

LOWER YUKON RIVER
SHEEFISH STUDY
October 1977 - June 1978

Completion Report

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TABLE OF CONTENTS

	<u>Page</u>
LIST OF FIGURES.....	ii
LIST OF TABLES.....	iii
INTRODUCTION.....	1
METHODS AND MATERIALS.....	1
RESULTS.....	3
DISCUSSION.....	15
RECOMMENDATIONS.....	19
FIGURES.....	22-25
TABLES.....	26-45
PHOTOGRAPHS.....	46-50
ATTACHMENTS.....	51-54

LIST OF FIGURES

	<u>Page</u>
Figure 1. Lower Yukon sheefish study area, 1977-1978.....	22
Figure 2. Total Lower Yukon sheefish catch and effort from October 1977 to June 1978.....	22a
Figure 3. A typical Lower Yukon under-ice gill net set and the procedure used for checking it.....	23
Figure 4. Percentage-age composition of sheefish sampled on the Lower Yukon, November 1977-June 1978.....	23a
Figure 5. Lower Yukon blackfish trap or Taluyuk.....	24
Figure 6. Basic components of a Lower Yukon lush (burbot) set.....	25

LIST OF TABLES

	<u>Page</u>
Table 1. List of fish utilized for subsistence in the Lower Yukon area between October 1977 and June 1978.....	26
Table 2. Lower Yukon winter sheefish catch and effort data, October, 1977-June 1978.....	27
Table 3. Lower Yukon sheefish catch derived from winter fishing calendars.....	28
Table 4. Lower Yukon whitefish catch derived from winter fishing calendars.....	29
Table 5. Lower Yukon burbot catch derived from winter fishing calendars.....	30
Table 6. Lower Yukon Northern pike catch derived from winter fishing calendars.....	31
Table 7. Lower Yukon blackfish catch derived from winter fishing calendars.....	32
Table 8. Lower Yukon lamprey run, 1977.....	33
Table 9. Lower Yukon saffron cod catch derived from winter catch calendars.....	34
Table 10. Lower Yukon chum salmon catch derived from winter catch calendars.....	35
Table 11. Percentage breakdown of reported Lower Yukon winter subsistence catch by species and village.....	36
Table 12. Peak seasonal occurrences of fish on the Lower Yukon during the winter of 1977-78.....	37
Table 13. Length and weight summary of Lower Yukon sheefish catches sampled between November 1977 and June 1978.....	38
Table 14. Length and weight summary of other Lower Yukon catches sampled between November 1977 and June 1978.....	39
Table 15. Sample size, range of lengths, mean length, and the standard deviation of subsistence caught fish on the Lower Yukon River, November 1977 to June 1978.....	40
Table 16. Mean calculated length and weight for Lower Yukon sheefish by age group.....	41
Table 17. Composition of Lower Yukon sheefish sampled from May-June, 1978 by sex and age group.....	42
Table 18. Catch sample data from other Lower Yukon species.....	43-45

INTRODUCTION

From October 1977 through June 1978, the Division of Commercial Fisheries of the Alaska Department of Fish and Game undertook a study of the subsistence sheefish fishery of the lower Yukon River. Funds for this study were made available from a special Capital Improvement Project appropriation from the Alaska State Legislature. The study area included all villages on the Yukon River drainage downstream from and including the village of Holy Cross (Figure 1).

Previous work done on lower Yukon sheefish by the Department included: tagging studies of sheefish caught at Caseys Channel in 1967 and at the Ohogamiut-Paimiut area in 1968 (Geiger, 1968); age and growth studies (Alt, 1973); and migration studies (Alt, 1977).

The objectives of this investigation were to document the fall-early winter and spring sheefish (*Inconnu*) (*Stenodus Leucichthys*) catch and fishing effort for the lower Yukon subsistence fishery, to obtain pertinent information about the fishery by personal fishermen interviews, to collect and analyze biological samples of the sheefish catch, and to produce an accurate description of the fishery.

METHODS AND MATERIALS

Catch and Effort Data Collection

Through the help of village contacts, subsistence catch calendars (Attachment 1) were distributed to 10 persons in each village (from Sheldon's Point to Holy Cross) who were known to be active winter fishermen. Individuals receiving calendars were asked to record their catches daily from late October through June. Follow up contacts were made with

fishermen in each village to collect calendars on a monthly basis and to check on accuracy and completeness of data.

Personal Questionnaire

A select number of long time fishermen in each village were interviewed using a personal questionnaire (Attachment 2) to find out their knowledge of the winter fishery and the area's fish populations.

Questions were asked pertaining to: Historical catch and effort compared to the present; personal observations on seasonal fish movements; past and present gear used; areas fished - past and present; past and present forms of utilization; and other pertinent observations made by fishermen.

Catch Sampling

Representative samples were obtained from subsistence sheefish catches throughout the fall and late spring. Whenever possible, samples were taken from unfrozen fish.

Information such as scale samples, length, weight, sex, maturity, physical condition, disease, parasites, injuries, food habits, as well as location caught, type of gear used, mesh size, weather, ice thickness, air and water temperatures were recorded for each fish sampled.

Several scales were collected from each fish that was sampled for the purpose of aging. In the lab, all readable scales were cleaned and mounted on glass slides. Each mounted scale was then magnified and projected on the screen of a microfiche reader. The age of each fish was determined by counting the number of complete annular rings which appear on its scales.

Although the major emphasis was placed on sampling sheefish; samples of other species were also obtained when time and availability permitted.

Fishery Description

Throughout the study area personal observations were recorded in a daily log and photographs were taken frequently to describe the winter subsistence fishery on the lower Yukon River (see photographs).

Special attention was given to types of gear used and other equipment utilized to set and check the gear under the ice. Modes of transportation employed to and from fishing sites were recorded. All fishing areas that were observed or indicated by fishermen were marked or sketched on maps. Information was noted on the magnitude of each catch, its species composition, and the size of fish comprising the catch. Different forms of storage and utilization of catches were also documented.

RESULTS

Catch and Effort Data Collection

During October, a total of 79 subsistence catch calendars were distributed. Calendars collected at the end of each month indicated that most of the winter fishing effort occurred in the fall. Fishermen began checking their underice nets as soon as the river ice became safe enough to travel on in mid-October. Winter fishing activities peaked in November. During that month a total of 48 fishermen reported catches of sheefish and other species. After November, fishing effort declined steadily until spring. In May there was a slight increase in fishing effort immediately before and after break-up, but it did not rival the activity exhibited in the fall.

The overall lower Yukon catch for the 1977-1978 winter fishing season contained 10 different species of fish from 6 families. Table 1 presents a list of the fish that were encountered in this study along with their species, family, common, and local names.

The total documented lower Yukon sheefish catch from October 1977 through June 1978 was 3,394 sheefish. This figure was arrived at using catch calendar data collected from 71 local families that reported sheefish catches. Expanded catch and effort values presented in Table 2 indicate that the total catch could conceivably be as high as 5,438 sheefish. However, the actual sheefish catch probably lies somewhere between these two figures.

Table 3 presents a summary of monthly sheefish catches for the lower Yukon area by village. Looking at the season as a whole, 83 percent of the entire sheefish take was made in the fall between October and November. The bulk of the remaining catch (10 percent) occurred just prior to and immediately after break-up in May. Combined village catches indicate that the majority of all sheefish caught in the study area occurred near the coast. Sheefish catches at Sheldons Point, Alakanuk, Emmonak, New Hamilton, and Kotlik comprised 85 percent of all reported catches.

A graphical comparison of total monthly sheefish catches and fishing effort given in Figure 2 illustrates a close relationship between sheefish catches and fishing effort.

According to catch calendar data, the best time and place for catching sheefish in the lower Yukon area during the 1977-78 winter season was from late October to early November in Kotlik. Ten out of eleven fishermen receiving calendars in Kotlik reported catches in October and November. The total catch of sheefish for these months in Kotlik amounted to 1,299. This catch represents 53 percent of the sheefish caught in the entire lower Yukon study area during October and November and also comprises 38 percent of the total catch made from October to June. The average number of sheefish caught by Kotlik

fishermen in October and November was 130. The majority of these sheefish were netted between November 1 and 16. The peak daily village catch was 113 sheefish and it was made on November 6 in Kotlik.

During the course of this study, lower Yukon fishermen also reported the following catches of other species: 3,562 whitefish (Coregonus sp.), 2,925 burbot (Lota lota), 987 northern pike (Esox lucius), 2,977 lbs. of Alaska blackfish (Dallia pectoralis), 9,696 lbs. of lamprey (Lampetra sp.), 9 chum salmon (Onchorhynchus keta), and 75 lbs. of saffron cod (Eleginus gracilis). Catch calendar information indicated that whitefish are the second most numerous group of fish harvested by lower Yukon fishermen during the winter fishery. This general category includes catches of three different species of whitefish (Bering ciscos, broad whitefish, and humpbacked whitefish). Whenever possible, information on whitefish catches was gathered according to species, however, the calendar data for these species was combined because most local fishermen do not differentiate their whitefish catches.

Table 4 presents a combined summary of lower Yukon whitefish catches derived from catch calendar data. Total monthly catches indicate that whitefish arrive in the study area earlier than sheefish. The peak monthly harvest of whitefish occurred in the latter part of October. The catch recorded for October was 1,249 whitefish. The whitefish catch and effort remained quite high in November and then decreased steadily through February. Catches increased slightly in March and May, but overall, the whitefish catch and effort was greater in the fall than in the spring and winter months.

A closer look at the whitefish catches reveals that Kotlik fishermen caught 784 Bering ciscos in October. This catch constituted 63 percent of the total lower Yukon whitefish catch for October. As the ice thickened

in November and it became safe for fishermen in other villages to venture out onto the river, good whitefish catches were also reported in Emmonak, Pitkas Point, and St. Marys. Catch calendars from these villages indicated a total catch of 856 whitefish (mixed variety) which accounted for 80 percent of November's catch. Most whitefish catches reported for the late winter months came from individuals in Pilot Station, Marshall, and Russian Mission who were catching mostly broad whitefish. Fifty-six percent of the spring catch of whitefish was caught by fishermen in St. Marys. Emmonak and Marshall fishermen also experienced fair whitefish catches in May.

Burbot catches for the fall, winter, and spring months are presented in Table 5. The total monthly burbot catches for all villages in the study area largely reflect the efforts of a few individuals fishing specifically for burbot with large fish traps. The largest monthly catch occurred in February, at which time 1,487 burbot were caught by five fishermen with traps. The fishermen that operate these traps usually share their catches with friends and relatives in their own village. In November, the fishing effort for burbot peaked at 48 fishermen and declined thereafter.

Analysis of the burbot catch by area showed that New Hamilton and Kotlik fishermen reported a combined catch of 211 burbot in November. This represents 61 percent of the total burbot catch for November. Burbot catches dropped off everywhere in December except at Pilot Station. Ninety-two percent of December's burbot catch was made by two fishermen in Pilot Station who caught 297 burbot using large fish traps. In January, Pilot Station's burbot catches dropped off slightly, but a newly set fish trap in Russian Mission made up the difference. Overall there were 282 burbot caught during the month of January. The subsistence

burbot harvest peaked in February. The combined efforts of two fish traps in Pilot Station, one trap in Marshall, and two more traps in Russian Mission yielded 1,487 burbot. Catches in March dropped to 389 burbot and declined sharply thereafter.

Table 6 summarizes lower Yukon catch calendar data on northern pike. Catch information collected to date indicates that pike are caught during the fall and early winter months and again in the spring just before break-up. The bulk of the northern pike catch was made by fishermen from the upriver villages (Mt. Village to Russian Mission). The fishing effort for northern pike peaked in November. Thirty-six fishermen caught pike during November, but the peak catch (242 pike) occurred in May with only half the fishing effort as in the fall. From late January through mid-April, pike catches were generally depressed. However, Marshall and Pilot Station fishermen experienced some of their best catches of pike during those mid-winter months. Again, these mid-winter pike catches can probably be attributed to fish traps operating at those two locations.

Catch calendar data also furnished an insight into the current use of some of the lesser known species which are utilized for subsistence. Alaska blackfish which inhabit tundra lakes and sloughs throughout the lower Yukon Delta, were generally caught using small fish traps in the late fall and early winter. Monthly catches presented in Table 7 show that the peak blackfish catch (1,183 lbs.) and effort (23 fishermen) occurred in November. Winter catch calendar data indicated that blackfish were sought only by a few fishermen in each village (usually elderly) from the mouth of the Yukon up to Pitkas Point. Sheldons Point and Kotlik fishermen caught blackfish soon after freeze-up in October and

early November. Alakanuk, Emmonak, Mountain Village, and Pitkas Point experienced freeze-up a little later and fishermen began catching blackfish in early November. The fishermen of most of these delta villages continued to catch blackfish until January and some experienced catches through April.

