



## Rangitatahi Seabird Research: December 2017



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## EXECUTIVE SUMMARY

This report presents the results of field work carried out on Rangitatahi, but also draws on work carried out last season on Motuhara to update the present status of seabird species breeding on these two islands.

Rangitatahi is Maori Land and we are very grateful for the permission of the island owners to camp on the island to undertake this research.

A field team of two (Mike Bell and Dave Bell) camped on Rangitautahi/ Big Sister from November 30 to 4 December 2017, whilst a separate field team of two (Dave Boyle and Hamish Chisholm) camped on Te Awanui/ Middle Sister.

A full census of Northern Buller's Mollymawk across both islands recorded 3,273 nests, of which 3,158 showed evidence of breeding this season (753 nests on Te Awanui/ Middle Sister and 2,520 on Rangitautahi/ Big Sister). In 2016 a total of 16,764 breeding pairs were recorded on Motuhara, giving a total breeding population for the Chatham Islands of 20,000 pairs; slightly higher than previously published estimates for the species.

A census of Northern Royal Albatross recorded 2,388 nest sites, including 2,255 nests which showed evidence of breeding this season (864 on Te Awanui/ Middle Sister and 1,391 on Rangitautahi/ Big Sister).

Combining the results of last year's research and additional aerial counts (2016-2017) it is possible to investigate the population trends. Determining the total population and population trend of Royal Albatross is problematic due to the biennial breeding behaviour. However, both the annual number of breeding pairs and the total breeding population indicate that the population is in decline, and that this decline is most significant on Motuhara. The causes for the decline are unknown, but may be related to 15 years of low productivity on Motuhara following the 1984 storm which stripped the island of vegetation and soil.

A complete count of both islands recorded 47 Northern Giant Petrel chicks on Little Sister and 20 chicks on Rangitautahi/ Big Sister. Applying a correction factor, using breeding success calculated from Rangitautahi/ Big Sister, the breeding population on Rangitatahi is estimated to be 156 breeding pairs (110 pairs on Te Awanui/ Middle Sister and 46 breeding on Rangitautahi/ Big Sister). In 2016 a total of 1,977 breeding pairs was estimated on Motuhara, giving a total breeding population for the Chatham Islands of 2,150 pairs; similar to previously published estimates for the species.

## 1. INTRODUCTION

This research trip is a continuation of seabird research on the albatross islands in the Chathams. Fieldwork was carried out on Tara koi koia and Motuhara last season but due to the weather no landings were possible on Rangitatahi and this component of the work was delayed until the 2017/18 season.

Rangitatahi is Maori Freehold Land with 192 registered owners (as of December 2016). In 1993 four owners were appointed agents, primarily to deal with requests for access. In Oct 2016 the last of these agents passed away. At present no new agents have been appointed. We discussed this research and access with the senior owners of Rangitatahi and permission was granted to land and camp on the islands. We are very grateful to the island owners for granting permission to undertake this research.

Rangitathi (-43.567668°, -176.806865°) is a group of three small islands lying 16km north of Cape Pattinson, two of which have near vertical cliffs rising 40-60m, topped by undulating plateaus with sparse vegetation. With significant breeding populations Northern Buller's Mollymawk (*Thalassarche bulleri plateri*) Northern Royal Albatross (*Diomedea sanfordi*), and Northern Giant Petrel (*Macronectes halli*) Rangitatahi has been classified as an Important Bird Area (Forest and Bird 2015).

There has been considerable research carried out on Middle (Little) Sister since the early 1970's, including extended stays on the island during the mid 1990's. There have been few visits to Rangitautahi/ Big Sister, and no research team has ever camped on the island.

This report summarises the results of a field trip to Rangitatahi in December 2017 in which field teams camped on both Big and Te Awanui/ Middle Sister to undertake a population census of Northern Buller's Mollymawk, Northern Royal Albatross and Northern Giant Petrel. As this field trip is the completion of two seasons research this report summaries the results for these species on both Rangitatahi and Motuhara.

## 2. METHODS

### 2.1 Island names

Following Bell *et al.* 2017 in this report we use recognised local Maori names for the albatross Islands as follows -

- Rangitatahi – The Sisters, name given collectively to all islands in the group.
- Rangitautahi - Big Sister
- Te Awanui – Middle Sister
- Motuhara – The Forty Fours

### 2.2 Census

A full census of Northern Buller's Mollymawk, Northern Royal Albatross, and Northern Giant Petrels on Rangitatahi was carried out between November 30 December 4 2017.

For each species the island was separated into count sections and within each of these sections every nest site was marked with a small dot of spray paint to ensure all nests were counted and no nests double counted. On Te Awanui/ Middle Sister the original count sections used during research in the mid 1990's were used. A landing was made on the stack to the north of Rangitautahi/ Big Sister to undertake a count of Buller's Mollymawk breeding on this islet; results are included with the count of Rangitautahi/ Big Sister.

At each nest the contents were recorded as either-

- Egg – a nest with an adult bird incubating an egg
- Chick – a nest with an adult bird guarding a chick or a live chick alone in a nest
- Failed nest – a nest with a broken or abandoned egg, or dead chick. Confirming a nest where a breeding attempt was undertaken this season but had already failed
- Empty – a nest without an egg or chick, which may have an adult bird present, but shows no evidence of attempted breeding this season

To check accuracy of census results transects of sections of the island were re-surveyed 1-3 days after initial counts to determine how many nests with eggs were missed (nests without paint marks indicating a missed nest). Sections of the island re-surveyed represented a range of topography of the island to cover the range of breeding habitat for each species.

### **3. RESULTS**

A field team of two (Mike Bell and Dave Bell) camped on Rangitautahi/ Big Sister from November 30 to December 4 2017, whilst a separate field team of two (Dave Boyle and Hamish Chisholm) camped on Te Awanui/ Middle Sister.

#### **3.1 Island condition**

During this field trip we found both islands to be extremely well vegetated and clearly the islands have not suffered from any significant storm events in the recent past, and at present are in excellent condition, although vegetation on both islands was already showing water stress due to the hot dry start to summer.

Rangitautahi/ Big Sister has only limited amounts of soil, in several low 'gullies' and this appears to be relatively shallow. These areas had good growth of Button Daisy and *Senecio radiolatus*. The 'ridges' between were largely bare rock, with soil and vegetation in cracks and hollows (Figure 1).

