Short-tailed Albatross
Phoebastria albatrus

Albatros rabon
Albatros à queue courte

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

Sometimes referred to as
Steller's Albatross
Coastal Albatross
Ahō-dori

Photo © Hiroshi Hasegawa

TAXONOMY

Order Procellariiformes
Family Diomedeidae
Genus *Phoebastria*
Species *P. albatrus*

The type specimen for this species was collected by George Steller offshore of Kamchatka, Russia in the Bering Sea during the 1740s and was described by P.S. Pallas as *Diomedea albatrus* in 1769. Following the results of genetic studies [1], the family Diomedeidae was arranged into four genera. The genus *Phoebastria*, North Pacific albatrosses, now includes the Short-tailed Albatross (*P. albatrus*), the Laysan Albatross (*P. immutabilis*), the Black-footed Albatross (*P. nigripes*), and the Waved Albatross (*P. irrorata*) [2]. Recent analyses, based on complete nucleotide sequencing of mitochondrial cytochrome *b* gene, confirm this arrangement [3].

CONSERVATION LISTINGS AND PLANS

International
- Agreement on the Conservation of Albatrosses and Petrels - Annex 1 [4]
- 2008 IUCN Red List of Threatened Species - Vulnerable [5]
- Convention on International Trade of Endangered Species - Appendix I [6]
- Convention on Migratory Species - Appendix I (as *Diomedea albatrus*) [7]
- North American Waterbird Conservation Plan - High Conservation Concern [8]

Canada
- Migratory Bird Convention Act [9]
- COSEWIC (Committee on the Status of Endangered Wildlife in Canada) - Threatened [10]
- Species At Risk Act - Threatened [10, 11]
- Recovery Strategy for the Short-tailed Albatross (*Phoebastria albatrus*) and the Pink-footed Shearwater (*Puffinus creatopus*) in Canada [12]
- Wings Over Water: Canada's Waterbird Conservation Plan - High Conservation Concern [13]
- National Plan of Action for Reducing the Incidental Catch of Seabirds in Longline Fisheries [14]

China
- Law of the People's Republic of China on the Protection of Wildlife [15]
- Protected under Treaty between Japan and China (listed as *Diomedea albatrus*) [16]

Japan
- Natural Monument (1958) [17]
- Special Natural Monument (1962) [17]
- Special Bird for Protection (1972) [18]
- Wildlife Protection and Hunting Law [19]

- Law for the Conservation of Endangered Species of Wild Fauna and Flora (1992, Law No 75) [19]
- Domestic Endangered Species (1993) [20]
- Short-tailed Albatross Recovery Plan (1993) [20]
- Japan's National Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries 2009 [21]
- Red Data Book of Japan (as *Diomedea albatrus*) – Vulnerable [22]

Mexico

- Protected under Treaty between Mexico and USA (family Diomedeidae listed) [23]

Russia

- On the Protection and Use of Wild Animals [15]
- Protected under the Union of Soviet Socialist Republic, Convention Concerning the Conservation of Migratory Birds and Their Environment (USA-Russia) 1976 (as *Diomedea albatrus*) [24]

Taiwan (Chinese Taipei)

- Taiwan's National Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries [25]

United States

- Migratory Bird Treaty Act of 1918 [26]
- Endangered Species Act (1973) - Endangered [27]
- Short-tailed Albatross Recovery Plan (2008) [28]
- United States National Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries [29]

Alaska

- Listed as Endangered [30]
- NatureServe Subnational Conservation Status Rank - S1 (Critically Imperilled) [31]

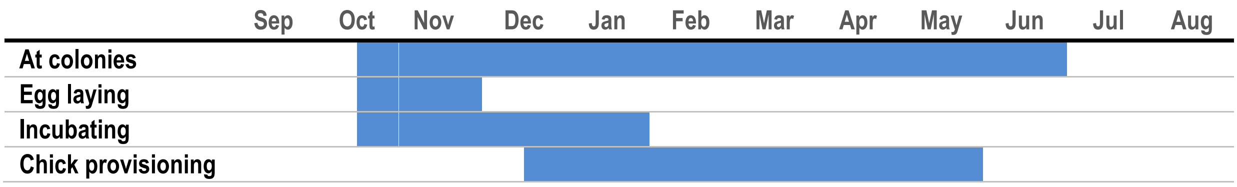
Hawaii

- NatureServe Subnational Conservation Status Rank - S1 (Critically Imperilled) [31]

BREEDING BIOLOGY

Phoebastria albatrus is a colonial, annual breeding species; each breeding cycle lasts about 8 months. Birds begin to arrive at the main colony on Torishima Island in early October (Table 1). A single egg is laid in late October to late November and incubation lasts 64 to 65 days. Hatching occurs in late December through January [17]. Chicks begin to fledge in late May into June [32]. There is little information on timing of breeding on Minami-kojima. First breeding sometimes occurs when birds are five years old, but more commonly when birds are aged six [28].

