Shy Albatross

Thalassarche cauta

Albatros timide
Albatros de corona blanca

CRITICALLY ENDANGERED | ENDANGERED | VULNERABLE | **NEAR THREATENED** | LEAST CONCERN | NOT LISTED

Sometimes referred to as
White-capped Albatross
Shy Mollymawk
Tasmanian Shy Albatross

TAXONOMY

Order Procellariiformes
Family Diomedeidae
Genus *Thalassarche*
Species *T. cauta*

Originally a member of the polytypic species *Diomedea cauta* (Gould 1841), *T. cauta* was elevated to specific status when *Diomedea cauta* was placed in the genus *Thalassarche* [1] and split into four species: *T. cauta* (Shy Albatross), *T. steadi* (White-capped Albatross), *T. eremita* (Chatham Albatross) and *T. salvini* (Salvin's Albatross) [2]. The recognition of *T. cauta* and *T. steadi* remains controversial [3, 4] although following scrutiny of morphological, genetic and behavioural data the ACAP Taxonomy Working Group endorsed recognition of *T. cauta* and *T. steadi* as separate species in 2006 [5], and this recommendation was accepted at the Second Session of the Meeting of Parties.

CONSERVATION LISTINGS AND PLANS

International

- Agreement on the Conservation of Albatrosses and Petrels – Annex 1 [6]
- 2008 IUCN Red List of Threatened Species – Near Threatened [3]
- Convention on Migratory Species - Listed Species (Appendix II; as *Diomedea cauta*) [7]

Australia

- *Environment Protection and Biodiversity Conservation Act 1999* (*EPBC ACT*) [8]
  - Vulnerable
  - Listed Migratory Species
  - Listed Marine Species
- Recovery Plan for Albatrosses and Petrels (2001) [9]
- Threat Abatement Plan 2006 for the incidental catch (or bycatch) of seabirds during oceanic longline fishing operations [10]
- **Tasmania:** *Threatened Species Protection Act 1995* - Vulnerable [11]

Chile

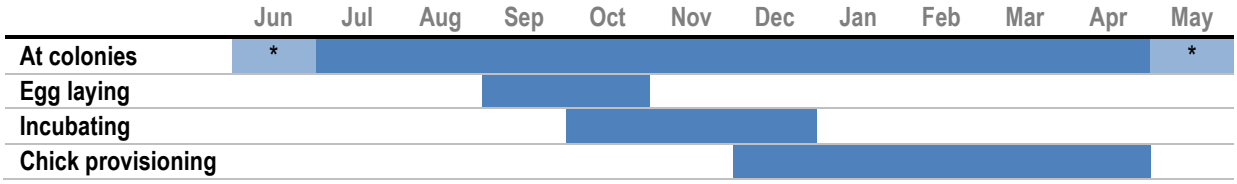
- National Plan of Action for reducing by-catch of seabirds in longline fisheries (PAN-AM/CHILE) 2007 [12]

BREEDING BIOLOGY

Thalassarche cauta is a colonial, annual breeding species; each breeding cycle lasts about 8 months. Most eggs are laid in September, hatch in December and the chicks fledge in April at about 4.5 months old (Table 1) [13].

Immature birds begin to return to their breeding colony at least 3 years after fledging. Most *Thalassarche cauta* begin breeding annually, almost always in their natal colony, when at least 5 to 6 years old [14].

Table 1. *Breeding cycle of* T. cauta.



* birds are present year round at colonies but individuals are away for *c.* 6 weeks

BREEDING STATES

Table 2. *Distribution of the global* T. cauta *population among Parties to the Agreement*

	Australia
Breeding pairs	100%

BREEDING SITES

Thalassarche cauta is an Australian breeding endemic (Table 2) with colonies on only three islands off Tasmania: Albatross Island, Pedra Branca and the Mewstone (Figure 1; Table 3). Unpublished data submitted to ACAP in 2007 estimated the total breeding population to be approximately 12,750 pairs (Table 3). The total population was estimated to be between 55,000 and 60,000 individuals in 1998 [15].

