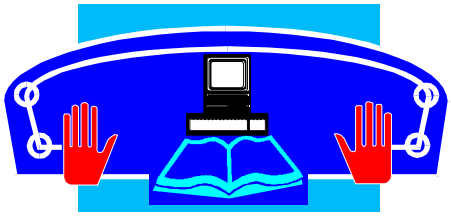

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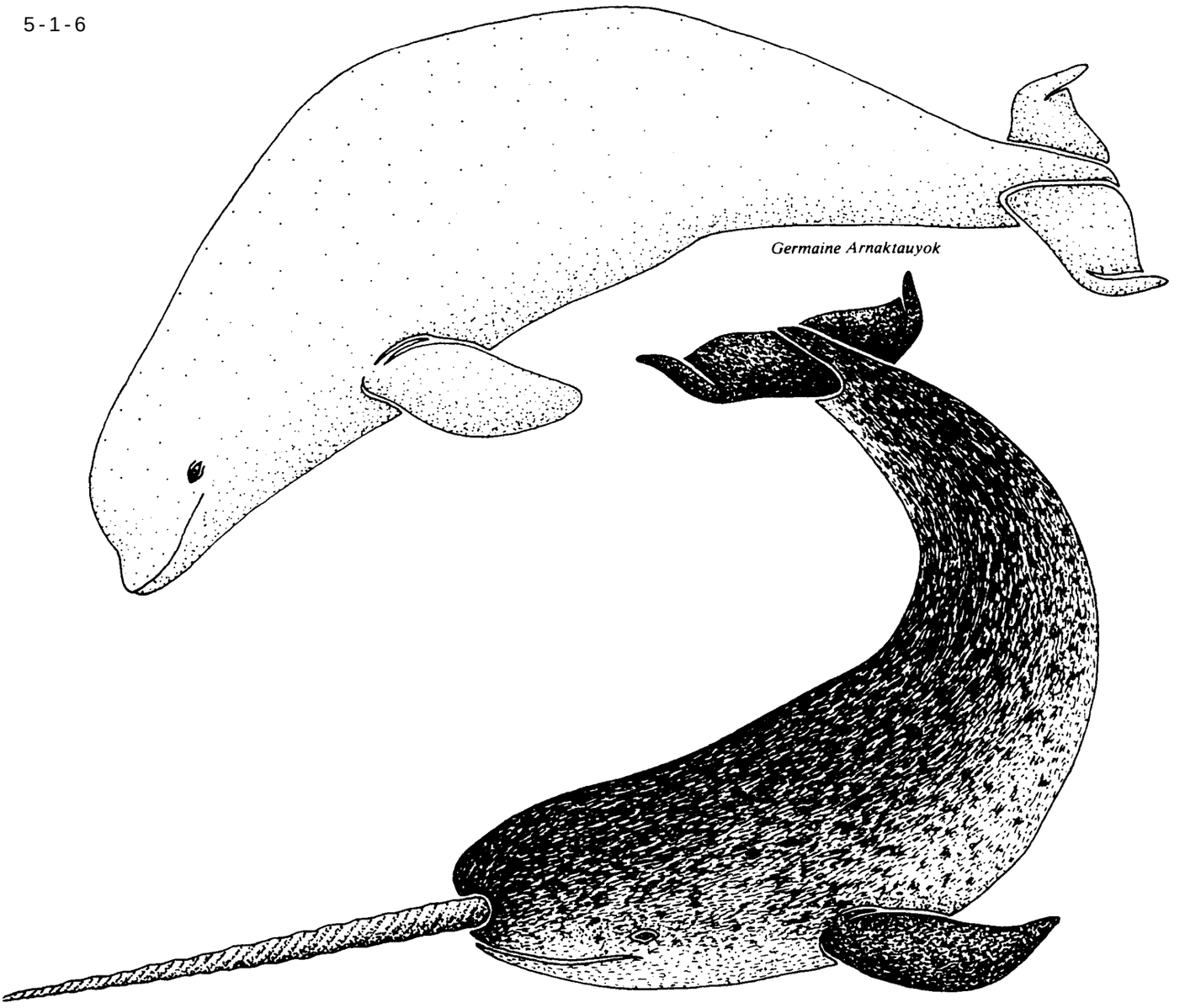


WHALES

of the NorthwestTerritories

Glenn Williams

WHALES

of the Northwest Territories *Order Cetacea*

Whales belong to the Order Cetacea, of which there are about 80 species, including dolphins and porpoises. Only three have extensive distribution in the Canadian Arctic: beluga *(Delphinapterus leucas),* narwhal *(Monodon monoceros),* and bowhead *(Balaena mysticetus).* The killer whale *(Orcinus orca)* is seen occasionally in the Beaufort Sea, and is a rare but regular visitor to the eastern arctic. Davis Strait is the approximate northern limit for a number of other cetaceans.