Table 1. *Breeding cycle of* P. albatrus.



BREEDING STATES

Table 2. *Distribution of the global* P. albatrus *population among breeding range states.*

	Japan	Disputed [1]
Breeding pairs	85%	15%

[1] Senkaku or Diaoyutai Islands are disputed territory between: Japan, Peoples Republic of China and Republic of China (Taiwan).

BREEDING SITES

Phoebastria albatrus breeds primarily on two islands: Torishima in Japan, and Minami-kojima in the Senkaku Islands, the ownership of which is disputed (Figure 1, Table 2). The species formally bred on at least 12 other islands (Table 3). In 2006-2007, there were an estimated 1,026 breeding *P. albatrus* [28], 80-85% of which bred in a single colony (Tsubame-zaki) located on a steep eroding fluvial outwash plain at the base of Torishima's active volcano [33]. A small additional colony on Torishima (Hatsune-zaki) has exhibited rapid growth in recent years as birds emigrate to it from Tsubame-zaki [34]. Nesting sites at Hatsune-zaki are more stable and the maximum potential colony size is larger. Despite apparent emigration, growth of the Tsubame-zaki colony remains high (Figure 2).

The only other *P. albatrus* breeding site of consequence is in the Senkaku Island group, on Minami-kojima [35], where the remaining 15-20% of the world population breeds (Table 4). In 2002, a single *P. albatrus* chick fledged from Kita-kojima, an island near Minami-kojima [36]. Recent isolated attempts at breeding occured on Yomejima in the Bonin Islands of Japan, and on Midway Atoll in the Northwest Hawaiian Islands, but both were unsuccessful [28].

Table 3. *Sites from which* P. albatrus *has been extirpated* [28].

Islands with extirpated colonies	Jurisdiction
Ogasawara (Bonin) Islands Nishinoshima/ Rosario Island 27.25°, 140.90° Mukojima Island [1] 27.69°, 142.18° Yomeshima 27.50°, 142.20° Kitanoshima 27.72°, 142.10°	Japan
Daito Islands Kita-daitojima 25.95°, 131.03° Minami-daitojima 25.83°, 131.23° Okino-daitojima 24.47°, 131.18°	Japan
Senkaku Retto of southern Ryukyu Islands Kobisho 25.93°, 123.68° Uotsurijima 25.74°, 123.47°	Disputed
Volcano Islands Iwo Jima/ Sulphur Island 24.78°, 141.32°	Japan
Agincourt Island/ P'eng-chia-Hsu 25.63°, 122.08°	Taiwan
Pescadore Islands Byosho Island 23.57°, 119.60°	Taiwan

[1] Chick translocation and decoy-based attraction efforts occurred in 2008 and 2009 on Mukojima in the hopes of establishing a breeding colony on this non-volcanic island. A total of 25 short-tailed albatross chicks were translocated and hand-reared. All birds successfully fledged (G. Balogh, pers comm.).

Table 4. *Monitoring methods and estimates of the population size (annual breeding pairs) for each breeding site. Table based on unpublished data from the Yamashina Institute for Ornithology and Toho University.*

Breeding site location	Jurisdiction	Years monitored	Monitoring method	Monitoring accuracy	Annual breeding pairs (last census)
Torishima Island 30°29'N, 140°18'E	Japan	1953-2009	A, B	High	418 (2009)
Minami-kojima 25°44'N, 123°34'E	Disputed[1]	1979, 1980, 1988,1991, 2002	A, B	Unknown	*c.* 52 (2002)
Total					***470***

[1] Senkaku or Diaoyutai Islands are disputed territory: Japan, Peoples Republic of China and Republic of China (Taiwan).

