Conservation Services Programme (CSP)

Auckland Islands albatross and petrel research 2025–26

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Executive Summary

The white-capped albatross *Thalassarche cauta steadi* is the most bycaught seabird species in New Zealand fisheries and the third most at-risk species in the NZ fisheries risk assessment. There is uncertainty in both demographic and abundance estimate trends. Contrasting trends in abundance estimates show either a steep population decline, a shallow, non-significant population decline, or something in between. This project aimed to address the data gaps for this heavily bycaught species.

We aimed to estimate the population size of white-capped albatross on Disappointment Island, monitor adult survival, and describe their at-sea distribution. Secondary objectives were tracking work on Gibson's albatross and white-chinned petrels.

Conditions for landing at Castaways Bay, Disappointment Island, were unworkable. We therefore focused on tracking and demographic work at Auckland and Adams Island. At Southwest Cape, Auckland Island, we deployed tracking devices on white-capped albatrosses and conducted drone surveys of some of the colony areas there. At Adams Island we deployed tracking devices on Gibson's albatrosses and white-chinned petrels. Secondarily we focused on collecting demographic data for white-chinned petrels in an area where the birds were studied and burrows marked 2013–2018.

. Tracking devices were deployed on all three focal species in December 2025 in the Auckland Islands. Of the three types of tracking devices on white-capped albatrosses at SW Cape, one collected the first flight altitude data for this species. Tracking devices were also deployed on white-capped albatrosses and white-chinned petrels in November 2026 at Kaikoura. Six out of the eight white-capped albatrosses from Southwest Cape have stayed in Australasian waters, while the other two migrated to waters off southern Africa. White-capped albatrosses caught at sea off Kaikoura showed a similar pattern with three of the four birds staying in NZ waters. GLS from the white-capped albatross study colony on Disappointment Isl 2023–24 provided year-round distributions for seven birds. Of these, four stayed in Australasian waters year-round, foraging in NZ waters, in the Tasman and up into the Great Australian Bight, while three spent time off southern Africa. Gibson's albatross juveniles equipped on Adams Island in December, foraged primarily in the Tasman and in waters north of the Chatham Rise during the first six months. Trackers fitted on white-chinned petrels in the Auckland Islands and at sea off Kaikoura showed that over the December to May period, birds foraged mainly on the Campbell Plateau and off the South Island East Coast. As the breeding season ended, five of the birds so far have made the migration to their wintering areas in waters off South America.

Drone overflight on 10 March 2026, by a DOC team working nearby two months after us, allowed counts of the 988 white-capped albatrosses present on the eastern side of Southwest Cape (819 in the Gulch and 169 along the east-facing slopes of Southwest Cape). These are raw counts of birds present. Image quality was good at upper levels, but lower on the steep colony slopes image

quality deteriorated. White-capped albatrosses on lower slopes could be identified, but nesting birds could not be reliably distinguished from those loafing in the colony. Ground-truthing data was not collected at the time of aerial photos, so we did not refine the raw count of birds present into an estimate of active nests on 10 March.

When trends for white-capped albatross numbers in their SW Cape breeding colony are modelled, we see that annual breeding pairs peaked in the late 2000s, but after a period of roughly stable abundance, there has been gradual decline since ~2013. The gradual decline over the last decade mirrors the trend seen for the population as a whole.

We investigated 335 white-chinned petrels burrows and could accurately determine the contents for 130. Burrow occupancy was 38% (50 occupied burrows out of the 130 known-contents burrows), lower than occupancy rates expected for white-chinned petrels in the Auckland Islands. Of the fifty occupied burrows, seven contained a banded bird and 43 did not.

Mark-recapture at the Disappointment Island white-capped albatross study colony was just starting to yield quality adult survival estimates at last visit, so recaptures and banding of new white-capped albatrosses remain priorities so trends in adult survival can be assessed. Access to Disappointment Island requires more vessel-standby days to improve the chances of workable conditions occurring. It is important to develop a quality DEM for Disappointment Island in advance, so that drone image quality is retained on lower parts of albatross slopes. During drone overflight, concurrent ground-truthing is vital to estimate the number of active nests. Aerial photography is useful, but mark-recapture is important to allow more detailed insight into the population health of the species.

Introduction

The white-capped albatross *Thalassarche cauta steadi* is the most bycaught seabird species in New Zealand fisheries and the third most at-risk species based on the updated New Zealand fisheries risk assessment (Edwards *et al.* 2023). More than 2,600 white-capped albatross mortalities are estimated each year in New Zealand domestic fisheries alone (Edwards *et al.* 2023). In the three-month period January 1 – March 31 2026, 171 white-capped albatrosses were recorded as ‘protected species caught by commercial fishers’ in New Zealand waters (MPI 2026). It appears from MPI data that those are raw data, observed captures recorded from 9.3% of total fishing effort (13,426 fishing events had cameras operating, and 25% of camera footage was reviewed). Almost a quarter (22%) of the 171 white-capped albatrosses recorded as caught were assessed as uninjured after capture, though the accuracy of assessing injuries to birds from camera footage is unknown, as are the post-release survival rates of captured birds. Lastly, 'undetected' or 'cryptic' mortality from fishing gear is not accounted for in the 171 captures. High seas fisheries add several thousand further mortalities each year (e.g., Rollinson *et al.* 2017; Peatman *et al.* 2019; Anon 2025). White-capped albatrosses are also the most bycaught albatross in South African fisheries (Watkins et al. 2008).

Despite these causes for concern, there is uncertainty in both demographic and abundance estimate trends. A demographic study started in 2015 was starting to yield good-quality data for modelling trends in adult survival, but limited or no field time for several years has meant the last quality adult survival estimate is for 2019/20 (Parker *et al.* 2024). Contrasting trends in abundance estimates show either a steep population decline, a shallow, non-significant population decline, or something in between, depending on the analytical approach (Walker *et al.* 2020; Baker *et al.* 2023; Fischer *et al.* 2026). Up to date abundance estimates would help, but the latest population estimate of the species from its main breeding site (Disappointment Island) dates back to January 2017 (Baker *et al.* 2018). Since then, visits to Disappointment Island have been short, affected by other fieldwork priorities, and occurred at suboptimal times in some years, limiting estimates of population size and demographic rates.

Therefore, any information toward population trends – adult survival, numbers breeding – is valuable, particularly since it appears that declines have been occurring at detectable levels since the early 2000s (Fischer *et al.* 2026).

This project (POP2025-04) aims to overcome the shortcomings of previous projects (e.g., POP2022-08) by allocating the majority of the budget to ensure adequate field time to address the data gaps that plague this heavily bycaught species. The prolonged time spent on Disappointment Island with a larger team allows for additional work on Gibson's albatross, white-chinned petrels and other species that also breed on Disappointment Island. As such, POP2025-04 provides a platform for additional work to be completed accordingly.

