adult life-expectancy from 24 years to 11 years.

The other major change that is likely to have occurred is in the level of productivity at Maunganui and Wharekauri. During the management era, productivity in these areas averaged 1.04 chicks fledged per pair (range 0.54-1.60) (Moore 2005a). Data from the past two seasons are few, but suggest much lower values. In late February 2006, there were 36 pairs recorded in the previously managed areas, with 5 juveniles and 4 pairs showing chick behaviour (Hiscock 2006); this suggests a productivity range of 0.14-0.25 (if the four pairs each fledged one chick). In late January 2007, productivity in the same areas appeared to be about 0.11 (section 2.1 above); this figure could have risen if later breeding attempts were successful. Also in late January, there was one large chick from 6 pairs on the South-west Coast, and 2 from 9 pairs on the Whangamoe-Paritu coast. This suggests productivity of 0.20 in these areas. Overall, productivity appears to have been in the order of 0.15-0.20 chicks per pair in the past two years.

Simple modelling of these recent demographic data suggests that the population will decline without management. For example, with adult survival of 0.914 and productivity at 0.20, the population should decline by at least 3% per year. There already appears to be a decrease in the size of the pool of floaters (Table 8); this, and lower productivity suggest that adults lost in future years will not be replaced as rapidly as they have been recently, and the number of breeding pairs will begin to fall. This fall seems likely to begin in 2-3 years, after the remaining 2-3-year-old floaters produced during the management era have been recruited.

In the near future, there is a requirement for more robust demographic data in the absence of management, and for further modelling of those data. However, all the evidence presented above indicates that the population on Chatham Island will decline without management. Two options for consideration are as follows:

1. Undertake predator control each season at Wharekauri only. Both adult survival and productivity here are particularly low at present (probably mainly because of cats), and management at this one relatively compact site may be sufficient to halt the overall decline. Further monitoring may show that pulsed management (e.g. every other season) is sufficient.

2. Set minimum thresholds for the number of pairs and/or total population size, and re-instate management at both Maunganui and Wharekauri when those thresholds are reached.

Note that there are still high densities of pairs at both these sites, a situation that would make management efficient if carried out in the near future. If the number of pairs is allowed to fall, later management will be correspondingly less efficient.

One point that has does not yet appear to have been investigated is whether there is any sex bias in mortality of adult CIO. In the case of both southern New Zealand dotterels and wrybills, males incubate at night and are more susceptible to predation by predominantly nocturnal predators such as cats and stoats (Dowding & Murphy 2001).

4.2 PITT ISLAND

As noted earlier (Dowding 2006), there currently appears to be very little interchange between birds on Chatham Island and birds on the southern islands (Pitt, Mangere and South East), and these two areas should constitute separate management units. In terms of breeding pairs (Table

7), the Chatham Island and southern islands sub-populations constituted about 80% and 20% of the total population respectively in 2006/07.

Productivity has not been as high as hoped in the Pitt Island east coast managed area in the past 2 years. In 2005/06, 4 chicks are thought to have fledged from 8 pairs (0.50 chicks per pair) (Dowding 2006). In late January 2007, 1 chick was known to have fledged from 7 pairs, with 2 small chicks and one nest still present. Given the isolation of the southern islands sub-population from birds on Chatham Island, and the low productivity seen on South East Island in recent years, means to improve productivity on the east coast of Pitt Island should be explored.

5 Recommendations

- Improve monitoring of survival and productivity in the previously managed areas on the north coast of Chatham Island.

  Justification: There do not appear to have been accurate estimates of productivity in these areas in the past 2 seasons. With the whole population very likely to decline in the near future, and more than half the Chatham Island pairs in the 2 areas, these data are required to monitor the rate of decline.

- Either
  (a) Re-institute management at Wharekauri from 2007/08, monitor productivity and survival, then assess whether this is sufficient to reverse the overall population decline,
  or
  (b) Set minimum thresholds for the number of breeding pairs and/or total population size; when these are reached, re-institute management at both Maunganui and Wharekauri until the population recovers to a pre-determined level.

  Justification: Adult survival and productivity have been very low at Wharekauri since management ceased. Management at this one site may be sufficient to reverse the decline in the whole population. Waiting until the population reaches a pre-determined level then managing at both sites would require greater resources, but is a prescription that is known to be effective.

- Continue to manage the CIO sub-populations on Chatham Island and on the southern islands separately.

  Justification: There is very little interchange between the 2 sub-populations and the southern islands have benefited little from the pulse of management in northern Chatham Island – the proportion of pairs in the southern islands has fallen from about 30% of the whole population in 1998 (Schmechel & O'Connor 1999) to about 20% in 2006 (this report).

