

NORTHWEST FISHERIES CENTER
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National Marine Fisheries Service Field Studies
Relating to the
Bowhead Whale Harvest in Alaska, 1974

by

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CONTENTS

	Page
Introduction	1
Spring Whaling	2
Whaling Villages	2
Whaling Methods	7
Whaling Effort	12
Utilization	12
Migration	14
Other Mammals and Birds	15
Fall Whaling	18
Summary	20
Acknowledgements	20
Literature	21

INTRODUCTION

The bowhead whale, Balaena mysticetus, is found in Arctic and northern subarctic waters. Its numbers were greatly reduced over a period of about 300 years, initially in the European Arctic, then in the eastern Canadian Arctic, and the Okhotsk Sea. Commercial whaling for bowheads began in the Chukchi and later in the Beaufort Seas during the mid 1800's; the last reported voyage occurred in 1916 (Bower and Aller, 1917) when the steamer Herman and the auxiliary whaling schooner Belvedere sailed north in the spring from San Francisco and Seattle, respectively, returning that fall with some whale products. Some of the Arctic Alaskan trading companies continued to deal in whalebone for a few more years into the early 1920's. These animals have been completely protected from commercial whaling by the International Convention for the Regulation of Whaling since 1947 and, subsequently, by the Marine Mammal Protection Act (MMPA) of 1972 and the Endangered Species Act (ESA) of 1973.

The International Whaling Commission (IWC) allows the taking of bowheads by Alaskan Eskimos. Two sections (Numbers 2 and 18) of the Schedule to the International Whaling Convention 1946, revised 1972, are applicable. Number 2, quoted in its entirety states, "It is forbidden to take or kill gray whales or right whales, except by aboriginies or a Contracting Government on behalf of aborigines and only when the meat and products of such whales are to be used exclusively for local consumption by the aborigines," whereas Number 18 (1) includes Balaena mysticetus, the bowhead, in the definition of "right whale." The MMPA (Sec. 101 b) provides that any Indian, Aleut, or Eskimo "who dwells on the coast of the North Pacific Ocean or the Arctic Ocean" may take bowhead whales for subsistence or for the purpose of creating authentic articles of handicraft, if not accomplished in a wasteful manner. The ESA (Sec. 10, b, 3e) allows Alaskan Indians, Aleuts, and Eskimos the same privileges as the MMPA. If, however, the taking of an endangered species affects it "materially and negatively," this act allows the Secretary (of Commerce) to prescribe regulations upon the taking of the endangered or threatened species.

The first studies on bowhead whales by a member of the staff of the Marine Mammal Division (MMD), then the Marine Mammal Biological Laboratory, were carried out by Dale W. Rice (1974) in 1961 and 1962. In 1973, through contract with the University of Southern California at Los Angeles, the National Marine Fisheries Service (NMFS) through the MMD of the Northwest Fisheries Center (NWFC) supported studies of Dr. Floyd Durham on bowhead whales, which he had begun in 1961.

The principal objective of the MMD research program started in 1974 is to determine the status of the bowhead whale stock of the Bering, Chukchi, and Beaufort Seas. Biologists were stationed at the two most important whaling villages (Point Hope and Barrow) during the 1974 spring whaling season. They visited the whaling camps as often as possible and gathered information on the numbers of bowheads sighted, killed and recovered, and struck but subsequently lost. When a whale was taken, the biologists attempted to obtain measurements, collect biological samples, and take photographs. In addition, observations were made of whaling methods and equipment employed as a first step toward determining if it is possible to reduce the number of whales struck but not recovered.

Biologists and aids participating in the field work were: Clifford H. Fiscus, Wildlife Biologist (Research); Willman M. Marquette, Fisheries Biologist (Research); Geoffry M. Carroll, Biological Aid (Fisheries); and Peter Frankson, Conservation Aid. Carroll is a student at the University of Alaska, Fairbanks, and Frankson is a resident of Point Hope. The itinerary is given in Appendix 1.

Residents of the two St. Lawrence Island villages (Gambell and Savoonga), Kivalina, Point Hope, Wainwright, and Barrow were actively engaged in spring whaling. Ice conditions east of Barrow do not permit spring whaling by residents of Nuiqsut or Barter Island (Kaktovik); however, these people participate in the autumn hunt as do the Barrow whalers. The locations of Alaskan whaling villages or areas are shown in Figure 1.

