Salvin's Albatross
Thalassarche salvini

Albatros de Salvin
Albatros de Salvin / Albatros de frente blanca

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

Sometimes referred to as
Grey-backed Albatross
Salvin's Mollymawk

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TAXONOMY

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

Thalassarche salvini was previously considered to be a member of the polytypic species *Diomedea cauta* (Gould 1841). Following the transfer of *D. cauta* to the genus *Thalassarche* [1], *T. salvini* was elevated to specific status along with other taxa in the Shy group, *T. eremita* (Chatham Albatross) and *T. cauta* (Shy Albatross), which was further split into *T. cauta and T. steadi* (White-capped Albatross) by Robertson and Nunn (1998) [2]. This classification has been adopted by ACAP [3], BirdLife International [4], and several recent handbooks and field guides of Southern Ocean seabirds [5, 6].

CONSERVATION LISTINGS AND PLANS

International

- Agreement on the Conservation of Albatrosses and Petrels – Annex 1 [3]
- 2009 IUCN Red List of Threatened Species – Vulnerable (since 2000) [7]
- Convention on Migratory Species - Appendix II (as *Diomedea cauta*) [8]

Australia

- *Environment Protection and Biodiversity Conservation Act 1999* (*EPBC ACT*) [9]
  - Listed Threatened Species – Endangered (as *Thalassarche cauta salvini*)
  - Listed Migratory Species
  - Listed Marine Species
- Recovery Plan for Albatrosses and Petrels (2001) [10]
- Threat Abatement Plan 2006 for the incidental catch (or bycatch) of seabirds during oceanic longline fishing operations [11]
- **South Australia:** *National Parks and Wildlife Act 1972* – Vulnerable (as *Diomedea cauta salvini*) [12]
- **Western Australia:** *Wildlife conservation Act 1950 - Wildlife Conservation (Specially Protected Fauna) Notice 2008 (2)* – Fauna that is rare or is likely to become extinct [13]

Chile

- National Plan of Action for reducing by-catch of seabirds in longline fisheries (PAN-AM/CHILE) 2007 [14]

New Zealand

- *Wildlife Act 1953* [15]
- New Zealand Threat Classification System List 2008 - Nationally Vulnerable [16]

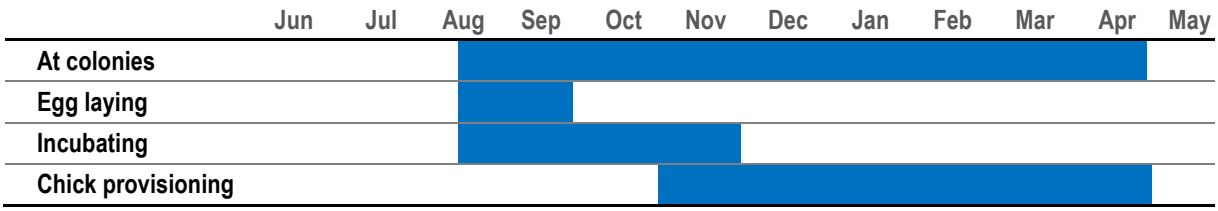
South Africa

- *Sea Birds and Seals Protection Act, 1973 (Act No. 46 of 1973) (SBSPA)* [17]
- *Marine Living Resources Act (Act No. 18 of 1996)*: Publication of Policy on the Management of Seals, Seabirds and Shorebirds: 2007 [18]
- National Plan of Action (NPOA) for Reducing the Incidental Catch of Seabirds in Longline Fisheries 2008 [19]

BREEDING BIOLOGY

Thalassarche salvini is a colonial, annual-breeding species. Eggs are laid from late August to September, hatching begins third week of October (on Snares Western Chain) and chicks probably fledge at four months in March-April [5, 20, 21, 22] (Table 1). The age of return to colonies or age at fist breeding is unknown, but probably comparable to other *Thalassarche* species [5].

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



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BREEDING STATES

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

	France	New Zealand
Breeding pairs	*	100%

* Formerly breeding on Iles Crozet

BREEDING SITES

Thalassarche salvini is endemic to New Zealand (Table 2), breeding only on the Bounty Islands and the Western Chain of Snares Islands (Figure 1; Table 3), although two occupied nests have been reported from The Pyramid in the Chatham Islands in 1995 [23], with a chick observed in 2006, and one chick on the Forty-Fours in 2007 (C. J. R. Robertson in [4]). Four breeding pairs have also been recorded on Ile des Pingouins in the Crozet archipelago in 1986 [24]. These extremely small, outlying breeding groups are not considered further in this assessment. The total breeding population was estimated to be approximately 32,000 pairs in 1998, with 96% of the population concentrated on the Bounty Islands (Table 3).

