

# NORTHERN FUR SEAL

*Callorhinus ursinus* Linnaeus, 1758  
(Otariidae)

**Global rank** G3 (1996-11-18)

**State rank** S2S3 (2008-10-14)

## State rank reasons

Restricted breeding range; 74% of global breeding population occurs on Pribilof Islands in summer. Overall population large, but pup counts have declined annually since 1996 on breeding islands; current population is less than 50% of 1950s levels. Harvested annually in subsistence hunts. Threats include incidental take in commercial fisheries, entanglement in debris, and increased industrial and human development on Pribilof Islands.

## Taxonomy

Gardner and Robbins (1998) pointed out that *Otoes* and *Halarctus* are the earliest available generic names for northern and southern fur seals, respectively; they have petitioned the ICZN to preserve the generic names *Callorhinus* and *Arctocephalus* for these seals

## General description

Large flippers are bare; dense fur covers the rest of the body (Ronald et al. 1982). Born black with a light under fur, then molt to silver to grey while young, but often appear yellowish brown on shore. All females and males to age four or five years tend to be silver-grey dorsally, reddish brown ventrally, with buff-colored sides, white mystacial pad, and a white or gray blaze on the chest; adult male coloration ranges from a reddish brown to black with dark undersides (Gentry 1981). Newborn pups weigh between 4.5 and 5.5 kg (Baker et al. 1970), adult females are approximately 30-50 kg, and mature males weigh anywhere from 185 to 275 kg (Gentry and Kooyman 1986). A large female can measure approximately 142 cm, while a mature male can measure up to 213 cm (Baker et al. 1970). On average, males are heavier (up to 4.5 times) and longer than females from birth (Gentry 1981).

**Length (cm)** 1830

**Weight (gm)** 270000

## Reproduction

Females arrive at rookery mainly in June, with some arriving as late as early August. Pups are born 2-3 days after pregnant females arrive. Pupping peaks about July 15, usually ends about August 1. Mating occurs 4-7 days after a single



pup is born. In the Pribilofs, pups are weaned in October and November, about 125 days after birth; young go to sea soon afterward. Females are sexually mature usually at 4-5 years; few males breed before they are 8-9 years old. In a given year, about 57% of adult females give birth. Few males breed in more than 2 seasons. Maximum longevity about 26 years. Male territory may contain from less than 10 to about 100 females.

## Ecology

Solitary or slightly gregarious at sea. Large sharks, killer whales, and northern sea lions are primary predators. Mortality rate is nearly 50% in first year. Natural mortality averages 10-20% per year for 2-3-year-olds, 10-11% for mature females, and 32-38% for adult males (Reeves et al. 1992).

## Migration

Males arrive in breeding areas in late May and early June; migrate south to winter range from early August to early October. Females and young migrate south beginning in October (e.g., see Ragen et al. 1995 for information on migration from St. Paul Island south through the Aleutian Islands), gone from Bering Sea by late November; begin returning north to rookeries in March (Reeves et al. 1992). San Miguel Island population probably stays in California waters all year.

Some movement occurs among rookeries; immigrants from the Pribilof, Commander, and Robben islands contributed to growth of the San Miguel Island colony, and recent repopulation of the Kuril Islands evidently resulted from immigration of seals from western and eastern Bering Sea rookeries (Reeves et al. 1992).

**Food**

Feeds mostly on small schooling fishes and squids, including a wide variety of species in both groups. Occasionally eats birds. Feeds mostly at night. Adult males fast 1-2 months during breeding season. In the Pribilof Islands, lactating females forage usually within 160 km of rookery, occasionally up to 430 km away; feeding dives average about 68 m, sometimes exceed 200 m (Reeves et al. 1992).

**Phenology**

Feeds mostly at night. Active day and night in breeding aggregations.

**Habitat**

Open ocean and coastal waters. Rocky shores during breeding season.