SPRING WHALING

WHALING VILLAGES

We collected information at Point Hope and Barrow and indirectly learned of whaling activities at Wainwright and Kivalina from various sources. Mr. Edward Wightman, NMFS, Anchorage, Alaska, supplied information from St. Lawrence Island.

St. Lawrence Island: Eight crews were active in St. Lawrence Island whaling this spring, six from Gambell and two from Savoonga. Two whales, both over 12.9 m (40 feet) in length, were reported killed by Gambell crews. Two bowheads were struck but lost off Southwest Cape by Savoonga whalers, reportedly because of ice conditions. The whaling season began on St. Lawrence Island in late April and ended

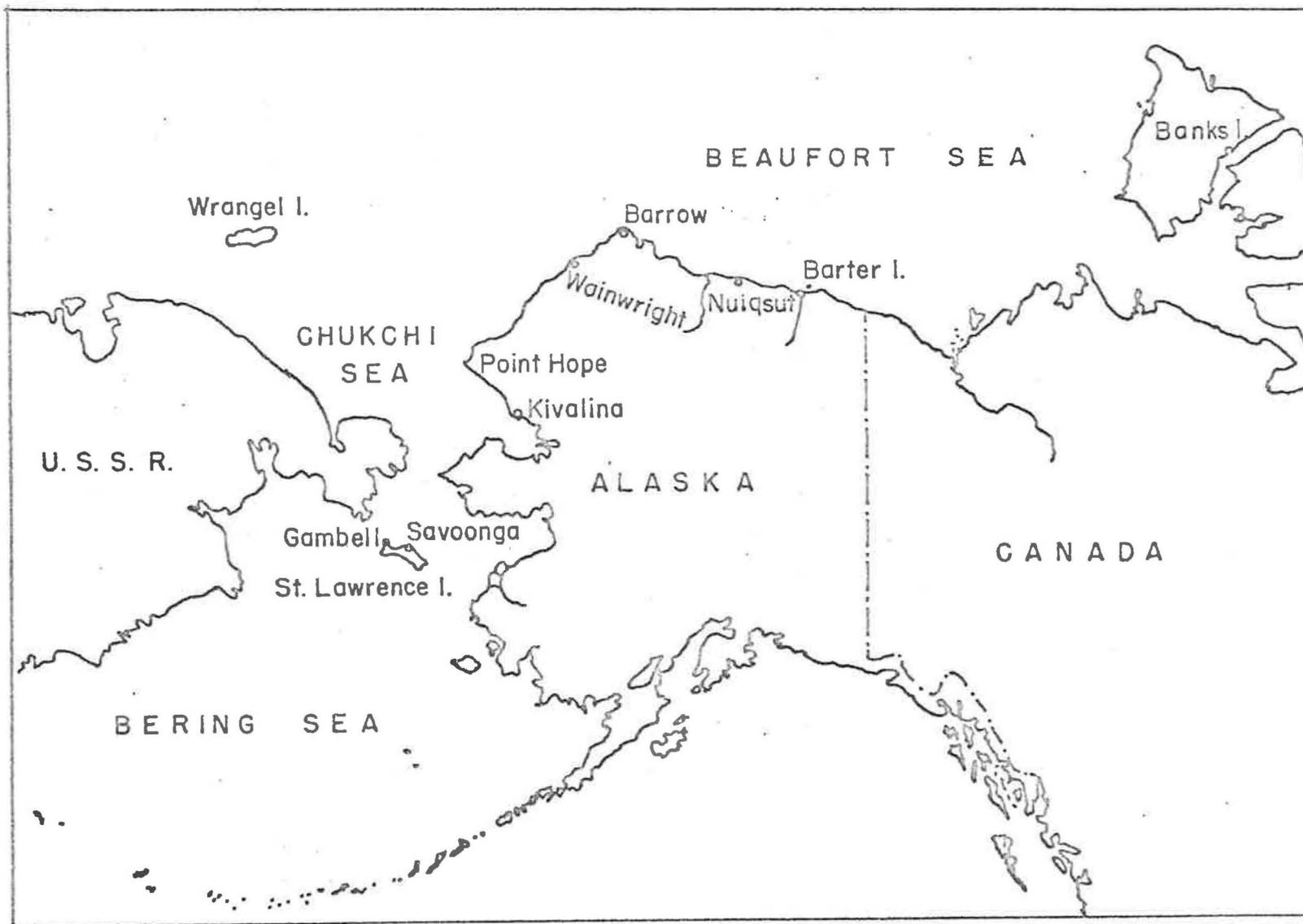


Figure 1.--Map of Bowhead whale study area.

