

# Gibson's albatross and white-capped albatross research 2022

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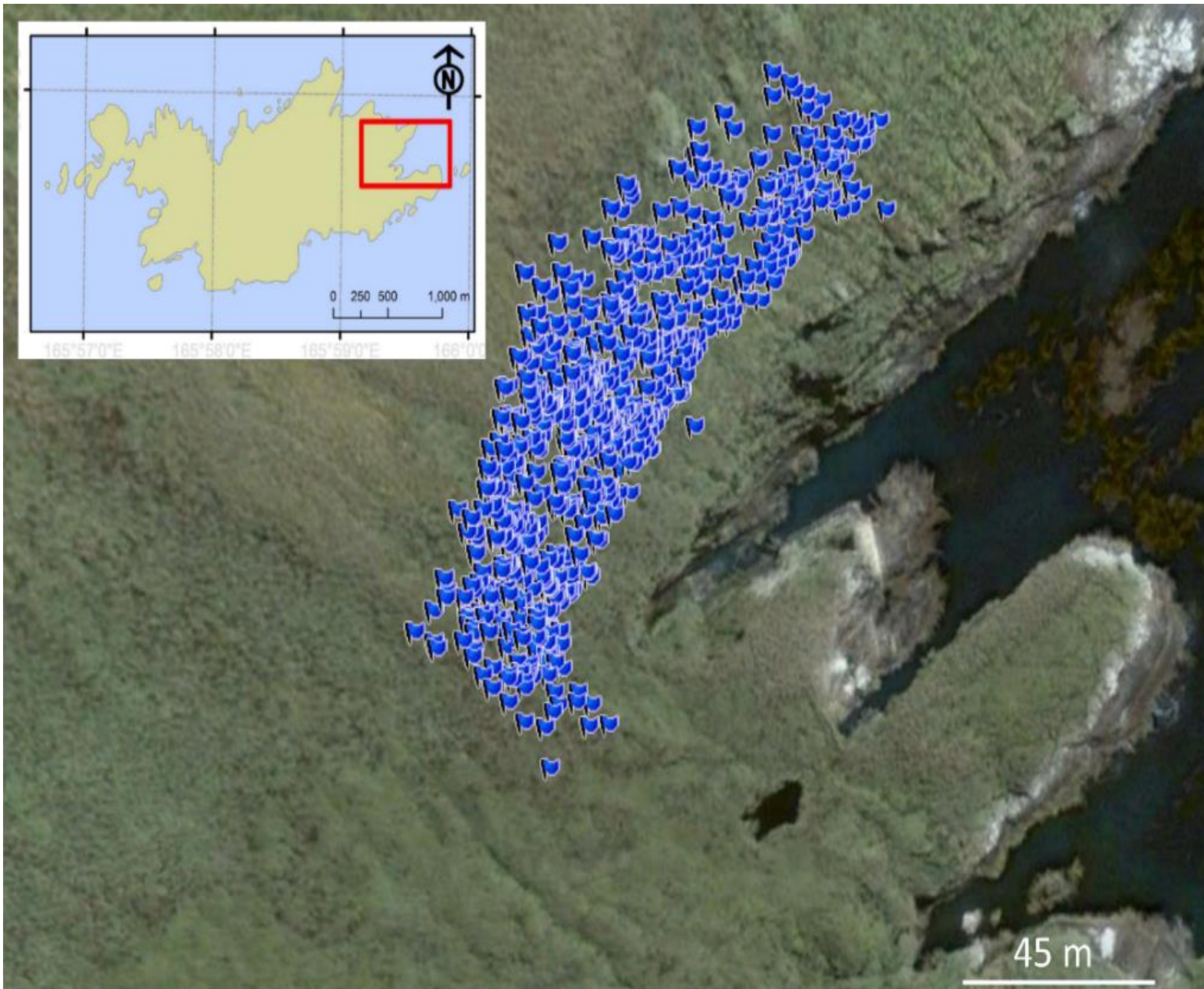


# White-capped albatross



# WCA





# WCA



- 6961 – 13,785 = estimated bycaught in NZ 2002 – 2020 (MPI / FNZ: <https://protectedspeciescaptures.nz>)  
Mostly trawl, then BLL, SLL
- 95% NZ WCA mortalities are adults (Richard et al. 2017)
- Large lack of precision in bycatch estimates – low obs (Richard et al. 2017)  
poor obs position (Large et al. 2021)
- Cryptic mortality scalars poorly informed (FNZ 2022)

*‘assumptions and uncertainties associated with these scalars limits the confidence with which they can be applied’* (Pierre and Richard 2014)

*‘Until such time as the structural assumptions underlying the estimation of cryptic mortality multipliers have been revisited; estimates of total fishing-related deaths in trawl fisheries should be interpreted with caution’* (Richard et al. 2020)

- Significant bycatch outside of NZ (notably Sth Africa) 7,000 – 11,000 killed 1998 – 2000 (Ryan et al. 2002)
- 7,000 estimated to have been killed annually (Watkins et al. 2008)

# WCA

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- Medium Risk – FNZ risk assessment 2020 (Richard et al. 2020)
- From High Risk previously (Richard et al. 2017)
- Seabird population inputs required for risk assessment:
  1. Number of annual breeding pairs
  2. Proportion of adults breeding in a given year
  3. Age at first reproduction
  4. Adult annual survival rate
  5. Spatial distribution

# WCA



- Coarse breeding population estimates from aerial photography only
  - Aerial photography previously only option. Not so for the past 8 years.
  - Challenged correction for apparent versus actual incubators
  - Aerial counts not conducted since 2015
  - Only coarse trend data therefore available
- Limited funding has inhibited robust data for key demographic parameters
- Despite Risk Assessment requiring this information



# WCA



- New Zealand Government needs accurate information
  - DOC for threat status
  - FNZ for Risk Assessment and PBR
  - Min for Env to better inform their Facebook ads...

A screenshot of a Facebook post from the Ministry for the Environment. The post is titled "When your brother tries to eat the last sweet treat in the pantry..." and discusses the decline of Toroa (white-capped albatross) populations. It includes a list of actions to take, such as learning about the issue, asking for albatross-safe tuna, and supporting sustainable fishing. The post also mentions Live Ocean partners and includes a photo of two albatrosses. The screenshot shows the Facebook interface with a left-hand navigation menu, a top navigation bar, and a Windows taskbar at the bottom.

Inbox (2) - grahamparker.nz@g... Inbox - grahamchristo@gmail.c... (18) Facebook

https://www.facebook.com

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Ministry for the Environment ✓  
22 hrs · 🌐

When your brother tries to eat the last sweet treat in the pantry...

This is a Toroa or white-capped albatross.

The Toroa is in serious trouble with population numbers in fatal decline.

So how can you help this manu?

[Live Ocean](#) says,

- Learn about the issue, talk to friends, politicians, restaurants and supermarkets.
- Start asking for albatross-safe tuna to show your concern.
- Be discerning. Support fishers using albatross-safe fishing methods.

Live Ocean partners with exceptional local talent whose work has global implications for the protection of life in our ocean.

Learn more about their mahi on their website.

Image from @recretney

A photograph of two white-capped albatrosses. One is in the foreground, looking towards the right, while the other is slightly behind it, also looking right. They have white bodies and dark wings.