The central part of Te Awanui/ Middle Sister has deep soil, and at the time of our visit had excellent vegetation cover of Button Daisy and *Senecio radiolatus*. The four 'hills' surrounding this central plateau are largely bare rock with soil and vegetation in cracks and hollows (Figure 2).

Figure 1. Photos of Rangitautahi/ Big Sister showing vegetation growth, Dec 2017.



Figure 2. Photos of Te Awanui/ Middle Sister showing vegetation growth, Dec 2017.



## 3.2 Census results

A full census of Northern Buller's Mollymawk, Northern Royal Albatross and Northern Giant Petrel on Rangitatahi was carried out between Nov 30 and Dec 4 2017.

### 3.2.1. Northern Buller's Mollymawk

A total of 3,273 Northern Buller's Mollymawk nests were recorded on Rangitatahi, of which 3,158 showed evidence of breeding this season, plus 115 empty nests. With 753 nests on Te Awanui/ Middle Sister and 2,520 on Rangitautahi/ Big Sister and associated northern rock stack (Table 1).

Table 1. Census results for Northern Buller's Mollymawk on Rangitatahi, December 2017.

	Middle	Big	Total
Egg	488	1,598	2,086
Failed	161	911	1,072
Empty	104	11	115
Total	753	2,520	3,273

To check the accuracy of census methodology sections of the island were re-counted to determine how many nests were missed (nests without paint marks indicating a missed nest). On Rangitautahi/ Big Sister a sample of nests in each of the East and West sections was recounted and a total of 1035 nests were checked, with only a single nest found to be missed (0.01%). On Te Awanui/ Middle Sister the number of nests was re-counted in three sections, and also recorded only a single nest missed from 260 nests checked (0.4%).

Full censuses of Northern Buller's Mollymawks were carried out on the ground on Te Awanui/ Middle Sister in 1995 and 1996 (D. Bell, unpublished data) and an aerial census was carried out in November 2016 (Baker *et al.* 2017) (Table 2).

Table 2. Historical ground counts of Buller's Mollymawk on Te Awanui/ Middle Sister in late November 1995 and 1996 (data from Dave Bell), November 2016 (data from Baker *et al.* 2017)

	1995	1996	2016
Method	Ground	Ground	Aerial
Egg	522	474	
Failed	43	162	
Total	565	636	545

There has been no previous ground counts of Buller's Mollymawk from Rangitautahi/ Big Sister; 2,147 nests were recorded from aerial surveys in 2016 (Baker *et al.* 2017)



### 3.2.2. Northern Royal Albatross

A total of 2,388 nest sites of Northern Royal Albatross were counted on Rangitatahi, including 2,255 nests which showed evidence of breeding this season. 1,391 nests were recorded on Rangitautahi/ Big Sister and 864 on Te Awanui/ Middle Sister (Table 3).

Table 3. Census results for Northern Royal Albatross on Rangitatahi, December 2017.

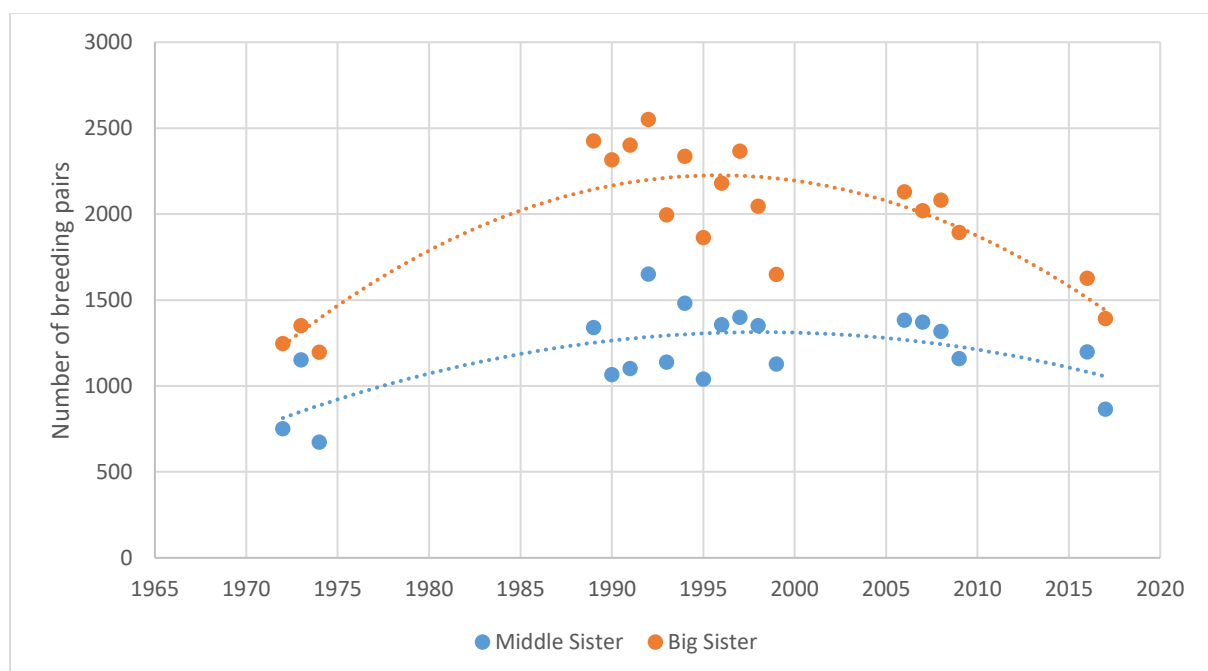
	Middle	Big	Total
Egg	806	1286	2,092
Failed	58	105	163
Empty	95	38	133
Total	959	1,429	2,388

To check the accuracy of census methodology sections of the island were re-counted to determine how many nests were missed (nests without paint marks indicating a missed nest). On Rangitautahi/ Big Sister a complete re-census of the entire island found that no nests had been missed. A transect survey of 136 nests on Te Awanui/ Middle Sister also found no nests had been missed.

Counts on Te Awanui/ Middle Sister have been undertaken more frequently. Aerial counts were conducted in 1972-74, 1989-1999, 2006-2009 and 2016, with ground counts in 1994-96. This 2017 count is significantly lower than counts from 1989-2016 and is closer to numbers recorded in 1972-74 (Figure 3).

Rangitautahi/ Big Sister has had no previous ground counts, but has been counted using aerial photography since the 1970's. The 2017 count is significantly lower than that recorded between 2006-09, and closer to 1972-74 counts (Figure 3).