The beluga and narwhal are closely related. Both are toothed whales belonging to the same family *(Monodontidae),* and are similar in size, which is rather small by whale standards. The bowhead is a baleen whale, in which teeth have been replaced by whalebone or baleen, which are fringed plates of agglutinated hairs suspended from the upper jaw. All three species lack a dorsal fin, which is believed to be an adaptation to ice-infested arctic waters.

Bowhead *Balaena mysticetus*

Bowheads were one of the first arctic resources to be exploited by Europeans, and the most intensely hunted of all arctic whales. This exploitation had a profound effect on the history of the Northwest Territories, and particularly on the Inuit. Their long association with whalers parallels that of the fur trade and the Dene.

Whaling began in the 17th century in the eastern arctic, but did not commence on a regular basis until 1719. It was conducted by American and European whalers in the waters of Davis Strait, Baffin Bay and Hudson Bay. After three centuries of use, the fishery finally died out due to severely depleted stocks and the decreased demand for whale products. In the western arctic, bowhead whaling was conducted by Americans, beginning at the middle of the last century and concluding about 1915, the same time as in the east.

Due to their slow speed, bowheads were easy targets, even when ships were powered by sail. Prized for their great yield of blubber and whalebone, they and a sister species were given the name "right whale" because they were the right whales to hunt. The label still lingers today, as the bowhead is also known as the Greenland right whale.

The bowhead may reach 20 m in length and 50,000 kg in weight. It has an enormous head, taking up a third of its length. There are 650-720 baleen plates in its mouth, some more than 4½ m long. The body colour is predominantly blue-black, except for some creamy patches on the lower jaw. Its blubber is the thickest of all whales.

The bowhead has a discontinuous circumpolar range in arctic waters. In Canada there are two separate populations. Bowheads in the western arctic summer in the Beaufort Sea/Amundsen Gulf area and winter in the Bering Sea. Those in the eastern arctic summer in Lancaster Sound, Davis Strait and northern Hudson Bay; they winter in the loose ice or open waters of Davis Strait, off the west coast of Greenland, and may venture as far south as northern Labrador.

Migrating bowheads attain speeds of 2-4 knots and can submerge for periods of at least 30 minutes. They use this capacity to move long distances between openings in heavy ice.

Very little information is available on the biology and population dynamics of this whale. It is assumed they are "long-lived" with a low reproductive rate. Physical maturity in both sexes is reached at a length of about 15 m. Mating most probably occurs from February to March. The gestation period lasts 10-12 months with the calves born in March or April. A single calf 4 m long is born. Lactation usually lasts 12-14 months.

Bowheads are gregarious, feeding in small groups. Their food is mainly small crustacea called krill. They feed near the surface using their large mouths as scoops. After taking in a large quantity of water, the mouth is closed and the water forced back out, trapping the small crustaceans on the baleen fringes. The massive tongue is then used to move the trapped prey to the gullet.

The eastern and western arctic populations are believed to be separate stocks. The latter is the largest remaining population in the world, and is roughly estimated at 2000-3000 animals. The eastern arctic population, which suffered more intense exploitation for a longer period, is believed to number only a few hundreds.

Although the commercial fishery ceased to operate in 1915, Inuit in the eastern arctic continued to take bowheads sporadically for subsistence up until the 1970's. In 1979 all hunting of bowheads in Canadian waters was prohibited, except under special permit issued by the Minister of the Dept. of Fisheries and Oceans. No permits have been issued, and the species is considered endangered.

The United States permits Alaskan Inuit to conduct a limited subsistence hunt for bowheads of the western arctic population. The hunt is controversial at a time when many feel that any harvest at all may jeopardize the continued existence of this species.