A summary of the 1977 lamprey run is presented in Table 8. The lamprey were first reported on October 28 at Mt. Village. From there, fishermen up to Holy Cross followed the run, scooping^{1/} and dip netting lampreys until they had enough to satisfy their needs. The greatest catch was made at Russian Mission between November 4 and 7. Five fishermen at Russian Mission reported a harvest of 4,957 lbs. of lampreys which represents an average catch of 991 lbs. of lampreys per fishermen.

Fishermen in villages with easy access to the coast (Sheldons Point, Alakanuk, Emmonak, and Kotlik) catch saffron cod in coastal sloughs in October and April. These fish are caught by jigging with a hook and line. Only one fishermen documented his catch and it is presented in Table 9.

In the early part of the winter, subsistence fishermen still continue to catch a few stray chum salmon in the underice nets. Table 10 shows the total recorded winter chum catch.

A percentage breakdown of all reported lower Yukon winter subsistence catches by species and village is given in Table 11.

Lower Yukon fishermen also take smelt for subsistence in the spring after break-up, primarily in the delta area. However, no catch data was obtained.

^{1/} A scoop is a long slender paddle with a blade impregnated with sharp nails along its edge. This device is fished through an oblong hole cut in the ice. When the lampreys are running, the scoop can catch 3 to 4 lampreys each time it is drawn through the water.

Personal Questionnaire

Findings from interviews with fishermen indicate that fish caught in the winter are usually frozen and consumed by the immediate household as they are needed. Fish caught in excess of the family's needs are shared with others or fed to their dogs. Later in the spring, catches are split and dried.

The winter fishing season for sheefish varies from village to village. The villages near the mouth of the Yukon (Sheldons Point, Alakanuk, Emmonak, and Kotlik) begin fishing first. Here the river freezes over earlier and the fall fishing starts in late October and continues into early December. Farther up the Yukon (Mt. Village, Pitkas Point, St. Marys, and Pilot Station) fishermen reported that they don't begin to get good sheefish catches until late December or early January. The upper most villages in the study area (Marshall, Russian Mission, and Holy Cross) maintain that sheefish aren't caught in abundance until late January or well into February.

Fishermen in all villages said that there is a heavy run of sheefish in the spring which starts when the ice breaks up on the Yukon River and continues until just before the king salmon arrive.

The primary type of gear used to take sheefish are gill nets. Most fishermen have one specific net that they use for catching sheefish under the ice. A typical underice sheefish net set is shown in Figure 3. The webbing on the nets is made of nylon with a stretched mesh size ranging from 4" to 7". Six inch mesh seems to be the preferred size for sheefish. The lengths of nets used vary from 25' to 120'. The major differences between sheefish nets and salmon nets are that sheefish underice nets have no cork line and the webbing is made of lighter gauge nylon. A smaller percentage of sheefish are taken by hooking or jigging through holes in the ice early in the fall and in the late spring.

When asked about factors which affect their sheefish catch success, all fishermen agreed that freeze-up and break-up played a major role. At these times ice conditions are too unstable to allow fishing; consequently fishing ceases during these periods.

Several fishermen believed that water levels of the Yukon River in the fall prior to freeze-up influence their catches. These fishermen stated that they experience better sheefish catches during years when the water levels in the Yukon are high in the fall.

The thickness of the ice on the river is a factor which appears to affect the fisherman more than the fish. When the ice gets to be about 4' thick many fishermen reportedly quit fishing. A few fishermen commented that they felt fishing was easier when there was a heavy snow cover because the snow acts as an insulating layer and prevents the ice from becoming very thick.

Fishermen in villages near the mouth of the Yukon stated that they experience larger catches on the high tide. Some also felt that their catches were better at night.

A final factor which fishermen brought up is the influence of the wind on fishing. Several upriver people claimed that warm southerly winds decreased sheefish movements in the river and catches decline during these periods until the temperature decreases again. Catches of northern pike were said to be improved by warm winds. Coastal fishermen are affected most by strong winds from the Southeast. This particular wind causes the ice pack to break up. When this condition exists, travel on the river is extremely hazardous and many nets are lost in the shifting ice.

When asked about observations relating to past and present sheefish movements, all agreed that the abundance of sheefish in the lower Yukon has remained about the same. Most fishermen are still able to catch

fish in the same area as in the past. No one reported any changes in the timing of the sheefish runs. The average size of sheefish caught varies from year to year, but there has been no drastic changes in sizes of fish caught compared to past years.

Incidental catches of other species in sheefish gear consists mainly of broad whitefish, northern pike, and burbot in order of abundance. However, the species composition of these incidental catches does vary from place to place and according to the time of year.

Additional species caught in the lower Yukon area between October and June are humpbacked whitefish, Bering ciscos, lamprey, Alaskan blackfish, an occasional late chum salmon spawner, and smelt. Fishermen near the coast also catch saffron cod (known locally as tomcods) in coastal sloughs. A summary of the personal interview findings on seasonal abundance of subsistence fish caught during the course of this study is presented in Table 12.

Catch Sampling

From November 1977 through June 1978, 235 fish were sampled from the subsistence catch the from seven locations on the lower Yukon River. These samples represent catches made at Kwemeluk Pass (Sheldons Point), Alakanuk Pass (Alakanuk), Big Eddy (Emmonak), Kwiguk Slough (Emmonak), Apoon Pass (Kotlik), Nanvaranak Slough (New Hamilton), and the Andraefsky River (St. Marys). Samples were collected from 189 sheefish, 24 broad whitefish, 7 smelt (undetermined species), 6 northern pike, 5 burbot, 3 Bering ciscos, and 1 humpbacked whitefish.

A summary of sheefish length and weight data derived from samples taken at various times and locations is presented in Table 13. Considering all sheefish samples collected during this study, the mean fork length was 670 mm and the mean weight 7.2 lbs. Sheefish samples ranged in length from 287 mm to 905 mm (Table 15). Weights varied from 0.5 lbs.

up to 20.0 lbs. Sheefish sampled in the spring tended to be larger and heavier than those caught during the fall.

Table 16 gives a breakdown of all sheefish samples by age. Ages of sheefish examined in this study ranged from 3 to 11 years. A percentage breakdown of the age data (Figure 4) shows that ages 6 through 10 comprised the bulk of the catch. Seven year old sheefish comprised 21.6 percent of the catch and were the single most frequently occurring age group.

Sheefish sex composition data collected in the spring is shown in Table 17. Random sheefish samples collected in Emmonak during May, were comprised of 26 males and 20 females. Despite the fact that the sample was small, it did reflect a fairly even sex ratio. Overall, sex data indicated that female sheefish were larger and older than males. The majority of the females were 9-11 years old, and most of the males were 7-9 years old.

Observations on the physical condition of sheefish indicate that no signs of disease or internal parasites were noted among fish that were sampled. On December 9, two unidentified external parasites were found attached above the anal fin of a sheefish that had been caught at New Hamilton. These parasites were 20 mm long, light brown in color, and were attached to the fish via a sucker-like mouth. This is the only instance in which external parasites were observed on sheefish. Stomach analysis of spring caught sheefish revealed a piscivorous diet of: small burbot, pike, whitefish, ninespine sticklebacks, and smelt (unidentified species). The stomach of one 20 lb. female sheefish on May 30 was gorged with 23 smelt ranging in size from 170 to 235 mm long.

Since the primary emphasis of this study was on sheefish, only a small number of catch samples were collected from other species. Sampling

data for all other species is presented in Tables 14, 15, and 18.

On December 5, 1977, a frozen lamprey specimen was obtained from a cache in Russian Mission for identification purposes. The lamprey was keyed out by Rae Baxter, (ADF&G Fisheries Research Biologist at Bethel) and he determined that it was Lampetra ayresi, the anadromous form of the brook lamprey. This specimen was 467 mm in length, weighed 160 grams, and was a developing male.

Fisheries Description

The winter fishery on the lower Yukon utilizes three major types of fishing gear: gill nets, fish traps, and hooks. All three of these methods are set and fished under the ice.

The gill nets in use have stretched mesh sizes ranging from 3 to 7 inches. Nets with mesh sizes less than 4 inches are generally used for catching whitefish. Larger meshed nets (4 to 7 inches) are utilized for sheefish. The length of these nets varies greatly, however, the average length of an underice net is about 60 feet.

Single funnel fish traps called "Ta-lu'-yuks" are used to capture blackfish and burbot. Most taluyuks on the lower Yukon are 2 to 6 feet in length and have openings that are 6 to 18 inches in diameter. These traps were traditionally constructed of spruce splints tied together with thin roots. Many of today's fishermen still utilize spruce splints for making their traps, but most are now lashed together with nylon line. Others preferring more modern materials, construct their taluyuks out of hardware cloth and chicken wire. Small taluyuks (Figure 5) are set in tundra lakes and sloughs and are used for catching blackfish.

A larger version of the same trap is employed by a few fishermen in Pilot Station, Marshall, and Russian Mission for catching burbot. These traps are up to 12 feet long and 6 feet in diameter. The taluyuks

are set under the ice in the Yukon River in conjunction with wood splint fences that fan out from the entrance of the trap and funnel fish into the trap. These large traps are usually built and operated jointly by several families and their catches are shared by people throughout the village. During the winter of 1978, five large taluyuks were operated between January and March.

Hooks are utilized for jigging (or hooking) and for making lush (burbot) sets. Fishermen jig for small sheefish, whitefish, tomcods, pike, and burbot. Equipment for jigging consists of a slender two foot wooden stick, 4 to 6 feet of nylon line, and a small lure which is bobbed up and down through a hole in the ice. Many fishermen make their own lures out of bone, ivory, or brass with a sharp piece of curved wire attached for a hook. Scraps of meat, fish, or small pieces of red cloth are sometimes affixed to these hooks for bait. Most jigging activity occurred in the late fall and spring when temperatures and weather are less severe.

Lush sets utilize 60 feet of nylon line with twelve no. 9/0 single shank hooks evenly spaced along it. The line is tied one foot above the bottom of the river to two hanging poles which are frozen in at the surface. Each hook is hung on a one foot leader and is baited with a live blackfish (3 to 4 inches long) hooked by the fleshy part of the tail. If these blackfish are hooked properly, they can remain alive for over a week. Figure 6 illustrates the basic components of a lush set.

The magnitude of sheefish catches varies according to season, location, and the amount and type of gear used to catch them. However, during periods of relative abundance the average catch observed for a 2 to 3 day set with 60 feet of gill net consisted of 1 to 3 sheefish. Under the same circumstances, 4 to 12 sheefish would be considered a good catch by most. The largest documented individual catch was 37

sheefish caught within a 12 hour period. This catch was made during the first week of November using 60 feet of gill net at Nanvaranak Slough (New Hamilton).

The primary mode of transportation used to and from winter fishing sites is a snow machine. Most fishermen also haul a freight sled behind their snow machine to carry their ice chisel, shovel, string, and fish catches. A few fishermen prefer to locate their winter sets close enough to their homes so they can walk to their gear.

DISCUSSION

Catch and Effort Data Collection

Subsistence fishing calendars collected from October 1977 through June 1978 revealed 71 lower Yukon families reported a catch of 3,394 sheefish. Contrasting this fishery with the subsistence salmon fishery that occurs during the summer months, it was documented that 397 fishing families between Sheldons Point and Holy Cross reported catching a total of 71,315 salmon (all species) during the summer of 1978. Comparing catches and effort, it is evident that the winter subsistence fishery for sheefish is decidedly smaller than the subsistence salmon fishery.

Catch calendars also indicated that most catches and effort for sheefish on the lower Yukon occurs near the coast between late October and early December. Catches from Sheldons Point, Alakanuk, Emmonak, New Hamilton, and Kotlik comprised the bulk of the entire lower Yukon sheefish catch. The largest recorded village catch of sheefish was made at Apoon Pass by Kotlik.

Unfortunately calendar returns received from Sheldons Point were poor. However, from interviews with fishermen and rough estimates of frozen sheefish observed in their smoke houses, it is felt that Sheldons Point sheefish catch is close, if not equal, to Kotlik's. Reports were also received that Sheldons Point experienced a strong spring run of

sheefish during the first week in May, 1978, but their catch was not recorded.