# WCA



- 7th visit – 1 year missed 2021
- 15 – 16 February
- Duration limited due to reliance on in-kind support



# Scope

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## White-capped albatross 2022

- Adult survival
- Productivity
- Drone trials
- GLS retrieval



# WCA Resighting rates



21% of 150 in 2016	3.0 days on island
24% of 233 in 2017	2.5 d
33% of 393 in 2018	2.5 d
34% of 557 in 2019	2.5 d
26% of 679 in 2020	1.5 d
25% of 679 in 2022	2.0 d

Mid-February timing works well:

- 95% of nests had small chicks

- Most nests still brooded (98%)

- High changeover rate: 70% new after a day



# WCA survival estimates



- Survival 2015-2020 estimated at 0.92 (CI 86 – 93)
- Wide confidence intervals
- Not estimated this year due to semi-biennial breeding and no 2021 data
- Data not adequate for estimating time-varying annual survival rate
- Consistent with declining albatross populations

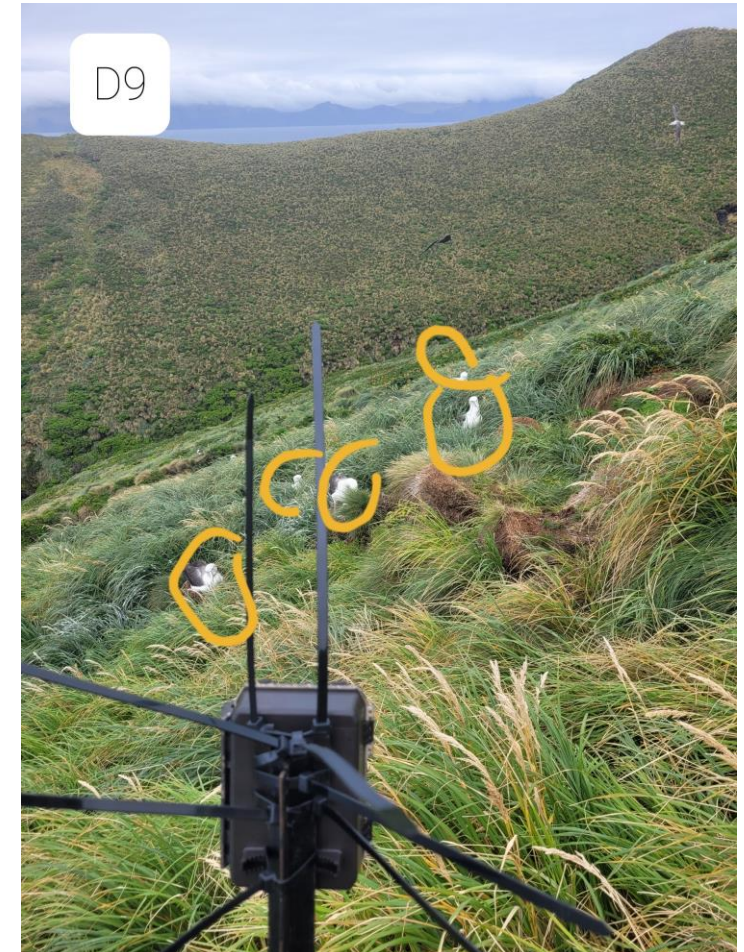
(Weimerskirch and Jouventin 1987, Prince et al. 1994, Weimerskirch et al. 1997, Cuthbert et al. 2003, Arnold et al. 2006, Verán et al. 2007, Rivalan et al. 2010)

# Nest survival cameras



## White-capped albatross

- Productivity estimates
- 10 nest cams installed
- 61 nests in view of cameras
- 4 – 10 nests per camera
- Further phenological data



# Drone pilot study



- Fourth *Thalassarche* species we have trialled use of drones
- Free flights looking into colony face, and overview shots
- Between 15:30 and 16:30 (more loafers present)
- Programmed flights 30m above launch
- Overlap 80%
- Flight speed fast; camera angle nadir/90deg
- Calibration counts conducted





# Drone pilot study

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- Minimal white-capped albatross response to drone presence
- Albatrosses avoided drone in flight
- Skuas ignored drone
- Calibration counts



# Ground-truthing



## Detectability

- What do we miss in aerial images? What proportion is obscured?
- Full ground-count all nests

## Nest contents

- Pretend breeders: what proportion of apparently-incubating birds are actually breeding?



# Ground-truthing

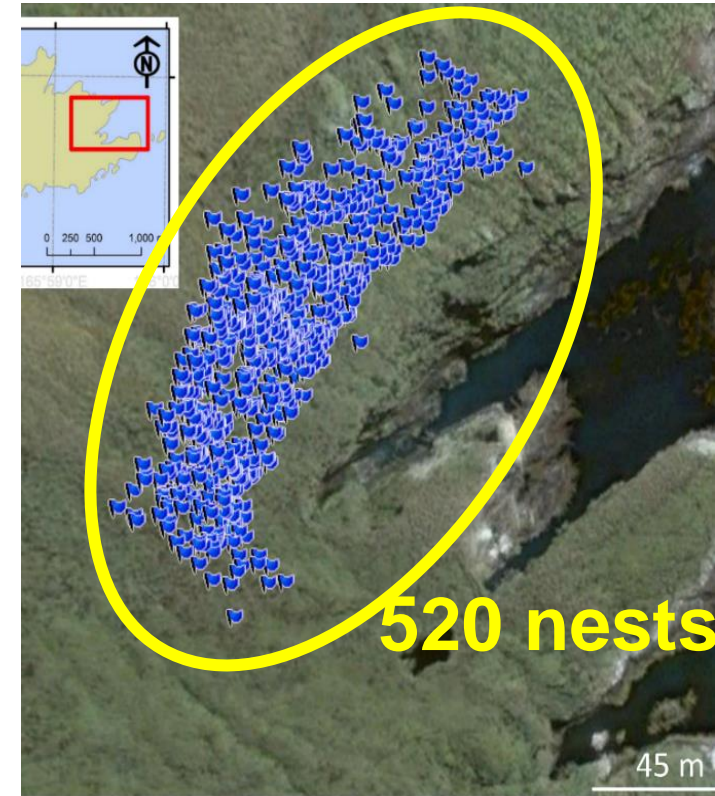


## Detectability

- 520 nests in SA at time photos taken
- Next: count nests in photos, then calculate proportion not detected in photos

## Nest contents

- 90% of 293 apparently nesting birds had an egg/chick
- Next: correct photo-count of AON