Figure 3. Historical counts of the number of breeding pairs of Northern Royal Albatross from Rangitautahi/ Big Sister (Blue) and Te Awanui/ Middle Sister (Brown) during early incubation 1972-2017.



### 3.2.3. Royal Albatross nest structure

A random sample of Royal Albatross nests were checked for nest structure, with nests classified into three classes-

- Rock – nest bowl with no lining of vegetation/nesting material meaning that the egg rests directly on rock.
- Earth - nest bowl with no lining of vegetation/nesting material meaning that the egg rests on an earth/soil base.
- Vegetation – nest bowl lined with vegetation/nesting material meaning that the egg rests on a lined nest bowl.

Rangitautahi/ Big Sister had a higher number of nests laid directly on to rock, with Te Awanui/ Middle Sister having a higher proportion of nests with a vegetation/nesting material lined bowl (Table 4).

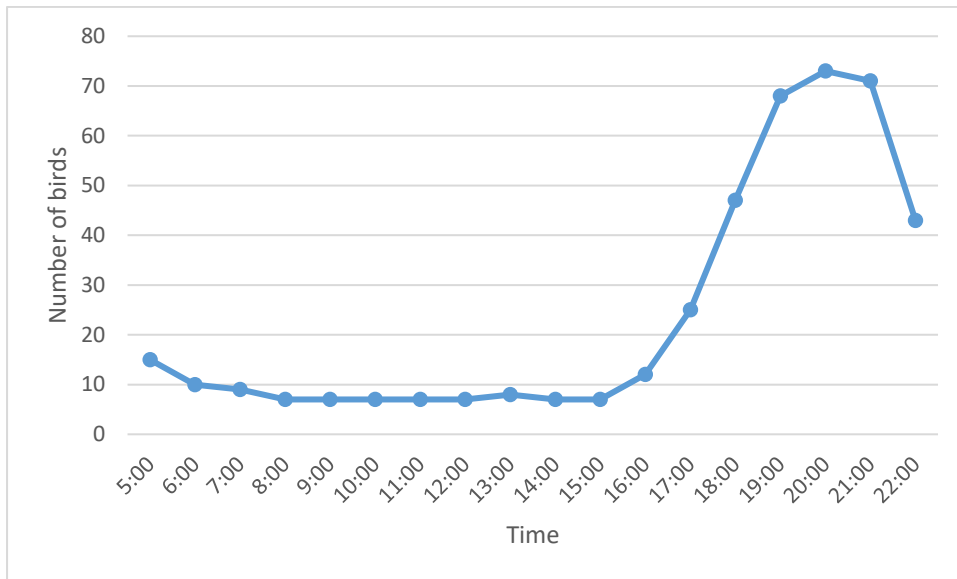
*Table 4. Nest structure of Royal Albatross nests on Rangitautahi December 2017.*

Nest Structure	Rangitautahi/ Big Sister		Te Awanui/ Middle Sister	
	Total	Percent	Total	Percent
Rock	78	25.7	6	4.6
Earth	90	29.6	41	31.5
Vegetation	136	44.7	83	63.8
Total	304		130	

### 3.2.4 Attendance of Loafing Birds

On Dec 3 2017, on Rangitautahi/ Big Sister, a count each hour was carried out of 'loafing' birds within the southern end of the island. This area was able to be counted quickly and was clearly defined, with a natural boundary due to local topography and an area of lower nest density to the north. This section contained 203 birds incubating, 20 failed nests, and 3 empty nests. Counts started before dawn (05:00) and continued till after dark (22:00). In the morning numbers quickly dropped (lowest count at 08:00) and remained low until mid-afternoon (15:00).when numbers rapidly increased to a peak attendance at 20:00, before activity started to decline towards dusk (Figure 4).

Figure 4. The number of 'loafing' birds present on Rangitautahi/ Big Sister each hour.



### 3.2.3 Northern Giant Petrel

At the time of this visit Northern Giant Petrels had chicks which were approximately half grown. A complete count of the islands recorded 20 Giant Petrel chicks on Rangitautahi/ Big Sister and 47 chicks on Little Sister.

In a thorough search of Rangitautahi/ Big Sister a further 26 failed nests were recorded, indicating breeding success on the island of 42.5% (total breeding population 46 pairs). Using this figure, extrapolating for Te Awanui/ Middle Sister the estimated breeding population there is 110 breeding pairs, giving a total population for Rangitautahi of 156 breeding pairs.

### 3.3 Band recoveries

A number of banded birds were found, with banded Royal Albatross, Buller's Mollymawk and Northern Giant Petrel being caught; details of banded birds are provided in Appendix 1.

These recoveries include one Royal Albatross banded as an adult bird incubating an egg in 1974 on Te Awanui/ Middle Sister: with average age of first breeding at 8 years old, this bird is likely to be at least 51 years old. A further 17 Royal Albatross recaptured had been banded as chicks in 1974-76, making them 41-43 years old. All birds caught on Rangitautahi/ Big Sister were banded as chicks on Te Awanui/ Middle Sister.

A number of the bands recovered do not have banding details recorded with the Banding Office. The Banding Office is chasing up these records with the researchers involved at the time. In addition, a Giant Petrel was caught twice with a band which is listed as being put on a Royal Albatross chick.

## 4. Discussion

### 4.1 Northern Buller's Mollymawk

This is the first time that the Northern Buller's Mollymawk population on both islands has been counted on the ground, and as they are annual breeders it is safe to add the 2016 census of Motuhara for the first accurate census for the whole of the Chatham Islands

With a total population count of 753 pairs, numbers on Te Awanui/ Middle Sister are similar to those recorded in 1995 and 1996, suggesting that the population there may be stable.

The only previous count for Rangitautahi/ Big Sister was an aerial count in 2016 (Baker *et al.*, 2017), when 2,147 pairs were counted. This is considerably lower than the 2520 counted on the ground in 2017. However, in 2016 the aerial count for Motuhara (Baker *et al.* 2017) underestimated the population by 16.5%, compared with the ground count (Bell *et al.*). This highlights the issues with using aerial photography to count this species; many birds nest in caves, in deep crevasses and behind or under boulders, meaning photos have to be taken at exactly the right angle to see the birds, and even then they will often be in shadow and not show up on the photos. In addition, unlike aerial photos, ground counts can determine nest contents, including detecting failed nests, so they get much more accurate measure of breeding population size.

