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YUKON AREA

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PREFACE

This report presents the bulk of current and historical information concerning the management of commercial and subsistence fisheries in the Yukon area. Data from many special research projects are included in this report; complete documentation of these projects and results will be presented in separate reports.

The Yukon district was given area status in 1971. This report utilizes both the nomenclatures, i.e. "Yukon district" and "Yukon area" interchangeably.

Data presented in this report supercedes information found in previous management reports. An attempt has been made to correct errors in previous reports and previously unrecorded data have been incorporated into this report which are so indicated by the appropriate footnotes.

The report is organized into the following major sections:

1. Area Introduction. This section presents a detailed description of the area, inhabitants, fishery resources, fisheries and management practices.

2. Area Report, 1976. This section presents a detailed comprehensive report of the current year and makes comparisons with previous years.

In order to facilitate use of this report, tabular data has been separated into current year tables and appendix tables where annual comparisons are made. Text for each major section is followed by current year tables and then by appendix tables.

The following is an explanation of how effort and catch per unit effort data, presented throughout this report, have been derived. Boat (or fisherman) hours have been computed, artibrarily assuming that if a fishing boat delivers in any 24 hour fishing period, it is fished the entire period. If the period was more than 24 hours long, then the vessel is assumed to have fished the complete period for as many hours as was open to commercial fishining.

Catch per fisherman (or boat) hour is obtained by dividing the total fisherman hours into the catch for the corresponding period of time.

Total fishermen (or boats) is the total number of fishermen making deliveries, irrespectively of how many deliveries made or days fished during a particular "season". There are a number of fishermen who deliver only once or twice during the entire season.

"Total days fished" is the total number of hours open for commercial fishing during the season divided by 24.

Catch data for 1976 is preliminary. Final 1976 catch data, with only minor revisions anticipated, will be presented in the Appendix Tables of the 1977 annual management report.

AREA INTRODUCTION

Description of Area

The area (district) includes all waters of the Yukon River and its tributary streams in Alaska and all coastal waters from Canal Point light near Cape Stephens southward to Cape Romanzof (Figure 2). The Yukon River is the largest river in Alaska, draining approximately 35 percent of the state, and is the fifth largest drainage in North America (Figure 1). The river originates in British Columbia, Canada, within 30 miles of the Gulf of Alaska and flows over 2,300 miles to its mouth on the Bering Sea drainage, an area of approximately 330,000 square miles. With the possible exception of a few fish taken at the mouth or adjacent coastal villages, only salmon of Yukon River orgin are harvested in this area.

Fishery Resources

All five species of Pacific salmon are indigenous to the Yukon River drainage (Figure 1) with chum salmon being the most abundant. It is estimated that king salmon, coho salmon, pink salmon and red salmon follow in order of abundance.

Chum salmon are found throughout the Yukon River drainage. Summer and fall chum are the two distinct major runs of chum salmon entering the Yukon River. Summer chums are chiefly characterized by: earlier run timing (early June-mid July), rapid maturation in freshwater, smaller size (6-7 pounds), and larger population. Summer chums spawn primarily in run off streams in the lower 500 miles of the drainage. Fall chums are mainly distinguished by: later run timing (mid-July-early September); robust body shape and bright silvery appearance; larger size (7-8 pounds) and smaller population. Fall chums spawn in the upper portion of the drainage in streams which are spring fed, usually remaining ice-free during the winter. Major fall chum spawning areas include the Tanana, Chandalar and Porcupine River systems and also various streams in the Yukon Territory.

King salmon of the Yukon River are the largest species ranging from 2-90 pounds and averaging 20-25 pounds (sampled from commercial fishery, large mesh gill nets). Spawning populations of kings have been documented in the Andreafsky River system located approximately 100 miles from the mouth of the Yukon River and as far upstream as the headwaters of the drainage in the Yukon Territory of Canada, nearly 2,000 miles from the mouth. Kings enter the mouth of the Yukon River soon after breakup during June and early July.

Coho salmon enter the Yukon River during late July through mid-September, average about seven pounds in weight and spawn discontinuously throughout the drainage. The major coho spawning concentrations documented to date occur in the tributaries of the upper Tanana River drainage.

Pink salmon enter the lower river during late June - mid-July, average approximately 3 pounds in weight and essentially spawn in the lower portion of the drainage (downstream of the village of Grayling).

Red salmon are extremely rare in the Yukon River and only a few individuals are caught each year.

Other species common to the freshwater and coastal marine habitats include: sheefish, several species of whitefish, Arctic char, lake trout, grayling, burbot, suckers, sculpins, blackfish, sticklebacks, lampreys, smelt, herring, and several species of cods, flatfishes, crabs, shrimps and mollusks. Table 1 presents a list of fishes found in the Yukon area.

Water Quality

Water quality and spawning habitats in the area have been largely preserved in their original condition. Pollution, logging, dam construction and mining activities, except in a few locations, have been to date minimal or nonexistent. It remains to be seen what impact recent oil development activity will have on water quality and fishery resources in the area.

Subdistrict Boundaries

The present subdistrict boundaries were established in 1961 and redefined in 1962, and 1974. The commercial fishing area is divided into six subdistricts for management and regulatory purposes (Figure 2): subdistrict 334-10 (mouth to Anuk River including Black River); subdistrict 334-20 (Anuk River to Owl Slough near Marshall); subdistrict 334-30 (Owl Slough to the mouth of the Bonasila River); subdistrict 334-40 (Bonasila River to the mouth of Illinois Creek at Kallands); subdistrict 334-50 (Illinois Creek to the U.S. - Canadian Border, excluding the Tanana River drainage); and subdistrict 334-60 (the Tanana River drainage). The subdistricts are further subdivided into statistical areas for management purposes. Figures 3, 4, and 5 present the lower three subdistrict statistical area charts. Figures 6, 7, and 8 present the upper three subdistrict statistical area charts. Yukon River mileages are presented in Table 2.

Commercial Fishery History and Description

The first recorded commercial salmon harvest in the drainage dates back to 1903 when 70,000 pounds of king and chum salmon were taken in the Yukon Territory, Canada. A small commercial fishery for these species still exists in Yukon Territory, primarily at Dawson.

The first recorded commercial salmon harvest in Alaska was in 1918 when Carlisle Packing Company operated a floating cannery at Andreafsky (now St. Mary's). Relatively large catches of king, coho and chum salmon were made during the first four years of this fishery (Appendix Table 1). Since restrictions were placed only on commercial fishing inside the river's mouth, a majority of the catch was made in "outside" waters. Because of the existence of a large upriver subsistence fishery, the early commercial fishery met opposition and was closed completely during 1925-1931. Commercial fishing for king salmon was resumed at a much lower level in 1932, and this species has been taken commercially each year since then. Only king salmon were harvested on a sustained basis

prior to statehood (1959). Since 1921, commercial catches of chum and/or coho salmon have been made during 1952-54, 1956 and since 1961.

Since the 1950's commercial salmon fishing has been permitted only upstream from the mouth of the Yukon and Black Rivers. During the 1954-1960 period, a 65,000 king salmon quota was in effect for the river. Of this total, not more than 50,000 could be taken below the mouth of the Anuk River, 10,000 in the area between the mouths of the Anuk and Anvik Rivers and 5,000 upstream from the Anvik River. During these years, fishing was allowed for five and one-half days a week until specific quotas were obtained.

King salmon catch quotas were eliminated for subdistricts 334-10 and 334-20 in 1961 and these fisheries have been regulated by scheduled weekly fishing periods since then. The king salmon season in these two subdistricts opens June 1 and is closed by emergency order during late June or early July depending on timing and magnitude of the runs. Fishing time during the king salmon season was allowed for four days a week during 1961-1967, but was reduced to 3-1/2 days a week beginning in 1968 and to 3 days a week in 1974. This was done to provide for adequate king salmon escapements in the face of increasing fishing effort and efficiency.

In subdistrict 334-30 the commercial salmon fishing season opens June 1 and is allowed four days a week until the 3,000 king salmon quota is taken.

Under the new regulations established by the Department in 1961, the annual king salmon harvest for the entire district has averaged 98,938 for the period 1961-1975. This average compared to 63,023 for the previous period 1952-1960, represents an increase of 60 percent (Appendix Table 1). The greatest catch ever made in the district was 129,706 king salmon in 1967.

Excluding the 1920's, sale of other species of salmon captured during the king salmon season in the area of the present lower two subdistricts has been allowed only since 1967. Incidental catch of summer chum salmon was limited during this season as fishermen used gill nets of stretched mesh measure of eight inches or greater. However, beginning in 1970, each fisherman could substitute up to 50 fathoms of gill net of any mesh size in subdistricts 334-10 and 334-20. In 1973 all mesh size restrictions were lifted during the king salmon season (from June 1 through early July) in order to allow greater opportunity to use small mesh nets which are selective toward the more abundant chums. However, the majority of fishermen continue to fish the larger mesh king salmon nets during the king salmon season.

Since 1961 the commercial fishing season in the lower Yukon subdistricts has been reopened following the closure of the king salmon season. This second season is referred to as the "fall season" and primarily fall chum and coho salmon are taken. Prior to 1973 the mid-season closure during most of July and often late June was initially for the purpose of insuring an adequate supply of summer chum salmon for upriver subsistence fishermen. This closure also provided protection for the late stages of

the king salmon run. Subsistence fishing for summer chums has declined in recent years and the Department has liberalized regulations to provide for an earlier reopening in July to harvest the surplus. Concurrent with an early reopening of the season, a regulation was promulgated in 1973 specifying gill nets of only 6 inch mesh or less may be fished after a specified date in early July. Use of small mesh gill nets in early July allowed a greater harvest of summer chums and also minimized the king salmon catch. Beginning with the 1976 fishing season a regulation was promulgated which established a flexible range of dates from June 27 to July 5 after which only gill nets of 6 inch or less mesh gill nets may be used.

The Yukon River fall chum salmon fishery in terms of fishing effort and processing capabilities has expanded rapidly in recent years (since 1968). The Department will maintain a 250,000 maximum fall chum salmon harvest until future returns from current levels of harvest can be evaluated. Beginning with the 1974 season the Alaska Board of Fish and Game established quotas of 200,000 chum salmon for the lower three subdistricts (combined) and 50,000 combined chum and coho salmon for the upper three subdistricts. In addition, fishing time in subdistricts 334-10 and 334-20 during the fall season was reduced from 4 to 3 days a week.

Since statehood the Yukon River commercial chum salmon fishery has steadily developed especially during the 1970's. During the period 1961-1965 commercial catches averaged 31,850 while during the same period subsistence chum catches averaged 400,874. As the subsistence commercial fishery declined and regulations were relaxed, coupled with the expansion of the fall chum fishery, the commercial catches averaged 145,295 during 1966-1970. The development of the summer chum fishery and expansion of the upriver commercial fishery resulted in commercial catches averaging 591,933 during the period 1971-1975. The largest chum salmon catch in the history of the Yukon River commercial fishery occurred in 1975 when 993,312 fish were taken (Appendix Table 1).

Coho salmon runs of the Yukon River are of lesser magnitude than fall chum salmon and are taken incidental to the commercial fishery for fall chums. Coho catches have averaged 6,829; 14,166; and 17,932 fish during the periods 1961-1965, 1966-1970, and 1971-1975, respectively (Appendix Table 2).

Prior to 1974, the commercial fishery in the upper Yukon area (above the mouth of the Koyukuk River), by regulation, was allowed seven days a week fishing time until quotas of 2,000 king and 2,000 chum and coho salmon combined were taken. These quotas were established for the purpose of allowing a very limited commercial utilization which had traditionally occurred for many years. However, in recent years the upriver commercial fishery has expanded. Fishing effort nearly doubled from 1972 to 1973 and processors have developed outside markets. In recognition of the recently developed upriver commercial fishery and the desire of the fishermen in the upper Yukon area to more actively participate, the Board of Fish and Game adopted several major regulation changes prior to the 1974 fishing season. These regulations provided for a moderate increase in upriver catches, reduced gear conflicts and at the same time provided for adequate escapements:

(1) Subdistrict 334-40was reduced in size and redefined as that portion of the Yukon River drainage from the mouth of the Bonasila River to the mouth of Illinois Creek at Kallands.

(2) Two new subdistricts were added: subdistrict 334-50and subdistrict 334-60.

(3) Salmon catch quotas were established for the upper Yukon area as follows:

a) Subdistricts 334-40: 1,000 king salmon and after August 15, 10,000 chum and coho salmon combined for the area.

b) Subdistrict 334-50: 3,000 king salmon and after August 15, 25,000 chum and coho salmon combined for the area.

c) Subdistrict 334-60: 1,000 king salmon and after August 15, 15,000 chum and coho salmon combined for the area.

(4) In subdistricts 334-40, 334-50 and 334-60 the weekly commercial fishing period was reduced from 7 to 5 days a week.

Because of the common origin of salmon stocks harvested throughout the Yukon River drainage, the commercial and subsistence fisheries in the middle and upper river subdistricts cannot be considered as distinct from those in the lower river. The two fisheries do however differ in several important respects.

For reasons of relative abundance, flesh quality and the existing regulation structure, the fall run of chum salmon is most sought after in the upper Yukon area. Tradition, local fishing conditions, efficiency and ease of operation render fishwheels the primary type of gear for harvesting chums and account for approximately 95% of the commercial harvest in the upper Yukon area.

Because of the developing nature of the commercial fishery in subdistricts 334-40, 50 and 60 and the absence of major summer chum salmon producing streams in the upper portion of the drainage, the commercial harvest (all species combined) has averaged roughly one fourth of the total area harvest.

The relatively recent development and expansion of the commercial salmon fishery has enabled many area residents to obtain a cash income. Other forms of employment is often sporadic or nonexistent in this area. The vast majority of all commercial fishermen are Eskimo and Indian residents of the Yukon River drainage.

Most fishermen operate small outboard powered skiffs of 16 to 20 feet in length and do not use gill net rollers, power reels, etc. of any type. In the Yukon area set gill nets, drift nets and fishwheels are legal forms of commercial fishing gear. A fisherman can operate, or assist in operating only one type of gear at any one time. Set gill nets in use by any individual fisherman cannot exceed 150 fathoms in

aggregate length and drift gill nets cannot exceed 50 fathoms. An individual may have in operation not more than one fishwheel at any one time. Set gill nets are most commonly used, especially near the river mouth, but the use of drift gill nets has increased. Drift gill nets are legal forms of gear in the lower three subdistricts only. Fishwheels are fished exclusively in the upper three subdistricts; also set gill nets are used.

A minimum distance requirement of 300 feet between units of gear is in effect for subdistrict 334-10. A 200 foot minimum distance between units of gear is in effect in all other subdistricts except subdistrict 334-30 where no minimum distance requirements exists. Gear and vessels registered to fish in subdistricts 334-40, 334-50 and 334-60 may not transfer to another subdistrict. Gear and vessels registered to fish in subdistricts 334-10, 334-20 and 334-30 may not transfer to the upper three subdistricts.

Commercial salmon fishing is prohibited in specified areas along the coast and in all tributaries of the main Yukon and Tanana Rivers. The Tanana River upstream of the mouth of the Chena River is closed to commercial salmon fishing.

Subsistence fishing is prohibited during the closed fishing periods of the commercial fishing seasons in the following areas: lower three subdistricts; subdistrict 334-40 excluding the Koyukuk and Innoko River drainages; the lower portion of subdistrict 334-50 (Illinois Creek to near Waldron Creek); and subdistrict 334-60. Finally, salmon may not be taken for subsistence purposes 24 hours prior to the opening and following the closing of the commercial salmon fishing season in each subdistrict.

Appendix Table 2 presents commercial catches for each subdistrict since 1960.

Subsistence Utilization

There are approximately 10,000-15,000 Eskimo and Indian people in the area, the majority of whom reside in excess of 45 small villages scattered along the coast and major river systems. Nearly all of these native people are dependent to varying degrees on fish and game resources for their livelihood.

Subsistence fishermen operate gill nets largely in the main rivers and to a lesser extent in the coastal marine waters capturing mainly salmon, whitefish and sheefish. Fishwheels take considerable numbers of salmon in the upper Yukon and Tanana River. Beach seines are occasionally used near spawning grounds to catch schooling or spawning salmon or other species of fish. Traps and fish weirs of various designs are also used, mainly in the fall and winter months, to capture whitefish, sheefish, blackfish and burbot. Sheefish, pike, char and "tomcod" (saffron cod) are frequently taken through the ice by hand lines.

There is usually little intentional wastage of the fish taken for subsistence purposes. The major portion is sun dried or smoked for later consumption while the head and viscera may be fed to sled dogs.

Comprehensive annual surveys of the Yukon River subsistence salmon fishery were initiated by the Department in 1961. Data obtained cannot be easily compared with that of earlier years which was often incomplete or lacking for many years. Methods and coverage of these earlier surveys were not documented and their accuracy cannot be determined. However, there are records indicating that in excess of one million salmon (mainly chums) were taken for subsistence in some years during the early 1900's and even as late as 1940 (Appendix Table 1).

The Department's subsistence fishery surveys (personal interview, catch calendar, and/or catch questionaires) obtain catch, effort and other associated data from villages and fish camps along the main river in Alaska, including portions of the Tanana River and Chandalar Rivers. Catch data from the Canadian portion of the drainage has been supplied by personnel of Environment Canada - Fisheries Service (Whitehorse office) since 1962. In recent years, the Department has conducted surveys of Koyukuk River villages.

About 1930 the airplane began replacing the sled dog as mail and supply carrier, starting the gradual decline of the subsistence salmon fishery. This decline has been accelerated in the past years as increased welfare payments and employment opportunities, including commercial fishing activities, have become available to the native people. The reduction in subsistence fishing is not necessarily related to fish abundance, but mainly reflects decreases in effort and dependence due to a changing way of life.

To illustrate changes in effort, there were 393 fishwheels operated on the Yukon River in 1918. Fishwheels are very effective if fished properly. A single wheel is capable of taking from 2,000 to 5,000 chum salmon annually. The number of fishwheels recorded during the 1970 survey was an all-time low of 56, a decrease of 113 since 1961. However, because of the expansion of the upper Yukon commercial fishery, beginning in 1973, the amount of fishwheel gear has increased (132 units in 1976).

Another very important factor tending to affect subsistence fishing effort during recent years is the increasing use of snow vehicles which may be replacing sled dogs at a faster rate than did the airplane. Since considerable numbers of salmon and other fish are fed to sled dogs, fewer fish will be required for subsistence purposes as the canine population declines. In 1961 each fishing family kept an average of 7.7 sled dogs while in 1972 this figure was down to 3.4 sled dogs. However, due to the renewed interest in sled dog racing, the number of dogs per family increased to 4.9 in 1976. The number of snowmachines owned by fishing families was documented beginning with the 1967 season, when the average number of snow machines per family was 0.41. Since then the number of snowmachines has steadily increased and in recent years the average number of snowmachines has exceeded 1.0 per family (Appendix Table 16).

Reflecting the above changes in effort and dependency, the subsistence salmon catch has substantially decreased since the early 1960's. Comparing catches from villages surveyed each year ("Equivalent catches") the chum salmon harvest averaged 400,874 during 1961-1965. During the period 1966-1973 catches averaged 185,586 a decrease of 54 percent (Appendix Table 16).

However, during 1974-1976 the subsistence chum salmon catches has increased, averaging 234,048. This increase can be attributed to above average size runs, especially summer chums, and subsistence roe sales. In 1974 the Commissioner permitted the sale of roe from subsistence caught salmon in the Arctic-Yukon-Kuskokwim region. The following year the State legislature authorized subsistence roe sales for a two year period and the Board of Fisheries adopted regulations to adminster the legislation. The impact of roe sales on subsistence catch and effort is unclear. There are indications however, that many subsistence fishermen caught salmon only because of the incentive of roe sales. A comprehensive report reviewing subsistence roe sales during 1974-1976 and its implications is presented in Attachment 4.

Subsistence catches of king salmon, which are utilized mainly for human consumption, have remained relatively constant during the period 1961-1976 generally averaging 15-20,000 fish per year.

Management

The overall objective of the Yukon area research and management programs is to manage the various salmon runs on an optimum sustained yield basis. The commercial fishery is regulated on the assumption that a harvestable surplus, after providing for escapements and subsistence requirements, is available. Subsistence fishing has been designated by the Board of Fisheries as the highest priority use. Although, where the subsistence fishery has declined, the Department has liberalized regulations to allow development of commercial fisheries.

Management of the salmon runs is further affected by several limiting factors. Since most of the fisheries only became developed or expanded in recent years, there is a lack of adequate comparative catch and return data on which to evaluate the long term effects of increased commercial harvests. In contrast to other management areas in the state where intensive research studies have been conducted for many years, forecasts of actual numbers of salmon returning to the Yukon River system are not available. In addition, due to the character of the fishery, runs, and of the Yukon River itself, effective management is restricted. For example, the various fisheries scattered over 1,400 river miles are harvesting mixed stocks usually several weeks and hundreds of miles from their spawning grounds. The Yukon commercial fishery is essentially a "cape fishery" and as a result of fishing on mixed stocks, some tributary populations may be under or overharvested in relation to their actual abundance.

Due to the turbid water conditions of the main river (and some of its tributaries) and the vast size of the Yukon River drainage, accurate in-season assessment of the escapement immediately past the intensive downriver fishery is very difficult with the present available technology. Also in-season management of the runs (often mixed species) is hampered by the variable run timing and pattern of entry into the lower fishery which causes difficulties when attempting to compare catch data.