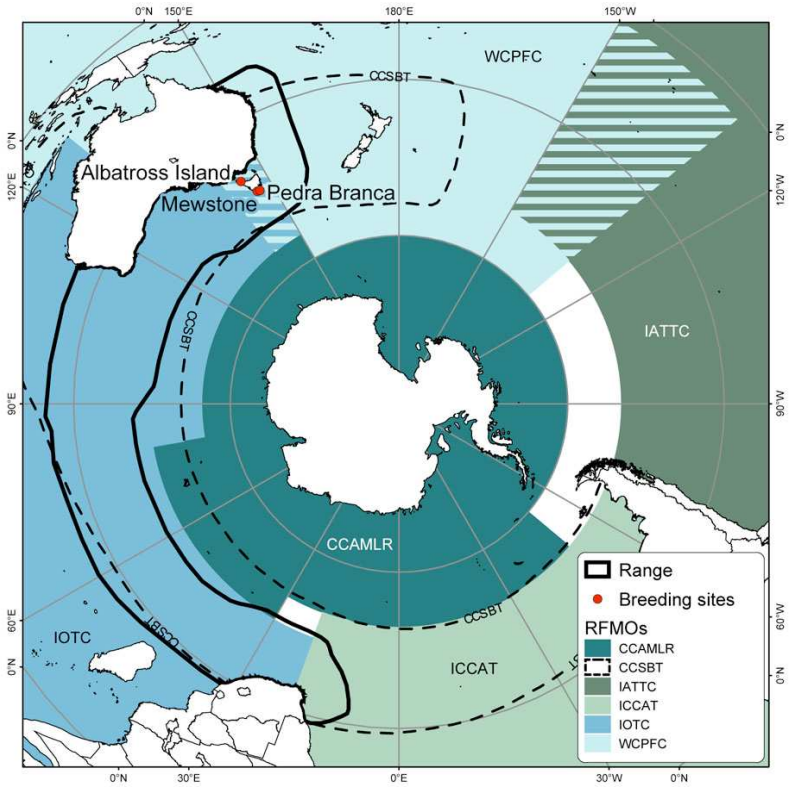


Figure 1. The approximate range of T. cauta *inferred from satellite tracking, band recoveries and genetic identification of fisheries bycatch (based on unpublished DPIW data and Abbott et al 2006 [13]). The boundaries of selected Regional Fisheries Management Organisations (RFMOs) are also shown.*

CCAMLR – Commission for the Conservation of Antarctic Marine Living Resources
CCSBT - Commission for the Conservation of Southern Bluefin Tuna
IATTC - Inter-American Tropical Tuna Commission
ICCAT - International Commission for the Conservation of Atlantic Tunas
IOTC - Indian Ocean Tuna Commission
WCPFC - Western and Central Pacific Fisheries Commission

Table 3. Monitoring methods and estimates of the population size (annual breeding pairs) for each breeding site. Table based on unpublished Tasmanian Department of Primary Industries and Water (DPIW) data submitted to ACAP in 2008.

Breeding site location	Jurisdiction	Years monitored	Monitoring method	Monitoring accuracy	Breeding pairs (last census)
Albatross Island 40° 23'S, 144° 39'E	Australia	1999-2007	A (100%)	High	5,017 (2007)
Mewstone 43° 44'S, 146° 22' E	Australia	1996	C (100%)	Unknown	*c.* 7,300 (1996)
Pedra Branca 43° 52' S, 146° 58' E	Australia	1984, 1991-2005	D (100%)	Medium	268 (1996)

CONSERVATION LISTINGS AND PLANS FOR THE BREEDING SITES

International

Mewstone and Pedra Branca

- Tasmanian Wilderness World Heritage Area [16]

Albatross Island

- None

Australia

Albatross Island, Mewstone and Pedra Branca

- Listed - Register of Critical Habitat (*EPBC Act*) [8]

Tasmania

Albatross Island

- Nature Reserve - *Nature Conservation Act 2002* (Tasmania) [17]
- Management Plan - Summary of Bass Strait Island Nature Reserves – (Draft October 2000) [18]

Mewstone and Pedra Branca

- Southwest National Park - *Nature Conservation Act 2002* (Tasmania) [17]
- Tasmanian Wilderness World Heritage Areas Management Plan 1999 [19]

POPULATION TRENDS

Albatross Island

When Europeans first sighted Albatross Island in the late 1700s, there were thought to be as many as 20,000 pairs of *T. cauta* breeding at that colony. By 1909 feather and egg collectors had reduced the colony to between 250 and 300 nests [20]. Censuses of pre-fledge chicks now suggest the population is increasing, with close to 3,000 chicks fledging in 2004 (Figure 2). Trend analyses show that although the number of pre-fledging chicks on Albatross Island has been decreasing since 2004, pre-fledging chick production has actually increased by 3% per year between 1981 and 2007 [21] (Table 4). The number of breeding pairs on Albatross Island has also increased at a rate of approximately 3% ($p<0.01$) a year between 1999 and 2007 [21] (Figure 3, Table 4). However, this colony is currently only 25% of its estimated original size.