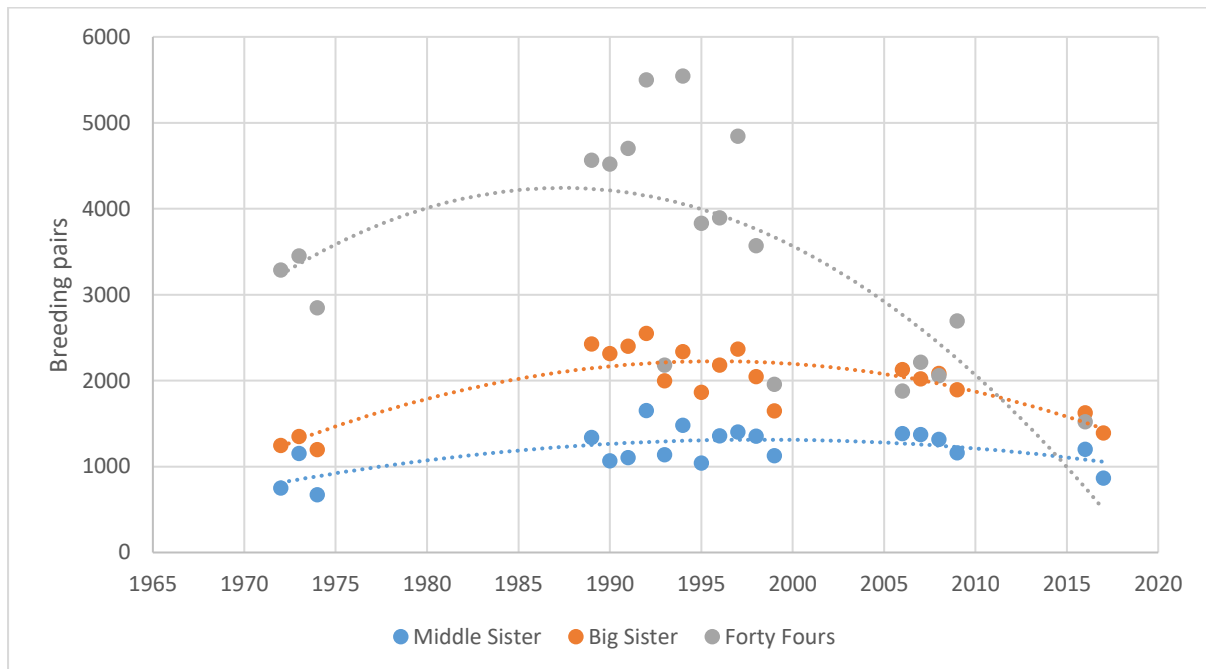
Given a total population of 3,158 breeding pairs on Rangitatahi (2017 ground count), and 16,764 pairs on Motuhara (2016 ground count) (Bell *et al.* 2017), the total breeding population for the Chatham Islands is almost 20,000 pairs. This figure is slightly higher than generally quoted (i.e. Heather and Robertson 2005 and NZ Birds online quoting 18,100 pairs). It is impossible to say though whether the population is increasing or just that the counts are more accurate

### 4.2 Northern Royal Albatross

The ground count results from Rangitatahi complement the work carried out on Motuhara last season (Bell *et al.* 2017) plus aerial surveys carried out in 2016 and 2017 (Baker *et al.* 2017, Frost 2017).

The number of breeding pairs recorded on Rangitatahi in 2017 is lower than the 1989-2009 average, and similar to that recorded in 1972-74 (Figure 5). The counts are also lower than those recorded using aerial counts in 2016 (Baker *et al.* 2017). On Motuhara in 2016 the adjusted aerial counts, accounting for loafing birds, were 12.6% higher than the ground count (Baker *et al.* 2017), suggesting that the aerial counts from Rangitatahi for 2016 also overestimate the population.

Figure 5. Annual number of breeding pairs of Northern Royal Albatross in the Chatham Islands, 1972-2017.



Determining the total population of Royal Albatross is problematic due to the biennial breeding behaviour. Failed breeders will return the following season to breed, whilst successful breeders will take the next season off. Hence the total population is the number of breeding pairs in any season plus the number of successful pairs the preceding season. Therefore the total population can only be estimated when there are multiple counts in consecutive years. The number of successful pairs can be determined by counting the number of near fledged chicks in Aug-Sept.

$$\text{Total Population (pairs)} = \frac{\text{The number of breeding pairs in a season}}{\text{in a season}} + \frac{\text{The number of fledged chicks in the preceding breeding season}}{\text{in the preceding breeding season}}$$

Combining counts from Rangitatahi and Motuhara (Chick counts in July 2016 (Frost 2017), annual breeding pairs Dec 2017 (this study and Frost Pers. Comm.)) the total breeding population of Royal Albatross in 2017 is 5,908 pairs, which is significantly lower than that recorded previously (Figure 6). Count data since the 1970's suggests the Royal Albatross population has been declining from the early 1990's (Figure 6). However, the observed population decline has only effected Motuhara whereas the Rangitatahi population has been stable over this time (Figure 7).

Figure 6. Total Royal Albatross population in the Chatham Islands based on Annual breeding numbers plus chicks fledged the season prior (see text for methodology).