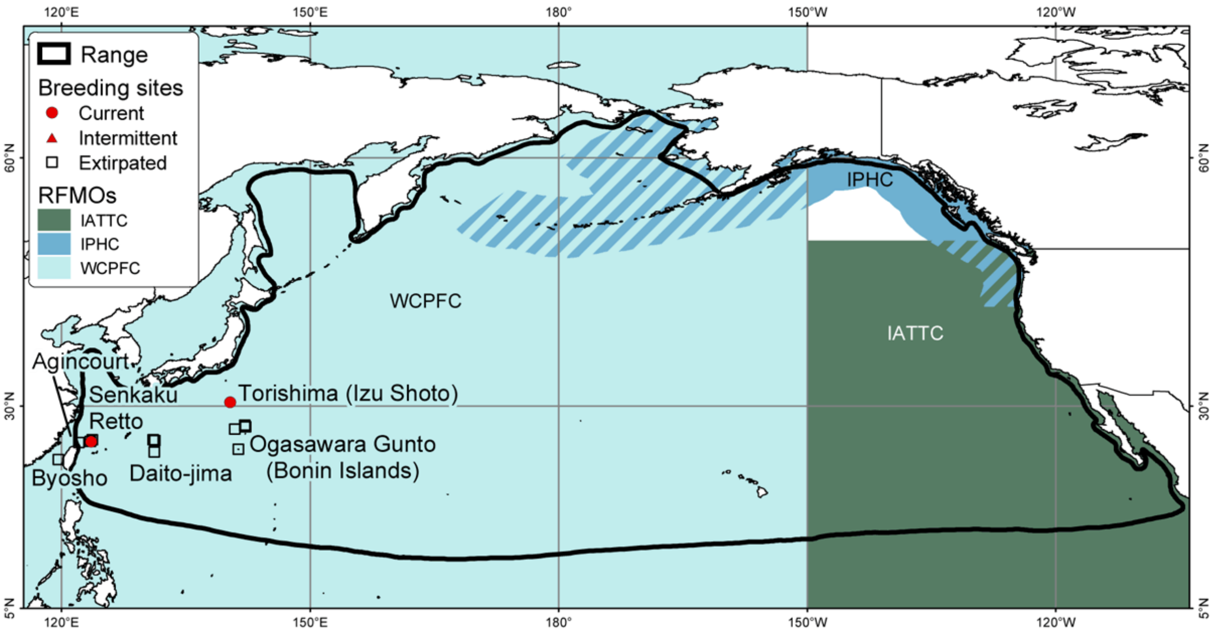


Figure 1. *North Pacific Range of* P. albatrus *showing the two existing breeding islands, islands from which the species is known to be extirpated, and the species overlap with Regional Fishery Management Organizations. All waters within the US EEZ are also managed by Regional Fishery Management Councils: the North Pacific Fishery Management Council (for waters off Alaska), the Pacific Fishery Management Council (for waters off the west coast of the contiguous 48 states), and the West Pacific Regional Fishery Management Council (for waters surrounding the Hawaiian Archipelago and other US Territories in the Central Pacific).*

IATTC - Inter-American Tropical Tuna Commission
IPHC - International Pacific Halibut Commission
WCPFC - Western and Central Pacific Fisheries Commission

CONSERVATION LISTINGS AND PLANS FOR THE BREEDING SITES

International

Ogasawara (Bonin) Islands and Papahānaumokuākea Marine National Monument

- UNESCO World Heritage Site (tentative) [37, 38]

Japan

Torishima

- National Wildlife Protection Area (1954) [17]
- Natural Monument (1958) [17]

Ogasawara (Bonin) Islands

- National Park, established 1972 (IUCN Management Categories II and V) [39, 40]
- Marine Park, established 1972 [40]

Mukojima (N. Nakamura, pers. comm.)

  - National Wildlife Protection Area (1954)
  - Feral Goat Eradication Plan (1997-2004)

Senkaku Retto/ Diaoyutai Islands

Minami-kojima

- none

United States

- Papahānaumokuākea Marine National Monument Management Plan 2008 [41]

POPULATION TRENDS

At the beginning of the 20th century, *P. albatrus* approached extinction, primarily as a result of commercial harvest on the breeding colonies in Japan. Albatrosses were killed primarily for their feathers. In addition, their carcasses were rendered for oil, and processed into fertilizer; and, their eggs were collected for food [32]. Pre-exploitation worldwide population estimates of *P. albatrus* are not known. The total number of birds harvested provides the best estimate of the pre-exploitation population size; between about 1885 and 1903, an estimated five million *P. albatrus* were harvested from the breeding colony on Torishima [31], with the harvest continuing until the early 1930s. By 1949, there were no *P. albatrus* breeding at any of the historically known breeding sites, including Torishima, and the species was thought to be extinct [32].

In 1950, *P. albatrus* was reported nesting on Torishima [42, 43]. In January 1951 about 10 birds were observed visiting Torishima [44] and by 1954 there were 25 birds and at least 6 breeding pairs [45]. Since then, the population has increased steadily (Figure 2), at 6-7% per year between 1954 and 2008 (p<0.01) (Table 5).