**Global range**

*Breeding season:* mostly eastern and western Bering Sea and Sea of Okhotsk; also vicinity of San Miguel Island, California. Primary breeding sites are the Pribilof Islands (St. Paul and St. George) in the eastern Bering Sea and the Commander Islands in the western Bering Sea; smaller breeding rookeries are on Robben Island in the Sea of Okhotsk, on the Kuril Islands north of Japan, on Bogoslof Island in the eastern Aleutians, and on San Miguel Island (Adams Cove, Castle Rock) in southern California (Reeves et al. 1992). A few haul out seasonally on Southeast Farallon Island and (rarely) on San Nicolas Island, California (Reeves et al. 1992). *Winter:* south to Honshu coast, Japan, to California and occasionally the Mexican coast in the eastern Pacific. Adult females range farther south in winter than do males, about which little is known regarding non-breeding distribution (perhaps remain near the Aleutians).

**State range**

*Breeding season:* mostly eastern Bering Sea. Approximately 74% of worldwide population is found on St. Paul and St. George in the Pribilof Islands. Also occur on Bogoslof Island in the eastern Aleutians (NMFS 2001 stock assessment). *Winter:* Most females, pups and juveniles leave the Bering Sea by late November, migrate through the Aleutian Islands into the North Pacific Ocean, sometimes as far as Southern California. Adult males migrate only as far south as the Gulf of Alaska (Kajimura 1984 in NMFS 2003).

**Global abundance**

Total population was estimated at 1.75 million in 1976, with nearly 900,000 in the Pribilofs and 256,000 in the Commander Islands. The Pribilof herd totaled about 2.5 million in the late 1950s; total population in 1983 was estimated at about 1.2 million (NMFS, Federal Register, 15 March 1996); in 2002, population estimate was 888,120 (NMFS 2003). San Miguel Island, California, population was about 10,500 in the mid-1990s (Barlow et al., cited by NMFS, Federal Register, 15 March 1996). Nearly 1400 pups were born at the two San Miguel Island rookeries in 1988 (Reeves et al. 1992) and 2634 in 1994 (Barlow et al.).

**State abundance**

The most recent population estimate for the Alaska (Eastern Pacific) stock was approximately 888,120 (minimum estimate 751,714) in 2002, based on biennial pup counts on St. Paul and St. George Islands, and less frequent counts on Sea Lion Rock and Bogoslof Island (NMFS 2003).

**Global trend**

Population in the eastern North Pacific has declined significantly over the past 30 years (Baird and Hanson 1997). Births on St. Paul Island (Pribilofs) declined from 278,000 in 1975 to 171,000 in 1989 (Reeves et al. 1992). Between 1998 and 2002, pup production declined 5.1% per year on St. Paul and 5.4% per year on St. George (Pribilofs). Counts in 2000 and 2002 were lower than previous years. Current estimate of pup production is now below 1921 levels on St. Paul and below 1916 levels on St. George (NMFS 2001 stock assessment, NMFS 2003). San Miguel Island population has been growing since its discovery in 1968, though there was a decline in births in the 1980s associated with reduced prey availability during El Niño.

**State trend**

The Alaska population recovered to approximately 1.25 million in 1974 after the killing of females in the pelagic fur seal harvest was terminated in 1968 (NMFS 2001 stock assessment). Pup production then began to decline at a rate of 6.5-7.8% per year into the 1980s; by 1983, total stock estimate was 877,000. Between 1981 and 1995, pup production on St. Paul remained relatively stable; the 1996 estimate was not significantly different from 1990, 1992, and 1994 estimates. However, the 2000 estimate was 10% less than 1992 and 6% less than 1996. Although there was a slight increase in pup

numbers on St. George in 1996, the number of new pups declined between 1996 and 1998, and 1998 counts were similar to those of 1990, 1992, and 1994. Between 1998 and 2002, pup production declined 5.1% per year on St. Paul, 5.4% per year on St. George. Counts in 2000 and 2002 were lower than previous years. Current estimate of pup production is now below 1921 level on St. Paul and below 1916 level on St. George (NMFS 2001 stock assessment, NMFS 2003).