Project Objectives

The main objectives as for POP2025-04 per the CSP annual plan 2025/26 were:

- To monitor adult survival and breeding probability of white-capped Albatross
- To describe the at-sea distribution of white-capped albatross
- To estimate the population size of white-capped albatross.

In addition to these CSP objectives on white-capped albatrosses, the extended stay on Disappointment Island could facilitate additional tracking work on Gibson's albatross and white-chinned petrel. These additional objectives were supported directly by the Department of Conservation and the Australian Department of Climate Change, Energy, the Environment, and Water (DCCEEW) and Monash University.

Methods

Logistics

We travelled from Bluff to the Auckland Islands 8–11 December and returned 20–22 December 2025. Seven vessel days set aside specifically for this work, to ideally enable 8-10 days on island. During the period that the SV *Evohe* was in the Auckland Islands 11–13 December and 19–20 December, the conditions for landing at Castaways Bay, Disappointment Island, were unworkable. We therefore focused on tracking and demographic work at Auckland Island (Southwest Cape) and Adams (Fairchilds Garden) (Fig. 1). For more detail on access constraints, see Appendix 1.

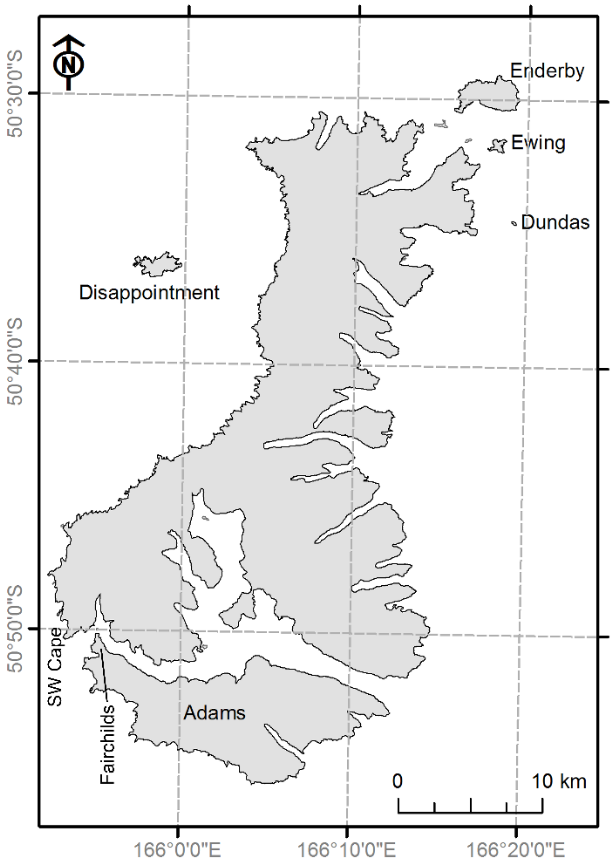

Figure 1. The Auckland Islands.

Timings are as follows: after a day's work at Southwest Cape on 13 December, the *Evohe* transferred our team to Fairchilds Garden, Adams Island, before the vessel departed the Auckland Islands for Campbell Island. The *Evohe* returned from Campbell to the Auckland Islands 19 December and again transferred our team to Southwest Cape, and then departing to Bluff 20 December. Note that because main Auckland has substantial pest plant and animal populations and Adams Island has none, team movements between these islands required careful consideration of biosecurity requirements and substantial work to minimise risk.

Tailoring the work programme to the locations, time available and weather conditions, the following work programme took place. At Southwest Cape on 13 and 19 Dec, we deployed tracking devices on white-capped albatrosses, conducted drone trials, determined the spatial extent of the white-capped albatross nesting area, and counted the number of active nests. At Fairchild's Garden (Adams Island) we had four working days (six nights 13–19 December). Deploying tracking devices on white-capped and Gibson's albatrosses, and white-chinned petrels, was the priority. Secondarily we focused on collecting demographic data for white-chinned petrels in an area where the birds were studied and burrows marked 2013–2018 (Rexer-Huber 2020).

Tracking

Tracking devices were deployed on 30 seabirds of three species in December 2025 (Table 1). In all cases, devices were back-mounted using Tesa tape to attach devices to back feathers.

Table 1. Tracking devices deployed on seabirds at Adams and Auckland Islands, December 2025

Tag/logger type	Make	Total number deployed	Species
PTT/GPS	Druid YAWL Argos	5	White-capped albatross
PTT/GPS	Australian Iridium	5	White-capped albatross
PTT	Telonics TAV	3	White-capped albatross
PTT	Lotek Sunbird Solar	7	White-chinned petrels
PTT	Telonics TAV	5	Juvenile Gibsons albatross
PTT/GPS	Australian Iridium	5	Juvenile Gibsons albatross

Data on flight height of white-capped and Gibson's albatrosses will be analysed and reported separately (Australian Iridium, Mark Miller, Monash University). Preliminary insights into the distribution data for white-capped albatrosses, Gibson's albatrosses and white-chinned petrels are provided here.

White-capped albatrosses

On 13 December 2025, five Australian Iridium pressure-sensing transmitting devices were attached to white-capped albatrosses. Rain and fog / mist was a problem throughout the day, hence the small number of deployments for a team of four people. On 19 December one further day was spent at Southwest Cape, when five Druids (Druid YAWL Argos) and three PTTs (Telonics TAV) were deployed on breeding white-capped albatrosses in very strong, cold southwesterlies with heavy rain fronts.

Additional white-capped albatross tracking data are available from at-sea deployments off Kaikoura in February. Three cellular GPS (Druid) trackers were deployed along with one GPS/PTT (Druid).

Finally, geolocators (Migrate Technology) were deployed 13–15 Feb 2023 on the metal band of 26 white-capped albatrosses in the Disappointment Island study colony and seven loggers were recovered in Jan 2024 (Elliott *et al.* 2023; Parker *et al.* 2024). Geolocators were processed using the R packages *SGAT* and *probGLS* (Sumner *et al.* 2009; Lisovski & Hahn 2013; Merkel *et al.* 2016; R Core Team 2026). In brief, we applied the threshold method followed by an iterative step-selection function combined with twilight and movement models, and masks for sea-ice, land, and sea-surface temperature (SST). The twilight event threshold was 1; the twilight model used solar angle range from -7° to -1°; and the LOESS filter flexibility parameter was k=3. The SST spatial masks cross-referenced temperatures recorded by the GLS with satellite-derived values (NOAA OI SST dataset from https://psl.noaa.gov) with a max deviation of 3°. The median track of each white-capped albatross was then estimated by generating a cloud of 600 possible locations per step and selecting the most probable location, repeated for 60 iterations.

