

A photograph of two white-capped albatrosses on a grassy cliffside. The birds are facing each other, with their beaks touching. The bird on the left is standing on a rock, while the bird on the right is standing on the grass. The background shows a steep, grassy cliffside with some rocks and a glimpse of the ocean in the distance.

**Aerial Survey of White-capped albatross,
Auckland Islands**

Contract 4625

**Barry Baker, Katrina Jenz, Ross Cunningham
Latitude 42 Environmental Consultants**

background

— endemic NZ species



— Auckland Islands

Disappointment Island (110 000 pairs)

SW Cape (3 000 pairs)

Adams Island (100 pairs)

— Antipodes Islands

Bollons Island (50-100 pairs)

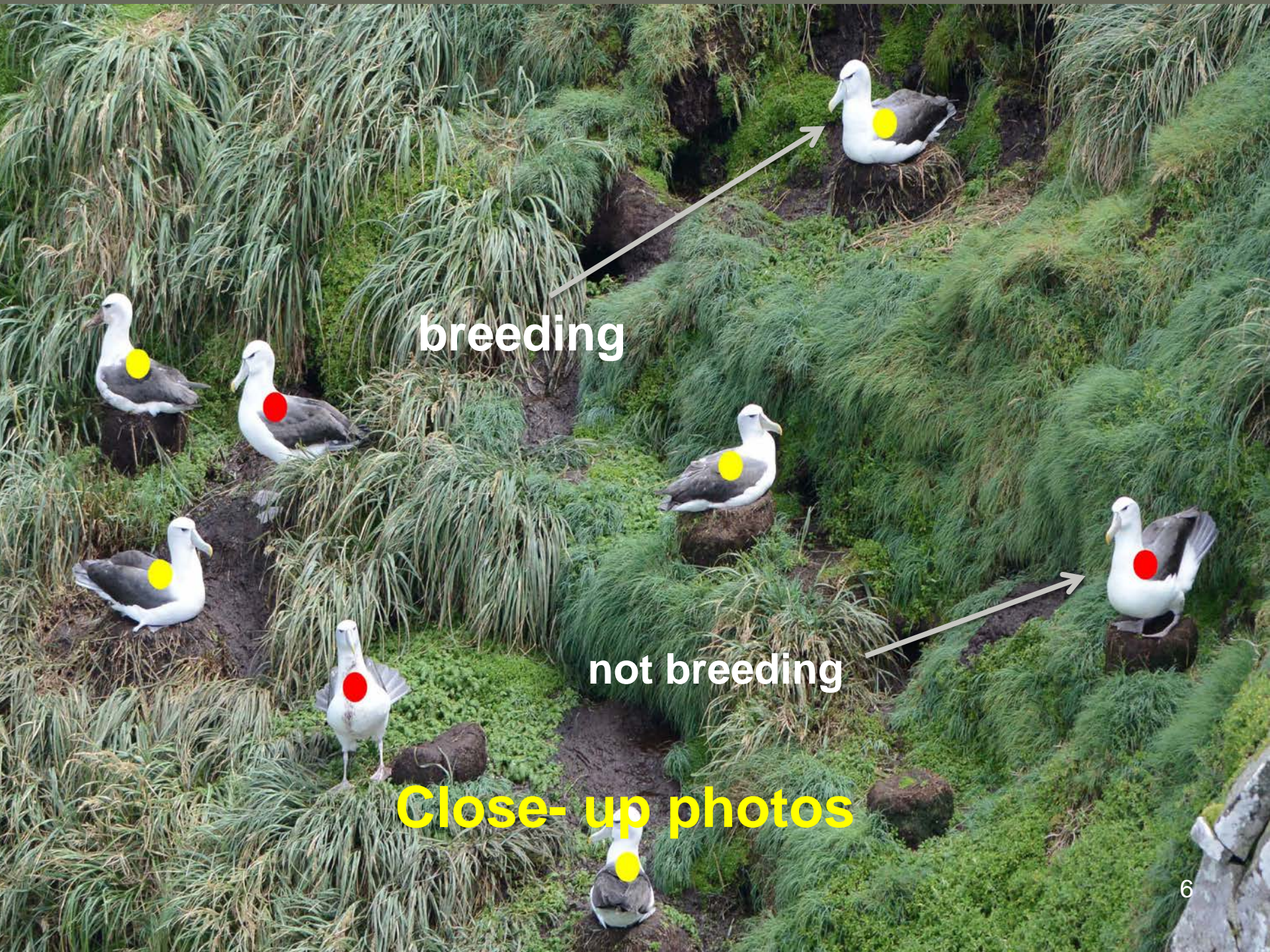
background

- in 2006 we commenced annual photographic counts of WCA colonies in the Auckland Islands
- population estimates have been derived for 2006 – 2014
- results so far show high inter-annual variability in counts & uncertain trend