Post season estimates of escapements in selected tributaries are being developed by establishing annual index areas. These estimates of spawning stocks, which may be limited by unfavorable stream and survey conditions (e.g. high water, inclement weather), are indicators of the total escapement. Comparable index stream estimates may eventually be of value in developing run forecasts.

It has been a policy of the Alaska Department of Fish and Game to maintain current levels of commercial utilization in order to establish definite trends in subsistence utilization and to obtain more information on the relationship between the salmon catch and return. It should be pointed out that increases in commercial fishing effort and efficiency are expected in some subdistricts and may balance any immediate decline in subsistence utilization with the result that present regulations will be maintained for even made more restrictive.

New research projects have been initiated and other programs are planned, contingent on additional funding, for obtaining the biological information necessary for better management of the salmon runs. For example, a comprehensive tag and recovery program was begun in 1976 to determine the relative timing and distribution of fall chum salmon stocks past the commercial fishery. If various stocks can be identified from this program and scale analysis studies, then the fishery can be effectively regulated in order to achieve the proper balance between catch and escapement. Future salmon studies include expansion of the test fishing program, sonar assessment of the escapement in the main river, and upgrading escapement documentation in tributary streams.

As a result of the above factors the management of the Yukon River salmon runs must take a conservative approach. This has been achieved by establishing harvest goals, mesh size restrictions, area catch quotas, reduced weekly fishing periods, fishing season closures, etc.

The basic regulation that governs the commercial salmon harvest in the district is the scheduled weekly fishing period and/or quotas. Commercial fishing is normally allowed for a total of from three to five days a week during the open season which depends on the subdistrict and species involved. Season catch quotas are utilized for the king salmon fisheries of the upper four subdistricts and the fall chum fishery throughout the district. Fishing effort usually occurs during the entire run and not just during any particular segment of the run.

During the fishing season if it becomes apparent that the run is substantially smaller or larger (based on analysis of comparative commercial and/or test fishing data) than needed for escapement and subsistence requirements, then the commercial harvest rates can be adjusted through the use of the emergency order or, less frequently, emergency regulation authority. A list of emergency orders and regulations dealing with changes in fishing time and other restrictions issued for the Yukon area in 1976 is presented in Attachment 1. Also presented are 1976 regulation changes promulgated by the Board of Fisheries during its December, 1975 meeting (Attachment 2).

The Division of Commercial Fisheries of the Alaska Department of Fish and Game is responsible for the management of commercial and subsistence fisheries in the state. The permanent staff assigned to the Yukon area includes three positions--one area management biologist, one assistant area management biologist and one research biologist. In addition approximately 10 summer employees are hired each season to assist the permanent staff in conducting various management and research studies. Also the staff aids in the enforcement of regulations in cooperation with the Fish and Wildlife Protection Division.

Operating expenses for the Yukon area management and research program from July 1, 1975 through June 30, 1976 were approximately $105,300. State and federal funds provided $81,200 and $24,100 respectively of this budget.

In addition to the salmon management and research programs, the staff works to obtain needed information to determine the potential for commercial fisheries on underutilized species such as whitefish.

A unique problem in the lower river area is the language/communication barrier. Many of the older native people cannot read or speak English. Therefore, the staff must often use translators when conducting the many public meetings that are annually held throughout the area. While it may normally take only half an hour or so to conduct a public meeting or hearing in English, it usually takes two to three times that long when Eskimo translators are used. To assist in education and information, a weekly fishery program is broadcasted during the fishing season over radio stations KNOM and KICY in Nome, KYUK in Bethel and various radio stations in the Fairbanks area.

Special Studies

Attachment 3 lists special studies undertaken during 1976 and includes a summary of objectives, procedures and results for each.

YUKON RIVER BASIN

(330,000 square miles)

FIGURE 1

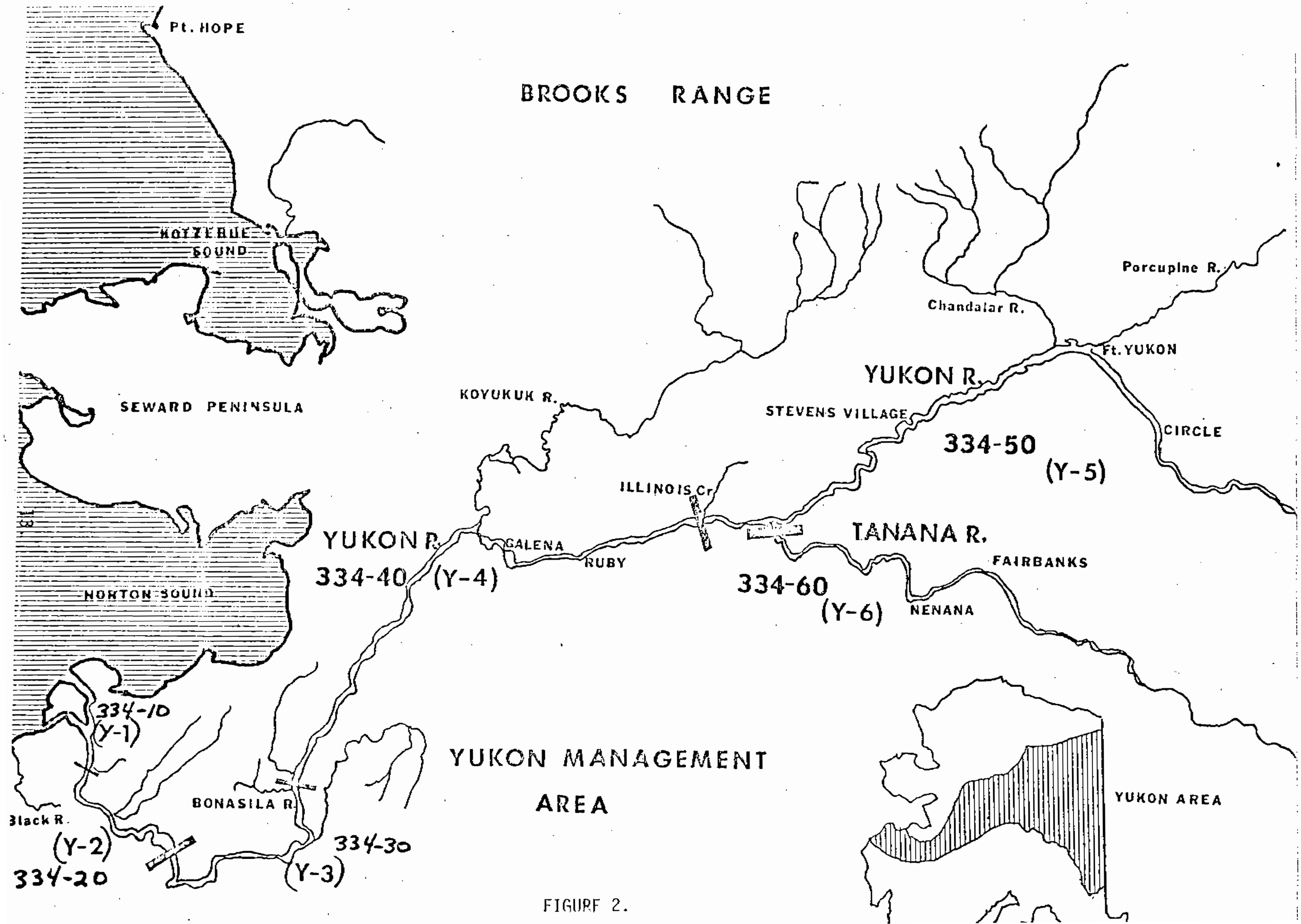
Pt. HOPE
BROOKS RANGE
KOTZEBUE SOUND
SEWARD PENINSULA
KOYUKUK R.
Porcupine R.
Chandalar R.
Ft. YUKON
YUKON R.
STEVENS VILLAGE
CIRCLE
334-50
(Y-5)
ILLINOIS Cr.
TANANA R.
YUKON R.
GALENA
RUBY
FAIRBANKS
334-40
(Y-4)
334-60
(Y-6)
NENANA
NORTON SOUND
334-10
(Y-1)
YUKON MANAGEMENT
AREA
YUKON AREA
BONASILA R.
Black R.
(Y-2)
334-20
334-30
(Y-3)

FIGURE 2.

Commercial Fishery, 1976

In 1976 there were 88,671 kings; 5,197 cohos; and 761,509 chums, totaling 855,377 salmon taken commercially. This was the third largest harvest recorded for chum salmon and for all species combined (Appendix Table 1). Tables 4, 5 and 6 present 1976 commercial salmon catches by fishing season and statistical areas.

A total of 1,229 commercial, 962 vessel, 761 set gill net and 381 drift gill net licenses was issued for the area in 1976. License registration for fishing vessels and set gill nets were below the levels recorded in 1975 (Appendix Table 3). The actual number of commercial fishing vessels, that made at least one salmon delivery during the season, are shown in Appendix Table 4.

Drift gill net and commercial license registration in the Yukon area was at record levels in 1976, a 22 and 3 percent increase respectively, compared to the previous year. License registration in 1976 in the upper Yukon area, where the commercial fishery had been undergoing rapid expansion, declined compared to 1975 (Appendix Table 3). Commercial, vessel and set net license registration decreases represented 25%, 16% and 40 percent, respectively, compared to the previous year in the upper Yukon area because of Limited Entry restrictions.

Also, a total of 169 fishermen indicated their intent to operate fishwheels in the upper Yukon area during 1976, identical to 1975. Fishwheels are legal types of gear; however, there is no license fee required. With final application of the Limited Entry program in 1977 fishing effort is expected to eventually stabilize in the Yukon area.

The above license totals do not include commercial and vessel licenses issued for fish tendering purposes throughout the district. Table 7 shows the residency of all persons issued fishing licenses for 1976.

The majority of the king salmon catch was processed primarily as a fresh/frozen product and to a lesser extent by canning and mild curing hard salting. In 1976, production of canned king salmon was at a comparatively low level. Only two canneries operated in the lower river. The majority of the chum and coho salmon were frozen by four floating freezer vessels. Production of salmon roe totaled 226,893 pounds in 1976 including 74,487 pounds of salmon roe purchased from subsistence fishermen, primarily in the upper Yukon area (Appendix Table 15). Commercial salmon production data is presented in Appendix Table 11. All buyers and processors operating in the Yukon district during 1976 are listed in Table 3.

Yukon district commercial fishermen received a record $2,151,000 for their catches in 1976. In addition, a minimum estimate of $687,600 in wages was earned by processing plant employees and tenderboat operators. The latter figure was obtained from information supplied by a majority of the buyers and processors. The first wholesale value of the 1976 pack was estimated at a record $6,815,500 (Appendix Table 12).

Average fish prices and salmon weights from 1960 to 1976 are presented in Appendix Tables 13 and 14, respectively.

King Salmon: In 1976 the district catch totaled 88,671 king salmon, similar to the previous 5 year average of 88,071 fish but 10,000 fish less than the average for the 1961-75 period. The 1976 catch data presented in this section of the report does not include king and chum salmon taken commercially by Canadian fishermen in Yukon Territory (Appendix Table 1). Recent reduced catches reflect below average runs plus restrictions placed on the commercial fishery (lowered harvest goals, reduced fishing time) in order to bolster escapements.

King salmon catches (and incidental chum salmon catches) made in each subdistrict and statistical area during the 1976 king salmon season are presented in Tables 4 and 5. Tables 8 through 13 present daily catch data for each subdistrict.

Catch per boat hour data (king salmon season) for the lower Yukon subdistricts is presented in Appendix Tables 5 and 6.

Based on limited comparative catch and escapement information, it appeared that the 1976 Yukon River king salmon run was below average in abundance. Presently, management of the lower Yukon River king salmon commercial fishery is based on comparative commercial and test fishery catch data. Comparable king salmon test fishing data is presented in Appendix Table 23. Due to the changing nature of the commercial fishery and annual differences in timing and pattern of entry into the river's mouth, analysis of catch statistics is of limited value. For example, the 1976 Yukon River king salmon was very late, even though the river was clear of ice by early June. Also, many fishermen use small mesh gill nets, (5 1/2-6 inch) during the king salmon season in order to harvest the larger run of summer chums. As a result, catch data in recent years may not be comparable to earlier years when 8-8-1/2 inch stretched mesh gill nets were primarily used.

Aerial survey escapement estimates conducted after the king salmon run passes through the downstream fishery are of limited usefulness for in-season assessment of run magnitude. In 1976 aerial surveys indicated generally that king salmon escapements were adequate at best in only certain areas. Restrictions placed on the commercial fishery in the lower two subdistricts aided escapements in the lower portion of the drainage. However, upriver subsistence catches and escapements were below average.

"Breakup" of the lower river in 1976 was considered "normal" as the area was generally clear of ice by June 1. The king salmon run was very late however, and was attributed to cold Bering Sea water temperatures. Shore ice, slow to disperse, was observed south of the mouth of the Yukon River during early to mid June. The first king salmon was taken at Flat Island on June 12. Peak commercial king salmon catches at the mouth occurred during June 24-July 2.

King salmon were first reported upriver as follows: Marshall (June 17), Paimuit (June 22), Grayling (June 23), Kaltag and Nulato (June 29), Galena (June 28), Kallands (July 5); Rampart Rapids (July 7), Yukon River Bridge (June 30), Circle (July 19), Eagle (July 14), Dawson (July 21-22), Whitehorse (August 10); in the Tanana River drainage:

Fairbanks (July 13) and Chena River (July 10).

Subdistrict 334-10 king salmon catches by statistical area for the years 1965-1976 are presented in Appendix Table 7. In 1976, the majority of the king salmon harvest was taken in the south mouth and Black River areas. In the middle and north mouths, a total of 4,521 and 1,348 kings were taken, respectively.

Indicated poor strength of the king salmon run resulted in reduced fishing time in subdistricts 334-10 and 334-20. Fishing time was reduced to two-24 hour periods by emergency order beginning July 1 and July 4 in subdistricts 334-10 and 334-20, respectively. In subdistrict 334-10 and 334-20, use of large mesh gill nets was prohibited after July 4. Gill nets of 6 inch or smaller mesh were used after this date which reduced the king catch, but allowed the taking of the more abundant summer chums.

In subdistrict 334-30 the 3,000 king salmon quota was exceeded and the fishery was closed by emergency order effective 6 p.m. July 2.

For the third consecutive year since the Board of Fish and Game restructured subdistrict 334-40 (creating subdistricts 334-50 and 334-60) and established separate quotas for those subdistricts, the king salmon quota of 1,000 fish in this subdistrict was not taken. A total of 385 kings were reported to have been taken commercially; probable reasons for this trend are twofold. First, market conditions in the middle Yukon area are relatively weak because of the small quota. Also, kings are sexually mature, watermarked, and the flesh quality does not compare favorably with that of fish taken nearer salt water. Finally, commercial fishermen are inclined to retain their incidentally caught king salmon for their own use. The latter of course, keeps the king salmon quota from being met and thus the season remains open allowing continued fishing for the more abundant and concurrent run of summer chums.

In subdistrict 334-50 the king quota of 3,000 was exceeded and an emergency order closed the subdistrict to commercial fishing on August 5. The majority (90%) of the king salmon were harvested in the lower portion of this subdistrict (334-51).

In subdistrict 334-60, the Tanana River, the 1,000 king salmon quota was taken on July 29 and the season was closed by emergency order on July 30. Total commercial harvest for the subdistrict was 1,102 kings.

Overall, king salmon catches in the upper Yukon area were judged average to below average in 1976.

Chum and Coho Salmon: Commercial catch data by fishing period for these species is presented in Tables 8 through 13. The 1976 chum harvest of 761,509 was the third largest in history; 29 percent greater than the previous five year average catch of 591,933. The 1976 Yukon district coho salmon catch totaled 5,197 fish compared to the previous five year average of 17,932.

The large chum catch was a result of: a good run of summer chums; increased fishing effort attributed to higher prices paid to the fishermen; and recent development and expansion of the upriver fishery. In recent years, the Yukon River commercial chum salmon fishery has expanded due to increased availability of processing and tender facilities. There has been an increased demand from Japanese markets for fresh frozen chums and this has resulted in a substantial increase in economic value of the commercial fishery.

In 1976 the total Yukon River commercial chum salmon catch was composed of 598,227 summer chums and 163,282 fall chums. The majority of summer chums were taken in the lower two subdistricts and subdistrict 334-40. Comparative summer chum salmon catch data for subdistrict 334-10 and 334-20 are presented in Appendix Table 8.

Summer chum salmon were first taken on June 13 by department test fishing nets in the south mouth area (Appendix Table 24). Peak commercial catches in subdistrict 334-10 occurred during the period June 21-23. The summer chum run was of short duration and was essentially completed by early July. In contrast to other years, the summer chum salmon run in 1976 was earlier and peaked before the king run.

During the 1976 commercial fishing season a total of 243,830 chum salmon were harvested commercially in the three upper Yukon subdistricts; of these, 218,703 were of the summer run and the remaining 25,127 were from the second, or fall run.

As in 1975, the largest catch in the upper river area was made in subdistrict 334-40. A total of 178,246 (84% of the subdistrict 334-40 total) summer chums were commercially harvested in the lower section (334-41) and the remainder (33,031) from the upper section (334-42). These figures are generally reflective of a smaller population of summer chums in the Yukon drainage upstream of the Koyukuk River confluence (mile 508) and also reflect the poor return of summer chums to the upper river areas in 1976. The peak of the run as indicated by period catches occurred during the week of July 4-9, for both sections of the subdistrict and dropped sharply during the subsequent fishing period (Table 11). Peak catches for subdistrict 334-40 in 1974 and 1975 were somewhat later and more protracted. This phenomenon was underscored by aerial surveys of major systems in the middle river area. Observations indicated that chum salmon spawning activity peaked approximately one week earlier then that of king salmon. The subdistrict 334-40 chum salmon harvest for the second consecutive year was exceeded only by the harvest in subdistrict 334-10, and was approximately 16% higher than in 1975.

The 1976 return of summer chums to the two other upper river subdistricts was judged to be poor. Catches in subdistricts 334-50 and 60 totalled 860 and 6,566 respectively. These figures represent only 5.4 and 50.6% of the 1974-5 average harvests for both subdistricts. Subsistence catches and escapements into these areas roughly followed the same pattern indicating poor but somewhat better returns to the Tanana River than to the upper Yukon area above the Tanana River confluence. As previously indicated, these subdistricts were closed on August 5, (subdistrict 334-50) and July 30 (subdistrict 334-60) when the king salmon quotas were taken. Because of the evident weak run of summer chums, the commercial seasons remained closed for protection of these stocks until

August 17, at which time the majority of the summer run had passed through the fishery areas onto spawning grounds. Per existing regulations, subsistence fishing was allowed on a seven day per week basis during the commercial closure.

The subdistricts 334-10 and 334-20 second or fall fishing season commenced July 5 and 7 respectively, (only six-inch maximum mesh size gill nets may be fished). In past years, the fall season did not reopen until July 10-11 in order to protect the late run of kings. Reopening the fall season in early July to fishing exclusively with small mesh gill nets allowed a greater harvest of the more abundant summer chums and at the same time minimized the incidental catch of kings (usually smaller sized fish). Only 6,817 kings were taken during the early portion of the fall season, July 5-14, in subdistricts 334-10 and 334-20; however, the chum catch during this period totaled 101,072 fish.

The first fall chum salmon were taken in the lower Yukon (subdistrict 334-10) during the period July 12-14, when it was estimated that 30% of the chum catch was composed of the fall run. The next fishing periods, July 15-17 and 19-21 was estimated to be composed of 75% fall chums. Thereafter, the chum salmon catch was composed of almost exclusively fall chums.

The subdistrict 334-30 commercial fishery was reopened to fishing with gill nets of 6 inch or less mesh gill nets effective July 15 and 4,250 fall chums were taken.

A total of 138,155 fall chum salmon were harvested in the lower Yukon in 1976 compared to 200,125 fall chum taken in 1975. The 1976 Yukon River fall chum salmon run was below average in magnitude, a conclusion based on comparative catch per unit effort data (Appendix Tables 9 and 10) and subsequently confirmed by observed escapements (Appendix Table 21). Peak catches in subdistrict 334-10 occurred during July 29-31 when a record single period catch of 62,878 fall chums were taken. However catches before and after this period were below average.

Because of indicated below average strength of the fall chum salmon run, fishing time in subdistricts 334-10 and 334-20 was reduced from three to one and one-half days a week on August 11 in order to provide for upriver escapement and fishery requirements. Effective August 14 the commercial fishing season was closed in the lower Yukon area (subdistricts 334-10, 334-20 and 334-30) because of continued low abundance.

The coho salmon catch in the lower Yukon totaled 4,101 fish. There are indications that the coho run was of below average to average in magnitude based on escapements observed in the Tanana River drainage (Appendix Table 22). Cohos are of minor importance on the commercial fishery and are taken incidentally to the more abundant fall chum salmon.

Quotas imposed on the commercial harvest of fall chum and coho salmon in subdistricts 334-40 334-50and 334-60 of 10,000; 25,000 and 15,000, respectively, do not become effective until after August 15. This is the approximate arrival time of the second run in the upper river areas. As at the mouth of the river, these fish appear sporadically in apparently closely integrated schools-possibly representing distinct spawning populations.

Of the 243,830 chum salmon harvested in the upper river subdistricts in 1976, only 25,127 were from the second or fall run. This total represents only 43% of the previous two year average.