Gibson's albatrosses

Five Australian Iridium devices were attached to juvenile Gibson's albatrosses 14 Dec in the tussock area immediate above Fairchild's Garden. A further five PTTs (Telonics TAV) were deployed on juvenile Gibson's in the most western high plateau area above Fairchild's Garden on 16 Dec.

White-chinned petrels

Seven PTTs (Lotek Sunbird Solar) were deployed on white-chinned petrels in burrows at Fairchilds Garden on 17 December. An additional tracker was fitted on a white-chinned petrel during at-sea captures off Kaikoura.

Drone-photo counts

Drone flights

Flights were planned and programmed in UGCS for overflight of Disappointment and Southwest Cape white-capped albatross colonies using a DJI Mavic 3E. Flights took place in December (drone use trial at SW Cape colony not completed due to poor conditions); 10 March (east-facing slopes of SW Cape colony including Gulch, at 1.5cm/px); 12 April (1.5cm/px, Gulch colony); and 17 April (overview flights at 10cm/px of entire SW Cape area).

As expected, the basic digital elevation model DEM that can be constructed from LINZ data was not sufficiently detailed for adequate terrain-following, with lower-elevation areas (i.e., lower on the slopes of the albatross colonies) having poor resolution (see Results). To rectify this, elevation data were collected 13 Dec to support development of a suitable DEM development, and the 17 April flight was programmed specifically to obtain data to build a good-quality DEM (10 cm/px, covering both Gulch and Main colonies).

Processing of raw images first involved quality control and gap checking in qGIS, then images were processed into orthomosaics or DEM using WebODM. White-capped albatrosses were counted in qGIS, overlaying orthomosaics with a 15-m grid for count accuracy.

Trends for the white-capped albatross population at Southwest Cape were visualised following the approach in Fischer *et al.* (2026). In brief, following a standardised abundance processing framework, all existing data for white-capped albatrosses from Southwest Cape were transformed into annual breeding pairs at the start of the breeding period using a series of generalised linear mixed-effects models, while uncertainty is propagated accordingly in a Bayesian modelling approach. Subsequently, a Bayesian state-space model was fit to the standardised abundance estimates to provide a continuous timeseries, while continuing to communicate uncertainty.

White-chinned petrel mark-recapture

A white-chinned petrel study colony established at Fairchilds Garden 2013–2018 had 131 marked burrows containing 230 banded birds (Rexer-Huber *et al.* 2019). To build the dataset of band resightings for demographic parameter estimates, we checked white-chinned petrel burrows using burrow inspection cameras (small inexpensive Bluetooth vehicle inspection cameras) and recorded the band ID of any banded birds found. Metal bands were also checked in case repairs were needed. No new bands were deployed as there are currently no plans for resighting effort.

Results

Southwest Cape, Auckland Islands

White-capped albatross nesting area

Nesting white-capped albatrosses are first encountered on bluff areas at Southwest Cape a 45–60 minute walk from the nearest boat access, in Carnley Harbour. Pig *Sus scrofa* sign (scat, prints, trails) was abundant throughout the SW Cape area, but especially so around the nesting white-capped albatrosses. Our team observed mice *Mus musculus* visually during daylight in lower tussock areas. The landing areas and access to the white-capped albatross breeding area was not noticeably abundant in exotic plants/weeds (compared to Enderby Island).

In the albatross breeding area, apparently failed nests were abundant. Of those that were available to sample, a high proportion of nest pedestals remaining active are those beyond the reach of pigs. Those nests therefore have more vertical exposure for human workers to access the nesting bird.

Drone photo counts

Drone overflight on 10 March 2026 allowed counts of 988 white-capped albatrosses present in the Gulch and along the east-facing slopes of Southwest Cape (top left, Fig. 2), with 819 present in the subarea counted in 2021 (yellow points, bounded in black, top right Fig. 2). These are raw counts of birds present. Image quality was good at upper levels, but lower on the steep slopes where image quality deteriorated (e.g. bottom L, Fig. 2). White-capped albatrosses could be identified, but nesting birds could not be reliably distinguished from those loafing in the colony, so most points were simply classified as 'WCA' (553 or 56% of all white-capped albatrosses identified) (pink dots, Fig. 2). Nests with medium-sized chicks were clearly identifiable in some parts of the imagery (196 chicks counted), but many will have been indistinguishable from adult birds (therefore counted as WCA).