Table 1. Biological features of bowhead whales taken during the 1974 spring whaling season.

Area	Date	Body length (meters)	Sex
Point Hope	21 April	12.19	---
	21 April	9.14	---
	30 20 April	8.13	M
	2 May	8.69	M
	11 May	7.57	F
	23 May	15.24	M
	25 May	15.50	M
St. Lawrence Island			
Gambell	29 April - 1 May	12.19+	---
	2 May	12.19+	---
Wainwright	31 May	---	---
Barrow	30 April	9.75	---
	4 May	6.71	M
	12 May	8.13	M
	16 May	11.35	F
	29 May	13.85	M Stinker
	29 May	---	--- Stinker sighted
	29 May	7.24	F

Table 2. Sightings of bowhead whales at Point Hope, Alaska, spring 1974.

Date	Number of whales sighted	Date	Number of whales sighted
April 21	3	May 15	None
30	3	16	4
May 1	None	17	lead closed
2	2	18	lead closed
3	None	19	lead closed
4	3	20	None
5	14 ^{1/}	21	None
6	7	22	1
7	None	23	None
8	None	24	None
9	lead closed ^{2/}	25	9
10	lead closed	26	None
11	1	27	5
12	None	28	None
13	lead closed	29	None
14	1	30	6

1/ 12 were seen from an aircraft flying over an open lead west of the village.

2/ No observations when lead is closed.

WHALING METHODS

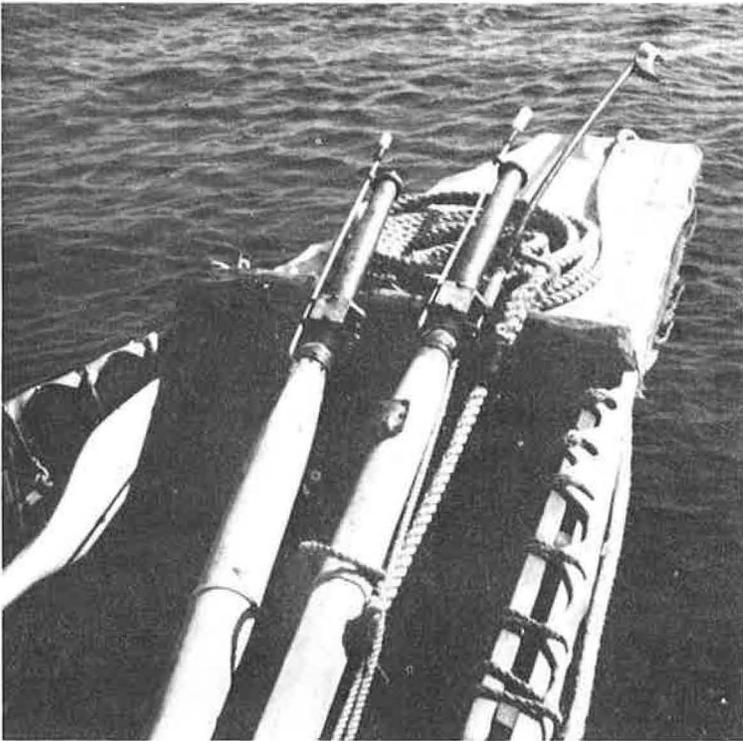
The method presently used by Alaskan Eskimos to take whales has evolved from ancestral methods and the adoption of commercial whaling gear and methods introduced by Yankee whalers in the last century. Van Stone (1958) has described the era of commercial bowhead whaling in Alaskan waters. The most recent and perhaps best description of the development of current Eskimo whaling methods is that of Durham (1974). Van Stone (1962) describes the traditional method of marking and cutting shares from a whale carcass at Point Hope, which, with some modification, is still in use at Point Hope. A similar though much simplified method of marking and cutting shares is used at Barrow. The three papers cited above provide background material on Alaskan bowhead whaling and the methods used to capture and cut up whales.

