

Background facts for Arctic Marine Food Web Curriculum

Courtesy of



Name	Inuktitut	Quick Facts (Teacher can choose)
Killer whale	ᐱᓖᐅᑦ	<ul style="list-style-type: none"> • Orcas are technically dolphins – they’re the largest species of dolphin in the world. • Orcas hunt in family groups called pods, which can be made up of over 40 individuals. • Orcas are extremely intelligent predators, and they hunt everything from fish to other marine mammals.
Walrus	ᐱᐃᐃᓐᑦ	<ul style="list-style-type: none"> • Walruses are large marine mammals related to seals. • They have long tusks that they use to create holes in the ice, to help them get in and out of the water, and to display dominance to other walruses. • They live in large groups called herds, and they grow to be very large and heavy – they can weigh as much as a small car! • They like to eat fish and marine invertebrates like soft corals and shellfish.
Inuit / People who live in the Arctic	ᐃᐅᐃᑦ / ᐃᐅᐃᑦ ᐅᐃᑦᑲᑦᐅᑦᐅᑦ ᐅᐃᐅᑦᐅᑦᐅᑦᐅᑦ	<ul style="list-style-type: none"> • Have the kids talk about what they know about the links between the marine species and their families.
Phytoplankton	ᐅᐃᐅᑦᐅᑦᐅᑦᐅᑦ ᐱᐃᐃᑦᐅᐃᑦ	<ul style="list-style-type: none"> • Similar to the plants on land, phytoplankton are able to capture sunlight and use photosynthesis to turn that light into energy. They are often so small they can only be seen under a microscope and there are many different species of phytoplankton. They release oxygen and they actually provide HALF the oxygen we breath on earth. They are also important food for everything from microscopic animals to the largest whales.
Greenland shark	ᐱᐃᐃᑦᐅᐃᑦ ᐃᑦᑲᑦᐅᑦᐅᑦᐅᑦ	<ul style="list-style-type: none"> • Hard to find! The first underwater photos of a live Greenland shark were taken in the Arctic in 1995, and the first video images of a Greenland shark swimming freely in its natural environment were not obtained until 2003. • They like it cold. Greenland sharks are native to the North Atlantic waters around Greenland, Canada, and Iceland. • They are the only true sub-Arctic shark and the only shark that can tolerate Arctic temperatures year round. • They prefer very cold water (-1°C to 10°C). In the summer, they tend to stay