Table 3. *Estimates of the population size (breeding pairs) for each* T. salvini *breeding site.*

Breeding site location	Jurisdiction	Years monitored	Monitoring method	Monitoring accuracy	Annual breeding pairs (last census)
Bounty Islands 47° 42'S, 179° 30'E	New Zealand	1978, 1998	B, D	Medium	30,752 (1998) [25]
Snares Islands 40° 03'S, 166° 31'E Toru and Rima Islets, Western Chain	New Zealand	1976,1984,1996, 2009	C	High	1,195 (2009) [22]

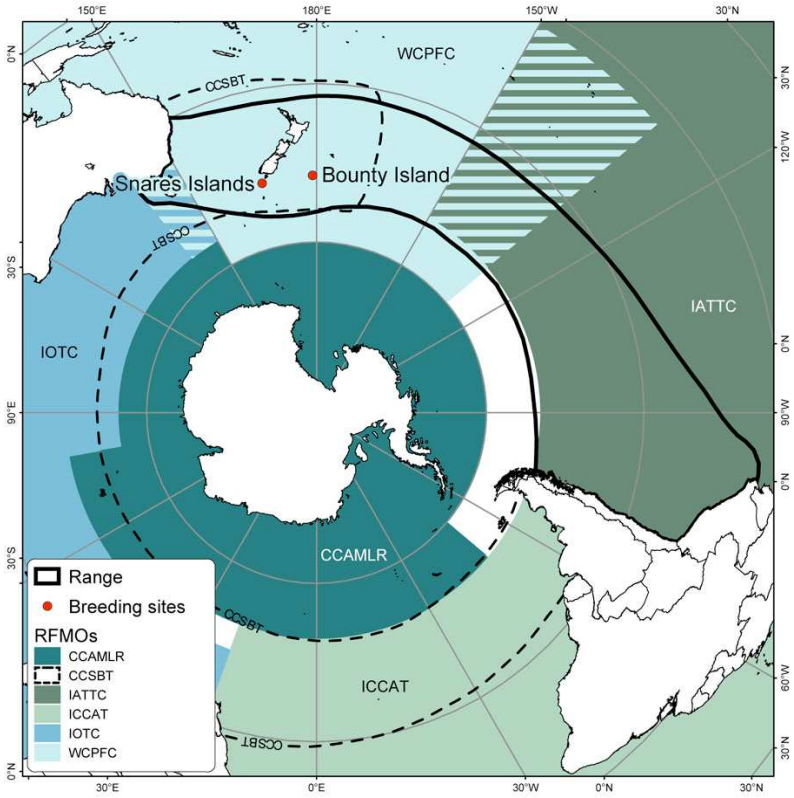

Figure 1. *The location of the two main breeding sites and approximate range of* T. salvini *with the boundaries of selected Regional Fisheries Management Organisations (RFMO) also shown. Records of* T. salvini *off Argentina [26] and one sub-adult on Midway Atoll in the North Pacific also exist [27] but are not shown here.*

CCAMLR – Commission for the Conservation of Antarctic Marine Living Resources
CCSBT - Convention 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

CONSERVATION LISTINGS AND PLANS FOR THE BREEDING SITES

International

Snares Islands and Bounty Islands

- UNESCO World Heritage List (inscribed 1998) [28]

New Zealand

Snares Islands and Bounty Islands

- National Nature Reserve – *New Zealand Reserves Act 1977* [29]
- Conservation management strategy: subantarctic islands 1998-2008 [30]

POPULATION TRENDS

The current population trends at both island groups are unknown due to lack of adequate census data. Although Robertson and van Tets (1982) [20] estimated 76,352 breeding pairs on the Bounties in 1978 compared to 30,752 pairs reported in 1997 [25], the methodologies for these estimates were not directly comparable, and therefore the extent of any decline is uncertain. However, a November 2004 census of occupied nests at Proclamation Island, in the Bounty group, revealed 413 fewer nests (a decline of 13.6%) than a comparable census in November 1997 [31].

On the Snares, Miskelly (1984) reported 585 chicks in February 1984 [32]. In November 1995, 507 chicks were reported on Toru Islet, and 189 nests with either chick or egg on Rima Islet [21]. In October 2008, 828 nests with eggs and 70 obvious failed nests were counted on Toru Islet, and 279 nests with eggs and 18 obviously failed nests on Rima Islet [22], suggesting that this population may have been stable between 1984 and 2009 [22].

Estimates of the pelagic population of *T. salvini* in the Humboldt Current System between 1980 and 1995, based on generalized additive models, indicated 133,079 individuals (95% Confidence Interval 82,845 – 183,582) present in autumn, of which 114,448 were estimated to be adults [33].

Table 4. *Summary of population trend data for* T. salvini.

Breeding site	Current monitoring	Trend Years	% average change per year	Trend	% of population
Bounty Islands	No	1978,1997, 2004	-	Declining? [25, 31]	100%?
Snares Islands	No	1984,1996, 2009	-	Stable? [21, 22]	100%

Breeding success, recruitment and survival rates have not been studied in this species (Table 5).