Upriver villages (Mt. Village to Holy Cross) exhibited less fishing effort than their downriver counterparts. Whitefish, northern pike, and burbot are more likely catches for upriver fishermen than sheefish.

It was observed that large numbers of small fat sheefish, averaging 5 lbs in weight, were caught in Nanvaranak Slough during freeze-up and the last three weeks of November. Fishermen reported that they catch this outward run of sheefish from Kawgan Lake each fall in the Nanvaranak just above New Hamilton. Kawgan is a large tundra lake which feeds into Nanvaranak Slough. Due to the great numbers of 5 lbs. sheefish caught at New Hamilton annually, it seems to indicate that Kawgan Lake may be a summer feeding ground for immature sheefish.

The lamprey catch that was documented during the fall of 1977 was the first time in 5 years that fishermen between Mt. Village and Holy Cross had successfully harvested the lamprey run. The lamprey run on the Yukon River is short and it occurs so close to the time of freeze-up (when thin and shifting ice make the river inaccessible) that the run is often missed. After its first sighting at Mt. Village on October 28th, the run traveled up the Yukon at a rate of 11.3 miles per day and was last reported at Holy Cross on November 13th.

Personal Questionnaire

The personal questionnaire proved to be a very useful tool for obtaining general information about the winter subsistence fishery. Comments concerning seasonal occurrences of lower Yukon fishes proved especially helpful for providing an insight as to when and where one should go to monitor this fishery.

However catch calendar data collected for December, January, February, and March did not support the fall questionnaire findings with regards

to mid-winter sheefish movements. Fishermen indicated in the fall that as the winter progressed, sheefish would gradually move upstream away from the coast. The general trend exhibited by catch calendars throughout the lower Yukon area was that sheefish catches and fishing effort decreased steadily in all villages after November as the winter progressed.

A vast majority of fishermen indicated that the abundance, distribution, timing of the run, and the size of sheefish caught hasn't changed appreciably over the years. All these factors probably indicate a stable sheefish population in the lower Yukon area.

Catch Sampling

This winter subsistence fishery presents a number of difficulties for catch sampling. First of all, the relaxed pace and irregular nature of this fishery has made it difficult to obtain samples on a regular basis. Underice sets are not checked according to any established schedule. Gear checks are determined by such things as weather, tides, ice conditions, village activities, jobs, availability of transportation, "the party the night before", and the whims of each individual. Cold, darkness, and the fisherman's practice of freezing their catches on the snow before they are transported home, made collection of sex and food habits data most difficult. During slack fishing periods it was necessary to sample frozen fish from caches and smoke houses in order to obtain representative samples of different areas. These factors tended to limit the numbers and types of catch samples that were collected.

Fisheries Description

Since the change-over from sled dogs to snow machines, marked decreased in catches and effort have been observed in the subsistence salmon fishery over the years. It is believed that winter catches and effort have also declined since the adaptation of the snow machine. The

village of Holy Cross is a prime example of this trend. Information obtained from interviews indicated that Holy Cross used to have a very active winter fishery 15 or 20 years ago when village residents depended upon fish catches to feed their dog teams. However, since that time most villagers have abandoned dogs as their primary means of winter transportation and have adopted the snowmachine. Last winter there was only one dog team observed in Holy Cross and its owner was the only individual known to have engaged in winter fishing. In this case the introduction of the snow machine coupled with an abundant terrestrial food supply in their immediate area has virtually eliminated the need for subsistence winter fishing in Holy Cross.

Another factor which has contributed to the decline in the winter subsistence fish harvest in lower Yukon villages over the past few years is their gradual shift to a cash economy. Seasonal employment (airlines, AVEC, BIA, BLM, CETA, housing projects, local stores, Native Corporations, PHS, schools, village councils, etc.) is much more available now than in the past. As a result, subsistence fishing for many villagers with full or part time jobs has become a semi-recreational habit which is engaged in only on weekends and holidays.

Currently, winter fishing is most actively engaged in by two major groups, the elderly and those villages with fewer job opportunities. Many older people in the villages, who were raised on subsistence foods, still "live off the land" because they prefer traditional diets. Others without jobs rely upon their winter catches to feed their families because the cost of store bought foods is prohibitive.

RECOMMENDATIONS

An annual winter fishery study should be undertaken on the lower Yukon River. Findings presented in this report are based upon observations collected from only one winter season. Data collected from several different seasons is necessary to evaluate the overall trend of a fishery.

Establishment of a winter tagging program would be very helpful for determining seasonal movements of fish populations in the lower Yukon. Further tagging and recovery studies would help confirm answers to such questions as: 1) where do sheefish travel to feed during mid-winter months when catches drop off throughout the lower Yukon area? (the growth and weight gains exhibited by spring caught sheefish indicate that they must feed actively through the winter); 2) what are the migratory habits of other lower Yukon species and where do they spawn? and/ 3) are lower Yukon sheefish stocks mixed or do they represent the same stock?

Future studies utilizing winter catch calendars should consider the following: 1) be sure to distribute all catch calendars personally; 2) hand out calendars in coastal villages before freeze-up to document early catches; 3) correct the Yupik names of fish on the catch calendar; 4) list burbot as "Lush"; 5) include blackfish in the daily catch listings; 6) include lamprey, tomcods and smelt in the calendar as they occur seasonally (refer to Table 12); and 7) be punctual about collecting monthly calendars. (When people began to expect a calendar pick up on a regular monthly basis, they seemed to record their catches more faithfully. Another advantage to frequent visits is that if the fisherman has neglected to record his catch, his recollection of last months catch is far more accurate after a four week period than it would be if more time is allowed to elapse).

In villages where catch calendars returns were poor, the Department might consider hiring a local resident part-time to monitor catches in

his own village. This person could obtain catch information by interviewing fishermen or surveying their frozen catches on a weekly basis and reporting these catches to ADF&G each month.

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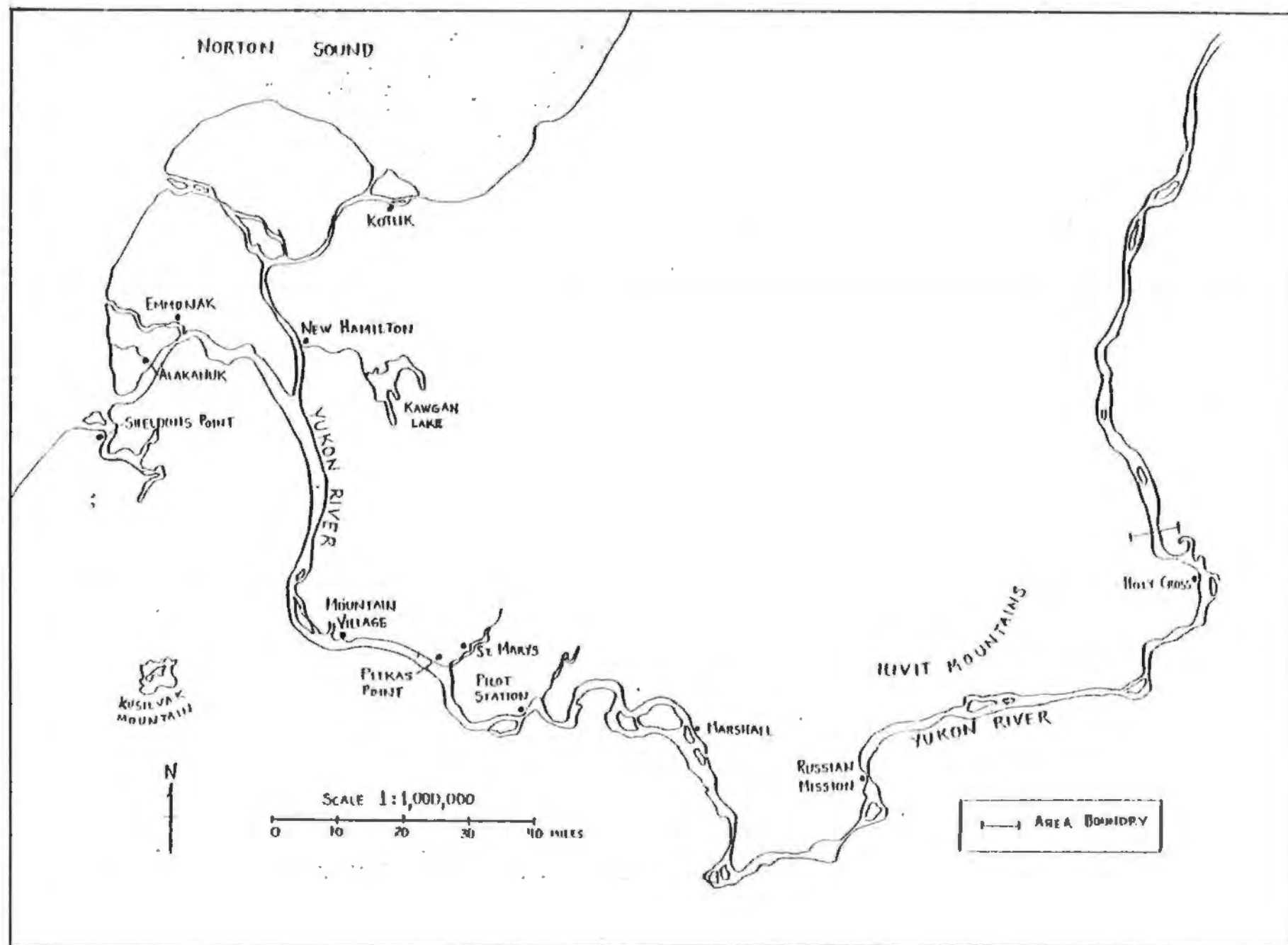
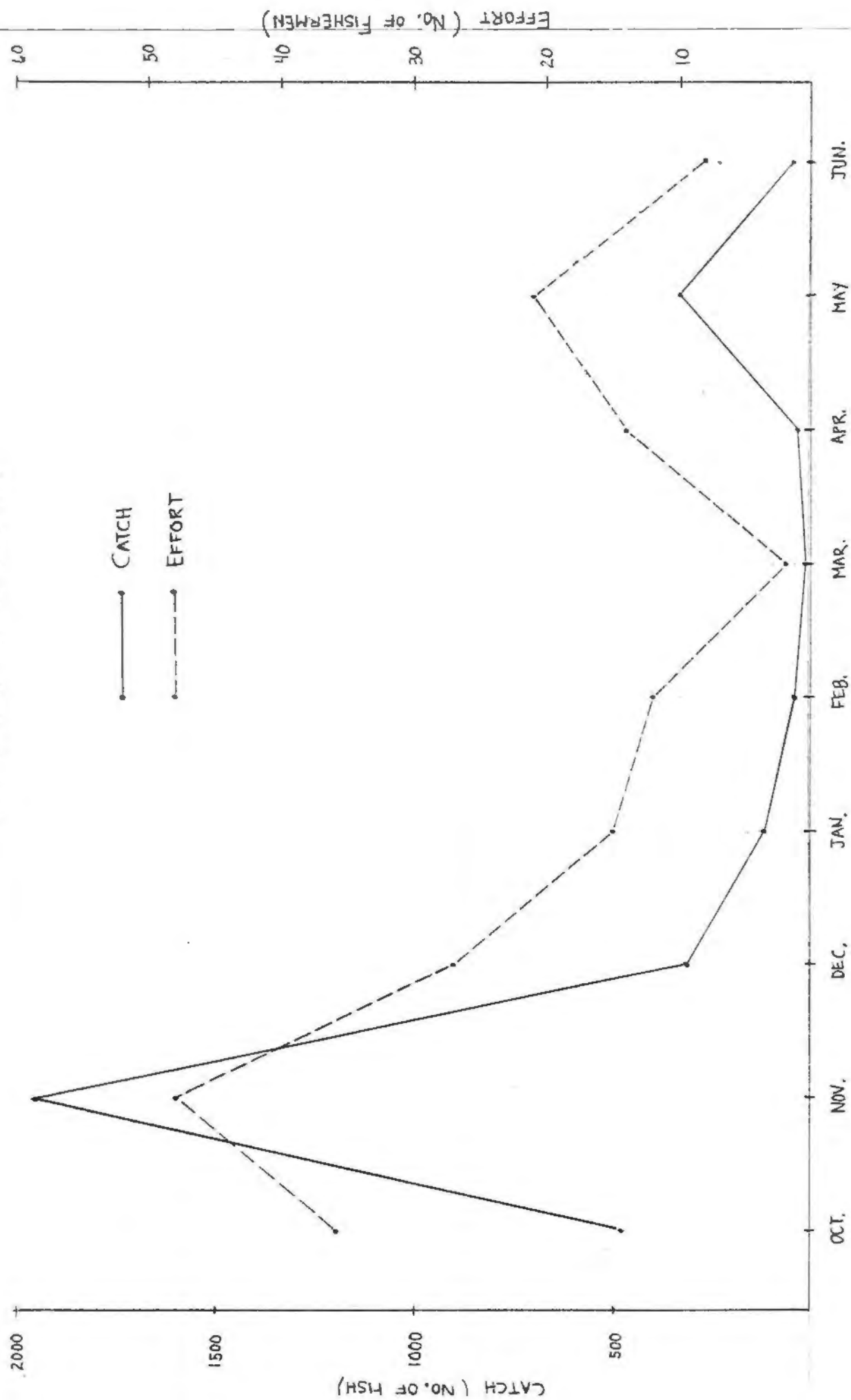


Figure 1. Lower Yukon Sheefish Study Area, October 1977 - June 1978.