Project Aims

1. conduct another aerial survey of WCA in the Auckland Islands in January 2015
2. determine population trend





breeding

not breeding

Close-up photos

data assessment

- **annual breeding pair** – any pair of albatrosses that lays an egg in the breeding season of interest.
- **loafers** –birds present in a colony but which do not appear to be associated with an active nest at the time of observation.
 - these birds may be non-breeding birds or breeding birds away from their nest, birds that have laid an egg earlier in the breeding season & subsequently lost it through breakage or predation.
- all birds on the ground counted
- each single bird assumed to represent an annual breeding pair.
- close up photos used to determine proportion of birds breeding & not breeding

photographic data storage

- photographs submitted to Department of Conservation for archiving
- photos provided in one directory
 - White-capped albatross 2013* with three sub-directories
 - *Original photos*
 - *Stitched images*
 - *Counted images*
- set of photographs also retained by Latitude 42

raw counts

Year	Adams	SW Cape	Disappoint	Total
2006	no count	6,548	110,649	117,197
2007	79	4,786	86,080	90,945
2008	131	5,264	91,694	97,089
2009	132	4,161	70,569	74,862
2010	117	4,370	72,635	77,122
2011	178	5,846	93,752	99,776
2012	215	6,571	111,312	118,098
2013	184	5,542	89,552	95,278
2014	193	4,741	96,864	101,798

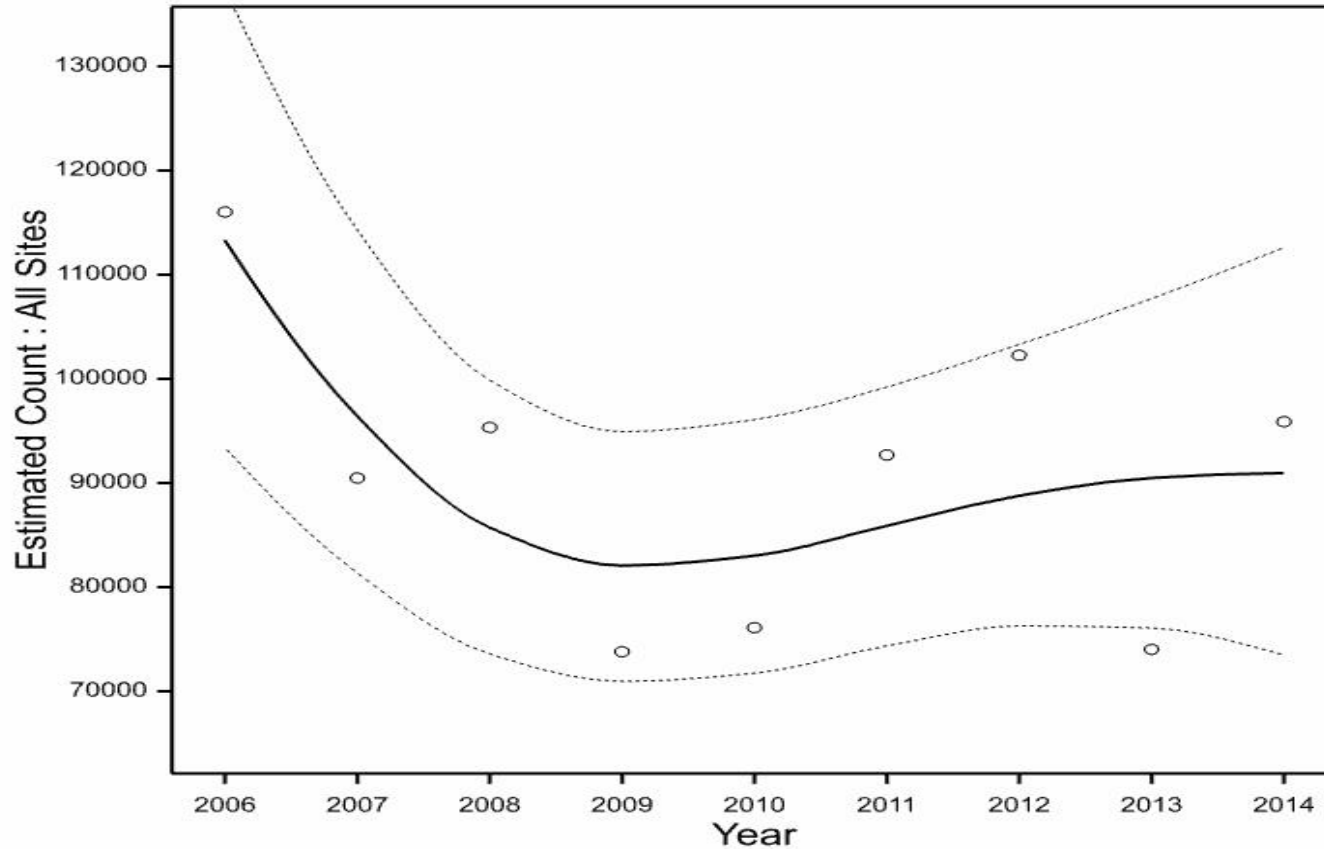
close up counts

Year	On nest	Not on nest	Non breeders%
2006			?
2007	805	4	1%
2008	1 590	29	2%
2009	937	13	1%
2010	607	8	1%
2011	1 007	77	7%
2012	1 096	169	15%
2013	860	247	22%
2014	420	26	5.8%