Information based on comparative catch per unit effort data, cumulative catch figures and available run timing information from the lower river commercial fishery indicated a weak return of fall chums in 1976. Consequently, on August 22, an emergency order was issued restricting fishing time from five to three and one-half days per week in subdistricts 334-40, 50 and 60 in order to provide for adequate escapements. Similar assessments of run strength one week later indicated that the poor run would be unable to sustain a continuation of the commercial fishery and provide for subsistence requirements and adequate escapement levels. The commercial seasons were then closed by emergency order on August 27, in subdistrict 334-40, on August 29, in subdistrict 334-50 and on August 28 in subdistrict 334-60. Subsistence fishing was allowed to continue on a 7 day per week basis in order that domestic food requirements could be met.

Based on post-season analysis of catch and escapement data, in season assessments of run strength were essentially correct. In the Tanana River however, the fall chum run developed more strongly than anticipated. These fish had apparently entered the Yukon River mouth after the fishery has closed there on August 14, and were not harvested in appreciable numbers until they entered the Tanana River.

Subsistence catches along the south bank of the Yukon near the village of Tanana, and at Manley and Nenana during the first ten days of September indicated that the run was present in harvestable numbers. The commercial season in subdistrict 334-60 re-opened on September 13, and was closed by emergency order on September 21, with a catch of 17,998 chums and 1,096 cohos. The commercial season remained closed in subdistricts 334-40 and 334-50.

Coho salmon are generally of minor importance in the upper Yukon drainage. Principle reasons for this are the late arrival into the system and their low abundance compared to chum and king salmon. It is likely that the 1,096 coho salmon commercially harvested in 1976 is a minimum figure in that some processors pay the same price as for chums and are reluctant to separate them by species for reporting purposes.

Enforcement, 1976

The most common commercial fishery violation in the lower Yukon area was fishing during the closed period. Also, several nets were observed in the closed water area west of the Chris Point marker.

The Division of Commercial Fisheries staff spent considerable effort checking compliance with the six-inch maximum mesh regulation for gill nets in subdistricts 334-10 and 334-20 in early July. Compliance was generally good although there were indications based on examination of fish tickets catch data that some fishermen were using large mesh gill nets to harvest the late run of kings.

Other violations observed in the lower Yukon area included fishing in closed water areas in the Black River area. Also, fishing unmarked gear was a common violation.

In the upper Yukon subdistricts, observed violations of commercial and subsistence fishing regulations were few. Other violations which occurred during the 1976 season included: failure of processors to submit timely reports of commercial harvest and subsistence roe sales and failure of some fishermen to report sales of salmon in an effort to circumvent the commercial quota restrictions. Based on post-season reports by fishermen and other village residents, it is thought that violations of these and other regulations occurrecd with more frequency and regularity than had been previously suspected.

Subsistence Fishery, 1976

In 1976, an estimated 15,097 king and 221,284 other species of salmon, mostly chums, were taken in the Yukon River drainage (including Yukon Territory catches). In addition, 368 kings and 6,544 other species (not included in the Yukon River drainage totals) were reported taken by 22 fishing families at Scammon Bay, a coastal village located several miles south of the Yukon River mouth. Table 14 presents 1976 catch data for each Yukon River community and Appendix Table 16 shows comparative Yukon River catch data for 1961-1976. Appendix Table 1 shows Yukon River drainage historical subsistence catch data for 1918-1976. Historical Yukon River drainage subsistence catches by village for the years 1961-1976 are presented in Appendix Tables 17 and 18.

The 1976 Yukon River king salmon harvest was smaller than the previous 15-year average of 17,022 fish (Appendix Table 16).

For the eleventh consecutive season, a relatively small catch of "other salmon" (mostly chums) was taken in 1976. However, the 1976 catch, the fourth largest since 1967, was attributed to the large summer chum salmon run and subsistence roe sales.

Permits are required for subsistence fishing in three areas: the upper Tanana River drainage upstream from the mouth of the Wood River; in the upper Yukon River drainage from the mouth of Hess Creek to the mouth of Dall River; and that portion of the Middle Fork of the Koyukuk River drainage between Dry Gulch and Hammond River.

In the upper Tanana River drainage, subsistence fishermen are limited to a catch of 5 kings and 75 chum and coho salmon combined. A total of 110 permits was issued for salmon fishing. Reported catches totaled 31 king, and 2,826 other salmon.

In addition, 36 permits were issued for the taking of salmon carcasses in the vicinity of Big Delta. A total of 3,441 chum salmon carcasses was reported taken.

Fourteen permits were issued for taking whitefish and miscellaneous species in the upper Yukon area and fishermen reported taking 1,489 whitefish and 15 other species.

The upper Yukon River drainage between the mouths of Hess Creek and Dall River was restricted to subsistence fishing by permit only; a result of action by the Board of Fish and Game during its December, 1973 meeting. This area was recently made accessible to vehicular traffic by opening a section of the Trans-Alaska pipeline haul road to the public. No limits were placed on the numbers of salmon which may be taken by subsistence fishermen in this area. A total of 29 permits were issued. Catch reports indicated a total of 28 kings and 90 chums taken in 1976 by eight Fairbanks residents. Catches by Stevens Village residents in the permit area are included in village catches reported in Table 14.

No subsistence permits were issued for the upper portion of the Middle Fork of the Koyukuk River drainage, an area also made accessible by the pipeline haul road.

Escapement, 1976

The Yukon River drainage is too extensive for complete aerial survey escapement coverage during any given season. In addition, poor survey conditions prevented surveys from being flown during some years or have resulted in minimum counts. Table 15 presents aerial survey escapement data for all streams surveyed in 1976.

Appendix Table 19 presents comparative king salmon escapement data for selected tributaries during the 1959-1976 period. In 1976, king salmon escapements into the major spawning areas ranged from below average to average. A total of 1,461 kings were estimated by aerial surveys in the Andreafsky River system. In the Anvik River, a total of 1,155 kings were enumerated. King salmon escapements into various tributary streams of the Tanana River were considered adequate. In the Chena River 531 kings were observed and in the Salcha River a total of 1,691 kings were enumerated.

In the Yukon Territory, surveys indicated below average king salmon escapement levels. The Whitehorse Dam Fishway count of 121 kings was the lowest ever recorded. Due to possible problems associated with passage of adults through the fishway and mortality of smolts through turbines, the Whitehorse Dam Fishway is probably not a reliable index of king salmon escapements in the Yukon territory. Alternate index areas should be established elsewhere to better monitor escapements.

Limited studies of the quality (sex ratio and age composition) of upper Yukon River drainage king salmon escapements were conducted. The Salcha River king salmon sex ratio was 1.4:1 in favor of males. At Whitehorse the ratio was 1:1. Catch and escapement samples in selected tributaries were composed primarily of age 5_2 and 6_2 fish. Comparative king salmon age and sex composition data obtain from catch and escapement samples is presented in Appendix Tables 25 through 28.

Appendix Tables 20 and 21 present comparative summer and fall chum salmon escapements for selected streams. Summer chum escapements were judged very good in that portion of the drainage downstream of the mouth of the Koyukuk River but below average elsewhere. In 1976, a total of 856,418 summer chum were documented in selected tributaries throughout

the drainage. A minimum of 406,166 chums were documented in the Anvik River system. In the Andreafsky River (East and West Fork), aerial surveys indicated good escapements as 223,767 chum salmon spawners were enumerated in this system.

During the past five years the Department have conducted intensive surveys of fall chum and coho salmon spawners in the upper Yukon River drainage. Several major previously undocumented spawning areas have been identified in recent years. In 1976, escapements of fall chum were average in the Tanana River system but poor elsewhere. In the Yukon Territory, a total of only 13,450 fall chums was enumerated in the Fishing Branch River, a tributary of the Porcupine River, in 1976 compared to the exceptionally large escapement of 353,282 documented in 1975.

Tanana River drainage coho escapements in 1976 ranged from fair to below average. Surveys of the Clearwater Lake and Delta Clearwater River systems indicated fair escapements of coho salmon. However, coho salmon escapements in the Nenana River system were below average. Comparable coho salmon escapement data is presented in Appendix Table 22.

OUTLOOK FOR 1977

King Salmon

It is difficult to predict the relative magnitude of the 1977 Yukon River king salmon run. There are indications, based on commercial catch and escapement data, that the 1971 brood year run was above average in magnitude. The 1971 commercial catch (110,507 fish) was among the highest recorded since statehood. Subsistence catches and escapement were also above average. The majority of the king salmon expected to return in 1977 will probably be composed of six-year-old fish originating from the 1971 brood year.

On the other hand, the expansion of the Japanese mothership fisheries in the high seas during recent years may possibly affect the numbers of king salmon returning to western Alaska in 1977. Most of the high seas king salmon harvest is composed of immature four-year-old fish, which normally return as six-year-olds two years later. Scale analysis studies conducted by the National Marine Fisheries Service indicate that the majority (in excess of 80%) of the king salmon intercepted by the Japanese mothership fishery originated from western Alaska rivers (including the Yukon River). In 1975 the Japanese mothership fishing fleet harvested an estimated 200,000 kings in the Bering Sea. Catch per unit effort in 1975 was relatively low which may indicate that the numbers of 4 year old kings were not abundant. Consequently the 1977 return of 6 year olds to western Alaska rivers may also be below average in abundance. Appendix Table 31 presents western Alaska commercial and subsistence and Japanese Bering Sea mothership catches of king salmon for 1960-1976.

In summary, based on available brood year run size and high seas catch data, the 1977 run of kings is expected to be of average magnitude. if a poor run develops, fishing time restrictions may be required during the 1977 season in order to obtain adequate spawning escapements. Until future returns can be studied, the commercial harvest of Yukon River king salmon should not exceed 70 - 80 thousand fish. This maximum commercial harvest has been revised downward from the previously established limit of 90 - 105,000 kings in view of recent below average size runs and necessity to provide for adequate escapements.

Chum and Coho Salmon

There is very little information on which to estimate relative magnitude of the 1977 run of Yukon River summer chum, fall chum and coho salmon. Normally, Yukon River summer and fall chum runs are primarily composed of four-year-old fish. Comparable age, sex and size composition data is presented in Appendix Tables 29 and 30. The return of four-year-olds in 1977 will be dependent on the strength of the 1973 brood year run and the survival of the resulting progeny. Based on the available commercial and test fishing catch and escapement data, the various summer and fall chum runs in 1973 ranged from below average to average in magnitude.

The 1976 Yukon River summer chum salmon run is expected to be primarily composed of four-year-old fish. If mortalities were not severe during winter-spring of 1973-1974, the return of four-year-olds in 1977 may be expected to be average in abundance. The contribution of

other age classes to the 1977 run is expected to be insignificant, based on the best available information. Overall, it is expected that the magnitude of the 1976 Yukon River summer chum run will be average.

Fall chums spawn in spring fed areas that are less susceptible to freezing than run-off streams which are utilized for spawning by summer chums. Four year old fish from the 1973 brood year are expected to be the predominant age class of the 1977 run. Escapements of fall chums in 1973 were highly variable. Fishing Branch and Toklat River escapements were considered poor while upper Tanana River drainage escapements were rated average in abundance (Appendix Table 21). Overall, it is expected that the return of fall chums in 1977 will be below average unless the progeny from the 1973 brood year experienced exceptionally good survival.

The management staff has established a maximum harvest of 250,000 fall chum salmon for the Yukon River commercial fisheries. The fall chum salmon run is presently being harvested at the maximum rate and an increased catch is not warranted until future runs can be evaluated.

If the chum salmon runs (both fall and summer) in 1977 are below average in magnitude, fishing time restrictions will be necessary to insure adequate escapements.

The coho salmon catch is expected to total 5,000-10,000 fish, depending on amount of fishing effort exerted on the fall chum run and the duration of the fishing season.

