

**Information describing the associated and dependent species
Chatham albatross *Thalassarche eremita* relating to the South Pacific
Regional Fisheries Management Organisation**

**FINAL
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Chatham albatross (*Thalassarche eremita*)



1. Overview

The Chatham albatross breeds at a single site in the Chatham Islands, New Zealand, and migrates each year across the South Pacific to spend the austral winter in the EEZs of Peru and Chile. It is one of 10 or more species of albatross that migrate annually across the South Pacific. While the proportion of time spent in high seas areas is relatively low, this albatross species has a small effective population size and high threat status making them vulnerable to any increase in mortality through interaction with fisheries.

By-catch rates in the high seas areas are largely unknown, but by-catch of Chatham albatrosses and other species in trawl fisheries has been recorded within EEZs. Given their high threat status it is important to monitor by-catch rates within fisheries of the South Pacific. Management of offal and discards is likely to be a key measure to reduce seabird by-catch in trawl fisheries. Research elsewhere has indicated thattori lines can also be used effectively to reduce seabird by-catch by trawlers.

2. Taxonomy

2.1 Phylum
Chordata

2.2 Class
Aves

2.3 Order
Procellariiformes

2.4 Family
Diomedidae

2.5 Genus and species
Thalassarche eremita

2.6 Scientific synonyms

Diomedea cauta eremita (Murphy 1930)

2.7 Common names

Chatham albatross, Chatham Island mollymawk.

2.8 Molecular (DNA or biochemical) bar coding

No information available.