FIGURE 2. TOTAL LOWER YUKON SHEEFISH CATCH AND EFFORT
FROM OCTOBER 1977 TO JUNE 1978



CATCH (NO. OF FISH)

EFFORT (NO. OF FISHERMEN)

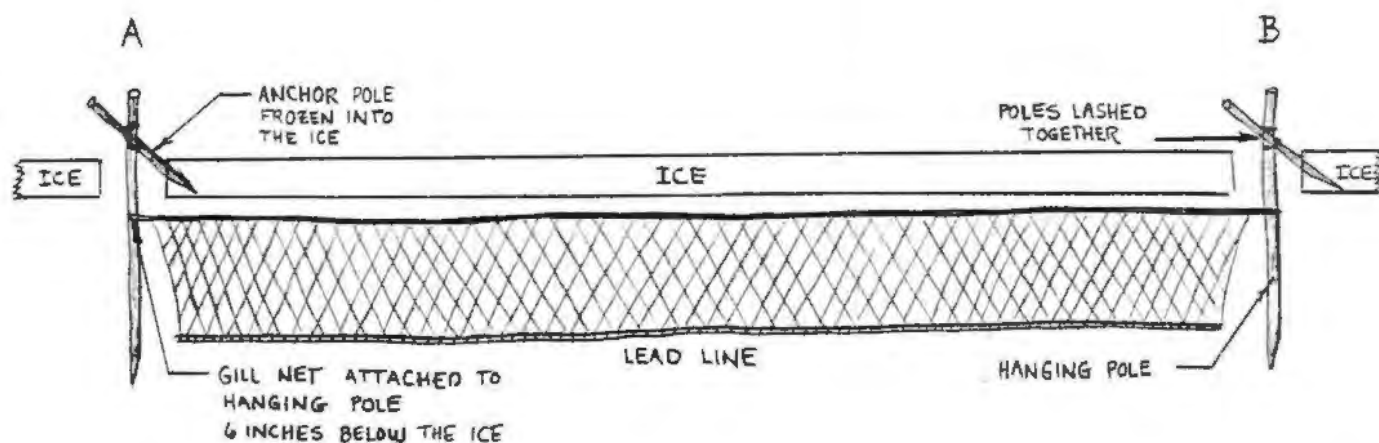
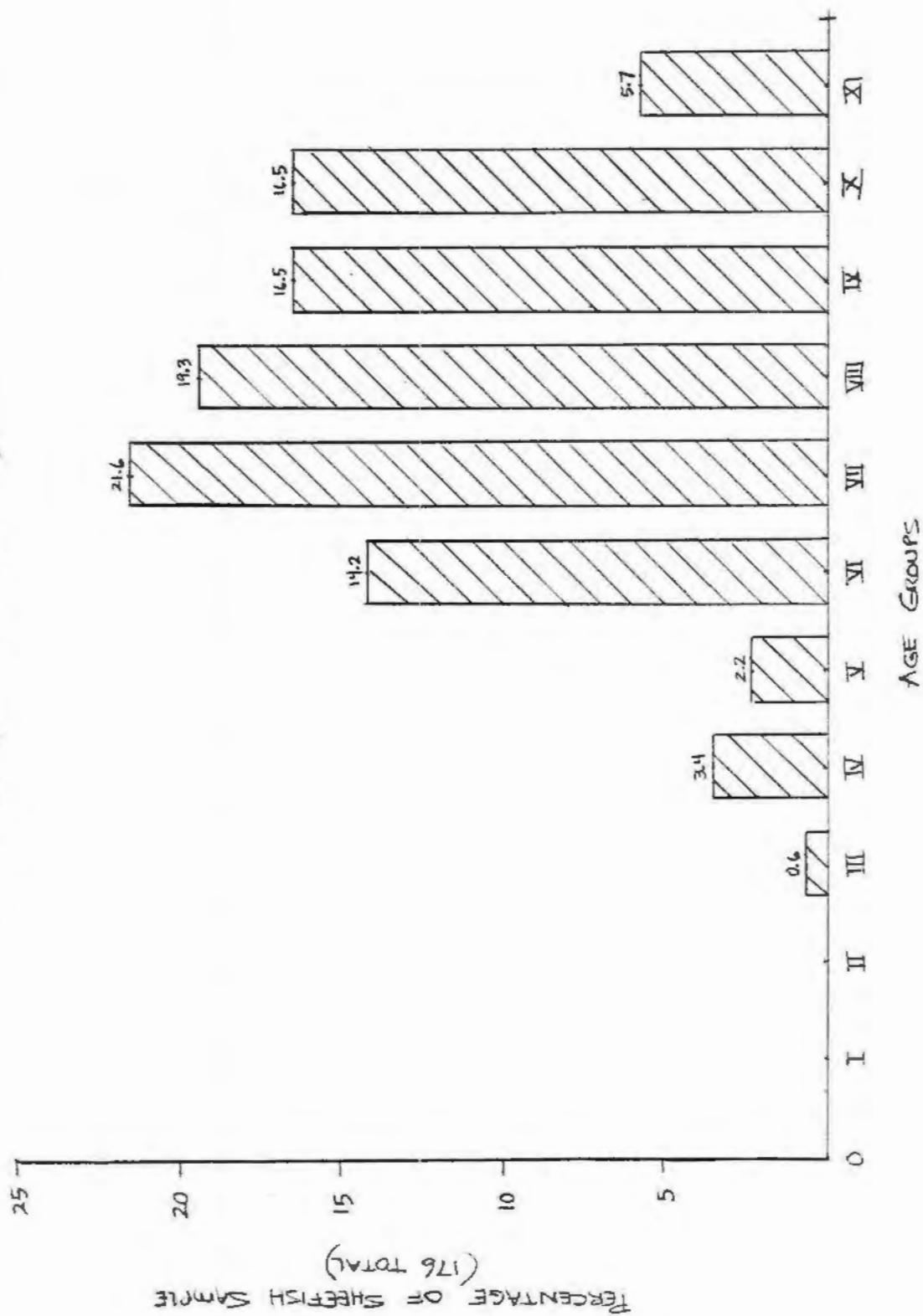


Figure 3. A typical lower Yukon under-ice gill net set and the procedure used for checking it.

1. Chip an 18 to 24 inch diameter hole through the ice surrounding each hanging pole with an ice pick.
 2. Clean the ice chips out of each hole with a shovel. These chips are usually piled around the anchor pole to strengthen its base.
 3. Stretch a 1/4 inch nylon line out on the ice between A and B.
 4. Unlash the hanging pole at A. Lift the pole from the water and lay it across the hole.
 5. Tie the 1/4 inch line to the cork line ^{1/} on side A of the gill net. Maintain tension on this line until the hanging pole on side B can be unlashed from the anchor pole and raised from the water. Now the net is ready to be pulled from side B.
 6. Cradle the net as it is pulled from under the ice to minimize catch losses. When possible, shake excess water from the net and pile it neatly on the snow, so it doesn't freeze into a huge snarl.
 7. The net can be restrung under the ice by pulling steadily on the 1/4 inch line and feeding the net back into the water through the hole.
 8. The last step is to retie the corkline to the hanging pole at A and lash both hanging poles to their respective anchor poles.
- 1/ Note that no corks or floats are used on under-ice nets.

FIGURE 4 PERCENT AGE COMPOSITION OF SHEEFISH SAMPLED ON THE LOWER YUKON (Nov. 1977 - JUN. 1978).



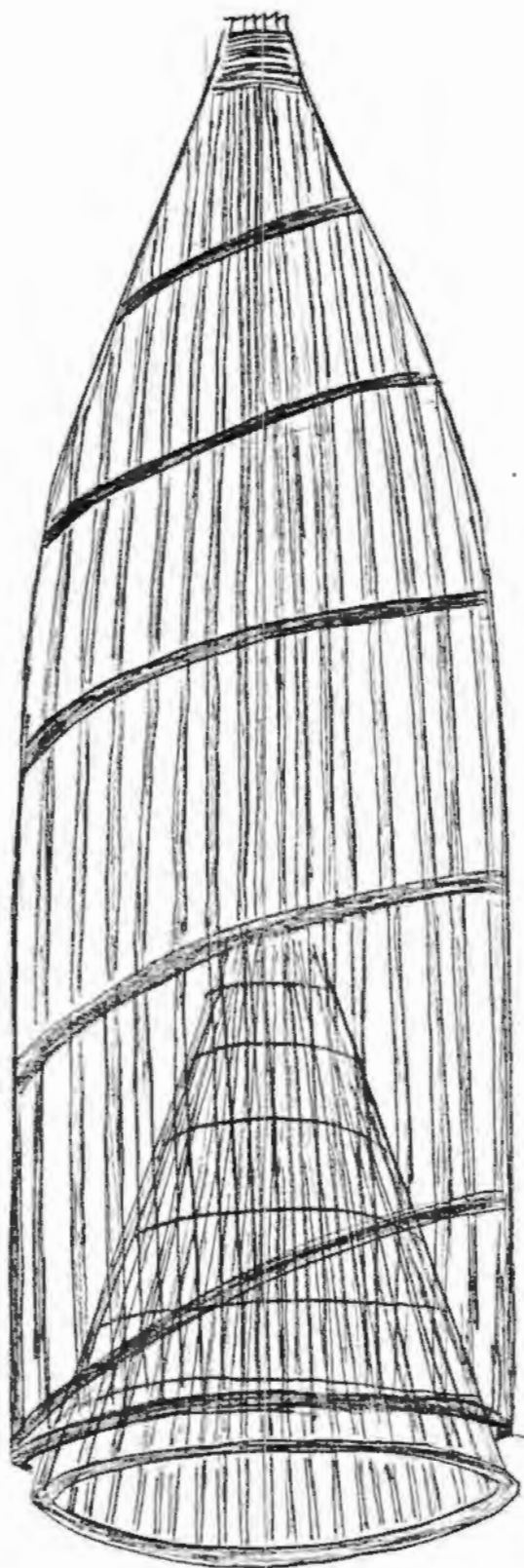
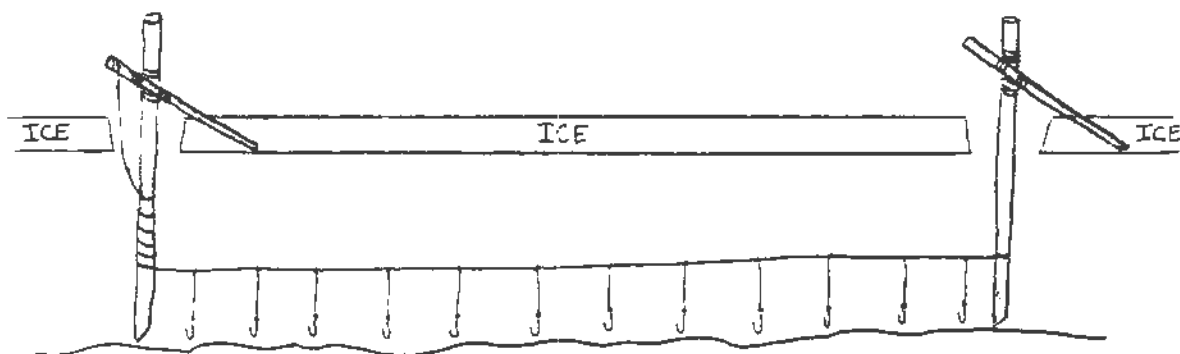


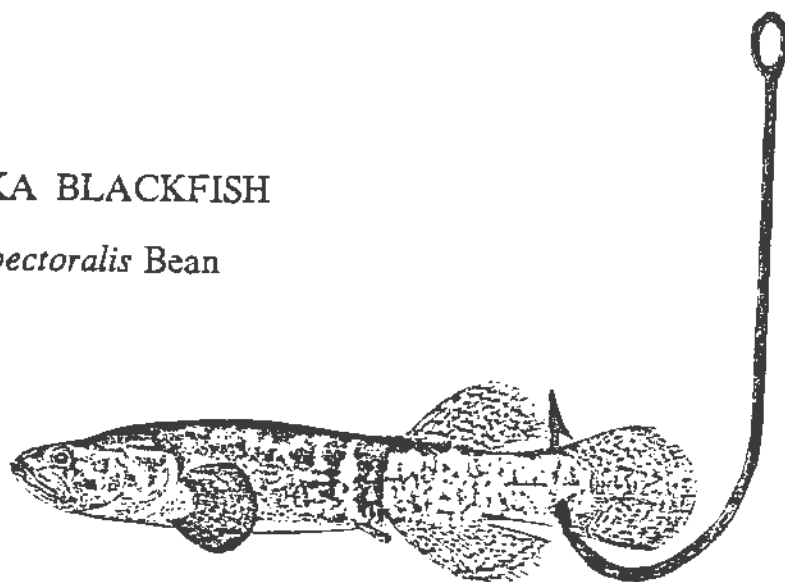
Figure 5. Lower Yukon blackfish trap or "Taluyuk".