# Summary

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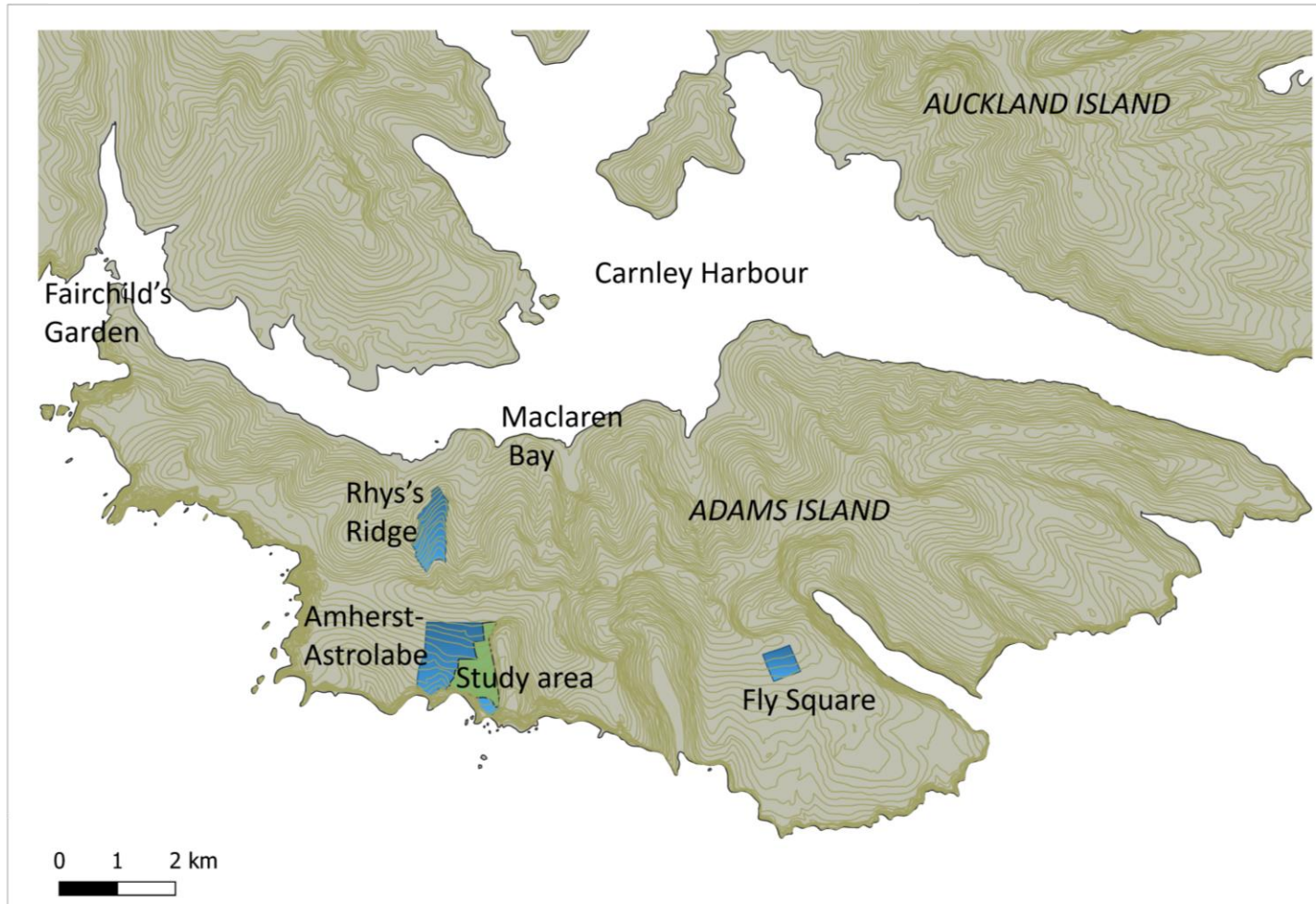


- Entirely achievable to acquire data DOC and FNZ require
- But fieldwork not supported so modelling of poor or substitute data continues
- Survival rates concerning
- Drone feasible for aerial counts
- Aerial counts complements demographic data collection
- Drone and demographic work combined cheaper than heli
- Cameras installed to inform productivity estimates