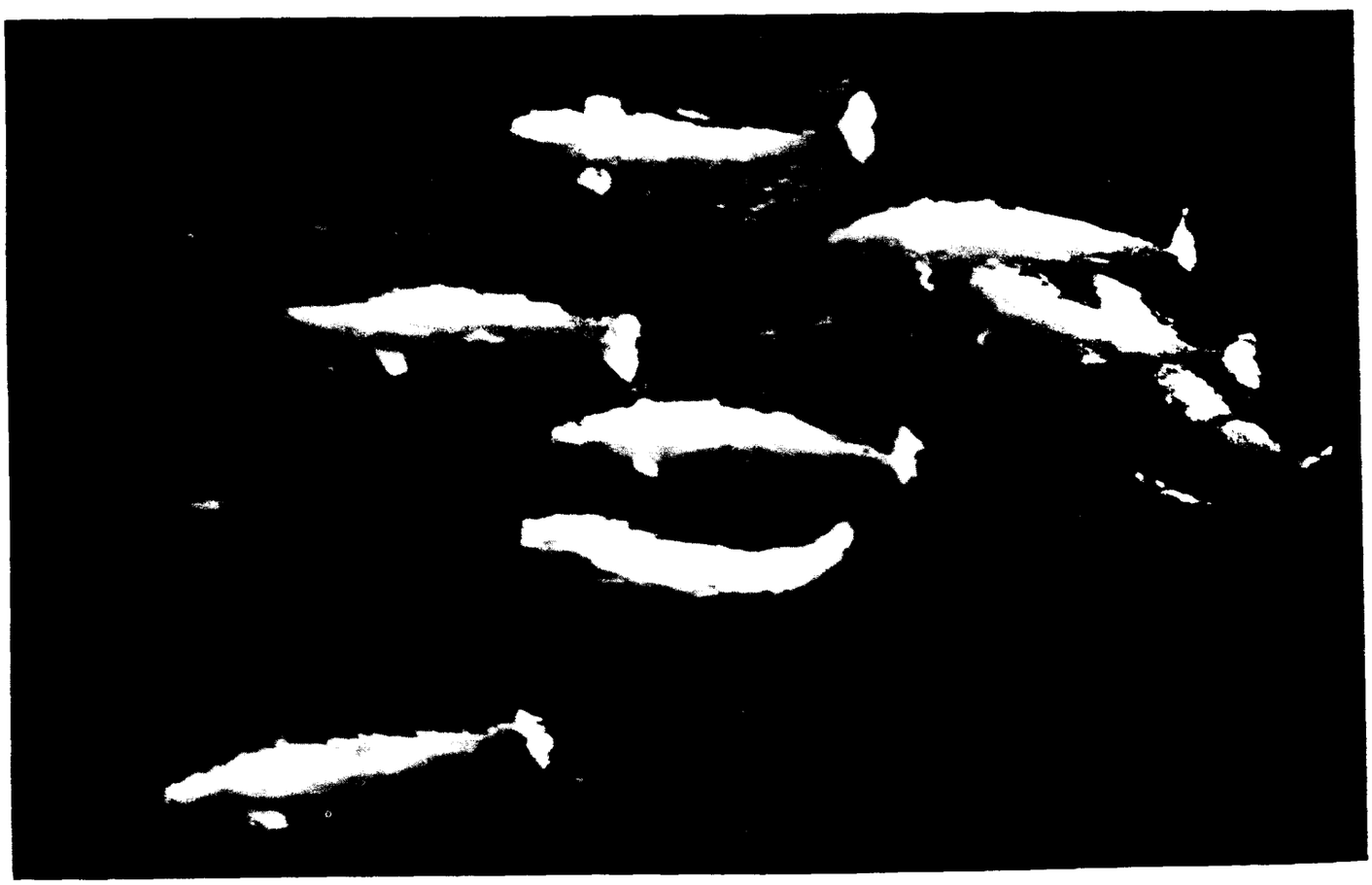
Beluga *Delphinapterus leucas*

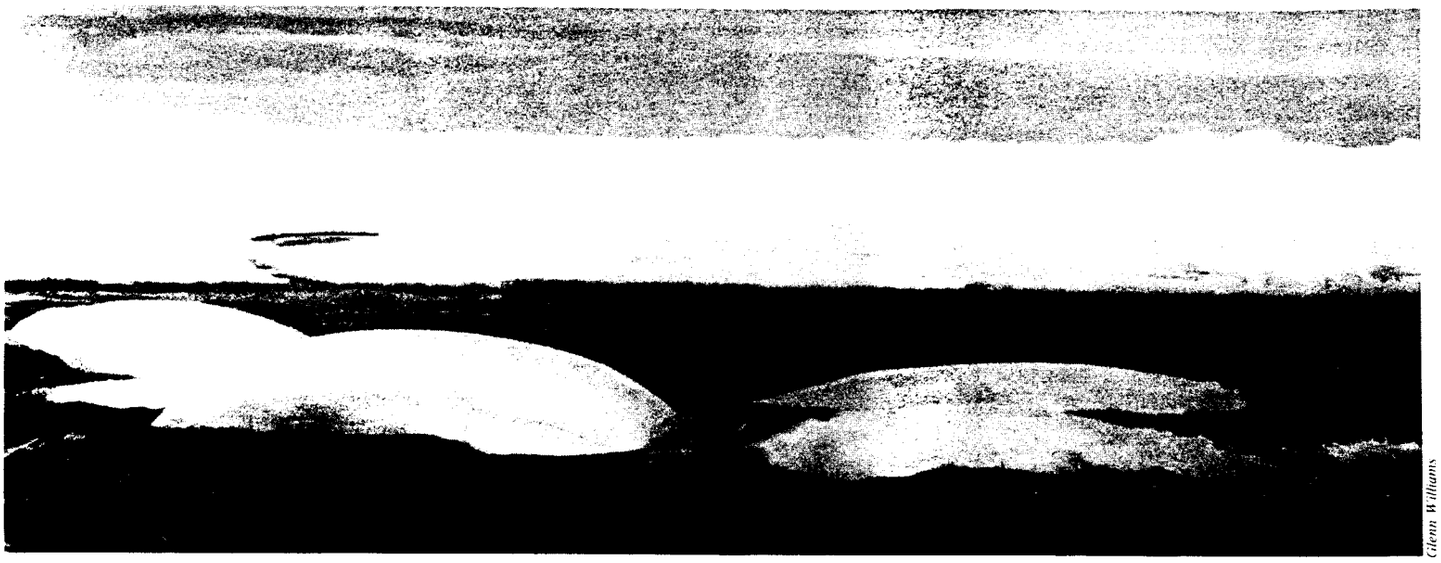
Belugas vary in length and weight according to location. They are medium-sized throughout most of the Canadian arctic, at lengths of 4-5 m and weights of 540-765 kg. They reach greater sizes elsewhere in their range, except in Hudson Bay where they are smaller. Females are not as large as males.

Belugas are also called white whales, which refers to their adult coloration. Newborns, however, are brown and juveniles are grey with mottled patches of white. The final change to an unblemished white occurs in the 4th or 5th year.

Circumpolar in distribution, the beluga is the most common whale in Canadian arctic waters. During summer in the Northwest Territories there are thought to be separate populations occurring in Lancaster Sound, Cumberland Sound, Ungava Bay, Hudson Bay and the Beaufort Sea. The four eastern populations winter off the west coast of Greenland and in Hudson Strait, whereas the single western population winters off the coast of Russia in the Bering Sea. In addition to travelling greater distances, the latter group also experiences more severe ice conditions.

Generally, belugas arrive in summering areas by June and July, and move out to wintering areas by the end of September before freeze-up. In March and April they can be seen in the narrow leads along the edge of the fast-ice. Their presence can be detected by breathing holes which they make when the ice is thin. During periods of maximum ice cover, pods of whales frequent isolated areas of open water,