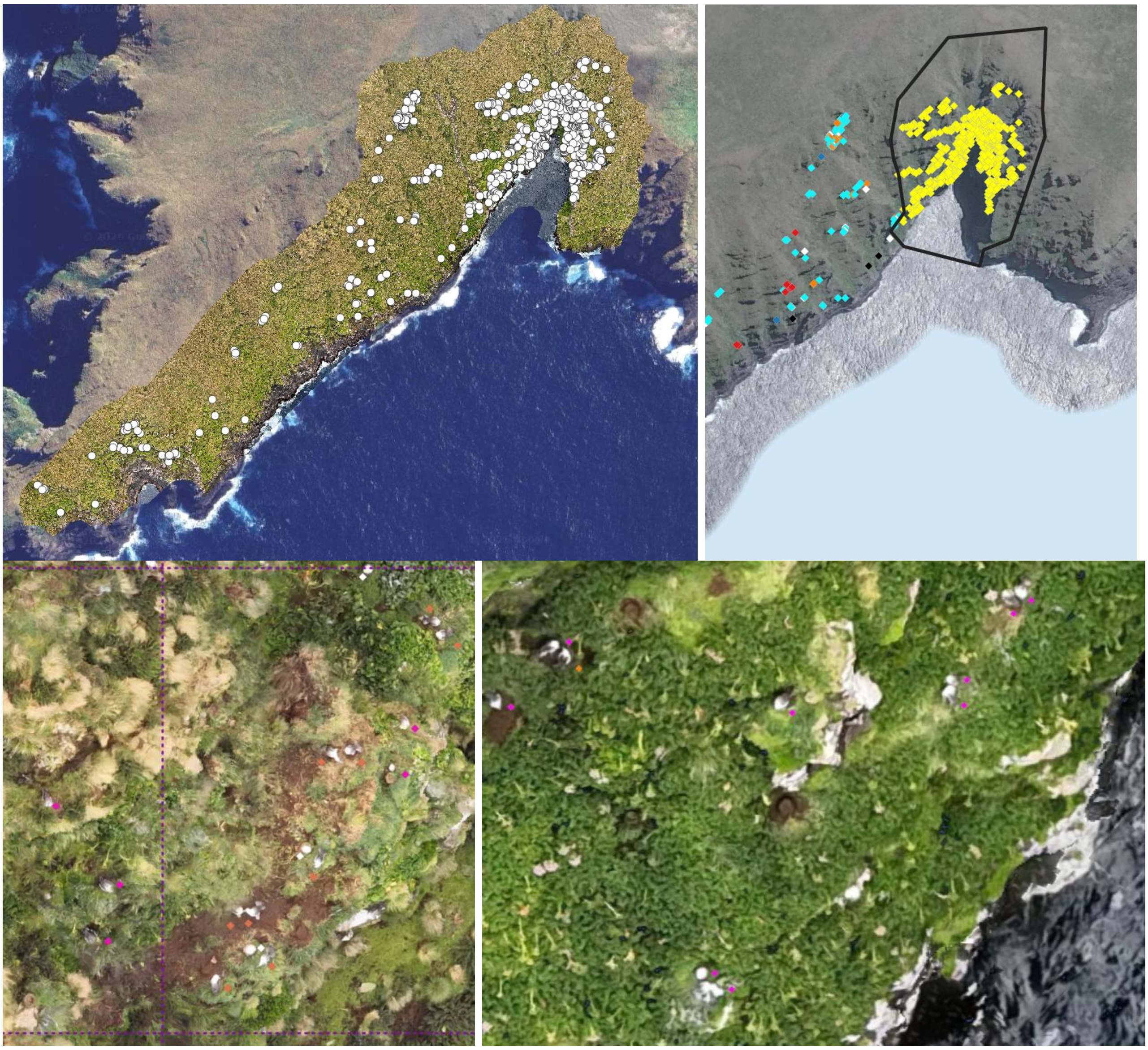

Figure 2. White-capped albatrosses present in the colony at the SW Cape on 10 March 2026. Top left: overview of orthomosaic from drone overflight at 1.5cm/px resolution, annotated with white-capped albatrosses (white dots). Top right: subarea count of white-capped albatrosses present (yellow) within the bounds of the 2021 count (bold black polygon). Bottom left: image quality higher on albatross slopes; Bottom right: poorer quality imagery at lower parts of albatross slopes.

Importantly, not all 988 white-capped albatrosses will be breeding birds. Ground-truthing data was not collected at the time of aerial photos, so the raw count of birds present cannot be refined into an estimate of active nests on 10 March. Note that this count cannot be compared directly to raw counts of birds present in previous work, with different coverage and timing (drone coverage more extensive than work in 2021 but did not include the remainder of the Southwest Cape colony on the western slopes; and photos were taken later in the season than previous work).

Flights a month later, on 12 April, showed larger chicks in the colonies with fewer birds on the ground, as expected. Image quality was somewhat poorer than for the March flight, so the orthomosaic was not counted to provide a second, less-accurate, chick-stage estimate of numbers.

Flights on 17 April provided the data for a quality digital elevation model for the whole SW Cape area, enabling future drone flights to follow topography for better quality imagery. Since the DEM covers the entirety of the SW Cape white-capped albatross distribution, teams present in the area with drone capacity can in future photograph the whole of the SW Cape colony.

Trends

When trends for white-capped albatross numbers in their SW Cape breeding colony are modelled, we see that annual breeding pairs peaked in the late 2000s, but after a period of roughly stable abundance, there has been gradual decline since ~2013 (Fig. 3).

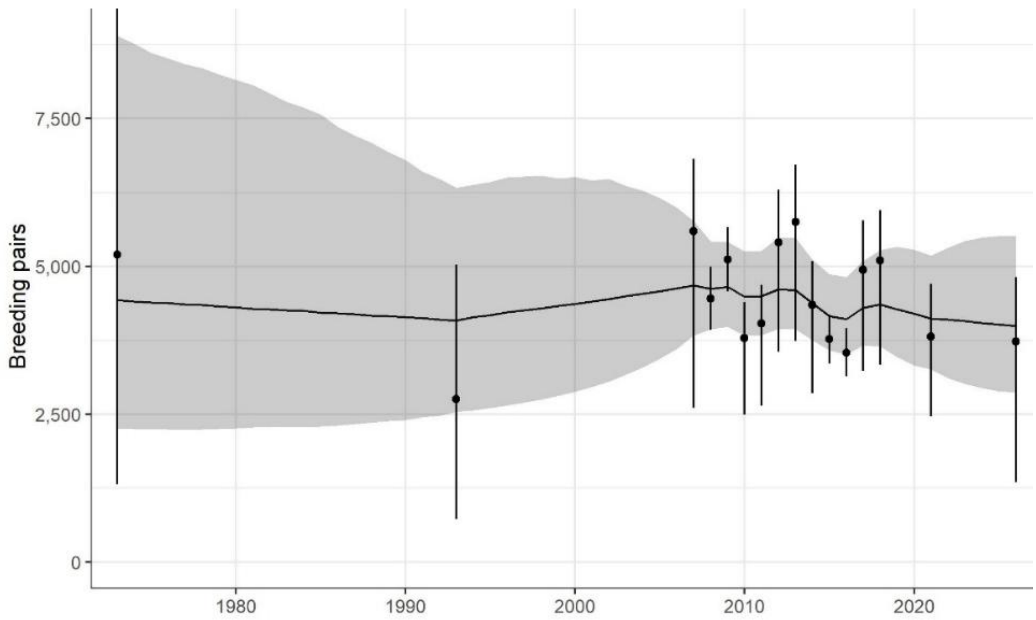

Figure 3. Trends in annual breeding pairs of white-capped albatrosses at Southwest Cape, Auckland Island, derived through a standardised abundance processing and modelling framework (Fischer *et al.* 2026). Symbols with error bars indicate standardised estimates of annual breeding pairs (medians with 95% credible intervals); line with shaded area indicates the fitted state-space model (median with 95% credible intervals).

Adams Island

White-chinned petrel mark-recapture

To collect demographic data for white-chinned petrels, we investigated 335 burrows on 15 and 17 Dec (Fig. 4). The burrow inspection cameras trialled (small, portable and inexpensive Bluetooth vehicle inspection cameras) were unfortunately not effective for determining burrow contents for the wet, long white-chinned petrel burrows at the Auckland Islands. We could accurately determine the contents for

130 burrows (39% of the 335 burrows investigated) (Fig. 4). Of the known-contents burrows, eighty (62% of 130) were empty. Burrow occupancy was 38% (50 occupied burrows out of the 130 known-contents burrows).

Of the fifty occupied burrows, seven contained a banded bird and 43 did not. One banded bird was marked as an adult in 2013, one in 2016, two in 2018 and three earlier in 2025. The 2016 banded bird was in the same burrow that it was marked in nine years earlier, and one of the 2018 birds was in a burrow approximately 1.5 m from the burrow that the bird was marked in five years prior.