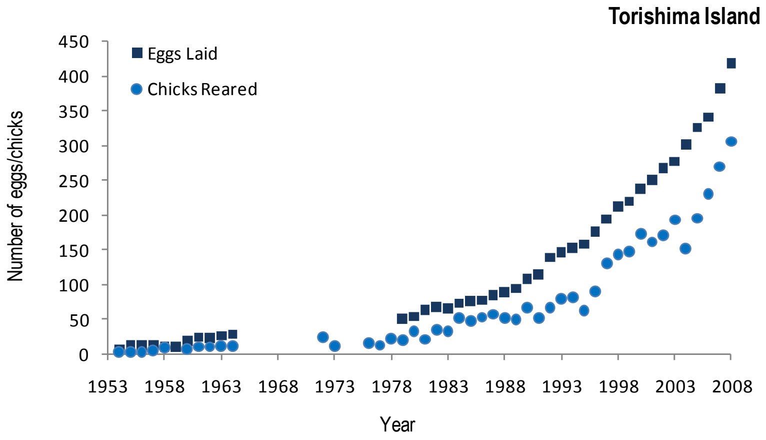


Figure 2. *Counts of* P. albatrus *eggs and nearly-fledged chicks on Torishima Island, Japan, from 1953-2008. Figure based on unpublished data from H. Hasegawa, Toho University, Tokyo, Japan, not to be used without data holder's permission.*

In 1971, 12 adult *P. albatrus* were discovered on Minami-kojima at a former breeding site [46]. Aerial surveys in 1979 and 1980 revealed an estimated 16 to 35 adults respectively. In April 1988, the presence of chicks on Minami-kojima was confirmed; and, in March 1991, 10 chicks were seen. In 1991, the estimate for the population on Minami-kojima was 75 birds and 15 breeding pairs [47]. In 2002, H. Hasegawa counted 33 fledglings at this breeding colony. Assuming a fledging success of 64%, this would represent 52 nesting pairs (Table 4). There is no information available on historical numbers at this breeding site.

In 2007-2008, the world population estimate, including breeding and non-breeding birds of both Torishima and Minami-kojima origin was estimated to be *c.* 2,406 birds [28]. The global population estimate assumes that the population structure and growth at Minami-kojima are similar to that observed at Torishima.

The mean breeding success on Torishima was just over 53% between 1954 and 2008, and mean adult survival was 96% (Table 6), within range for other albatross species [48]. Juvenile survival has not been estimated for either of the two breeding sites.

Table 5. *Summary of population trend data for* P. albatrus*. Table based on H. Hasegawa unpublished data (egg count).*

Breeding site	Current Monitoring	Trend Years	% average change per year (95% Confidence Interval) [49]	Trend	% of population for which trend calculated
Torishima Island	Yes	1954 - 2008	6.8 (6.4, 7.2)	Increasing	*c.* 85-90%
Minami-kojima	No	-	-	Unknown	-

Table 6. *Summary of demographic data for* P. albatrus. *Table based on H. Hasegawa unpublished data.*

Breeding site	Mean breeding success %/year (±SE, Study period)	Mean juvenile survival %/year (Study period)	Mean adult survival %/year (Study period)
Torishima	53.2 ±2.6 (1954-1964, 1979-2008)	No data	96 (1979-1996)
Minami-kojima	No data	No data	No data

BREEDING SITES: THREATS

Threats to *P. albatrus* on Torishima remain high, despite habitat management efforts that have been undertaken there (Table 7). Ecological information from Minami-kojima is largely lacking due to the inaccessibility of the island, which is a result of disputed claims between Japan, China, and Taiwan.

Table 7. *Summary of known threats causing population-level changes at the breeding sites of* P. albatrus. *Table based on the Short-tailed Albatross Recovery Plan* [28].

Breeding site	Human disturbance	Human take	Natural disaster	Parasite or Pathogen	Habitat loss or degradation	Predation (alien species)	Contamination
Torishima Island	No [a]	No	High [c]	No	Low-Medium [d]	No [e]	Unknown [f]
Minami-kojima	Unknown [b]	No	No	No	Unknown	Unknown	Unknown

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

[b] Anthropogenic presence on Minami-kojima is limited to trespass activities on the island, and fishing and military activities near the island.