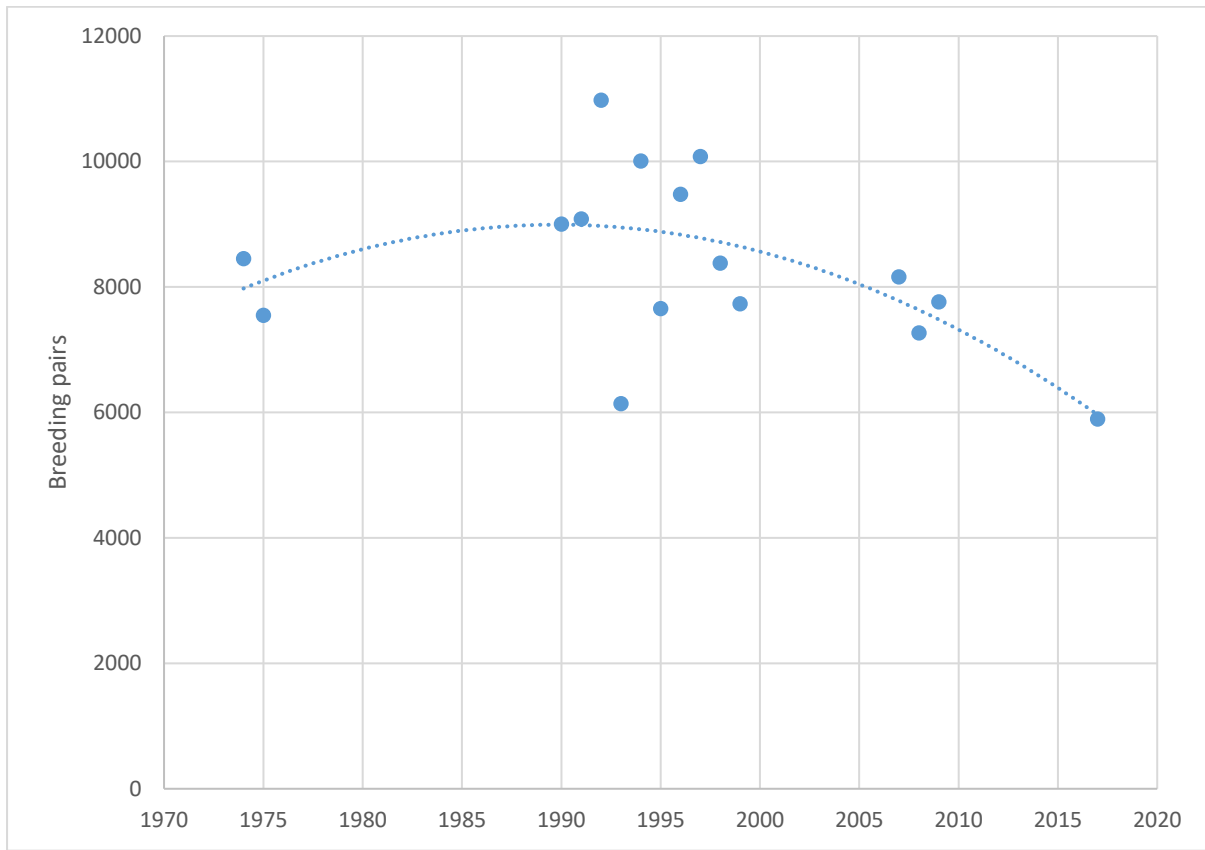
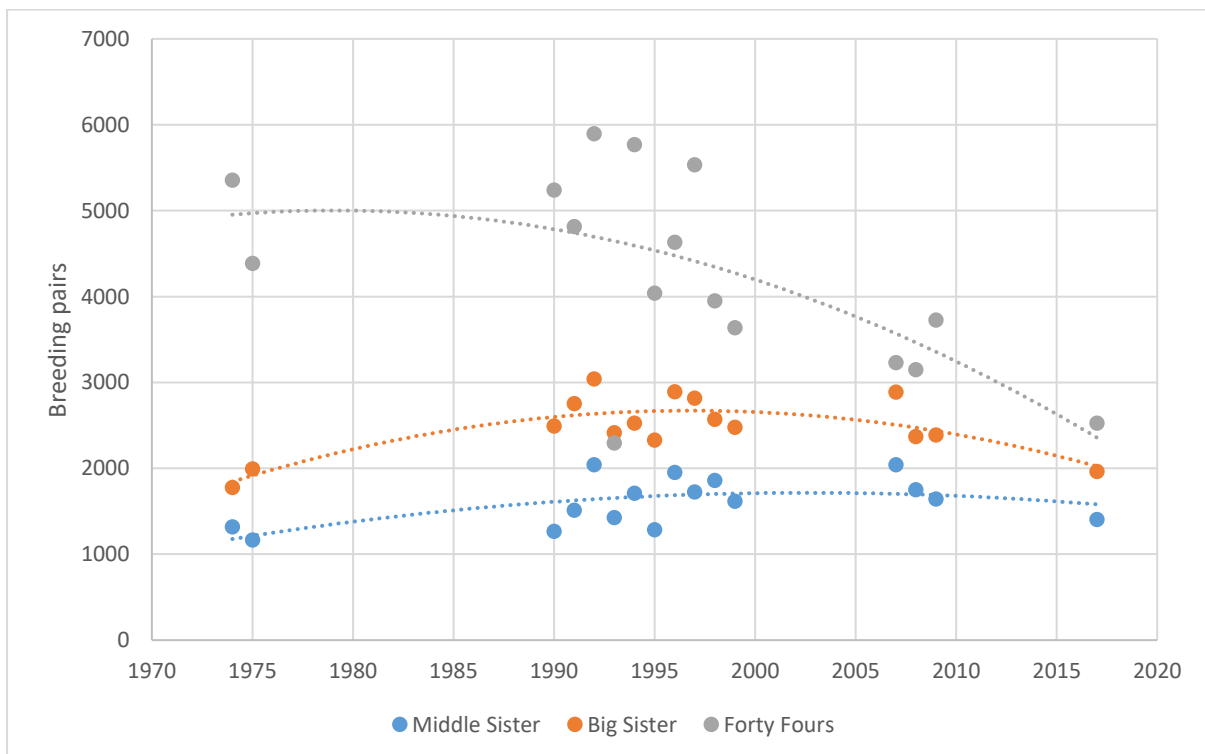


Figure 7. Total Royal Albatross population on each breeding island in the Chathams based on Annual breeding numbers plus chicks fledged the season prior (see text for methodology).



Breeding success on each island has been variable over time (Figure 8), and was particularly low during 1989-1994, following a major storm in 1984 (Robertson 1998, Scofield 2011). Breeding success on Te Awanui/ Middle Sister was less impacted as this island suffered the least habitat modification due to the storm (Robertson 1998). Breeding success on Motuhara was severely impacted, dropping to less than 10% productivity, and it has taken 15 years for breeding success to return to pre-storm levels.

Predictions for global climate change in the Chatham Islands are for storms of higher intensity, duration and frequency (Mullan *et al.* 2005). This is likely to result in poorer breeding success for Northern Royal Albatross on these islands, with Motuhara potentially at greater risk.

In 2016 breeding success was lowest on Rangitautahi/ Big Sister. This could possibly be explained by the results of determining nest bowl structure, which suggest the breeding habitat on Rangitautahi/ Big Sister is poorer and a higher proportion of eggs are laid directly on to rock. A similar survey was not carried out on Motuhara, but during the December 2016 field trip the island was found to have deep soil and significant vegetation, suggesting breeding habitat was good (Bell *et al.* 2017).

Figure 8. Breeding success of Royal Albatross on islands in the Chatham Islands 1972-2016.