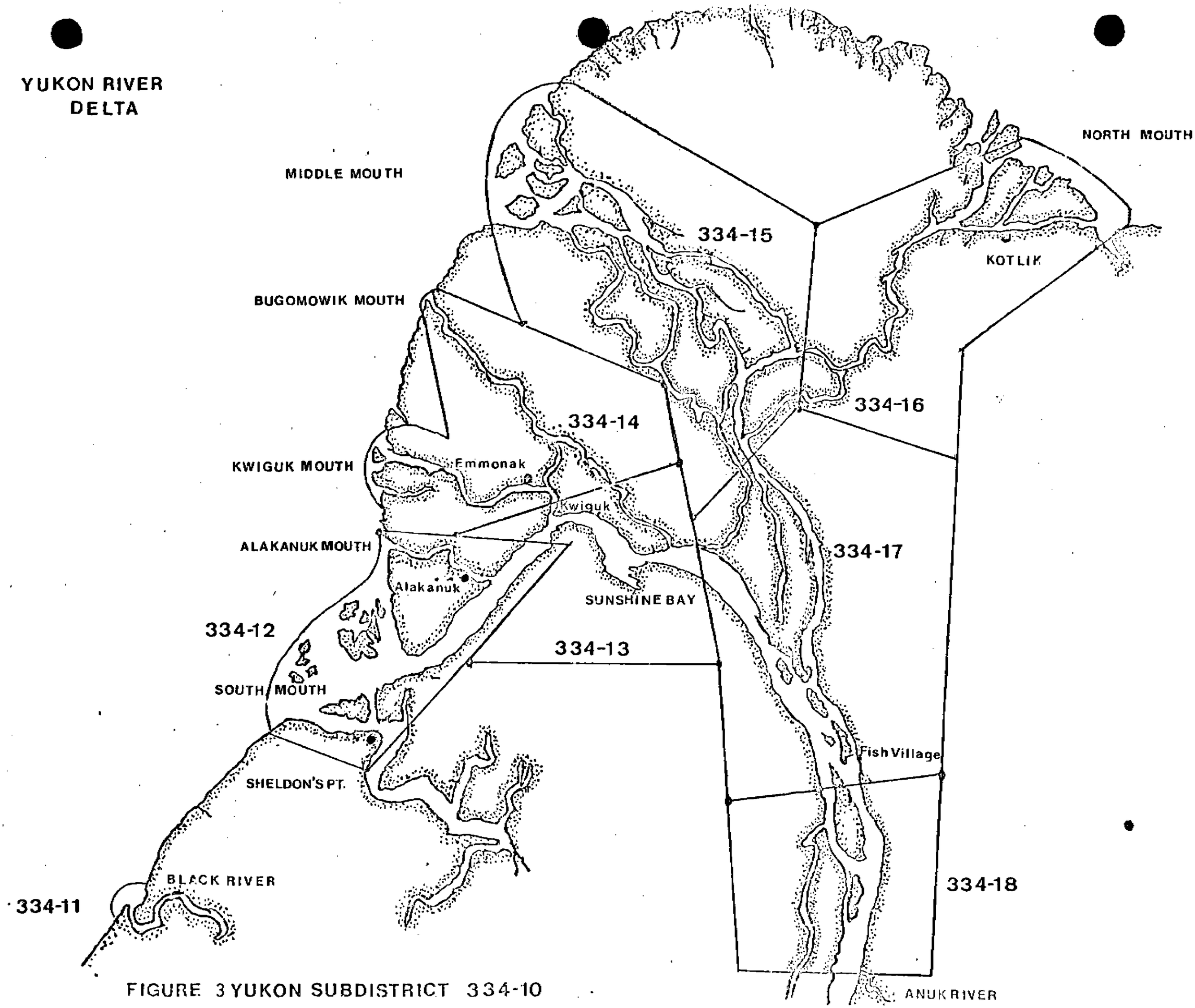

FIGURE 3 YUKON SUBDISTRICT 334-10

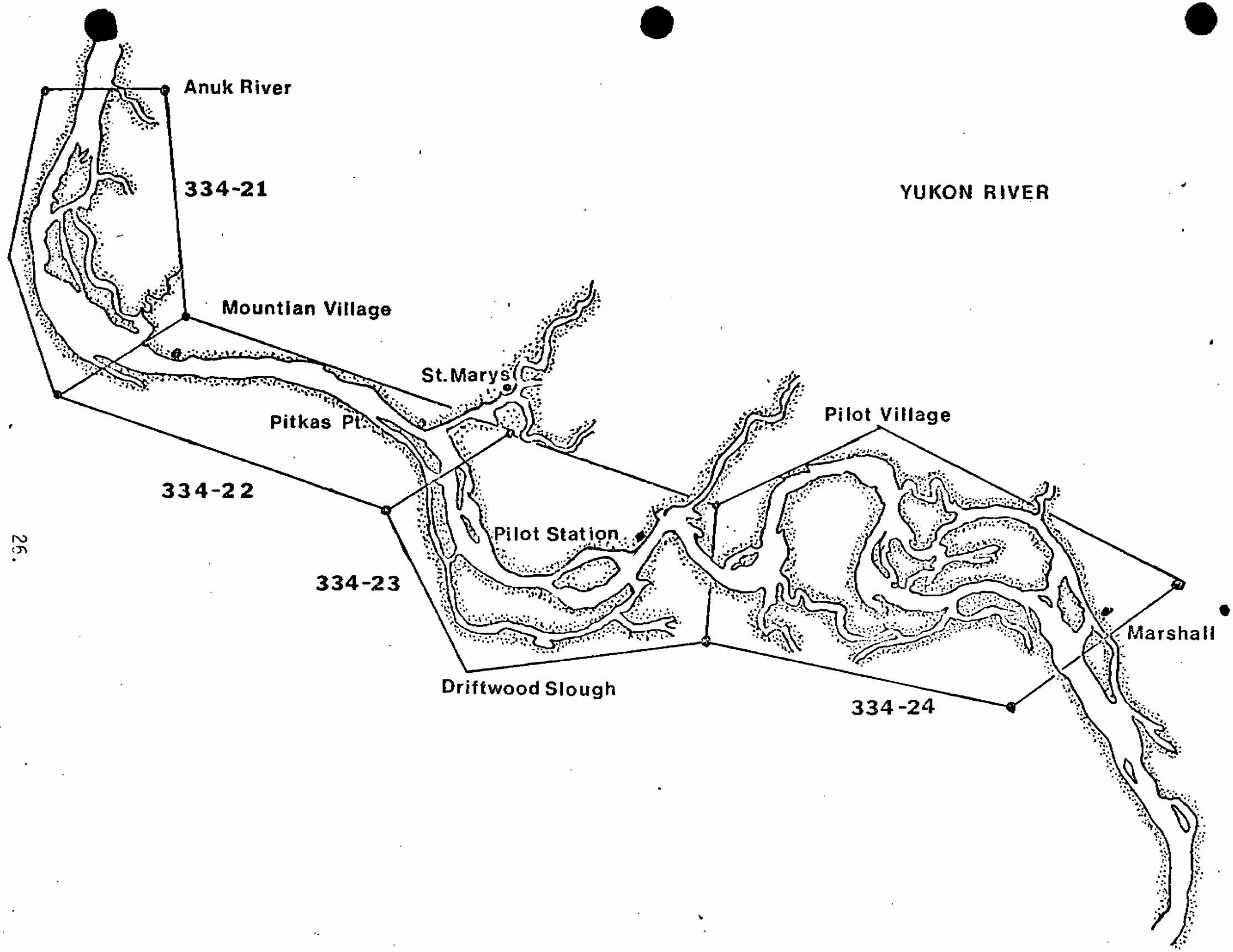

FIGURE 4 YUKON SUBDISTRICT 334-20

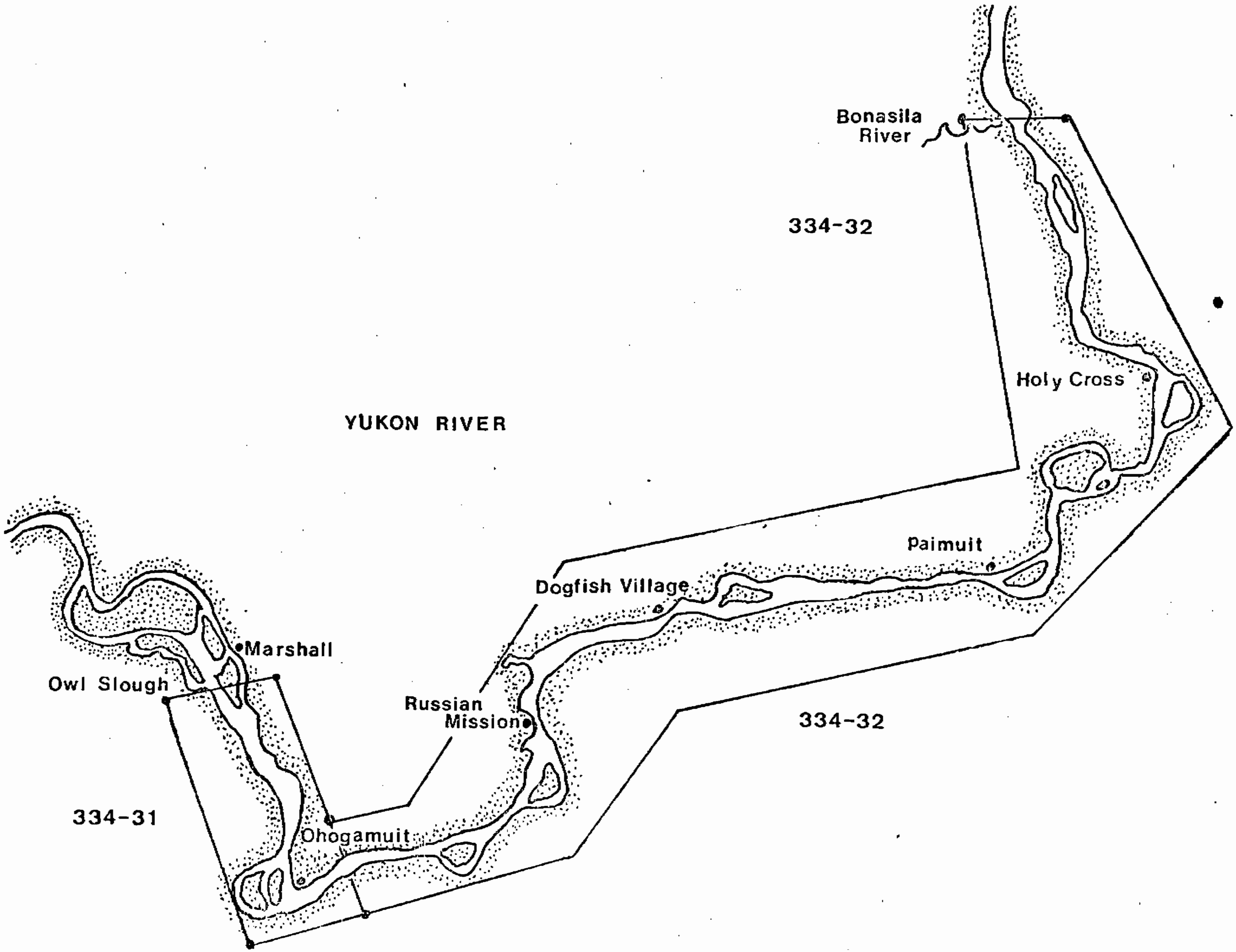

FIGURE 5 YUKON SUBDISTRICT 334-30

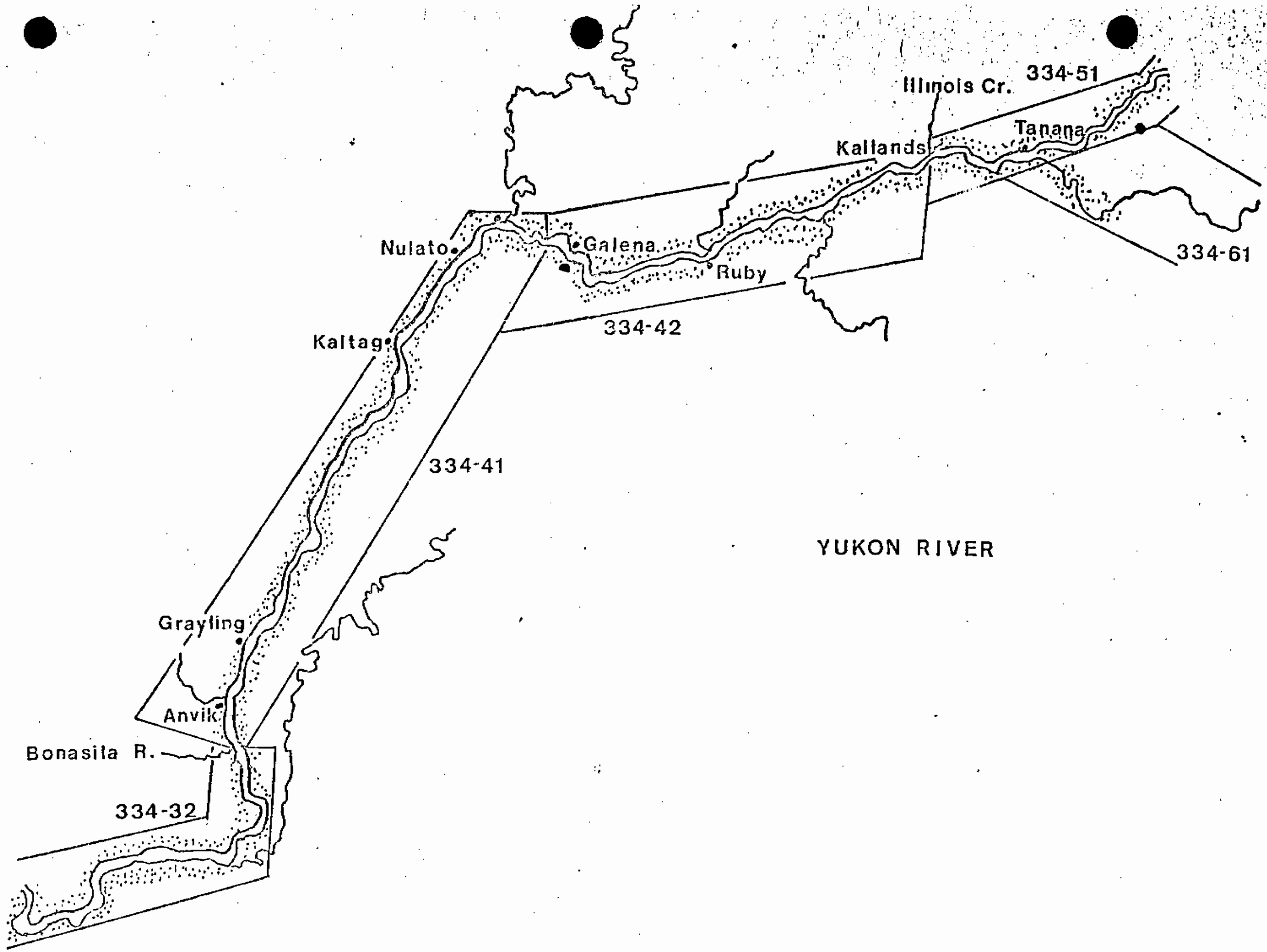

FIGURE 6, YUKON SUBDISTRICT 334-40

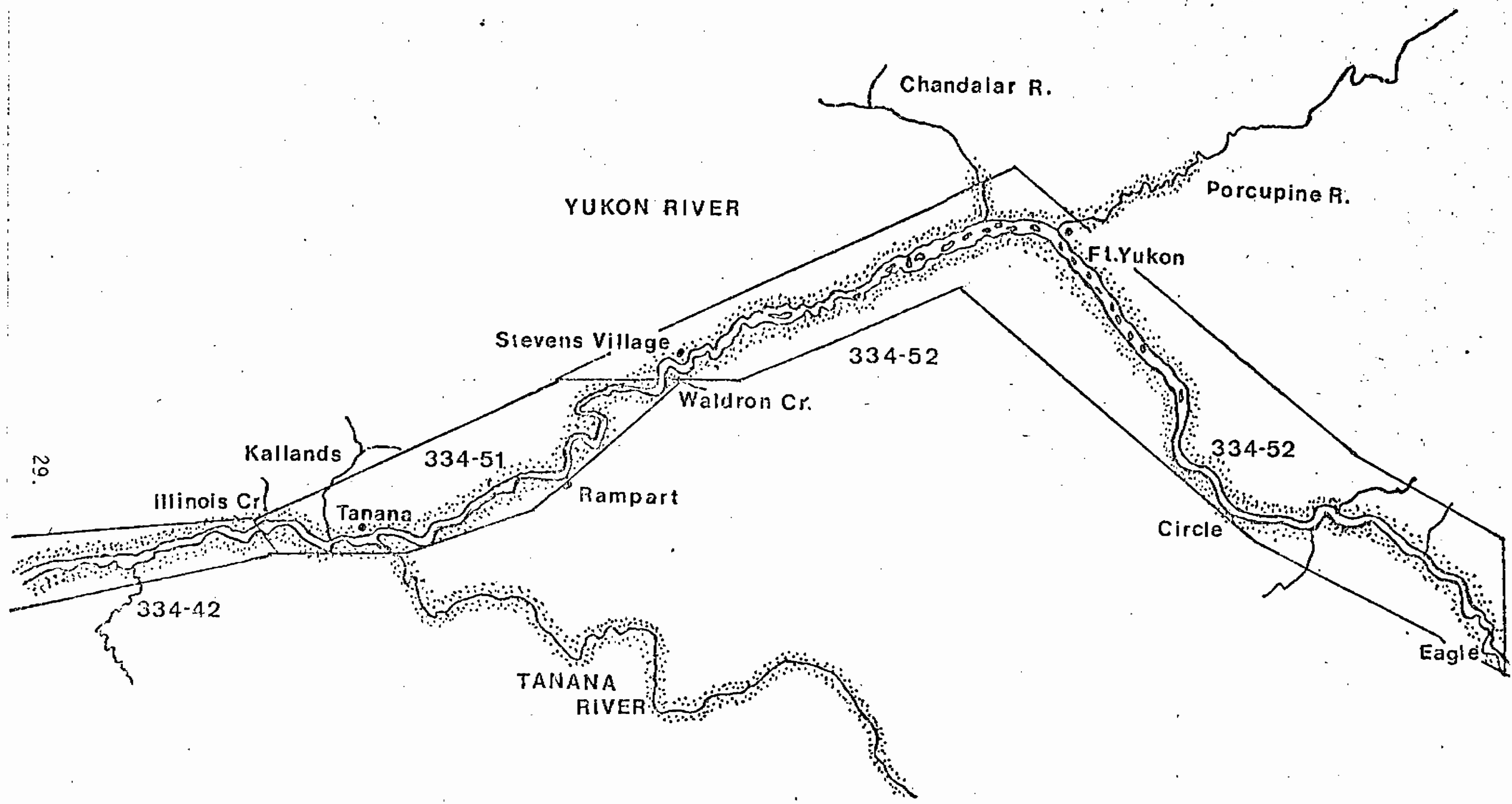

FIGURE 7 YUKON SUBDISTRICT 334-50

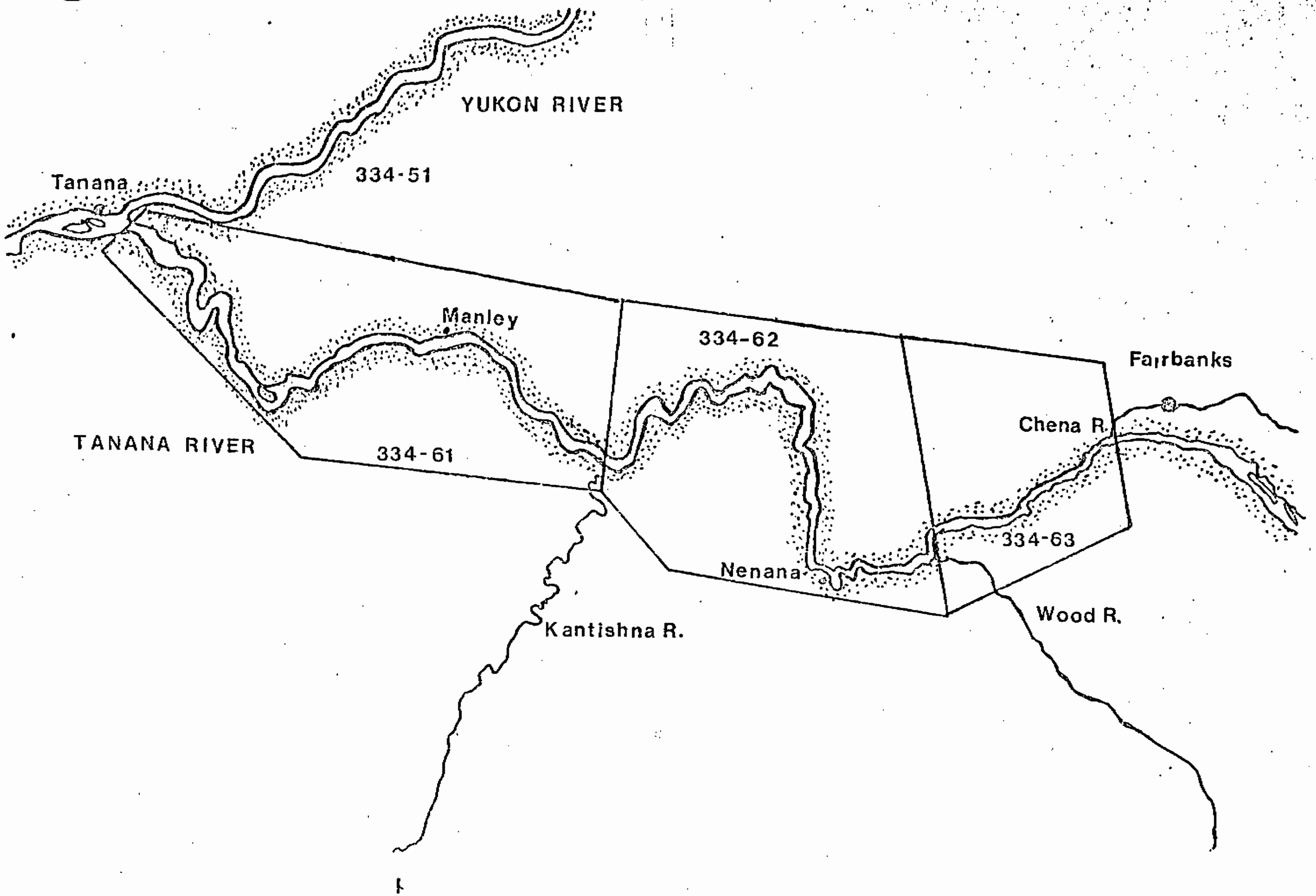

FIGURE 8 YUKON SUBDISTRICT 334-60

Table 1. List of indigenous fishes found in the Yukon area. 1/

Species Code	Scientific Name	Common Name
601	Lampetra japonica	Arctic lamprey
570	Stenodus leucichthys	Sheefish
581	Coregonus nasus	Broad Whitefish
582	Coregonus pidschian	Humpback Whitefish
583	Coregonus sardinella	Least Cisco
585	Coregonus laurettae	Bering Cisco
586	Prosopium cylindraceum	Round Whitefish
587	Prosopium coulteri	Pygmy Whitefish
610	Thymallus arcticus	Arctic Grayling
550	Salvelinus namaycush	Lake Trout
520	Salvelinus alpinus	Arctic Char
530	Salvelinus malma	Dolly Varden
410	Oncorhynchus tshawytscha	King Salmon
420	Oncorhynchus nerka	Red Salmon
430	Oncorhynchus kisutch	Coho Salmon
440	Oncorhynchus gorbuscha	Pink Salmon
450	Oncorhynchus keta	Chum Salmon
513	Osmerus mordax dentex	Rainbow Smelt
514	Hypomesus olidus	Pond Smelt
500	Esox lucius	Pike
630	Dallia pectoralis	Blackfish
650	Couesius plumbeus	Lake Chub
640	Catostomus catostomus	Longnose Sucker
670	Percopsis omiscomaycus	Trout-perch
590	Lota lota	Burbot, Lush
661	Pungitius pungitius	9-spine Stickleback
162	Cottus cognatus	Slimy Sculpin
ESTUARINE		
113	Eleginus gracilis	Saffron Cod
121	Pleuronectes stellatus	Starry Flounder
122	Liopsetta glacialis	Arctic Flounder
230	Clupea pallasii	Pacific Herring
	Mallotus villosus	Capelin

1/ Includes fishes found in the Yukon River drainage in Canada.

Table 2. Yukon River Drainage Mileages

Location	Mileages from Mouth
North Mouth (Apoon Pass)	
Kotlik	6
Hamilton	26
Middle Mouth (Kwikpak, Kawanak Pass)	
Choolunawick	16
Akers Camp	26
New Hamilton	34
South Mouth (Kwikluak Pass)	
Mouth, Black River	-18
Flat Island Test Fishing Site	0
Sheldons Point	5
Tin Can Point	8
Alakanuk	17
Emmonak-Kwiguk (Kwiguk Pass)	24
Sunshine Bay	24
Aproka Pass (upstream mouth)	35
Kwikpak Pass (upstream mouth)	44
Head of Passes	48
Fish Village	52
Mouth Anuk River (Subdistrict 1/2 Boundary)	63
Patsys Cabin	71
Mountain Village	87
Old Andreafsky	97
Pitkas Point	103
Mouth, Andreafsky River	104
St. Marys	107
Pilot Station	122
Mouth, Atchuelinguk (Chulinak) River	126
Pilot Village	138
Marshall (Fortuna Ledge)	161
Upstream Mouth Owl Slough (Subdistrict 2/3 Boundary)	163
Ingrihak	170
Ohogamut	185
Kakamut	193
Russian Mission	213
Dogfish village	227
Paimuit	251
Mouth, Innoko River (South Slough)	274

Shageluk	328
Holikachuk	383
Holy Cross	279
Mouth, Koserefski River	286
Mouth, Bonasila River (Subdistrict 3/4 Boundary)	306
Anvik	317
Mouth, Anvik River	318
Grayling	336
Mouth, Thompson Creek	349
Blackburn	370
Eagle Slide	402
Mouth, Rodo River	447
Kaltag	450
Mouth, Nulato River	483
Nulato	484
Koyukuk	502
Mouth, Koyukuk River	508
Mouth, Gisasa River	564
Huslia	711
Mouth, Dakli River	755
Mouth, Hogatza River	780
Hughes	881
Mouth, Kanuti River	935
Alatna (Mouth, Alatna River)	956
Allakaket	956
Mouth, South Fork	986
Mouth, John River	1,117
Bettles	1,121
Middle Fork	1,141
Cold Foot	1,174
Wiseman	1,186
Bishop Rock	514
Prospect Point	519
Galena	530
Whiskey Creek	555
Mouth, Yuki River	562
Ruby	581
Mouth, Melozitna River	583
Horner Hot Springs	605
Kokrines	608
Mouth, Nowitna River	612
Birches	647
Kallands - Mouth of Illinois Creek (Subdistrict 4/5 Boundary)	664
Mouth, Tozitna River	681
Tanana Village	695
Mouth, Tanana River (Subdistrict 5/6 Boundary)	695
Manley Hot Springs	765
Mouth, Kantishna River	793
Mouth, Toklat River	838
Mouth, Sushana River	850
Mouth, Bearpaw River	887
Outlet, Lake Minchumina	959

Minto	835
Nenana	860
Mouth, Nenana River	860
Mouth, Wood River	894
Rosie Creek Bluffs	912
Mouth, Chena River (Fairbanks)	920
Mouth, Salcha River	965
Benchmark #735 Slough	991
Mouth, Little Delta River	1,000
Mouth, Delta Creek	1,014
Mouth, Clear Creek (Richardson-Clearwater)	1,015
Mouth, Shaw Creek	1,021
Mouth, Delta River (Big Delta)	1,031
Delta Junction	1,041
Mouth, Goodpaster River	1,049
Bluff Cabin Slough	1,050
Outlet, Clearwater Lake	1,052
Mouth, Clearwater Creek, (Delta Clearwater)	1,053
Mouth, Gerstle River	1,059
Outlet, Healy Lake	1,071
Outlet, Lake George	1,086
Tanacross	1,128
Outlet, Tetlin Lake	1,188
Mouth, Nabesna River	1,210
Northway Junction	1,214
Mouth, Chisana River	1,215
Mouth, Sheep Creek	1,297
Rampart Rapids	731
Rampart	763
Mouth, Hess Creek	789
Mouth, Ray River	817
Highway Bridge - Pipeline Crossing	820
Mouth, Dall River	841
Stevens Village	847
Mouth, Hodzana River	897
Beaver	932
Mouth, Hadweenzic River	952
Mouth, Chandalar River (Venetie Landing)	982
Venetie	1,025
Fort Yukon	1,002
Mouth, Porcupine River	1,002
Mouth, Black River	1,026
Chalkyitsik	1,084
Mouth, Salmon River	1,142
Mouth, Salmon Trout River	1,193
Mouth, Sheenjek River	1,054
Mouth, Coleen River	1,157
U.S.-Canadian Border	1,219
Old Crow	1,259
Fishing Branch River spawning area	1,600
Circle	1,061
Woodchopper	1,110
Mouth, Charley River	1,124

Mouth, Kandik River	1,135
Mouth, Nation River	1,166
Mouth, Tatonduk River	1,186
Mouth, Seventymile River	1,194
Eagle	1,213
U.S.-Canadian Border	1,224
Mouth Fortymile River	1,269
Dawson	1,319
Mouth, Klondike River	1,320
Mouth, Sixty Mile River	1,369
Mouth, Stewart River	1,375
McQuesten	1,455
Stewart Crossing	1,491
Mayo	1,520
Mouth, Hess River	1,594
Mouth, White River	1,386
Mouth, Donjek River	1,455
Mouth Kluane River	1,541
Outlet Kluane Lake	1,587
Burwash Landing	1,595
Kluane	1,625
Fort Selkirk	1,477
Mouth, Pelly River	1,478
Pelly Crossing	1,410
Mouth, MacMillan River	1,442
Ross River	1,602
Minto	1,499
Mouth, Tatchun Creek	1,530
Carmacks	1,547
Mouth, Little Salmon River	1,583
Mouth, Big Salmon River	1,621
Mouth, North Big Salmon River	1,641
Mouth, South Big Salmon River	1,657
Outlet, Big Salmon Lake	1,714
Mouth, Teslin River	1,654
Roaring Bull Rapids	1,707
Johnson's Crossing (Outlet, Teslin Lake)	1,756
Teslin	1,780
Mouth Nisutlin River	1,788
Mouth, Sidney Creek	1,837
Mouth, Hundred Mile Creek	1,851
Mouth, McNeil River	1,887
Outlet, Nisutlin Lake	1,892
Outlet, Lake Laberge	1,679
Inlet, Lake Laberge	1,712
Mouth, Takhini River	1,718
Whitehorse	1,745
Mouth, M'Clintock River	1,769
Outlet, Marsh Lake	1,764
Outlet, Little Atlin Lake	1,788
Outlet, Atlin Lake	1,812
Atlin	1,844
Tagish	1,786
Outlet, Tagish Lake	1,788
Carcross (Outlet Lake Bennett)	1,810
Bennett	1,835

Table 3. Yukon district processors and associated data, 1976.