[c] Despite intensive efforts by the Japanese government, erosion and flooding remain a threat at the Tsubame-zaki colony. High winds can also blow chicks off their nests and down the steep slope, where parents cannot relocate them. Both the Tsubame-zaki and Hatsune-zaki colonies are subjected to the hazards of severe volcanic activity. Modelling suggests that a worst-case scenario volcanic eruption could remove about 40% of the world population in a single event (P. Sievert, University of Massachusetts, pers. comm.), [50]. Such an eruption could also render breeding habitat unsuitable and widowed birds might take several seasons to re-mate.

[d] Habitat alteration in the form of flood control structures (gabions), terracing, and revegetation activities at the Tsubame-zaki colony site are all undertaken for the conservation benefit of this species. Birds may become entangled in gabion cages as they corrode. Invasive plants on Torishima may reduce quality of nesting habitat at the Hatsune-zaki colony site in the future.

[e] Black rats (*Rattus rattus*) are common on Torishima, but have not been observed to have a deleterious effect upon *P. albatrus*.

[f] Comprehensive contaminants screening of short-tailed albatross breeding on Torishima Island has not occurred.

FORAGING ECOLOGY AND DIET

Phoebastria albatrus forages diurnally and possibly nocturnally [17], either singly or in groups (occasionally in the 100's, H. Hasegawa, unpublished data) predominantly taking prey by surface-seizing [51, 52, 53]. The diet of *P. albatrus* during breeding is not well-known, but observations of food brought to nestlings (H. Hasegawa, unpublished data) and of regurgitated material [32] indicate that the diet includes squid (especially the Japanese common squid, *Todarodes pacificus*), shrimp, fish (including bonitos, *Sarda* sp., flying fishes, *Exocoetidae,* and sardines, *Clupeidae*), flying fish eggs, and other crustaceans [17, [43, 54]. *Phoebastria albatrus* may formerly have scavenged salmon (*Oncorhynchus* sp.) from shallow coastal estuaries [54] and has also been reported to readily scavenge fisheries offal as well as discarded marine mammals and blubber from whaling vessels [17]. This species visits and follows commercial fishing vessels in Alaska that target sablefish (*Anoplopoma fimbria*), Pacific cod (*Gadus macrocephalus*), Pacific halibut (*Hippoglossus stenolepis*), and pollock (*Theragra chalcogramma*) [55]. Offal and discards from commercial longlining may now constitute a sizeable portion of the diet.

The limited diet information for the non-breeding season suggests that squids, crustaceans, and fishes are important prey [17]. In the Bering Sea, this may include mesopelagic squid concentrations (primarily *Berryteuthis magister*, and *Gonatopsis borealis*) over the outer continental shelf and slope [56]. Mesopelagic prey may become available through scavenging on discards from subsurface predators and fisheries, positively buoyant post-mortem organisms, and vertical migration [57, 58]. Researchers from the Yamashina Institute have also observed rafts of *P. albatrus* off the Tsubame-zaki colony on Torishima feeding on what was likely dead giant squid (*Architeuthis sp.*).

MARINE DISTRIBUTION

The range of *P. albatrus* covers most of the North Pacific Ocean; a few records from the Sea of Okhotsk and the East China Sea also exist (N. Nakamura, Yamashina Institute for Ornithology, pers. comm.). Although *P. albatrus* have been observed near the Diomede Islands (65°45'N) [54], they probably seldom occur north of St. Lawrence Island (*c.* 63°N). The southern limit of *P. albatrus* is unknown, but probably coincides with the northern edge of the North Equatorial Current.

Historic records and bones of *P. albatrus* found in middens along the coast of California [59], British Columbia [60] and Alaska [61, 62, 63, 64] suggested that the species was abundant in coastal North America in the past [17, 65]. Based upon those midden records, as well as the relative scarcity of pelagic observations, *P. albatrus* has been characterised as either a coastal [17] or a nearshore species [65]. Prior to the late 1990's, nearly all known sightings of *P. albatrus* at sea were from US-based fishermen and fishery observers [51]. However, because sightings came mostly from heavily fished areas near the coastal and shelfbreak zones, the resulting distribution was likely to be biased.

Satellite tagging efforts have been conducted on *P. albatrus* since the late 1990's, with small numbers of birds tagged every year since 2000. These data indicate that during the brooding period, most foraging is along the eastern coastal waters of Honshu Island, Japan (R. Suryan, K. Ozaki, G.R. Balogh, and K.N. Fisher, unpublished data), [65] (Figure 3), although foraging trips may extend hundreds of miles or more from the colony (R. Suryan, unpublished data) [28]. During the non-breeding season, *P. albatrus* range along the Pacific Rim from southern Japan to northern California, primarily along continental shelf margins (Figure 4).