		<p>in the ocean's depths where the water is coldest. In the winter, they make a vertical migration to the surface layer, which at that time is colder than the water on the sea floor.</p> <ul style="list-style-type: none"> • These sharks can go deep. Greenland sharks have been observed at the water's surface all the way down to 2 200 m (7 218 ft) deep. They are sometimes seen resting on continental shelves and slopes at these great depths. • They rival great white sharks in terms of size. Greenland sharks are one of the larger sharks out there, capable of growing to more than 6.1 m (20 ft) long and weighing up to 1 135 kg (2 500 lbs). • Some populations of Greenland sharks are commonly parasitized by the copepod <i>Ommatokoita elongata</i>. This parasite latches on to the shark's eye and destroys the corneal tissue, rendering the shark partially blind. Luckily for the shark, light rarely penetrates the deep waters it prefers and so it relies on other sensory systems to get around and find prey. While over 90% of Arctic Greenland sharks sport this parasite, less than 10% of the Greenland sharks observed in the St. Lawrence are hosts. • The Greenland shark is an opportunistic predator that will eat just about any meat it finds, either dead or alive. They eat a lot of fish and there is some evidence that they ambush sleeping seals, but some scientists believe they are primarily scavengers. Some strange things have been found in Greenland sharks' stomachs, including the remains of polar bears, horses, moose, and in one case an entire reindeer. • Their teeth are designed to cut out plugs of flesh. The teeth on the upper jaw are narrow, pointed, and smooth, and anchor the food item as the lower jaw does the cutting. The teeth on the lower jaw are larger and broader and curve sideways. By swinging its head in a circular motion, the shark can cut out a round plug of whatever it's feeding on. • Greenland sharks go for a 'slow and steady' strategy. Also known as the sleeper shark for its sluggish pace, the Greenland shark is one of the slowest swimming sharks in the world. They average a cruising speed of 3 km/hr (1.9 mph), but are capable of short bursts of speed. • They might be very long-lived. Some estimates put the life span of
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		<p>Greenland sharks at over 400 years. Where does this number come from? One study found the sharks grow about 0.5 to 1 cm (0.2 to 0.4 in) a year. A Greenland shark that was captured and tagged off Greenland in 1936 was recaptured 16 years later. In that time, it had grown 6 cm (2.4 in) longer. The Greenland shark may be one of the longest-lived vertebrates on the planet.</p>
Gelatinous carnivorous zooplankton (jellyfish etc)	<p>ᑭᑦᑭᑦᑭᑦ ᑭᑦᑭᑦᑭᑦᑭᑦᑭᑦ ᑭᑦᑭᑦᑭᑦᑭᑦ (ᑭᑦᑭᑦᑭᑦᑭᑦ ᑭᑦᑭᑦᑭᑦᑭᑦ)</p>	<ul style="list-style-type: none"> • Jellyfish come in all shapes and sizes, they can be as small as a pin head or larger than a grown adult. • Jellyfish have tentacles armed with special stinging cells which they use to defend themselves and catch food. • They do not have brains, hearts or bones, but they do have a basic nervous system that helps them navigate life in the ocean. • They eat anything from microscopic animals to small fish, depending on the species of jellyfish.
Narwhal	<p>ᑭᑦᑭᑦᑭᑦ</p>	<ul style="list-style-type: none"> • Narwhals are toothed whales that have a single large tusk on their forehead. • These tusks are actually really huge teeth which are found on almost all male narwhals but only some females. • Scientists aren't quite sure what these tusks are able to do – one theory is that they help the narwhal to sense its surroundings because the tusks are full of nerves and pores. • They have also been seen using their tusks to stun fish while hunting.
Detritus	<p>ᑭᑦᑭᑦᑭᑦ</p>	<ul style="list-style-type: none"> • Detritus, also called marine snow, is made up of tiny bits of dead organisms and waste. • Marine snow falls from shallower waters into the depths and actually helps to feed many animals in the deep ocean where food is much more scarce than in shallow waters. • Animals that feed on marine snow will either filter it out of the water or scavenge it off the seafloor.
Greenland halibut	<p>ᑭᑦᑭᑦᑭᑦ ᑭᑦᑭᑦᑭᑦᑭᑦᑭᑦ</p>	<ul style="list-style-type: none"> • Largest commercial fishery in Arctic waters

		<ul style="list-style-type: none"> • Spawning takes place in winter and early spring in Davis Strait at depths of 650 to 1000 m (2 132 to 3 281 ft) in temperatures close to freezing. • Each female produces about 300,000 eggs with a diameter of 4.5 mm (0.2 in). • Once they hatch, the young rise up near the surface waters and drift southwards to populate the shelf and continental slopes off Newfoundland and Labrador as well as in the Gulf of St Lawrence. • The different populations can be separated by using their parasite fauna as biological "tags". Individuals live as long as 19 years, but older adults are very difficult to age. Maturity is reached at 6 to 9 years of age. • The adults are voracious predators and hunt more actively than related flounders. They eat Atlantic and polar cod, capelin, roundnose grenadiers, witch flounders, redfishes, sand lances and even their own young. • They also prey on crustaceans, squids, and bottom dwelling organisms. • They are eaten by Greenland shark, cod, salmon, whales, and seals.
zooplankton/copepods	ΓΡϣϣϣϣ ρLϣΔϣ/ ϣδΛϣρLϣδϣϣ	
Harp Seal	ϣbΔρϣϣ	<ul style="list-style-type: none"> • Harp seals spend most of their time diving and swimming in the icy waters of the North Atlantic and Arctic Oceans. • These sleek swimmers often hunt for fish and crustaceans at 90 m (300 ft) and may dive to nearly 300 m (1 000 ft). They are able to remain submerged for up to 15 minutes. • During mating season, females form large colonies on floating ice and give birth to young. Older seals return annually to pack ice to molt. • They lose their pelts and top layers of skin and grow a new fur coat every year. • Harp seals are sometimes called saddleback seals because of the dark, saddle like marking on the back and sides of their light yellow or gray bodies of the adults. Baby seals are born on pack ice floating in the North Atlantic and Arctic Oceans. • Harp seal mothers are able to identify their babies by their smell.