Tracking

White-capped albatrosses

From trackers deployed at SW Cape in December, we see that in the past six months, four out of the eight birds have stayed in Australasian waters, while the other four white-capped albatrosses migrated to waters off southern Africa (top, Fig. 5). Trackers deployed on white-capped albatrosses at sea off Kaikoura showed a similar pattern with three of the four birds staying in NZ waters (bottom, Fig. 5). The single bird among those fitted with trackers in Kaikoura that migrated to southern Africa to date has not yet returned to the Pacific (bottom, Fig. 5). GLS data show that white-capped albatrosses return to New Zealand from South Africa in October (Fig. 6).

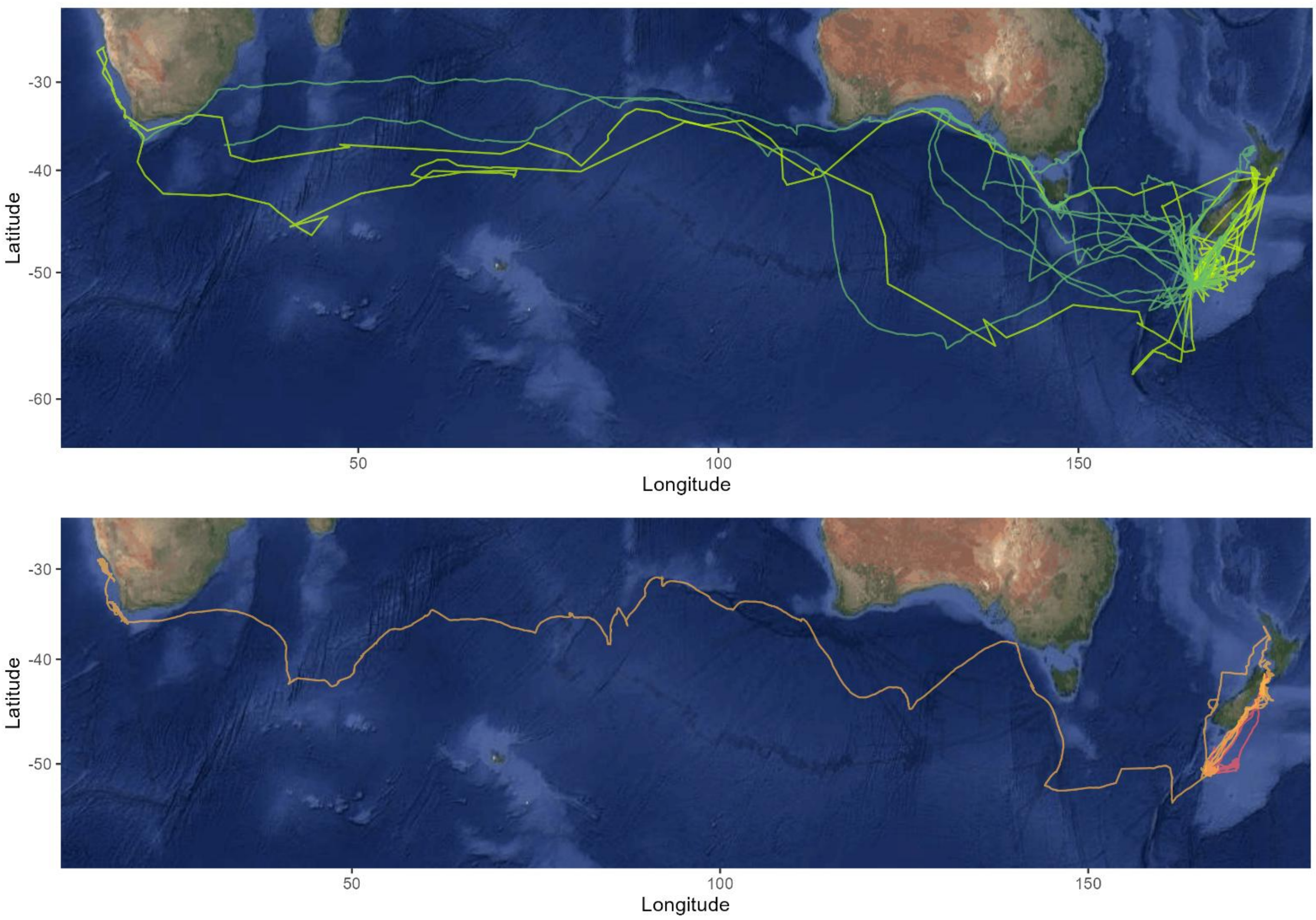

Figure 5. White-capped albatross movements Dec 2025–Jun 2026. Top: tracker fitted at SW Cape, Auckland Islands. Lime green: TAV PTT (n=3); darker green: Druid GPS/PTT (n=5). Bottom: tracker fitted at sea off Kaikoura. Orange: Druid GPS cellular (n=3); red: Druid GPS/PTT (n=1)

GLS from the white-capped albatross study colony on Disappointment Isl 2023–24 provided year-round distributions for seven birds (Fig. 6). Of these, four stayed in Australasian waters year-round, foraging in NZ waters, in the Tasman and up into the Great Australian Bight, while three spent time off southern Africa (Fig. 6).