Figure 6. Basic components of a lower Yukon Lush (Burbot) set.



ALASKA BLACKFISH

Dallia pectoralis Bean



No. 9/0 hook

(actual size)

Table 1. List of fish species utilized for subsistence in the Lower Yukon study area between October, 1977, and June, 1978.

Species	Family	Common Name	Local Name
<i>Stenodus leucichthys</i>	Coregonidae	Sheefish	Chēē
<i>Coregonus nasus</i>	Coregonidae	Broad Whitefish	Kāw' - Tāk
<i>Coregonus lavaretus pidschian</i>	Coregonidae	Humpback Whitefish	Chǐng - ěk' - klūk
<i>Coregonus laurettae</i>	Coregonidae	Bering Cisco	Ē - mǔk' - pēē - nǔk
Pond smelt	Osmeridae	Smelt	? , small fish
Boreal smelt	Osmeridae	Smelt	? , small fish
<i>Lota lota lepus</i>	Gadidae	Burbot	Lush
<i>Eleginus gracilis</i>	Gadidae	Saffron Cod	Tomcod
<i>Esox lucius</i>	Esocidae	Northern Pike	Jūd - fūk
<i>Dallia pectoralis</i>	Umbridae	Alaska Blackfish	Ĭ - māñ' - ûk, Blackfish
<i>Lampetra ayresi</i> *	Petromyzontidae	Brook Lamprey	Eel
<i>Lampetra japonica</i>	Petromyzontidae	Arctic Lamprey	Eel

* Based on identification of one specimen

Table 2. Lower Yukon winter sheefish catch and effort data, October, 1977 - June, 1978.

	Estimated No. of Families that subsis. fish in winter for sheefish	No. of families that reported subsistence sheefish catches	Total reported sheefish catch (expanded catch)	Average sheefish catch/family
Sheldons Point	7	2	465 (1628)	232.5
Alakanuk	14	11	377 (480)	34.3
Emmonak	14	10	337 (472)	33.7
New Hamilton	3	2	190 (285)	95.0
Kotlik	13	11	1500 (1773)	136.4
Mt. Village	10	6	43 (72)	7.2
Pitkas Point	6	6	96 (96)	16.0
St. Marys	9	6	132 (198)	22.0
Pilot Station	9	6	110 (165)	18.3
Marshall	8	4	111 (222)	27.8
Russian Mission	10	7	33 (47)	4.7
Holy Cross	2	0	0 (0)	0
TOTALS	105	71	3394 (5438)	47.8

Table 3. Lower Yukon sheefish catch derived from winter fishing calendars.

Village	OCTOBER			1977 NOVEMBER			DECEMBER			1978 JANUARY		
	Documented Village Count	Number of Fishermen	Average Catch per Fisherman	Documented Village Catch	Number of Fishermen	Average Catch per Fisherman	Documented Village Catch	Number of Fishermen	Average Catch per Fisherman	Documented Village Catch	Number of Fishermen	Average Catch per Fisherman
Sheldons Point	-	-	-	404	2	202.0	61	1	61.0	0	-	-
Alakanuk	14	5	2.8	184	8	23.0	69	5	13.8	49	3	16.3
Emmonak	16	3	5.3	124	5	24.8	55	6	9.2	23	3	7.7
New Hamilton	0	-	-	180	1	180.0	10	1	10.0	0	-	-
Kotlik	393	10	39.3	906	10	90.6	56	4	14.0	29	2	14.5
Mountain Village	0	-	-	31	5	6.2	11	2	5.5	0	-	-
Pitkas Point	15	4	3.8	30	3	10.0	17	1	17.0	14	3	4.7
St. Marys	10	3	3.3	76	3	25.3	5	3	1.7	0	-	-
Pilot Station	13	5	2.6	23	4	5.8	39	4	9.8	9	3	3.0
Marshall	3	2	1.5	7	2	3.5	0	-	-	2	1	2.0
Russian Mission	31	4	7.8	2	5	0.4	0	-	-	0	-	-
Holy Cross	0	-	-	0	-	-	0	-	-	0	-	-
Totals	495			1,967			323			126		
Totals		36			48			27			15	
Totals			13.8			41.0			12.0			8.4

1978 FEBRUARY			MARCH			APRIL			MAY			JUNE			COMBINED TOTAL		
Documented Village Count	Number of Fishermen	Average Catch per Fisherman	Documented Village Catch	Number of Fishermen	Average Catch per Fisherman	Documented Village Catch	Number of Fishermen	Average Catch per Fisherman	Documented Village Catch	Number of Fishermen	Average Catch per Fisherman	Documented Village Catch	Number of Fishermen	Average Catch per Fisherman	Documented Village Catch	Number of Fishermen	Average Catch per Fisherman
0	-	-	0	-	-	0	-	-	-	-	-	-	-	-	465	2	232.5
7	2	3.5	6	2	3.0	12	2	6.0	36	7	5.1	3	1	3.0	377	11	34.3
4	3	1.3	0	-	-	15	4	3.8	90	5	18.0	10	3	3.3	337	10	33.7
0	-	-	0	-	-	0	-	-	-	-	-	-	-	-	190	2	95.0
13	2	6.5	0	-	-	5	4	1.0	76	1	76.0	22	1	22.0	1,500	11	136.4
0	-	-	0	-	-	1	1	1.0	-	-	-	-	-	-	43	6	7.2
13	1	13.0	0	-	-	7	3	2.3	-	-	-	-	-	-	96	6	16.0
1	1	1.0	0	-	-	3	1	3.0	24	4	6.0	13	2	6.5	132	6	22.0
6	3	2.0	0	-	-	-	-	-	14	1	14.0	6	1	6.0	110	6	18.3
0	-	-	0	-	-	-	-	-	99	3	33.0	-	-	-	111	4	27.8
0	-	-	0	-	-	-	-	-	-	-	-	-	-	-	33	7	4.7
0	-	-	0	-	-	-	-	-	-	-	-	-	-	-	0	0	0.0
44			6			43			339			54			3,394		
12			2			15			21			8			71		
3.7			3.0			2.9			16.1			6.0			47.8		

Table 4. Lower Yukon whitefish catch derived from winter fishing calendars.

Village	1977			1978						Combined Total		
	October	November		December	January	February	March	April	May	June	Documented village catch	Avg. catch per fisherman
	Documented village catch Number of fishermen Avg. catch per fisherman	Documented village catch Number of fishermen Avg. catch per fisherman	Documented village catch Number of fishermen Avg. catch per fisherman	Documented village catch Number of fishermen Avg. catch per fisherman	Documented village catch Number of fishermen Avg. catch per fisherman	Documented village catch Number of fishermen Avg. catch per fisherman	Documented village catch Number of fishermen Avg. catch per fisherman	Documented village catch Number of fishermen Avg. catch per fisherman	Documented village catch Number of fishermen Avg. catch per fisherman	Documented village catch Number of fishermen Avg. catch per fisherman	Documented village catch Number of fishermen Avg. catch per fisherman	Documented village catch Number of fishermen Avg. catch per fisherman
Sheldons Point	- - -	2 2 1.0	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	2 2 1.0	
Alakanuk	40 5 8.0	53 8 6.6	18 5 3.6	10 3 3.3	0 - -	0 - -	0 - -	0 - -	18 7 2.6	0 - -	139 11 12.6	
Emmonak	8 3 2.7	219 5 43.8	147 6 24.5	36 3 12.0	6 3 2.0	0 - -	0 - -	4 4 1.0	56 5 11.2	3 3 1.0	479 10 47.9	
New Hamilton	- - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 2 0.0	
Kotlik	784 10 78.4	206 10 20.6	6 4 1.5	0 - -	0 - -	0 - -	0 - -	1 4 0.3	0 - -	0 - -	997 11 90.6	
Mountain Village	11 4 2.8	43 5 8.6	11 2 5.5	0 - -	0 - -	0 - -	0 - -	11 1 11.0	0 - -	0 - -	76 6 12.7	
Pitkas Point	69 4 6.8	233 3 77.7	122 1 122.0	105 3 35.0	0 - -	0 - -	0 - -	32 3 10.7	0 - -	0 - -	561 6 93.5	
St. Marys	113 3 37.7	198 3 66.0	31 3 10.3	5 2 2.5	8 1 8.0	6 1 6.0	9 1 9.0	170 4 42.5	0 - -	0 - -	540 6 90.0	
Pilot Station	39 5 7.8	20 4 5.0	72 4 18.0	32 3 10.7	37 3 12.3	72 2 36.0	30 2 15.0	0 - -	0 - -	0 - -	302 6 50.3	
Marshall	136 2 68.0	78 2 39.0	14 1 14.0	18 1 18.0	0 - -	30 1 30.0	0 - -	57 3 19.0	0 - -	0 - -	333 4 83.3	
Russian Mission	49 4 12.3	14 5 2.8	0 - -	0 - -	21 2 10.5	44 1 44.0	5 2 2.5	0 - -	0 - -	0 - -	133 7 19.0	
Holy Cross	- - -	- - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 0 0.0	
TOTALS	1,249	1,066	421	206	72	152	92	301	3	3,562		
TOTALS	40	47	26	15	9	5	17	19	3	71		
TOTALS	31.2	22.7	16.2	13.7	8.0	30.4	5.4	15.8	1.0	50.2		

Table 5. Lower Yukon burbot catch derived from winter fishing calendars.

Village	1977			1978						Combined Total		
	October	November	December	January	February	March	April	May	June	Documented village catch	Number of fishermen	Avg. catch per fisherman
Sheldons Point	- - -	18 2 9.0	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	18	2	9.0
Alakanuk	1 5 0.2	25 8 3.1	5 5 1.0	8 3 2.7	0 - -	0 - -	0 - -	5 7 0.7	0 - -	44	11	4.0
Enmonak	0 - -	31 5 6.2	12 6 2.0	16 3 5.3	3 3 1.0	0 - -	0 - -	6 5 1.2	0 - -	68	10	6.8
New Hamilton	- - -	104 1 104.0	5 1 5.0	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	109	2	54.5
Kotlik	22 10 2.2	107 10 10.7	10 4 2.5	8 2 4.0	3 2 1.5	0 - -	2 4 0.5	0 - -	0 - -	152	11	13.8
Mountain Village	1 4 0.3	22 5 4.4	1 2 0.5	0 - -	0 - -	0 - -	5 1 5.0	0 - -	0 - -	29	6	4.8
Pitkas Point	0 - -	4 3 1.3	0 - -	6 3 2.0	0 - -	0 - -	2 3 0.7	0 - -	0 - -	12	6	2.0
St. Marys	10 3 3.3	25 3 8.3	2 3 0.7	8 2 4.0	8 1 8.0	1 1 1.0	16 1 16.0	0 - -	0 - -	70	6	11.7
Pilot Station	4 5 0.8	5 4 1.3	262 4 65.5	162 3 54.0	344 3 114.7	126 2 63.0	7 2 3.5	0 - -	0 - -	910	6	151.7
Marshall	1 2 0.5	2 2 1.0	0 - -	0 - -	406 1 406.0	141 1 141.0	13 2 6.5	7 3 2.3	0 - -	570	4	142.5
Russian Mission	21 4 5.3	1 5 0.2	0 - -	74 1 74.0	723 2 361.5	121 1 121.0	3 2 1.5	0 - -	0 - -	943	7	134.7
Holy Cross	- - -	- - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0	0	0
TOTALS	60	344	297	282	1,487	389	48	18	0	2,925		
TOTALS	33	48	25	17	12	5	15	15	0		71	
TOTALS	1.8	7.2	11.9	16.6	123.9	77.8	3.2	1.2	0.0			41.2

Table 6. Lower Yukon northern pike catch derived from winter fishing calendars.

