TUFTED PUFFIN *Fratercula cirrhata*

Conservation Status

ALASKA: Not At Risk **N. AMERICAN: Moderate Concern** **GLOBAL: Least Concern**

Breed	Eggs	Incubation	Fledge	Nest	Feeding Behavior	Diet
May-Sept	1	40-53 d	45-55 d	burrow, crevice	surface dive	fish, squid, other invertebrates

Life History and Distribution

Tufted puffins *(Fratercula cirrhata)* are highly decorative seabirds. Breeding adults have huge orange bills, legs, and feet, white faces, and long golden feather tufts that curl back from each side of the head. In late summer, they lose their tufts and the bright colors of the bill turn to a dull reddish-brown.

Diet is one of the fascinating details of Tufted Puffin biology. Chicks are fed almost entirely tiny fish which the parents catch underwater and collect, lined up head to tail, across their bills. They routinely hold 5-20 fish in their mouths while returning to the nest. Puffins use their tongues to hold the fish against the spiny palate in their mouths while opening their bill to catch more fish.

This species prefers high, steep areas for nesting. Although they are about the size of a crow, they are twice as heavy with short, stubby wings. The wings are used for "flying" underwater in pursuit of food; this same feature makes them poor aerial flyers. Tall cliffs make for easy take-offs and give newly fledged puffins assistance in getting up enough airspeed for their first flight. The toes of their webbed feet have sharp claws that are used to dig burrows in the steep hillsides of their nesting areas. At rockier sites where soil is scarce or nonexistent, they nest in crevices.

Tufted puffins are widespread in the North Pacific Ocean and nest on coastlines and offshore islands from lower California to Alaska and across the ocean from Japan to the shores of northeastern Asia.

In Alaska, Tufted Puffins nest from Southeast Alaska (St. Lazaria, Forrester islands), along the Alaska Peninsula (Amagat, Castle Rock, Suklik, Barren, and Triplet islands), to the eastern Aleutian Islands where the largest colonies are concentrated on Egg, Kaligagan, Aiktak, Vsevidov, and Chagulak islands. The population is dispersed among other Aleutian Islands, notably on Buldir and Koniuji. They are also found on islands in the Bering and Chukchi Seas (Pribilof, St. Matthew, St. Lawrence, and Diomede islands), and at a few coastal and island sites along the Alaskan mainland. The most northerly well-established colony is at Cape Lisburne in the Chukchi Sea.

Alaskan breeding birds are pushed south by advancing ice in winter. They disperse throughout the North Central Pacific Ocean. A few remain as year-round residents among islands from Kodiak to Attu.

USFWS Donna Dewhurst

Alaska Seasonal Distribution

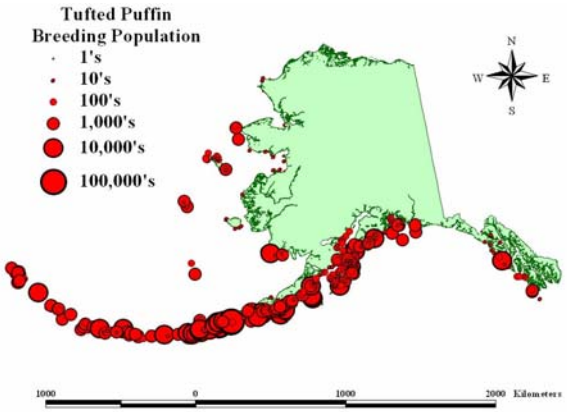
AK Region	Sp	S	F	W
Southeastern *	U	U	U	R
Southcoastal *	C	C	C	R
Southwestern *	C	C	C	U
Central	-	-	-	-
Western *	C	C	C	-
Northern	-	+	-	-

C= Common, U= Uncommon, R= Rare, + = Casual or accidental, - = Not known to occur, * = Known or probable breeder, Sp= Mar-May, S= June and July, F= Aug-Nov, W= Dec-Feb. **© Armstrong 1995.**

Population Estimates and Trends

The total world population estimate is 2,970,000 individuals, of which > 80% nest in North America. In Alaska, there are 693 breeding colonies with an estimated population of 2,280,000 individuals. The population estimates are unreliable due to the difficulty of censusing birds in nesting burrows. Most estimates are based on observations of birds attending colonies, but the ratio of birds attending colonies at any given time to local populations is unknown.

