POP 2022-08
White-capped albatross
Disappointment Island, Auckland Islands

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0
10
20 km
Disappointment Isl
Auckland Isl
Adams Isl

White-capped albatrosses

- Endemic; most at Auckland Islands
- NZTC: At Risk; Declining (Robertson et al. 2021)
- Partly biennial
- Broad distribution in NZ waters
- Most frequently bycaught albatross in NZ

White-capped albatrosses

- 2596 estimated annual captures in NZs EEZ (Edwards et al. 2023)
    - 90% trawl
    - 9% SLL
    - 1% BLL

White-capped albatrosses

- Unknown number caught annually in recreational fisheries

- Still caught in substantial numbers in fisheries off South Africa

  (Ryan et al. 2002; Watkins et al. 2008; Francis 2012; Rollinson et al. 2017)

- Unknown number caught in high seas fisheries

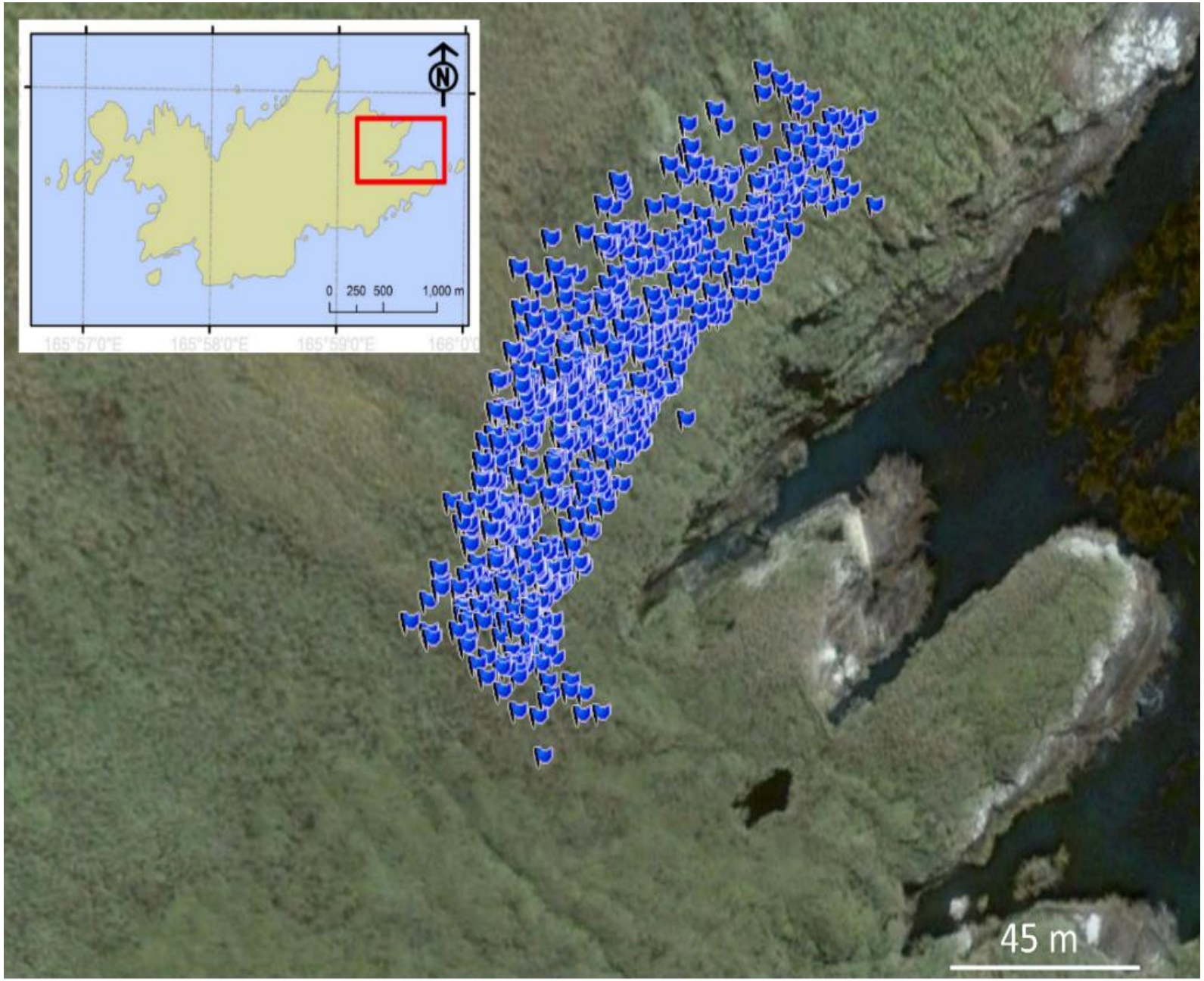
DOC CSP Annual Plan 2023 – 2024, Objectives:

- To monitor the key demographic parameters of white-capped albatross to reduce uncertainty or bias in estimates of risk from commercial fishing
- To describe at-sea distribution of white-capped albatross

Trip objectives at Disappointment Island

- Resight data
- Retrieve and deploy geolocator loggers
- Collect 10 time-lapse cameras, deploy 10 more
- Survey Gibson’s albatross nests
- Continue developing and improving drone counting methodologies

Disappointment Island


N
0 250 500 1,000 m
165°57'0"E
165°58'0"E
165°59'0"E
45 m

Island visit

- 3 (new!) people
- Camped; two tents
- 3.5-days
- 18–21 January
- Ninth visit to the island
- Incubation stage of life-cycle

Banding and resighting

Table 1. White-capped albatross banded and re-sighted on Disappointment Island 2015–2024.

	2015	2016	2017	2018	2019	2020+	2021	2022	2023	2024
Banded 667 (703*)	150	83	160	128	122	0	0	0	24	0
Resighted from previous years		32	53	130	191	175	-	173	159	201
Estimated p (95%CI) ‡		0.27 (0.20-0.36)	0.29 (0.23-0.36)	0.42 (0.37-0.48)	0.44 (0.40-0.49)	0.36 (0.32-0.42)	-	0.39 (0.34-0.45)	0.36 (0.31-0.41)	na
Duration of trip (days)	3	2.3	2.3	2.5	2.5	1.5	-	2	4	3.5
Timing	31 Dec–11 Jan	8–12 Jan	13–16 Feb	16–19 Jan	5–7 Feb	21–23 Jan	-	15–16 Feb	11–15 Feb	18–21 Jan

*Total banded when 36 birds banded in the study area in 1993 and 2008 are included

+ land-slip through study area in late 2019, killing some birds & removing white-capped albatross nesting habitat

‡ Detection probability p estimated from model S(~time)p(~time)

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Survival estimates

***Table 2**. Model selection table for the top three models of white-capped albatross survival. All three models have detection probabilities and transitions that vary with both state (loafing/nesting) and time [p(~stratum * time)Psi(~-1 + stratum:tostratum:time)]; models where detection probability does not vary by state had less support and are not shown.*

Model		npar	AICc	ΔAICc
1.	Survival varies with time	40	5639.28	0.00
2.	Survival constant	33	5643.21	3.93
3.	Survival varies with time and state (loafing/nesting)	48	5647.84	8.56

Estimated annual survival

Table 3. *Estimated annual survival, with one standard error, for white-capped albatrosses at Disappointment Isl from field visits 2015 to 2024. There was no research visit in 2021. The 2023 estimate is omitted since mark-recapture estimates for the most recent year of data are not accurate and precise enough to be useful*

Year	Survival estimate	Standard error
2015	0.826	0.056
2016	0.897	0.053
2017	0.865	0.034
2018	0.979	0.036
2019	0.884	0.046
2020	0.956	0.027
2021		
2022	1.000	0.000

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Over the period 2015 to 2020, mean annual survival rates for white-capped albatross were 0.89 ± 0.04

