

# Northern fur seal

Class: Mammalia  
Order: Carnivora

*Callorhinus ursinus*

**Review Status:** Peer-reviewed

**Version Date:** 15 May 2018

## Conservation Status

*NatureServe:*

*Agency:*

G Rank: G3

ADF&G: Species of Greatest Conservation Need

IUCN: Vulnerable

Audubon AK:

S Rank: S2S3

USFWS: Depleted (MMPA)

BLM:

Final Rank		
Conservation category: <b>II. Red</b>		
high status and either high biological vulnerability or high action need		
<u>Category</u>	<u>Range</u>	<u>Score</u>
Status	-20 to 20	8
Biological	-50 to 50	-6
Action	-40 to 40	-20
<b>Higher numerical scores denote greater concern</b>		

**Status** - variables measure the trend in a taxon's population status or distribution. Higher status scores denote taxa with known declining trends. Status scores range from -20 (increasing) to 20 (decreasing).

**Score**

*Population Trend in Alaska (-10 to 10)*

6

Historically, experienced a severe decline as a result of overharvest (NMFS 2007a). Commercial harvest of northern fur seals ended in 1984, but never rebounded to pre-harvest levels (NMFS 2007a). Currently, populations and pup production are declining in the Pribilof Islands (Muto et al. 2019), while the smaller population on Bogoslof Island is growing (probably by immigration from the Pribilof Islands; NMFS 2007a). Because the population on the Pribilof Islands is much bigger than on Bogoslof, the overall trend is thought to be declining, though there are uncertainties with the method by which abundance is calculated (Muto et al. 2019).

*Distribution Trend in Alaska (-10 to 10)*

2

Some rookeries on St. Paul and St. George Islands disappeared as a result of overharvest and population declines (Roppel 1984; Yano et al. 2009). In the late 1970s, northern fur seals colonized Bogoslof Island and the first evidence of breeding was documented in 1980 (reviewed in Loughlin and Miller 1989). These seals are believed to have colonized the island from the Commander Islands and the Pribilof Islands (Loughlin and Miller 1989; Ream et al. 1999 qtd. in NMFS 2007a). No changes to the distribution of rookeries have been documented since then. However, it is interesting to note that the size and area of Bogoslof Island has changed dramatically as a result of repeated volcanic eruptions (<http://www.avo.alaska.edu/images/image.php?id=104061>). The effects of these eruptions on the terrestrial habitat used for haulouts and breeding is unknown.

Status Total:

8

**Biological** - variables measure aspects of a taxon's distribution, abundance and life history. Higher biological scores suggest greater vulnerability to extirpation. Biological scores range from -50 (least vulnerable) to 50 (most vulnerable).

**Score***Population Size in Alaska (-10 to 10)*

-10

The Eastern Pacific stock is the only population of northern fur seals that occurs in Alaska. The current estimate for this population is 620,660 individuals, with a minimum population size of 525,333 (based on 2011-2016 data; Muto et al. 2019).

*Range Size in Alaska (-10 to 10)*

8

Spend the majority of their lives in open ocean and coastal waters in the Eastern Pacific. During winter, they range south to the Gulf of Alaska (sometimes as far south as Oregon and California), and west as far as the Kuril Islands (NMFS 2007a). During the summer breeding season, the majority of the population congregates on the Pribilof Islands, while a smaller population occurs on Bogoslof Island (NMFS 2007a). Terrestrial habitat for haul-outs is most restricted and is estimated at ~204 sq. km within Alaska.

*Population Concentration in Alaska (-10 to 10)*

2

Highly concentrated during the summer breeding season. It is estimated that >50% of the global population of northern fur seals (all stocks combined) uses the Pribilof Islands as rookeries (NMFS 2007a). Specific to Alaska, the Eastern Pacific stock forms rookeries on the Pribilof Islands (St. Paul, St. George, Sea Lion Rock) and Bogoslof Island (NMFS 2007a). A list of rookeries on the Pribilof Islands can be found in Yano et al. (2009). Outside of the breeding season, northern fur seals are one of the most pelagic pinnipeds and spend most of the year dispersed at sea.