		<ul style="list-style-type: none"> The pups don't have any blubber at birth, but quickly gain weight nursing on high-fat mother's milk. When the pups reach about 36 kg (80 lbs), their mothers stop nursing them. The pups go without food for about six weeks and can lose about half their body weight until they dive in and begin to hunt for themselves. The young seals are famous for their snowy white coats. Harp seals are an important animal for their fur and meat in the Canadian Arctic.
Polar bear	ᐱᐅᑦᑲᑦ	<ul style="list-style-type: none"> Polar bears live in the Arctic. Polar bears have black skin and although their fur appears white, it is actually transparent. It is the largest carnivore (meat eater) that lives on land. Polar bears use sea ice as a platform to hunt seals. Seals make up most of a polar bears diet. Male polar bears can weigh up to 680 kg (1 500 lb). Female polar bears usually only weigh about half as much as males. Polar bears spend most of their time at sea. Scientists estimate that there are around 20 000 polar bears. Polar bears have 42 teeth. The scientific name for the polar bear is '<i>Ursus maritimus</i>'. Polar bears keep warm thanks to nearly 10 cm (3.9 in) of blubber under the skin. Polar bears have an excellent sense of smell, with the ability to detect seals nearly 1.6 km (1 mi) away. Polar bears can reach speeds up to 40 km/hr (25 mph) on land and 10 km/hr (6 mph) in water.
Seabird (Common Murre)	ᐱᐅᑦᑲᑦ ᐱᐅᑦᑲᑦ (ᐱᐅᑦᑲᑦ)	<ul style="list-style-type: none"> The common murre dives after its food, often to depths of 30 m (100 ft). However, it has been recorded reaching a depth of 168 m (550 ft). Its strong wings propel it through the water and enable it to catch its prey. The common murre does not build a nest. The female lays a single egg on a bare rock ledge, and both parents take turns incubating it. The egg is so pointed on one end that it rolls in a circle if it is pushed. That's a great design

		<ul style="list-style-type: none"> to keep the egg from rolling off the rocky ledge. • Spends the majority of its life at sea, only coming ashore to breed. • The eggs of the common murre vary in color, from white to light green, blue, or brown. The coloring may help the parents recognize their eggs. • Some of the sounds this bird makes include purrs, growls, and croaks. • The lining of the common murre's mouth is yellow. • Its winter distribution is largely determined by the concentration of schooling fish, its prey. • Size: 38 to 43 cm (15 to 17 in); wingspan between 64 to 71 cm (25 to 28 in). • Diet: Mainly fish; but also shrimp, mollusks, and squid. • Habitat: circumpolar and as far south as Nova Scotia.
Sea ice zooplankton	ᐱᐃᓂᓐ ᐆᐅᓴᓴᓂᓐ	
Arctic cod	ᐆᐃᐅᓂᓐᐅᓴᓴᓂᓐ ᐆᐅᓴᓴᓂᓐ	<ul style="list-style-type: none"> • In the polar waters of northern Canada, arctic cod spawn each year in the late fall and early winter. • Amazingly, up to 10% of a male's body weight consists of gonads! At spawning time, females produce from 9 000 to 21 000 eggs that are 1.5 mm (0.06 in) in diameter. • The arctic cod is not commercially harvested in Canada.
Bowhead whale	ᐆᓴᓴᓂᓐ	<ul style="list-style-type: none"> • Bowhead whale belongs to the group of baleen whales. It is also known as Greenland Right Whale. • Bowhead whale can be found only in the northern hemisphere. It inhabits cold waters of the Arctic sea. • Bowhead whales were massively hunted in the past because of their meat and oil. • Even though hunting of bowhead whales is prohibited by law today outside of Inuit hunting for food, remaining bowhead whales are in danger because of the increased boat traffic, pollution of the ocean and climate changes. Population of the bowhead whales in the wild is drastically reduced and these animals are listed as endangered. • Bowhead whale can reach 14 to 18 m (45 to 60 ft) in length and 75 to 100