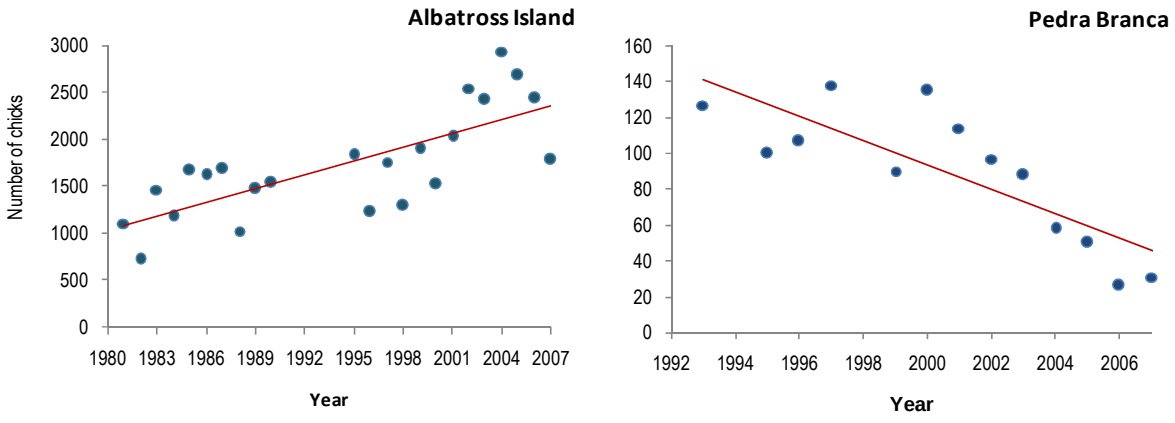


Figure 2. *Population counts of pre-fledge chicks with a simple linear regression fitted. Figures based on unpublished DPIW data, not to be used without data holder's permission. See text for assessment of population trends.*

Photo © Drew Lee

Mewstone and Pedra Branca

The historical size of the populations on the Mewstone and Pedra Branca has not been reported so the population trend on these islands is less clear. The population on Pedra Branca may have always been small [9] but it appears competition for nesting space with Australasian Gannets *Morus serrator* may steadily be reducing the number of fledglings produced on the island each year (Figure 2). Chick production on Pedra Branca dropped from over 100 to 31 between 1993 and 2007 (Figure 2), representing a decrease of approximately 9% a year ($p<0.01$) [21].

No trend data are available for the Mewstone population. In 1996 the total number of breeding pairs on the Mewstone was estimated to be approximately 7,300 (Table 3) but this estimate is of uncertain accuracy [22]. An aerial census method is being investigated to accurately determine the population size and trend.

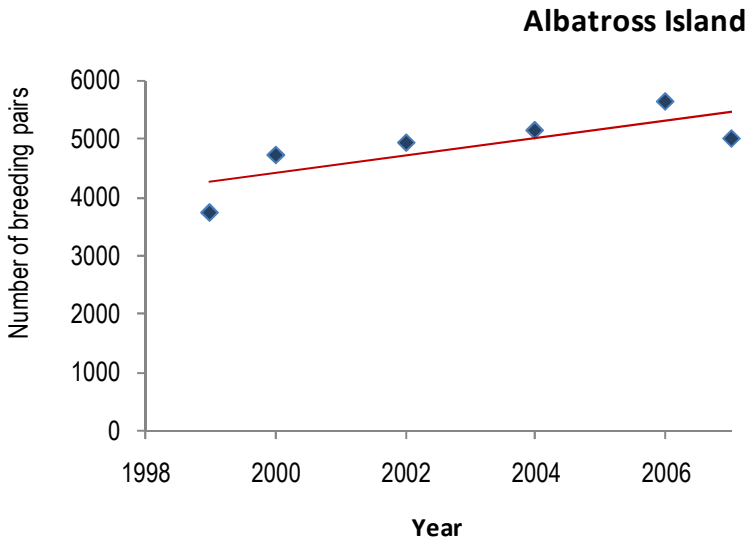


Figure 3. *Population counts of nesting adults with a simple linear regression fitted. Figure based on unpublished DPIW data, not to be used without data holder's permission. See text for assessment of population trends.*