- Improve productivity in the managed area on the east coast of Pitt Island

  Justification: Productivity in this area has not reached the levels achieved during management on the north coast of Chatham Island. Productivity needs to increase in this area to boost numbers in the southern islands sub-population. Flooding of nests and predation by cats are likely to be the main threats that need to be managed more effectively.

- Continue replacement and removal of colour bands

  Justification: There are currently 39 adults in previously managed areas that still need colour bands replaced and 17 in unmanaged areas that need colour bands removed. These numbers will probably increase as further 2- and 3-year-old birds are recruited.

6 Acknowledgements

Many thanks to staff of the Chatham Islands Area Office for organisation and logistic support throughout the trip. Particular thanks to Paul Gasson and Antje Leseberg, who provided good company and help with fieldwork on Chatham Island, and to Kenny Dix for similar support and help with capture and banding on Pitt Island. Thanks also to all the landowners who allowed access through their properties.

7 References

Dowding, J.E. 2006. Banding and monitoring of shorebirds on the Chatham Islands, February 2006. *DMC contract report number 48*. DM Consultants, Christchurch.

Dowding, J.E.; Murphy, E.C. 2001. The impact of predation by introduced mammals on endemic shorebirds in New Zealand: a conservation perspective. *Biological Conservation 99*: 47-64.

Hiscock, J. 2006. Oystercatchers 2005/06. Unpublished report, Department of Conservation, Chatham Islands.

Leseberg, A. 2007a. December 06 oystercatcher census.xls. Unpublished report, Department of Conservation, Chatham Islands.

Leseberg, A. 2007b.Chatham Island Oystercatcher (*Haematopus chathamenis*): End of Season Report 2006-07. CHTAO–17056. Department of Conservation, Chatham Islands.

Moore, P. 2003. Chatham Island Oystercatcher Preliminary Results of Management/Research 2002/03 – report for Recovery Group Meeting April 2003. WGNCR-34763. Unpublished report, Department of Conservation, Wellington.

Moore, P. 2004. Chatham Island Oystercatcher Preliminary Results of Management/Research 2003/04 – report for Recovery Group Meeting April 2004. WGNCR-49811. Unpublished report, Department of Conservation, Wellington.

Moore, P. 2005a. Chatham Island Oystercatcher Population Projections– preliminary results 25 November 2005. WGNHO-239887. Unpublished report, Department of Conservation, Wellington.

Moore, P. 2005b. Chatham Island Oystercatcher Preliminary Results of Management/Research 2004/05– report for Recovery Group Meeting April 2005. WGNHO-222076. Unpublished report, Department of Conservation, Wellington.

Moore, P.; O'Connor, S.; Hedley, G.; Goomes, R. 2001. Chatham Island oystercatcher-report of 1999/2000 field season. Science & Research Internal Report 189. Department of Conservation, Wellington.

Schmechel, F.A.; O'Connor, S. 1999. Distribution and abundance of the Chatham Island Oystercatcher (*Haematopus chathamensis*). *Notornis 46*: 155-165

8 Appendices

Appendix 8.1: Oystercatchers banded on Chatham and Pitt Islands, January 2007

Appendix 8.2: Oystercatcher pairings and territories on Pitt Island during the 2006/07 season

Appendix 8.3: Maunganui territories, 2006/07 season

Appendix 8.4: Wharekauri territories, 2006/07 season

Appendix 8.5: Whangamoe area territories, 2006/07

Appendix 8.6: South-west coast territories, 2006/07

Appendix 8.1: Oystercatchers newly banded or re-banded on Chatham and Pitt Islands, January 2007.