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called polynyas, and are usally separated from one another by extensive areas of impenetrable ice.

Belugas give birth between March and August, with a peak occurring in June and July. Calving is believed to take place in warm shallow rivers. Some well-known calving areas are the Mackenzie Delta, Cunningham Inlet, and the Seal and Nelson Rivers in western Hudson Bay.

Females usually reach maturity by age 5 and males by age 8 or 9. Conception occurs in early May with the gestation period lasting 14½ months. Lactation lasts about 2 years and most females produce a single calf once in 3 years. It is suspected that the male is polygamous.

During summer, belugas occur in shallow water, or in coastal or estuarine areas, where they prey on bottom-dwelling fish and benthic invertebrates. Their teeth, which may be as many as 11 in each half-jaw, are conical and designed for gripping prey rather than for rending or crushing. Squid and arctic cod are important food items.

Belugas have few predators outside of man, although killer whales and polar bears occasionally attack them. Entrapment in the ice is a hazard which usually results in death. Longevity is not certain, 25-30 years is the current estimate.

Belugas were subject to limited commercial use in the eastern arctic during the last century when they were taken to supplement the declining bowhead harvest. In areas where belugas congregated, boats were used to herd the whales close to shore in large numbers where they were stranded at low tide. In addition to oil, the skin was utilized for leather, which became for a brief time a specialty item.