		<p>tonnes (metric tons) (83 to 110 short tons) of weight. Females are slightly larger than males.</p> <ul style="list-style-type: none"> • Bowhead whales have dark bluish-black color of the skin with white patches on the jaw, belly and tail. • Bowhead whale has stocky body with extremely large head. Jaw is arched and it looks like a bow (hence the name "bowhead"). Bowhead whale does not have dorsal fin. • Mouth of bowhead whale is equipped with baleen plates that can reach 4.6 m (15 ft) in length. Bowhead whale filters the food from the sea water using these plates. • Bowhead whale has two blowholes on the top of the head. V-shaped blow of condensed air can reach 6.1 m (20 ft) in height. • Diet of bowhead whale consists of zooplankton and small fish. Bowhead whale can eat 10 tonnes (metric tons) (11 short tons) of crustaceans each year. • Bowhead whale has 46 cm (1.5 ft) thick layer of blubber that protects it from freezing in the cold Arctic waters. • Bowhead whales travel on their own or in the groups of up to six animals. • Bowhead whales produce different sounds that are used for communication during migration (from summer to winter habitats) and mating season. • Bowhead whales are able to break 30 cm (1 ft) thick layer of ice to create breathing holes. They can stay 40 minutes under the water without returning to the surface to breathe. • Besides humans, main predators of bowhead whales are killer whales. • Although bowhead whales can mate throughout the whole year, mating usually takes place from late winter to early spring. Majority of babies is born during the spring and early summer. • Pregnancy in females lasts 13 to 14 months and ends with one baby (calf). Young bowhead whale has 3.3 to 5.5 m (11 to 18 ft) in length and weigh 900 kg (2 000 lbs) at birth. It depends on the mother's milk 9 to 12 months. • Bowhead whales reach sexual maturity at the age of 20 years and reproduce slowly, every 3 to 4 years. Because of that, reduced population of
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		<ul style="list-style-type: none"> bowhead whales in the wild cannot be returned to the previous level easily. According to the latest scientific analysis, bowhead whales can survive up to 200 years in the wild.
Sympagic fauna	<p>ᐱᐳᐳᐳᐳᐳᐳ ᐳᐳᐳᐳᐳᐳᐳᐳ ᐱᐳᐳᐳᐳᐳᐳ</p>	<ul style="list-style-type: none"> Live on the bottom of the ice and are unique to Arctic ecosystems. A sympagic environment is one where water exists mostly as a solid, ice, such as a polar ice cap or glacier. Solid sea ice is permeated with channels filled with salty brine. These briny channels and the sea ice itself have its ecology, referred to as "sympagic ecology". Many species of phytoplankton grow and provide food for other animals. In the spring, krill can scrape off the green lawn of ice algae from the underside of the pack ice.
Microbial food web (bacteria, flagellates)	<p>ᐱᐳᐳᐳᐳᐳᐳ ᐳᐳᐳᐳᐳᐳᐳ ᐳᐳᐳᐳᐳᐳᐳᐳᐳᐳᐳᐳᐳᐳᐳ (ᐳᐳᐳᐳᐳᐳᐳ, ᐳᐳᐳᐳᐳᐳᐳᐳᐳᐳᐳᐳᐳᐳᐳ)</p>	<ul style="list-style-type: none"> The microbial food web is made up of bacteria and flagellates (tiny cells that are able to move on their own). Important source of nutrients for the sea floor, and part of “marine snow” that transports nutrients and carbon to the sea floor. Relatively little research has been done on arctic microbial food webs.
Northern shrimp	<p>ᐳᐳᐳᐳᐳᐳᐳᐳᐳᐳᐳ ᐳᐳᐳᐳᐳᐳᐳᐳᐳᐳ</p>	<ul style="list-style-type: none"> Northern Shrimp or prawns lives at depths of 20 to 1 330 m (65.6 to 4 364 ft) usually on soft muddy bottoms in waters with a temperature of 0 to 8 °C. In their 8-year lifespan+males can reach a length of 120 mm (4.7 in), while females can reach 165 mm (6.5 in) long. The shrimp are <u>hermaphroditic</u>. They start out male, but after a year or two, their testes turn to ovaries and they complete their lives as females! One of the two offshore commercial fisheries in Baffin Bay and Davis Strait. Important food source for bottom dwelling fish and seabirds and marine mammals.
Corals/ sponges/ seapens	<p>ᐳᐳᐳᐳᐳᐳᐳᐳᐳᐳᐳ / ᐳᐳᐳᐳᐳᐳᐳᐳᐳᐳᐳ / ᐳᐳᐳᐳᐳᐳᐳᐳᐳᐳᐳ ᐳᐳᐳᐳᐳᐳᐳᐳᐳᐳᐳ</p>	<ul style="list-style-type: none"> Provide important habitat for many seafloor creatures. Can live for hundreds to thousands of years. Sea pens can grow has high as 2 m (6.6 ft).

		<ul style="list-style-type: none">• Unique coral “reefs” in Baffin Bay made out of Bamboo coral (see video).• Very fragile and are impacted by fishing gear.• There are many species of sponges – some have tiny skeletal structures made out of silica (the same material as glass).• Sponge fields in Frobisher Bay have been found in fairly shallow waters.
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