Table 4. *Summary of population trend data for* T. cauta. *Table based on unpublished DPIW data.*

Breeding site	Current Monitoring	Trend Years	% average change per year [20] (95% Confidence Interval)	Trend	% of population for which trend calculated
Albatross Island	Yes	1981 - 2007[1] 1999 – 2007[1]	3.3 (2.9,3.7) [2] 2.9 (2.8,3.0) [3]	Increasing	100% 100%
The Mewstone	Yes	n/a	n/a	Unknown	-
Pedra Branca	Yes	1993-2007[1]	-9.1 (-9.0,-9.2) [2]	Declining	100%

[1] missing data: Albatross Island (chicks 1991 - 1994; breeding pairs 2001, 2003, 2005); Pedra Branca (1994, 1998)
[2] pre-fledge chicks
[3] breeding pairs

Due to access and disturbance issues on the Mewstone and Pedra Branca, breeding success and survival of juveniles and adults have only been studied in detail at Albatross Island. There, breeding success varies from 20% to 50% with an average of 37% of nests fledging a chick (Table 5). Analyses of juvenile and adult survival are in progress but adult survival is thought to be high [23].

Table 5. *Demographic data for the three* T. cauta *breeding sites. Table based on unpublished DPIW data submitted to ACAP in 2007.*

Breeding site	Mean breeding success (±SD; Years)	Mean juvenile survival	Mean adult survival
Albatross Island	37% (±7%; 1989-2007*)	In progress	In progress
The Mewstone	No data	No data	No data
Pedra Branca	No data	No data	No data

*Missing data: 1992-1993

BREEDING SITES: THREATS

Few threats exist at any of the breeding sites of *T. cauta* (Table 6) and all sites are legally protected.

Table 6. *Summary of known threats causing population level changes at the breeding sites of* T. cauta*. Table based on unpublished DPIW data submitted to the ACAP Breeding Sites Working Group in 2008.*

Breeding site	Human disturbance	Human take	Natural disaster	Parasite or Pathogen	Habitat loss or degradation	Predation by alien species	Contamination
Albatross Island	No [a]	No	No	Low [c]	No [d]	No [d]	No [f]
The Mewstone	No [a]	No	No	No	No [d]	No [d]	No [f]
Pedra Branca	No [a]	No	High [b]	No	High [e]	No [d]	No [f]

[a] Anthropogenic disturbance is essentially limited to activities associated with the conservation management of the islands.

[b] Pedra Branca is occasionally exposed to extreme wave action which is known to affect the breeding Australasian Gannets on the island and may also impact the albatross population.

[c] In some years, symptoms of a pox virus infection are common on Albatross Island and this disease has been associated with chick mortality and hence depressed breeding success [24].

[d] There are no introduced species on Pedra Branca, whereas the European wasp is the only introduced species found on Mewstone. The two non-native vascular plant species on Albatross Island (*Catapodium marinum,* currently in the process of being eradicated, and *Coprosma repens*, planned for eradication) have no impact on the albatross population.

[e] On Pedra Branca, Australasian Gannets have been increasing by 4% a year since 1985 [25] and the increased competition for limited nesting space could be contributing to the sharp decline in *T. cauta* chick numbers over the last 15 years.

[f] *Thalassarche cauta* show relatively low levels of heavy metal contamination [26].

FORAGING ECOLOGY AND DIET

Thalassarche cauta usually forage singly and have been observed taking prey from the surface or occasionally making surface plunges or shallow dives. However, a study using time-depth recorders revealed *T. cauta* commonly plunge-dive within 3 m of the surface and can swim down to over 7 metres [27] . The diet of *T. cauta* has only been examined through food delivered to chicks at Albatross Island. There, fish (mostly Jack mackerel *Trachurus declivis* and redbait *Emmelichthys nitidus*) dominated the diet (89% wet mass), followed by cephalopods (mostly Gould's squid *Nototodarus gouldi*) and small amounts of tunicates and crustaceans [27]. Evidence suggests *T.* cauta capture most prey during the day [28].