# Gibson's albatross



6 January–14 February





# Scope

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## Gibson's albatross

Population size

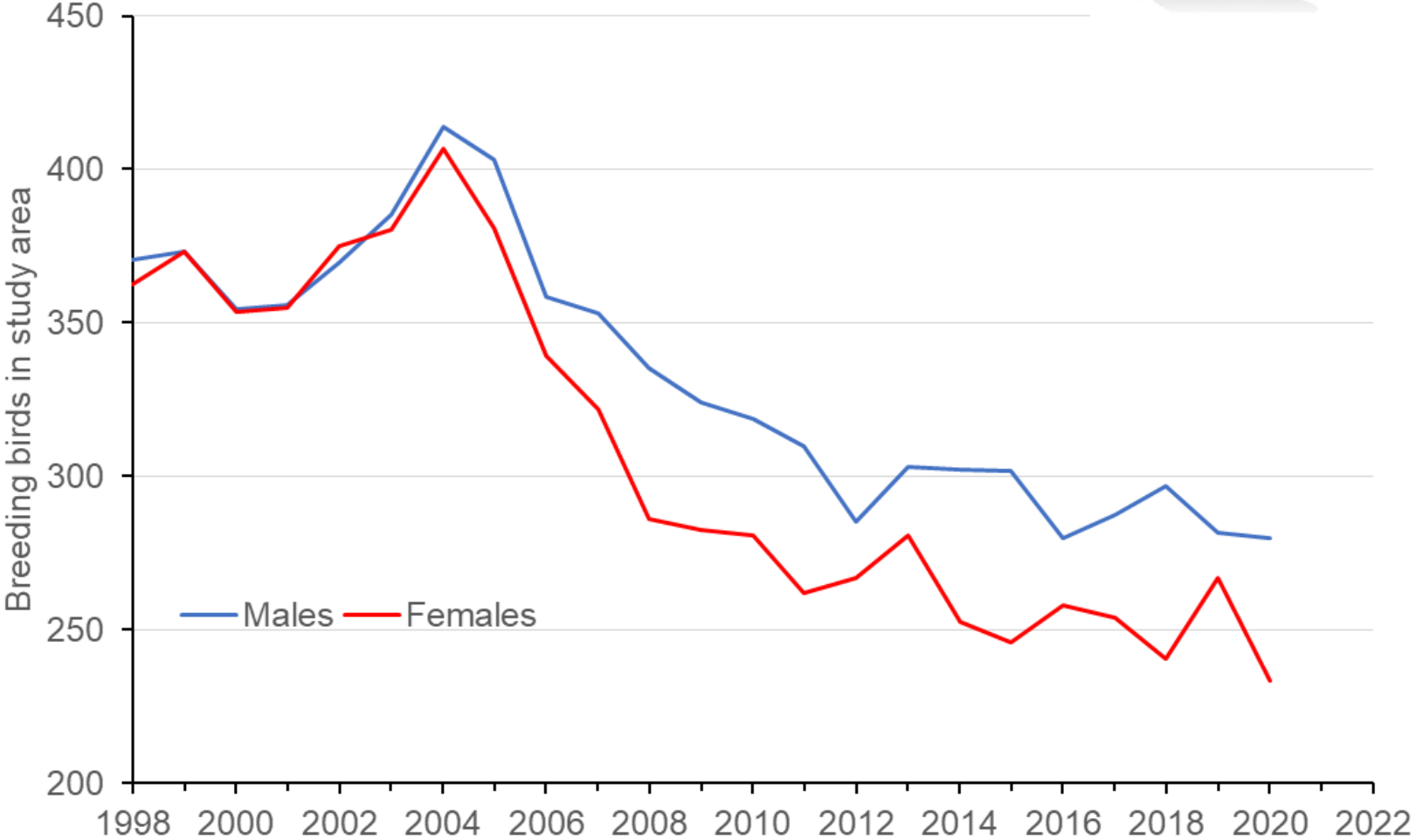
Survival

Productivity

Recruitment

Foraging range

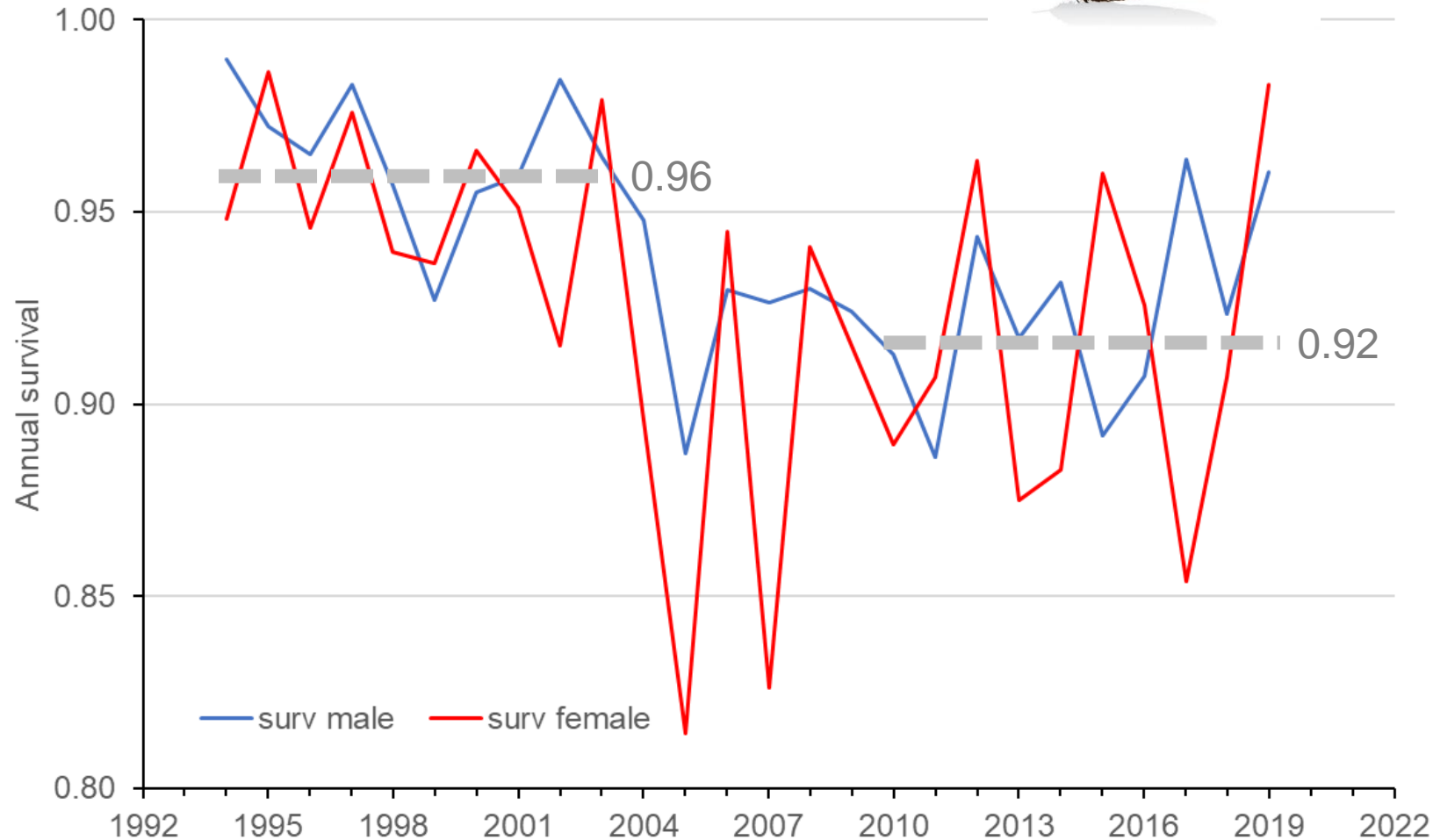
# Study area population trend



The number of breeding Gibson's albatrosses in the Adams Island study area estimated by mark-recapture



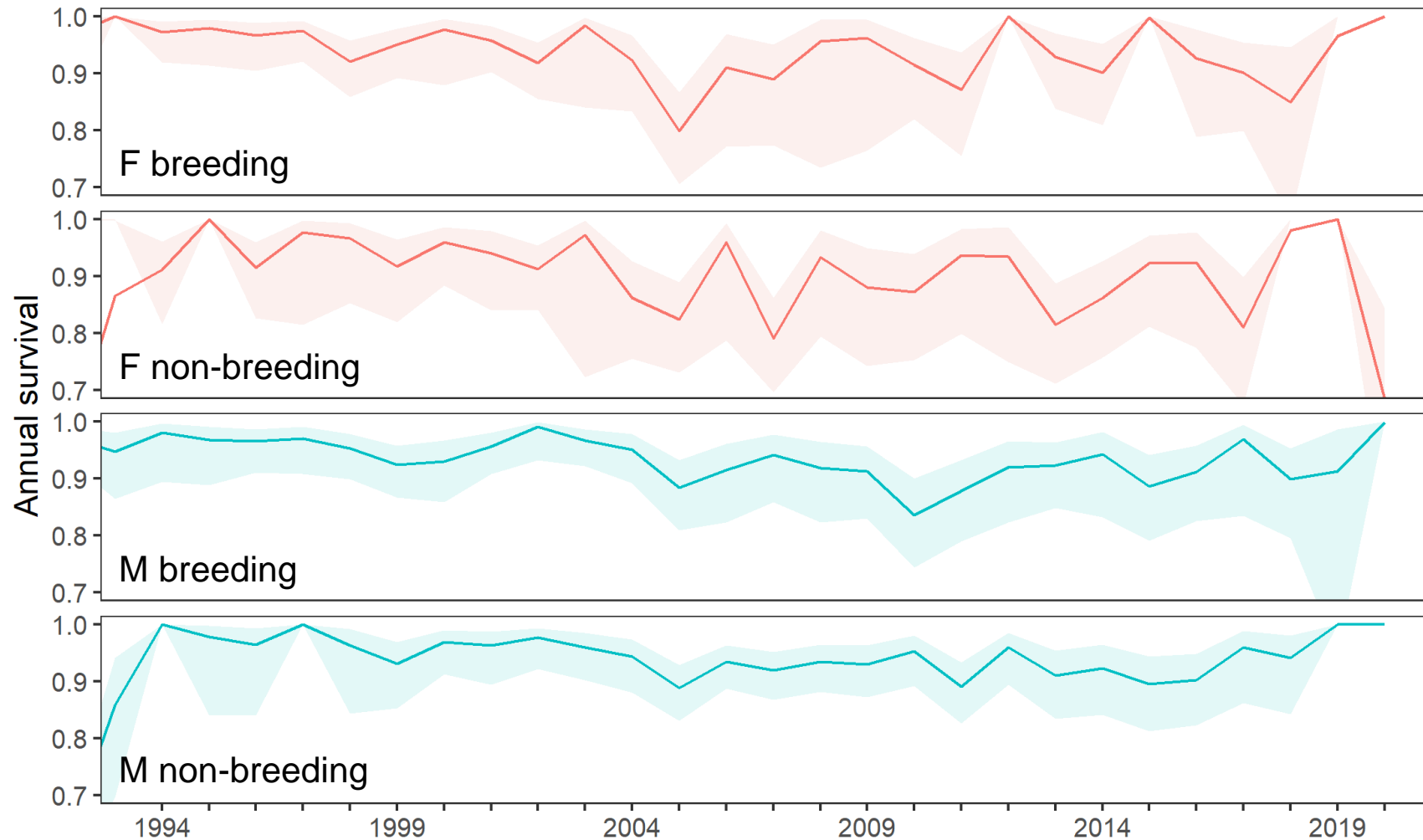
# Gibson's survival



Annual survival of Gibson's albatross in the Adams Island study area since 1993, estimated by mark-recapture

(CMR estimates of survival for 2020 affected by lack of 2021 data, so not presented)