Later on in the 20th century, small commercial operations were set up in Churchill, Whale Cove and Pangnirtung. The latter ceased operation in the early 1960's, while the first two lasted until 1970. Since then all commercial whaling in Canadian waters has been banned, and only subsistence hunting by Inuit and Dene allowed. In 1980 a quota of 40 was applied to the Pangnirtung harvest. This is the only quota restriction for the species.

Summer population estimates are as follows: about 10,000 in the high arctic, 10,000 in western Hudson Bay, 5,000 in the western arctic, and 1,000 or less in Cumberland Sound. The total Canadian population is believed to be in the vicinity of 30,000.

Narwhal *Monodon monoceros*

The name "narwhal" is old Norse in origin. Derived from a word meaning ''corpse, '' it refers to the colour of adult narwhals, which are white-grey with blotches of dark grey. This mottled pattern is absent in the young.

The tusk for which this whale is so famous is really a tooth. Found only in adult males, it is an erupted incisor on the left side of the upperjaw. Though other teeth are present, they are not functional, being hidden in the gum. The function of the tusk, which is usually spiralled in a counter-clockwise direction, is a mystery. Although many have speculated that it may be used for defence or for securing food, it is most likely a secondary sexual characteristic. Behavioral and anatomical evidence suggests it is used in aggressive encounters by males when trying to obtain mates.

The body length of males may reach 5 m, while the tusk is another 2 or 3 m. Females are smaller, with an average weight of 600 kg. Males may weigh more than twice as much as females.

The narwhal has a more restricted distribution than the beluga. It is primarily a whale of the eastern arctic with the largest concentrations occurring in Lancaster Sound and off the coast of northeastern Baffin Island. A secondary centre of abundance is in the Repulse Bay area and around northern Southampton Island. Narwhal are seldom seen south of the Arctic Circle.

Like the beluga, the narwhal is migratory. It vacates most of its Canadian range during the winter fast-ice period. It winters throughout the heavy pack ice of Baffin Bay and northern Davis Strait, with some in the mouth of Hudson Strait. Most then migrate north through Baffin Bay during the period between March and May, following the receding pack ice off the west coast of Greenland as far north as the Thule area. Some continue north into Smith Sound but most turn west and southwest, entering Jones and Lancaster Sounds in June and July. A small undetermined number, however, move from the wintering area through

Hudson Strait to northern Hudson Bay and Foxe Basin. The autumn migration generally retraces the spring and early summer movements.

The narwhal inhabits deeper waters and dives more deeply than the beluga. It does not usually associate with river mouths, but is generally found in certain deep fiords for much of the ice-free period. Food items consist of molluscs, crustaceans and fish, especially squid, shrimp and arctic cod.

The age at sexual maturity is not yet known, but is thought to be the same as in its only close relative, the beluga. Males are probably polygamous. Breeding occurs about mid-April, and as in the beluga, the gestation period is about 15 months with peak calving occurring in late June to mid-July. Lactation lasts about 2 years and most females produce one calf every 3 years.

Information about interrelationships among the various summering populations is scant. It is not known if they represent semi-isolated populations with restricted genetic interchange, or whether all of the animals belong to a single, freely breeding population. The summer population estimate for Lancaster Sound is about 20,000. Numbers are unknown for northern Hudson Bay and Foxe Basin.

Narwhal have never been a target for commercial whalers, although tusks were regularly traded for. Current legislation restricts their use to Inuit for subsistence or domestic reasons. A quota system, which came into effect in 1977, requires hunters to possess a tag for each animal taken. In 1983, the total Canadian quota was 542 distributed throughout 21 arctic communities (13 in the Baffin, 5 in the Keewatin, and 3 in the Central Arctic Regions). Arctic Bay and Pond Inlet have the highest quotas with 100 each.

Today, narwhal are hunted mainly for the tusk and the muktuk. Although females are occasionally taken, the hunt focuses on males. The tusks are sold to local stores and sometimes to tourists for fairly substantial sums of money. Each tusk must have a tag attached to prove it was legally taken.

To take a tusk out of the Northwest Territories a Marine Mammal Export Permit must first be obtained. To leave the country an export permit issued under the authority of the Convention on International Trade in Endangered Species (CITES) is required.

Killer Whale *Orcinus orca*

Killer whales have a reputation for ferocity unequaled among the cetaceans. They hunt in packs of 3-40 animals, and prey on squid, fish, seabirds, seals and other cetaceans. They dislodge basking seals from ice floes by tipping the floes from below, and attacks on beluga and narwhal are well-known. When killer whales are in the vicinity, other marine mammals reportedly take shelter among the ice floes or in deeper fiords. In addition, beluga and narwhal are sometimes driven close to shore, where they fall easy prey to Inuit hunters. It is possible that the summer distribution of beluga and narwhal are partly controlled by the presence of killer whales.