Table 5. *Demographic data for* T. salvini *at each breeding site*.

Breeding site	Mean breeding success	Mean juvenile survival	Mean adult survival
Bounty Islands	No data	No data	No data
Snares Islands	No data	No data	No data

BREEDING SITES: THREATS

All breeding sites of *T. salvini* are protected and are free of introduced predators or other land-based threats.

Table 6. *Summary of known threats causing population level changes at the single breeding site of* T. salvini. *Table based on unpublished New Zealand Department of Conservation (DOC) 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 alteration	Predation (alien species)	Contamination
Bounty Islands	No	No	No	No	No	No	No
Snares Islands	No	No	No	No	No	No	No

FORAGING ECOLOGY AND DIET

The foraging ecology and diet of *T. salvini* have not been examined. However, as for other *Thalassarche* species, the diet is likely to include mainly cephalopod and fish taxa as indicated by fish remains and squid beaks observed around nests on the Snares Islands [32]. The feeding habits are likely to be similar to *T. cauta* which captures most prey during the day by means of surface seizing and occasionally making surface plunges or shallow dives [33, 34]. *Thalassarche salvini* occasionally forage in large multispecies flocks, feeding on small schooling fish forced to the surface by larger subsurface predators [33].

MARINE DISTRIBUTION

Current information on the distribution of *T. salvini* is based mostly on at-sea observations and recoveries from fishing vessels. The core range of this species extends west to Australia and east across the Pacific Ocean to the west coast of South America, where it was observed throughout the Humboldt Current System between 7-42°S, most frequently over the continental slope [33]. There was a latitudinal shift north in autumn, and southward in spring [33]. Records also exist from the Cape Horn region [35] and the Patagonian Shelf [26].

Thalassarche salvini overlap with four existing Regional Fisheries Management Organisations, the WCPFC, CCSBT, IOTC and IATTC (Figure 1; Table 7). Consultations are also currently underway to establish the South Pacific Regional Fisheries Management Organisation (SPRFMO) that would cover both pelagic and demersal fisheries (predominantly discrete high seas stocks and those stocks which straddle the high seas and the EEZs of coastal states) in the range of the species. New Zealand, Chile, Peru and Australia are the principal Range States for *T. salvini*.

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. salvini.

	Breeding and feeding range	Foraging range only	Few records - outside core foraging range
Known ACAP Range States	New Zealand	Australia Chile Peru	Argentina Disputed [1] Ecuador South Africa
Non-ACAP Exclusive Economic Zones	-	-	-
Regional Fisheries Management Organisations [2]	WCPFC CCSBT SPRFMO [3]	IATTC IOTC	-

[1] A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Islas Malvinas), South Georgia and the South Sandwich Islands (Islas Georgias del Sur y Islas Sandwich del Sur) and the surrounding maritime areas.

[2] See Figure 1 and text for list of acronyms

[3] Not yet in force

MARINE THREATS

Thalassarche salvini was the second most common albatross species (after *T. steadi*) observed killed in New Zealand fisheries between 1998 and 2004 [36] and accounted for approximately 15% of all albatrosses returned for autopsy between 1996 and 2005 [37]. Demersal longlines and trawling operations were responsible for the majority of the mortalities, most of which were adults [36, 37]. Observer coverage accounted for less than 5% of the total fishing effort in New Zealand waters, nevertheless 231 individuals were observed killed during 1998-2004 [36]. Limited data indicates that *T. salvini* are also killed by the pelagic longline Swordfish *Xiphias gladius* fishery operating off the coast of Chile [38], with most birds seen off South America being adults [33]. The species is infrequent in Australian waters [39] and therefore is unlikely to overlap in large numbers with the Australian Eastern Tuna and Billfish Fishery [40].

KEY GAPS IN SPECIES ASSESSMENT

Thalassarche salvini is one of the least studied albatross species. Accurate information on population size and trend, breeding dynamics, survival rates and diet is virtually non-existent. These data gaps for this New Zealand endemic with a limited breeding range need to be redressed as a matter of urgency.

There are also major deficiencies in knowledge regarding the at-sea distribution of different age classes and at different stages of the annual cycle. However, a three-year study of the population size and at-sea distribution of the Snares population began in October 2008 when a count of breeding pairs was completed and geolocator loggers were deployed on 35 breeding birds [22].

A greater understanding of the fishing operations and incidental capture of birds off Chile and Peru, where large numbers of both adults and juveniles congregate, is also urgently required.

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RECOMMENDED CITATION

Agreement on the Conservation of Albatrosses and Petrels. 2009. ACAP Species assessments: Salvin's Albatross *Thalassarche salvini*. 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).
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**