COSEWIC
Assessment and Status Report

on the

Short-tailed Albatross
Phoebastria albatrus

in Canada

THREATENED
2003

COSEWIC
COMMITTEE ON THE STATUS OF
ENDANGERED WILDLIFE
IN CANADA

COSEPAC
COMITÉ SUR LA SITUATION DES
ESPÈCES EN PÉRIL
AU CANADA

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COSEWIC
Assessment Summary

Assessment Summary – November 2003

Common name
Short-tailed Albatross

Scientific name
Phoebastria albatrus

Status
Threatened

Reason for designation
This species was once an abundant seabird along the coast of British Columbia but its numbers declined to near extinction in the early 20th century. Numbers are now slowly increasing. Albatross populations in general are very sensitive to incidental catch by commercial fisheries and oil spills; while these impacts have not been documented for this species in Canadian waters they pose a significant potential threat.

Occurrence
British Columbia

Status history
Designated Threatened in November 2003. Assessment based on a new status report.

COSEWIC
Executive Summary

Short-tailed Albatross
Phoebastria albatrus

Species information

The Short-tailed Albatross *Phoebastria albatrus* (Pallas 1769), formerly *Diomedea albatrus*, is a large-bodied seabird with long narrow wings adapted for soaring just above the water surface. Adults are mostly white and black, with a pale-yellow head and pale legs and feet. In contrast, first year birds are wholly chocolate brown. The large pink bill is a distinguishing characteristic across age classes. Full adult plumage is attained after 12 to 20 years. The sexes are alike, with no seasonal variation in plumage.

Distribution

The Short-tailed Albatross now breeds on only two islands south of Japan. Historically, colonies were known from at least seven other sites within Japan and Taiwan. The marine range of the species extends from Siberia south to the China coast, into the Bering Sea and Gulf of Alaska, south to Baja California, and through the North Pacific including the northwestern Hawaiian Islands. Once considered common throughout this range, it is now only casual in many areas. In Canada, the species occurs exclusively off the coast of British Columbia, predominantly from February through October.

Habitat

Short-tailed Albatrosses are colonial breeders, typically nesting on isolated, windswept, offshore islands. Nests are described as scoops in the substrate, lined with and built up by grass. Very little is known of the marine habitat requirements of the species, particularly those around the breeding colonies. Historical records indicate an abundance of Short-tailed Albatrosses in the shallow waters of North America. Recent sightings also indicate a nearshore tendency. The observed patterns, both past and present, likely coincide with the areas of upwelling and high biological productivity characteristic of coastal North America. The importance of the pelagic environment is unknown due to low observer coverage in these areas.

Biology

Like all pelagic seabirds, the Short-tailed Albatross spends most of its life at sea, returning to land only to breed. They are long-lived birds that are slow to mature, and breeding females produce a single egg per year. This is compensated for by a low natural rate of adult mortality. Following breeding, individuals disperse north to the Aleutian Islands and Bering Sea. Proportionally more immatures (than adults) have been observed in the eastern and northern regions of the Pacific. The diet is known to include squid, fish, shrimp and other crustaceans.

Population sizes and trends

Short-tailed Albatrosses once numbered in the millions. Over-exploitation in the breeding colonies at the beginning of the 20th century drove the species to near extinction. The most recent estimate of total global population size is 1600 individuals. As a result of protection and persistent conservation efforts, the trend is one of steady increase.

Limiting factors and threats

The greatest threats to the species' recovery are volcanic eruptions on the breeding grounds and incidental mortality associated with the longline fishing industry. Oil fouling represents a significant potential threat as well. Additional impacts include those from plastics pollution, interspecific competition and introduced species; however these remain unquantified. A catastrophic volcanic eruption on the main breeding island, Torishima, has the potential to significantly reduce the numbers of breeding birds. This risk is buffered by adult and immature non-breeding birds that remain at sea during the breeding season. Incidental mortality in the longline fishing industry could slow the species' population recovery in the event of a random stochastic event such as a volcanic eruption or major oil spill. Of the risks outlined, the incidental mortality in the longline fishing industry represents the greatest ongoing threat to the continued and increasing occurrence of the Short-tailed Albatross within Canadian waters. Mortality associated with oil fouling represents the greatest potential threat in this regard.

Special significance of the species

The Short-tailed Albatross is at risk world-wide, and the recovery of the species will likely be of great interest to the international scientific and conservation community.

Existing protection or other status designations

Status designations for the Short-tailed Albatross include: Vulnerable listing by the World Conservation Union (IUCN); coverage by CITES and the Convention on the Conservation of Migratory Species; protection of species and breeding habitat in Japan; Endangered listing in the United States and the State of Alaska; SZN ranking in British Columbia by NatureServe.

COSEWIC HISTORY

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) was created in 1977 as a result of a recommendation at the Federal-Provincial Wildlife Conference held in 1976. It arose from the need for a single, official, scientifically sound, national listing of wildlife species at risk. In 1978, COSEWIC designated its first species and produced its first list of Canadian species at risk. On June 5, 2003, the *Species at Risk Act* (SARA) was proclaimed. SARA establishes COSEWIC as an advisory body ensuring that species will continue to be assessed under a rigorous and independent scientific process.

COSEWIC MANDATE

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assesses the national status of wild species, subspecies, varieties, or other designatable units that are considered to be at risk in Canada. Designations are made on native species and include the following taxonomic groups: mammals, birds, reptiles, amphibians, fishes, arthropods, molluscs, vascular plants, mosses, and lichens.

COSEWIC MEMBERSHIP

COSEWIC comprises members from each provincial and territorial government wildlife agency, four federal organizations (Canadian Wildlife Service, Parks Canada Agency, Department of Fisheries and Oceans, and the Federal Biosystematic Partnership, chaired by the Canadian Museum of Nature), three nonjurisdictional members and the co-chairs of the species specialist and the Aboriginal Traditional Knowledge subcommittees. The committee meets to consider status reports on candidate species.

DEFINITIONS
(After May 2003)

Species	Any indigenous species, subspecies, variety, or geographically or genetically distinct population of wild fauna and flora.
Extinct (X)	A species that no longer exists.
Extirpated (XT)	A species no longer existing in the wild in Canada, but occurring elsewhere.
Endangered (E)	A species facing imminent extirpation or extinction.
Threatened (T)	A species likely to become endangered if limiting factors are not reversed.
Special Concern (SC)*	A species of special concern because of characteristics that make it particularly sensitive to human activities or natural events.
Not at Risk (NAR)**	A species that has been evaluated and found to be not at risk.
Data Deficient (DD)***	A species for which there is insufficient scientific information to support status designation.