Coloration is shiny black with distinct white areas on belly, chin, flank and behind the eye. A grey saddle patch, whose shape can be used to identify individuals, is found behind the dorsal fin. Adult males average 6 m in length but may reach 9 m, while females are smaller at 4-5 m. As befitting their predatory nature, their teeth are large and number 10-12 in each half-jaw. The dorsal fin is prominent, reaching 2 m in height.

Glenn Williams

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Glenn Williams

are distributed throughoceans but are more cooler temperate waters. In arctic they are found from as far north as Lancaster penetrate Hudson Bay Strait, and are rare visitors Sea. They follow of seals and other summering areas, but do not until after the pack ice has They tend to avoid areas of due to their large dorsal fin do not penetrate far into arctic archipelago. them migrating southward vance of the new ice cover.

ittle information available on populations, population struc- sexual maturity or repro- Mating is thought to occur July. The gestation period imately 16 months and a single November or December. probably 40 to 50 years and killer whales are likely family units.

whales are not hunted in the arctic, except when they can with impunity, due to the fear in northern communities.

Management

As the preceding account has shown, there are still many gaps in our knowledge of whales. So much of their lives is spent out of our sight, beneath the waves and in isolated areas, that fruitful study is difficult. Yet the first step to ensuring their survival lies in solving the many mysteries which surround them.

Originally Canada belonged to the International Whaling Commission (IWC), which was organized in 1946 by 22 nations. The Commission's purpose was to provide for the conservation of whale stocks and the orderly development of the whaling industry. One of the steps taken was the establishment of commercial whaling quotas. Controversy, however, surrounded these quotas and the extent to which they were being honoured. In 1972 Canada banned commercial whaling and in 1982 withdrew from this organization. However, Canada still provides harvest statistics and biological information to the IWC's scientific committee.

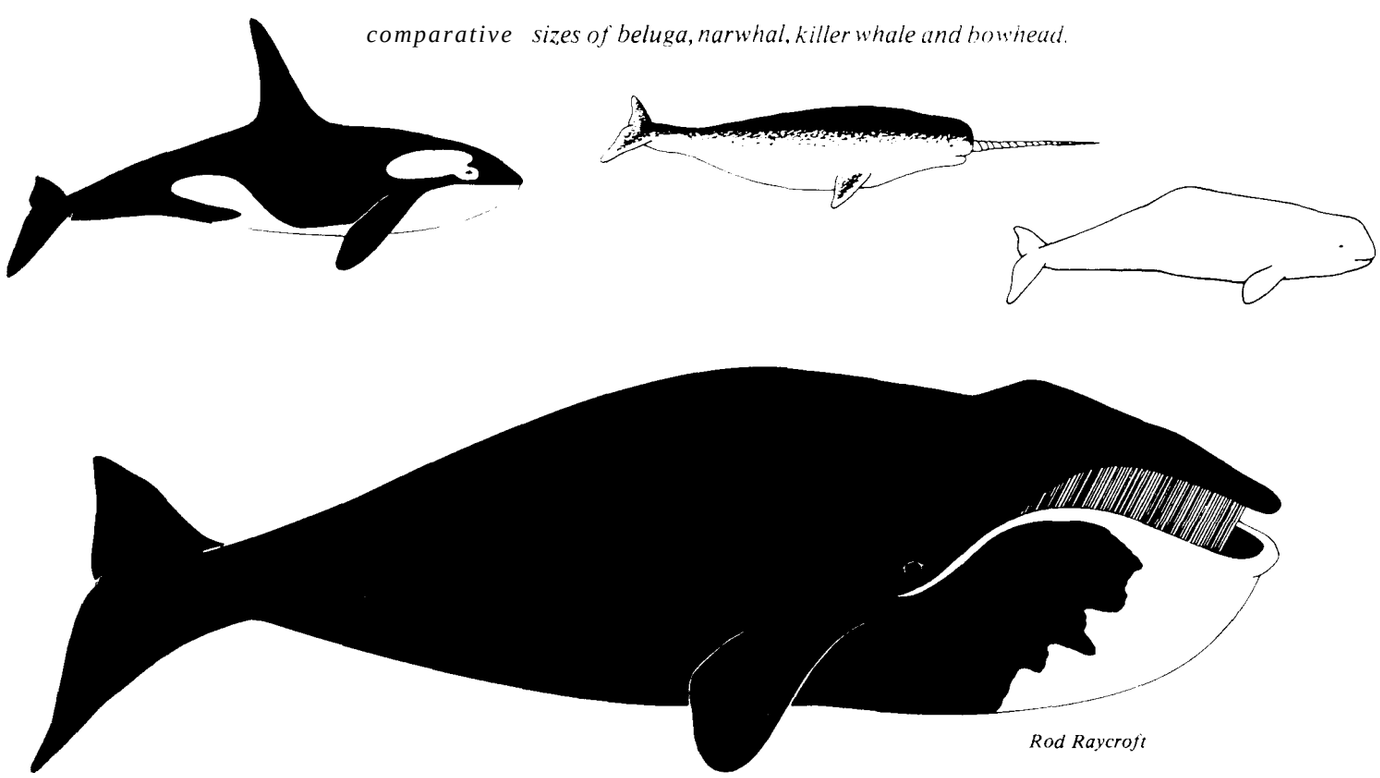
Whales in Canadian waters are managed by the federal Dept. of Fisheries and Oceans, with the following laws governing utilization: the Fisheries Act, the Beluga Protection Regulations, the Narwhal Protection Regulations and the Cetacean protection Regulations (which cover bowheads). Fishery Officers are stationed in four settlements above the treeline: Inuvik, Rankin Inlet, Frobisher Bay and Pond Inlet. Three biologists and four research scientists (of whom four are based in Winnipeg, two in Montreal and one in Frobisher Bay), as well as their staff, are currently involved in studies on arctic whales. Their work focuses on a number of beluga, narwhal and bowhead populations, and includes censusing, studying habitat and distribution, monitoring hunts, and collecting samples for reproductive biology and biochemical analysis.