The optimum whaling crew consisted of 8 to 10 men, but the actual number of men present varied from day to day. An average of 8 to 10 men formed a crew at Point Hope and they camped at the edge of the lead throughout the season, except when it was closed. The average crew size at Barrow was slightly smaller. Here, one or more crewmen were commonly in the village, leaving only five or six men at the camp. In one instance, a crew of three launched after a bowhead. The location of the Point Hope camps remained relatively stable throughout the season, whereas at Barrow the camps were frequently moved due to changing ice conditions.

Each crew had a boat (one crew used a metal boat, the other crews used Umiaks or skin boats and one crew in addition to the Umiak had a fiberglass boat) and six wooden paddles. Several carried outboard motors which were used to tow dead whales to the site selected for butchering the carcass. Most Umiaks at Barrow were rigged to attach outboard motors. The Umiaks were about 7 m long and 1.70 m wide (23 feet by 5.6 feet). Measurements of six of the Barrow Umiaks were:

<u>Length (m)</u>	<u>Width at widest point (m)</u>
7.00	1.79
6.60	1.78
6.69	1.74
7.10	1.88
6.78	1.67
6.65	1.87

A typical crew was outfitted with a wall tent 2.74 by 3.66 m (9 by 12 feet), one or more snowmobiles (we saw one dog team on the ice at



Two darting guns in position in the bow of the skin boat. One gun has a harpoon rigged. When a whale is sighted the crew launches and gets as close to the whale as possible. The darting gun with harpoon is driven into the whale's back as close to the head as possible. When the white tipped rod, to the left of the muzzle, touches the whale it fires a bomb into the whale, which if placed properly may kill the whale instantly. The harpoon, to the right of the muzzle, remains in the whale and is attached to a float by a line about 61 m (200 feet) in length.



Two shoulder guns, placed so that they can be easily picked up. The bomb has been removed from the gun in the foreground to show its size. After the darting gun has been fired into the whale and the harpoon attached, a shoulder gun may be used to finish off the whale.



The bowhead is pulled onto the ice by means of block and tackle.



A whale being cut up; the block and tackle are visible in the foreground.



When a whale is captured, 50 to 60 people will come out on the ice to help haul it out and cut it up. Early in the season when the first whales are taken, several hundred people may come to the butchering area, especially if it is close to a village.

A jumbled mass of recently shifted ice pressed against the land fast ice. The phenomenon known as watersky is plainly visible above the open water of the lead.



Finishing up a whale. A woman in the foreground is removing flesh from the vertebrae. Chunks of whale skin and blubber (muktuk) are visible in the left background. A side of baleen is visible in the middle right.

Point Hope), sled, cooking outfit (Point Hope crews generally used wood and whale blubber--fat--for heat and Barrow crews used white gas), caribou sleeping skins, and other camping gear. Whaling gear included a boat with paddles and occasionally an outboard motor, darting gun with harpoon and 4 to 6 bombs, shoulder gun and 4 to 6 bombs, and a large (38 to 51 cm; 15 to 20 inches) plastic float with 45.7 to 61 m (150 to 200 feet) of line (we saw only three sealskin floats in use). Some crews had an additional darting or shoulder gun. Each crew also had several rifles and shotguns and at least one hook line. Whaling gear for the 10 Point Hope camps and for 16 Barrow camps is listed in Table 3.

Fewer whales were struck and lost at Point Hope than at Barrow. Point Hope crews killed seven bowheads, one of which they could not recover, and struck and lost five. At Barrow, 1 of 7 whales killed was not recovered, and an incomplete count indicated that a minimum of 19 animals were struck and lost.

The fact that a whale is struck and lost does not necessarily mean that it later dies. Some whales are harpooned, then part the line and escape; others are bombed, the bomb fails to explode, and the whale escapes. Some unknown portion of these animals may later die and some undoubtedly recover. If a significant number of these animals later died we would expect to find some of them stranding along the Arctic coast of Alaska and northwestern Canada. Sergeant and Hoek^{1/} found the remains of five bowheads in 1973 along the coast of the Tuktoyaktuk peninsula just east of the MacKenzie delta and state that these were "the products of many years of strandings." They do not mention any evidence that would indicate that these bowheads had been injured in the Alaskan fishery. We have no reports from the north Alaskan coast.