* Formerly described as “Vulnerable” from 1990 to 1999, or “Rare” prior to 1990.

** Formerly described as “Not In Any Category”, or “No Designation Required.”

*** Formerly described as “Indeterminate” from 1994 to 1999 or “ISIBD” (insufficient scientific information on which to base a designation) prior to 1994.

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SPECIES INFORMATION

Name and classification

The first record of *Phoebastria albatrus*, commonly known as the Short-tailed Albatross, was made by George Steller in the 1740s. The type specimen for the species was collected offshore of Kamchatka, Russia, and was described in 1769 by P.S. Pallas in Spicilegia Zoologica (AOU 1998). The species is also less commonly referred to as Steller's Albatross (Austin 1949, Harrison 1983, National Geographic Society 1987, Sibley and Monroe 1990), and "Coast Albatross" (Sherburne 1993, Federal Register 2000). The French name is Albatros à queue courte.

Until recently, the Short-tailed Albatross had been assigned to the genus *Diomedea* (Class Aves, Order Procellariiformes, Family Diomedeidae, *Diomedea albatrus* Pallas, 1769). Following the results of genetic studies (Nunn et al. 1996), the species is now classified, along with all the north Pacific albatrosses, within the genus *Phoebastria*: Class Aves, Order Procellariiformes, Family Diomedeidae, *Phoebastria albatrus* (Pallas, 1769).

Description

The Short-tailed Albatross shares the classic body morphology of the family Diomedeidae: large bodied with long narrow wings adapted for soaring just above the water surface (Figure 1). Of the North Pacific albatrosses, the Short-tailed is the largest, and when mature, the only white-bodied albatross found in this region. The large bill, a distinguishing characteristic across age classes, is pink and hooked with a bluish tip. The sexes are alike across age classes, with no seasonal variation in plumage (Harrison 1983).

Adults are characterized by a white back, pale-yellow head and back of neck, black and white wings, white tail with a black fringe, and pale legs and feet. Adult length varies from 84-94 cm (33-37 inches), wingspan from 213-229 cm (84-90 inches) (Harrison 1983). First-year birds are wholly chocolate brown, closely resembling the juvenile Black-footed Albatross (*Phoebastria nigripes*). However, the large bright pink bill provides a clear distinguishing factor in the field. Full adult plumage (with yellowish head and neck) is acquired after 12 to 20 years (Sibley 2000) (see Harrison 1983 for full description of immature and sub-adult stages).

Figure 1. Adult Short-tailed Albatross *Phoebastria albatrus* (Photo by Hiroshi Hasegawa).

DISTRIBUTION

Global range

Breeding

Historically, breeding colonies of the Short-tailed Albatross were known from at least nine sites, all within the sub-tropical western North Pacific (Hasegawa 1984) (Figure 2). These include the Izu, Bonin, Daito, Senkaku and western volcanic groups of Japan, and Agincourt Island and the Pescadore Islands of Taiwan (Federal Register 2000, Harrison 1983). It is possible that other, undocumented, nesting colonies may have also existed (Hasegawa and DeGange 1982). Of those known, only two are now active, both following periods of inactivity: Tori-shima (Izu group) and Minami-kojima (Senkaku Islands) in Japan (Figure 2). While individuals have recently been observed landing on Bonin Island, no breeding has been recorded (P. Sievert pers. comm. 2003).

Records from the 1930s, and recent observations, suggest that the Short-tailed Albatross may have once nested on Midway Atoll in the Hawaiian chain. However, within the records there are no confirmed historical breeding accounts. While a single incubating individual was found in November 1993, and again in 1995 and 1997, none of the eggs laid were viable (Federal Register 2000).

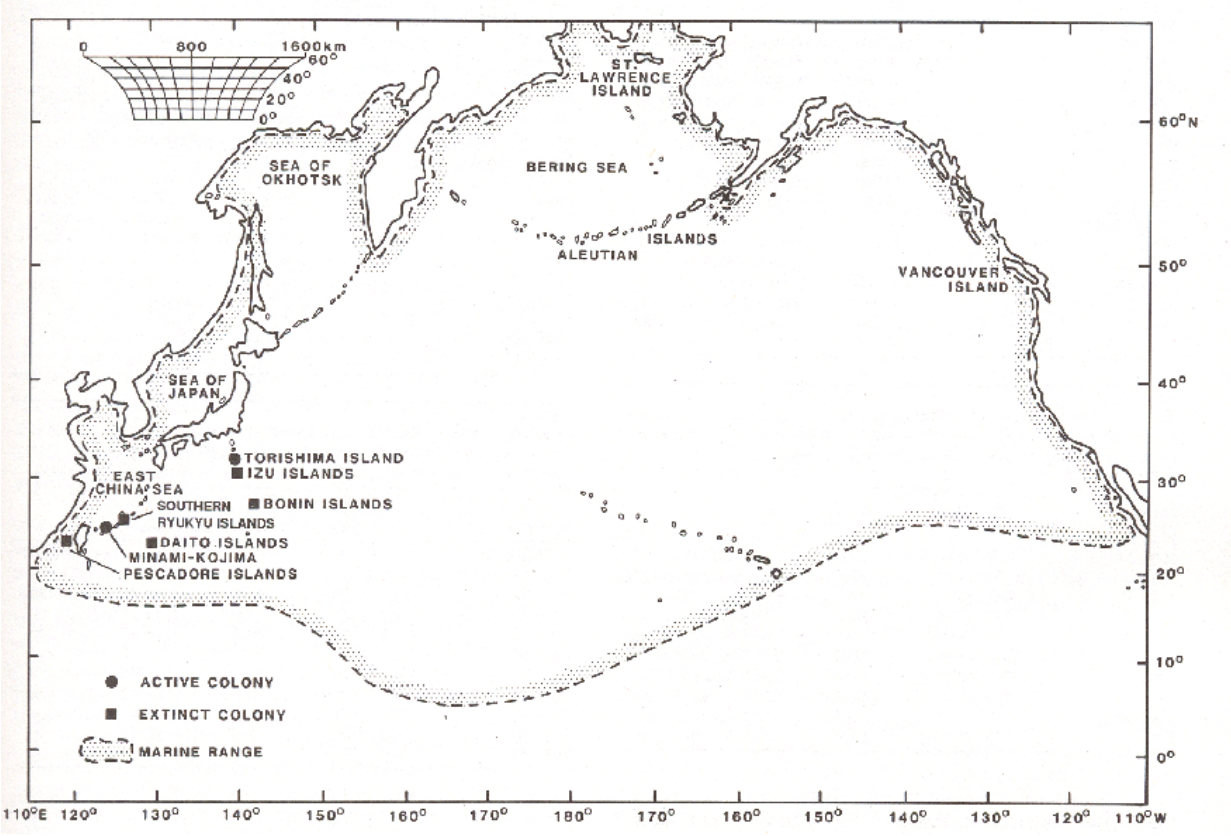

Figure 2. Global distribution of the Short-tailed Albatross *Phoebastria albatrus*, from McDermond and Morgan (1993).