# Gibson's survival



Survival estimated separately for breeding and non-breeding female (top two) and male (bottom two) Gibson's albatrosses, estimated by mark-recapture

# Gibson's productivity



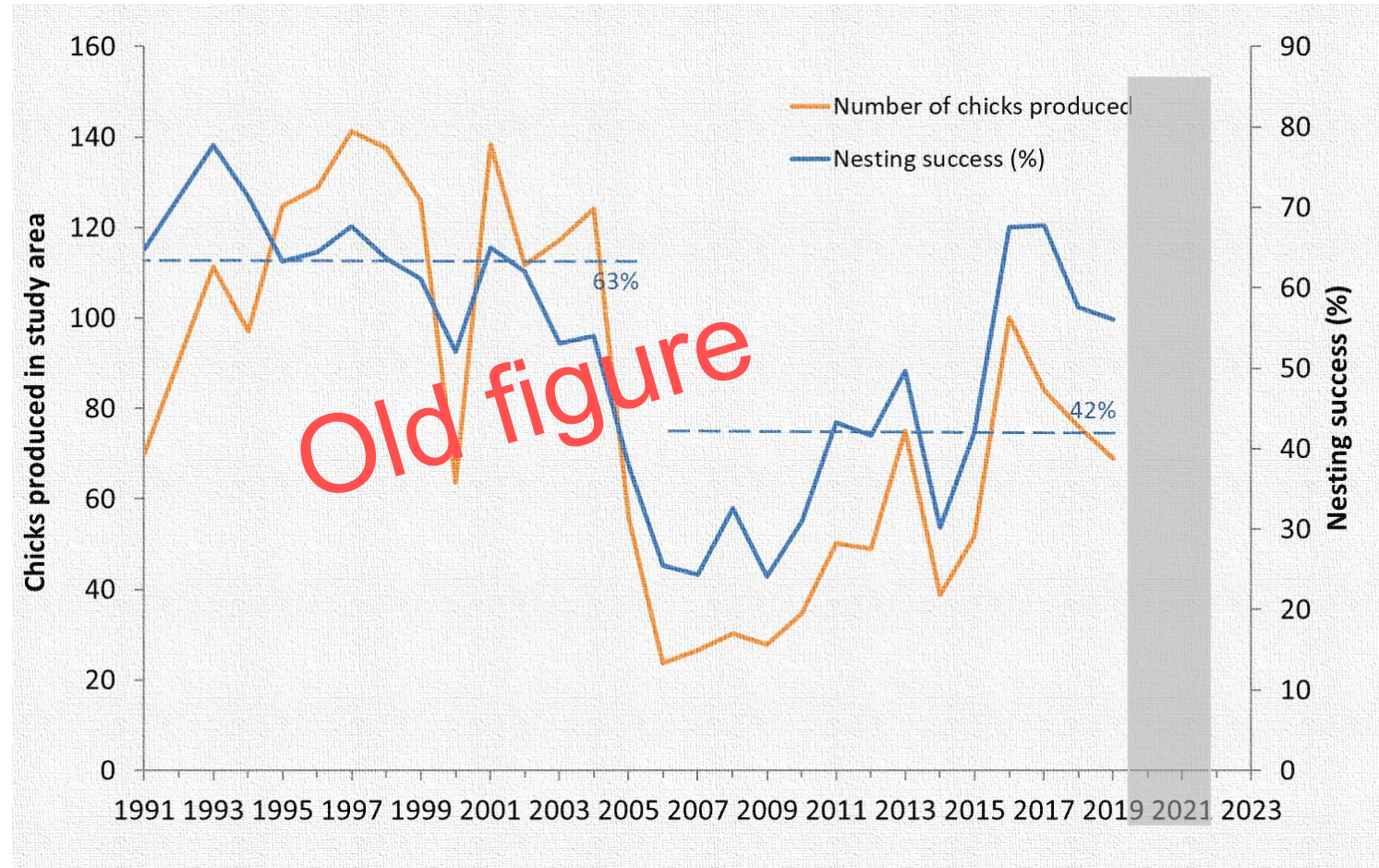
**2020 cohort**

? N fledged early 2021

**2021 cohort**

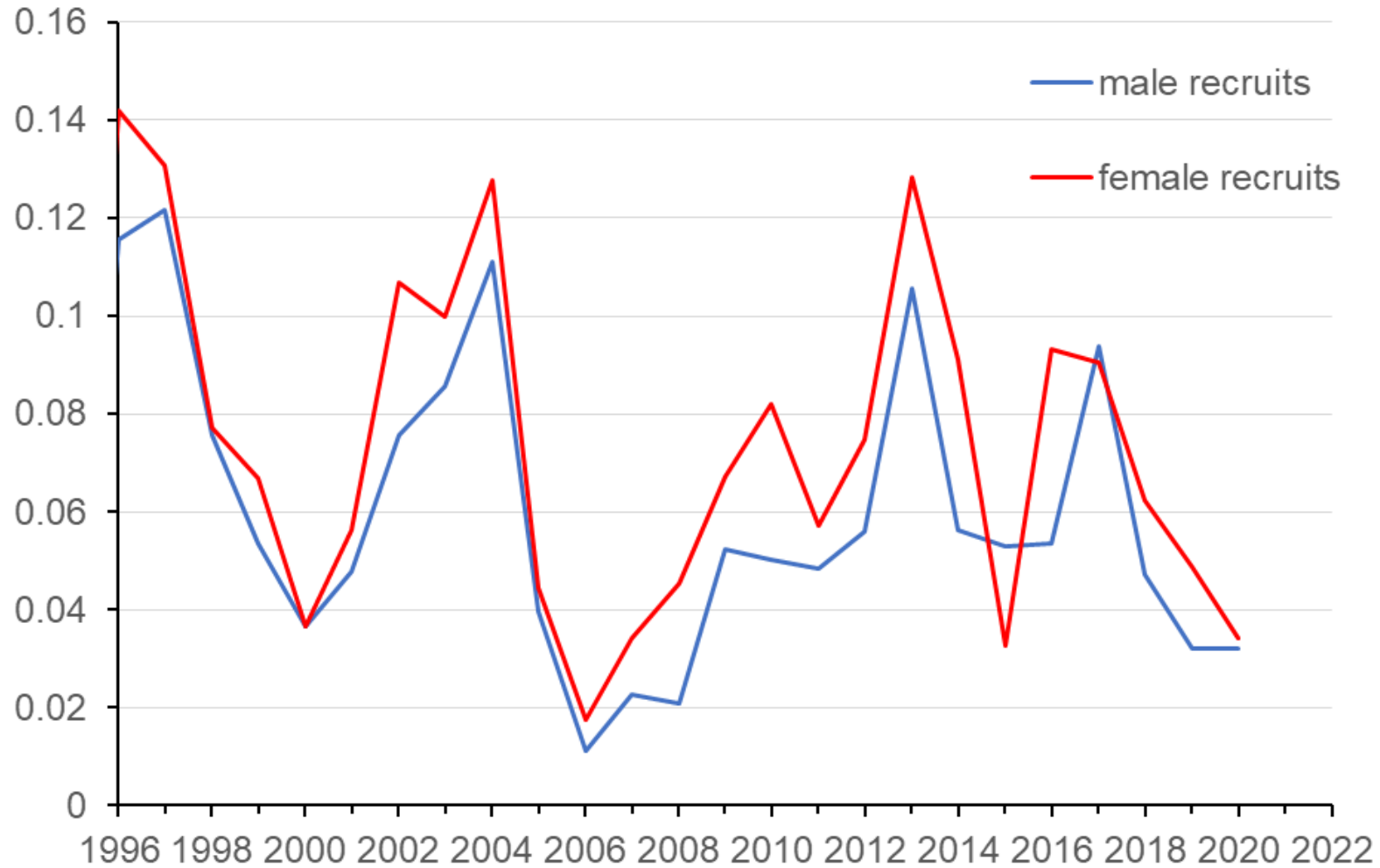
? n laid eggs Jan 2021

? n fledged early 2022