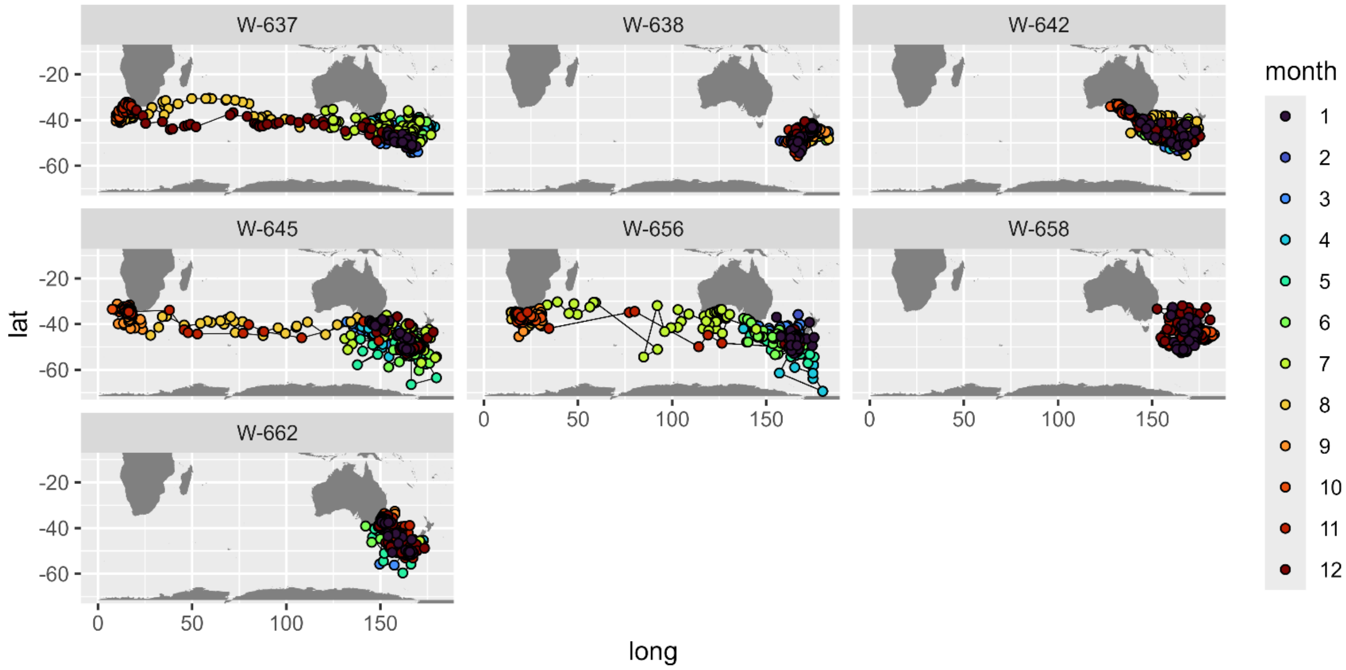

Figure 6. White-capped albatrosses tracked with GLS from Castaways Bay, Disappointment Island 2023–24

Gibson's albatross juveniles

From trackers deployed on Adams Island in December, we see that over the last six months, Gibson's albatross juveniles have foraged primarily in the Tasman and in waters north of the Chatham Rise (Fig. 7).

White-chinned petrels

Trackers fitted on white-chinned petrels in the Auckland Islands (n=6, green in Fig. 8) and at sea off Kaikoura (n=1, red Fig. 8) show that over the last six months, birds foraged mainly on the Campbell Plateau and off the South Island East Coast. As the breeding season ended, white-chinned petrels migrated to their wintering areas in waters off South America; by June, five had made the migration (Fig. 8).

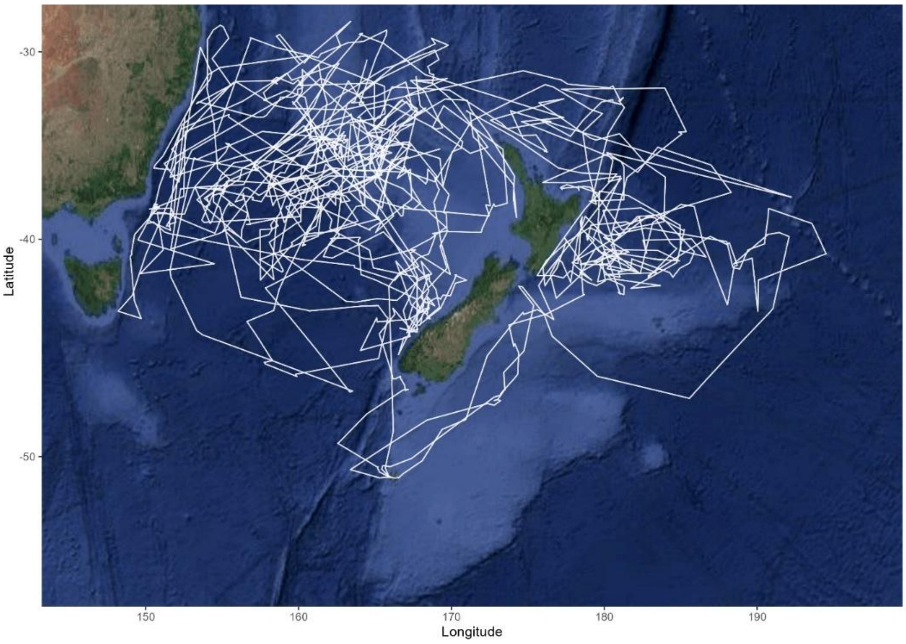

Figure 7. Juvenile Gibson's albatross movements (n=5), Dec 2025–Jun 2026.

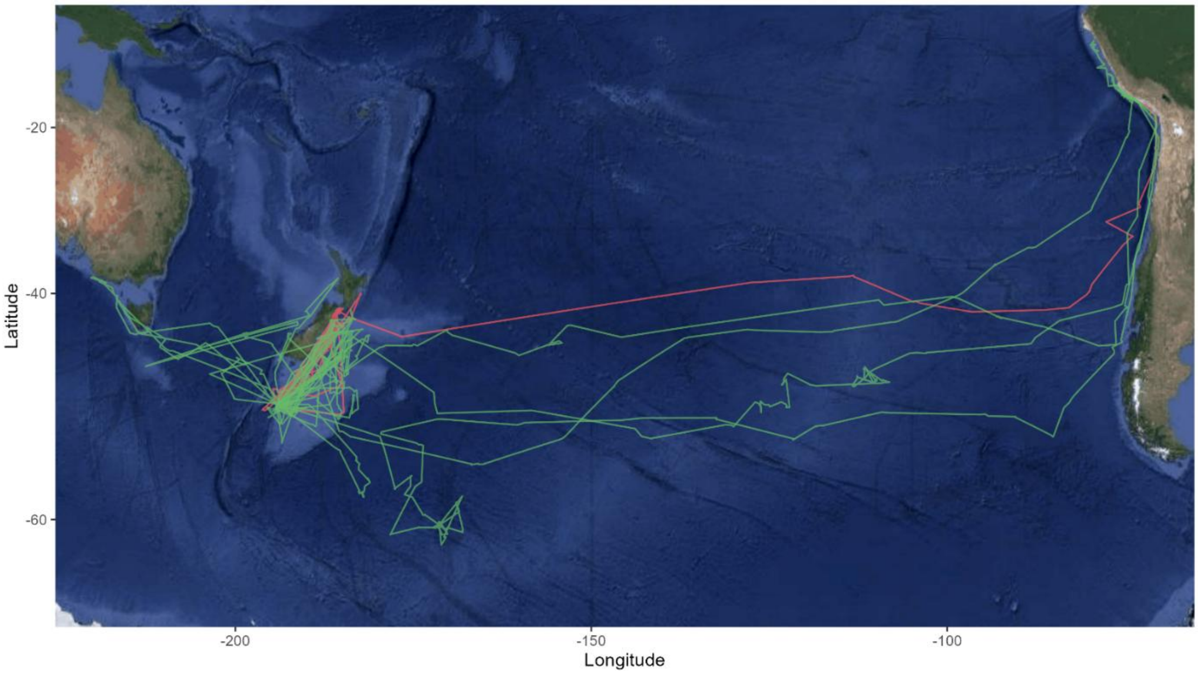

Figure 8. White-chinned petrels tracked from Auckland Islands (green, n=6) and Kaikoura (red, n=1), Dec 2025–Jun 2026.

