

Executive summary

This report presents a summary of the results of whole-island counts of Southern Buller's Albatross *Thalassarche bulleri bulleri* breeding at The Snares from 23 February to 4 March 2014 and compares these results with those obtained using similar methods during 1969, 1992, 1997 and 2002. In addition, the results of detailed demographic studies at three study colonies are presented.

The whole-island survey used similar methods and was completed at a similar time of year to previous counts, completed during 1969, 1992, 1997 and 2002. The survey of North East Island and adjacent Alert Stack resulted in an estimate of 8047 breeding pairs, which was very similar to the 8165 breeding pairs estimated in 2002, indicating that the increase in size of the breeding population over the period 1969-2002 had not continued. An additional 657 breeding pairs were estimated on Broughton Island.

Demographic studies at the three study colonies on North East Island have been undertaken annually since 1992, and so this report incorporates some of these data in the current analysis. Estimates of the numbers of breeding pairs, made by recording the contents of each nest mound, showed substantial increases in all three colonies over the numbers recorded during 2013. With the assumption that the combined total number of breeding pairs in the three study colonies was representative of North East Island as a whole then the breeding population probably peaked in 2005-2006 and has since undergone marked annual variations.

A total of 320 birds that had been banded previously in the study colonies as breeding adults of unknown age were recaptured. A further 39 breeding birds were banded in the study colonies - these are presumed to be first-time breeders. During the period 1992-2004 all chicks that survived to near-fledging in the study colonies were banded and their survival to return to the study colonies in subsequent years has been monitored. This year 159 of these birds were recaptured, with birds from cohorts banded from 1998 to 2004 being recaptured for the first time. This demonstrates the long-term monitoring required to obtain reliable estimates of survival of such known-age birds. A further 38 known-age birds were found breeding for the first time, and so were recorded as being recruited to the breeding population.

Incorporation of the 2014 whole-island count data and the mark-recapture data from the three study colonies 2008-2014 into an updated SEABIRD model analysis, as proposed by the Ministry for Primary Industries, will provide a more robust estimation of population trend in this species.

Published: November 2014

Report on results from a study on population, survival, and other demographic parameters of Salvin's albatross at The Snares.

Download the publication

[POP2014-02-Objective 2. Salvin's albatross population size and survival at the Snares Western Chain \(PDF, 1.018K\)](#) 

Summary

This report presents a summary of the results of whole-island counts of Salvin's albatrosses *Thalassarche salvini* breeding at the Snares Western Chain on 17 September 2014 and compares these results with those obtained using similar methods during 2008 and 2009. In addition, the results of ground-truthing of an aerial survey and a survival analysis based on the recapture of banded birds are presented.

The whole-island surveys used the same methods as those in 2008 and 2009. The survey of Toru and Rima Islets and a rock stack just east of Toru resulted in an estimate of 1213 breeding pairs, which was very similar to the 1195 and 1116 breeding pairs estimated in 2008 and 2009, respectively, indicating that the population has remained stable over the intervening period.

Counts along transects immediately after the aerial survey showed that of 171 birds ashore, 100 (58.5%) were incubating, 14 (8.2 %) were on empty nests, and 57 (33.3 %) were loafing. The relatively high proportion of loafing birds may be a result of breeding failure as a consequence of habitat and disturbance by other birds prior to the survey.

On Toru Islet, a total of 67 birds that had been banded previously as chicks on the nest (in 1986) or breeding adults of unknown age (in 1995, and annually 2008–2010) were recaptured. Analysis of these data in a mark-recapture model resulted in an estimated survival probability of 0.951. This remains among the highest estimated survival of any population of annual breeding albatrosses.



Salvin's albatrosses on nests marked with orange spray during counts

Publication information

Sagar, P., Charteris, M., Scofield, P. 2014. Salvin's albatross population size and survival at The Snares Western Chain. Report prepared by the National Institute of Water and Atmospheric Research for the New Zealand Department of Conservation, Wellington. 17p.