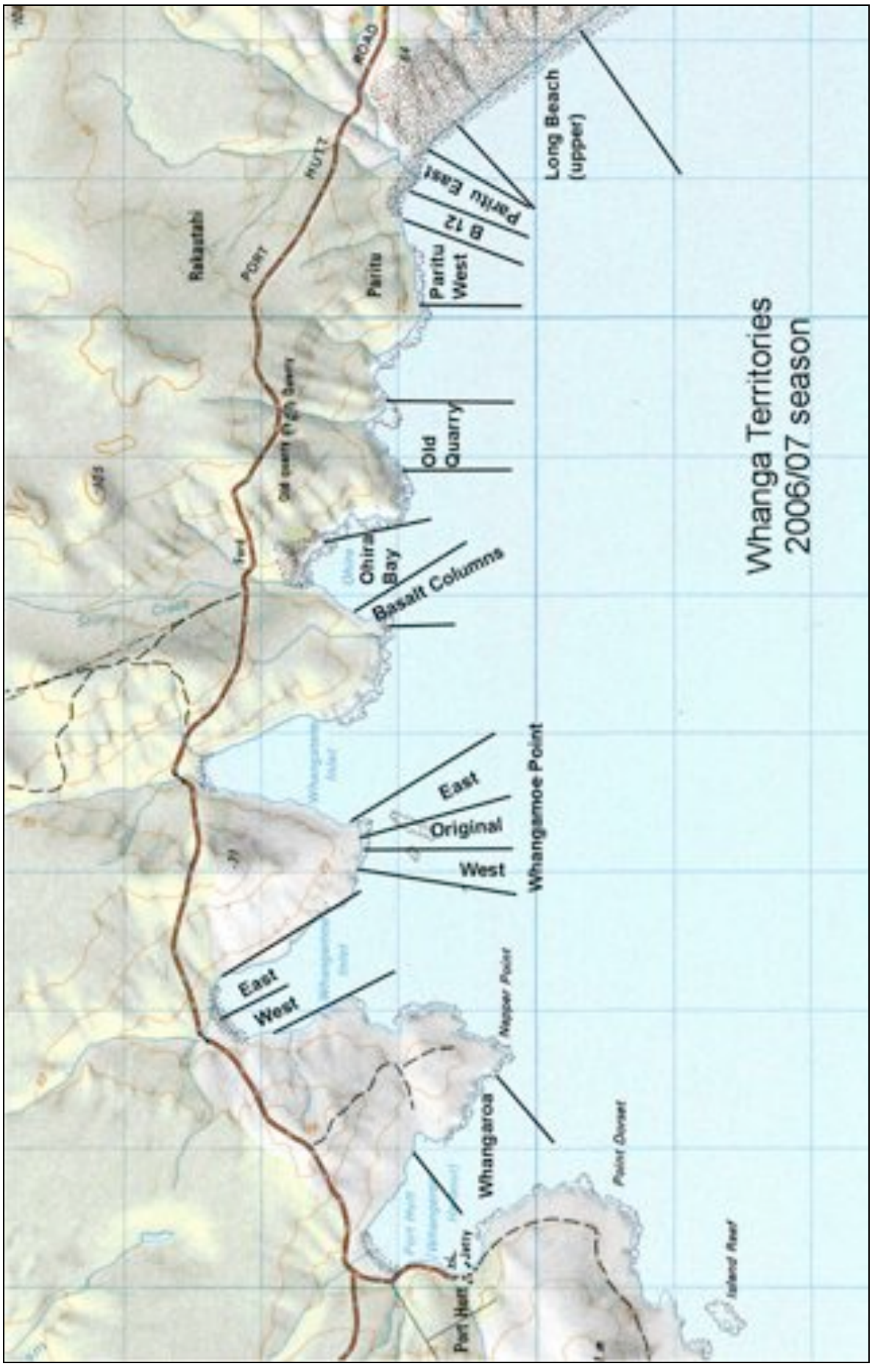
Band number		Date	Age	Sex	Name of bander	Location	Colours		Old Band Number
K	12441	06-01-07	P	U	Rex Williams	Washout			
K	12442	06-01-07	P	U	Rex Williams	Washout			
K	12443	06-01-07	P	U	Rex Williams	Washout			
K	12444	09-01-07	U	U	Rex Williams	Takehanga			
K	12445	12-01-07	P	U	Rex Williams	Awamutu Cr			
K	12446	14-01-07	P	U	Antje Leseberg	Okahu Pt			
K	12447	16-01-07	A	U	Rex Williams	Wharekauri Rocks			
K	12448	17-01-07	A	U	Antje Leseberg	Stony Hill			
K	12449	17-01-07	P	U	John Dowding	Kiringe Cr			
K	12450	17-01-07	A	U	Antje Leseberg	Kiringe Cr			
K	11052	20-01-07	A	U	John Dowding	Pitt Caravan	R	WY	K-13708
K	11053	21-01-07	J	U	John Dowding	Pitt Glory			
K	11054	22-01-07	P	U	Kenny Dix	Pitt Tupuangi			
K	11055	22-01-07	P	U	Kenny Dix	Pitt Tupuangi			
K	11056	22-01-07	P	U	Kenny Dix	Pitt Lake Mouth			
K	11057	24-01-07	A	U	Paul Gasson	Basalt columns			
K	11058	24-01-07	A	U	Paul Gasson	Basalt columns			
K	11059	24-01-07	J	U	Paul Gasson	Whangamoe Pt			
K	11060	25-01-07	P	U	John Dowding	Nappers Pt			
K	11061	26-01-07	A	U	Antje Leseberg	Matarakau			
K	11062	26-01-07	A	U	Antje Leseberg	Taupeka			
K	11063	26-01-07	P	U	Antje Leseberg	Taupeka			

Appendix 8.2: Oystercatcher pairings and territories on Pitt Island during the 2006/07 season.

Appendix 8.3: Maunganui territories, 2006/07 season

Appendix 8.4: Wharekauri territories, 2006/07 season

Appendix 8.5: Whangamoe area territories, 2006/07



Appendix 8.6: South-west coast territories, 2006/07