A number of early naturalists believed the Short-tailed Albatross bred on the Aleutian Islands in Alaska. Apparently unaware of the species' winter breeding on islands further to the southwest, they mistook the abundance of the albatross from early May to late October in the Aleutians as an indication of breeding activity. An early explorer also recorded natives exploiting nests for both birds and eggs, and Alaska Aleut folklore referred to breeding birds. However, breeding was never verified. While the remains of adult Short-tailed Albatrosses have been recorded from archaeological investigations of Aleut middens, no fledging remains have been discovered (Yesner 1976). This evidence, in addition to knowledge of past and present breeding distributions, suggests that former breeding in Alaska was highly unlikely (Yesner 1976, Sherburne 1993).

Marine

The marine range of the Short-tailed Albatross extends from Siberia south to the China coast, into the Bering Sea and Gulf of Alaska, south to Baja California, and throughout the North Pacific including the northwestern Hawaiian Islands (Figure 2).

Historically the species was considered common throughout this range, irrespective of season (review by Sanger 1972, AOU 1998). However, the dramatic population declines during the late 1800s-early 1900s, the result of hunting in the breeding colonies (see sections below), were strongly reflected in the number of observations at sea with few records of the species away from the breeding grounds between the 1940s and 1970 (Tramontano 1970). Sightings since this time indicate the Short-tailed Albatross still wanders over much of its original range, but in greatly reduced numbers (review by Sanger 1972, Hasegawa and DeGange 1982).

Canadian range

In Canada, the Short-tailed Albatross occurs exclusively as a nonbreeding species off the coast of British Columbia; most records occur from February through October (Table 1). Historically the species was the dominant near-shore albatross, and appears to have been of considerable importance to the native people in those areas investigated. Approximately 27-40% of all the bones excavated from the Yuquot midden at Nootka Sound, on Vancouver Island, were from Short-tailed Albatrosses (McAllister 1980). The species likely constituted a major part of the spring and summer diet for this region, and appears to have been hunted long before whaling was practised (McAllister 1980). Short-tailed Albatross bones also formed a distinctive portion of the samples collected from the Maple Bank site in Victoria. However, the skeletal elements present suggest the species was used for different purposes at this site (Crockford et al. 1997). Crockford (2003) summarized all available information on the locations where Short-tailed Albatross bones had been found in middens in BC. The locations included Digby Island (west of Prince Rupert) to islands within the Queen Charlotte archipelago: the west coast of Vancouver Island from Nootka Island, Tofino/Ucluelet/Barkley Sound area to Esquimalt Harbour and the entrance to Esquimalt Lagoon: and North Pender Island.

In the late 19th century, the Short-tailed Albatross was reported by Kermode (1904) as “tolerably common on both coasts of Vancouver island, but more abundant on the west coast”. In April 1894, he found it quite common near Cape Beale. In 1889 (exact date unknown), two specimens were obtained in Juan de Fuca Strait off Victoria and prepared as display mounts. Campbell et al. (1990) state that the final record for British Columbia in the 19th century was a bird found dead on a beach at Esquimalt on 4 June 1893, but conflicts with the Kermode (1904) record cited above (and also cited by Campbell et al. 1990). The Short-tailed Albatross then “completely disappeared from the British Columbia coast” (McAllister 1980), and was not recorded again until the late 1950s (Lane 1962, review in Campbell et al. 1990). These sightings, summarized in Table 1, were mostly of single birds, and were “often immatures” (Campbell et al. 1990). The records of Lane (1962) and those reviewed in Campbell et al. (1990) (Table 1) occurred concurrently with ‘renewed’ sightings from Oregon, Alaska and other areas of the Northern Pacific (Wyatt 1963, Tramontano 1970, Wahl 1970).

Table 1. Records of the Short-tailed Albatross *Phoebastria albatrus* in Canada from the late 1800s - 2003. IPHC indicates records obtained from the International Pacific Halibut Commission from 1996.

Date of record	Location	Sex	Age class	Reference/Observer
Late 1800's	"tolerably common on both coasts of Vancouver Is."			Kermode 1904
April 1894	"quite common in the Pacific Ocean, near Cape Beale"			Kermode 1904
1889	Juan de Fuca Strait, off Victoria – two specimens collected	male female	adult juvenile	Campbell et al. 1990
4 June 1893	Esquimalt beach – dead			Campbell et al. 1990
"From 1958 to 1981 single birds, often immatures, were reported on at least 10 occasions: May 1963; June 1964; August 1972 and 1976; September 1958 and 1974; and October 1969". No further details are noted for these records				Campbell et al. 1990
11 June 1960	64 km west of Vancouver Island		immature	Lane 1962
24 June 1971	Ocean Station Papa*		immature	Gruchy et al. 1972
30 July 1991*	47°48' N 133°35' W		immature	K. Morgan
23 Feb 1996	48°41' N 126°41' W		juvenile	J. Anderson
22 Oct 1996	53°53' N 133°32' W		subadult	R. Cameron (IPHC)
19 Jan 1999	54°09' N 133°37' W		juvenile	R. Lattorra (IPHC)
8 May 1999	50°45' N 129°20' W		adult	M. Bentley
25 July 1999	52°10' N 130°19' W		juvenile	J. Lellicut (IPHC)
2 July 2000	50°44' N 129°24' W		immature	M. Bentley
8 Sep 2000	49°02' N 131°39' W		immature	M. Bentley
2 Sep 2001	52°21' N 130°45' W		immature	IPHC
15 Oct 2002	49°30' N 127°15' W		immature	J. Anderson
8 Aug 2003	48°18' N 126°04' W		immature	J. Anderson

* sightings outside the EEZ

Since 1991 periodic sightings, and corresponding locations, have been recorded during at-sea surveys off the coast of British Columbia and by fisheries observers with the International Pacific Halibut Commission (IPHC) (Table 1, Fig. 3). These records suggest a tendency for Short-tailed Albatrosses to occur along, and inshore of the shelf break in British Columbia (Fig. 3). Of 15 confirmed sightings within the EEZ since 1991, 13 were of juvenile or sub-adult birds, and two were of adults (Table 1). Most of the at-sea surveys are conducted from aboard ships-of-opportunity (K. Morgan pers. comm. 2003), so the survey effort has been inconsistent from year to year on a spatial and temporal scale. As a result, it is difficult to delineate the exact range and the relative abundance of the species off the BC coast. In those marine areas where the species has not been recorded, as well as for areas that have not been surveyed, it is not possible to definitely say that the areas are not used by Short-tailed Albatross. Thus the area of occupancy (AO) for the Short-tailed Albatross is equivalent to the extent of occurrence (EO): 423,260 km^2 from the boundary of Canada's Exclusive Economic Zone (EEZ) in the Pacific to the BC coast, including areas of the species' historic range (Dixon Entrance, Hecate Strait, Queen Charlotte Sound, Juan de Fuca Strait and coastal inlets).

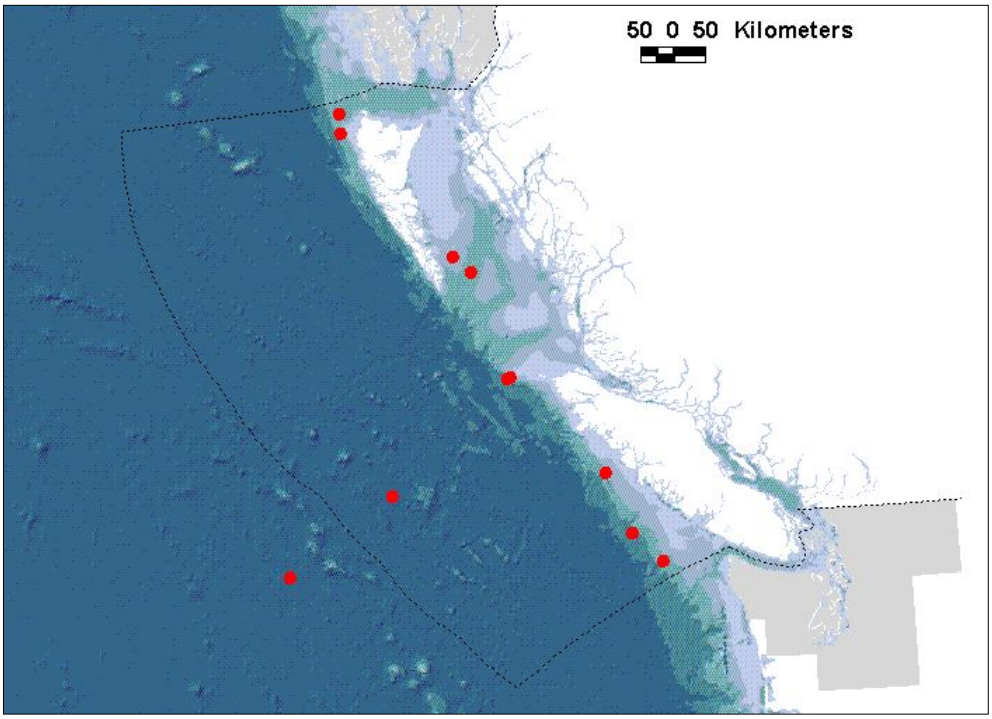

Figure 3. Canadian sightings of the Short-tailed Albatross *Phoebastria albatrus* since 1991. Dotted line indicates boundary of the EEZ. Light blue, grey and green shading indicates the continental shelf (200 m isobath) and slope areas.

It is estimated that approximately 390 Short-tailed Albatross use the defined area off BC from at least January to October (the survey period) each year (CWS unpubl. data 2003). This estimate was derived by calculating the average density of Short-tailed Albatross within surveyed areas across years (number of sightings from at-sea surveys/km^2 of survey area) and extrapolating the density estimate to the entire Extent of Occurrence for the species.

HABITAT

Habitat requirements and trends

Breeding

Short-tailed Albatrosses are colonial breeders that typically nest on isolated, windswept, offshore islands with restricted human access (Sherburne 1993). Historically, the species seemed to prefer level, open areas adjacent to tall clumps of grass for nesting. Tickell (in Hasegawa and DeGange 1982) described the nests of the species as scoops in the volcanic ash, lined with and built up by grass. Volcanic eruptions in 1902 and 1939, as well as extensive cattle grazing, destroyed much of the

original breeding habitat on Torishima. The site now used is on a sparsely vegetated steep slope of loose volcanic soil (Hasegawa and DeGange 1982, Hasegawa 1984). In 1981-1982, native plants were transplanted into the colony, in order to stabilize the remaining nesting habitat and nest structures. Efforts are now being made to establish an alternate, well-vegetated site on Torishima that is less likely to be impacted by lava flow, mud slides, or erosion. There is little documentation of the nesting habitat on Minami-kojima. There is no threat of volcanic activity at this site.

Marine

Very little is known of the marine habitat requirements of the Short-tailed Albatross. Specific geographic, seasonal, and age-class distribution patterns within the marine range (see sections below) are not well understood, or remain unknown (e.g. the foraging habitat and ranges of breeding birds).

In general, numerous historic records indicate that the species frequented nearshore and coastal waters, presumably for foraging, and was abundant in the shallow waters of coastal North America. This statement is supported by the high number of bones of this species, relative to the other North Pacific albatrosses, found in middens from California north to St. Lawrence Island (Yesner 1976, McAllister 1980, Lefèvre 1997, Crockford et al. 1997, Crockford 2003). Large numbers of Short-tailed Albatrosses must have ventured close enough to land in order for this species to be so prevalent in the natives' diets (Hasegawa and DeGange 1982). Recent at-sea sightings in North American waters (Sanger 1972, McDermond and Morgan 1993) also indicate a nearshore tendency, with concentrations along the shelf-break areas in the Bering Sea and along the Aleutian Islands (Camp 1993, McDermond and Morgan 1993, Sherburne 1993, Federal Register 2000). The North Pacific marine environment is characterized by coastal regions of upwelling and high biological productivity, and the observed patterns of Short-tailed Albatross distribution, both past and present, likely coincide with these areas. It cannot be discounted, however, that these patterns are a function of sighting effort. Very little information exists on the distribution of the Short-tailed Albatross in open ocean areas, as these are areas that are seldom visited by experienced observers (Kenyon 1950, Hasegawa and DeGange 1982). It is therefore hard to determine the relative importance of the nearshore marine environment to the species.

In listing the Short-tailed Albatross within the United States, it was deemed that, due to the low numbers of the species relative to historic abundance, it was not anywhere near its marine habitat carrying capacity. The current rate of annual growth (see sections below) suggests that nothing about the species marine habitat is limiting population increase (Federal Register 2000).

Protection/ownership

Both Torishima and Minami-kojima are under Japanese ownership and management. Of concern is that Minami-kojima has also been claimed by the People's

Republic of China and Taiwan. The dispute is primarily due to the oil resources at the continental shelf near the Senkaku Islands (H. Hasegawa 2001, in litt.). The situation may present logistical and diplomatic problems in attempts to implement protection for the colony, and hinders active research on the island.

The marine range of the species includes different areas of Japanese, Russian, American, Canadian as well as International waters, signifying the complexity and importance of international collaboration in the at-sea conservation of this species (Suryan et al. 2003).

BIOLOGY

General

Very little quantitative information exists on the biology of the Short-tailed Albatross. Like all pelagic seabirds, the species spends most of its life at sea, returning to land only to breed. They are long-lived birds that are slow to mature, and breeding females produce a single egg per year. This is balanced by a low natural rate of adult mortality (Cochrane and Starfield 1999). The average generation time is estimated to be 26 years (cf. a mean of 24.2 years, range 15-30, for 13 other albatross species; P. Sievert pers. comm. 2003).

Reproduction

Short-tailed Albatrosses are monogamous, and most adult birds with surviving mates breed annually. Individuals that lose a mate may require two or more years to form a new pair bond and nest successfully again. Pairs return to nearly identical nest sites each year, and in general birds hatched on Torishima return to the island to breed.

For the Torishima colony, the age of first breeding is estimated to be 6 years (Sievert and Hasegawa 2003). This is younger than for other albatross species, and may result from the low density of individuals in the colony, compared with historically high breeding densities (Cochrane and Starfield 1999). Approximately 50% of the population is considered sexually mature (i.e. 6 years or older) (H. Hasegawa 2001, in litt), and of those an estimated 75% breed each year (Sievert and Hasegawa 2003). From 1976 the average annual breeding success (the percent of eggs laid that result in a fledged chick) has been high at around 64% (Sievert and Hasegawa 2003). Low breeding success has been recorded in years when catastrophic volcanic (1988) or weather events (1995) have occurred during the breeding season, thus introducing a greater variability in breeding success than for some other albatross species (Cochrane and Starfield 1999).

On Torishima, individuals begin arriving at the breeding colony in October and begin nest building. Egg-laying occurs from late October through early November. A single egg is laid, incubation is shared by both parents and lasts for 64-65 days. Eggs

are not replaced if destroyed (Austin 1949). Hatching occurs from late December through early January. By late May or early June, chicks are almost fully grown and adults begin abandoning their nests. Chicks fledge soon after the adults leave the colony, and do not return until they are non-breeding two-to-five year olds (Hasegawa and DeGange 1982). Non-breeders and failed breeders disperse from the breeding colony in late winter through spring. While there is no detailed information on breeding activities on Minami-kojima, they are likely to be similar to those on Torishima.

Survival

For the Torishima colony, the annual adult survival rate is estimated to be 96.7%, and that of immature birds (all birds under the age of first breeding) is 94.1% (Sievert and Hasegawa 2003). No confidence intervals are available. No references are available on annual variation within age classes (Cochrane and Starfield). Longevity is not known for this species although Hasegawa (in Cochrane and Starfield 1999) estimates individuals may live to be 50 years or older.

Little information is available on the causes of natural mortality in Short-tailed Albatrosses (Hasegawa and DeGange 1982). Losses of eggs or chicks through desertion, storms, interference from other albatrosses, accidental egg puncturing, disease, parasites and the rolling of eggs from nests are potential, but unquantified, sources of mortality (Hasegawa and DeGange 1982). Harrison (1979) suggests that sharks may get some hatch-year birds after they have fledged. Adults and chicks are known to die when they have become entangled in bushes or other similar vegetation (Austin 1949).

Movements/dispersal

Little is known of the seasonal movements of the Short-tailed Albatross. Historically, it was presumed that after the birds departed from their colonies, the majority dispersed towards the Aleutians and the Bering Sea, with many moving down along the west coast of North America, some as far south as Baja (McDermond and Morgan 1993).

Sightings during the past 30 years indicate that during the breeding season (December through April) the distribution of both adults and immatures is concentrated near the breeding colonies in the Izu and Bonin Islands (McDermond and Morgan 1993), although foraging trips may extend hundreds of miles or more from the colony sites (Federal Register 2000). Recent research indicates that immature individuals 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, Russia, throughout the summer. In early September these individuals move through the Kuril Islands and into the western Aleutian Islands. Once in the Aleutians, most birds travelled east toward the Gulf of Alaska (Suryan et al. 2003).

Outside the breeding season, the majority of adults reported have been observed near the Aleutians (Camp 1993, McDermond and Morgan 1993, Sherburne 1993). Regardless of season, proportionally more immatures (than adults) have been observed in the eastern and northern regions of the Pacific. These results are mirrored by those presented for Canadian waters (see above sections). This suggests that young birds wander farther (than adults) and for longer periods (McDermond and Morgan 1993).

Nutrition and interspecific interactions

As for with of the albatrosses, the Short-tailed is a surface feeder (Prince and Morgan 1987) and may feed nocturnally (Hasegawa and DeGange 1982, Sherburne 1993). Although there is very little published information, the diet of the species is known to include squid, fish, eggs of flying fish, shrimp and other crustaceans (Prince and Morgan 1987, Federal Register 2000). The nestling diet varies but squid, flying fish and large crustacea are the most important foods (Hasegawa and DeGange 1982). There is currently no information on variation of diet by season, habitat, or environmental condition (Federal Register 2000).

While a number of the Short-tailed Albatross sightings at sea have also noted the presence of other seabird species in association with them, including other albatross, fulmars, kittiwakes and shearwaters (Lane 1962, Wyatt 1963, Tramontano 1970, Wahl 1970, Camp 1993, Cochrane and Starfield 1999), the degree of interspecific interaction or competition, if any, is unknown. Such reports are usually associated with fishing vessels, and it may be that each species is attracted to fishing activity independently.

Behaviour/adaptability

Short-tailed Albatrosses were known to follow whaling vessels and feed on offal and scraps from whale carcasses. Although they are considered somewhat "'shy" Short-tailed Albatross still follow ships (Wahl 1970, Gruchy et al. 1972, Yesner 1976, Hasegawa and DeGange 1982). As with many other seabirds, the presence of "free food" in the form of offal and bait also attracts Short-tailed Albatross to fishing operations. Associated with this behaviour is the risk of mortality from incidental take in the longline fishery (see sections below).

Historically Short-tailed Albatrosses rafted together in the waters around Torishima (Austin 1949), and small groups have occasionally been observed at sea (Camp 1993). An oil spill or more likely, an intentional discharge of oily bilge, in an area where a large number of individuals were rafting could affect the population significantly (Federal Register 2000).

The Short-tailed Albatross is highly mobile, with a large marine range. This likely makes the species adaptable to seasonal and inter-annual changes in its prey distribution.

POPULATION SIZES AND TRENDS

At the beginning of the 20th century, the Short-tailed Albatross declined in numbers to near extinction, primarily as a result of hunting at the breeding colonies in Japan. Albatross were killed for their feathers and their bodies processed into fertilizer and fat; the eggs were also collected for food (Austin 1949). Although pre-exploitation worldwide population estimates of Short-tailed Albatrosses are not known, the total number of birds harvested may provide the best estimate, since the harvest drove the species to near extinction. Between approximately 1885 and 1903, an estimated five million Short-tailed Albatrosses were harvested (Austin 1949). Harvest continued until the early 1930s, except for a few years following the 1902 volcanic eruption on Torishima. By 1949, there were no Short-tailed Albatrosses breeding at any of the historically known breeding sites, including Torishima, and the species was thought to be extinct (Austin 1949, Kenyon 1950).

However, the species persisted, and in 1950 nesting of the Short-tailed Albatross was again reported on Torishima, where over 100,000 had nested during the height of exploitation (Cochrane and Starfield 1999). These were presumably birds that had been wandering the North Pacific during the final years of slaughter. In 1987 nesting was confirmed on Minami-kojima in the Senkaku Islands. There are no historical records of nesting densities from this population. There are currently an estimated 267 nesting pairs on Torishima, and 40 pairs on Minami-kojima (Hasegawa 2002, in litt.). The total global population of Short-tailed Albatross is likely around 1,600 individuals (Hasegawa 2002 in litt.), as derived from estimates of the numbers of breeders and nonbreeders present in the colonies and the number of fledglings recorded since 1954 (adjusted according to the estimated survival rate). The overall population trend is one of steady increase, with breeding populations increasing, on average, at a rate of 7.5% annually on Torishima, and 11% on the Senkaku Islands (P. Sievert pers. comm. 2003).

This current growth rate is likely due to the extremely low population size compared with historical abundance. As the populations increase, density dependence could impact many of those demographic rates included in this report. For example, age of first breeding may increase, or fledging rates may decrease. However, it is likely to take many years for populations to reach these levels (Cochrane and Starfield 1999).

LIMITING FACTORS AND THREATS

Volcanic eruptions

Approximately 85% of the Short-tailed Albatross population breeds on Torishima, an active volcano that erupted explosively in 1902 and 1939, destroying much of the original breeding colony sites. Submarine eruptions occurred in 1965 and 1975. Near the end of 2002 a small eruption occurred, and the volcano is currently ejecting gases (Hasegawa 2002, in litt.). Future eruptions are not predictable in time or magnitude and therefore represent a significant threat to the population. An eruption during the

breeding season could kill many birds as well as destroy the breeding area (Hasegawa and DeGange 1982). Additionally, breeding habitat and nesting birds are threatened by frequent mud slides and erosion caused by monsoon rains that occur on the island (Federal Register 2000).

Commercial fishing

The potential impacts of the commercial fishing industry include direct injury or mortality from gear, as well as complications associated with discarded ship debris, such as entanglement. The former likely represents the greatest threat to the continued and increasing occurrence of the Short-tailed Albatross within Canadian waters.

In general, seabirds are vulnerable to becoming entangled in derelict fishing gear, although the magnitude of these impacts is unknown. Three to four Short-tailed Albatross come ashore entangled in fishing line per year on Torishima, some of which die as a result (Hasegawa 2001, in litt.). Lost or abandoned gear is a threat to the Short-tailed Albatross throughout its range.

The Short-tailed Albatross is known to co-occur with commercial fisheries off Alaska, at levels that vary both spatially and temporally (Gilroy et al. 2000). The species has been observed from fishing vessels off Alaska, and seven individuals were reported as incidental takes in the Alaskan fisheries from 1983 to 1998 (Cochrane and Starfield 1999). Additional unreported take has probably also occurred (Sherburne 1993, Balogh 2003, in litt.). The majority of takes were associated with groundfish (i.e. non-halibut) longline operations, and one in the Alaskan Pacific halibut (*Hippoglossus stenolepis*) fishery (Gilroy et al. 2000). All occurred in September.

To date the Department of Fisheries and Oceans has recorded no incidental take of the Short-tailed Albatross in Canadian waters (L. Yamanaka, pers. comm. 2003). The degree of overlap between the industry and the species is difficult to quantify as the effort for pelagic bird observations is too low and uneven. However the potential exists for the two to co-occur in space and time. As populations of Short-tailed Albatross increase, this potential is likely to increase correspondingly. The commercial fishing effort for halibut and rock-fish (*Sebastes* spp.) is concentrated along the continental shelf off the coast of British Columbia, with additional effort along the coast of Northern Vancouver Island and the east side of Queen Charlotte Sound (J. Smith pers. comm. 2003). Nine of the 10 sightings of the Short-tailed Albatross in British Columbian waters have occurred in these regions (Fig. 3). Black-footed Albatrosses are routinely killed in commercial halibut and rockfish longline fisheries in BC waters, despite the mandatory use of seabird avoidance devices as a condition of licensing (in the halibut fishery). Therefore, it is likely just a matter of time before a Short-tailed Albatross is taken in BC waters.

Sea-bird by-catch can also be age or sex biased, depending on the location and timing of albatross foraging in relation to local fishery concentrations (Cochrane and Starfield 1999). While there appears to be no evidence for a sex bias in Short-tailed

Albatross mortality in general, there is some evidence of age-biased mortality associated with fisheries with six of the seven recorded takes in Alaska being immatures (Cochrane and Starfield 1999). The majority of Short-tailed Albatross sightings within Canadian waters have been of immatures (Table 1). The possibility therefore exists of a greater threat to these individuals where fishing effort overlaps with the species' range in Canada. In long-lived species such as albatrosses, adult survival rate has the highest potential to influence the population growth rate. However, Cochrane and Starfield (1999) suggest that fishing-related mortality of immatures may have as strong an influence on trends as does adult survival for the Short-tailed Albatross.

No information is available on incidental take in foreign fisheries outside the United States and Canada. For the United States, at the current population level and growth rate, the level of recorded mortality resulting from longline fisheries, although significant, is not thought to represent a threat to the species' survival (NMFS 2003), although it is likely slowing recovery. However, in the event of a major population decline resulting from a random stochastic event (e.g. volcanic eruption during the breeding season, or a major oil spill), the additional impact of longline fisheries on Short-tailed Albatrosses could be significant (Cochrane and Starfield 1999, Federal Register 2000).

Oil pollution

Oil pollution could pose a threat to Short-tailed Albatrosses by causing physiological problems from petroleum toxicity and by interfering with the affected bird's ability to thermoregulate. As mentioned, oil development has been considered in the past in the vicinity of the Senkaku Islands (Hasegawa and DeGange 1982, Federal Register 2000). Future development could impact the local marine environment used by the albatrosses during the breeding season by introducing the risk of spills or leaks related to oil extraction, transfer, and transportation.

Oil spills could also occur in many parts of the species' marine range, including the United States and Canada. Fouling of the birds and their habitat could arise from the chronic illegal dumping of oily bilges, as well as from major oil spills should they occur. For Canada specifically, recent discussions concerning the lifting of the current moratorium on gas and oil exploration off the coast of British Columbia highlights this risk. Areas that might be affected by drilling include Queen Charlotte Sound, shallow areas within Hecate Strait and off the north and northwest coast of Vancouver Island (K. Morgan pers. comm. 2003). As previously mentioned, on the basis of Short-tailed Albatross distribution off the coast of British Columbia, the potential therefore exists for interactions between the species and the oil industry.

Plastics ingestion

Albatrosses often consume plastics at sea, presumably mistaking them for food items. Plastics ingestion can lead to injury or mortality through internal injuries from sharp pieces of plastic, or through a reduction in ingested food volumes and dehydration (Sievert and Sileo 1993). Young birds may be particularly vulnerable to

plastic ingestion prior to developing the ability to regurgitate (Sherburne 1993). Short-tailed Albatrosses on Torishima commonly regurgitate large amounts of plastics debris (Federal Register 2000), an observation that has become increasingly common in the last 10 years. However, the effects on survival and population growth are not known.

Interspecific competition

Black-footed Albatross also nest on Torishima. Historically this species nested on lower slopes; however, they are currently expanding their nesting area up into that of the Short-tailed Albatross (Hasegawa and DeGange 1982). However, Sherburne (1993) notes that Short-tailed Albatrosses arrive to establish and re-establish nests six weeks earlier than the Black-footed Albatross. It is therefore unknown if the observed encroachment represents actual competition for nesting habitat between the two species.

Introduced species

Ship rats (*Rattus rattus*) were introduced to Torishima at some point during human occupation, and now inhabit much of the island, including the albatrosses nesting slope. Although it is suspected they may prey on eggs or hatchling albatrosses, no direct evidence of rat depredation has been observed (Hasegawa 1984). Cats (*Felis catus*) were also present, most likely introduced during the feather hunting period. However, there has been no recent evidence of cats on the island, and it is thought that they no longer occur.

SPECIAL SIGNIFICANCE OF THE SPECIES

The Short-tailed Albatross is at risk world-wide, and the recovery of the species will not only be of great interest to the international scientific and conservation communities; it will require coordinated conservation efforts from all of the countries within the species range.

EXISTING PROTECTION OR OTHER STATUS

The Japanese government designated the Short-tailed Albatross as a protected species in 1958, as a Special National Monument in 1962 and as a Special Bird for Protection in 1972. In 1992, the species was classified as endangered under the newly implemented Species Preservation Act. Torishima, one of the two remaining breeding colonies, was designated a no-hunting area by the Japanese Government in 1933, and later a National Monument in 1958. Harvest is prohibited, and human activities and disturbance on Torishima are restricted. In 2001 the Fisheries Agency of Japan set seabird by-catch regulations. These include the requirement for boats fishing within 20 nautical miles of Torishima, during the breeding season, to adopt various mitigation measures to reduce the incidental take of Short-tailed Albatross (Hasegawa 2001, in litt.).

In July 1975 the Short-tailed Albatross was included in Appendix 1 of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). The species is listed as Vulnerable under criteria D1 and D2 by the World Conservation Union (IUCN). The species is included in Appendix 1 of the Convention on the Conservation of Migratory Species of Wildlife Animals.

The United States Fish and Wildlife Service (USFWS) listed the Short-tailed Albatross as Endangered rangewide except in the US in the List of Endangered Foreign Wildlife (Federal Register 35:8495, 2 June 1970). This Endangered status was extended to include the range within the United States on 31 July 2000 (Federal Register No. 46643). The species is also listed as Endangered in the State of Alaska (State of Alaska, Alaska Statutes, Article 4, Sec. 16.20.19). The National Marine Fisheries Service (NMFS) requires the Alaska longline fisheries to employ bird avoidance techniques to reduce the incidental take of seabirds by the fishing industry, and in conjunction with the National Oceanic and Atmospheric Administration (NOAA) has recently proposed management measures to reduce seabird incidental take in the hook-and-line halibut and groundfish fisheries in the Exclusive Economic Zone of Alaska (Federal Register 2003). In addition, the NMFS has recently set incidental take limits for Short-tailed Albatrosses in three fisheries (hook-and-line groundfish, groundfish trawl, and halibut hook-and-line) off Alaska (NMFS 2003).

The species is ranked by the Nature Conservancy as follows:

Global Heritage Status Rank: G1 (14 Sep 2000)

National Heritage Status Rank – United States: NZN (19 Mar 1997)
National Heritage Status Rank – Canada: NAN (02 Feb 2001)

Sub-national Heritage Status Rank – United States: Alaska (S1N), California (S?), Hawaii (S1), Washington (SZN)
Sub-national Heritage Status Rank – Canada: British Columbia (SZN)

There has been one recorded confirmed sighting of a Short-tailed Albatross in the waters off Pacific Rim National Park (Species in Parks Systems database 2003). On the basis of historical distributions, the species is also likely to occur adjacent to Gwaii Haanas National Park. However, the at-sea presence of the species adjacent to or even within the boundaries of a National Park does not guarantee the protection of the Short-tailed Albatross.

SUMMARY OF STATUS REPORT

The Short-tailed Albatross *Phoebastria albatrus* breeds on only two islands south of Japan, but ranges throughout the North Pacific Ocean. While the species once numbered in the millions, feather hunting in the early 20th century drove the species to near extinction. The most recent estimate of population size is 1,600 individuals. There are no numerical estimates of uncertainty available for this estimate. The overall population trend is one of steady increase, with breeding populations increasing by 7-11% annually.

This current growth rate is likely due to the extremely low population size compared with historical abundance. As the populations increase, density dependence could impact many of those demographic rates included in this report. For example, age of first breeding may increase, or fledging rates may decrease. However, it is likely to take many years for populations to reach these levels (Cochrane and Starfield 1999).

The greatest threats to the species recovery are volcanic eruptions and incidental mortality associated with the longline fishing industry. They are not mutually exclusive. Oil fouling represents a significant potential threat. Additional impacts include those from plastics pollution and introduced species; however, these remain unquantified. Because the population size is small, and breeding is limited to only two colonies, a catastrophic volcanic (or weather) event on Torishima has the potential not only to significantly reduce the numbers of birds, but also to significantly reduce the worldwide breeding population to a level where the risk of extinction is high. This risk is buffered by adult and immature non-breeding birds that remain at sea during the breeding season. While significant, incidental mortality in the longline fishing industry is not viewed as the major threat to the species' survival at the current population and growth rate. However, because it does represent an increase in the natural mortality rate, the incidental take of Short-tailed Albatrosses has the potential to slow the species conservation and recovery in the case of a random stochastic event such as a volcanic eruption or major oil spill.

Of the risks outlined above, incidental mortality in the longline fishing industry represents the greatest ongoing threat to the continued and increasing occurrence of the Short-tailed Albatross within Canada waters. Black-footed Albatrosses are routinely killed in commercial halibut and rockfish longline fisheries in BC waters, despite the mandatory use of seabird avoidance devices as a condition of licensing (in the halibut fishery). Therefore, it is likely just a matter of time before a Short-tailed Albatross is taken in BC waters. Mortality associated with oil fouling represents the greatest potential threat in this regard.

TECHNICAL SUMMARY

Phoebastria albatrus
Short-tailed Albatross — Albatros à queue courte
British Columbia/Pacific Ocean

Extent and Area information	
• *Extent of occurrence (EO)(km²)* (area of Canadian Pacific coastal waters)	423,260 km²
• *Specify trend (decline, stable, increasing, unknown)*	stable
• *Are there extreme fluctuations in EO (> 1 order of magnitude)?*	unlikely
• *Area of occupancy (AO) (km²)* (area of Canadian Pacific coastal waters)	423,260 km²
• *Specify trend (decline, stable, increasing, unknown)*	stable
• *Are there extreme fluctuations in AO (> 1 order magnitude)?*	no
• *Number of known or inferred current locations*	n.a.
• *Specify trend in # locations (decline, stable, increasing, unknown)*	n.a.
• *Are there extreme fluctuations in # locations (>1 order of magnitude)?*	n.a.
• *Specify trend in area, extent or quality of habitat*	stable
Population information	
• *Generation time (average age of parents in the population)*	26 years
• *Number of mature individuals*	614 in world, about 50 are estimated to use Canadian waters annually
• *Total population trend*	declined from 5 million birds to near extinction (<400 birds, 99.99%) early 20th century, now steadily increasing
• *% decline over the last/next 10 years or 3 generations*	n.a.
• *Are there extreme fluctuations in number of mature individuals?*	no
• *Is the total population severely fragmented ?*	no
• *Specify trend in number of populations*	n.a.
• *Are there extreme fluctuations in number of populations ?*	n.a.
• *List populations with number of mature individuals in each*	n.a.
Threats (actual or imminent threats to populations or habitats)	
- incidental mortality in the longline fishery - mortality in association with oil spills - on the breeding grounds the major threat is from volcanic eruptions - previously hunted to near extinction early in 20th Century	
Rescue Effect (immigration from an outside source)	n.a.
• *Status of outside population(s)?* **USA: Endangered** **Alaska: Endangered** **CITES: Appendix 1** **World Conservation Union: Vulnerable**	
• *Is immigration known or possible?*	N.A.
• *Would immigrants be adapted to survive in Canada?*	
• *is there sufficient habitat for immigrants in Canada?*	
• ***Is rescue from outside populations likely?***	N.A.

Quantitative Analysis	N.A.
Current Status **COSEWIC: has not been previously assessed**	

Status: THREATENED **Criteria met: D1+2**

Reasons for Designation: This species was once an abundant seabird along the coast of BC but its numbers declined to near extinction in early 20th Century. Numbers are now slowly increasing. Albatross populations in general are very sensitive to incidental catch by commercial fisheries and oil spills; while these impacts have not been documented for this species in Canadian waters, they pose a significant potential threat.

Applicability of Criteria

Criterion A (Declining Total Population): Not applicable; population declined catastrophically 100 years ago, but began increasing about 50 years (2 generations ago).

Criterion B (Small Distribution, and Decline or Fluctuation): Not applicable; there is a small distribution in terms of breeding sites, but population is now increasing after catastrophic decline 100 years ago.

Criterion C (Small Total Population Size and Decline): Not applicable; population did decline to very few individuals 50 – 100 years ago, but is now increasing.

Criterion D (Very Small Population or Restricted Distribution): Meets D1 and D2 criteria for Threatened (less than 1,000 breeding individuals at less than 5 sites)

Criterion E (Quantitative Analysis): None done.

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Nadine's previous work history has included active participation in the conservation and management of critically endangered species in New Zealand for the Department of Conservation, seabird research and conservation in New Zealand, British Columbia and Alaska for both universities and government, and marine mammal research in New Zealand, Texas and Canada.

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