*Reproductive Potential in Alaska*Age of First Reproduction (-5 to 5)

1

Females become sexually mature around 3-5 years old (York 1983).

Number of Young (-5 to 5)

3

Females produce a single pup per year (NMFS 2007a).

*Ecological Specialization in Alaska*Dietary (-5 to 5)

-5

Northern fur seals have a varied diet and employ a variety of foraging strategies (Zeppelin and Ream 2006; Kuhn et al. 2010; Benoit-Bird et al. 2013b; Kuhn et al. 2014). They feed mostly on small, schooling fishes (e.g. pollock, capelin) and squids (Zeppelin and Ream 2006; NMFS 2007a; Sinclair et al. 2008), but prey selection varies by site and season (Sinclair et al. 2008; Kuhn et al. 2010; Zeppelin and Orr 2010; Waite et al. 2012).

Habitat (-5 to 5)

-5

Northern fur seals are primarily pelagic and spend the majority of their time in the open ocean and in coastal waters (NMFS 2007a; Lea et al. 2009). Their broad thermal neutral zone allows them to exploit a large geographic area without incurring expensive metabolic costs (Dalton et al. 2014). During the breeding season, individuals haul out on islands in the Bering Sea, though they continue to use the marine environment (NMFS 2007a).

Biological Total: -6

**Action** - variables measure current state of knowledge or extent of conservation efforts directed toward a given taxon. Higher action scores denote greater information needs due of lack of knowledge or conservation action. Action scores range from -40 (lower needs) to 40 (greater needs).

**Score***Management Plans and Regulations in Alaska (-10 to 10)*

-10

Protected through the Marine Mammal Protection Act (NMFS 2015) and actively managed by

NOAA's National Marine Fisheries Service (NMFS; <https://alaskafisheries.noaa.gov/pr>). A conservation plan is in place for the Eastern Pacific stock (NMFS 2007a). Subsistence harvest is permitted for Alaska Natives and harvest regulations are co-managed by the Ice Seal Committee and NOAA Fisheries ([www.fakr.noaa.gov/protectedresources/seals/ice.htm](http://www.fakr.noaa.gov/protectedresources/seals/ice.htm)).

*Knowledge of Distribution and Habitat in Alaska (-10 to 10)* -10

Habitat relationships, seasonal movements and distribution patterns are well-understood (Loughlin et al. 1999; Ream et al. 2005; NMFS 2007a; Benoit-Bird et al. 2013a; Benoit-Bird et al. 2013b; Pelland et al. 2014; Sterling 2014).

*Knowledge of Population Trends in Alaska (-10 to 10)* -2

Population trends are monitored and assessed at rookeries using pup counts and estimates of pup production (NMFS 2007a; Muto et al. 2019).

*Knowledge of Factors Limiting Populations in Alaska (-10 to 10)* 2

Population declines have historically been linked to overharvesting (NMFS 2007a). The causes for the more recent decline are unclear. Several factors, including bottom-up (e.g. food availability) and top-down (e.g. predation) forces, have been proposed and may be operating simultaneously (Trites 1992; Springer et al. 2003; DeMaster et al. 2006; NMFS 2007a). Populations may be declining due to declines in prey quality and availability, which is affected by commercial fishing and environmental change such as increasing sea temperatures and regime shifts (NMFS 2007a; Sinclair et al. 2008; Atwood 2012). Fur seal populations also exhibit density-dependent dynamics that affect individual growth, survival, and age at maturation (Fowler 1990; Etnier 2004). Data from commercial fisheries suggest that by-catch mortality is low (NMFS 2007a), but additional research is needed on predation rates, and the effects of disease, marine debris, and environmental contaminants (NMFS 2007a; Lefebvre et al. 2016).

Action Total: -20

**Supplemental Information** - variables do not receive numerical scores. Instead, they are used to sort taxa to answer specific biological or management questions.

<b>Harvest:</b>	Not substantial
<b>Seasonal Occurrence:</b>	Year-round
<b>Taxonomic Significance:</b>	Monotypic genus
<b>% Global Range in Alaska:</b>	>10%
<b>% Global Population in Alaska:</b>	25-74%
<b>Peripheral:</b>	No

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