Village	1977			1978						Combined Total	
	October	November	December	January	February	March	April	May	June		
	Documented village catch Number of fishermen Avge. catch per fisherman	Documented village catch Number of fishermen Avge. catch per fisherman	Documented village catch Number of fishermen Avge. catch per fisherman	Documented village catch Number of fishermen Avge. catch per fisherman	Documented village catch Number of fishermen Avge. catch per fisherman	Documented village catch Number of fishermen Avge. catch per fisherman	Documented village catch Number of fishermen Avge. catch per fisherman	Documented village catch Number of fishermen Avge. catch per fisherman	Documented village catch Number of fishermen Avge. catch per fisherman	Documented village catch Number of fishermen Avge. catch per fisherman	Documented village catch Number of fishermen Avge. catch per fisherman
Sheldons Point	- - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 2 0.0
Alakanuk	0 - -	12 8 1.5	2 5 0.4	6 3 2.0	0 - -	0 - -	0 - -	13 7 1.9	1 1 1.0	34 11 3.1	
Emmonak	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	13 4 3.3	48 5 9.6	0 - -	61 10 6.1	
New Hamilton	- - -	1 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	1 2 0.5	
Kotlik	1 10 0.1	4 10 0.4	4 4 1.0	1 2 0.5	4 2 2.0	0 - -	1 4 0.3	0 - -	0 - -	15 11 1.4	
Mountain Village	13 4 3.3	50 5 10.0	4 2 2.0	0 - -	0 - -	0 - -	15 1 15.0	0 - -	0 - -	82 6 13.7	
Pitkas Point	9 4 2.3	10 3 3.3	53 1 53.0	26 3 8.7	8 1 8.0	0 - -	4 3 1.3	0 - -	0 - -	110 6 18.3	
St. Marys	32 3 10.7	23 3 7.7	11 3 3.7	8 2 4.0	2 1 2.0	1 1 1.0	0 - -	129 4 32.3	0 - -	206 6 34.3	
Pilot Station	0 - -	0 - -	6 4 1.5	7 3 2.3	5 3 1.7	26 2 13.0	1 2 0.5	0 - -	0 - -	45 6 7.5	
Marshall	4 2 2.0	12 2 6.0	6 1 6.0	66 1 66.0	40 1 40.0	38 1 38.0	51 2 25.5	52 3 17.3	0 - -	269 4 67.3	
Russian Mission	96 4 24.0	33 5 6.6	29 1 29.0	0 - -	1 2 0.5	0 - -	5 2 2.5	0 - -	0 - -	164 7 23.4	
Holy Cross	- - -	- - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 0 0	
TOTALS	152	145	115	114	60	65	90	242	1	987	
TOTALS	27	36	21	14	10	4	18	19	1	71	
TOTALS	5.6	4.0	5.5	8.1	6.0	16.3	5.0	12.7	1.0	13.9	

1/
Table 7. Lower Yukon blackfish catch^{1/} derived from winter fishing calendars, October, 1977 to June, 1978.

Village	1977			1978						Combined Total	
	October	November	December	January	February	March	April	May	June		
	Documented village catch Number of fishermen Avg. catch per fisherman	Documented village catch Number of fishermen Avg. catch per fisherman	Documented village catch Number of fishermen Avg. catch per fisherman	Documented village catch Number of fishermen Avg. catch per fisherman	Documented village catch Number of fishermen Avg. catch per fisherman	Documented village catch Number of fishermen Avg. catch per fisherman	Documented village catch Number of fishermen Avg. catch per fisherman	Documented village catch Number of fishermen Avg. catch per fisherman	Documented village catch Number of fishermen Avg. catch per fisherman	Documented village catch Number of fishermen Avg. catch per fisherman	Documented village catch Number of fishermen Avg. catch per fisherman
Sheldons Point	- - -	161 2 80.5	0 - -	0 - 0	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	161 2 80.5
Atakanuk	10 5 2.0	140 8 17.5	152 5 30.4	190 3 63.3	95 2 47.5	150 2 75.0	0 - -	0 - -	0 - -	0 - -	737 11 67.0
Enmonak	180 3 60.0	382 5 76.4	120 6 20.0	150 3 50.0	0 - -	100 1 100.0	75 4 18.8	0 - -	0 - -	0 - -	1,007 10 100.7
New Hamilton	- - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -
Kotlik	147 11 14.7	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	147 11 13.4
Mountain Village	0 - -	200 5 40.0	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	200 6 33.3
Pitkas Point	0 - -	300 3 100.0	200 1 200.0	200 3 66.7	25 1 25.0	0 - -	0 - -	0 - -	0 - -	0 - -	725 6 120.8
St. Marys	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -
Marshall	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -
Russian Mission	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -
Holy Cross	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -
TOTALS	337	1,183	472	540	120	250	75	0	0	0	2,977
TOTALS	18	23	12	9	3	3	4	0	0	0	46
TOTALS	18.7	51.4	39.3	60.0	40.0	83.3	18.8	0.0	0.0	0.0	64.7

1/ All catches presented in pounds of fish.

Table 8. Lower Yukon River lamprey run, October-November, 1977.

Village	Lamprey Catch Dates	Documented Lamprey Catch	Number of Fishermen	Average catch per fisherman
Mt. Village	Oct. 28-30	123 lb.	4	30.8 lb.
Pitkas Point	Oct. 28-31	950 lb.	4	237.5 lb.
St. Marys	Oct. 29-31	180 lb.	3	60.0 lb.
Pilot Station	Oct. 29-31	1580 lb.	5	316.0 lb.
Marshall	Nov. 01-05	1906 lb.	2	953.0 lb.
Russian Mission	Nov. 04-07	4957 lb.	5	991.0 lb.
Holy Cross	Nov. 13 *	----	-	-----
** (Anvik-Grayling)	(Nov. 20)	(6800 lb.)	(5)	(1360.0 lb.)
TOTALS		9696 lb.	23	441.6 lb.

* No one documented the lamprey catch in Holy Cross. The catch date given is an approximation obtained from an interview.

** Information furnished by Fred Andersen, ADF&G, Fairbanks.

Table 9. Lower Yukon "tomcod" (saffron cod) catch, October, 1977 to June, 1978.

	Peak recorded village catch		Documented Village Catch	No. of Fishermen	Average monthly catch per fisherman
	Date	No. of Fish			
Sheldons Point ^{1/}	--	--	--	-	--
Alakanuk ^{1/}	--	--	--	-	--
Emmonak ^{1/}	--	--	--	-	--
New Hamilton	--	--	--	-	--
Kotlik ^{2/}	4/21,22,23	25 lb.	75 lb.	1	75 lb.
Mt. Village	--	--	--	-	--
Pitkas Point	--	--	--	-	--
St. Marys	--	--	--	-	--
Pilot Station	--	--	--	-	--
Marshall	--	--	--	-	--
Russian Mission	--	--	--	-	--
Holy Cross	--	--	--	-	--
TOTALS			75 lb.	1	75 lb.

^{1/} It is believed that these villages also catch tomcods in October and April.

^{2/} Kotlik fishermen travelled 30 miles northeast of their village to catch tomcods. In the coastal sloughs of Pastol Bay, Kotlik fishermen also catch tomcods in early fall, but this catch was not documented.

Table 10. Lower Yukon winter chum salmon catch, November, 1978.

Village	Peak Daily Catch		Documented Village Catch	No. of Fishermen	Average monthly catch per fisherman
	Date	No. of Fish			
Sheldons Point	---	---	---	---	---
Alakanuk	---	---	0	---	---
Emmonak	11/20	1	1	5	0.2
New Hamilton	11/5	1	1	1	1.0
Kotlik	---	---	0	---	---
Mt. Village	---	---	0	---	---
Pitkas Point	11/11	3	3	3	1.0
St. Marys	11/25	1	1	3	0.3
Pilot Station	11/19	1	1	4	0.2
Marshall	---	---	0	---	---
Russian Mission	11/03	2	2	5	0.4
Holy Cross	---	---	---	---	---
TOTALS			9	21	0.4

Table 11. Composition of reported lower Yukon winter subsistence catch by species and village.

[illegible]

Table 12. Peak seasonal occurrences of fish on the lower Yukon during the winter of 1977-78.

Village	Sheefish	Whitefish	Burbot	Northern Pike	Lamprey	Blackfish	Grayling	Saffron Cod	Smelt
Sheldons Point	late Oct-early Nov & early May	late Sep-early Oct	late Oct-mid Nov	late Apr-early May (inland sloughs)	-----	late Sep-early May (tundra lakes & sloughs)	-----	late Sep-early Oct (coastal sloughs)	late May-early Jun
Atakanuk	early Nov-early Dec & late Apr-early May	late Sep-mid Nov	early Nov-early Dec	mid Nov-late Nov & early May-mid May	-----	late Sep-early May	-----	late Sep-early Oct (coastal sloughs)	late May-early Jun
Emmonak	early Nov-early Dec & late Apr-early May	late Oct-mid Dec & mid-May-late May	early Nov-early Dec	early May-mid May	-----	late Sep-early May	-----	late Sep-early Oct (coastal sloughs)	late May-early Jun
New Hamilton (Fish Camp)	early Oct-mid Nov	-----	early Oct-mid Nov	early Oct-mid Nov	-----	-----	-----	-----	-----
Kotlik	late Oct-early Nov & late May-early Jun	late Sep-mid Nov	late Oct-early Nov	late Oct-early Nov	-----	late Sep-early May	-----	late Sep-early Oct (coastal sloughs) & Apr	-----
Mt. Village	mid Nov-mid Dec & mid May-early Jun	late Oct-early Dec & early Apr-mid Apr	mid Nov-late Nov & early Apr-mid Apr	early Nov-late Nov & early Apr-mid Apr	Oct 28-30	early Oct-early May	Present in the Archuelinguk River	-----	-----
Pitkas Point	early Nov-late Dec & late May-early Jun	early Nov-early Jan & mid Apr-early Apr	mid Nov-early Jan	early Dec-mid Jan & late Apr-early May	Oct 28-31	early Oct-early May	Present in the Andreafsky River	-----	-----
St. Marys	mid Nov-late Nov & mid May-early Jun	late Oct-early Nov & early May-mid May	late Oct-mid Nov & mid Apr-early Apr	mid Oct-mid Dec & early May-mid May	Oct 29-31	early Oct-early May	-----	-----	-----
Pilot Station	late Oct-mid Dec & late May-early Jun	late Oct-mid Dec & early Mar-mid Mar	early Dec-mid Mar	early Mar-mid Mar	Oct 29-31	-----	-----	-----	-----
Marshall	early Nov-mid Nov & mid May-late May	mid Oct-mid Nov & early May-late May	early Feb-late Mar	mid Jan-late Mar	Nov 1-5	-----	-----	-----	-----
Russian Mission	mid Oct-late Oct & late May-early Jun	mid Oct-early Nov & late Feb-late Mar	late Jan-mid Mar	mid Oct-mid Nov	Nov 4-7	-----	-----	-----	-----

1/Based on catch calendar data and information obtained from personal interviews.

1/
Table 13. Mean length and weight summary of lower Yukon sheefish catches sampled between November, 1977 and June, 1978.