Several factors contribute to the problem of striking but not recovering a whale. Perhaps the most important reason is failure of the bomb to explode after it enters the whale. The weak points of these bombs are the fuse and the keeper. The keeper, usually a small piece of wood, is designed to break when the bomb is fired, allowing the firing pin to fall and ignite the fuse, which in turn burns into the lower part of the bomb where it ignites the powder. The bomb may fail to explode

^{1/} Sergeant, D. E. and W. Hoek. 1974. Seasonal distribution of bowhead and white whales in the eastern Beaufort Sea. Paper given at the Symposium on Beaufort Sea Coastal and Shelf Research, San Francisco, Calif., January, 15 p. + 5 figs. (Processed.)

Table 3. Type of equipment used by whaling crews, spring 1974. Each horizontal line refers to the equipment of one crew.

Area	Boats			Outboard motor	Shoulder gun	Darting gun		Harpoon	Lance	Floats		
	Umiak	Metal	Fiberglass			with harpoon	without harpoon			Large plastic	Small plastic	Sealskin
Point Hope	-	1	-	1	1	1	-	-	-	1	-	-
	1	-	-	-	-	1	1	-	-	-	-	-
	1	-	-	-	1	1	-	-	-	1	-	-
	1	-	-	-	1	1	1	-	-	1	2	-
	1	-	1	1	1	3	1	1	-	1	1	-
	1	-	-	-	-	-	1	-	-	-	-	1
	1	-	-	-	-	1	1	1	-	1	-	-
	1	-	-	1	1	1	1	1	-	1	-	-
	1	-	-	-	-	-	1	1	-	1	-	-
	1	-	-	-	-	-	1	1	-	-	-	-
	9	1	1	3	8	10	7	0	0	7	3	1
Barrow	1	-	-	-	2	1	1	-	-	1	-	-
	1	-	-	-	2	1	1	1	-	1	-	2
	1	-	-	-	1	1	-	1	-	-	-	-
	1	-	-	1	-	-	-	-	-	-	-	-
	1	-	-	1	1	1	1	-	-	2	-	-
	1	-	-	1	1	1	1	-	-	1	-	-
	1	-	-	-	1	1	1	1	-	2	-	-
	1	-	-	-	2	1	-	-	-	1	-	-
	1	-	-	-	2	1	-	1	-	1	-	-
	1	-	-	-	1	1	1	1	-	1	-	-
	1	-	-	-	1	1	-	-	-	1	-	-
	1	-	-	-	1	1	-	1	-	2	-	-
	1	-	-	-	2	1	1	-	1	-	-	-
	1	-	-	-	-	-	-	-	-	-	-	-
	1	-	-	1	-	-	1	1	-	-	-	-
	16	0	0	4	18	14	8	7	1	14	0	2

because (1) the keeper does not break, (2) the fuse does not ignite, or (3) the powder is wet. The bomb and its components could possibly be redesigned keeping in mind the fact that it must remain easy and safe to assemble under rigorous field conditions.

Fewer whales are lost if the darting gun with harpoon and attached float is used first. The practice of bombing a whale with the shoulder gun only should be discouraged, because unless the animal is killed instantly with the first shot, it will probably not be recovered. The darting and shoulder guns are shown in Plate 1.

Guns and bombs used to take the whales are manufactured by the Naval Gun Company, Doylestown, Pennsylvania^{2/}, which has a contract with the Alaska Native Industries Co-op Association (ANICA), making ANICA the only authorized source of their equipment. The guns and bombs have continued in use almost unchanged since their introduction by commercial whalers in the late 19th century.

WHALING EFFORT

The number of crews hunting at the lead varied during the season. In an attempt to evaluate effort we maintained a record of crew activities throughout the season (Table 4). In 1974, the Point Hope crews were at the lead 25 days (80.6% of the time) from 30 April to 30 May. At Barrow, only a few crews were out before 1 May, and this number diminished rapidly after 1 June.

Although 21 crews participated in the whale hunt at Barrow this season, the number of crews that actively engaged in whaling at every opportunity throughout the season probably averaged close to 15. We could not get a daily count of the active crews because the camps were strung out along some 15 miles of lead and could not all be reached during a single day. The whaling season lasted about a month and a half at Point Hope and Barrow, with the best hunting occurring during May.

UTILIZATION

If possible, the whales were pulled from the water by means of block and tackle before they were butchered. Thin ice required partial butchering of the animal before it could be hauled out. This situation

^{2/} Reference to trade name(s) in this report does not imply endorsement of commercial product(s) by the National Marine Fisheries Service, NOAA.

Table 3. Observations on whaling effort, spring 1974.