Conversely, the Bogoslof Island population is growing (Byrd and Williams 1999, Ream et al. 1999). Since the discovery of fur seals breeding on Bogoslof Island in 1980 (Lloyd et al. 1981), the number of pups has grown exponentially, from 2 in 1980 to 5096 in 1997 (Byrd and Williams 1999, Ream et al. 1999). From 1988 to 1997, the number of pups on Bogoslof Island grew at a rate of 58% per year; the number of non-pups counted in 1997 was 13,751, representing a 272.6% increase over a count of 3,691 in 1994 (Ream et al. 1999).

#### **State protection**

On June 17, 1988, NMFS declared the Pribilof Islands stock as "depleted" under the Marine Mammals Protection Act (MMPA) because populations had declined to less than 50% of levels observed in late 1950s, and there was no compelling evidence that carrying capacity had changed substantially since the late 1950s (NMFS 1993).

#### **Global threats**

Population decline in the Pribilof Islands in the 1980s apparently was due to harvests of females during the 1960s, increased mortality at sea (e.g., due to entanglement in debris such as discarded fishing nets), and perhaps reduced prey availability caused by increased commercial fishing in the North Pacific and Bering Sea. Substantial numbers are killed in the high-seas squid driftnet fishery between 40 and 50 degrees N latitude (Reeves et al. 1992). Until a new international fur seal treaty is established, this species remains vulnerable to renewed killing at sea.

#### **State threats**

Population decline in the Pribilof Islands in the 1980s apparently was due to harvests of females during the 1960s, and perhaps reduced prey availability caused by increased commercial fishing in the North Pacific and Bering Sea.

Approximately 15 fur seals/year are taken incidentally in commercial fisheries (i.e. groundfish trawl, high seas driftnet, salmon gillnet). From 1986 to 1996, annual subsistence harvest averaged 1,412 and 193 for St. Paul and St. George Islands, respectively. Intentional killing by commercial and spot fishers and others may occur, but the magnitude of mortality is unknown. Increased mortality at sea due to entanglement in debris is another concern. During 1995-1997, NMFS researchers and community members of St. Paul and St. George Islands captured and removed 321 fur seals from entangling debris (i.e. trawl net, packing bands, and twine). Rapid human and industrial development on the Pribilof Islands could affect fur seal habitat by increased direct human disturbance, discharge of seafood processing waste, oil and contaminant spills, and increased levels of noise (NMFS 2001 stock assessment).

#### **State research needs**

Long-term, retrospective studies needed to determine if population declines are naturally occurring or are related to anthropogenic factors. Assess and evaluate causes of mortality, both natural and anthropogenic. Monitor health, conditions, and vital parameters. Effects of development on fur seal habitat should be investigated. Investigate feeding ecology and factors affecting energetic requirements, as well as relationships between fur seal, fisheries, and fish resources (NMFS 1993).

#### **State inventory needs**

Population assessments should be continued to monitor status and trend.

#### **Global conservation and management needs**

Coordinate conservation efforts with other agencies and throughout species global range.

#### **State conservation and management needs**

Coordinate conservation efforts with other agencies and throughout species global range. Update current Conservation Plan, 1993. Continue to monitor incidental take in commercial fisheries through observer programs. Develop guidelines to minimize adverse effects associated with human-related activities and disturbance on the Pribilof Islands (NMFS 1993).