The North Pacific marine environment most heavily used by *P. albatrus* is characterised by regions of upwelling and high productivity along the northern edge of the Gulf of Alaska, along the Aleutian Chain, and along the Bering Sea shelfbreak from the Alaska Peninsula out towards St. Matthew Island [54, 66]. Consequently, it has been suggested that *P. albatrus* may be relatively common nearshore, but only where upwelling hotspots occur in proximity to the coast; and that it would be more accurate to label the species as a continental shelf-edge specialist than a coastal or nearshore species [51]. *Phoebastria albatrus* adults spent less than 5% of their time over waters >3000m deep [67, 68]; whereas areas with waters <1000m deep were frequented by adults and subadults more than 70% of the time, and by juveniles almost 80% of the time [67].

Flock of P. albatrus *observed along the Bering Sea shelfbreak near the US- Russia Border. Photo by Josh Hawthorne of the F/V Blue Gaddus.*

Immature birds exhibit two patterns of post-breeding dispersal: while some move relatively rapidly north to the western Aleutian Islands, other individuals stay within the coastal waters of northern Japan and the Kuril Islands throughout the summer. In early September, these individuals move into the western Aleutian Islands; once in the Aleutians, most birds travel east toward the Gulf of Alaska [10, 67]. Both satellite data and at-sea sightings indicate a prevalence of juvenile and sub-adult *P. albatrus* off the west coasts of Canada and the USA [12, 69, 70, 71]. In late September, large flocks of *P. albatrus* have been observed over the Bering Sea canyons [51]; these are the only known concentrations of this species away from their breeding islands. The distribution of squid is one plausible explanation for the association of *P. albatrus* with shelfbreak and slope regions of the Northwest Pacific Ocean and the Bering Sea [67].

Movement patterns may differ between gender and age classes. Limited data suggests that upon leaving Torishima, females tend to spend more time offshore of Japan and the Kuril Islands and Kamchatka Peninsula, compared to males, which spend more time within the Aleutian Islands and Bering Sea north of 50° N latitude [67, 68]. Tagged yearlings travelled nearly twice the distance per day (245 ± 8 km/d) on average than all older albatrosses (133 ± 8 km/d). In general, *P. albatrus* are more active during the day (mean movement rate = 14 km/h ± 1.5 SE) than at night [67, 68]. In 2008 and 2009, biologists from Japan and the USA jointly tagged fledglings to study post fledging dispersal and survival of translocated and naturally-reared chicks. Initial dispersal patterns of naturally-reared and translocated fledglings were remarkably similar (R. Suryan, K. Ozaki, and G. Balogh unpublished data).

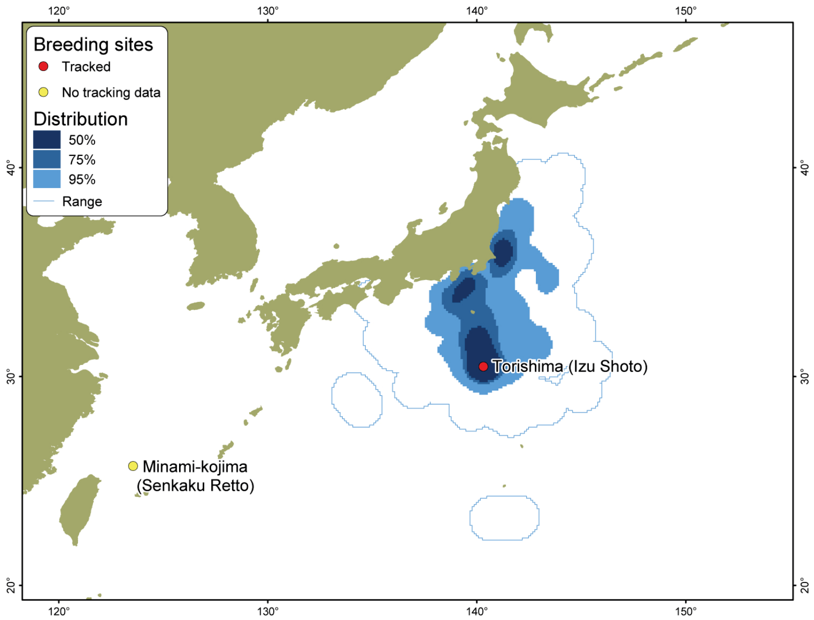


Figure 3. *Tracking data from breeding* P. albatrus *satellite-tagged during brooding in 2006 and 2007. (Number of tagged birds = 16, including repeated trips for each individual). Map based on data submitted to the BirdLife Global Procellariiform Tracking Database.*