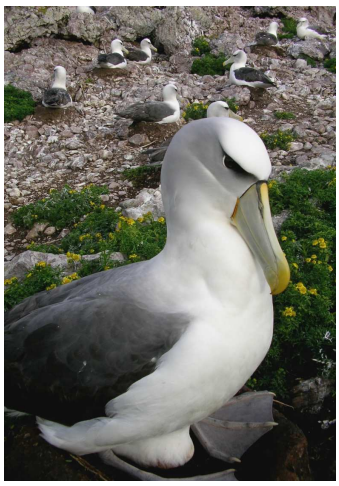


Photo © Drew Lee

MARINE DISTRIBUTION

Understanding of the marine distribution of *T. cauta* is confounded by its similar appearance to other albatross species, particularly *T. steadi.* However, band recoveries, satellite-tracking data, and genetic identification of birds caught in fishing operations show that *T. cauta* are most frequently found around Tasmania and southern Australia [22, 29] but its range also extends to southern Africa (Figure 1). Satellite-tracking data show *T. cauta* are less pelagic than many other albatross species, are usually found over the continental shelf, and regularly venture close to shore along the coasts of Tasmania and southern Australia [14, 30, 31] (Figure 4 & 5). Adult *T. cauta* remain close to their breeding colonies year-round [14, 32] whereas juvenile birds (predominantly from the Mewstone colony) have been recorded off southern Africa [22]. During breeding, adults forage close to their colonies, usually within 300 km, in waters less than 200 m deep [14]. The only evidence that *T. cauta* occur in New Zealand is from a single band recovery from a bird that was banded at the Mewstone colony [22, 29].

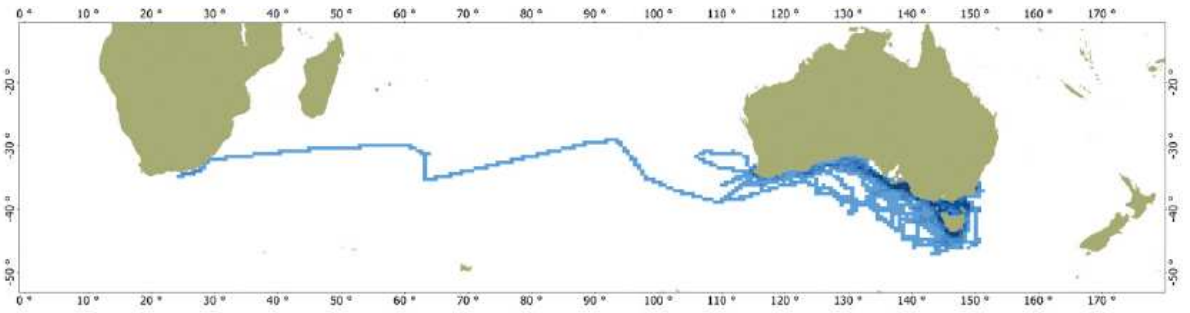


Figure 4. *Satellite-tracking data of juvenile and non-breeding adult* T. cauta *(Non-breeding adults N = 9; Juveniles N = 25; Total hours = 42,000. Unpublished DPIW data).*

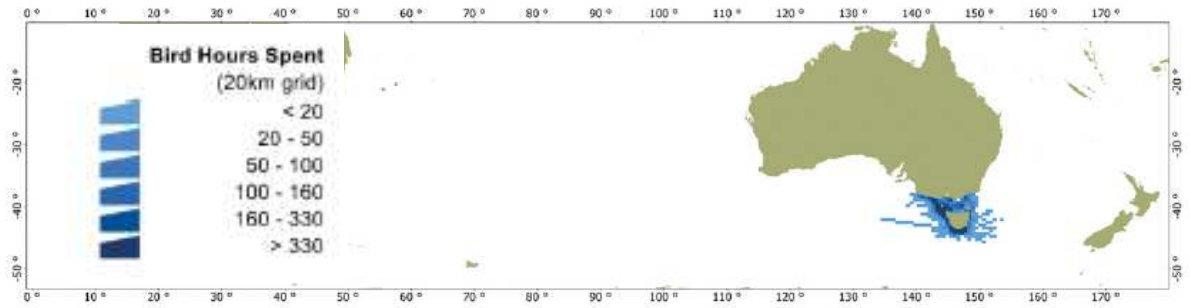


Figure 5. *Satellite-tracking data from breeding adult* T. cauta *(Number of individuals not known; Total hours = 37,600. Unpublished DPIW data).*