Discussion

White-capped albatross

Tracking

We successfully deployed three types of tracking devices on white-capped albatrosses at SW Cape, with one type providing the first flight altitude data for this species (Mark Miller in prep.).

High-resolution data from trackers deployed at SW Cape and at sea off Kaikoura showed that over the last six months, white-capped albatrosses either stayed in waters around NZ and Australia (seven out of 12), or migrated across the Indian Ocean to seas off southern Africa and Namibia (five birds). Similarly, the year-round data from loggers on white-capped albatrosses tracked from Disappointment Island 2023–24 showed that after breeding, some individuals migrated to waters off southern Africa, while others stay around NZ and Australia over the whole year. In earlier work just 13% of white-capped albatrosses (three out of 23 birds) travelled to southern Africa (Thompson *et al.* 2009). A similar proportion of birds migrated to southern Africa in 2023–24 (43%, 3 out of 7) as among those tracked over the last six months (42%), despite the small sample sizes.

White-capped albatross distributions over the last six months align neatly with the known breeding-season foraging range of white-capped albatrosses. Substantial tracking effort 2006–2009 covered not just distribution but also foraging behaviour relative to fishing geartype, and showed that during Nov–Jun white-capped albatrosses occur throughout waters off coastal NZ, especially from Cook Strait south, and across the Tasman Sea to south-east Australian waters (Thompson & Sagar 2007; Thompson & Sagar 2008; Thompson *et al.* 2009; Torres *et al.* 2011). The distribution illustrated here mirrors these insights, albeit without the fishing overlap analyses.

Droning Southwest Cape

The Gulch colony at SW Cape had some 990 white-capped albatrosses present on 10 March 2026. When there are suitable on daily nest survival rates (e.g. for Salvin's albatrosses) (Thompson 2025), the number of annual breeding pairs can be estimated from counts later in the breeding season. However, for white-capped albatrosses these data are primarily limited to the chick-rearing period, with very limited data for the lay-to-hatch period (Rexer-Huber *et al.* 2019; Elliott *et al.* 2023; Frost 2025). Because of this, and the limitations of the current count (raw count of birds present cannot be refined into an estimate of how many active nests there were), we have not attempted to estimate annual breeding pairs at the SW Cape Gulch colony this season.

Earlier aerial photo counts of the SW Cape colony (from helicopter 2006–16, varying times of day) (e.g., Baker *et al.* 2015) cannot be compared with the current count which took place much later in the breeding season (49–96 days later), so a substantial but unknown number of nest failures will have occurred. Drone coverage also extended only to the eastern part of the overall SW Cape white-capped albatross distribution, and it is unclear in Baker *et al.*'s work what proportion nest on the eastern faces.

With the detail from the DEM developed from overflight in April 2026, future drone overflight of all SW Cape colonies can be programmed to retain good image quality on the lower parts of the albatross slopes. In such images, loafers will be distinguishable from apparently-nesting albatrosses, and if it is possible to collect sufficient concurrent nest-contents data, the number of breeding pairs at the time of overflight can be estimated. However, the terrain may substantially limit the quality of ground truthing/nest-contents data at SW Cape. Nonetheless, future drone overflight can capture images of the entirety of the SW Cape white-capped albatross area, using the DEM developed this season, making coverage (and thus raw data) comparable with that in earlier aerial photo counts.

Trends

When all counts of white-capped albatrosses at the Southwest Cape colony are standardised and robust trend models are applied, the gradual decline over the last decade mirrors the trend seen for the population as a whole (Fischer *et al.* 2026). However, in the overall population, the gradual decline appears to have started earlier, declining gradually since the early 2000s (Fischer *et al.* 2026). It may simply be that the white-capped albatross stronghold on Disappointment Island started showing effects of an impact sooner than did the small population at Southwest Cape.

Suitability for monitoring

The white-capped albatross breeding area at Southwest Cape is not a good site for demographic research into this heavily bycaught species. A high proportion of nest pedestals were empty but apparently recently used. We presume that nesting failure is higher there due to the abundance of pigs and cats causing direct (and potentially indirect) breeding failures.

Francis (2012) did not discuss any effect of pigs on the white-capped albatross demographic data collected at Southwest Cape, because the 70 study nests from 30–50 breeding pairs were in a pig-free area (Thompson et al 2009); however, cats and mice were present in that area. This area had to be accessed with rope access equipment, illustrating the impossibility of collecting a sufficiently large sample of data for nesting birds that are not pig-affected.

Of those available to sample, a high proportion of nest pedestals remaining active are those beyond the reach of pigs. Those nests therefore have more vertical exposure, and this poses a problem for human workers to access the nesting bird. It is likely that white-capped albatrosses breeding in the southern Auckland Islands experience higher wind and precipitation than do those on low-lying Disappointment Island, given the orographic effect on southerly weather systems at southern Auckland and Adams Islands. These conditions make it harder to work on species there.

Gibson's albatross

We successfully deployed two types of tracking devices on juvenile Gibson's wandering albatrosses at Adams Island. There were not enough juvenile Gibson's albatrosses in the narrow ridge of tussock above Fairchild's Garden, but more were readily available in the most western tops past Chapman's Pinnacle. Again, we collected novel information for the species in flight altitude data (Mark Miller in prep.), and built on the high-resolution tracking data available for juveniles (Elliott *et al.* 2024). In the six months since fledging, juveniles mostly foraged in the Tasman Sea and in waters off the North Island East Coast, which is similar to the known juvenile distributions from 2023 (Elliott *et al.* 2024). Although the range to date is a bit more restricted than recorded in 2023, with no movements recorded into the Great Australian Bight and less time north of 30°S (Elliott *et al.* 2024), this may simply be a matter of sampling duration.

White-chinned petrels

We successfully deployed high accuracy tracking devices on white-chinned petrels. Over the last six months, breeding petrels largely foraged on the Campbell Plateau and off the east coast South Island, then as their breeding season ended, migrated to overwintering areas off Chile and Peru. These patterns align with broader distribution patterns seen during breeding and overwintering in an earlier study, based on geolocators tracking 37 birds from the Fairchilds Garden colony 2013–18 (Rexer-Huber *et al.* 2025).

For tracking efforts, the Fairchilds Garden and Disappointment Island white-chinned petrel colonies have similar merits. The only advantage at the Fairchilds colony is that marked burrows appear to have a better burrow-tag longevity than we expect of tags in the dense, high-traffic mixed-species colonies on Disappointment. Burrows are similarly long and muddy in both places, so a good quality burrowscope is required to find birds to work with. Importantly, both Disappointment and Fairchilds white-chinned petrel colonies are markedly safer places to work than the cliff-shelf colonies on the southern coast of Adams Island.