Species	Sampling Location	Sample Size	Gill Net								Total	
			Hooking Length Weight	2" to 4" Mesh Length Weight	5 1/2" Mesh Length Weight	6" Mesh Length Weight	6 1/2" Mesh Length Weight					
Sheefish	Kwemeluk Pass (Sheldons Point)	25	-	-	558mm 4.0 lb	-	-	652mm 6.4 lb	650mm 9.0 lb	645mm 6.3 lb		
	Alakanuk Pass (Alakanuk)	23	-	-	-	-	749mm 9.4 lb	763mm 9.2 lb	758mm 9.3 lb			
	Big Eddy (Emmonak)	37	-	-	-	-	674mm 6.5 lb	-	-	674mm 6.5 lb		
	Kwiguk Slough (Emmonak)	10	-	-	-	-	715mm 8.2 lb	-	-	715mm 8.2 lb		
	Apoon Pass (Kotlik)	26	400mm 1.1 lb	-	-	-	-	687mm 6.8 lb	666mm 6.8 lb	567mm 4.6 lb		
	Nanvaranak Slough (New Hamilton)	21	-	-	-	-	612mm 5.3 lb	-	-	612mm 5.3 lb		
	Subtotal (Nov.-Dec.)	142	400mm 1.1 lb	558mm 4.0 lb	612mm 5.3 lb	681mm 7.0 lb	717mm 8.1 lb	656mm 6.5 lb				
	Big Eddy (Emmonak)	46	-	-	-	-	686mm 9.0 lb	735mm 9.7 lb	-	-	711mm 9.3 lb	
	Kwiguk Slough (Emmonak)	1	-	-	725mm 11.5 lb	-	-	-	-	-	725mm 11.5 lb	
	Subtotal (Apr.-Jun.)	47	-	-	725mm 11.5 lb	686mm 9.0 lb	735mm 9.7 lb	-	-	711mm 9.4 lb		
TOTAL		189	400mm 1.1 lb	614mm 6.5 lb	651mm 7.2 lb	693mm 7.6 lb	717mm 8.1 lb	670mm 7.2 lb				

1/ All length measurements represent the distance from the tip of the snout to the fork in the tail.

Table 4. Mean length and weight of other lower Yukon catches sampled between November, 1977 and June, 1978.

Species	Sampling Location	Sample Size	Hooking Length Weight	Gill Net				Total Length Weight	
				2" to 4" Mesh Length Weight	5 1/2" Mesh Length Weight	6" Mesh Length Weight	6 1/2" Mesh Length Weight		
Broad Whitefish	Big Eddy (Emmonak)	8	- -	339mm 0.6 lb	- -	472mm 2.0 lb	- -	355mm 0.8 lb	
	Subtotal (Nov.-Dec.)	8	- -	339mm 0.6 lb	- -	472mm 2.0 lb	- -	355mm 0.8 lb	
	Big Eddy (Emmonak)	12	- -	- -	407mm 1.8 lb	530mm 4.0 lb	- -	438mm 2.4 lb	
	Kwiguk Slough (Emmonak)	4	- -	361mm 0.7 lb	- -	- -	- -	361mm 0.7 lb	
	Subtotal (Apr.-Jun.)	16	- -	361mm 0.7 lb	407mm 1.8 lb	530mm 4.0 lb	- -	419mm 1.9 lb	
	TOTAL	24	- -	347mm 0.6 lb	407mm 1.8 lb	530mm 4.0 lb	- -	398mm 1.6 lb	
Northern Pike	Andreafsky River (St. Marys)	2	- -	626mm 3.8 lb	- -	- -	- -	626mm 3.8 lb	
	Big Eddy (Emmonak)	2	- -	- -	665mm 5.9 lb	- -	- -	665mm 5.9 lb	
	Kwiguk Slough (Emmonak)	2	- -	575mm 1.8 lb	- -	- -	- -	575mm 1.8 lb	
	TOTAL	6	- -	600mm 2.8 lb	665mm 5.9 lb	- -	- -	622mm 3.8 lb	
Burbot	Apoon Pass (Kotlik)	1	- -	- -	- -	743mm 6.0 lb	- -	743mm 6.0 lb	
	Nanvaranak Slough (New Hamilton)	3	- -	- -	736mm 6.5 lb	- -	- -	736mm 6.5 lb	
	Big Eddy (Emmonak)	2	- -	- -	710mm 6.8 lb	- -	- -	710mm 6.8 lb	
	TOTAL	6	- -	- -	717mm 6.4 lb	743mm 6.0 lb	- -	721mm 6.3 lb	
Bering Cisco	Apoon Pass (Kotlik)	1	- -	384mm 1.5 lb	- -	- -	- -	384mm 1.5 lb	
	Big Eddy (Emmonak)	2	- -	- -	345mm 0.5 lb	- -	- -	345mm 0.5 lb	
	TOTAL	3	- -	384mm 1.5 lb	345mm 0.5 lb	- -	- -	358mm 0.8 lb	
1/ Smelt	Big Eddy (Emmonak)	7	- -	- -	- -	- -	- -	201mm <0.5 lb	
	TOTAL	7	- -	- -	- -	- -	- -	201mm <0.5 lb	
Humpback Whitefish	Big Eddy (Emmonak)	1	- -	- -	- -	502mm 3.0 lb	- -	502mm 3.0 lb	
	TOTAL	1	- -	- -	- -	502mm 3.0 lb	- -	502mm 3.0 lb	

1/ Stomach contents of several large Sheefish sampled on May 28th and 29th.

Table 15. Sample size, range of lengths, mean lengths, and the standard deviation of subsistence caught fish on the Lower Yukon River, November 1977 to June 1978.

Species	Sample Size	Fork Length Range (mm)	Mean Fork Length (mm)	Standard Deviation
Sheefish	189	287 - 905	670	114.1
Broad Whitefish	24	305 - 560	398	91.2
Smelt	7	170 - 235	201	22.1
Northern Pike	6	455 - 875	622	128.1
Burbot	6	690 - 780	721	31.3
Bering Cisco	3	324 - 384	358	25.0
Humpback Whitefish	1	502	502	----
Brook Lamprey	1	467	467	----

Table 16. Average calculated length and weight for Lower Yukon Sheefish^{1/}
by age group.

Age Group	Number of Specimen Sampled	Average ^{2/} Fork Length (mm)	Average Weight (lbs)
I	Ø	--- (149)	----
II	Ø	--- (238)	----
III	1	287 (311)	0.3
IV	6	376 (384)	0.8
V	4	464 (459)	2.1
VI	25	558 (530)	4.4
VII	38	610 (598)	5.3
VIII	34	670 (668)	7.3
IX	29	747 (724)	9.1
X	29	786 (779)	10.0
XI	10	862 (837)	13.8

^{1/} Averages calculated from samples taken between November, 1977 and June, 1978

^{2/} The figures listed in brackets are length findings of Lower Yukon sheefish sampled at Marshall presented in a 1974 ADF&G study conducted by Ken Alt.

Table 1/. Breakdown of Lower Yukon sheefish by sex and age group sampled from May-June, 1978.

Age Group	Average Length and Weight (Fork)	Sample Size	Male	Sample Size	Female	Sample Size	Combined Average
I	Length Weight	0	----- -----	0	----- -----	0	----- -----
II	Length Weight	0	----- -----	0	----- -----	0	----- -----
III	Length Weight	0	----- -----	0	----- -----	0	----- -----
IV	Length Weight	1	350 mm 0.5 lb	0	----- -----	1	350 mm 0.5 lb
V	Length Weight	0	----- -----	0	----- -----	0	----- -----
VI	Length Weight	6	557 mm 5.5 lb	0	----- -----	6	557 mm 5.5 lb
VII	Length Weight	5	624 mm 6.2 lb	2	620 mm 7.0 lb	7	623 mm 6.4 lb
VIII	Length Weight	7	691 mm 8.7 lb	2	673 mm 7.0 lb	9	687 mm 8.3 lb
IX	Length Weight	4	754 mm 10.4 lb	5	770 mm 10.7 lb	9	763 mm 10.6 lb
X	Length Weight	3	772 mm 11.2 lb	6	780 mm 10.8 lb	9	777 mm 10.9 lb
XI	Length Weight	0	----- -----	5	858 mm 15.8 lb	5	858 mm 15.8 lb
TOTAL/AVERAGE Length Weight		26	653 mm 7.7 lb	20	770 mm 11.3 lb	46	704 mm 9.3 lb

Table 18. Catch sampling data for other Lower Yukon species, November, 1977 to June, 1978.

Species	No.	Sampling Location	Sex		Length (mm)	Weight (lbs)	Age
			Male	Female			
Burbot	1	Big Eddy (5/27/78)	X		705	5.00	
	2		X		715	8.50	
		Nanavaranak Slough (11/15/77)			780	7.50	
					695	5.50	
					690	5.50	
Bering Cisco	1	Kotlik (11/8/77)			384	1.50	6
	2	Big Eddy (5/28/78)		X	324	0.50	4
	3		X		365	0.50	5
Northern Pike	1	Andreafsky River (12/6/77)		X	600	3.00	9
	2		X		651	4.50	9
	3	Kwiguk Slough (5/28/78)	X		594	1.50	6
	4	Big Eddy (5/28/78)	X		455	1.25	4
	5	Kwiguk Slough (5/30/78)	X		555	2.00	7
	6	(7/27/78)		X	875	10.50	12
Smelt	1	Big Eddy (5/28/78)	X		195	<.50	4
	2		X		206	<.50	4
	3		X		175	<.50	3
	4		X		170	<.50	4
	5	(5/29/78)	X		202	<.50	4
	6		X		225	<.50	5
	7			X	235	<.50	6

Table 18. (Cont'd). Catch sampling data for other Lower Yukon species

Species	No.	Sampling Location	Sex		Length (mm)	Weight (lbs)	Age
			Male	Female			
Broad Whitefish	1	Big Eddy (11/4/77)			390	1.00	4
	2				364	0.75	5
	3				334	0.50	5
	4				318	0.50	4
	5				305	0.50	3
	6				334	0.50	4
	7				325	0.50	4
	8	(12/10/77)			472	2.00	6
	9	(5/27/78)	X		557	5.00	5
	10			X	535	4.00	5
	11			X	545	4.00	5
	12	(5/28/78)		X	423	1.25	6
	13		X		352	0.50	5
	14			X	345	0.50	4
	15		X		320	0.50	4
	16		X		345	0.50	4
	17			X	350	0.50	5
	18			X	315	0.50	4
	19		X		355	0.75	3
	20	(5/30/78)	X		330	0.50	4
	21		X		342	0.50	5
	22	(6/1/78)	X		495	3.00	6
	23		X		560	4.00	10
	24	(6/2/78)		X	535	5.00	5

Table 18. (Cont'd). Catch sampling data for other Lower Yukon species

Species	No.	Sampling Location	Sex		Length (mm)	Weight (lbs)	Age
			Male	Female			
Humpbacked Whitefish	1	Big Eddy (12/10/77)			502	3.00	6



1.

**NANVARANAK SLOUGH—NEW HAMILTON
NOVEMBER 15, 1977**

THE FIRST UNDER-ICE CATCHES OF SHEEFISH WERE MADE IN LATE OCTOBER AND EARLY NOVEMBER BY FISHERMEN NEAR THE COASTAL REGIONS OF THE YUKON RIVER. KOTLIK AND SHELDONS POINT WERE THE FIRST VILLAGES TO REPORT LARGE CATCHES OF SHEEFISH.

2.

**KWIGUK SLOUGH—EMMONAK
NOVEMBER 13, 1977**

THE ICE AND SNOW THAT COVERED THE YUKON RIVER IN NOVEMBER PROVIDED A FROZEN HIGHWAY WHICH ALLOWED FISHERMEN TO TRAVEL TO AND FROM THEIR WINTER NETS EASILY. DURING NOVEMBER, A PEAK MONTHLY CATCH OF 1,967 SHEEFISH WERE CAUGHT IN THE LOWER YUKON STUDY AREA.



3.

**KWIGUK SLOUGH—EMMONAK
MAY 5, 1978**

IN MAY, SHEEFISH WERE CAUGHT FOR SHORT PERIODS BEFORE AND AFTER BREAK-UP IN MOST VILLAGES ALONG THE LOWER YUKON. AS THE WEATHER BECAME WARMER IN MAY, POOLS OF WATER FORMED ALONG THE SHORELINES OF THE RIVER AS THE ICE BEGAN TO DIS-INTEGRATE. THESE CONDITIONS INHIBITED TRAVEL ON THE ICE AND FISHING EFFORT.



4.

JOE APAREZUK—APOON PASS—KOTLIK
NOVEMBER 8, 1977

UNDER-ICE NETS ARE FASTENED TO STOUT WOODEN POLES WHICH ARE LASHED TOGETHER AND FROZEN INTO THE ICE ON EACH END OF THE NET. EACH TIME THE NET IS CHECKED AN 18 TO 24 INCH HOLE MUST BE CHISELED THROUGH THE ICE AROUND THE VERTICAL HANGING POLES IN ORDER TO WITHDRAW THE NET FROM THE WATER. THE HOMEMADE ICE CHISEL EXHIBITED IN THE PICTURE IS TYPICAL OF THOSE USED BY MOST LOWER YUKON WINTER FISHERMEN.