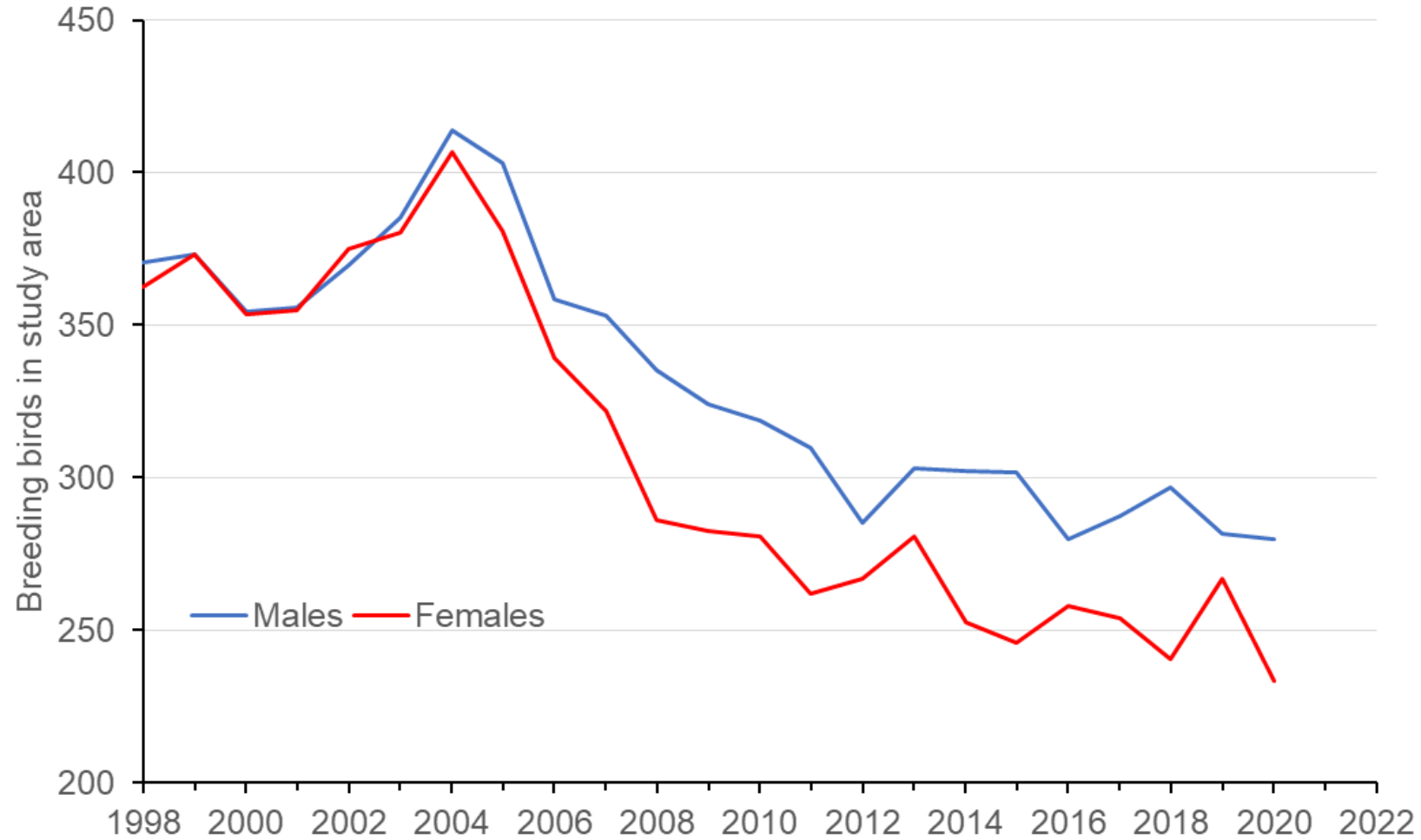
Gibson's albatross nesting success and the number of chicks fledged from the study area on Adams 1991-2019. Dashed lines: mean nesting success 1991–2004 and 2005–2019

# Gibson's recruitment

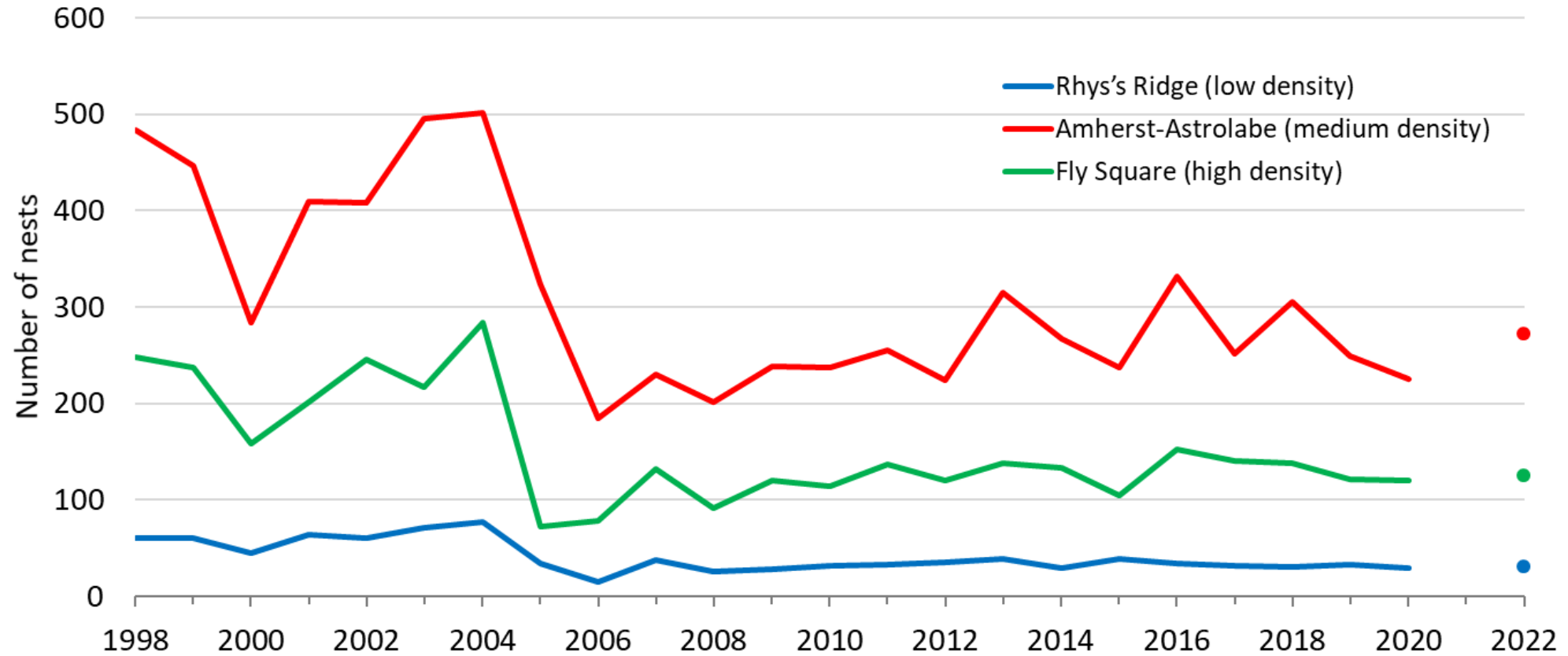


Recruitment: number of breeding for the first time, out of the number breeding estimated by mark-recapture, in the Adams study area since 1996

