

Beluga Whale

The **beluga whale** (*Delphinapterus leucas*) is a medium-sized cetacean belonging to the group known as odontocetes (toothed whales), which also includes sperm whales, killer whales, dolphins, and porpoises. Its closest relative is the narwhal. The common name is derived, in part, from the Russian word for white. They are also called “white whales;” however, this is somewhat of a misnomer, since only older animals are actually white. Common names used by Alaska Eskimos include *Puugzaq* (Siberian Yupik), *Cetuaq* (Central Yupik), and *Sisuaq* (Inupiat). Belugas range widely in Arctic and subarctic waters and are often the most important small cetacean to northern coastal peoples.

General description: At birth beluga whales are dark blue-gray in color. They measure approximately 5 feet (1.5 m) long and weigh 90 to 130 pounds (40–60 kg). The color gradually lightens, and they are usually white by age 8 or 10. Adult males are from 11 to 15 feet (3.4–4.6 m) long and weigh 1,000 to 2,000 pounds (450-900 kg). Adult females are smaller, seldom exceeding 12 feet (3.7 m) in length. The size to which belugas grow varies in different parts of the range. Individuals more than 20 feet (6.1 m) long have occasionally been recorded, though not in Alaska.

Belugas are somewhat more robust-bodied than other porpoises and dolphins due to the presence of a blubber layer, which can be as much as 5 inches (12 cm) thick. The dorsal fin, characteristic of most whales, is reduced to a low ridge along the midline of the back. The head, which is characterized by a small “beak” and large bulging “melon,” is quite mobile in comparison to other whales. In fact, the beluga is the only whale that can bend its neck. These features appear to be adaptations to maneuvering and catching prey in muddy or ice-covered areas.

Simple, peg-like teeth first appear in the lower jaw. Teeth gradually appear in the upper jaw, and by adulthood there are a total of 40 teeth. Extensive wear and breakage of teeth occur throughout life.

Food habits: Winter foods of belugas are virtually unknown. In summer they feed on a variety of schooling and anadromous fishes that are sequentially abundant in coastal zones. Principal species eaten include herring, capelin, smelt, Arctic and saffron cods, salmon, flatfishes, and sculpins. Octopus, squid, shrimps, crabs, and clams are eaten occasionally. Much feeding is done over the continental shelf and in nearshore estuaries and river mouths. In the shallow waters of Alaska, most feeding dives are probably to depths of 20 to 100 feet (6–30 m) and last two to five minutes. However, like narwhals, belugas are capable of diving very deep. Satellite-tagged belugas in Canada were found to dive to depths in excess of 2,800 feet (860 m). Belugas are also similar to narwhals in that they often feed in waters heavily covered by sea ice. In Alaska, satellite tagged belugas have been documented feeding north of Point Barrow, under sea ice that covered between 90 and 100 percent of the ocean surface. These belugas traveled deep into the sea ice; as far as 430 miles (700 km) from open water!

Life history: Beluga calves are born in May–July, usually when the herds are near or in summer concentration areas. The single calf usually emerges tail first, and after birth it is guided to the surface and closely attended by its mother. Females become sexually mature at 8 to 10 years old, and males mature slightly later. Breeding occurs in March or April, and the total gestation period is about 14.5 months. Most adult females will produce one calf every three years. A calf is nursed by its mother for about two years. Belugas can probably live to be 80 years old.

Belugas shed their skin, or molt, each summer in July. They concentrate in shallow water, often where there is coarse gravel, and rub on the bottom to help remove the old yellow skin. The skin grows about 100 times faster than normal during the molting period.

Behavior: Belugas sometimes occur in herds of up to 1,000 individuals, although small groups of two to five are common. The social structure of these groups is not well known, but it is known that adult males often swim together in pods of eight or ten, and adult females occur in pods with juveniles and calves. Belugas often swim four to six abreast, rolling simultaneously to breathe. Sometimes when they are in shallow water or feeding, only their blowholes break the surface when they breathe, making them very difficult to see. This is called “snorkeling.” These whales spend only about four to seven percent of their time at the surface.

Belugas can move long distances. Some migrate over 1,500 miles (2,700 km) from the Bering Sea to the Mackenzie River estuary in Canada. In summer 1993, one satellite-tagged beluga swam all the way from the Mackenzie River to the eastern Canadian arctic, where it was seen swimming with narwhals. It then returned to Alaska waters.

Belugas are very vocal animals, producing a variety of grunts, clicks, chirps, and whistles which are used for navigating, finding prey, and communicating. Because of this, they have sometimes been called “sea canaries.”