## LITERATURE CITED

- Baird, R. W., and M. B. Hanson. 1997. Status of the northern fur seal, *Callorhinus ursinus*, in Canada. *Canadian Field-Naturalist* 111:263-269.
- Baker, R. C., F. Wilke, and C. H. Baltzo. 1970. The northern fur seal. U. S. Fish Wildl. Serv., Circ. 336, 22 pp.
- Byrd, G. V. and J. C. Williams. 1999. Wildlife surveys at Bogoslof and Fire Islands, Alaska, in 1999. U.S. Fish and Wildl. Serv. Rep. AMNWR 99/04.
- Gardner, A. L., and C. B. Robbins. 1998. Generic names of northern and southern fur seals (Mammalia: Otariidae). *Marine Mammal Science* 14:544-551.
- Gentry, R. L. 1981. Northern Fur Seal: *Callorhinus ursinus* (Linnaeus, 1758). Pages 143-160. In: Ridgeway, S. H and R. Harrison (eds.). *Handbook of marine mammals*. Volume 1. The walrus, sea lions, fur seals and sea otter. Academic Press, New York. 235 pp.
- Gentry, R.L., and G.L. Kooyman. 1986. Fur seals: Maternal strategies on land and at sea. Princeton Univ. Press, Princeton, NJ. 291 pp.
- Lloyd, D.S., C.P. McRoy, and R.H. Day. 1981. Discovery of northern fur seals (*Callorhinus ursinus*) breeding on Bogoslof Island, southeastern Bering Sea. *Arctic* 34:318-320.
- National Marine Fisheries Service (NMFS). 1993. Final conservation plan for the northern fur seal (*Callorhinus ursinus*) . Prepared by the National Marine Fisheries Service, Alaska Fisheries Science Center, National Marine Laboratory, Seattle, Washington and the NMFS/Office of Protected Resources, Silver Spring, MD. 80 pp.
- National Marine Fisheries Service (NMFS). 2001. Northern fur seal (*Callorhinus ursinus*): Eastern Pacific stock. Marine mammal stock assessment report. Region 10 National Marine Fisheries Service. NOAA Fisheries.
- National Marine Fisheries Service (NMFS). 2003. The setting of the annual subsistence harvest take ranges of northern fur seals on the Pribilof Islands for the period 2003-2005. Environmental assessment, April 2003, 120 pp.
- Ragen, T. J., G. A. Antonelis, and M. Kiyota. 1995. Early migration of northern fur seal pups from St. Paul Island, Alaska. *Journal of Mammalogy* 76:1137-1148.
- Ream, R. R., J.D. Baker, R. T. Towell. 1999. Bogoslof Island Studies, 1997. Pp. 81-92. In: E.H. Sinclair and B. W. Robson (ed.), *Fur seal investigations, 1997*. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-AFSC-106, 109 pp.
- Reeves, R. R., B. S. Stewart, and S. Leatherwood. 1992. *The Sierra Club Handbook of Seals and Sirenians*. Sierra Club Books, San Francisco, California. xvi + 359 pp.
- Ronald, K., J. Selley and P. Healey. 1982. Seals (*Phocidae*, *Otariidae*, and *Odobenidae*). Pp. 769-827. In: Chapman, J.A. and G.A. Feldhamer (eds.). *Wild mammals of North America: biology, management, and economics*. The Johns Hopkins Univ. Press, Baltimore, MD.

---

## Acknowledgements

**State Conservation Status, Element Ecology & Life History**  
**Author(s):** Gotthardt, T.A., and C.A. Coray



**State Conservation Status, Element Ecology & Life History Edition Date:** 24Mar2005

Life history and Global level information were obtained from the on-line database, NatureServe Explorer ([www.natureserve.org/explorer](http://www.natureserve.org/explorer)). In many cases, life history and Global information were updated for this species account by Alaska Natural Heritage Program zoologist, Tracey Gotthardt. All Global level modifications will be sent to NatureServe to update the on-line version.

**NatureServe Conservation Status Factors**  
**Edition Date:** 27Jan1998

**NatureServe Conservation Status Factors**  
**Author:** Hammerson, G.

**Global Element Ecology & Life History Edition**  
**Date:** 05Sep1996

**Global Element Ecology & Life History Author(s):**  
Hammerson, G.

---