Commercial operator (Processing location/buying station)	Product	Average price paid to fishermen (estimated)	Subdistrict
Yukon Delta Fish Marketing Co-op, Inc. Emmonak, Alaska 99581 (Emmonak)	Frozen salmon Kings Cohos Chums Salmon Roe		1
Amukon Trading Post Scammon Bay, Alaska 99662 (Black River)	Hard salt kings		1
Bering Sea Fisheries, Inc. 4413 83rd Avenue S.E. Everett, Washington 98205 (Lamont Slough)	Frozen salmon & canned (#1 talls) Kings Cohos Chums Salmon Roe		1
Northern Commercial Co. 1110 Third Ave Seattle, Washington 98101 (Emmonak)	Mild cured kings frozen salmon Kings Cohos Chums Salmon Roe		1
Akers & Co., Inc. Chulooawick, Alaska 99587 via Emmonak, Alaska (Kwikpakak Slough)	Mild cured salmon Kings Chums		1

Table 3. (continued) Yukon district processors and associated data, 1976

Commercial operator (Processing location/buying station)	Product	Average price paid to fishermen (estimated)	Subdistrict
Schenk Seafood Sales, Inc. P. O. Box 984 Bellingham, Washington 98225 (Kwikluak Pass near Alakanuk)	Frozen salmon Kings Cohos Chums		1
Salmon Products, Inc. P. O, Box 47 St. Marys, Alaska 99658 (Pitkas Point)	Frozen salmon Chums Kings Salmon Roe		1 & 2
Azachorak Corp, DBA The Village Cannery Mountain Village, Alaska 99632 (Mt. Village)	Hard salt, frozen & canned (#1/2 flats) salmon Kings Chums Salmon Roe		1 & 2
Boreal Fisheries 19828 78th Ave. E. Spanaway, Washington 98387 (Old Andreafsky)	Fresh Salmon Kings Chums Salmon Roe		2
American Canadian Seafood 1909 W. 48th Ave. Anchorage, Alaska 99502 (St. Marys)	Fresh salmon Kings Chums		2
Kemp Paulucci Seafoods Inc. Box 252 Bethel, Alaska 99559 (Marshall and Bethel)	Frozen salmon Kings Chums Salmon Roe		2,3 & 4
Harry Turner Box 97 Holy Cross, Alaska 99602 (Paimiut)	Smoked salmon strips Kings		3

Table 3. (continued) Yukon district processors and associated data, 1976.

Commercial operator (Processing location/buying station)	Product	Average price paid to fishermen (estimated)	Subdistrict
Northern Peninsula Fisheries 14014 Edgewater Lane N.E. Seattle, Washington 98125 (Holy Cross)	Fresh salmon Kings Chums		3
K & A Fisheries Aniak, AK c/o Joe Parent Kalskag, AK 99607 (Russian Mission)	Fresh salmon Kings Chums Salmon Roe		3
Patson Enterprises Box 445 Bethel, AK. 99559 (Holy Cross)	Fresh salmon Kings Chums Salmon Roe		3 & 4
Clark Fishing Enterprises Box 517 Aniak, AK (Ingrihak-Paimuit)	Fresh Salmon Kings Salmon Roe		3 & 4
Grayling Air Service Grayling, Alaska 99590 (Grayling)	Fresh salmon Chums Salmon roe		4
M. G. Fish Buyers 1.2 Mile Dennis Road Fairbanks, AK 99701 (Ruby)	Fresh salmon Chums		4

Table 3. (continued) Yukon district processors and associated data, 1976.

Commercial operator (Processing location/buying station)	Product	Average price paid to fishermen (estimated)	Subdistrict
Quality Aircraft Box 4-1583 Anchorage, Alaska 99509 (Kaltag)	Fresh salmon Chums Salmon Roe		4
Huntington Ventures Box 49 Galena, Alaska 99741 (Galena)	Fresh salmon Chums Salmon Roe		4
C&G Enterprises Koyukuk, Alaska 99754	Frozen salmon Chums Salmon Roe		4
Nulato Fish Co. Nulato, Alaska 99765	Fresh salmon Chums Salmon Roe		4
YK Fisheries Box 28 Galena, Alaska 99741	Fresh salmon King Chums Salmon Roe		4
Ruby Trading Co. Box 3 Ruby Alaska, 99768 (Ruby)	Fresh Salmon Chums		4
Henry Deacon Grayling, Alaska 99590 (Grayling)	Frozen salmon Chums Salmon Roe		4
10th & M Lockers 1020 M. Street Anchorage, AK 99501 (Galena)	Salmon Roe		4

Table 3. (continued) Yukon district processors and associated data, 1976.

Commercial operator (Processing location/buying station)	Product	Average price paid to fishermen (estimated)	Subdistrict
Reinhard Rupprecht Box 51 Nenana, Alaska 99701 (Kallands)	Frozen salmon Kings Chums		4 & 5
Chet Paulk 325 L. St. Anchorage, AK 99501	Frozen salmon Kings Chums		4,5 & 6
P. Merry Guide Service 1206 Coppet Fairbanks, Alaska 99701 (Rampart)	Fresh salmon Kings Chums Salmon Roe		5
Yutan Fisheries Box 62 Tanana, Alaska 99777 (Tanana)	Fresh salmon Kings Chums		5
George and Karen Attla 8 Mi. Badger Rd. SR 60743 Fairbanks, AK 99701	Fresh salmon Kings		5
Robert Blake SR 50308 Chena Hot Springs 3/4 Mile Fairbanks, AK 99701	Frozen salmon Kings Chums		5

Table 3. (continued) Yukon district processors and associated data, 1976.

Commercial operator (Processing location/buying station)	Product	Average price paid to fishermen (estimated)	Subdistrict
Albert Carroll Circle, Alaska 99733 (Circle)	Fresh salmon Kings		5
Michael Geraghty Box 60430 Fairbanks, AK 99706	Fresh salmon Chums		5
Golden Eagle Enterprises Box 4 Eagle, Alaska 99738 (Eagle)	Fresh salmon Kings Chums		5
Interior Fisheries SRA Box 168 Anchorage, AK 99502 (Manley)	Frozen salmon Kings Chums Salmon Roe		5 & 6
Terry Johnson Fish Co. 2107 Broadmoor Fairbanks, AK 99701	Fresh salmon Kings Chums Cohos		5 & 6
Aurora Meat & Seafoods 1260 Aurora Fairbanks, Alaska 99701	Frozen salmon Kings Chums		5 & 6
T & T Enterprises Box 292 Nenana, AK 99760	Frozen salmon Kings Cohos Chums Salmon Roe		5 & 6

Table 3. (continued) Yukon district processors and associated data, 1976.

Commercial operator (Processing location/buying station)	Product	Average price paid to fishermen (estimated)	Subdistrict
Nenana Reefer & Processing Box 26 Nenana, AK 99760 (Nenena)	Frozen salmon Chums Cohos Salmon Roe		6
Arctic Diving 1321 Karen St. Fairbanks, AK 99701 (Fairbanks)	Frozen salmon Kings Cohos Chums Salmon Roe		6
Jim Hanson SR Box 50213 1/4 Mile Chena Hot Springs Rd. Fairbanks, AK 99701 (Fairbanks)	Fresh salmon Kings Chums		6
Joseph Oates 33-1/2 Mile Richardson Hwy Fairbanks, AK 99701 (Fairbanks)	Fresh salmon Kings Chums		6
Henry Ketzler Box 35 Nenana, AK 99760 (Nenana)	Fresh salmon Chums		6
Catherine Ludecker 4.5 Mile Chena Pump Rd. Fairbanks, AK 99701 (Fairbanks)	Frozen salmon Kings Chums Cohos		6

Table 3. (continued) Yukon district processors and associated data, 1976.

Commercial operator (Processing location/buying station)	Product	Average price paid to fishermen (estimated)	Subdistrict
Leroy Shank Box 80-774 College, AK 99701 (Fairbanks)	Fresh salmon Kings Chums Cohos		6
Donval Simpson SR Box 20033 Fairbanks, AK 99701 (Fairbanks)	Fresh salmon King Chums Cohos		6

Table 4 . Commercial salmon catches by species and subdistrict, Yukon district, 1976

Subdistrict	Kings	Summer Chums	Fall Chums	Total Chums	Cohos	Total All Species
334-10						
King Salmon Season 6/14-7/2	56,392	189,874	-	189,874	-	246,266
Fall or Second Season	6,240	79,649	112,693	192,342	4,084	202,666
(Before Quota Period 7/5-15)	(5,254)	(74,222)	(12,269)	(86,491)	-	(91,745)
(After Quota Period 7/16-8/13)	(986)	(5,427)	(100,424)	(105,851)	(4,084)	(110,921)
Total 334-10	62,632	269,523	112,693	382,216	4,084	448,932
334-20						
King Salmon Season 6/20-7/5	15,296	77,201	-	77,201	-	92,497
Fall or Second Season	2,117	22,546	21,212	43,758	17	45,892
(Before Quota Period 7/7-18)	(1,915)	(22,546)	-	(22,546)	-	(24,461)
(After Quota Period 7/19-8/12)	(200)	-	(21,212)	(21,212)	(17)	(21,429)
Total 334-20	17,413	99,747	21,212	120,959	17	138,389
334-30						
King Salmon Season 6/21-7/2	4,070	8,911	-	8,911	-	12,981
Fall or Second Season	169	1,343	4,250	5,593	-	5,762
(Before Quota Period 7/15-21)	(79)	(1,343)	-	(1,343)	-	(1,422)
(After Quota Period 7/22-8/14)	(90)	-	(4,250)	(4,250)	-	(4,340)
Total 334-30	4,239	10,254	4,250	14,504	-	18,743
Total Lower Yukon	84,284	379,524	138,155	517,679	4,101	606,064
334-40						
King Salmon Season	385	211,277	-	211,277	-	211,662
Fall or Second Season	-	-	1,742	1,742	-	1,742
Total 334-40	385	211,277	1,742	213,019	-	213,404
334-50						
King Salmon Season	2,900	860	-	860	-	3,760
Fall or Second Season	-	-	5,387	5,387	-	5,387
Total 334-50	2,900	860	5,387	6,247	-	9,147
334-60						
King Salmon Season	1,102	6,566	-	6,566	-	7,668
Fall or Second Season	-	-	17,998	17,998	1,096	19,094
Total 334-60	1,102	6,566	17,998	24,564	1,096	26,762
Total Upper Yukon	4,387	218,703	25,127	243,830	1,096	249,313
Grand Total 334	88,671	598,227	163,282	761,509	5,197	855,377

Table 5 . Commercial salmon catches by statistical area during king salmon season, Yukon district, 1976.

Statistical Area	King	Chum
334-11	7,569	8,307
12	25,925	120,467
13	6,574	20,405
14	782	5,247
15	4,521	11,527
16	1,348	2,278
17	5,086	12,306
18	4,587	9,337
Subtotal 334-10	56,392	189,874
334-21	4,700	10,507
22	3,815	46,330
23	2,426	9,829
24	4,355	10,535
Subtotal 334-20	15,296	77,201
334-31	1,792	3,561
32	2,278	5,350
Subtotal 334-30	4,070	8,911
Total Lower Yukon	75,758	275,986
334-41	32	178,246
42	353	33,031
Subtotal 334-40	385	211,277
334-51	2,593	856
52	307	4
Subtotal 334-50	2,900	860
334-61	503	2,893
62	295	1,217
63	304	2,456
Subtotal 334-60	1,102	6,566
Total Upper Yukon	4,387	218,703
Total 334	80,145	494,689

Table 6 . Commercial salmon catches by statistical area during fall season, Yukon district, 1976.

Statistical Area	King	Coho	Chum
334-11	774	3	18,029
12	2,192	2,681	84,949
13	1,001	542	32,055
14	70	223	4,170
15	560	448	16,896
16	96	-	1,949
17	1,070	167	19,718
18	477	20	14,576
Subtotal 334-10	6,240	4,084	192,342
334-21	411	1	11,520
22	696	10	12,363
23	630	6	8,408
24	380	-	11,467
Subtotal 334-20	2,117	17	43,758
334-31	35	-	889
32	134	-	4,704
Subtotal 334-30	169	-	5,593
Total Lower Yukon	8,526	4,101	241,693
334-41	-	-	462
42	-	-	1,280
Subtotal 334-40	-	-	1,742
334-51	-	-	5,319
52	-	-	68
Subtotal 334-50	-	-	5,387
334-61	-	-	6,444
62	-	576	7,961
63	-	520	3,593
Subtotal 334-60	-	1,096	17,998
Total Upper Yukon		1,096	25,127
Total 334	8,526	5,197	266,820

Table 7. Yukon district licenses issued by residence, 1976.

Subdistrict	Residence	Commercial	Fishing Vessel	Set Net	Drift Net	Fishwheel 1/
334-10	Sheldons Point	22	23	23	1	-
	Alakanuk	117	111	108	28	-
	Emmonak	141	135	127	34	-
	Chuloonawick	1	1	1	1	-
	Kotlik	85	81	74	18	-
	Mt. Village	60	41	36	35	-
	Pitkas Point	1	1	1	-	-
	St. Marys	18	14	11	12	-
	Pilot Station	26	16	15	16	-
	Marshall	10	9	8	7	-
	Russian Mission	10	5	5	5	-
	Holy Cross	2	1	1	1	-
	Scammon Bay	47	38	38	1	-
	Hooper Bay	3	3	3	-	-
	Newtok	1	1	-	-	-
	Stebbins	5	5	5	1	-
	St. Michaels	1	1	1	1	-
	Unalakleet	25	13	13	1	-
	Shaktoolik	1	1	1	1	-
	Bethel	3	1	1	-	-
	Kalskag	1	-	-	-	-
	Palmer	3	1	1	1	-
	Chugiak	2	1	-	1	-
	Anchorage	4	2	3	-	-
	MacLaren River	1	1	1	1	-
	Bellingham, Washington	1	1	-	-	-
	Everett, Washington	4	3	2	-	-
	Lynden, Washington	1	-	-	-	-
	Stanwood, Washington	1	1	-	-	-
	Seattle, Washington	1	1	1	-	-
	Silverdale, Washington	1	1	-	-	-
	Subtotal	599	513	480	166	
334-20	Mt. Village	102	68	50	63	-
	Pitkas Point	29	18	17	15	-
	St. Marys	55	44	35	43	-
	Pilot Station	49	36	27	36	-
	Marshall	47	32	20	32	-
	Russian Mission	6	3	3	3	-
	Kotlik	-	1	-	-	-
	Hooper Bay	10	-	-	-	-
	Anchorage	1	1	1	1	-
	Subtotal	299	203	153	193	
334-30	Marshall	19	13	10	13	-
	Russian Mission	11	9	8	2	-
	Holy Cross	26	13	10	6	-
	Bethel	-	1	-	1	-
	Subtotal	56	36	28	22	
334-40	Anvik	8	8	6	-	4
	Grayling	5	5	4	-	3
	Kaltag	28	12	6	-	10
	Nulato	20	17	-	-	17
	Koyukuk	4	4	-	-	4
	Galena	34	31	6	-	24
	Ruby	19	13	8	-	14
	Other	2	2	1	-	2
	Subtotal	120	92	31		78
334-50	Tanana	41	31	22	-	28
	Rampart	14	13	8	-	8
	Fairbanks	15	15	12	-	4
	Stevens Village	4	4	3	-	2
	Fort Yukon	1	1	-	-	1
	Circle	4	2	1	-	2
	Eagle	2	1	2	-	1
	Other	3	3	2	-	1
	Subtotal	84	70	50		47
334-60	Manley	11	6	2	-	6
	Nenana	29	24	6	-	21
	Fairbanks	27	18	11	-	15
	Other	4	-	-	-	2
	Subtotal	71	48	19		44
TOTAL		1,229	962	761	381	169

1/ No license required for fishwheels.

Table 8. Commercial salmon catches from subdistrict 334-10, Yukon district, drift and set gill nets combined, 1976.

Date of Landing	Hours Fished	No. of Boats	Total catch (catch/boat hour) King	Total catch (catch/boat hour) Coho	Total catch (catch/boat hour) Chum	Cumulative catch (cum. catch/boat hr.) King	Cumulative catch (cum. catch/boat hr.) Coho	Cumulative catch (cum. catch/boat hr.) Chum
6/14	6		16		2	16		2
6/15	24		78		21	94		23
6/16	6		44		2	138 (.06)		25 (.01)
	36	65	138 (.06)		25 (.01)			
6/17	6		115		11	253		36
6/18	24		1,667		2,376	1,920		2,412
6/19	6		1,345		6,166	3,265 (.27)		8,578 (.71)
	36	268	3,127 (.32)		8,553 (.88)			
6/21	6		214		1,279	3,479		9,857
6/22	24		4,412		31,064	7,891		40,921
6/23	6		5,014		35,171	12,905 (.49)		76,092 (2.90)
	36	392	9,640 (.68)		67,514 (4.78)			
6/24	6		2,831		8,712	15,736		84,804
6/25	24		9,137		29,244	24,873		114,048
6/26	6		3,394		10,407	28,267 (.69)		124,455 (3.04)
	36	408	15,362 (1.03)		48,363 (3.29)			
6/28	6		1,741		2,533	30,008		126,988
6/29	24		6,984		11,366	36,992		138,354
6/30	6		5,119		10,559	42,111 (.76)		148,913 (2.69)
	36	404	13,844 (.95)		24,458 (1.68)			
7/1	6		2,512		5,888	44,623		154,801
7/2	18		11,769		35,073	56,392 (.87)		189,874 (2.93)
	24	385	14,281 (1.54)		40,961 (4.43)			
Subtotal 1/	204	453	56,392 (.87)		189,874 (2.93)			
7/5	6		695		8,260	695		8,260
7/6	18		2,081		24,809	2,776 (.39)		33,069 (4.65)
	24	296	2,776 (.39)		33,069 (4.65)			
7/8	6		299		4,898	3,075		37,967
7/9	18		954		13,432	4,029 (.28)		51,399 (3.54)
	24	307	1,253 (.16)		18,330 (2.49)			
7/12	6		271		6,931	4,300		58,330
7/13	24		607		18,508	4,907		76,838
7/14	6		231		5,781	5,138 (.20)		82,619 (3.23)
	36	320	1,109 (.09)		31,220 (2.68)			
7/15	6		116		3,872	5,254		86,491
7/16	24		248		11,020	5,502		97,511
7/17	6		154		3,740	5,656 (.15)		101,251 (2.73)
	36	310	518 (.04)		18,632 (1.66)			
7/19	6		71		1,672	5,727		102,923
7/20	24		130		3,936	5,857		106,859
7/21	6		46		1,342	5,903 (.13)		108,201 (2.32)
	36	262	247 (.02)		6,950 (.74)			
7/22	6		35	2	728	5,938	2	108,929
7/23	24		73	3	1,562	6,011	5	110,491
7/24	6		25	1	534	6,036 (.11)	6 (+)	110,025 (2.08)
	36	187	133 (.01)	6 (+)	2,824 (.42)			
7/26	6		6	3	691	6,042	9	111,716
7/27	24		49	10	4,751	6,091	19	116,467
7/28	6		15	7	1,483	6,106 (.10)	26 (+)	117,950 (1.92)
	36	225	70 (.01)	20 (+)	6,925 (.86)			
7/29	6		28	100	20,536	6,134	126	138,496
7/30	24		37	251	33,646	6,171	377	172,132
7/31	6		18	97	8,696	6,189 (.08)	474 (.02)	180,828 (2.49)
	36	313	83 (.01)	448 (.04)	62,878 (5.56)			
8/2	6		2	178	1,277	6,191	652	182,105
8/3	24		29	842	5,549	6,220	1,494	187,654
8/4	6		4	174	936	6,224 (.08)	1,668 (.05)	188,590 (2.32)
	36	235	35 (+)	1,194 (.14)	7,762 (.92)			
8/5	6		3	17	77	6,227	1,685	188,667
8/6	24		6	228	226	6,233	1,913	188,893
8/7	6		1	42	97	6,234 (.07)	1,955 (.05)	188,990 (2.23)
	36	98	10 (+)	287 (.08)	400 (.11)			
8/9	6		1	164	133	6,235	2,119	189,123
8/10	24		3	530	482	6,238	2,649	189,605
8/11	6			152	122	6,238 (.07)	2,801 (.06)	189,727 (2.12)
	36	136	4 (+)	846 (.17)	737 (.15)			
8/12	6		1	249	249	6,239	3,050	189,976
8/13	12		1	1,034	2,366	6,240 (.07)	4,084 (.09)	192,342 (2.09)
	18	145	2 (+)	1,283 (.49)	2,615 (1.00)			
Subtotal 2/	390	422	6,240 (.07)	4,084 (.09)	192,342 (2.09)			
Grand Total	594	482	62,632	4,084	382,216			

1/ King salmon season (6/14-7/2).

2/ Fall season (7/5-8/13.

Table 9. Commercial salmon catches from subdistrict 334-20, Yukon district, drift and set gillnets combined, 1976.