5.

JOSEPH GREGORY—KWIGUK SLOUGH—
EMMONAK
NOVEMBER 6, 1977

JOE GREGORY DEMONSTRATES HOW TO CHECK AN UNDER-ICE SHEEFISH NET. THE WHITE LINE IN THE FOREGROUND IS TIED TO THE OPPOSITE END OF THE NET AND IS PULLED UNDER THE ICE AS THE NET IS PICKED. WHEN THE WHOLE NET HAS BEEN CHECKED, IT CAN BE RESET UNDER THE ICE BY PULLING ON THE LINE.



6.

EFFRIM PRINCE—APOON PASS—KOTLIK
NOVEMBER 9, 1977

DESPITE EXTREME COLD AND BITING WINDS, ALL FISHERMEN OBSERVED PICKED THEIR WINTER NETS BARE-HANDED. ON THIS DAY THE TEMPERATURE WAS MINUS 20° F AND THE WIND WAS GUSTING BETTER THAN 30 MILES PER HOUR.





7.

**BLACKFISH TRAP—MOUNTAIN VILLAGE
APRIL 7, 1978**

A SINGLE FUNNEL FISH TRAP CALLED A TA-LU'-YUK IS USED TO CATCH BLACKFISH IN TUNDRA LAKES AND SLOUGHS. LARGER VERSIONS OF THE SAME TRAP ARE ALSO USED TO CATCH BURBOT.

8.

**LUSH SET—KWIGUK SLOUGH—EMMONAK
NOVEMBER 6, 1977**

BLACKFISH ARE UTILIZED AS A FOOD SOURCE AND AS LIVE BAIT TO CATCH BURBOT (KNOWN LOCALLY AS LUSH). THIS PARTICULAR SET CONSISTS OF 12 No. 9/0 SINGLE SHANK HOOKS WHICH ARE ALL BAIED WITH LIVE BLACKFISH. THESE HOOKS ARE SUSPENDED FROM A 60-FOOT LINE SET JUST ABOVE THE RIVER BOTTOM ON ONE-FOOT LEADERS.



9.

**ANDREW KINZEY—MOUTH OF THE
ANDREAFSKY RIVER—ST. MARY'S
APRIL 7, 1978**

IN THE SPRING, ANDREW KINZEY HOOKS FOR BURBOT AND NORTHERN PIKE THROUGH THE ICE AT THE MOUTH OF THE ANDREAFSKY RIVER. HIS GEAR CONSISTS OF A SHORT WOODEN STICK, 4 TO 6 FEET OF NYLON LINE, AND A HOMEMADE LURE BAIED WITH A SCRAP OF MEAT OR A PIECE OF RED CLOTH.



10. SHEEFISH—APOON PASS—KOTLIK
NOVEMBER 8, 1977



12.
MRS. MURPHY—CUTTING
KING SALMON—EMMONAK
MAY 28, 1978

DURING THE SPRING AND SUMMER MONTHS WHEN THE WEATHER IS WARM, CATCHES OF SHEEFISH AND OTHER SPECIES ARE PRESERVED BY (1) CUTTING OR SPLITTING THEM, (2) DRYING THE CUT FISH ON OPEN AIR RACKS, AND (3) SOME ALSO PREFER TO SMOKE AND/OR SALT THEIR DRIED FISH.



11.
FROZEN SHEEFISH AND BURBOT—
NANVARANAK SLOUGH—
NEW HAMILTON
NOVEMBER 14, 1977

WINTER FISH CATCHES ARE SET ON THE SNOW TO FREEZE AFTER THEY ARE PICKED FROM THE NETS. WHEN THE FISH ARE FROZEN SOLID, THEY ARE LOADED INTO A FREIGHT SLED AND PULLED HOME WITH A SNOW-MACHINE. THE FROZEN FISH ARE THEN STACKED IN A SMOKE HOUSE OR CACHE OUTSIDE UNTIL READY FOR USE.

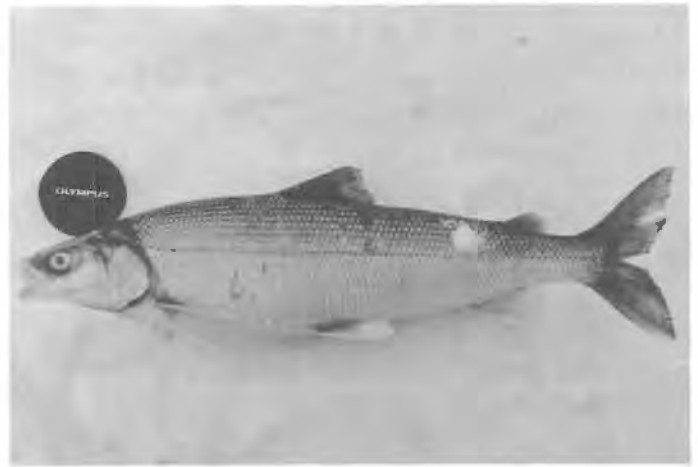


13.
FISH DRYING RACKS—ALAKANUK
MAY 7, 1978

SPRING CAUGHT SHEEFISH AND NORTHERN PIKE HANGING ON DRYING RACKS IN ALAKANUK.



14. BROAD WHITEFISH—EMMONAK
MAY 29, 1978



15. BERING CISCO—BIG EDDY—EMMONAK
DECEMBER 14, 1977



16.
SAFFRON COD
(known locally
as TOMCODS)—
COASTAL SLOUGHS—
EMMONAK
OCTOBER 21, 1977



17. BURBOT—MOUTH OF ANDREAFSKY
RIVER—ST. MARYS
APRIL 7, 1978



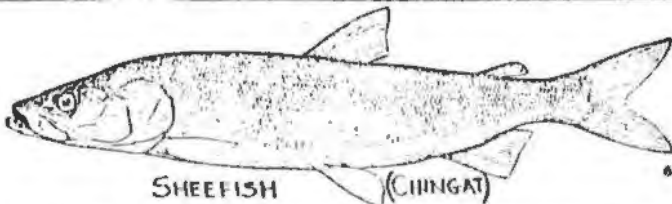
18. NORTHERN PIKE—LAMONT SLOUGH—
EMMONAK
JULY 27, 1978

USE IN THE NUMBER
OF FISH CAUGHT EACH DAY.

OCTOBER 1977 SUBSISTENCE CALENDAR

NAME _____
Address _____

Attach 1.

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	 SHEEFISH (CHINGAT)					1 SHEEFISH _____ WHITEFISH _____ BURBOT _____ PIKE _____ LAMPREY (ell) _____ OTHER _____
2 SHEEFISH _____ WHITEFISH _____ BURBOT _____ PIKE _____ LAMPREY _____ OTHER _____	3 SHEEFISH _____ WHITEFISH _____ BURBOT _____ PIKE _____ LAMPREY _____ OTHER _____	4 SHEEFISH _____ WHITEFISH _____ BURBOT _____ PIKE _____ LAMPREY _____ OTHER _____	5 SHEEFISH _____ WHITEFISH _____ BURBOT _____ PIKE _____ LAMPREY _____ OTHER _____	6 SHEEFISH _____ WHITEFISH _____ BURBOT _____ PIKE _____ LAMPREY _____ OTHER _____	7 SHEEFISH _____ WHITEFISH _____ BURBOT _____ PIKE _____ LAMPREY _____ OTHER _____	8 SHEEFISH _____ WHITEFISH _____ BURBOT _____ PIKE _____ LAMPREY _____ OTHER _____
9 SHEEFISH _____ WHITEFISH _____ BURBOT _____ PIKE _____ LAMPREY _____ OTHER _____	10 SHEEFISH _____ WHITEFISH _____ BURBOT _____ PIKE _____ LAMPREY _____ OTHER _____	11 SHEEFISH _____ WHITEFISH _____ BURBOT _____ PIKE _____ LAMPREY _____ OTHER _____	12 SHEEFISH _____ WHITEFISH _____ BURBOT _____ PIKE _____ LAMPREY _____ OTHER _____	13 SHEEFISH _____ WHITEFISH _____ BURBOT _____ PIKE _____ LAMPREY _____ OTHER _____	14 SHEEFISH _____ WHITEFISH _____ BURBOT _____ PIKE _____ LAMPREY _____ OTHER _____	15 SHEEFISH _____ WHITEFISH _____ BURBOT _____ PIKE _____ LAMPREY _____ OTHER _____
16 SHEEFISH _____ WHITEFISH _____ BURBOT _____ PIKE _____ LAMPREY _____ OTHER _____	17 SHEEFISH _____ WHITEFISH _____ BURBOT _____ PIKE _____ LAMPREY _____ OTHER _____	18 SHEEFISH _____ WHITEFISH _____ BURBOT _____ PIKE _____ LAMPREY _____ OTHER _____	19 SHEEFISH _____ WHITEFISH _____ BURBOT _____ PIKE _____ LAMPREY _____ OTHER _____	20 SHEEFISH _____ WHITEFISH _____ BURBOT _____ PIKE _____ LAMPREY _____ OTHER _____	21 SHEEFISH _____ WHITEFISH _____ BURBOT _____ PIKE _____ LAMPREY _____ OTHER _____	22 SHEEFISH _____ WHITEFISH _____ BURBOT _____ PIKE _____ LAMPREY _____ OTHER _____
23 SHEEFISH _____ WHITEFISH _____ BURBOT _____ PIKE _____ LAMPREY _____ OTHER _____	30 SHEEFISH _____ WHITEFISH _____ BURBOT _____ PIKE _____ LAMPREY _____ OTHER _____	24 SHEEFISH _____ WHITEFISH _____ BURBOT _____ PIKE _____ LAMPREY _____ OTHER _____	31 SHEEFISH _____ WHITEFISH _____ BURBOT _____ PIKE _____ LAMPREY _____ OTHER _____	25 SHEEFISH _____ WHITEFISH _____ BURBOT _____ PIKE _____ LAMPREY _____ OTHER _____	26 SHEEFISH _____ WHITEFISH _____ BURBOT _____ PIKE _____ LAMPREY _____ OTHER _____	27 SHEEFISH _____ WHITEFISH _____ BURBOT _____ PIKE _____ LAMPREY _____ OTHER _____
					28 SHEEFISH _____ WHITEFISH _____ BURBOT _____ PIKE _____ LAMPREY _____ OTHER _____	29 SHEEFISH _____ WHITEFISH _____ BURBOT _____ PIKE _____ LAMPREY _____ OTHER _____

LOWER YUKON SHEEFISH STUDY

SPECIAL QUESTIONNAIRE

Date of Interview: _____ Fisherman's Name: _____

People in Family: _____ Village: _____

Sled Dogs: _____ Snowmachines: _____ Area Fished: _____

(Sketch on Map)

Utilization:

Preparation (freezing, drying, smoking, etc.) _____

Consumption (immediate household, sled dogs, share with others) _____

Fishing History: (How many years fished) _____ Season of year fished (months) _____Gear used for Sheefish:

Type (gill net, trap, other) _____

Gill nets specifications:No. of units fished _____ Same nets as used for salmon? Yes _____ No _____Webbing material (nylon, linen, monofilament) _____Mesh size (stretched measure) _____ inchesLength in feet or fathoms _____Factors affecting catching success or sheefish abundance (note comments):

Freezeup/Breakup conditions _____ Water Level _____

Ice Thickness _____ Snow Cover on River _____

Tides _____ Winds _____

Weather Conditions (storms, cloud cover, etc.) _____

Time of Day (or Night) _____ Normal Seasonal Fluctuations _____

Other Factors _____

Observations on Sheefish Movements - present vs. historical (note comments):

Abundance (Are numbers of fish the same, less or more than in past years?)

Distribution (Do you still catch fish in the same areas as in the past?)

Timing (Has the timing of the fish runs changed compared to past years?)

Size of Fish (Has the average size of fish changed compared to past years: Bigger, smaller or same?)

Sheefish Catch

Do you catch more or less fish than in previous years?

Why? (Reason: fishing less often than in past, over fishing; natural fluctuations in the size of the run, etc.)

Incidental catch of other species (whitefish, burbot, pike, lampreys, suckers, blackfish, etc.)

List Species:

Percentage composition of other species:

Seasonal occurrence

Miscellaneous Comments and Observations Regarding Sheefish: