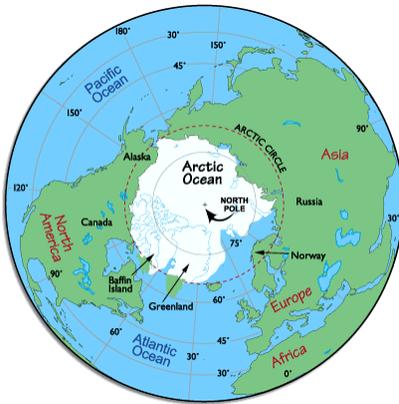


# Animals of the Arctic Ocean

The Arctic Ocean is both the smallest and the shallowest of the world's five oceans, but it is one



of the most important ecosystems, influencing global weather patterns and home to rare and endangered species. It spans an area of 14,056,000 km<sup>2</sup> with 45,390 km of coastline. Countries that border the Arctic Ocean include the United States, Canada, Russia, Greenland and Norway. The Arctic Ocean contains some areas of sea ice coverage throughout the year, with nearly the entire ocean being covered during the late winter months.

## The Animals of the Arctic Ocean

The vast area of the Arctic Ocean is home to numerous fish, mammals and birds. Due to the ice coverage on the Arctic Ocean, its animal inhabitants have adapted to be skilled both on ice and in open water. The Beaufort and Chukchi Seas, the Arctic waters north of Alaska, are sometimes known as America's 'Polar Bear Seas' – and for good reason. One of the most unique marine ecosystems in the world, these waters are home to the entire population of U.S. polar bears and have consequently been designated critical habitat. Many of America's most beloved sea animals thrive here including the endangered bowhead whale, walrus, seals and countless birds. This marine wildlife, especially the bowhead whale, is vital to the survival of the subsistence culture of the Inupiat people of Alaska's North Slope.

### Polar Bears



Photo courtesy of Fish and Wildlife Service

Polar bears are perhaps the most well-known species that reside in the Arctic Ocean ecosystem. They are the largest terrestrial mammalian carnivore species. Although the bears are born on land, they spend most of their life on sea ice. The bears can be found in and on top of the Arctic Ocean when sea ice is present. Alaska and its coast line support the whole of America's polar bear population and contain a number of on

land denning locations, necessary for polar bear mothers to protect their young from the harsh arctic winters. Polar bears primary food source are seals that

## By the Numbers

- A male walrus can weigh nearly **3,000 pounds**. **CLASSROOM ACTION:** bring together enough students and teachers to equal the weight of one walrus.
- The bowhead whale can grow to **60 feet** in length. **CLASSROOM ACTION:** have your students measure out the length of a bowhead whale in the hallway.
- A polar bear's stomach can hold an estimated **15% to 20%** of its body weight. **CLASSROOM ACTION:** have your students calculate how much food their stomachs could hold if they were a polar bear based on their weight.
- The temperature of the surface of the Arctic Ocean is fairly constant, near the freezing point of seawater, around **2 degrees Celsius**. **CLASSROOM ACTION:** Have your students convert 2 degrees Celsius into Fahrenheit to find out if salt water would ever be able to freeze where they live.

come up from the ocean through holes in the ice to breathe. The polar bears wait for the seals to emerge by sticking their head through the ice until they strike. As sea ice has been declining over the past decades, so too have polar bear population numbers. Thick, dark colored skin and a thick, furry coat allow the polar bear to survive the frigid temperatures of the Arctic Ocean. The ability of polar bears to survive is a direct result of the amount of sea ice and the duration for which the ice is present. Because of the decreasing sea ice, polar bears are currently listed as a threatened under the Endangered Species Act. Current plans to allow drilling in the Arctic Ocean could hurt the species even more.



Photo courtesy of Fish and Wildlife Service

## Walruses



Photo courtesy of Fish and Wildlife Service

Walruses are a large marine mammal which lives in the Arctic Ocean and the subarctic seas. Their large size, prominent tusks and facial whiskers make walruses one of the most identifiable arctic residents. Adult male walruses can weigh up to 2,700 pounds while the smaller females can weigh 1,900 pounds. Walruses spend much of their time in the more shallow waters of the Arctic Ocean looking for mollusks to eat. Walruses are rarely covered in fur. Instead, they have a thick layer of skin and blubber that keeps the walruses insulated in the cold arctic temperatures. Walruses only have two natural predators: the polar bear and the killer whale. However, the walrus is not a major part of either predator's diet. Walruses feed on shrimps, crabs, corals, mollusks and many other things in the ocean. These large mammals are often considered a keystone species of the Arctic by scientists and

are also relied on by many indigenous populations throughout the Arctic. In recent years, scientists have witnessed massive haul-outs where tens of thousands of walruses come ashore in a single location. While walruses typically spend the summer months far offshore in the Chukchi Sea where they can forage for food while resting on floating sea ice, scientists believe the lack of sea ice in recent years is a cause for these large haul-outs. Two problems associated with these unusually large gatherings of walruses along a shoreline is that smaller and younger walruses are often trampled and scientists are not sure there are sufficient food sources so close to the shore to support such large numbers.



Photo courtesy of Fish and Wildlife Service

## Seals



Photo courtesy of Fish and Wildlife Service

The ringed seal lives in the Arctic Ocean and gets its name from the distinctive fur pattern of dark spots surrounded by grey rings. It is the most abundant seal in the Arctic as well as the smallest. Ringed seals are the favorite meal of the polar bear. Ringed seals remain in close association with the sea ice for most of the year as they live and give birth on the ice. They prefer large packs of ice, where they are able to find breathing holes and remain protected under the ice from predators. The ringed seal feeds on a large number of oceanic fish in the Arctic area. These seals

can be found off the coast of Alaska in both the Beaufort and Chuckchi Seas in large numbers. Ringed seals have been and continue to be an important part of the lives of the indigenous people of the Arctic.



Photo courtesy of Fish and Wildlife Service

Northern fur seals are the largest fur seals in the world. They range from the west coast of the United States to the Arctic Ocean surrounding the coast of Alaska. The northern fur seals have a thick coat that allows them to stay warm in the cool waters of the ocean. Additionally, they have evolved to possess flippers as limbs to help them move through the water efficiently.

## Whales

There are a variety of whale species that call the Arctic Ocean their home. Notably, these whales include the beluga whale, bowhead whale and the narwhal. Belugas are a popular whale due to their bright white color. This is an adaptation that allows them to be camouflaged from their main predators: polar bears and killer whales. Belugas spend most of their time close to the coast where they can easily find food. These white whales have been called "The Canary of the Sea" due to their high-pitched calls.



Photo courtesy of Florian Shultz from To The Arctic

Another species of iconic whale in the Arctic Ocean is the bowhead whale. Second only to the blue whale in size, these mammals can grow over 60 feet in length and weigh nearly 100 tons. These whales are unique because they spend their entire lives within the Arctic and sub-Arctic

waters. With the largest mouth of any animal on earth, bowhead whales sweep the ocean floor much like a vacuum where small invertebrates and copepods are caught in its rows of baleen. The bowhead whale is a critical resource for the Inupiat people of Alaska's North Slope. Each successful hunt is celebrated through their villages and shared with all inhabitants and even to people who have moved away from the village.



Photo by Glenn Williams, National Institute of Standards and Technology.

Narwhals were historically referred to as the “unicorns of the sea” because of their unique tusk that is actually a tooth.

Narwhals are very similar to belugas – sharing a similar diet and usually found in groups. In 2000, dentist and marine mammal researcher Martin Nweeia, long fascinated with the narwhal's extraordinary tooth, became the principal investigator for the Narwhal Tooth Expedition and

Research Investigation. A multidisciplinary

team was established, and what they found was remarkable. Using an electron microscope, the researchers determined that about 10 million nerve endings tunnel from the core to the outer surface of the tusk. That makes the tusk an incredible sensory device, capable, the scientists think, of detecting slight changes in temperature, pressure, and much more. The tusk might let a whale know when the sea is about to freeze over, for example, or give it other life-sustaining information about its environment.