Date of Landing	Hours Fished	No. of Boats	Total catch (catch/boat hour) King	Total catch (catch/boat hour) Coho	Total catch (catch/boat hour) Chum	Cumulative catch (Cum catch/boat hour) King	Cumulative catch (Cum catch/boat hour) Coho	Cumulative catch (Cum catch/boat hour) Chum
6/20	6				4			4
6/21	24		416		1,572	416		1,576
6/22	6		699		3,772	1,115 (.34)		5,348 (1.65)
	36	90	1,115 (.34)		5,348 (1.65)			
6/23	6		200		1,649	1,315		6,997
6/24	24		595		9,924	1,910		16,921
6/25	6		734		12,085	2,644 (.31)		29,006 (3.38)
	36	148	1,529 (.28)		23,658 (4.44)			
6/27	6		572		3,981	3,216		32,987
6/28	24		2,405		12,553	5,621		45,540
6/29	6		2,173		6,001	7,794 (.54)		51,541 (3.55)
	36	166	5,150 (.86)		22,535 (3.79)			
6/30	6		486		2,814	8,280		54,355
7/1	24		2,653		8,559	10,933		62,914
7/2	6		1,614		3,252	12,547 (.63)		66,166 (3.31)
	36	151	4,753 (.87)		14,625 (2.69)			
7/4	6		386		1,259	12,933		67,425
7/5	18		2,363		9,776	15,296 (.65)		77,201 (3.29)
	24	146	2,749 (.78)		11,035 (3.14)			
Subtotal 1/	168	189	15,296 (.65)		77,201 (3.29)			
7/7	6		260		3,316	260		3,316
7/8	18		975		10,673	1,235 (.41)		13,989 (4.70)
	24	124	1,235 (.41)		13,989 (4.70)			
7/11	6		137		1,571	1,372		15,560
7/12	24		235		2,294	1,607		17,854
7/13	6		72		599	1,679 (.28)		18,453 (3.11)
	36	110	444 (.11)		4,464 (1.12)			
7/14	6		71		784	1,750		19,237
7/15	24		119		2,004	1,869		21,241
7/16	6		38		965	1,907 (.19)		22,206 (2.19)
	36	89	228 (.07)		3,753 (1.17)			
7/18	6		8		340	1,915		22,546
7/19	24		39		2,587	1,954		25,133
7/20	6		21		2,047	1,975 (.16)		27,180 (2.18)
	36	64	68 (.03)		4,974 (2.16)			
7/21	6		14		730	1,989		27,910
7/22	24		16		821	2,005		28,731
7/23	6		6		177	2,011 (.14)		28,908 (1.97)
	36	62	36 (.02)		1,728 (.78)			
7/25	6		10		205	2,021		29,113
7/26	24		11		1,122	2,032		30,235
7/27	6		2		286	2,034 (.12)		30,521 (1.86)
	36	50	23 (.01)		1,613 (.89)			
7/28	6		1		80	2,035		30,601
7/29	24		16		943	2,051		31,544
7/30	6		9		236	2,060 (.11)		31,782 (1.71)
	36	59	26 (.01)		1,259 (.59)			
8/1	6		4		1,713	2,064		33,493
8/2	24		8	4	6,056	2,072	4	39,549
8/3	6		3	2	2,736	2,075 (.09)	6 (+)	42,285 (1.82)
	36	128	15 (+)	6 (+)	10,505 (2.28)			
8/4	6				125	2,075	6	42,410
8/5	24		28	1	553	2,103	7	42,963
8/6	6				70	2,103 (.08)	7 (+)	43,033 (1.74)
	36	46	28 (.02)	1 (+)	748 (.45)			
8/8	6				74	2,103	7	43,107
8/9	24		6	10	361	2,109	17	43,468
8/10	6		2		31	2,111 (.08)	17 (.02)	43,499 (1.65)
	36	42	8 (.01)	10 (.01)	466 (.31)			
8/11	6		1		97	2,112	17	43,596
8/12	12		5		162	2,117 (.08)	17 (.02)	43,758 (1.64)
	18	21	6 (.02)		259 (.69)			
Subtotal 2/	366	194	2,117 (.08)	17 (.02)	43,758 (1.64)			
Grand Total	534	220	17,413	17	120,959			

1/ King salmon season (6/20-7/5).
2/ Fall season (7/7-8/12).

Table 10. Commercial salmon catches from subdistrict 334-30, Yukon district, drift and set gillnets combined, 1976.

Date of Landing	Hours Fished	No. of Boats	Total catch (catch/boat hour) King	Total catch (catch/boat hour) Coho	Total catch (catch/boat hour) Chum	Cumulative catch (Cum. catch/boat hour) King	Cumulative catch (Cum. catch/boat hour) Coho	Cumulative catch (Cum. catch/boat hour) Chum
6/21	6							
6/22	24		4			4		
6/23	18		115		98	119 (.30)		98 (.25)
	48	8	119 (.30)		98 (.25)			
6/24	6				95	119		193
6/25	24		399		966	518		1,159
6/26	18		162		1,375	680 (.39)		2,534 (1.47)
	48	28	561 (.41)		2,436 (1.81)			
6/28	6		301		1,364	981		3,898
6/29	24		917		2,836	1,898		6,734
6/30	18		826		778	2,724 (.77)		7,512 (2.11)
	48	38	2,044 (1.12)		4,978 (2.72)			
7/1	6		126		724	2,850		8,236
7/2	18		1,220		675	4,070 (9.3)		8,911 (2.03)
	24	35	1,346 (1.60)		1,399 (1.66)			
Subtotal 1/	168	42	4,070 (.93)		8,911 (2.03)			
7/15	6				11			11
7/16	24		23		378	23		389
7/17	18		39		431	62 (.08)		820 (1.05)
	48	16	62 (.08)		820 (1.05)			
7/19	6				14	62		834
7/20	24		11		297	73		1,131
7/21	18		6		212	79 (.06)		1,343 (1.07)
	48	10	17 (.04)		523 (1.09)			
7/22	6					79		1,343
7/23	24		42		443	121		1,786
7/24	18		5		450	126 (.07)		2,236 (1.16)
	48	14	47 (.07)		893 (1.33)			
7/26	6					126		2,236
7/27	24					126		2,236
7/28	18				126	126 (.06)		2,362 (1.13)
	48	3			126 (.88)			
7/29	6		3		111	129		2,473
7/30	24		13		135	142		2,608
7/31	18		13		165	155 (.06)		2,773 (1.00)
7	48	14	29 (1.04)		411 (.61)			
8/2	6					155		2,773
8/3	24		5		543	160		3,316
8/4	18		4		735	164 (.05)		4,051 (1.13)
	48	18	9 (.01)		1,278 (1.48)			
8/5	6				222	164		4,273
8/6	24				524	164		4,797
8/7	18				397	164 (.04)		5,194 (1.24)
	48	12			1,143 (1.98)			
8/9	6		1		152	165		5,346
8/10	24		1		193	166		5,539
8/11	18		1		14	167 (.04)		5,553 (1.17)
	48	12	3 (.01)		359 (.62)			
8/12	6		2		17	169		5,570
8/13	24					169		5,570
8/14	18				23	169 (.03)		5,593 (1.15)
	48	2	2		40 (.42)			
Subtotal 2/	432	28	169 (.03)		5,593 (1.15)			
Grand Total	600	44	4,239		14,504			

1/ King salmon season (6/21-7/2)
2/ Fall season (7/15-8/14).

Table 11. Commercial salmon catches subdistrict 334-40, Yukon district, set gillnets and fishwheel gear combined, 1976.

Period Ending	Boats	King	Chum	Coho	Total
7/2	26	32	12,576	--	12,608
7/9	66	61	116,216	--	116,277
7/16	69	212	67,019	--	67,231
7/23	54	73	11,216	--	11,289
7/30	14	7	1,145	--	1,152
8/6	17	--	877	--	877
8/13	17	24	2,092	--	2,116
Subtotal 1/		385	211,277		211,662
8/20	17	--	1,171	--	1,171
8/27	3	--	571	--	571
Subtotal 2/			1,742		1,742
Grand Total	96	385	211,277	--	213,404

1/ King salmon season (6/27-8/8)

2/ Fall season (8/16-27)

Table 12. Commercial salmon catches subdistrict 334-50, Yukon district, set gillnets and fishwheel gear combined, 1976.

Period Ending	Boats	King	Chum	Coho	Total
7/4	3	26	--	--	25
7/11	21	334	8	--	342
7/18	31	1,132	255	--	1,387
7/25	39	1,094	292	--	1,386
8/1	35	461	154	--	615
8/8	12	101	65	--	166
Subtotal 1/		2,900	~~860~~ 774		3,760
8/22	30	--	3,955	--	3,955
8/29	22	1	1,432	--	1,433
Subtotal 2/		--	5,387		5,387
Grand Total	62	2,900	6,247	--	9,147

1/ King salmon season (6/29-8/8)

2/ Fall season (8/17-29)

Table 13. Commercial salmon catches subdistrict 334-60, Yukon district, set gill nets and fishwheel gear combined, 1976.

Period Ending	Boats	King	Chum	Coho	Total
7/10	6	98	70	--	168
7/17	16	363	794	--	1,157
7/24	24	469	2,332	--	2,801
7/31	24	172	3,421	--	3,593
Subtotal 1/		1,102	6,566		7,668
8/21	14	--	426	--	426
8/28	15	--	600	1	601
9/4	Season Closed	--	--	--	--
9/11	Season Closed	--	--	--	--
9/18	41	--	13,827	903	14,730
9/21	21	--	3,095	199	3,294
Subtotal 2/			17,948	1,103	19,051
Grand Total	56	1,102	24,564	1,096	26,762

1/ King salmon season (7/5-31)

2/ Fall season (8/17-9/21)

Table 14 Yukon River subsistence salmon catch data, 1976 (includes Canadian catches)

Village	Date of Survey	Fishing Families	Dogs 1/	Snow Machines 1/	Kings	Other Salmon 2/	Total Salmon	8-1/2" Nets	5-1/2" Nets	Fishwheels
Sheldons Point	8/1	13	35	17	114	1,898	2,012	12	14	
Alakanuk	8/2	58	125	92	354	10,856	11,210	54	66	
Emmonak	8/3	41	69	64	272	10,483	10,755	35	77	
Lamont Slough	8/4	2	12	4		231	231		2	
Kotlik	8/7	27	48	32	399	8,681	9,080	50	72	
Mt. Village	8/8	42	98	63	321	6,955	7,276	34	50	
Pitkas Point	8/9	10	38	14	112	1,786	1,898	7	10	
St. Mary's	8/10	27	38	42	941	8,260	9,201	20	29	
Pilot Station	8/11	27	69	26	387	4,241	4,628	21	30	
Marshall	8/12	24	164	29	641	3,635	4,276	25	29	
Russian Mission	8/13	15	15	16	1,172	2,124	3,296	14	11	
Holy Cross	8/14	15	35	24	1,178	1,189	2,367	31	22	
Anvik	8/15	13	85	25	84	26,660	26,744	3	4	5
Grayling 3/	8/17	18	155	38	80	18,860	18,940	1	10	14
Kaltag	8/19	22	198	28	63	11,876	11,939		13	10
Nulato	8/25	22	147	25	634	8,744	9,378	6	13	9
Koyukuk	8/20	12	80	9	401	2,237	2,638	1	11	3
Galena	9/18	24	129	31	308	9,128	9,436	6	7	9
Ruby	9/18	14	124	17	1,399	7,718	9,117		3	9
Tanana	9/25	22	263	19	1,009	16,082	17,091	4	1	12
Rampart	9/25	8	44	2	196	4,050	4,246	1	3	3
Stevens Village	10/2	10	48	6	503	884	1,387	7	4	2
Fairbanks Fish Camp 4/		8			28	90	118			
Beaver	10/2	5	11	6	138	255	393		5	1
Fort Yukon	10/2	18	203	15	801	833	1,634		3	16
Circle	10/3	3	28	3	317	92	409		2	2
Eagle	10/3	12	26	5	420	779	1,199	7	14	
Dawson 5/		26			500		500			
Pelly Crossing 5/		7			200	100	300			
Carmacks 5/		12			800	200	1,000			
MAIN RIVER TOTALS		557	2,287	652	13,772	168,927	182,174	339	505	95
Shageluk	8/16	10	71	14	7	739	746		23	1
INNOKO RIVER TOTALS		10	71	14	7	739	746		23	1
Huslia	8/23	16	128	22	21	8,791	8,812		22	
Hughes	8/23	9	140	7	155	4,282	4,437		13	
Alatna	8/23	2	22	2		650	650		2	
Allakaket	8/23	13	111	18	174	3,638	3,812		23	
KOYUKUK RIVER TOTALS		40	401	49	350	17,361	17,711		60	
Venetie		5	32	5		608	608		5	1
CHANDALAR RIVER TOTALS		5	32	5		608	608		5	1
Manley	10/5	8	115	6	228	6,580	6,808	8	12	9
Nenana	10/5	13	180	10	686	21,118	21,804	1	4	17
Fairbanks 6/					31	2,826	2,857			9
TANANA RIVER TOTALS		21	295	16	945	30,524	31,469	9	16	35
Old Crow 5/	11/30-12/2	18			23	3,125	3,148			
PORCUPINE RIVER TOTALS		18			23	3,125	3,148			
GRAND TOTAL-YUKON RIVER 7/		651	3,086	736	15,097	221,284	236,381	348	609	132

1/ Data from fishing families only.
2/ Mostly chums but includes small numbers of pink and coho salmon.
3/ Includes catch of 2 kings and 523 other salmon taken by one fishwheel fisherman from Shageluk at fish camp on the main Yukon River.
4/ Fishermen from Fairbanks who obtained permits for the area between the Hess Creek and Dall River.
5/ Data furnished by Environment Canada-Fisheries Service (Whitehorse).
6/ From catch reports turned in by permittees (subsistence fishing permits required for Tanana River drainage upstream of Wood River).
7/ Does not include catches of 368 kings and 6,544 other salmon taken by 22 fishing families from Scammon Bay, a coastal village located outside the Yukon River drainage.

Table 15 . Aerial survey salmon escapement estimates, 1/ Yukon River drainage, 1976.

Stream (drainage)	Date	Survey Rating	Kings	Cohos	Summer Chums	Fall Chums	Pinks
Andreafsky River							
West Fork	7/16-22	fair-good	643	-	118,420	-	16,050
East Fork	7/16-22	good	818	-	105,347	-	150
			1,461	-	223,767	-	16,200
Atchuelinguk (Chulinak) R.	7/22	fair-good	394	-	33,616	-	-
Bonasila River	7/21	poor	2	-	7,690	-	-
Anvik River drainage							
Anvik River Tower Count	6/30-7/28		958	-	237,851	-	519
Robinhood Creek	7/16	good	-	-	2,830	-	-
Yellow R. to tower	7/16	good	-	-	25,200	-	-
Yellow River	7/20	fair	93	-	38,680	-	-
Beaver Cr. to Yellow R.	7/16	poor	-	-	24,475	-	-
Beaver Creek	7/16-9/21	fair-good	1	81	25,700	-	-
Below Beaver Creek	7/21	poor	-	-	51,430	-	-
Boat survey below tower			103	-		-	
			1,155	81	406,166	-	519
Grayling Creek	7/20	fair	-	-	394	-	-
Thompson Creek	7/20	fair	-	-	17,190	-	-
Blackburn Creek	7/17	fair	-	-	4,267	-	-
Bear Creek	7/17	good	8	-	4,267	-	-
Stink Creek	7/17	poor	-	-	1,736	-	-
Rodo River	7/18	good	56	-	38,258	-	-
Nulato River (main stem)	7/18-25	good-excell.	2	-	12,225	-	-
North Fork	7/18-25	good-excell.	469	-	27,465	-	-
South Fork	7/18-25	good-excell.	177	-	9,230	-	-
Subtotal Nulato R.			648		48,920		
Koyukuk River drainage							
Gisasa River	7/24	fair	332	-	21,342	-	-
Kateel River	7/24	poor	4	-	119	-	-
Dakli River	7/24	excell.	4	-	4,468	-	-
Wheeler Creek	7/24	good	5	-	7,564	-	-
			9		12,032		
Hogatza River							
Caribou Creek	7/24	good	-	-	11,388	-	-
Clear Creek	7/24	good	-	-	9,356	-	-
					20,744		
Henshaw Creek	8/4	good	47	-	312	-	-
South Fork	8/4	good	101	-	3,333	-	-
Jim River	8/4	good	88	-	1,484	-	-
			189		4,817		
Total Koyukuk R. drainage			589	-	59,366	-	-
Melozitna R. drainage	7/25	fair	13	-	2,650	-	-
Tozitna River	7/28	poor	42	-	725	-	-
Tanana River drainage							
Kantishna River drainage			-	-	-	-	-
Toklat River	10/5	fair	-	-	-	30,490	-
Shushana R.	10/21	good	-	1	-	5,434	-
Geiger Cr.	10/13	poor	-	25	-	1,300	-
Subtotal				26		37,224	
Nenana River	10/18	good	-	118	-	-	-
Seventeen Mile Slough	10/18	good	-	281	-	-	-
Clear Creek	10/21	fair	-	13	-	-	-
Subtotal				412			
Chatanika River	8/6		18	-	169	-	-
Chena River	8/6	excell.	531	-	685	-	-
Salcha River	8/6-16	fair	1,691	-	6,474	-	-
Goodpaster River	7/29	excell.	65	-	78	-	-
Upper Tanana R. drainage							
Benchmark #735 Slough	11/4	poor-fair	-	-	-	336	-
Five Mile Clearwater	10/28	very poor	-	3	-	-	-
Richardson Clearwater	10/19-11/4	poor	-	80	-	228	-
Delta River			-	-	-	5,526	-
Blue Creek	10/28	poor	-	5	-	-	-
Tanana River							
Little Delta R. to Delta Creek			1	-	-	4	-
Bridge to Blue Creek	10/19	fair	-	-	-	4,979	-
Bluff Cabin outlet to Clwtr. Lake Outlet	10/19	fair-poor	-	-	-	225	-
Clwtr. Lake Outlet to Delta clearwater R.	10/28	poor	-	-	-	180	-
Subtotal Tanana River			1	88	-	11,478	-
Bluff Cabin Slough	10/19	good	-	-	-	3,197	-
Clearwater Lake & Outlet 4/	10/21-22		-	460	-	-	-
Delta Clearwater River 4/	10/21-22		-	1,920	-	-	-

Table 15. (Continued) Aerial survey salmon escapement estimates, 1/ Yukon River drainage, 1976.

Stream (drainage)	Date	Survey Rating	Kings	Cohos	Summer Chums	Fall Chums	Pinks
Delta Clearwater Slough	10/19		-	-	-	1,552	-
Subtotal Upper Tanana R. Drainage			1	2,468	-	16,227	-
Subtotal Tanana River Drainage			2,306	2,906	7,406	53,451	
Chandalar River	9/25	very poor	-	-	-	58	-
Porcupine River drainage							
Sheenjek River	9/25	fair	-	-	-	12,023	-
Black R.-Salmon Fork	10/6	poor-fair	-	-	-	7	-
Salmon Trout R.	10/20	fair	-	-	-	20	-
Fishing Branch R.	10/3	fair	-	-	-	13,450	-
Subtotal						25,500	
Yukon Territory Streams							
Tatchun Creek 2/ 3/			52	-	-	-	-
Big Salmon River	8/24	poor	86	-	-	-	-
Nisutlin River	8/24	fair	152	-	-	-	-
Takhini River	8/24	poor	6	-	-	-	-
Yukon River (boat) 3/	9/15		15	-	-	-	-
Kluane River 3/	10/24		-	-	-	20	-
Duke River 3/	10/25		-	-	-	1	-
Whitehorse Fishway Count 3/			120	-	-	-	-
Subtotal			431	-	-	21	-
TOTAL YUKON RIVER DRAINAGE			7,105	2,987	856,418	116,254	16,719

1/ Only peak estimates listed; salmon carcasses included.

2/ Foot survey.

3/ Data supplied by Environment Canada - Fisheries Service, Whitehorse.

4/ Boat survey by Division of Sport Fish.

Appendix Table [illegible] Yukon River drainage commercial and subsistence salmon catches, 1903 - 1976

Year	Commercial Catch: Alaska King	Alaska Coho	Alaska Chum	Alaska Total	Yukon Territory King	Yukon Territory Chum	Yukon Territory Total	Total King	Total Coho	Total Chum	Total Total
1903							4,666[8/]				4,666
1904											
1905											
1906											
1907											
1908							7,000				7,000
1909							9,238				9,238
1910											
1911											
1912											
1913							12,133				12,133
1914							12,573				12,573
1915							10,466				10,466
1916							9,566				9,566
1917											
1918	12,239	26,144	73,921	112,304			7,066	12,239	26,144	73,921	119,370
1919	104,822	37,070	327,898	469,790			1,800	104,822	37,070	327,898	471,590
1920	58,467		155,655	214,122			12,000	58,467		155,655	266,122
1921	69,646	1,000	111,098	181,744			10,840	69,646	1,000	111,098	192,584
1922	16,825			16,825			2,420	16,825			19,245
1923	13,393			13,393			1,833	13,393			15,226
1924	27,375			27,375			4,560	27,375			31,935
1925							3,900				3,900
1926							4,373				4,373
1927							5,366				5,366
1928							5,733				5,733
1929							5,226				5,226
1930							3,660				3,660
1931							3,473				3,473
1932	4,739			4,739			4,200	4,739			8,939
1933	8,829			8,829			3,333	8,829			12,162
1934	25,365			25,365			2,000	25,365			27,365
1935	7,265			7,265			3,466	7,265			10,731
1936	20,963			20,963			3,400	20,963			24,363
1937	6,226			6,226			3,746	6,226			9,972
1938	13,727			13,727			860	13,727			14,587
1939	9,987			9,987			720	9,987			10,707
1940	18,053			18,053			1,153	18,053			19,206
1941	29,905			29,905			2,806	29,905			32,711
1942	22,487			22,487			713	22,487			23,200
1943	27,650			27,650			609	27,650			28,259
1944	14,232			14,232			986	14,232			15,218
1945	19,727			19,727			1,333	19,727			21,060
1946	22,782			22,782			353	22,782			23,135
1947	54,026			54,026			120	54,026			54,146
1948	33,842			33,842				33,842			33,842
1949	36,379			36,379				36,379			36,379
1950	41,808			41,808				41,808			41,808
1951[3/]	56,278			56,278				56,278			56,278
1952	38,637	10,868		49,505				38,637	10,868		49,505
1953	58,859		5,977	64,836				58,859		5,977	64,836
1954	64,545		14,375[4/]	78,920				64,545		14,375	78,920
1955	55,925			55,925				55,925			55,925
1956	62,208	1	10,742[5/]	72,951				62,208	1	10,742	72,951
1957	63,623			63,623				63,623			63,623
1958	63,375			63,375	3,000	1,500	4,500[7/]	66,735		1,500	68,235
1959	78,370			78,370	2,477	1,098	3,575	80,847		1,098	81,945
1960[6/]	67,597			67,597	4,085	5,493	9,578	71,682		5,493	77,175
1961	120,260	2,855	42,577[5/]	165,692	3,446	3,278	6,724	123,706	2,855	45,855	172,416
1962	94,734	22,926	53,160[5/]	170,820	4,037	936	4,973	98,771	22,926	54,096	175,793
1963	116,994	5,572[5/]		122,566	2,283	2,192	4,475	119,277	5,572	2,192	127,041
1964	93,587	2,446	8,347	104,380	3,208	1,929	5,137	96,795	2,446	10,276	109,517
1965	118,098	350	23,317[5/]	141,765	2,265	2,071	4,336	120,363	350	25,388	146,101
1966	93,215	19,254	71,045[5/]	183,614	1,942	3,157	5,099	95,257	19,254	74,202	188,713
1967	129,706	11,047	49,453[5/]	190,205	2,187	3,343	5,530	131,893	11,047	52,796	195,736
1968	106,526	13,303	67,397[5/]	187,224	2,212	435	2,647	108,738	13,303	67,830	189,871
1969	90,223	14,981	191,860[5/]	297,064	1,640	2,279	3,919	91,863	14,981	194,139	300,983
1970	80,269	12,245	356,724[5/]	439,238	2,611	2,479	5,090	82,880	12,245	349203	444,328
1971	110,507	12,203	289,694[5/]	412,394	3,178	1,761	4,939	113,685	12,203	291,445	417,333
1972	92,840	22,233	287,844[5/]	402,917	1,769	2,532	4,301	94,609	22,233	290,376	407,218
1973	75,353	36,641	518,035[5/]	640,039	1,871	2,228	4,099	77,224	36,641	520,263	634,128
1974	97,919	16,240	879,243	993,402	2,214	3,010	5,224	100,133	16,240	882,253	998,626
1975	63,740	2,346	904,859	1,050,945	3,000	2,500	5,500	66,740	2,346	987,359	1056,445
1976	88,671	5,197	761,509	855,377	3,500	1,000	4,500	92,171	5,197	762,509	859,877

Year	Subsistence Catch: Alaska King	Alaska Other Salmon[2/]	Alaska Total	Yukon Territory King	Yukon Territory Other Salmon	Yukon Territory Total	Total King	Total Other Salmon	Total Total
1903									
1904									
1905									
1906									
1907									
1908									
1909									
1910									
1911									
1912									
1913									
1914									
1915									
1916									
1917									
1918		1,400,000	1,400,000					1,400,000	1,400,000
1919		269,000	269,000					269,000	269,000
1920	20,000	860,000	880,000				20,000	860,000	880,000
1921									
1922	15,000	330,000	345,000				15,000	330,000	345,000
1923	17,500	435,000	452,500				17,500	435,000	452,500
1924		1,130,000	1,130,000					1,130,000	1,130,000
1925	15,000	259,000	274,000				15,000	259,000	274,000
1926	20,500	555,000	575,500				20,500	555,000	575,500
1927		520,000	520,000					520,000	520,000
1928		670,000	670,000					670,000	670,000
1929		537,000	537,000					537,000	537,000
1930		633,000	633,000					633,000	633,000
1931	26,693	565,000	591,693				26,693	565,000	591,693
1932	23,160	1,092,000	1,115,160				23,160	1,092,000	1,115,160
1933	19,950	603,000	622,950				19,950	603,000	622,950
1934		474,000	474,000					474,000	474,000
1935	20,400	537,000	557,400				20,400	537,000	557,400
1936	22,750	560,000	582,750				22,750	560,000	582,750
1937	5,528	346,000	351,528				5,528	346,000	351,528
1938	19,244	340,450	359,694				19,244	340,450	359,694
1939	18,050	327,650	345,700				18,050	327,650	345,700
1940	14,400	1,029,999	1,043,400				14,400	1,029,000	1,043,400
1941	17,703	438,000	455,703				17,703	438,000	455,703
1942		197,000	197,000					197,000	197,000
1943		200,000	200,000					200,000	200,000
1944									
1945									
1946									
1947									
1948									
1949									
1950									
1951[3/]									
1952									
1953		380,000	380,000					380,000	380,000
1954									
1955									
1956									
1957									
1958	11,890	337,500	349,390	8,000		8,000	19,890	337,500	357,390
1959				5,957	2,000[7/]	7,957	5,957	2,000	7,957
1960[6/]				6,965	8,429	15,394	6,965	8,429	15,394
1961	21,408	407,089	428,577	10,376	5,800	16,176	31,864	412,889	444,753
1962	11,110	349,141	360,251	10,500	9,300	19,800	21,610	358,441	380,051
1963	24,862	396,125	420,987	8,108	25,500	33,608	32,970	421,625	454,595
1964	16,231	481,440	497,671	6,646	4,181	10,827	22,877	485,621	508,498
1965	16,608	449,131	465,739	3,115	9,800	12,915	19,723	458,931	478,654
1966	11,572	206,011	217,583	2,700	8,600	11,300	14,272	214,611	228,883
1967	16,448	274,977	291,425	3,213	13,600	16,813	19,661	288,577	308,238
1968	12,166	178,507	198,613	2,900	11,100	14,000	15,066	189,607	204,613
1969	14,000	208,254	222,254	1,000	5,500	6,500	15,000	213,754	228,754
1970	13,874	222,005	235,879	2,100	1,200	3,300	15,974	223,205	239,179
1971	22,386	200,368	222,754	2,800	14,000	16,800	25,186	214,368	239,554
1972	17,931	133,102	151,033	1,657	8,000	9,657	19,588	141,102	160,690
1973	20,099	179,238	199,337	2,116	6,938	9,054	22,215	186,176	208,391
1974	17,186	282,466	299,652	3,379	8,636	12,015	20,565	291,102	311,667
1975	14,709	260,824	275,533	3,000	18,100	21,100	17,709	278,924	296,633
1976	13,597	217,859	231,456	1,500	3,425	4,925	15,097	221,284	236,381

Year	Total Utilization: Alaska King	Alaska Other Salmon	Alaska Total	Yukon Territory King	Yukon Territory Other Salmon	Yukon Territory Total	Total King	Total Other Salmon[2/]	Total Total
1903						4,666			4,666
1904									
1905									
1906									
1907									
1908						7,000			7,000
1909						9,238			9,238
1910									
1911									
1912									
1913						12,133			12,133
1914						12,573			12,573
1915						10,466			10,466
1916						9,566			9,566
1917									
1918	12,239	1,500,065	1,512,304			7,066	12,239	1,500,065	1,519,370
1919	104,822	738,790				1,800	104,822	633,968	740,590
1920	78,467	1,015,655	1,094,122			12,000	78,467	1,015,655	1,106,122
1921	69,646	112,098	181,244			12,840	69,646	112,098	192,584
1922	31,825	330,000	361,825			2,420	31,825	330,000	364,245
1923	30,893	435,000	465,893			1,833	30,893	435,000	467,726
1924	27,375	1,130,000	1,157,375			4,560	27,375	1,130,000	1,161,935
1925	15,000	259,000	274,000			3,900	15,000	259,000	277,900
1926	20,500	555,000	575,500			4,373	20,500	555,000	579,873
1927		520,000	520,000			5,366		520,000	525,366
1928		670,000	670,000			5,733		670,000	675,733
1929		537,000	537,000			5,226		537,000	542,226
1930		633,000	633,000			3,660		633,000	636,660
1931	26,693	565,000	591,693			3,473	26,693	565,000	595,166
1932	27,899	1,092,000	1,119,899			4,200	27,899	1,092,000	1,124,099
1933	28,779	603,000	631,779			3,333	28,779	603,000	635,112
1934	23,365	474,000	497,365			2,000	23,365	474,000	499,365
1935	27,665	537,000	564,665			3,466	27,665	537,000	568,131
1936	43,713	560,000	603,713			3,400	43,713	560,000	607,113
1937	12,154	346,000	358,154			3,746	12,154	346,000	361,900
1938	32,971	340,450	373,421			860	32,971	340,450	374,281
1939	28,037	327,650	355,687			720	28,037	327,650	356,407
1940	32,453	1,029,999	1,061,453			1,153	32,453	1,029,000	1,062,606
1941	47,608	438,000	485,608			2,806	47,608	438,000	488,414
1942	22,487	197,000	219,487			713	22,487	197,000	220,200
1943	27,650	200,000	227,650			609	27,650	200,000	228,259
1944	14,232		14,232			986	14,232		15,218
1945	19,727		19,727			1,333	19,727		21,060
1946	22,782		22,782			353	22,782		23,135
1947	54,026		54,026			120	54,026		54,146
1948	33,842		33,842				33,842		33,842
1949	36,379		36,379				36,379		36,379
1950	41,808		41,808				41,808		41,808
1951[3/]	56,278		56,278				56,278		56,278
1952	38,637	10,868	49,505				38,637	10,868	49,505
1953	58,859	385,977	444,836				58,859	385,977	444,836
1954	64,545	14,375	78,920				64,545	14,375	78,920
1955	55,925		55,925				55,925		55,925
1956	62,208	10,743	72,951				62,208	10,743	72,951
1957	63,623		63,623				63,623		63,623
1958	75,625	337,500	413,125	11,000	1,500	12,500	86,625	339,000	425,625
1959	78,370		78,370	8,434	3,098	11,532	86,804	3,098	89,902
1960[6/]	67,597		67,597	11,050	13,922	24,972	78,647	13,922	92,569
1961	141,748	452,521	594,269	13,822	9,078	22,900	155,570	461,599	617,169
1962	105,844	425,227	531,071	14,537	10,236	24,773	120,381	435,463	555,844
1963	141,856	401,697	543,553	10,931	27,692	38,083	152,247	429,389	581,636
1964	109,818	492,233	602,051	9,854	6,110	15,964	119,672	498,343	618,015
1965	134,706	472,798	607,504	5,380	11,871	17,251	140,086	484,669	624,755
1966	104,887	296,310	401,197	4,642	11,757	16,399	109,529	308,067	417,596
1967	146,154	335,477	481,631	5,400	16,943	22,343	151,554	352,420	503,974
1968	118,632	259,205	377,837	5,112	11,535	16,647	123,744	270,740	394,484
1969	104,223	415,095	519,318	2,640	7,779	10,419	106,863	422,874	529,737
1970	94,143	580,974	675,117	4,711	3,679	8,390	98,854	584,653	683,507
1971	132,893	502,255	635,148	5,978	15,761	21,739	138,871	518,016	656,887
1972	110,771	443,179	553,950	3,426	10,532	13,958	114,197	453,711	567,908
1973	95,452	733,914	829,366	3,987	9,166	13,153	99,439	743,080	842,519
1974	115,105	1,177,949	1,293,054	5,593	11,646	17,239	120,698	1,189,595	1,310,293
1975	78,449	1,248,029	1,326,478	6,000	20,600	26,600	84,449	1,268,629	1,353,078
1976	102,268	984,565	1,086,833	5,000	4,425	9,425	107,268	988,990	1,096,258

1/ Does not include subsistence catches from the village of Stebbins, a coast village located northeast of the Yukon river mouth
2/ Mostly chum salmon, but includes small numbers of pink and coho salmon.
3/ Data source for Alaska commercial catches: USFWS Stat. Digest No. 50 for the years 1951-59 unless otherwise indicated.
4/ Data source: Alaska Fisheries and Fur-Seal Industry Report for 1954.
5/ Includes small numbers of pink or red salmon (less than 300)
6/ Data source for Alaska commercial catches: ADF&G Stat. Leaflets for years since 1960.
7/ Data source: Environment Canada, Fisheries Service (Whitehorse).
8/ Catch data for years 1903-1947 obtained by dividing total poundage of mixed salmon by an arbitrary weight of 15 pounds. Species breakdown is unknown. Figures are considered conservative (data collected by Royal Canadian Mounted Police).

Appendix Table 2. Commercial salmon catches by species and subdistricts, Yukon district, 1960-1976.

KING SALMON

Year	Lower Yukon Area 334-10	334-20	334-30	Subtotals	Upper Yukon Area 334-40	334-50	334-60	Subtotals	Totals
1960	50,713	15,994	-	66,707	-	-	-	884	67,591
1961	84,463	29,028	4,965	118,456	-	-	-	1,804	120,260
1962	67,099	22,224	4,687	94,010	-	-	-	724	94,734
1963	85,004	24,211	6,976	116,191	-	-	-	803	116,994
1964	67,555	20,246	4,705	92,506	-	-	-	1,081	93,587
1965	89,268	23,763	3,204	116,235	-	-	-	1,863	118,098
1966	70,788	16,927	3,612	91,327	-	-	-	1,988	93,315
1967	104,350	20,289	3,618	128,257	-	-	-	1,449	129,706
1968	79,465	21,392	4,543	105,400	-	-	-	1,126	106,526
1969	70,862	14,799	3,577	89,238	-	-	-	985	90,223
1970	57,681	17,210	3,712	78,603	-	-	-	1,666	80,269
1971	86,042	19,226	3,490	108,758	-	-	-	1,749	110,507
1972	70,052	17,855	3,841	91,748	-	-	-	1,092	92,840
1973	56,981	13,859	3,204	74,044	-	-	-	1,309	75,353
1974	71,680	17,947	3,471	93,098	685	2,663	1,473	4,821	97,919
1975	44,585	11,187	4,207	59,979	389	2,872	500	3,761	63,740
1976	62,632	17,413	4,239	84,284	385	2,900	1,102	4,387	88,671

COHO SALMON

Year	Lower Yukon Area 334-10	334-20	334-30	Subtotals	Upper Yukon Area 334-40	334-50	334-60	Subtotals	Totals
1960	-	-	-	-	-	-	-	-	-
1961	2,855	-	-	2,855	-	-	-	-	2,855
1962	22,926	-	-	22,926	-	-	-	-	22,926
1963	5,572 1/	-	-	5,572	-	-	-	-	5,572
1964	2,446	-	-	2,446	-	-	-	-	2,446
1965	350	-	-	350	-	-	-	-	350
1966	19,254	-	-	19,254	-	-	-	-	19,254
1967	9,925	-	1,122	11,047	-	-	-	-	11,047
1968	13,153	-	150	13,303	-	-	-	-	13,303
1969	14,041	-	845	14,886	-	-	-	95	14,981
1970	12,245	-	-	12,245	-	-	-	-	12,245
1971	12,165	-	-	12,165	-	-	-	38	12,203
1972	21,705	506	-	22,211	-	-	-	22	22,233
1973	34,860	1,781	-	36,641	-	-	-	-	36,641
1974	13,728	176	-	13,904	-	909	1,427	2,336	16,240
1975	2,288	-	-	2,288	-	5	53	58	2,346
1976	4,084	17	-	4,101	-	-	1,096	1,096	5,197

Appendix Table 2. (Continued) Commercial salmon catches by species and subdistricts, Yukon district, 1960-1976

CHUM SALMON

Year	Lower Yukon Area 334-10	334-20	334-30	Subtotals	Upper Yukon Area 334-40	334-50	334-60	Subtotals	Totals
1960	-	-	-	-	-	-	-	-	-
1961	42,577 1/	-	-	42,577	-	-	-	-	42,577
1962	53,160 1/	-	-	53,160	-	-	-	-	53,160
1963	-	-	-	-	-	-	-	-	-
1964	8,347	-	-	8,347	-	-	-	-	8,347
1965	22,936	-	-	22,936	-	-	-	381	23,317
1966	69,836	-	1,209	71,045	-	-	-	-	71,045
1967	46,148	1,425	1,880	49,453	-	-	-	-	49,453
1968	62,852 1/	1,407	3,136	67,395	-	-	-	-	67,395
1969	184,411	5,024	1,722	191,157	-	-	-	703	191,860
1970	320,138	22,394	3,285	346,357	-	-	-	907	346,724
1971	282,461	6,112	50	288,623	-	-	-	1,061	289,684
1972	250,945	33,805	1,840	286,590	-	-	-	1,254	287,844
1973	395,431 1/	109,138 1/	463	505,032	-	-	-	13,003	518,035
1974	641,663	127,644	2,273	771,580	37,079	30,382	40,202	107,663	879,243
1975	576,607	150,259	5,590	732,456	178,720	40,209	33,474	252,403	984,859
1976	382,216	120,959	14,504	517,679	213,019	6,247	24,564	243,830	761,509

TOTAL SALMON

Year	Lower Yukon Area 334-10	334-20	334-30	Subtotals	Upper Yukon Area 334-40	334-50	334-60	Subtotals	Totals
1960	50,713	15,994	-	66,707	-	-	-	884	67,591
1961	129,895	29,028	4,965	163,888	-	-	-	1,804	165,692
1962	143,185	22,224	4,687	170,096	-	-	-	724	170,820
1963	90,576	24,211	6,976	121,763	-	-	-	803	122,566
1964	78,348	20,246	4,705	103,299	-	-	-	1,081	104,380
1965	112,554	23,763	3,204	139,521	-	-	-	2,244	141,765
1966	159,878	16,927	4,821	181,626	-	-	-	1,988	183,614
1967	160,423	21,714	6,620	188,757	-	-	-	1,449	190,206
1968	155,470	22,799	7,829	186,098	-	-	-	1,126	187,224
1969	269,314	19,823	6,144	295,281	-	-	-	1,783	297,064
1970	390,064	39,604	6,997	436,665	-	-	-	2,573	439,238
1971	380,668	25,338	3,540	409,546	-	-	-	2,848	412,394
1972	342,702	52,166	5,681	400,549	-	-	-	2,368	402,917
1973	487,272 1/	124,778 1/	3,667	615,717	-	-	-	14,312	630,029
1974	727,071	145,767	5,774	875,034	37,764	33,954	43,102	116,061	993,402
1975	623,480	161,446	9,797	794,723	179,109	43,086	34,027	256,222	1,050,945
1976	448,932	138,389	18,743	606,064	213,404	9,147	26,762	249,313	855,377

1/ Includes small numbers of pink or red salmon.

Appendix Table 3 Yukon district commercial, vessel and gill net licenses issued and numbers of fishwheels operated by subdistrict, 1960-1976

COMMERCIAL

Year	Lower Yukon Area 1/ 334-10	334-20	334-30	Subtotals	Upper Yukon Area 334-40	334-50	334-60	Subtotals	Totals
1960	193	96		289				18	307
1961	238	130	26	394				18	412
1962	321	148	46	515				21	536
1963	285	131	30	446				6	452
1964	319	119	31	469				20	489
1965	327	143	34	504				38	542
1966	393	143	21	557				21	578
1967									607
1968				563				22	585
1969	406	131	32	569				30	599
1970	393	164	33	590				38	628
1971	459	162	37	658				57	715
1972	473	193	43	709				56	765
1973	515	206	50	771				101	872
1974	460	232	55	747	39	45	69	153	900
1975	553	243	51	847	159	100	84	343	1,190
1976	599	299	56	954	120	84	71	275	1,229

FISHING VESSEL

Year	Lower Yukon Area 1/ 334-10	334-20	334-30	Subtotals	Upper Yukon Area 334-40	334-50	334-60	Subtotals	Totals
1960	186	33		219				10	229
1961	210	112	18	340				10	350
1962	320	127	31	478				12	490
1963	272	113	22	407				6	413
1964	314	101	24	439				13	452
1965	322	111	26	459				28	487
1966	365	113	18	496				21	517
1967	331	126	22	529				20	549
1968	340	124	26	490				22	512
1969	361	93	24	478				25	503
1970	349	143	27	519				30	549
1971	416	145	29	590				44	634
1972	426	153	35	614				47	661
1973	458	167	38	663				77	740
1974	430	189	42	661	30	34	46	110	771
1975	511	197	36	744	116	77	51	244	988
1976	513	203	36	752	92	70	48	210	962

SET GILL NETS

Year	Lower Yukon Area 1/ 334-10	334-20	334-30	Subtotals	Upper Yukon Area 334-40	334-50	334-60	Subtotals	Totals
1960	183	59		242				2	244
1961	217	101	19	337				1	338
1962	303	117	14	434				4	438
1963	259	101	21	381				4	385
1964	277	100	28	405				12	417
1965	292	98	23	413				13	426
1966	345	101	17	463				12	475
1967	333	72	21	426				5	431
1968	314	62	26	402				18	420
1969	346	62	15	423				16	439
1970	345	105	24	474				27	501
1971	399	115	30	544				27	571
1972	439	130	36	605				30	635
1973	450	159	30	639				41	680
1974	423	158	36	617	13	27	27	67	684
1975	506	161	33	700	54	65	21	140	340
1976	480	153	28	661	31	50	19	100	761

DRIFT GILL NETS

Year	Lower Yukon Area 1/ 334-10	334-20	334-30	Subtotals	Upper Yukon Area 334-40	334-50	334-60	Subtotals	Totals
1960	2	44		46					46
1961	17	86		103					103
1962	55	98	24	177					177
1963	24	85	5	114					114
1964	65	89	5	159					159
1965	62	98	4	164					164
1966	97	88	4	189					189
1967	135	109	5	249					249
1968	111	104	8	223					223
1969	142	100	10	252					252
1970	110	127	16	253				1	254
1971	140	134	19	293				2	295
1972	155	142	17	314				5	319
1973	165	151	18	334				1	335
1974	109	168	21	298					298
1975	117	181	13	311					311
1976	166	193	22	381					381

FISHWHEELS 2/

Year	Lower Yukon Area 1/ 334-10	334-20	334-30	Subtotals	Upper Yukon Area 334-40	334-50	334-60	Subtotals	Totals
1960									
1961									
1962								13	13
1963								3	3
1964								7	7
1965								29	29
1966								17	17
1967									
1968								18	18
1969								15	15
1970								17	17
1971								26	26
1972								26	26
1973			4 3/	4				57	61
1974					24	23	38	85	85
1975	1	4		5	98	32	39	169	174
1976					78	47	44	169	169

1/ Distribution of licenses by subdistrict represents that at the beginning of the fishing season (June 1); some fishermen transfer to other subdistricts during the season.