It is not unusual for belugas to ascend large rivers such as the Yukon, and they appear to be unaffected by salinity changes. Although upriver movements appear to be less common than a century ago, in 1982 a group of whales was seen at Tanana, 750 miles (1,200 km) from the Yukon River mouth, and a single adult was seen above Rampart, 80 miles (130 km) farther upstream. In 1993, four belugas were seen near Fort Yukon. In 2006, the carcass of a young beluga was found on the banks of the Tanana River, between Tanana and Fairbanks.

Population size: Belugas occur throughout arctic and subarctic waters of North America, Greenland, Europe, and Asia. Based upon summering areas and genetics, five populations (or stocks) are thought to occur in Alaska: Cook Inlet, Bristol Bay, Bering Sea, Eastern Chukchi, and Beaufort Sea stocks. Although there are no physical barriers between these populations, genetic data indicate that the populations do not interbreed.

The smallest and most genetically distinct population occurs in Cook Inlet. At one time, this population was believed to consist of over 1,000 individuals. It is believed that overharvest caused a drastic decline between 1994 and 1998; by 1998, the population had declined to approximately 347 belugas. Because of this decline, Congress imposed a moratorium on beluga harvest in Cook Inlet in 1999 and Cook Inlet belugas were designated as depleted in 2000 under the Marine Mammal Protection Act. Since that time, the harvest of Cook Inlet belugas has averaged one whale per year. The population has yet to rebound and the most recent survey estimated that approximately 375 belugas inhabit Cook Inlet. This population segment was petitioned to be listed under the Endangered Species Act in 1999; listing was rejected because declines were believed to be due to overharvesting and, by that time, harvest was strictly regulated. Because the population has not recovered, Cook Inlet belugas were again petitioned to be listed in 2007 and this petition is still under review.



Much less is known about the other populations of belugas in Alaska. Recent studies by the Alaska Beluga Whale Committee and the Alaska Department of Fish and Game indicate that the Bristol Bay population likely remains within Bristol Bay year-round. In the 1950's, it was believed that approximately 1,000 to 1,500 belugas occurred in Bristol Bay. Based upon aerial surveys, it appears that this population increased at approximately four percent per year between 1993 and 2005.

The Bering, Eastern Chukchi, and Beaufort Sea populations are all believed to winter in the Bering Sea. Data from whales with satellite transmitters confirms this for the Bering Sea stock, but little is known about the movements of the other stocks within Alaskan waters. Likewise, population sizes are largely unknown. Aerial surveys have detected approximately 18,000 belugas in the Bering Sea stock, a minimum of 3,700 belugas in the Eastern Chukchi Sea stock, and close to 40,000 belugas in the Beaufort Sea stock.

Predators, hunting, and other mortality: Mass strandings and ice entrapments are likely a major source of mortality for beluga whales. In estuaries, belugas may strand on tidal flats when tides retreat quickly. In Cook Inlet, such strandings are documented almost every year. Stranding on tidal flats does not always harm belugas; it appears that larger, heavier whales are more likely to die due to stranding than smaller whales.

Although belugas spend much of their time under sea ice, they are vulnerable to ice entrapments. Hundreds, even thousands, of whales might become trapped in a small opening in the sea ice, when open water is farther away than a beluga can swim during one breath. This occurs when winds or cold snaps close the leads or cracks in the sea ice that the belugas were using. Often, polar bears find the trapped belugas and pull them out of the water when they surface to breathe.

Killer whales are another source of mortality and have been observed killing belugas in Cook Inlet, Bristol Bay, and Hooper Bay. Beluga whales will move into shallow water or into sea ice as protection against killer whales. Entanglement in gillnets can also be a substantial cause of mortality in some areas.

Belugas are harvested by Alaska Natives living in coastal villages from Tyonek in Cook Inlet to Kaktovik in the Beaufort Sea. Hunting is done in spring as whales travel northward through leads in the ice, as well as during the summer and autumn open-water period. Recent harvest levels in Alaska have averaged about 300 animals per year. On average, these removals represent between 0.1 and 1.6 percent of the respective populations and are well below the sustainable yield which has been estimated to be about five percent per year. In Alaska, beluga whales are managed by the Alaska Beluga Whale Committee, a co-management group composed of hunters and scientists. This co-management group works together to manage, conserve, and learn more about beluga whales. This co-management group is responsible for managing all populations, except the depleted Cook Inlet population.

Belugas are principally used for human consumption, either as meat or "maktak," which consists of skin and the outer layer of blubber. The oil is used for cooking and for fuel.

Belugas are an important component of the nearshore marine mammal fauna of Alaska waters. The continued existence of healthy beluga populations depends on protection of important habitats, avoiding conflicts between belugas and human developments in nearshore and offshore waters, and wise use of the resource.

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