Area	Date	Item of interest
Point Hope	30 April	Ten crews whaling.
	1-3 May	All crews out.
	4 May	Lead was closed for a few hours in A. M. (assume 6 hours).
	5-8 May	All crews out.
	9 May	Lead closed -- all crews off ice.
	10 May	Lead closed.
	11 May	Lead began to open in mid-morning -- crews moving out and setting up during day.
	12 May	Only 3 crews out during day -- other 7 crews off ice. In evening all crews left ice for shore.
	13 May	No crews out.
	14 May	Crews began to move back out on ice in mid- afternoon.
	15 May	All crews out, but in evening 8 crews left ice.
	16 May	6 crews out in A. M. In afternoon 4 crews moving out on ice. All crews left ice in evening.
	17 May	Lead closed -- all crews in.
	18 May	Lead closed, but most crews set up on shore- side of pressure ridge.
	19 May	Lead closed, but all crews out.
	20 May	All crews out as far as I knew.
	21-26 May	Assume all crews out.
	27 May	Lead closed at 2200 hrs.
	28 May	Lead opened 0400 -- all crews apparently out on ice.
	29 May	Most crews off -- ice dangerous.
30 May	3 crews out -- rest off ice. Last day of whaling.	
Barrow	25 April	2 crews out. Leads opening.
	26 April	2 crews out.
	27 April	Leads opening and closing last few days.
	28 April	4 crews out, more scheduled to leave.
	30 April	Saw 9 camps off Barrow from aircraft.
	16 May	21 crews counted at whale butchering.
	29 May	9 crews out.
	31 May	Lead reported closed.
3 June	Lead open.	
4 June	5 crews out.	
6 June	Lead closed -- storm. End of whaling.	

greatly increased the butchering time. A whale could be butchered in as few as 6 hours, but sometimes twice that amount of time was necessary. Parts removed from the animal were taken ashore as soon as possible to prevent loss when the ice shifted.

Most meat and muktuk (skin and blubber) were removed from the butchering site immediately after the whale was cut up. On some occasions however, several days elapsed before everyone got a portion. Only the remains of the backbone, some ribs and internal organs, and the skull were left on the site. Generally, less of the whale was left on the ice at Point Hope than at Barrow. At Point Hope the skull was returned to the sea after the tympanic bullae and lower jawbone were removed and the latter taken to the village for the spring whale feast. At Barrow, the skull (tympanic bullae removed), including jawbones, was left at the butchering site. At some butchering sites, mostly at Barrow, blubber was left on the ice. If this unused blubber could be rendered for oil and legally sold or traded by the Eskimo it would eliminate waste entirely and provide additional income. Before the snowmobile era, surplus blubber was used for dog feed. The Eskimo utilizes the meat, muktuk, baleen, gum tissue (mamaak), flukes, flippers, brains, tongue, intestines, heart, kidneys, epithelium of the liver, and the tympanic bullae. See Plates 1 and 2 for illustrations of whale butchering.

MIGRATION

The Eskimos of Point Hope and Barrow generally recognize three distinct runs of whales past their villages. Whales making up the first two runs are usually smaller animals of both sexes, and many of them are the size that Durham^{3/} would call yearlings. Durham reports that yearling bowhead whales range in length from 6.70 to 7.90 m (22 to 26 feet). Whales making up the third run include large males and females with calves. According to Durham^{4/} as many as four runs (or waves) of bowheads occur. Durham reports a first run passing Point Hope in early April and Barrow in late April, which in some years may pass

3/ Durham, Floyd E. 1972. Biology of the bowhead whale (Balaena mysticetus L) in the western Arctic. University of Southern California, Los Angeles, California. Unpublished manuscript.

4/ Durham, Floyd E. 1973. Census and spring migration studies on the bowhead whale in the western Arctic in 1973. U. S. Dep. Commer., Natl. Oceanic Atmos. Admin., Natl. Mar. Fish. Serv., Seattle, Wash. Unpublished manuscript.

unnoticed due to ice conditions which prevent the whalers from going out, two runs in May at Barrow, and a last (4th) run at Barrow in early June which includes large males and females with calves. In 1974, three periods (or runs) when whales were most numerous in the lead off Point Hope seemed apparent (Table 2). At Barrow, four periods (or runs) of whales passing up the lead were noted, which agreed with Durham's observations (op. cit.). The first run occurred between 27 April and 4 May, a second from 12 to 16 May, a third from 25 to 29 May, and the fourth beginning 3 or 4 June. These data, however, are weak and much more information must be gathered on migration waves before definite conclusions can be drawn. Certainly, the bowhead is dependent on the formation of leads, or recently fractured ice containing thin spots, which it can break to reach air during its migration to summering grounds.