Owing to variability among census counts or to low numbers of counts, or both, calculated trends are marginal or insignificant in half of the studies. However, results suggest that populations are increasing in the Gulf of Alaska and westward and declining throughout Southeast Alaska, British Columbia, Washington, Oregon, and California. Tufted Puffin populations showed significant positive trends at Nizki (+8.7% per annum 1976-1998), Adak (+18.3% per annum 1988-1995), Bogoslof (+3.3%



Seabird breeding population maps created from data provided by the Beringian Seabird Colony Catalog Database. U. S. Fish and Wildlife Service, Anchorage, Alaska.

per annum 1973-2001), and Aiktak (+2.5% per annum 1989-2002) islands in the Aleutian Islands. No trends were evident at any other monitored sites in Alaska. Population trends in Russia are poorly known. There have been dramatic declines in Japan; only 30 birds remain and extirpation appears likely soon.

Conservation Concerns and Actions

Puffins, like many other species of seabirds, need predator-free nesting areas and abundant food supplies to successfully reproduce. Considering the large-scale changes in marine food chains and climate, which have been observed over the last decade, changes in prey availability are the most likely source of population regulation. However, data are limited and need to be updated at many sites.

Some causes of adult mortality that could be investigated further are starvation, predation, oil pollution, fishing net mortality, and harvest.

Because Tufted Puffins nest in accessible dirt burrows, they have been historically affected by the intentional or accidental introduction of predators such as the arctic fox (*Alopex logopus)*, red fox *(Vulpes vulpes),* and the Norway rat *(Rattus norvegicus).* Removal of foxes and rats from some islands showed dramatic results with recovery of populations beginning immediately following removal of the predators. Eggs and young are also taken in their burrows by river otters *(Lutra canadensis)* and mink *(Mustela vison)*, and adults are taken by Bald Eagles *(Haliaeetus leucocephalus)*, presumably on the water.

Puffins are also vulnerable to oil spills. About 570 Tufted Puffins were retrieved after the *Exxon Valdez* oil spill in Alaska in 1989. Based on recovery rates, the number killed could have been as high as 13,000.

Bycatch of Tufted Puffins in gillnets in the North Pacific Ocean has been widespread. From the 1950s to the 1990s, tens of thousands were killed in offshore salmon and squid driftnet fisheries. By 1990, the bycatch had declined to <500 individuals because the high-seas driftnet fisheries were largely eliminated. However, Japanese driftnet fishing for salmon continued in the Russian economic zone (Bering Sea, Kurils, Sea of Okhotsk), and 15,000-30,000 Tufted Puffins per year continued to be killed throughout the 1990s.

Coastal gillnet fisheries continue to catch birds in Alaska. The bycatch is monitored and recorded by the National Marine Fisheries Service. In 2002, the bycatch of Tufted Puffins from the set gillnet fishery for Kodiak Island was estimated at 110 individuals. Small numbers of puffins were also recorded in the bycatch for the Prince William Sound gillnet fishery. Additionally, a few Tufted Puffins may be taken in the Alaskan trawl fisheries.

Historically, puffins were used for food and clothing by Alaskan Natives. Parkas were made from puffin skins and bills were commonly used to make ceremonial rattles or hoops. Today, adult Tufted Puffins and their eggs are still harvested for subsistence use in some areas of Alaska, particularly in the Bering Strait region. The harvest is minimal and localized. Between the early 1990s and 2000 an estimated 226 adult puffins and 146 puffin eggs were taken per year. Horned Puffins *(Fratercula corniculata)* and Tufted Puffins were not identified to species in census surveys so the figures represent both species.

Recommended Management Actions

- Continue monitoring populations of Tufted Puffins at key index colonies and implement monitoring at as many additional locations as possible.
    - Collect survival data at monitoring sites.
- Determining wintering areas.
- Evaluate prey abundance variability and impacts on Tufted Puffin populations.
- Continue fox removal and rat prevention programs.
- Support efforts to minimize the incidence of fuel spills and measure contaminants in Tufted Puffin eggs.
- Continue to work with state and federal agencies and fisheries councils to minimize the negative impacts of fisheries interactions.
- Work with the Alaska Migratory Bird Co-Management Council (AMBCC) to monitor subsistence use of Tufted Puffins.
- Evaluate human disturbance at key colonies.

Regional Contact

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References

Armstrong 1995; Dragoo *et al*. In Press; IUCN Internet Website (2005); Kushlan *et al.* 2002; Manly *et al.* 2003; Piatt and Kitasky 2002b; Piatt *et al*. 1990; Stephensen and Irons 2003; U.S. Fish and Wildlife Service 2006, 2002; U.S. Fish and Wildlife Service Internet Website (2005).

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