The Dept. of Fisheries and Oceans is also collaborating with the World Wildlife Fund (Canada) on a program termed "Whales Beneath the Ice". A private, non-profit organization, the World Wildlife Fund (Canada) is one of 27 national organizations dedicated to the conservation of wildlife. In 1982 the Canadian organization raised funds for a 3-year $750,000 program to conserve arctic whales. Guided by a steering committee of Canadian experts, the Whales Beneath the Ice program has identified eight specific projects: two on beluga, two on narwhal and four on bowheads. They are:

Beluga Projects:

1. Critical Estuary Study.
2. Marking/Tagging Study.

comparative sizes of beluga, narwhal, killer whale and bowhead.



Rod Raycroft

Narwhal Projects:

3. Aging Study.
4. Distribution/Abundance Study.

Bowhead Projects:

5. Critical Area Study.
6. Impacts of Noise.
7. Eastern Arctic Population Update.
8. Western Arctic Population Assessment.

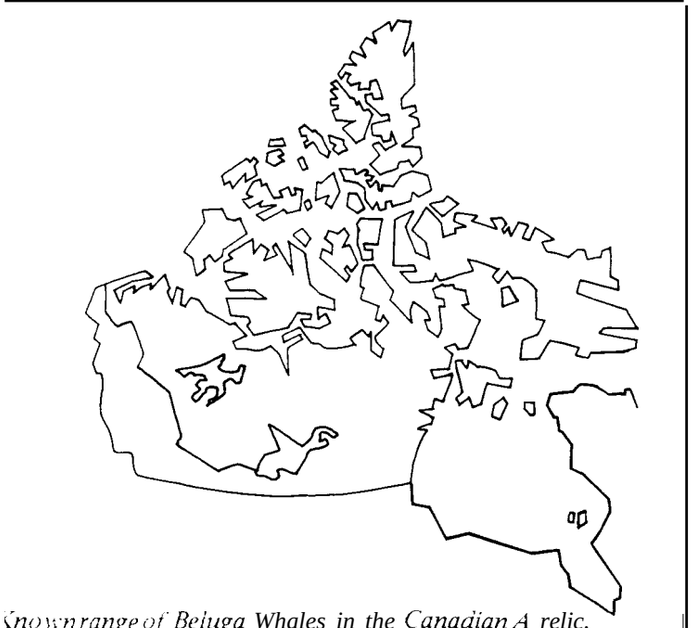
Inuit involvement is considered essential to the program, and the key to an effective conservation strategy for Canada's arctic whales.

Current Utilization

Belugas are hunted most extensively in the western arctic, where they are taken by Dene as well as Inuvialuit for subsistence. **All hunting** occurs in the vast Mackenzie Delta by the communities of Aklavik, Inuvik and Tuktoyaktuk. People move to traditional whaling camps as early as June and stay as late as September. In recent years Aklavik residents have favoured Bird Camp, Whitefish Station West and occasionally Shingle Point; people from Inuvik have used Indian Camp, Kendall Island and Whitefish Station East; while whalers from Tuk generally operate directly out of the settlement.