Ground truthing

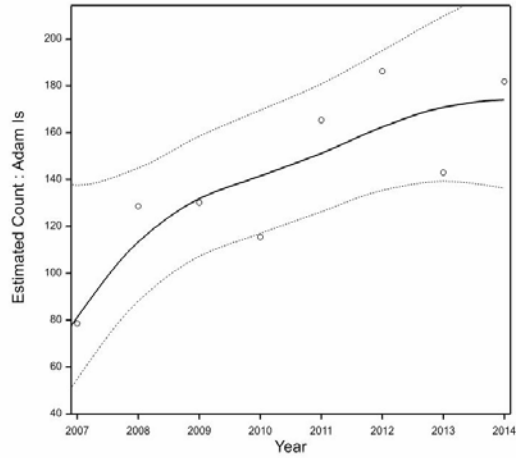
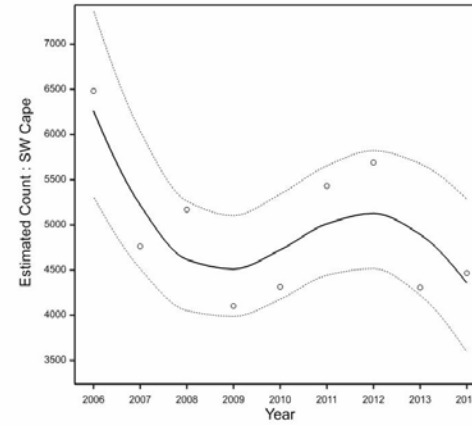
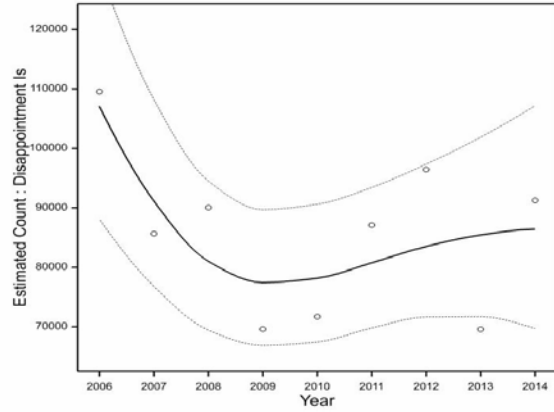
Date	Start	End	Bird sitting on egg	Bird sitting on empty nest	Total birds on nests	Loafing - standing on empty nests	Loafing birds, not associated with nests	Total loafers	Total birds	Total Nests
6-Jan-15	NR	NR	122	30	152	32	17	49	201	184
10-Jan-15	10:00	10:20	119	39	158	22	20	42	200	180
10-Jan-15	12:00	12:20	113	24	137	4	2	6	143	141
10-Jan-15	14:00	14:20	128	13	141	3	4	7	148	144
10-Jan-15	16:00	16:20	126	27	153	27	20	47	200	180
10-Jan-15	10:00	10:45	100	36	136	29	43	72	208	165
10-Jan-15	10:00	10:55	154	33	187	59	31	90	277	246
10-Jan-15	12:48	13:08	47	16	63	0	9	9	72	63
Totals			909	218	1,127	176	146	322	1,449	1,303
%			0.81	0.19		0.55	0.45			
					0.78			0.22	1.00	

WCA trend – regression splines



Interpretation: no evidence for monotonic decline

WCA trend – 3 sites. Regression splines



population trend

- Assessed using TRIM software
(TRends & Indices for Monitoring Data).
- Standard ACAP tool using log-linear regression models
- average growth rate of -1.73% per year
- moderate decline.

Pannekoek and van Strien, 1996

Thank you

methods

- Photo surveys of WCA colonies in Auckland Is
 - December 2006 – 2010 early incubation
 - January 2011 – 2015 late incubation
- digital Nikon cameras & lenses
- aerial platform Squirrel Helicopter



2 groups of photos

- series of overlapping photos of all areas with nesting birds (70 mm)
- close-up photos to examine proportion of empty nests & non-breeding birds (200 or 300 mm)



c. 3,000 photos taken each year,
year saved as fine jpeg files
No impact on birds detected

counting protocol

- photomontages constructed using Adobe Photoshop software
- paintbrush tool mark off counted birds