# Gibson's population trend

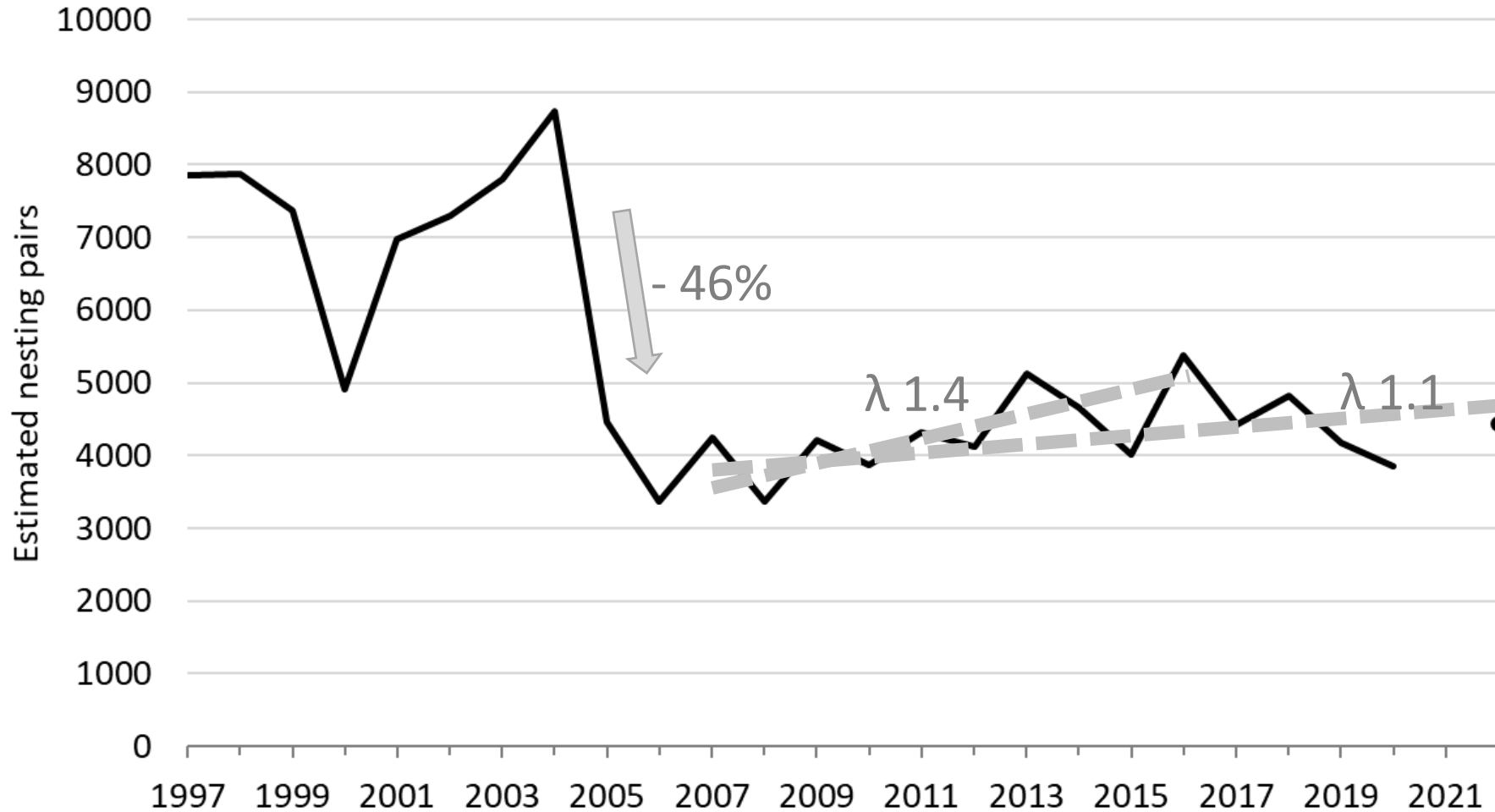


# Gibson's census blocks



The number of Gibson's wandering albatross nests in three census blocks on Adams Island 1998–2022

# Gibson's trend: nests



Total Gibson's albatross nests on Adams Isl 1997–2022. The estimated number of nesting pairs on the island is based on annual counts in the three census blocks corrected by the proportion of the total population in 1997 that was nesting in those three counted blocks