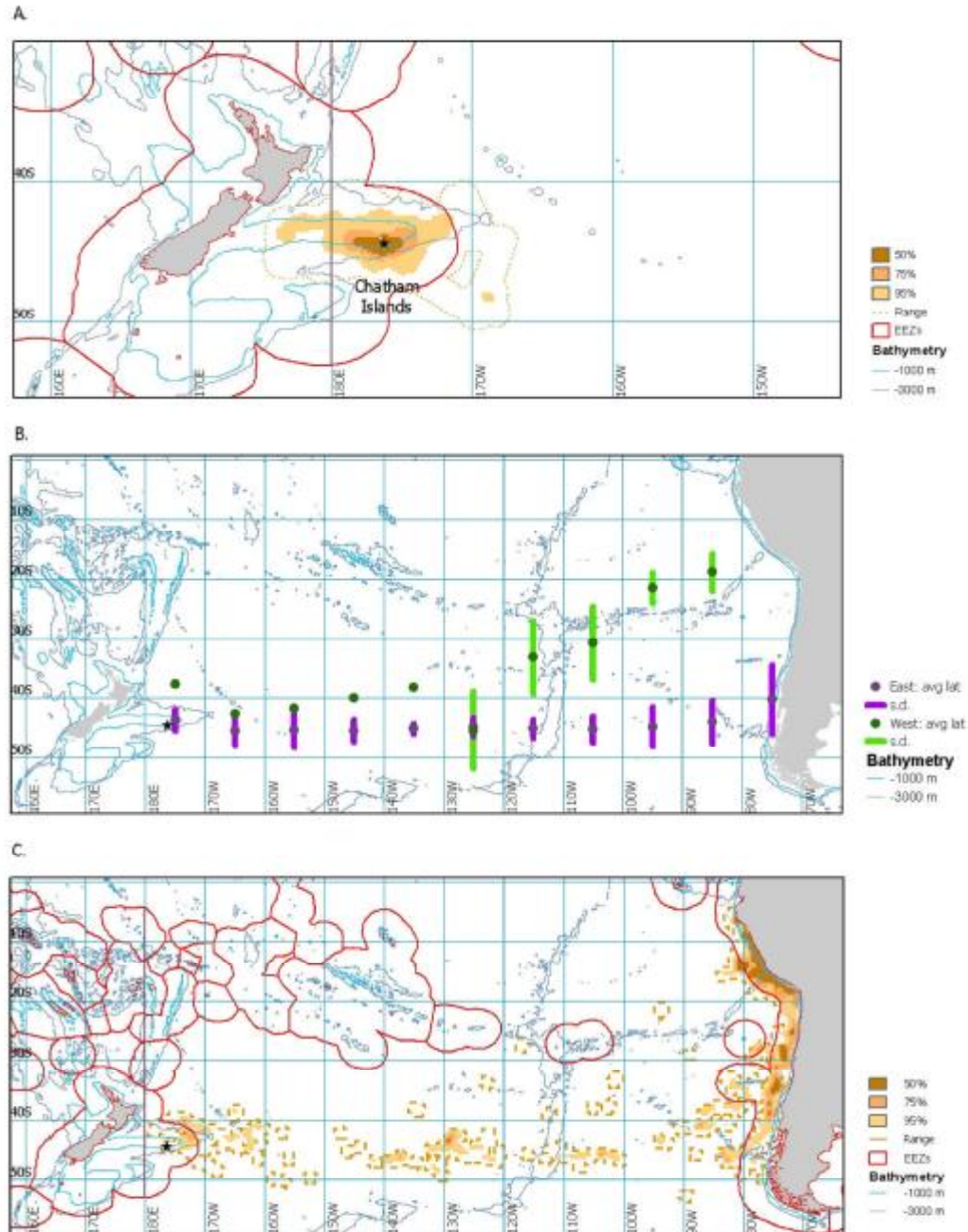
3. Species Characteristics

3.1 Global distribution and depth range

During the breeding season (September through April), Chatham albatross forage almost entirely within the New Zealand EEZ around the Chatham Islands (Figure 1a). Foraging is mostly over the continental slope between isobaths 1000-3000m.

From late January to early April, failed breeders followed by successful breeders migrate across the South Pacific to the South American coast (Figure 1b). Tracked seabirds have completed this journey in 11-30 days (BirdLife, 2004a). The seabirds then transit northwards with the Humboldt Current into Peruvian coastal waters, where they aggregate in an over-wintering area north of 20° S (Figure 1c). Birds forage over the narrow continental slope (isobaths 500-5000m). Chatham albatrosses return to the breeding colony between July-August, following a more northerly route (Robertson et al, 2000; Figure 1b).

Figure 1: Distribution of breeding and non-breeding Chatham albatross. A. Breeding distribution (seabirds tracked Oct-March, n=10 individuals). B. easterly and westerly migration routes of failed and post-breeders tracked from Jan-Aug (east: n=10 indivs; west: n=4 indivs. C. Foraging areas of dispersing failed and post-breeders tracked from Jan-Aug (n=9 indivs). The probability contours indicate the amount of time that seabirds spend within a given area, for example seabirds spent 95% of their time within the 95% area. Tracking data contributed by C.R. Robertson, D.G. Nicholls and M.D. Murray, New Zealand. Figure reproduced from *Tracking Ocean Wanderers* (BirdLife, 2004a).



3.2 Distribution within the South Pacific area

Satellite tracking data indicate that 98% of the foraging range during the breeding season is within the EEZ of New Zealand and 90% of the sedentary wintering distribution is within the EEZs of Peru and Chile (BirdLife, 2004a).

At least some Chatham albatross also range west of Chatham Islands to the south and west coasts of Tasmania (Reid and James, 1997, cited in Brooke, 2004).

3.3 General habitat

Chatham albatross forage mainly over the continental slope, particularly in areas of up-welling. They are surface feeders. Data for the closely-related Shy albatross in Tasmania found that 87% of dives were less than 3.5m in depth (max depth 7.4m) (Hedd et al, 1997).

3.4 Biological characteristics

Chatham albatrosses first return to the natal colony when aged four, and they then begin breeding at six years old (Robertson et al, 2000). They are annual breeders, with an annual breeding population around 4000 to 5000 pairs, and a suggested global population of 11,000 adult (mature) seabirds (BirdLife, 2004b).

Medium-sized, black-and-white albatross with grey head, dark back, a white rump and white under-parts with black thumb-mark at base of leading edge of under-wing. The bill is yellow with dark spot at tip of lower mandible. Juveniles have more extensive grey areas and blue-grey bill with black tips to both mandibles.

3.5 Behaviour

This species is an aggressive feeder behind fishing vessels and shows ship-following behaviours. Aggregations of the species are not common, probably mainly due to the small total population size. The Chatham albatrosses readily feed on fisheries discharge when in proximity to fishing vessels, making them vulnerable to capture. Its long distance migratory behaviour makes it vulnerable to fisheries interactions across the southern Pacific.

