

Harbor Seal

The **harbor seal** (*Phoca vitulina*), a widespread species in both the north Atlantic and Pacific oceans, is found in Alaska along the coast extending from Dixon Entrance north to Kuskokwim Bay and west throughout the Aleutian Islands. Harbor seals, and other phocid (true) seals, also are called “hair” seals, which helps distinguish true seals from fur seals. In the Tlingit language, harbor seals are called *tsaa*, the Alutiiq name for seals is *isuwiq* and the Inupiaq name is *qasigiaq*.

General description: Harbor seals are mammals; that is they have hair and are warm-blooded, air-breathing animals which suckle their young. They weigh about 24 pounds (11 kg) at birth and gain weight rapidly during a month-long suckling period, perhaps doubling their weight. They can reach five to six feet (1.7-1.9) in length. Average weight for adults is about 180 pounds (82 kg); males are somewhat larger than females and can weigh up to 285 pounds (129 kg). They are covered with short, stiff, bristle-like hair. Coloration varies, but two basic patterns occur: a dark background with light rings, or light colored sides and belly with dark blotches or spots. Harbor seals molt annually, usually in summer; timing of molt depends upon sex and age class.

Harbor seals are well adapted to life in the sea. They are able to dive to depths up to 1640 feet (500m) and can remain submerged for over 20 minutes, although most dives are less than 65ft (20m) and less than 4 minutes long. Oxygen-conserving adaptations that allow such dives include high blood volume, reduced peripheral circulation, reduced heart rate, and high levels of myoglobin (oxygen-binding protein in muscle). Harbor seals are graceful and efficient swimmers as they use their hind flippers for propulsion and foreflippers as rudders. Movement on land is accomplished by laborious, caterpillar-like undulations on their bellies.

Food habits: Harbor seals are opportunistic feeders and likely take advantage of seasonally available prey resources. In Alaska, commonly eaten prey include walleye pollock, Pacific cod, capelin, eulachon, Pacific herring, sandlance, Pacific salmon, sculpin, flatfish (e.g., flounder and sole), octopus, and squid.

Life history: In Alaska, single pups are born between May and mid-July. Young pups are able to swim almost immediately after birth. They normally remain with their mothers about one month, after which they are weaned and separate from their mother. At that time over half their body weight may consist of fat, providing them a head start on self-sufficiency. Sexual maturity occurs at between 3 and 7 years. Mature females mate shortly after weaning their pups. Development of the embryo is suspended for about 11 weeks; a trait called embryonic diapause (i.e., delayed implantation). Active fetal development is about 8½ months. The sex ratio of harbor seals at birth is approximately equal and remains so until about 5 years of age. Thereafter mortality rates for males are higher, and females become relatively more abundant. Maximum ages estimated from annual rings in their teeth are 26 years for a male and 35 years for a female.

Seasonal movements: Harbor seals show variable movement patterns depending on their sex and age class, with some exhibiting considerable localized travel but no seasonal patterns, while others show more extended movements, particularly during the winter. Seasonal use of glacial fjords, where many females aggregate to give birth on icebergs in the summer, is common. Satellite tagging studies have shown that pups may range up to 232 miles (374 km) from their birth site, although most movements are less than 62 miles (100km) away. Juvenile seals can make more extensive movements of up to 186-310 miles (300-500 km) away from their tagging location; however, most remain within 100km. Adult seals typically make shorter movements and on average are within 37 miles (60km) of their tagging site. More recent tagging of seals that occupy glacial fjords has revealed movements of seals from one glacial fiord to another as well as one extensive movement of a juvenile female seal from Glacier Bay in southeastern Alaska to Prince William Sound, an estimated straight-line distance of ~ 520 miles (830 km). As more seals are being satellite-tagged, much more information is becoming available about winter and summer movements.

Behavior: Harbor seals haul out of the water periodically to rest, give birth, and nurse their pups. In winter seals spend up to 80% of their time in the water. In spring and summer they spend more time hauled out during pupping and molt season. Reefs, sand and gravel beaches, sand and mud bars, and glacial, pan ice, and sea ice are commonly used for haul-out sites. Harbor seals are sometimes found in rivers and lakes, usually on a seasonal basis (present in summer, absent in winter). At Iliamna Lake, seals are present year-round and are probably resident. Births of harbor seal pups are not restricted to a few major rookeries (as is the case for many species of pinnipeds) but occur at many haul-out sites. Most harbor seals are closely associated with nearshore coastal waters (<25 km from land); however, there have been a few cases of seals making trips to the continental shelf margin (50-100km offshore). While harbor seals will often voluntarily swim close to humans on beaches or in small boats, seals resting on land or ice are wary of people and will rush into the water if approached too closely. If disturbed too often, seals have been known to abandon favorite haul-out sites or their pups.

Population size: Harbor seals are difficult to census because they can be accurately counted only when they are hauled out. They haul out at different times of the day at thousands of locations in Alaska; both at terrestrial sites and on glacial ice calved from tidewater glaciers. The proportion of the total population hauled out at any given time is unknown as some seals are in the water and not available to be counted during a given survey. The total Alaska harbor seal population is estimated at approximately 141,000 in non-glacial sites and approximately 15,000 in glacial fjords.

The number of harbor seals has declined in several areas of the Gulf of Alaska, Prince William Sound, and the Aleutian Islands since the mid 1970s. At Tugidak Island near Kodiak, numbers declined 90 percent from approximately 11,000 seals to 1,000. Seal numbers began increasing in the Kodiak area in the mid-1990s and in Prince William Sound around 2002. A greater than 65% decline in seal numbers has been documented in Glacier Bay since the early 1990s; seals there continue to decline at a precipitous rate. The reasons are unknown but multiple factors are likely involved.

Predators, hunting, and other mortality: The most common predator of harbor seals is the killer whale. Other predators include sharks, sea lions, and land predators such as wolves, bears and coyotes. Since implementation of the Marine Mammal Protection Act in 1972, hunting has been restricted to Alaska Natives. Harbor seals play a crucial role in the culture and diet of Alaska Natives; the annual subsistence harvest of harbor seals in Alaska is about 1,800 to 2,900 animals, with fewer seals harvested in recent years. The harbor seal's ability to damage or remove salmon from gillnets has caused conflicts between seals and commercial fishers in Alaska. This behavior creates economic losses for fishers and often fosters an antagonistic attitude toward seals. The Copper River Delta, the mouths of the Stikine and Taku rivers, and portions of Bristol Bay are areas with notable harbor seal-fishery conflicts. Sometimes seals are caught and killed or injured in fishing gear, primarily in gillnets and occasionally in crab pots.

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Revised and reprinted 2008