Satellite-tracking data indicate that *T. cauta* overlap with eight Regional Fisheries Management Organisations, but principally the CCSBT, IOTC, and WCPF. These RFMOs overlap in the region encompassing the breeding sites (Figure 1; Table 7). Consultations are currently underway to establish the South Pacific Regional Fisheries Management Organisation (SPRFMO) that would cover both pelagic and demersal fisheries in the region. The species also overlaps with SEAFO (South-East Atlantic Fisheries Organisation), SWIOFC (South-West Indian Ocean Fisheries Commission), and SIOFA (Southern Indian Ocean Fisheries Agreement), aimed at ensuring the long-term conservation and sustainable use of fishery resources other than tuna. Although those RFMOs are principally responsible for trawl and artisanal fisheries, SEAFO also manages pelagic species such as Patagonian toothfish *Dissostichus eleginoides*. Australia and South Africa are the principal Range States for *T. cauta* (Figure 1; Table 7). It is also possible that birds transiting between the two countries forage in waters off the French Southern Territories (Figure 1) but this is unconfirmed.

Table 7. *Summary of the known ACAP Range States, non-ACAP Exclusive Economic Zones and Regional Fisheries Management Organisations that overlap with the marine distribution of* T. cauta.

	Resident/ Breeding and feeding range	Foraging range only	Few records - outside core foraging range
Known ACAP Range States	Australia	South Africa	New Zealand
Exclusive Economic Zones of non-ACAP countries	-	Namibia	-
Regional Fisheries Management Organisations[1]	WCPFC IOTC CCSBT SPRFMO[2]	SEAFO SWIOFC SIOFA	ICCAT

[1]See Figure 1 and text for list of acronyms
[2] Not yet in force

MARINE THREATS

Like most marine organisms, *T. cauta* are exposed to the threats of marine debris, plastic ingestion and pollution, but it is the incidental mortality of *T. cauta* in fishing operations that is thought to pose the greatest threat. *Thalassarche cauta* are known to be killed in longline fishing operations in Australian and South African waters [22, 29, 32, 33] *Thalassarche cauta* juveniles that leave Australian waters and traverse the Indian Ocean to southern Africa (Figure 5) are particularly vulnerable to interactions with fishing operations. Both high seas longline fleets and South African longline and trawl fisheries are known to kill large numbers of albatrosses [33, 34]. Adult *T. cauta* largely remain within the Australian waters but, based on 2005 fishing effort profiles, their exposure to domestic longline fisheries is limited [14]. *Thalassarche cauta* are killed in Australian trawl fisheries but the magnitude of the impact is poorly understood.

KEY GAPS IN SPECIES ASSESSMENT

Thalassarche cauta is one of the more comprehensively studied albatross species. This is particularly the case for the Albatross Island population (comprising 40% of the total population) where the population trends, diet and behavioural ecology have all been the subject of investigation. The marine distribution is reasonably well known, with tracking studies being undertaken on both adults and juveniles from all three colonies [31]. However, the population size and trend for the Mewstone, the largest of the three breeding sites (*c*. 60% of the total population) remains a significant gap in the species' assessment, as do accurate estimates of adult and juvenile survival for all populations. Urgent assessment of management options in relation to the precarious status of the small and genetically distinct Pedra Branca population is required. The most significant threat to this species is mortality associated with fisheries operations. The impact of trawl fisheries in Australia and fishing operations in the Indian Ocean and off southern Africa is currently unknown.

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RECOMMENDED CITATION

Agreement on the Conservation of Albatrosses and Petrels. 2009. ACAP Species assessments: Shy Albatross *Thalassarche cauta*. Downloaded from http://www.acap.aq on 31 August 2009.

GLOSSARY AND NOTES

(i) **Years**.
The "split-year" system is used. Any count (whether breeding pairs or fledglings) made in the austral summer (e.g. of 1993/94) is reported as the second half of this split year (i.e. 1994).