The decline in the Motuhara population is likely to be driven by prolonged low breeding success following the 1984 storm. Given the long lifespan of Royal Albatross the potential effects of 15 years low productivity are only just becoming clear now. There is no measure of juvenile survival and recruitment rates and further research is warranted to assess if this is causing the population decline. With such a long lived species which has delayed maturation (average age of first breeding 8 years

old) any such research project would need to be carried out for 20-25 years to provide reliable information.

### **4.3 Northern Giant Petrel**

This is the first time that the Northern Giant Petrel population on both Big and Te Awanui/ Middle Sister has been counted at the same time. As birds already had big chicks at the time of the count it was too late in the season for a breeding population census, as was the case for the ground count on Motuhara in 2016. However, counting the number of chicks and extrapolating for breeding success suggests the total Chatham Island population is about 2150 pairs (156 on Rangitatahi and 1977 on Motuhara). This figure is very similar to the numbers generally quoted (i.e. Heather and Robertson 2005 and NZ Birds online quoting 2,000 – 2,150 pairs).

## **5. ACKNOWLEDGMENTS**

Rangitatahi is Maori Land and we are very grateful for the permission of the Island owners to camp on the island to undertake this research. Thanks to Jos Thomas for helping to arrange access with the owners. Special Thanks to Chris Morrison for transporting us to and from the island. Nathan Walker (Ministry of Primary Industries) provided copies of past field trip reports to compare with this seasons results. Thanks to Sandy Taylor at the Banding Office for looking up the banding details of the recaptured birds. This project was carried out with funding from the Department of Conservation Marine Threats Team, and we thank Kris Ramm for efficiently managing this.

## **6. REFERENCES**

Baker, B.; Jensz, K.; Bell, M.; Fretwell, P.T.; Phillips, R.A. 2017. Seabird Population Research, Chatham Islands 2016/17 aerial photographic survey. Draft Final Report. Report prepared for the Department of Conservation (Contract 4686-2).

Forest & Bird. 2015. *New Zealand Seabirds: Sites on Land, Coastal Sites and Islands*. The Royal Forest & Bird Protection Society of New Zealand, Wellington, New Zealand

Fraser, M.J.; Bell, M.; Scofield, P.; Robertson, C.J.R. 2009. Population assessment of Northern Buller's Albatross, Northern Royal Albatross, and Northern Giant Petrels at the Forty-Fours, 09-18 November 2008.

Fraser, M.J.; Cameron, N.; Scofield, P.; Robertson, C.J.R. 2010. Population assessment of Northern Buller's Albatross and Northern Giant Petrels at the Forty-Fours, Chatham Islands, 1-8 December 2009.

Robertson, C.J.R.; Sawyer, S. 1994. Albatross research on (Rangitatahi) Forty Fours islands: 6-15 December 1993. *Conservation Advisory Science Notes No. 70*, Department of Conservation, Wellington. 10p.

Robertson, C.J.R., 1998. Factors influencing the breeding performance of the Northern Royal Albatross, in *Albatross Biology and Conservation*, G. Robertson and R. Gales (Eds). Surrey Beatty & Sons: Chipping Norton. 20-45.

Scofield, P.; Fraser, M.J.; Robertson, C.J.R. 2008. Population assessment of Northern Buller's Albatross, Northern Royal Albatross, and Northern Giant Petrels at the Forty-Fours, 13-19 November 2007.



Scofield, P. 2011. Aerial photography of Northern Royal Albatrosses at the Chatham Islands, 2006-2010. Unpublished Client report to the Department of Conservation.

## 7. Appendix 1 - Band recoveries

Band number	Species	Date	Island	On Island Location	Bird status	Colour bands	Date banded	Banding location	Age banded	Sex	Banded by
R29503	Northern Royal Albatross	2/12/2017	Little Sister	R2	On egg	M/W	25/09/1974	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Unknown	CJR Roberts
R30635	Northern Royal Albatross	1/12/2017	Little Sister	Landing	On egg		10/09/1976	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Unknown	CJR Roberts
R30655	Northern Royal Albatross	30/11/2017	Little Sister	R2	On egg	W/M	10/09/1976	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Unknown	CJR Roberts
R30694	Northern Royal Albatross	1/12/2017	Little Sister	Runway	At empty nest	M/W	10/09/1976	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Unknown	CJR Roberts
R30757	Northern Royal Albatross	3/12/2017	Little Sister	R1	Loafing	M/W	10/09/1976	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Unknown	CJR Roberts
R30802	Northern Royal Albatross	3/12/2017	Little Sister	Runway	On egg	M/W	10/09/1976	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Unknown	CJR Roberts
R30970	Northern Royal Albatross	30/11/2017	Little Sister	Landing	On egg	W/M	30/08/1975	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Unknown	CJR Roberts
R30990	Northern Royal Albatross	3/12/2017	Little Sister	Landing	Loafing	M/W	30/08/1975	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Female	CJR Roberts
R31104	Northern Royal Albatross	1/12/2017	Little Sister	Met	On egg		7/09/1991	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Male	CJR Roberts

R31113	Northern Royal Albatross	1/12/2017	Little Sister	Met	On egg	M/W	7/09/1991	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Female	CJR Roberts
R31120	Northern Royal Albatross	2/12/2017	Little Sister	South Dome	Loafing	W/M	7/09/1991	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Female	CJR Roberts
R31163	Northern Royal Albatross	2/12/2017	Little Sister	Main Dome	On egg	M/W	7/09/1991	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Female	CJR Roberts
R31138	Northern Royal Albatross	30/11/2017	Little Sister	Runway	On egg	M/W	7/09/1991	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Female	CJR Roberts
R31146	Northern Royal Albatross	1/12/2017	Little Sister	R1	On egg		7/09/1991	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Male	CJR Roberts
R31164	Northern Royal Albatross	3/12/2017	Little Sister	Main Dome	On egg		7/09/1991	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Female	CJR Roberts
R31175	Northern Royal Albatross	30/11/2017	Little Sister	Landing	On egg		2/10/1992	Chatham Islands, Te Awanui/ Middle Sister Island	Unknown	Unknown	CJR Roberts
R31196	Northern Royal Albatross	1/12/2017	Little Sister	Landing	On egg		2/10/1992	Chatham Islands, Te Awanui/ Middle Sister Island	Unknown	Unknown	CJR Roberts
R31206	Northern Royal Albatross	30/11/2017	Little Sister	Landing	On egg		9/09/1993	Chatham Islands, The Sisters	Pullus	Unknown	Canterbury Conservancy DOC
R31220	Northern Royal Albatross	30/11/2017	Little Sister	Runway	On egg		9/09/1993	Chatham Islands, The Sisters	Pullus	Unknown	Canterbury Conservancy DOC
R31225	Northern Royal Albatross	30/11/2017	Little Sister	Upper Throne	On egg		9/09/1993	Chatham Islands, The Sisters	Pullus	Unknown	Canterbury Conservancy DOC

R31324	Northern Royal Albatross	30/11/2017	Little Sister	Upper Throne	On egg	W/M	2/10/1992	Chatham Islands, Te Awanui/ Middle Sister Island	Unknown	Unknown	CJR Roberts
R31329	Northern Royal Albatross	3/12/2017	Little Sister	Upper Throne	On egg	At empty nest	2/10/1992	Chatham Islands, Te Awanui/ Middle Sister Island	Unknown	Unknown	CJR Roberts
R31384	Northern Royal Albatross	3/12/2017	Little Sister	Upper Throne	On egg	M/W	10/09/1976	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Male	CJR Roberts
R31646	Northern Royal Albatross	30/11/2017	Little Sister	Upper Throne	On egg		2/10/1992	Chatham Islands, Te Awanui/ Middle Sister Island	Unknown	Unknown	Canterbury Conservancy DOC
R31649	Northern Royal Albatross	2/12/2017	Little Sister	Upper Throne	Loafing		2/10/1992	Chatham Islands, Te Awanui/ Middle Sister Island	Unknown	Unknown	Canterbury Conservancy DOC
R31668	Northern Royal Albatross	30/11/2017	Little Sister	South Dome	On egg		9/09/1993	Chatham Islands, Te Awanui/ Middle Sister Island	Unknown	Unknown	Canterbury Conservancy DOC
R31681	Northern Royal Albatross	2/12/2017	Little Sister	Camp	On egg		9/09/1993	Chatham Islands, Te Awanui/ Middle Sister Island	Unknown	Unknown	Canterbury Conservancy DOC
R31685	Northern Royal Albatross	30/11/2017	Little Sister	Upper Throne	On egg		9/09/1993	Chatham Islands, Te Awanui/ Middle Sister Island	Unknown	Unknown	Canterbury Conservancy DOC
R31696	Northern Royal Albatross	1/12/2017	Little Sister	R2	On egg		9/09/1993	Chatham Islands, Te Awanui/ Middle Sister Island	Unknown	Unknown	Canterbury Conservancy DOC
R31727	Northern Royal Albatross	30/11/2017	Little Sister	R1	On egg			Not on Bioweb - Chris Robertson?			
R31734	Northern Royal Albatross	30/11/2017	Little Sister	Upper Throne	On egg			Not on Bioweb - Chris Robertson?			
R31744	Northern Royal Albatross	3/12/2017	Little Sister	R2	On egg			Not on Bioweb - Chris Robertson?			

R31747	Northern Royal Albatross	3/12/2017	Little Sister	Main Dome	On egg			7/09/1991	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Female	CJR Roberts
R32112	Northern Royal Albatross	30/11/2017	Little Sister	R1	On egg			7/09/1991	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Unknown	CJR Roberts
R32140	Northern Royal Albatross	30/11/2017	Little Sister	R1	On egg	W/M		7/09/1991	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Male	CJR Roberts
R32152	Northern Royal Albatross	1/12/2017	Little Sister	Centre Dome	Loafing			7/09/1991	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Male	CJR Roberts
R32175	Northern Royal Albatross	2/12/2017	Little Sister	Rock Pile	On egg	M/W		7/09/1991	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Female	CJR Roberts
R32182	Northern Royal Albatross	30/11/2017	Little Sister	R2	On egg			7/09/1991	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Male	CJR Roberts
R32184	Northern Royal Albatross	30/11/2017	Little Sister	Runway	On egg	W/M		7/09/1991	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Female	CJR Roberts
R32201	Northern Royal Albatross	1/12/2017	Little Sister	R1	On egg			7/09/1991	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Female	CJR Roberts
R32214	Northern Royal Albatross	3/12/2017	Little Sister	Lower Throne	On egg			7/09/1991	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Unknown	CJR Roberts
R32230	Northern Royal Albatross	3/12/2017	Little Sister	South Dome	Loafing			7/09/1991	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Male	CJR Roberts
R32250	Northern Royal Albatross	1/12/2017	Little Sister	Lower Throne	On egg							

R32259	Northern Royal Albatross	1/12/2017	Little Sister	Camp	On egg	M/W	7/09/1991	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Female	CJR Roberts
R32263	Northern Royal Albatross	30/11/2017	Little Sister	R1	On egg	W/M	7/09/1991	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Female	CJR Roberts
R32281	Northern Royal Albatross	30/11/2017	Little Sister	Upper Throne	On egg	M/W	7/09/1991	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Male	CJR Roberts
R32287	Northern Royal Albatross	30/11/2017	Little Sister	Upper Throne	On egg	M/W	7/09/1991	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Male	CJR Roberts
R32295	Northern Royal Albatross	1/12/2017	Little Sister	R1	On egg		7/09/1991	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Unknown	CJR Roberts
R32317	Northern Royal Albatross	1/12/2017	Little Sister	Centre Dome	On egg	R/M	7/09/1991	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Male	CJR Roberts
R32333	Northern Royal Albatross	30/11/2017	Little Sister	Runway	On egg	W/M	7/09/1991	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Male	CJR Roberts
R32334	Northern Royal Albatross	30/11/2017	Little Sister	Upper Throne	On egg		7/09/1991	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Male	CJR Roberts
R32342	Northern Royal Albatross	30/11/2017	Little Sister	Landing	On egg		7/09/1991	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Female	CJR Roberts
R32344	Northern Royal Albatross	4/12/2017	Little Sister	Lower Throne	On egg	M/R	7/09/1991	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Male	CJR Roberts
R32365	Northern Royal Albatross	1/12/2017	Little Sister	R1	On egg	W/M	3/09/1975	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Unknown	CJR Roberts