Many species of animals and birds migrate in series of waves from wintering to summering grounds. Rice and Wolman (1971) describe the seasonal migratory cycle of the gray whale, Eschrichtius robustus, which exhibits temporal segregation by age, sex, and reproductive status. Similar segregation has been reported in the humpback whale, Megaptera novaeangliae, by Dawbin (1966).

OTHER MAMMALS AND BIRDS

Other species of marine mammals observed at Point Hope were belukha, Delphinapterus leucas, ringed seal, Phoca hispida, and walrus, Odobenus rosmarus.

Although belukha were generally observed from 30 April to 16 May, two large groups of these animals migrated past Point Hope whaling camps -- one on 2 May and another on 12 May. Large numbers of small belukhas (yearlings?) were noted on 12 May. Belukha sighted and taken at Point Hope are given in Tables 5 and 6. The Eskimos at Point Hope were not too interested in killing belukha during the bowhead whaling season because they sink quickly and require considerable effort to recover. From 30 April to 20 May, six belukha were taken and two were shot but not recovered. Rifles were normally used to kill the animals. The Captain of one crew, however, stated that he used a harpoon on a belukha close to the ice edge, which he struck but lost. It is difficult to obtain information on belukha because they are butchered immediately after being killed. Some of the meat is eaten at the whaling camp, but the crew members usually take their share directly to their homes.

Table 5. Belukha sightings at Point Hope during May 1974 (the "x" directly below a date indicates the day of sighting).

	Date																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
x 60+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	x 2000+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	x 300+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	x 18-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	x 15-20	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	x 10-15	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	x 2	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	x 20-25	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	x 200+	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	x 1	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	x 4-5	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	x 20-30	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	x 5-6	-	-	-	-

Table 6. Numbers of belukha taken at Point Hope, spring 1974.

Date	Number killed
2 May	1
8 May	1
12 May	1 (cow with fetus)
12 May	3

A male ringed seal killed on 2 May was 110 cm (43.3 inches) in body length. On 7 May, a ringed seal surfaced within rifle range of one crew but no one shot at it. Several whalers spoke of being eager for the seal harvest that would begin following the end of the bowhead whaling season.

A large walrus was sighted by one whaler on 19 May, but ice conditions precluded any attempts to go after the animal.

Sea birds are regularly taken at the whaling camps.

Other species of mammals seen at Barrow were ringed seal, bearded seal, Erignathus barbatus, arctic fox, Alopex lagopus, and polar bear, Ursus maritimus. We had no direct evidence that belukha or walrus were seen or taken during our stay at Barrow. Ringed seals were abundant and regularly taken at the camps we visited. We saw 11 ringed seals hauled out on the ice off Barrow on 14 May and subsequently saw them hauled out whenever we went out on the ice. We saw one immature bearded seal taken on 30 May. Arctic foxes and polar bears were frequent travelers along the edge of the shore lead, and several of each species were killed at the camps.

When bowheads were coming up the lead, other species of wildlife were not shot, and the whalers did not want snowmobiles used near the edge of the fast ice.

Eider ducks, initially the King Eider, Somateria spectabilis, and later the Pacific Eider, S. molissima v-nigra, began to pass up the lead in considerable numbers beginning about 14 May and were regularly taken at the camps.

One gray whale, probably killed by rifle fire, was seen dead on a beach near Gambell, St. Lawrence Island on 22 June 1974 (James Estes, U.S. Fish and Wildlife Service, Anchorage, Ak., pers. commun.). To our knowledge this was the only gray whale killed in 1974.

FALL WHALING

At least two crews were whaling at Kaktovik (Barter Island), one crew whaled at Nuiqsut, and at least four crews whaled at Barrow, in 1974.

Two bowheads were taken by Kaktovik crews and three by Barrow crews; in addition, one whale was killed but lost in heavy seas (Table 7) and one was struck but lost off Barrow.

Table 7. Biological features of bowhead whales taken during the 1974 fall whaling season.