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This report describes the final results of a two-year study on the at-sea distribution of Salvin's albatrosses at the Bounty Islands

Download the publication

[POP2012-06 Salvin's albatross research - at-sea distribution 2012-13 \(PDF, 1.062K\)](#)    

Summary

A total of 50 light-based geolocation data-logging devices were deployed on breeding Salvin's albatrosses *Thalassarche salvini* at Proclamation Island, Bounty Islands, in October 2012. In October 2013, a return visit to the Bounty Islands resulted in the retrieval of 23 loggers, with a further six loggers accounted for but missing from the birds on which they were deployed. One additional logger was retrieved from a Salvin's albatross killed as bycatch on a commercial fishing vessel. Twenty loggers remain at large and unaccounted for. Due to technical issues, all loggers had to be returned to the manufacturer in order for location data to be extracted. Of the 24 tags retrieved, data were extracted from 20, and of these seven sets proved to be unusable. The 13 usable data sets ranged in duration from 49 to 371 days, with a mean duration of 161 days. During incubation and chick-rearing, Salvin's albatrosses from the Bounty Islands disperse both north (mostly) and south of the Bounty Islands, remaining towards the east of a line corresponding approximately to 170 degrees east. During the non-breeding period birds traversed the Pacific Ocean to occupy an area off the coast of Chile.



Salvin's albatross fitted with a geolocator, Bounty Islands

Additional, comparative location data were included from Salvin's albatross breeding at the Western Chain in the Snares group. Salvin's albatross from the Western Chain similarly disperse north and south from the breeding site during incubation and chick-rearing, but tend to remain further to the west, approximately to the west of a line corresponding to 170 degrees east. During the nonbreeding period, most Western Chain birds were off the coast of Chile, but a second group of birds occupied an area off the coast of Peru further to the north, between 10 and 20 degrees south. Also, one bird from the Western Chain remained in Australasian seas throughout the non-breeding period. The differences in distribution of the two populations of Salvin's albatross in New Zealand waters have clear implications for exposure to risk from commercial fishing operations. However, the relatively small number of data sets acquired from Salvin's albatrosses from the Bounty Islands preclude drawing firm conclusions with respect to the non-breeding distribution. In particular, questions around whether Bounty Islands birds occupy a single zone off Chile during this period, or whether they also occur off Peru and remain in Australasia, remain to be definitively answered.

Publication information

Thompson, D., Sagar, P., Torres, L., and Charteris, M. 2014. Salvin's albatrosses at the Bounty Islands: at-sea distribution. Report prepared by NIWA for the New Zealand Department of Conservation, Wellington. 15p.

Published: July 2014

This report describes the results from aerial surveys in 2010 and 2013 to investigate the population size and trend of Salvin's albatross at the Bounty Islands.

Download the publication

[POP2012-06 Salvin's albatross aerial population estimate 2013 \(PDF, 537K\)](#) 

Summary

Salvin's albatrosses *Thalassarche salvini* is an abundant albatross species present throughout the year on all continental shelf areas around New Zealand. This species is essentially endemic to New Zealand, breeding mainly on the Bounty Islands and the Western Chain of The Snares.

The population status of this species is poorly known. In October 2010 and 2013 we completed aerial surveys of the Bounty Islands and photographed all albatross colonies we observed. The photographs were used to compile photo-montages of each colony, and these images were used to count the breeding birds on each island. Ground counts of nesting Salvin's albatrosses were also undertaken on Proclamation Island on 23 October 2013, to determine the proportions of nests containing eggs and non-breeding birds present in the colony.

Estimated annual counts for all breeding sites in the Bounty Islands were adjusted to account for the presence of non-breeding birds, giving an estimate of the annual breeding pairs in 2013 of 39,995 (95% CI 39,595 - 40,395).

Aerial survey of the Bounty Islands proved to be an effective method of rapidly assessing the population size of Salvin's albatross in the Bounty Islands, and our population estimates represent the first complete population surveys of the species on the archipelago.

Publication information

This report was commissioned by the Department of Conservation, Project POP2012-06

By G. Barry Baker, Katrina Jenz & Paul Sagar



Salvin's albatross

Download the publication

[POP2013-02 White-capped albatross population estimate - 2013/14 \(PDF, 1.261K\)](#) 

Summary

White-capped albatrosses *Thalassarche steadi* are endemic to New Zealand, breeding on Disappointment Island, Adams Island and Auckland Island in the Auckland Island group, and Bollons Island (50-100 pairs) in the Antipodes Island Group. Between 2006/07 and 2013/14 (hereinafter 2006 and 2013, respectively) we undertook repeated population censuses of the white-capped albatrosses breeding in the Auckland Islands using aerial photography. These population censuses were carried out in either December or January each year to estimate population size and track population trends.

In 2013 we estimated that there were 89,552 (95%CI 88,953 — 90,151), 5,542 (5,393 — 5,691) and 184 (157— 211) annual breeding pairs at Disappointment Island, South West Cape and Adams Island, respectively, based on the raw counts, giving a total for these sites of 95,278 (94,661 — 95,895) breeding pairs.