R32451	Northern Royal Albatross	30/11/2017	Little Sister	Centre Dome	On egg	9/09/1993	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Unknown	Canterbury Conservancy DOC
R32461	Northern Royal Albatross	3/12/2017	Little Sister	Rock Pile	On egg	9/09/1993	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Unknown	Canterbury Conservancy DOC
R32465	Northern Royal Albatross	30/11/2017	Little Sister	R2	On egg	9/09/1993	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Unknown	Canterbury Conservancy DOC
R32466	Northern Royal Albatross	30/11/2017	Little Sister	Met	On egg	9/09/1993	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Unknown	Canterbury Conservancy DOC
R32476	Northern Royal Albatross	30/11/2017	Little Sister	Main Dome	On egg	9/09/1993	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Unknown	Canterbury Conservancy DOC
R32487	Northern Royal Albatross	30/11/2017	Little Sister	Main Dome	On egg	9/09/1993	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Unknown	Canterbury Conservancy DOC
R32492	Northern Royal Albatross	30/11/2017	Little Sister	R3	On egg	9/09/1993	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Unknown	Canterbury Conservancy DOC
R34414	Northern Royal Albatross	30/11/2017	Little Sister	R2	On egg	9/09/1993	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Unknown	Canterbury Conservancy DOC
R34415	Northern Royal Albatross	2/12/2017	Little Sister	Landing	On egg	9/09/1993	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Unknown	Canterbury Conservancy DOC
R34426	Northern Royal Albatross	30/11/2017	Little Sister	Camp	On egg	9/09/1993	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Unknown	Canterbury Conservancy DOC
R34431	Northern Royal Albatross	30/11/2017	Little Sister	R1	On egg	9/09/1993	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Unknown	Canterbury Conservancy DOC

							9/09/1993	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Unknown	Canterbury Conservancy DOC
R34433	Northern Royal Albatross	2/12/2017	Little Sister	Runway	On egg						
							9/09/1993	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Unknown	Canterbury Conservancy DOC
R34448	Northern Royal Albatross	30/11/2017	Little Sister	Main Dome	On egg						
M36411	Northern Bullers Mollymawk	1/12/2017	Little Sister	Section 3	No egg			Not on Bioweb - BD Bell?			
M36419	Northern Bullers Mollymawk	1/12/2017	Little Sister	Section 12	On egg			Not on Bioweb - BD Bell?			
M63802	Northern Bullers Mollymawk	1/12/2017	Little Sister	Section 3	On egg	M/Blue		Not on Bioweb - Chris Robertson?			
							14/11/1994	Chatham Islands, Te Awanui/ Middle Sister Island	1st year or older	Male	CJR Roberts
M63914	Northern Bullers Mollymawk	1/12/2017	Little Sister	Section X	On egg	M/Blue					
							14/11/1994	Chatham Islands, Te Awanui/ Middle Sister Island	1st year or older	Male	CJR Roberts
M63918	Northern Bullers Mollymawk	1/12/2017	Little Sister	Section X	On egg	M/Blue					
							14/11/1994	Chatham Islands, Te Awanui/ Middle Sister Island	1st year or older	Male	CJR Roberts
M63988	Northern Bullers Mollymawk	1/12/2017	Little Sister	Section 5	On egg						
O26558	Northern Giant Petrel	2/12/2017	Little Sister	Section 8	Caught at night			Not on Bioweb - BD Bell?			
O32310	Northern Giant Petrel	2/12/2017	Little Sister	Section 9	Caught at night			Not on Bioweb - Chris Robertson?			
M36420	Northern Bullers Mollymawk	3/12/2017	Rangitautahi/ Big Sister		Loafing			Not on Bioweb - BD Bell?			
R19845	Northern Royal Albatross	30/11/2017	Rangitautahi/ Big Sister		On egg	M - Black/Red		Not on Bioweb - Chris Robertson?			
							27/09/1974	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Female	CJR Roberts
R29800	Northern Royal Albatross	2/12/2017	Rangitautahi/ Big Sister		Loafing						



R30763	Northern Royal Albatross	2/12/2017	Rangitautahi/ Big Sister	Loafing At empty nest	10/09/1976	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Unknown	CJR Roberts
R30923	Northern Royal Albatross	1/12/2017	Rangitautahi/ Big Sister	Loafing	28/08/1975	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Unknown	CJR Roberts
R31388	Northern Royal Albatross	30/11/2017	Rangitautahi/ Big Sister	Loafing	10/09/1976	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Unknown	CJR Roberts
R31708	Northern Royal Albatross	2/12/2017	Rangitautahi/ Big Sister	Loafing		Not on Bioweb - Chris Robertson?			
R31711	Northern Royal Albatross	1/12/2017	Rangitautahi/ Big Sister	On egg		Not on Bioweb - Chris Robertson?			
R32101	Northern Royal Albatross	2/12/2017	Rangitautahi/ Big Sister	On egg	7/09/1991	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Unknown	CJR Roberts
R32154	Northern Royal Albatross	2/12/2017	Rangitautahi/ Big Sister	Loafing	7/09/1991	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Unknown	CJR Roberts
R32188	Northern Royal Albatross	30/11/2017	Rangitautahi/ Big Sister	On egg	7/09/1991	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Unknown	CJR Roberts
R32285	Northern Royal Albatross	30/11/2017	Rangitautahi/ Big Sister	On egg	7/09/1991	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Unknown	CJR Roberts
R32325	Northern Royal Albatross	30/11/2017	Rangitautahi/ Big Sister	On egg	7/09/1991	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Unknown	CJR Roberts
R32368	Northern Royal Albatross	2/12/2017	Rangitautahi/ Big Sister	Loafing	3/09/1975	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Male	CJR Roberts

R32406	Northern Royal Albatross	30/11/2017	Rangitautahi/ Big Sister	On egg	M-W	3/09/1975	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Unknown	CJR Roberts
R31101	Northern Royal Albatross	30/11/2017	Rangitautahi/ Big Sister	On egg		7/09/1991	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Unknown	CJR Roberts
M36405	Northern Buller's Mollymawk	30/11/2017	Rangitautahi/ Big Sister	On egg			Not on Bioweb - BD Bell?			
R33274	Northern Royal Albatross	30/11/2017	Rangitautahi/ Big Sister	On egg		6/02/1974	Chatham Islands, East Sister Island	1st year or older	Female	NZ Wildlife Service
R31454	Northern Giant Petrel	2/12/2017	Little Sister	Section 2	Caught at night	11/09/1976	Chatham Islands, Te Awanui/ Middle Sister Island	Pullus	Unknown	CJR Roberts

This last bird is recorded with the Banding Office as being put on a Royal Albatross chick, however we recorded it on a Northern Giant Petrel.