3.6 Role of species in the ecosystem

This species is a scavenging predator that probably mostly feeds on squid and fish.

3.7 Population structure

The late onset of breeding leads to a relatively high proportion of the total population consisting of juvenile seabirds. There is a marked difference between the breeding and non-breeding distribution.

3.8 Species and/or population size

Entire species population size is approximately 5 300 annual breeding pairs (Robertson et. al. 2003), with a total of 11 000 adult (mature) seabirds (BirdLife 2004b). Annual surplus population is not known. Productivity is very low as this albatross first breeds at age 6 years and produces at maximum one chick per pair per year.

4. Fishery Interactions

4.1 Spatial and seasonal extent of interactions

The distribution of demersal longline, pelagic longline and trawl fisheries are all relevant with respect to potential seabird by-catch. This species occurs in the trawl and longline by-catch in New Zealand. Other prominent species in these fisheries incidental seabird take include Buller's albatross and White-capped albatross.

In New Zealand's EEZ Chatham albatross have been observed caught in trawl fisheries on the Chatham Rise targeting hake (*Merluccius australis*) and orange roughy (*Hoplostethus atlanticus*) (Baird 2004a, 2004b), and Buller's albatross have been observed caught in hoki (*Macruronus novaezelandiae*) and squid (*Nototodarus spp.*) fisheries (Baird 2001, 2004c). This species is also caught in demersal long-line fishing for Ling (*Genypterus blacodes*) and pelagic longline fisheries for tuna. A range of target trawl fisheries have reported catching closely-related Salvin's and white-capped albatrosses including hoki, scampi (*Metanephrops challengeri*), jack mackerel (*Trachurus spp.*) and southern blue whiting (*Micromesistius australis*) fisheries (Baird 2001, 2004b, 2004c).

Substantial numbers of Chatham, Buller's and Salvin's albatross have also been recorded attending fishing vessels in the Humboldt Current System, including being attracted at close range by discarded offal (Spear et al 2003). In Peru, Chatham Albatross are among the 8 or more species of albatrosses that have been recorded as by-catch within the artisanal longline fisheries, with an estimate of 194-544 seabirds entangled per year (FAO, 2003, Mangel & Alfaro Shigueto, 2004). It is expected that there may be seabird interactions with trawl fisheries in the region, but no data are available (FAO, 2003).

4.2 Technology and practice to mitigate fisheries mortalities

Within industrial demersal and pelagic longline fisheries, the use of seabird by-catch mitigation measures and practices to reduce seabird by-catch has been well documented and proven highly efficient.

Less is known for trawl fisheries, but knowledge has been boosted through research in the Falkland Islands (Sullivan et al. in press), New Zealand and North Pacific. Strike by warp cables and entanglement in nets are two key sources of mortality. In a New Zealand studies in the 2004/05 and 2005/06 Squid trawl fishery, seabirds were hit by warp cables in a manner that could reduce their survival at a rate of 5 seabirds per hour (Abraham, Ministry of Fisheries report unpublished; Middleton et al. in prep)

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Offal and discards provide significant attractants to seabirds (Robertson et al, 2003, Sullivan et al in press, Abraham, Ministry of Fisheries report unpublished; Middleton et al. in prep) and control of these discharges is shown significantly reduce the risk of bird interaction, although there are some vessel specific differences in how this factor operates.

4.3 By-catch history in fisheries

Chatham albatross have been recorded as by-catch within longline fisheries in New Zealand and Peru (FAO, 2003; Mangel & Alfaro Shigueto, 2004; Robertson et al, 2004), and within New Zealand trawl fisheries (Robertson et al, 2004, Baird 2004a and 2004b).

Few or no data exist for seabird by-catch rates in high seas areas of the South Pacific. Scientific observer coverage is a pre-requisite in identifying those fisheries that capture seabirds, and is currently low or non-existent in high seas areas. Anecdotal information and band returns from island areas across the mid and eastern Pacific indicate that seabird incidental captures do occur (Department of Conservation unpublished data).

5. Risk assessment

5.1 Species and/or population trends

Past trends are unknown but population is currently considered small but stable.

5.2 Species and/or population status

Critically Endangered (IUCN, 2004). This species is confined to an extremely small area (Pyramid Rock, Chatham Is) when breeding. The breeding habitat (restricted to one islet) has undergone a significant degradation in habitat condition as a result of extreme weather events, and the species is consequently classified as Critically Endangered.