Burrow occupancy was lower than expected this season, at 38%. The timing of survey (17–19 Dec) was optimal, right at the start of incubation just after egg lay is complete (~14 Dec, from Antipodes data), and is very similar to timing to previous work in the colony (Rexer-Huber *et al.* 2020). The rate of occupied burrows is lower than that recorded at Fairchilds (62%) and Disappointment colonies (73%) in 2015 (Rexer-Huber *et al.* 2017; Rexer-Huber *et al.* 2020).

For the demographic component of this work, we resighted seven banded birds. Although this does not contribute much to demographic analyses, it is noteworthy that one bird was in the same marked study burrow in which it was marked ten years earlier, and that a second bird was 1.5 m from the burrow it was marked in eight years earlier. This is consistent with the burrow-shifting recorded previously in this colony (~2–5 m) (Rexer-Huber *et al.* 2019). It is also helpful to know that the burrow marking method (cattle ear tags inserted into the ground with wire) can last with text remaining legible for many years in that wet and peaty burrowed area.

Access

The Disappointment Island work programme could not be completed due to weather conditions not allowing access to Disappointment Island on the days that the support vessel was in the area, despite considerable vessel day allocation. It is tempting to write off Disappointment Island as a prohibitively challenging place to complete work, due to access issues. Whilst this is certainly true of almost any island in the sub-antarctic region, the history of landings at Disappointment Island (e.g., Parker *et al.* 2024) (Appendix 1) give assurance that access to the island, and therefore the completion of work programmes, is entirely viable.

Disappointment Island has been visited eight times in the past ten years (Appendix 1). This year's planned visit was only the second in the last 10 years that could not take place. In the eight years in which teams could be landed on the island, only one was disrupted by weather (conditions not suitable within the scheduled charter of the support vessel in January) to the extent that the trip had to be rescheduled entirely for a February visit. Budget was a part of that January visit being delayed, when trips of 3-5 days maximum were funded. In light of this history, we disagree with the observation in Cole & Gibson (2025) that access to Disappointment Island is particularly difficult. The annual landing of teams on Dundas Island for sealion research is just as difficult, if not more so due to the low reef surrounding that island. (For further detail on access practicalities at Disappointment and SW Cape, see Appendix 1).

This season, the most significant factor that prevented access to Disappointment Island was time. *Evohe* had to travel 24 hours to Campbell, unload a large team and two months worth of equipment and provisions, and return to the Auckland Islands against the prevailing westerlies. Given the short amount of time between the vessel returning to the Auckland Islands from Campbell, and needing to depart for Bluff to be back for the Christmas holiday, the vessel operator was uncomfortable with the risk of not being able to retrieve a team from Disappointment in the short window of time left.

Recommendations

The initial work priorities remain vital for the heavily bycaught white-capped albatross. Specifically, continued banding of new birds to improve the accuracy of the mark-recapture survival estimates over time (Elliott *et al.* 2023) has become particularly pressing to ensure the quality of the dataset.

Access to Disappointment Island requires more vessel-standby days to improve the chances of workable conditions occurring. A trip in spring (characterised by frequent strong winds from the western quadrant) with a short charter that includes a trip to Campbell and is right up against Christmas puts additional constraints on the vessel schedule. Ideally the vessel operator is experienced with the landing.

Yachts work well for access to Disappointment Island, but in some conditions and for some team sizes motor-launches or helicopters may be better.

Aerial photo counts: develop quality DEM for Disappointment Island so that image quality is retained on lower parts of albatross slopes, prepared in advance from high-resolution satellite imagery, so teams are ready to capture data on arrival. Concurrent ground-truthing to estimate number of active nests.

Aerial photography is useful, but the unavoidable error that comes with determining from an image if a bird is a breeder, means aerial imagery alone as a tool is not enough. Mark-recapture is important to allow more detailed insight into the population health of the species.

If a team can’t land on Disappointment Island in a future trip, we recommend, in order of priority:

1. If a team is at Disappointment Island but cannot land due to unfavourable conditions, collecting aerial imagery of the white-capped albatross breeding area in Castaways Bay from the boat should be considered, to inform breeding population trends.
2. Collect aerial imagery of nesting birds with drones at SW Cape, to inform breeding population trends.
3. Deploy tracking devices on target species at Southwest Cape and Fairchild’s Garden.
4. Conduct further white-chinned petrel demographic work with a high-quality burrow-scope.

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Appendix 1 Access notes

Historical access to Disappointment Island 1993 – 2025

Disappointment Island has been accessed in most years in which there has been a planned trip (Table A1), with only trips for 2025 and 2026 not taking place.

Table A1. Historical access to Disappointment Island 1993–2024

Year	Team members	Vessel	Month
1993	Kath Walker and Graham Elliott		January
2008	Graeme Taylor, Paul Sagar and David Thompson	SV *Tiama*	January
2016	Kalinka Rexer-Huber, Graham Parker and Paul Sagar	SV *Tiama*	January
2017	Kalinka Rexer-Huber and Graham Parker	SV *Balthazar*	February *†
2018	Kalinka Rexer-Huber, Graham Parker, Colin Miskelly and Kevin Parker	SV *Evohe*	January
2019	Kalinka Rexer-Huber and Graham Parker	Helicopter	February
2020	Kalinka Rexer-Huber and Graham Parker	MV *Awesome*	January †
2021	Kalinka Rexer-Huber and Graham Parker	SV *Evohe*	January
2022	Kalinka Rexer-Huber and Graham Parker	SV *Evohe*	February
2023	Kath Walker and Graham Elliott	SV *Evohe*	February
2024	Rach Sagar, Jake Osborne and Hendrik Schulz	SV *Evohe*	January †

* January trip not possible so February instead

† vessel operator not experienced with the landing at Disappointment Island

Access practicalities

Although access to Disappointment Island can be impeded by swell direction and size, Castaways Bay offers a good sheltered landing point, but the bay itself is affected by swell. The effect of swell wrapping into Castaways Bay makes access more difficult with a sailing vessel since the deep keels on yachts cause the vessel to roll much more than a motor vessel. As a result, yachts are harder to disembark and unload equipment and provisions from in those conditions. This can be mitigated by vessels unloading onto a tender south of Castaways Bay, in the lee of north and west swell. Vessel operator experience is an important contributor to the success of landing attempts, and familiarity with the island likely helps with using alternative plans like this.

Southwest Cape access notes

At Southwest Cape, the landing areas for access to Southwest Cape can be affected by large ocean swells entering Carnley Harbour at the harbour entrance (Victoria Passage). Thick scrub can make travel around the coastline difficult, but is manageable for finding vessel landing areas with less sea-surge.