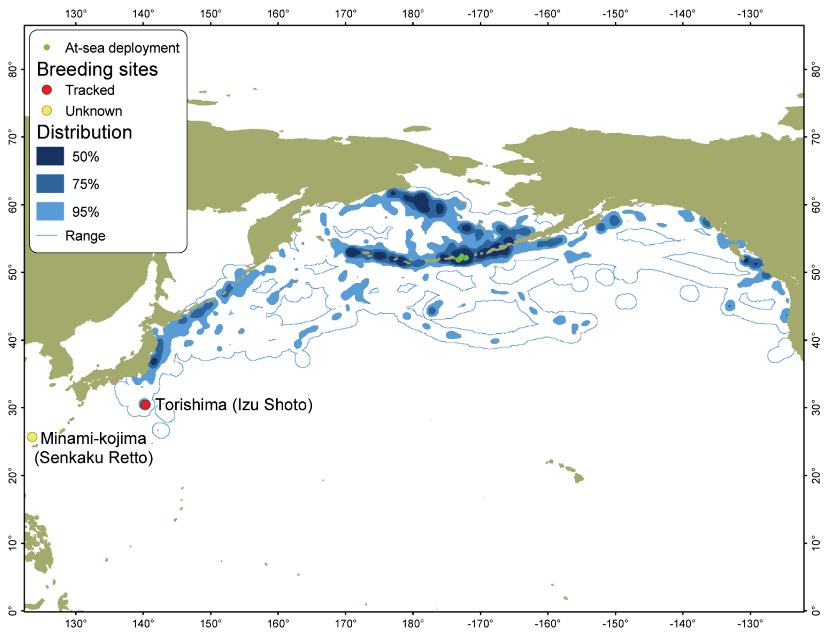


Figure 4. *Tracking data from* P. albatrus. *Information was derived from birds that were satellite-tagged at two locations; on Torishima island, where breeding, non-breeding and post-breeding birds (n = 23) were tagged between 2006-2008; and near Seguam Pass, where birds were satellite-tagged from 2003-2006 (n = 12). Map based on data submitted to the BirdLife Global Procellariiform Tracking Database.*

As *P. albatrus* forage extensively along continental shelf margins, the majority of time was spent within national EEZs, particularly of the US (off Alaska), Russia, and Japan, rather than over international waters [33, 68] (Table 8). Overall, post-breeding, *P. albatrus* spent the greatest proportion of time off Alaska, and secondarily Russia, regardless of whether the birds were tagged in Japan or Alaska. Satellite-tagged birds spent relatively little time in central gyres but did transit these regions north of 35°N latitude [33].

Table 8. *Summary of the known ACAP Range States, non-ACAP Exclusive Economic Zones and Regional Fisheries Management Organisations that overlap with the marine distribution of* P. albatrus.

	Breeding and feeding range	**Foraging range only**	**Few records - outside core foraging range**
Known ACAP Range States	-	-	-
Non-ACAP Exclusive Economic Zones	Disputed[1] Japan	Canada China Russia Taiwan USA	Federated States of Micronesia North Korea Mexico Republic of the Marshall Islands South Korea
Regional Fisheries Management Organisations [2]	WCPFC	IATTC IPHC	-

[1] Senkaku or Diaoyutai Islands are disputed territory between Japan, Peoples Republic of China and Republic of China (Taiwan).
[2] see Figure 1 and text for list of acronyms

MARINE THREATS

Phoebastria albatrus has the greatest potential overlap with fisheries that occur in the shallower waters along continental shelf break and slope regions, e.g., sablefish and Pacific halibut longline fisheries off the coasts of Alaska and British Columbia. Tagged birds also frequented the extensive Bering Sea shelf and shelfbreak areas, suggesting significant potential for interactions with the commercial pollock and Pacific cod fisheries [68]. Although, overlap between the distribution of birds and fishery effort does not mean that interactions between birds and boats necessarily occur, *P. albatrus* are known to have been killed in U.S. and Russian longline fisheries for Pacific cod and Pacific halibut [28]. In addition, birds on Torishima have been observed with hooks in their mouths of the style used in Japanese fisheries near the island (F. Sato, Yamashina Institute for Ornithology, pers. comm.).