The only species which present potential problems in this respect are *Diomedea* albatrosses, which lay in December-January, but whose fledglings do not depart until the following October-December. In order to keep records of each breeding season together, breeding counts from e.g. December 1993-January 1994 and productivity counts (of chicks/fledglings) of October-December 1994 are reported as 1994.

If a range of years is presented, it should be assumed that the monitoring was continuous during that time. If the years of monitoring are discontinuous, the actual years in which monitoring occurred are indicated.

(ii) Methods Rating Matrix (based on NZ rating system)

METHOD
A Counts of nesting adults (Errors here are detection errors (the probability of not detecting a bird despite its being present during a survey), the "nest-failure error" (the probability of not counting a nesting bird because the nest had failed prior to the survey, or had not laid at the time of the survey) and sampling error).
B Counts of chicks (Errors here are detection error, sampling and nest-failure error. The latter is probably harder to estimate later in the breeding season than during the incubation period, due to the tendency for egg- and chick-failures to show high interannual variability compared with breeding frequency within a species).
C Counts of nest sites (Errors here are detection error, sampling error and "occupancy error" (probability of counting a site or burrow as active despite it's not being used for nesting by birds during the season).
D Aerial-photo (Errors here are detection errors, nest-failure error, occupancy error and sampling error (error associated with counting sites from photographs), and "visual obstruction bias" - the obstruction of nest sites from view, always underestimating numbers).
E Ship- or ground- based photo (Errors here are detection error, nest-failure error, occupancy error, sampling error and "visual obstruction bias" (the obstruction of nest sites from view from low-angle photos, always underestimating numbers)
F Unknown
G Count of eggs in subsample population
H Count of chicks in subsample population and extrapolation (chicks x breeding success - no count of eggs)

RELIABILITY
1 Census with errors estimated
2 Distance-sampling of representative portions of colonies/sites with errors estimated
3 Survey of quadrats or transects of representative portions of colonies/sites with errors estimated
4 Survey of quadrats or transects without representative sampling but with errors estimated
5 Survey of quadrats or transects without representative sampling nor errors estimated
6 Unknown

(iii) Population Survey Accuracy
High Within 10% of stated figure;
Medium Within 50% of stated figure;
Low Within 100% of stated figure (eg coarsely assessed via area of occupancy and assumed density)
Unknown

(iv) Population Trend
Trend analyses were run in TRIM software using the linear trend model with stepwise selection of change points (missing values removed) with serial correlation taken into account but not overdispersion.

(v) Productivity (Breeding Success)
Defined as proportion of eggs that survive to chicks at/near time of fledging unless indicated otherwise

(vi) Juvenile Survival

defined as:

1 Survival to first return/resight;
2 Survival to x age (x specified), or
3 Survival to recruitment into breeding population
4 Other
5 Unknown

(vii) Threats

A combination of scope (proportion of population) and severity (intensity) provide a level or magnitude of threat. Both scope and severity assess not only current threat impacts but also the anticipated threat impacts over the next decade or so, assuming the continuation of current conditions and trends.

		Scope (% population affected)			
		Very High (71-100%)	High (31-70%)	Medium (11-30%)	Low (1-10%)
Severity (likely % reduction of affected population within ten years)	Very High (71-100%)	**Very High**	**High**	**Medium**	**Low**
	High (31-70%)	**High**	**High**	**Medium**	**Low**
	Medium (11-30%)	**Medium**	**Medium**	**Medium**	**Low**
	Low (1-10%)	**Low**	**Low**	**Low**	**Low**

(viii) Maps

The satellite-tracking maps shown were created from platform terminal transmitter (PTT) and global-positioning system (GPS) loggers. The tracks were sampled at hourly intervals and then used to produce kernel density distributions, which have been simplified in the maps to show the 50%, 75% and 95% utilisation distributions (i.e. where the birds spend x% of their time). The full range (i.e. 100% utilisation distribution) is also shown. Note that the smoothing parameter used to create the kernel grids was 1 degree, so the full range will show the area within 1 degree of a track. In some cases the PTTs were duty-cycled: if the off cycle was more than 24 hours it was not assumed that the bird flew in a straight line between successive on cycles, resulting in isolated 'blobs' on the distribution maps. It is important to realise that these maps can only show where tracked birds were, and blank areas on the maps do not necessarily indicate an absence of the particular species.