HORNED PUFFIN *Fratercula corniculata*

Conservation Status

ALASKA: Moderate **N. AMERICAN: Moderate Concern** **GLOBAL: Least Concern**

Breed	Eggs	Incubation	Fledge	Nest	Feeding Behavior	Diet
May-Sept	1	40-42 d	38-45 d	crevice, burrow	surface dive	fish, squid, other invertebrates

Life History and Distribution

The Horned Puffin *(Fratercula corniculata)* is one of the most sought after seabirds in Alaska by tourists and photographers. It is a smallish, picturesque bird with a large, triangular orange and red bill, and bright orange legs and feet. Because of its coloration, the Horned Puffin was named "sea parrot" and "clown of the sea" by early sailors. In summer, it has a small, fleshy, dark "horn" above each eye from which it takes its name. Outer layers of the bright bill are shed in late summer, leaving a smaller, drab-colored bill. The legs and feet fade to a pale fleshy color.

Puffins feed their chicks fish and are known to carry bills full of dangling fish, all neatly lined up crosswise. They are able to catch and secure more than one fish by using spines on their tongues and roofs of their mouths.

The species is widespread in the North Pacific Ocean. It nests on coastlines and offshore islands from British Columbia (where they are rare) to Alaska, and southwest to the Sea of Okhotsk and the Kuril Islands.

In Alaska, the largest colonies are concentrated in the northwest Gulf of Alaska and along the Alaska Peninsula in the Semidi, Shumagin, and Sanak islands. Nesting also occurs on the Aleutian Islands, a few islands in the Bering and Chukchi Seas (e.g. Pribilof, St. Matthew, St. Lawrence, Diomede, and Chamisso islands), and a few coastal and island sites along the Alaskan mainland. The most northerly well-established colony is at Cape Lisburne in the Chukchi Sea. Small numbers also breed as far east as Cooper Island, which is east of Point Barrow in the Beaufort Sea.

Alaska Seasonal Distribution

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

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.

In winter, they disperse over a broad area of the central North Pacific Ocean, generally over deep water.

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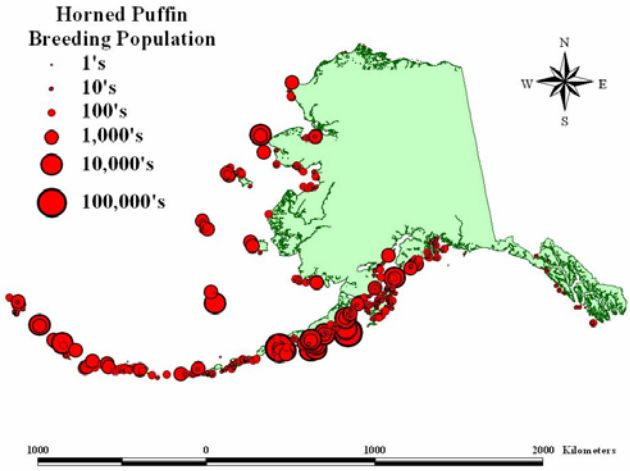
Population Estimates and Trends

The total world population estimate is 1,088,500 individuals, of which > 85% nest in North America. In Alaska, there are 608 breeding colonies with an estimated population of 921,000 individuals. The population estimates are unreliable due to the difficulty of censusing birds in rock crevices and burrows. Most estimates are based on observations of birds attending colonies, but no standardized census techniques have been developed, and the ratio of birds attending colonies at any given time to local populations is unknown.

Boat based surveys of seabirds at sea in Prince William Sound, Alaska, suggest an overall 79% decline of Horned Puffins from 1972-1998. This paralleled a similar rate of decline for other fish-eating seabirds in Prince William Sound and for murres *(Uria spp.)* in the Gulf of Alaska. Major changes in the food base, apparently the result of a changing marine climate, have been correlated to the decline of murres and may have played a role in the declines of Horned Puffins as well. Other information about trends for Horned Puffins is extremely limited.

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, prey availability is the most likely source of population regulation. However,



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

there are almost no data on which to base population trends and monitoring is an essential priority. Moreover, many basic studies are needed to improve our understanding of the biology and ecology of this species in order to assess the causes of population changes that might be occurring.

Some causes of adult mortality are starvation, predation, oil pollution, fishing net mortality, and harvest.

Introduced predators such as the arctic fox (*Alopex lagopus)*, red fox *(Vulpes vulpes)*, and the Norway rat *(Rattus norvegicus)* prey on Horned Puffins. In general, they likely have been less affected than some other species of seabirds because they usually nest in less accessible crevices.

Horned Puffins are vulnerable to oil pollution, but no major oil-mortality events other than the *Exxon Valdez* spill in 1989 have been reported. In that spill, 162 Horned Puffins were retrieved dead.

Bycatch of Horned Puffins in gillnets in the North Pacific Ocean has been widespread. From the 1950s to the 1990s, tens of thousands of Horned Puffins were killed in offshore salmon and squid driftnet fisheries. By 1990, the bycatch had declined to less than 1000 individuals because the high-seas driftnet fisheries were largely eliminated.

Coastal gillnet fisheries continue to catch birds in Alaska. The bycatch is monitored and recorded by the National Marine Fisheries Service, Alaska Marine Mammal Observer Program. Bycatch of Horned Puffins has been recorded in various gillnet fisheries, but the magnitude is minimal compared to the high-seas. For example, in 2002, the bycatch of Horned Puffins from the set gillnet fishery for Kodiak Island was estimated at 14 individuals.

Historically, puffins were used for food and clothing by Alaskan Natives. Aleut Natives made parkas of puffin skins, which were very tough and worn feather side in. Today adult Horned 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, localized, and estimated at 226 adults and 146 eggs taken annually between the early 1990s and 2000. The figures include both Horned and Tufted Puffins *(Fratercula cirrhata*) since puffins were not identified to the species level in subsistence harvest surveys.

Recommended Management Actions

- Develop standardized methods for monitoring populations.
- Implement a regional monitoring program.
- Survey populations at key index colonies such as the few large colonies that account for most of the total population.
- Complete a nesting inventory.
- Measure productivity.
- Determine wintering areas.
- Evaluate prey abundance variability and impacts on Horned Puffin populations.
- Reduce predation with continued fox removal and rat prevention programs.
- Support efforts to minimize the incidence of fuel spills near breeding and wintering areas and measure contaminants in Horned Puffin eggs
- Continue to work with state and federal agencies and fisheries councils to minimize the negative impacts of fisheries interactions.
- Evaluate human disturbance at key colonies and educate the public to avoid disturbance of Horned Puffins.
- Work with the Alaska Migratory Bird Co-Management Council (AMBCC) to monitor subsistence use of Horned Puffins.

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 2002a; 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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