Area	Date	Body length (meters)	Sex
Kaktovik (Barter Island)	10 Sept.	---	---
	before 24 Sept.	---	---
Barrow	29 Sept.	9.75	M
	29 Sept. ^{1/}	---	M?
	3 Oct.	10.67	M
	8 Oct.	8.23	F

1/ Lost in heavy seas while towing in.

The fall whaling season lasted from early to mid-September at Kaktovik and from about 20 September through about 12 October at Barrow.

SUMMARY

In summary, the numbers of bowheads taken, known killed but lost, and known struck but lost in 1974 were:

<u>Location</u>	<u>Season</u>	<u>Bowheads butchered</u>	<u>Killed but lost</u>	<u>Struck but lost</u>
Gambell	spring	2	-	-
Savoonga	spring	-	-	2
Kivalina	spring	-	-	1
Point Hope	spring	6	1	5
Wainwright	spring	1	-	-
Barrow	spring	6	1	19
	fall	3	1	1
Nuiqsut	fall	-	-	-
Kaktovik	fall	2	-	-
		<u>20</u>	<u>3</u>	<u>28</u>

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LITERATURE CITED

- Bower, W. T., and H. D. Aller.
1917. Alaska fisheries and fur industries in 1916. Rep. U.S. Comm. Fish. 1916, App. I (Bur. Fish. Doc. 838), 118 p.
- Dawbin, W. H.
1966. The seasonal migratory cycle of humpback whales. In K. S. Norris (editor), Whales, dolphins, and porpoises, p. 145-170. Univ. Calif. Press, Berkeley and Los Angeles.
- Durham, F. E.
1974. Ancient and current methods of taking the bowhead whale. University of Alaska Sea Grant Program, Anchorage, Alaska, Sea Grant Report 73-9, 15 p.
- Rice, D. W.
1974. Whales and whale research in the eastern North Pacific. In W. E. Schevill (editor), The whale problem, a status report, p. 170-195. Harvard Univ. Press, Cambridge, Mass.
- Rice, D. W., and A. A. Wolman.
1971. The life history and ecology of the gray whale (Eschrichtius robustus). Am. Soc. Mammal. Spec. Publ. 3, 142 p.
- Van Stone, J. W.
1958. Commercial whaling in the Arctic Ocean. Pac. Northwest Quart. 49(1): 1-10.

1962. Point Hope, an Eskimo village in transition. Univ. Wash. Press, Seattle, 117 p.

Appendix 1. Itinerary of National Marine Fisheries Service scientists during the bowhead whale studies, spring 1974.

17 April

C. Fiscus departed Seattle for Fairbanks, Alaska.

18 April

C. Fiscus in Fairbanks.
Geoffry Carroll E. O. D.

20 April

C. Fiscus and G. Carroll departed Fairbanks for Barrow.
On duty at Barrow, Alaska.

22 April

W. Marquette departed Seattle for Fairbanks.

23 April

W. Marquette departed Fairbanks for Barrow.
On duty Barrow, Alaska.

30 April

C. Fiscus, G. Carroll and W. Marquette departed Barrow on NARL R-4-D aircraft for Point Hope.
On duty Point Hope Alaska.

1 May

Dr. R. V. Miller arrived Point Hope on Wein Air Alaska from Fairbanks.

6 May

C. Fiscus, Dr. R. Miller and G. Carroll departed Point Hope on NARL Cessna 180 for Barrow.
On duty Barrow, Alaska.

9 May

P. Frankson E. O. D. at Point Hope.
Dr. R. Miller departed Barrow on Wein Air Alaska for Washington D. C.

19 May

W. Marquette injured left foot riding snowmobile. He was accompanied by Ed Wightman, NMFS, Enforcement Officer, of Anchorage, Alaska.

Appendix 1, Continued

21 May

C. Fiscus and G. Carroll departed Barrow for Point Hope via chartered aircraft to pick up W. Marquette and transport him to see Doctor at U.S. Public Health Hospital in Barrow. Cabin was closed up for the year and all NMFS equipment stored in cabin.

23 May

Doctor put cast on W. Marquette's injured left foot.

25 May

W. Marquette departed Barrow for Seattle.

30 May

P. Frankson terminated E. O. B. Point Hope, Alaska.

8 June

C. Fiscus and G. Carroll departed Barrow for Fairbanks.
C. Fiscus departed Fairbanks for Seattle.

14 June

G. Carroll terminated E. O. B. Fairbanks, Alaska