5.3 Fishing impacts on species and/or population status

Fishing threats exist through the mortality of individuals (both breeding and non-breeding) during all phases of the life cycle and throughout the species foraging range. This species is known to be taken in longline and trawl fisheries as by-catch, and hence is vulnerable to mortality across a broad suite of target fisheries.

5.4 Non-fishing impacts on population status

There are no known non-fishing threats, aside from degradation of habitat, and the inherent threat of a catastrophic natural or anthropogenic threat affecting the single nesting area.

5.5 Quantification of risk

No comprehensive risk-assessment has been completed for this species. Information (e.g. population size and range) is available for the species to enable such an assessment to be completed. Due to its small size, the population is vulnerable to any fishing mortality.

6. Management

6.1 Management of fishing threats

New Zealand and Chile have developed National Plans of Action for reducing Incidental Catch of Seabirds in Longline Fisheries (NPOA-Seabirds). In 1992 (check date) New Zealand prohibited the use of net-sonde cables in trawl fisheries to avoid seabird mortalities caused by seabirds hitting these cables.

In January 2006, the New Zealand Ministry of Fisheries introduced regulations to require use of mitigation devices to avoid warp-strikes of seabirds, by using deterrents deployed aft of the vessel during fishing. These included twin streamer lines, warp-scarers, and bird bafflers. Ongoing changes to the regulations are expected in the light of experimental research on the efficacy of these devices.

6.2 Management of threats other than fishing

Visitation to nest sites is restricted for this species in New Zealand. This species is fully protected under New Zealand law, and taking, harming or otherwise disturbing the species is forbidden.

6.3 Management Implications

Due to the small population size and high threat status of Chatham albatross, mortality through by-catch in fisheries is a serious potential threat to population stability. There is currently little or no information on by-catch rates of Chatham albatross in fisheries. As a rare species, detecting fisheries mortalities through observer coverage would require a very high level of observer coverage, which may be difficult to implement.

Key measures to reduce seabird by-catch in trawl fisheries include management of discharge of offal and discards, which act as a significant attractant of seabirds to vessels. Mitigation measures shown to be effective at reducing trawl fishery mortalities of albatrosses include tori lines and reduction of discharge of fisheries waste (particularly offal) during deployment of nets. Other measures have been shown to be less effective (bird bafflers, warp-scarers) or have not been rigorously tested (e.g. acoustic devices). Net binding and net cleaning are known to be effective measures for deterring petrels from diving on nets during the set, and have been used successfully in CCAMLR¹ trawl fisheries.

Mitigation measures to reduce seabird by-catch in longline fisheries are well developed, and include use of tori lines, night-setting, line-weighting. Use of offal management should be pursued in order to avoid attracting seabirds to fishing vessels at times when they are vulnerable to capture, during setting or hauling.

¹ Commission for the Conservation of Antarctic Marine Living Resources

7. Research

7.1 Current and ongoing research

Research on population demographic parameters is currently underway through the Ministry of Fisheries New Zealand, with modelling of existing data, and collection of new data on the breeding site. Dietary and foraging studies are being undertaken in a programme that started in 2005, and will extend for 5 years, with a focus on risks to the species from fishing (both trawl and longline) in New Zealand waters. No data have yet been collected on seabird by-catch rates within high seas areas.

7.2 Future research needs

Data on dive capacity, and overlap of distribution outside the breeding season are not being addressed in the current and planned research programmes. These are crucial for identifying how to avoid captures in longline fisheries, and for identifying areas of risk of mortalities for this species outside of its breeding season range.

8. Additional Comments

Other albatross species within the South Pacific include Antipodean, black-browed, Buller's, grey-headed, light-mantled, northern and southern royal, Salvin's, sooty, wandering and waved albatrosses. These species are also at risk from interaction with fisheries, and many have been recorded as by-catch within New Zealand or Peruvian EEZs (FAO 2003, Mangel & Alfaro Shigueto 2004, Robertson et. al. 2004), making the collection of scientific observer data on seabird by-catch rates also highly important for these species. In addition, while the Global Procellariiform Tracking Database, coordinated by BirdLife International, contains breeding distribution data for most of these species, the collection of further data on migration and non-breeding distribution within the South Pacific is a priority.

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