Annual survival

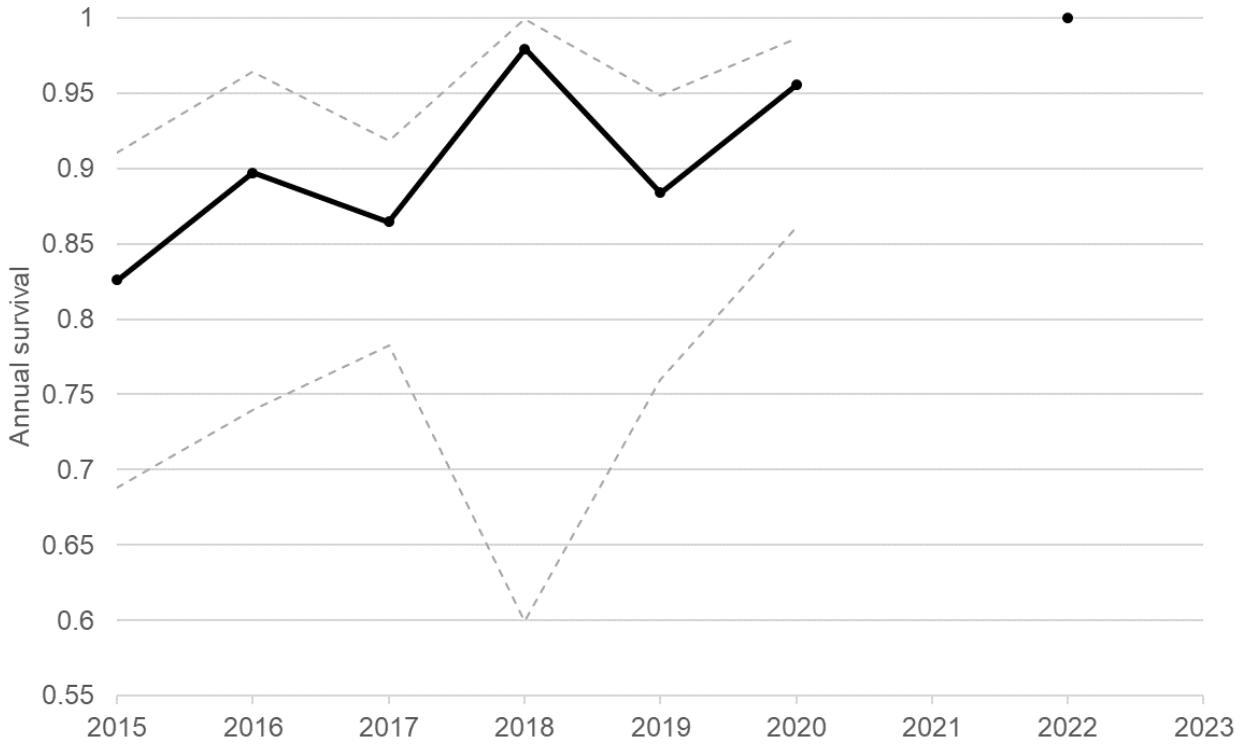
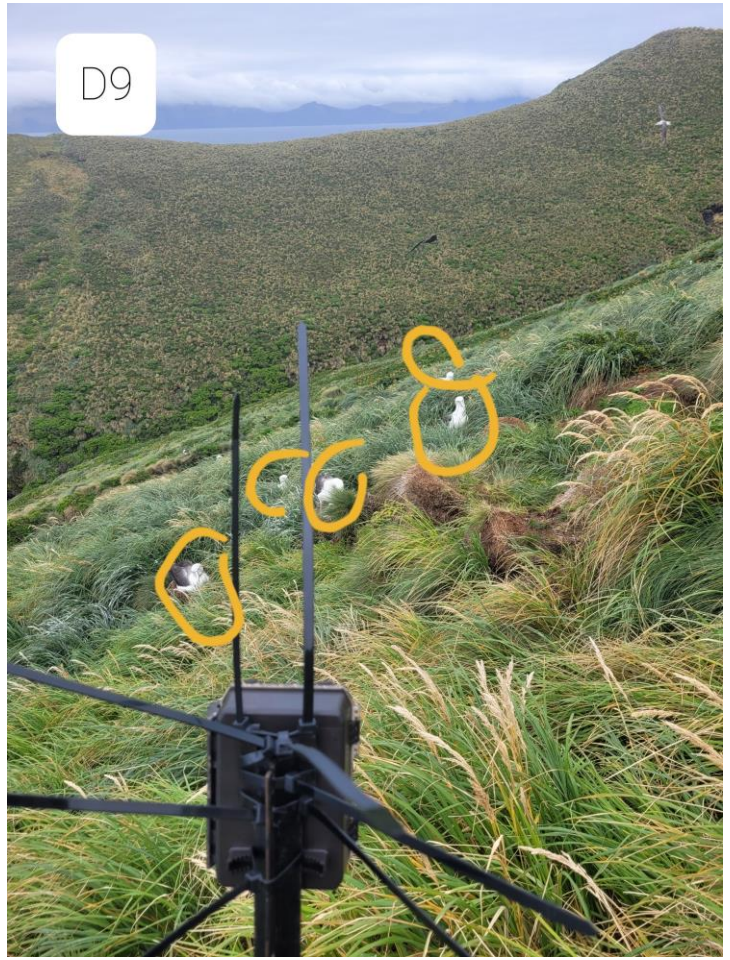


Figure 3. Annual survival of white-capped albatrosses at Disappointment Isl. Survival rate estimates are black dots and bold black lines; variance estimates (upper and lower 95% confidence intervals) are grey dashed lines. There was no research visit in 2021. Mark-recapture estimates tend to be poor for the most recent year of data so the 2023 survival estimate is not shown

Nest survival cameras

- Productivity estimates
- 10 nest cams retrieved,
  and 10 installed
- Further phenological data



Retrieval and deployment of GLS

- 26 GLS retrieved
- 13 GLS deployed

Objectives not completed

- Survey Gibson's albatross nests
- Continue developing and improving drone counting methodologies

Recommendations

- Continued visits to Disappointment Island for robust estimates of survival and productivity
- Banding as a high priority,
- Longer trip visits
- Annual nest counts could be reinstated to complement annual survival data; we recommend coverage of the wider Castaways Bay colony via drone photography each year, with nests later counted in orthomosaics
- The optimal time for mark-recapture study is early February when mate changeovers are most frequent (maximising resighting rate)

Acknowledgements

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