The Delta is extensive in area but very shallow (2 m) in depth. This makes belugas relatively easy to hunt since they cannot escape by sounding. The hunt is carried out in small boats powered by outboard motors. Although the water is murky, the presence of a whale can be detected by its bow wave. The whale is approached by a boat and harpooned when it surfaces. It is then followed until it surfaces a second time and killed by rifle fire.

Muktuk (the outer skin plus a portion of the blubber layer) is a prized delicacy. It is also an important source of nutrition in northern latitutdes, being rich in



Known range of Beluga Whales in the Canadian A relic.

Known range of Killer Whales in the Canadian Arctic

Known rune.Tcz of Bowhead Whales in the Canadian Arctic

Known range of Narwhals m the Canadian Arctic

vitamin C. Eaten raw when fresh, it is also boiled and canned in plastic pails. It remains "good" for about 7 months, after which it becomes very strong-tasting, although some do not object to the flavour. The meat is cut into long strips and dried, smoked and bagged. Most of it is eaten (dipped in whale oil) but some of it is fed to dogs.

In recent years wastage has been a problem, mainly due to the impetuosity of young inexperienced hunters. As a result, a monitoring system was instituted by the N.W.T. Dept. of Renewable Resources in 1978. Funding was provided to hire monitors for each whaling camp. Selected by local Hunters and Trappers Associations, the monitors' job involved the recording of kill data (including losses), as well as ensuring that each party carried the proper equipment and was headed by an experienced whaler. In the 4 years which the author spent in Inuvik, each summer accompanying whalers based at Kendall Island, not only was wastage non-existent, but the authority and wise direction of the headman was clearly evident. One of the instructions most strongly impressed on whaling parties was the necessity of harpooning the whales before shooting them.

In 1980 the monitoring system was taken over by the Dept. of Fisheries and Oceans, and is continuing with positive results in reducing waste and improving hunter success. In 1982 similar monitoring systems were set up in the communities of Arctic Bay, Igloolik, Pangnirtung, Pond Inlet and Repulse Bay.

In the eastern arctic the hunt focuses more on narwhal than beluga. North Baffin communities such as Arctic Bay, Broughton Island, Clyde River and Pond Inlet, concentrate almost exclusively on narwhal, even when belugas are present.

Since narwhal frequent deeper water than beluga, the hunting technique is different. The whales are wounded first by rifle fire in order to slow them down, before being killed. The use of harpoons is not as widespread as in the western arctic, partly due to their being less effective at the floe edge, and also partly due to the wildness of the hunt, especially among the younger men, who have less patience with them.

In the high arctic, the hunt may begin as early as May at the floe edge, continue through the spring when narwhal appear in ice cracks, and throughout the summer in open water, before concluding in October when the narwhal leave the deep fiords they have been frequenting.

As a result of these differences in environment and hunting practices, the problem of wastage is serious. As many as half of the whales struck are not landed, and of those which are, the meat is rarely utilized. The muktuk is a delicacy but even that is not always saved.

Belugas are hunted by communities in lower Baffin and southern Keewatin. Repulse Bay is the only community in the Keewatin which regularly takes narwhal.

Wayne Spencer
Pond Inlet
1983

Further Reading

Ban field, A. W. F.1974. *The Mammals of Canada*. University of Toronto Press.

Davis, R. A., K. J. Finley and W. J. Richardson. 1980. *The Present Status and Future Management of Arctic Marine Mammals in Canada.* Science Advisory Board of the Northwest Territories.

Hummel, M. 1983. Whales beneath the ice: an arctic conservation strategy. Canadian *Wildlife Administration*, June 1983. Northwest Territories/Yukon Renewable Resources.

Davis, R. A. and W. R. Koski. 1980, Recent observations of the bowhead whale in the eastern Canadian high arctic. Report to the International Whaling Commission 30.

Mansfield, A. W., T. E. Suick and B. Beck. 1975. The narwhal *Monodon monoceros)* in eastern Canadian waters. *Journal of the Fisheries Research Board of Canada 32(7).*

Sargeant, D. E. and P. F. Brodie. 1975. Identity, abundance and recent status of populations of white whales *(Delphinapterus leucas)* in North America. *Journal of the Fisheries Research Board of Canada 32 (7).*

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