To assess population trend in total counts we used an appropriate Generalised Linear Model where the response was specified as an over dispersed Poisson distribution and the link was logarithmic. To allow for possible non-linear trend effects we used regression splines with a single knot at 2010. We also assessed trend using software program TRIM (TRENds and Indices for Monitoring Data), the standard tool used by the Agreement for the Conservation of Albatrosses and Petrels (ACAP).

Evidence from a series of 'close-up' photographs taken each year (2007-2013) indicates that the number of non-breeding birds present in the colonies differed somewhat between December and January. The proportion was very low in December counts (1-2% of birds present), but higher in the January counts (14% of birds present). Estimated annual counts for all three breeding sites in the Auckland Islands were adjusted to account for the presence of non-breeding birds, giving adjusted estimates of annual breeding pairs of 116025, 90036, 96118, 73838, 76119, 92692, 102273 and 74031 for each year from 2006 to 2013 inclusive. These adjusted figures were used as inputs into models used for assessment of population trend.

Trend analysis for all sites combined using regression splines showed no clear evidence for systematic monotonic decline over the 8 years of the study. This is particularly so if the count for 2006 is excluded. Given this we do not have sufficient evidence to reject the null hypothesis of no systematic trend in the total population. The population size estimates computed from the TRIM model indicate an average growth rate of -3.16% per year ($\lambda = 0.9684 \pm 0.001$; assessed by TRIM as moderate decline). We note, however, that a simple linear trend analysis, as performed by TRIM is not well suited to a data set with high inter-annual variability. Trend analysis using regression splines is more appropriate to such data sets, and the TRIM analysis is only presented because it is currently used by ACAP to assess population trends in albatross populations.

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



White-capped albatross at the Auckland Islands

Identification

The Buller's mollymawk is one of the smallest of the albatrosses. It is black across the upperwings, with a white lower back and rump and black tip to the tail. The underparts are white with a clear-cut broad black leading edge and narrow black trailing edge under the wing. The light-grey neck and throat contrast with the silvery-grey crown. The bill is black with golden-yellow top and bottom plates.

The two subspecies are separated by bill size and colour and head plumage. Southern Buller's mollymawk has a silvery-white forehead with black extending over about 70% of the sides of the bill. Northern Buller's mollymawk has a silvery-grey forehead with black extending over about 80% of the sides of the bill. In addition, the bill of northern Buller's mollymawk is more robust (longer and deeper) than that of the southern Buller's mollymawk.

Voice: Buller's mollymawks are usually silent at sea, though may give harsh croaking when squabbling for food. They utter a variety of brays, croaks and wails during courtship.

Similar species: the only similar species is the grey-headed mollymawk, which has more extensive black on the leading edge of the underwing than in Buller's mollymawk. Also, it has a light-grey head, throat, neck and mantle that appear darker than in Buller's mollymawk, particularly on the forehead and crown. Finally, the bill is shorter and has more extensive black on the sides than in either subspecies of Buller's mollymawk.

Distribution and habitat

The southern subspecies breeds on the Snares Islands and the Solander Islands, with many of the nests under dense woody vegetation such as *Olearia lyalli*, *Brachyglottis stewartiae* and *Hebe elliptica*. During the breeding season it is commonly found in seas off the South Island and off south-eastern Australia, less often as far south as Macquarie Island and as far north as the Kermadec Islands. One was found ashore at Middle Sister Island, Chatham Islands. The northern subspecies breeds mainly in open areas on the Sisters and Forty-Fours, Chatham Islands, with a small population on Rosemary Rock, Three Kings Islands. It ranges mainly off the Chatham Islands and eastern North Island, but has been recorded in subantarctic seas. After breeding both subspecies migrate to the seas off Peru and Chile.

Population

Counts of the number of breeding pairs of southern Buller's mollymawks estimated the total breeding population at 13,625 breeding pairs in 2002. This comprised an estimated 8,713 breeding pairs on The Snares and 4,912 breeding pairs at the Solander Islands. There are no recent estimates of the numbers of northern Buller's mollymawks, but in the 1970s there were an estimated 16,000 breeding pairs on the Forty-Fours and 1,500 breeding pairs on Big Sister. An estimated 630-670 pairs were breeding on Little sister in 1994-96. On Rosemary Rock, 13 occupied nests were recorded in 1985. Thus, the combined total population of the two subspecies is about 32,000 breeding pairs.

Threats and conservation

All breeding sites are free from mammalian predators, although an expanding New Zealand fur seal population at the Solander Islands may be affecting breeding success of those birds breeding on the lower slopes. Buller's mollymawk is a common albatross species observed killed in the New Zealand fisheries, with demersal longliners and trawling operations responsible for the majority of mortalities [see [New Zealand fisheries by-catch information here](#)].