During their post-breeding migration, adult females may have a more prolonged exposure to fisheries in Japanese and Russian waters than males, and juveniles have a greater exposure to fisheries on the Bering Sea shelf and off the west coasts of Canada and the US [33]. Within the EEZs of the US (off Alaska) and Canada (off British Columbia), mandatory seabird bycatch avoidance requirements are enforced [14, 72]. It is not known to what extent seabird avoidance requirements are in place and enforced in the EEZs of Russia and Japan, where risks to females and younger age classes would be greater.

Like most marine organisms, *P. albatrus* are exposed to the threats of marine debris, plastic ingestion and pollution (Table 9). However, the long-term population growth rate of 6-8% suggests that there is no major chronic source of mortality [50].

Table 9. *Summary of known marine-based threats to* P. albatrus*. Table based on Short-tailed Albatross Recovery Plan* [28].

EEZ	Longline fishing	Jig fishing	Trawling	Plastic pollution	Petroleum contamination	Predation
Canada	Not documented[1]	N/A [5]	Not documented	Unknown	Unknown	Unknown
China	Unknown[2]	Unknown	Unknown	Unknown	Unknown	Unknown
Japan	Likely[3]	Likely	Unknown	Unknown	Unknown	Unknown
Russia	Documented[4]	Unknown	Unknown	Unknown	Unknown	Unknown
Taiwan	Likely	Unknown	Unknown	Unknown	Unknown	Unknown
US - Alaska	Documented	N/A	Not documented	Unknown	Unknown	Unknown
US - Continental and Hawaii	Not documented	Not documented	Not documented	Unknown	Unknown	Unknown

[1] Not documented = reporting mechanism in place (i.e., video monitoring), but no bycatch has been reported.
[2] Unknown = No bycatch reported, but no reporting mechanism in place, or information is not available.
[3] Likely = No reported bycatch, no reporting mechanism is in place, but spatial overlap between species and fishery is so great that take is likely to have occurred. Birds with hooks in mouth from unknown fishery observed on breeding colony.
[4] Documented = bycatch of at least one bird reported.
[5] N/A = this type of fishery is not conducted on a commercial scale, with only a few harvesters jigging for groundfish in protected, nearshore waters of Alaska and British Columbia; those waters are not frequented by albatrosses.

KEY GAPS IN SPECIES ASSESSMENT

The inaccessibility of Minami-kojima has prevented scientists from determining population trends there and from understanding the genetic discreteness and at-sea distribution of that population. The dispersal patterns and survival rate of fledglings, regardless of location, remain unknown, but are being investigated as part of a chick translocation effort (T. Deguchi, Yamashina Institute for Ornithology, pers. comm.).

Diet of the species during the non-breeding season is not known. Nor is it known why the birds congregate over the Bering Sea Canyons during late September just prior to their migration back to Torishima.

Mortality of *P. albatrus* caused by non-US fisheries remains unassessed, as does mortality caused by the Pacific halibut fleet operating in both Canada and the US. Telemetry data indicating a high spatial and temporal overlap between Pacific halibut fisheries and short-tailed albatross distribution around the Aleutian islands suggest that this is an area of potentially high risk US [68]. At the same time, it is one of very few U.S. commercial hook and line fisheries that does not require onboard observers. An independent monitoring mechanism would be needed to determine levels of seabird bycatch in this fishery.

Mortality caused by trawl fisheries is difficult to assess ; although research by Dietrich and Melvin suggest that the mortality rate is almost certainly very low [72], carcasses of albatrosses killed by collisions with cables are very unlikely to be recovered, and observers are not tasked with monitoring these interactions [72]. Cable-induced *P. immutabilis* mortalities have been documented in Alaskan trawl fisheries, but *P. albatrus* mortalities have not (K. Kuletz, U.S. Fish and Wildlife Service, unpublished data) [72]. A pilot study on Alaskan shoreside delivery and catcher processor vessels indicated that electronic monitoring systems could effectively monitor seabird interactions with trawl third wires [73].

Photo © James Lloyd

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RECOMMENDED CITATION

Agreement on the Conservation of Albatrosses and Petrels. 2009. ACAP Species assessment: Short-tailed Albatross *Phoebastria albatrus*. Downloaded from http://www.acap.aq on 24 September 2009.

GLOSSARY AND NOTES

(i) Years.

The “split-year” system is used. Any count (whether active nests with eggs, breeding pairs, or chicks) is reported as the year in which the chick hatched; i.e. the second half of the split year, (e.g., eggs laid in 2007, chicks hatched and fledged in 2008, counts reported as 2008).

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 nests with eggs (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 and extrapolation (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 (e.g., coarsely assessed via area of occupancy and assumed density)

Unknown

(iv) Population Trend

Where calculated, 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

Figures 3 and 4 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.