# Foraging range

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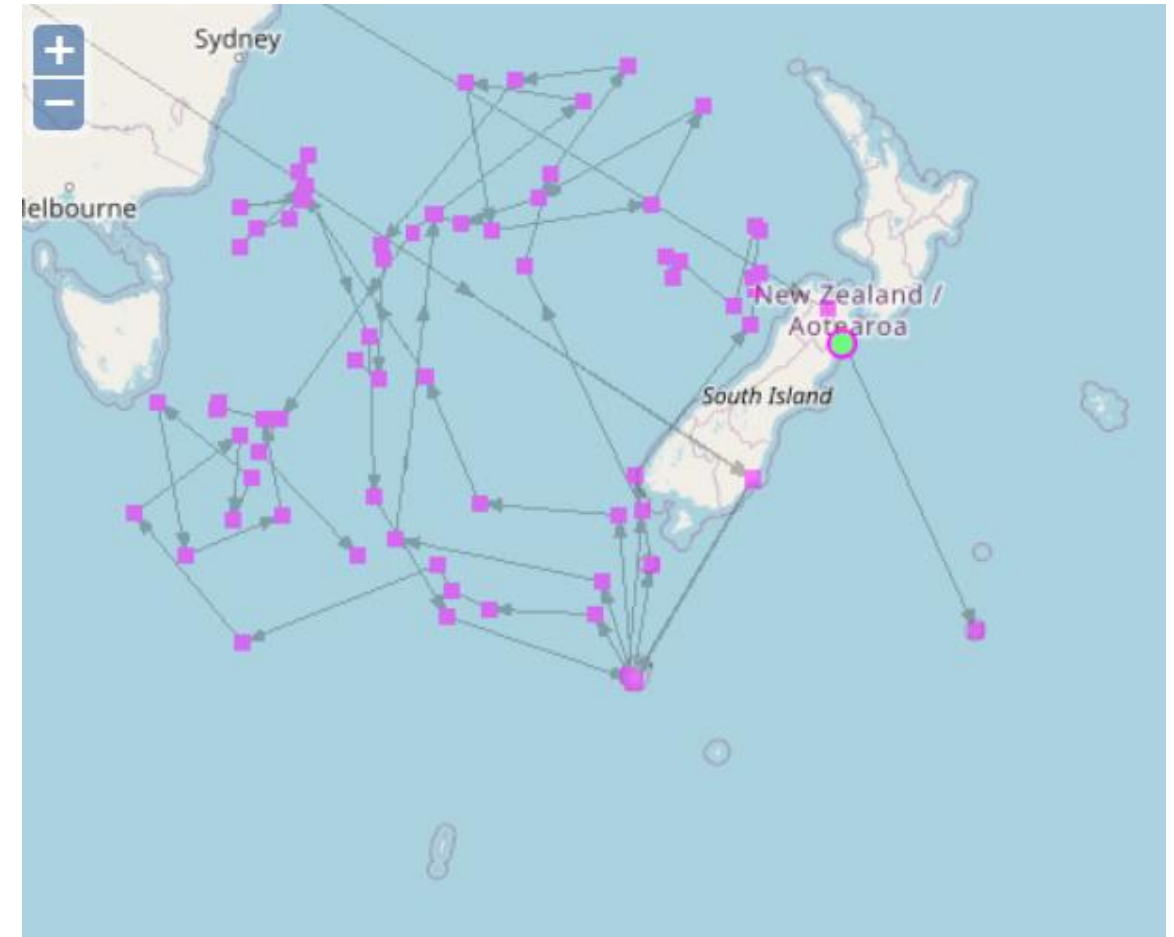
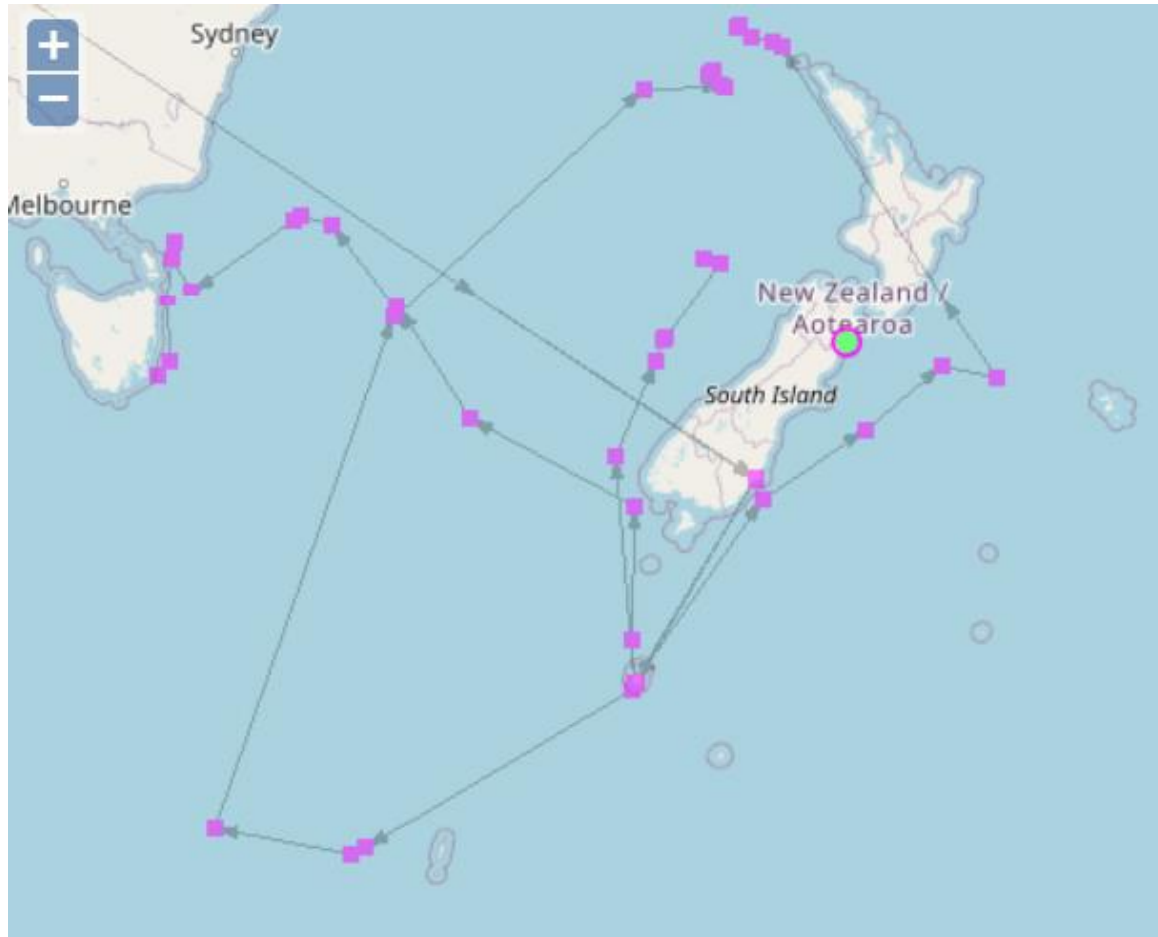


39 satellite-transmitting GPS out  
10 ICARUS  
29 Telonics  
23 GLS loggers





# First month out..

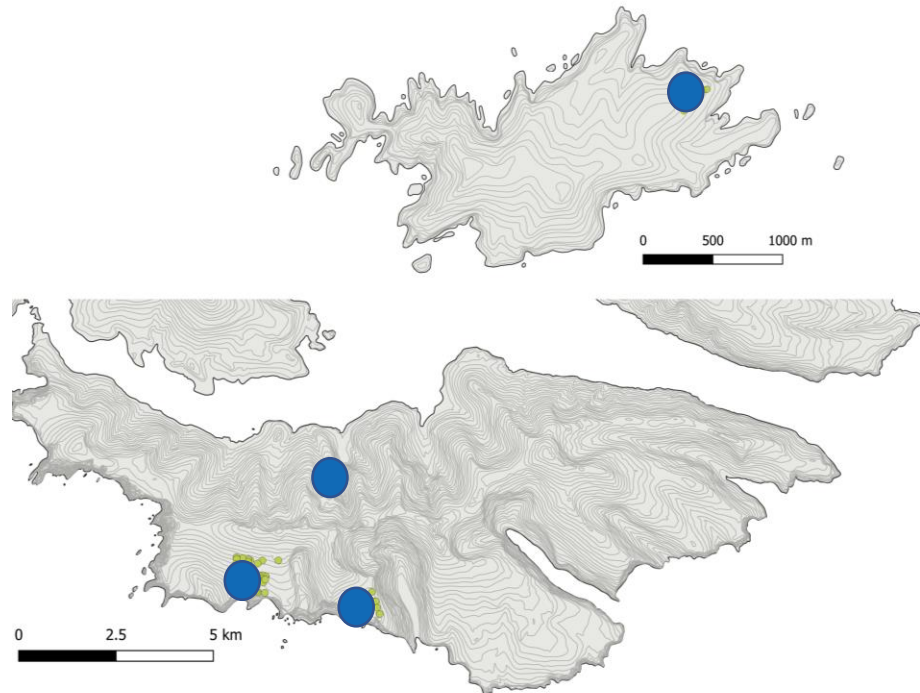


Foraging range of Gibson's albatross Feb-Mar 2022. Females at left (n=4) and males at right (n=6)

# Bloods for genetics

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55 birds sampled  
At least 300m apart  
4 colonies





# Recommendations

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## Gibson's albatross

- Recovery still slowed by relatively high annual mortality and >10yrs low productivity
- Pop size, structure, trend should remain priorities

## White-capped albatross

- Resighting priority, min 5d in mid-Feb
- Breeding success, failure rates: nest cams over two years

# Acknowledgements

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**DOC sealion team** Kat Manno: space to get us south

**NET team** James Ware: trip to Disappointment, space to get us back

**DOC Murihiku** Jenny Sycamore, Sharon Trainor, Janice Kevern

**Ruth Cole** for daily scheds

**SV *Evohe*** crew: safe passage to and from the islands, fit in a Disappointment (2x doglegs)