2/ Fishwheels are legal types of gear but license fees are not required. Number of fishwheels operated each year obtained from commercial and fishing vessel license application forms where fishermen indicated type of gear to be operated.

3/ Fishwheels were operated in the vicinity of Kaltag and Nulato. Beginning in 1974, these villages are in subdistrict 334-40.

Appendix Table 4 . Actual number of commercial salmon fishing vessels by subdistrict, Yukon district, 1971-1976.1/

KING SALMON SEASON

Year	Lower Yukon Area 334-10	334-20	334-30	Subtotals	Upper Yukon Area 334-40	334-50	334-60	Subtotals	Totals
1971	405	154	33	592	---	---	---	---	---
1972	426	153	35	614	---	---	---	---	---
1973	438	167	38	643	---	---	---	---	---
1974	396	154	42	592	27	31	20	78	670
1975	441	149	37	627	93	52	36	181	808
1976	453	189	42	684	2/	2/	2/		

FALL SEASON

Year	Lower Yukon Area 334-10	334-20	334-30	Subtotals	Upper Yukon Area 334-40	334-50	334-60	Subtotals	Totals
1971	352	---	---	352	---	---	---	---	---
1972	353	75	3	431	---	---	---	---	---
1973	445	183	---	628	---	---	---	---	---
1974	322	121	6	449	17	23	22	62	511
1975	428	185	12	625	44	33	33	110	735
1976	422	194	28	644	2/	2/	2/		

COMBINED SEASONS

Year	Lower Yukon Area 334-10	334-20	334-30	Subtotals	Upper Yukon Area 334-40	334-50	334-60	Subtotals	Totals
1971	473	154	33	660	---	---	---	27	687
1972	476	153	35	664	---	---	---	2/	664
1973	529	205	38	772	---	---	---	47	819
1974	485	190	42	717	28	43	27	98	815
1975	491	197	39	727	95	57	46	198	925
1976	482	220	44	746	96	62	56	214	960

1/ Actual number of fishing vessels refer to those boats which made at least one delivery. Data presented shows the number of vessels that operated in each subdistrict. Some individual fishing vessels in the lower Yukon area may have operated in more than one subdistrict during the year.

2/ Information not available.

Appendix Table 5. Comparative commercial king salmon catch data, Yukon district, 1960-1976 1/

	Year	334-10	334-20	Sub-total (10+20)	334-30
Commercial Catch	1960	50,713	15,994	66,707	
	1961	84,406	29,028	113,434	4,965
	1962	67,072	22,224	89,296	4,687
	1963	85,004	24,211	109,215	6,976
	1964	67,555	20,246	87,801	4,705
	1965	89,268	23,763	113,031	3,204
	1966	70,783	16,927	87,710	3,612
	1967	104,335	20,289	124,624	3,618
	1968	79,465	21,392	100,857	4,543
	1969	70,588	14,799	85,387	3,577
	1970	57,502	17,210	74,712	3,712
	1971	84,397	19,226	103,623	3,490
	1972	68,059	17,317	85,376	3,841
	1973	52,790	12,479	65,269	3,204
	1974	69,457	17,464	86,921	3,413
	1975	41,550	9,064	50,614	4,177
	1976	56,392	15,296	71,688	4,070

	Year	334-10	334-20	Sub-total (10+20)	334-30
Boat Hours (Catch per boat hour)	1960	40,848 (1.24)	34,914 (0.46)	75,762 (0.88)	
	1961	79,224 (1.07)	29,118 (1.00)	108,342 (1.05)	2,808 (1.77)
	1962	84,792 (0.79)	38,118 (0.58)	122,910 (0.73)	2,520 (1.86)
	1963	72,288 (1.18)	27,672 (0.87)	99,960 (1.09)	5,616 (1.24)
	1964	56,736 (1.19)	22,398 (0.91)	79,134 (1.11)	4,596 (1.02)
	1965	78,096 (1.14)	31,008 (0.77)	109,104 (1.04)	2,286 (1.40)
	1966	69,894 (1.01)	22,380 (0.76)	92,274 (0.95)	1,782 (1.23) 2/
	1967	102,456 (1.02)	37,488 (0.54)	139,944 (0.89)	4,050 (0.89)
	1968	92,450 (0.86)	32,280 (0.66)	124,730 (0.81)	3,745 (1.21)
	1969	84,864 (0.83)	27,828 (0.53)	112,692 (0.76)	3,577 (0.72)
	1970	61,260 (0.94)	20,460 (0.84)	81,720 (0.91)	3,566 (1.04)
	1971	73,272 (1.15)	19,956 (0.96)	93,228 (1.11)	4,790 (0.73)
	1972	79,236 (0.86)	19,872 (0.87)	99,108 (0.86)	5,916 (0.65)
	1973	75,036 (0.70)	23,496 (0.53)	98,532 (0.66)	7,282 (0.44)
	1974	86,256 (0.80)	29,808 (0.60)	116,064 (0.75)	7,032 (0.49)
	1975	49,944 (0.83)	8,376 (1.08)	58,320 (0.87)	3,552 (1.18)
	1976	64,572 (0.87)	23,484 (0.65)	88,150 (0.81)	4,392 (0.92)

1/ 334-10 and 334-20 data are only for the king salmon season (June & early July).
2/ Catch per vessel hour does not include 1,421 king salmon captured by an unknown number of fishermen.

Appendix Table 6 . Comparative King Salmon commercial catch data by date, Kingsalmon season, subdistrict 334-10, Yukon District, 1961-1976.

Cumulative catch 1/ (Cumulative catch /boat hour) 2/

Date	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
6/1																
6/2							4.4(0.41)									
6/3																
6/4									3.8(0.42)							
6/5			0.7(0.26)					0.1(0.05)								
6/6										0.01(0.03)				3.5(0.46)		
6/7							21.3(0.85)		8.1(0.34)				0.3(0.15)			
6/8	3.6(0.32)		4.7(0.45)					1.4(0.10)								
6/9					0.6(0.17)									11.0(0.60)		
6/10							37.9(0.98)			0.5(0.16)			2.8(0.25)			
6/11						0.6(0.16)			26.8(0.75)			0.04(0.08)				
6/12			16.9(0.87)		4.1(0.31)			11.3(0.62)			0.03(0.15)				0.2(0.09)	
6/13										3.0(0.32)				25.7(0.82)		
6/14		8.0(0.57)					62.7(1.18)		41.7(0.79)				9.4(0.44)			
6/15	46.6(1.61)		34.3(1.14)			4.8(0.38)		25.7(0.76)				1.04(0.17)				
6/16					19.3(0.85)						1.2(0.29)			36.8(0.84)	0.6(0.11)	
6/17				0.2(0.11)			66.5(0.99)			8.4(0.48)			21.5(0.59)			0.1(0.06)
6/18						23.1(0.86)			47.9(0.75)			4.5(0.24)				
6/19			50.3(1.27)		42.7(1.22)			31.8(0.69)			5.1(0.30)				1.7(0.17)	
6/20				9.5(0.88)					58.3(0.82)	32.7(1.07)				55.6(0.99)		3.3(0.27)
6/21		27.5(0.76)					83.4(1.02)						30.6(0.65)			
6/22	66.6(1.42)		56.8(1.13)			40.9(1.00)		56.7(0.90)				21.5(0.68)			7.4(0.39)	
6/23					69.1(1.47)						18.2(0.61)			58.5(0.96)		
6/24				37.0(1.80)			98.0(1.02)		66.3(0.85)	39.3(0.97)			42.6(0.68)			12.9(0.49)
6/25						54.4(1.06)						37.8(0.77)				
6/26			72.0(1.23)		77.2(1.32)			70.3(0.94)		50.2(1.07)	40.7(0.88)				24.5(0.75)	
6/27				48.5(1.54)			104.3(1.02)							65.7(0.90)		28.3(0.69)
6/28		62.3(0.95)				66.7(1.08)			70.6(0.83)				52.8(0.70)		34.3(0.83)	
6/29	79.0(1.23)		83.1(1.22)		81.0(1.18)			77.9(0.90)				53.2(0.86)				
6/30											75.3(1.29)			69.5(0.80)		
7/1				55.3(1.38)						55.8(0.99)						42.1(0.76)
7/2						70.8(1.01)						68.1(0.86)			41.6(0.83)	
7/3			85.0(1.18)		89.3(1.14)			79.5(0.86)		57.5(0.94)	84.4(1.15)					56.4(0.87)
7/4				65.3(1.32)												
7/5		67.1(0.79)														
7/6	84.4(1.07)															
7/7																
7/8				67.6(1.19)												

1/ Cumulative catch in thousands of fish by period for the King salmon season (June & early July).

2/ Boat hours computed by multiplying the number of hours in the period by number of boats making at least one delivery during the period; however for the years 1961-1966 the number of boats in the period was obtained by using the greatest number of boats making at least one delivery during any day of the period.

Appendix Table 7. King salmon catches by statistical areas, subdistrict 334-10 of the Yukon district 1965-1976 1/

Statistical Area	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
334-11 (Black River)	2,266	2,495	2,110	4,047	1,405	4,992	3,038	2,730	7,193	2,973	7,109	7,569
12 (South Mouth)	18,140	20,038	25,811	27,859	21,894	23,367	25,105	11,638	28,166	28,372	13,746	25,925
13 (Sunshine Bay)	8,137	5,460	6,203	7,997	9,635	5,258	7,135	3,435	4,302	6,863	8,167	6,574
14 (Kwiguk)	6,836	4,143	7,730	3,202	5,594	5,351	10,342	9,073	3,468	3,964	259	782
15 (Middle Mouth)	23,729	10,858	27,202	6,700	12,875	6,079	16,853	18,375	756	12,801	1,406	4,521
16 (North Mouth)	4,458	3,009	4,729	919	3,833	849	3,924	5,276	40	1,930	506	1,348
17 (Head of Passes	16,114	12,898	18,583	17,378	9,930	4,890	12,037	13,059	6,683	6,674	6,760	5,086
18 (Fish Village)	9,588	11,882	11,967	11,363	5,422	6,716	5,963	4,473	2,182	5,880	3,597	4,587
334-10 Total	89,268	70,783	104,335	79,465	70,588	57,502	84,397	68,059	52,790	69,457	41,550	56,392

1/ Catch data only for king salmon season (June and early July).

Appendix Table 8. Comparative commercial summer chum salmon catch data, subdistricts 334-10 and 334-20, Yukon district, 1967-1976.

	Subdistrict 334-10					Subdistrict 334-20				
Year	Duration	Days Fished	Boat Hours	Catch	(catch/boat hour)	Duration	Days Fished	Boat Hours	Catch	(catch/boat hour)
1967	6/8-6/27	11.0	77,208	9,494	(0.12)	-	-	-	-	-
1968	6/6-7/3	14.0	91,380	12,995	(0.13)	6/13-7/2	10.5	27,600	1,407	(0.05)
1969	6/2-6/28	12.5	84,864	8,840	(0.10)	6/15-7/1	8.0	16,620	5,024	(0.30)
1970	6/11-7/3	10.5	58,056	87,169	(1.50)	6/14-7/3	9.0	15,756	17,536	(1.11)
1971	6/14-7/3	10.5	73,032	36,077	(0.49)	6/20-7/5	8.5	17,832	6,112	(0.34)
1972	6/8-7/1	12.5	79,236	69,658	(0.88)	6/15-7/1	8.5	19,296	9,040	(0.47)
1973 1/	6/7-7/11	14.5	100,284	191,840	(1.91)	6/10-7/14	14.5	36,000	56,481	(1.57)
1974	6/3-7/13	16.5	114,624	461,025	(4.02)	6/5-7/16	15.5	35,316	72,281	(2.05)
1975	6/9-7/16	15.0	86,304	394,447	(4.72)	6/22-7/18	10.5	21,024	99,944	(4.75)
1976	6/14-7/14	12.0	90,658	272,493	(3.00)	6/20-7/16	11.0	32,624	99,407	(3.05)

1/ 6 inch maximum mesh size regulation during late June-early July became effective in 1973.

Appendix Table 9. Comparative commercial coho and chum salmon catch data for the fall season, subdistrict 334-10 Yukon district, 1961-1976.

Year	Duration	Days 1/ fished	Boat hours	Commercial catch (catch/boat hour) Coho	Chum
1961	8/1-8/31	16	14,772	2,855 (0.2)	42,461 (2.9)
1962	8/1-9/3	21	46,950	22,926 (0.5)	53,116 (1.1)
1963	8/9-9/6	18	2,100	5,572 (2.7)	no purchases
1964	8/3-8/27	17	8,346	2,446 (0.3)	8,347 (1.0)
1965	8/2-8/4	2/	2/	350 (2/)	22,936 (2/)
1966	7/25-9/10	28	41,994	19,254 (0.5)	69,836 (1.7)
1967	7/24-8/27	21	19,272	9,925 (0.5)	36,451 (1.9)
1968	7/22-8/28	22	47,232	13,153 (0.3)	49,857 (1.1)
1969	7/11-8/23	25	47,352	14,041 (0.3)	148,017 (3.1)
	7/21-8/23 3/	20	39,408	14,041 (0.4)	128,866 (3.3)
1970	7/14-8/26	25	68,712	12,245 (0.2)	232,969 (3.4)
	7/20-8/26 3/	22	56,160	12,245 (0.2)	200,306 (3.6)
1971	7/12-9/4	32	108,336	12,165 (0.1)	246,384 (2.3)
	7/22-8/28 3/	22	85,344	11,582 (0.1)	178,744 (2.1)
1972	7/11-9/2	32	106,974	21,705 (0.2)	181,287 (1.7)
	7/20-8/26 3/	22	81,726	19,655 (0.2)	134,752 (1.6)
1973	7/12-9/1	30	140,304	34,860 (0.2)	212,235 (1.5)
	7/19-8/25 3/	22	107,136	34,860 (0.3)	173,783 (1.6)
1974	7/11-8/14	15	62,136	13,761 (0.2)	234,503 (3.8)
	7/18-8/14 3/	12	41,868	13,758 (0.2)	137,235 (3.3)
1975	7/14-8/16	15	68,940	2,242 (0.03)	212,795 (3.1)
	7/21-8/16 3/	12	52,128	2,240 (0.04)	158,183 (3.0)
1976	7/12-8/13	16	77,706	4,084 (0.05)	140,943 (1.8)
	7/19-8/13 3/	11	55,026	4,084 (0.07)	91,091 (1.7)

1/ One "day" is equivalent to 24 hours during open fishing period.
2/ Information not available.
3/ More comparable to duration of fishing for past seasons.

Appendix Table 10. Comparative chum salmon commercial catch data by date, fall season, subdistrict 334-10, Yukon district, 1969-1976.

Date	Cumulative catch 1/ (Cumulative catch/boat hour) 1969	1970	1971	1972	1973	1974	1975	1976
7-11								
7/12	9.6 (7.81)			12.9 (1.79)				
7/13						54.3 (.22)		
7/14			32.9 (6.33)		22.1 (1.56)			31.2 (2.68)
7/15		16.6 (4.25)		26.0 (1.58)				
7/16	15.4 (3.42)						23.5 (2.85)	
7/17			57.9 (4.14)			97.1 (4.78)		49.9 (2.20)
7/18		32.7 (2.59)			38.5 (1.42)			
7/19	19.2 (2.43)			44.6 (1.70)			54.6 (3.25)	
7/20						109.2 (3.90)		
7/21			66.1 (3.03)		75.7 (1.86)			56.8 (1.77)
7/22		46.2 (2.14)		71.8 (1.94)				
7/23	45.1 (3.64)						67.5 (2.67)	
7/24			89.8 (2.75)			121.8 (3.55)		59.6 (1.54)
7/25		47.0 (1.98)			89.5 (1.81)			
7/26	59.9 (3.46)			80.8 (1.77)			91.6 (2.79)	
7/27						156.1 (3.78)		
7/28			95.5 (2.31)		134.9 (2.12)			66.6 (1.42)
7/29		98.2 (3.10)		89.7 (1.68)				
7/30	72.4 (3.28)						110.5 (2.85)	
7/31			111.4 (2.27)			184.0 (3.86)		129.4 (2.22)
8/1		143.4 (3.64)			145.0 (1.93)			
8/2	87.1 (3.23)			96.5 (1.56)			141.5 (2.96)	
8/3						188.9 (3.60)		
8/4			147.5 (2.45)		150.0 (1.79)			137.2 (2.06)
8/5		176.0 (3.72)		99.6 (1.49)				
8/6	109.5 (3.44)						167.0 (2.99)	
8/7			162.2 (2.35)			190.1 (3.49)		137.6 (1.96)
8/8		205.0 (3.71)			156.0 (1.69)			
8/9	124.0 (3.40)			134.6 (1.79)			188.8 (3.00)	
8/10						191.8 (3.36)		
8/11			168.1 (2.18)		186.7 (1.81)			138.3 (1.84)
8/12		206.5 (3.52)		149.5 (1.81)				
8/13	127.9 (3.23)						189.2 (2.90)	140.9 (1.83)
8/14			206.2 (2.41)			234.5 (3.82)		
8/15		208.8 (3.41)			192.8 (1.75)			
8/16	136.1 (3.20)			151.1 (1.72)			212.8 (3.09)	
8/17								
8/18			211.1 (2.28)		199.6 (1.68)			
8/19		225.7 (3.50)		172.3 (1.82)				
8/20	145.9 (3.21)							
8/21			235.3 (2.39)					
8/22		231.3 (3.44)			207.4 (1.63)			
8/23	148.0 (3.12)			176.5 (1.75)				
8/25			243.4 (2.33)		209.6 (1:57)			
8/26		233.0 (3.39)		179.3 (1.73)				
8/27								
8/28			244.9 (2.29)					
8/29					211.4 (1.54)			
8/30				180.6 (1.71)				
8/31								
9/1			246.1 (2.28)		212.2 (1.52)			
9/2				181.3 (1.69)				
9/3								
9/4			246.4 (2.28)					

1/ Cumulative catch in thousands of fish by period beginning July 11. Fall chum salmon usually begin entering the lower Yukon River after this date.

Appendix Table 11. Commercial salmon pack by species and type of processing, Yukon district, 1960-1976.[1/]

Year	Cases (48#)			Fresh-Frozen (round wt. in lbs).			Cured King Salmon		Cured Chum Salmon		Salmon Roe (lbs.)
	King	Coho	Chum	King	Coho	Chum	Tierces	1/2 Tierce	Tierces	1/2 Tierce	
1960	13,000			2/	2/	2/	250	180			
1961	19,474			2/	2/	2/	504	146			
1962	15,959	512	1,760	2/	2/	2/	464	280			
1963	16,400	1,190		2/	2/	2/	2/	2/			
1964	12,041			2/	17,000	66,770	537	499			
1965	18,149			275,000	2,500	160,500	670	67			
1966	14,026	836	2,812	414,000	61,355	301,240	398	60			
1967	21,503		126	475,900	66,400	366,496	627	96			1,755
1968	19,499		816	561,690	93,154	454,409	351	170			21,000
1969	9,560	1,104	4,499	423,597	26,973[3/]	829,586[3/]	647	95	15		29,000
1970	6,431	1,002	6,413	716,600	12,900	1,725,000	447	191	51		26,300
1971	6,500	502	3,213	1,058,034	45,836	1,432,455	659	229	139		55,177
1972	7,418	1,005	6,249	1,002,395	83,960	1,495,922	497	147			85,278
1973	5,227	1,008	9,902	1,339,317	181,928	2,929,532	61	133		72	137,594
1974	6,660	603	21,074	1,062,666	58,816	3,879,300	381	56	57		208,842
1975	5,297	40	14,226	781,902	13,299	4,751,941	80	53	45	119	201,404
1976	3,921	80	11,375	1,398,779	29,778	4,256,679	93	92	72	10	226,893

1/ Pack represents type of processing when fish were shipped out of district.
2/ Information not available.
3/ Includes approximately 11,600 and 110,500 lbs. (round weight) of coho and chum salmon respectively, as salted fish for Japanese market.

Appendix Table 12. Dollar value estimates of Yukon district commercial fishery, 1960-1976 1/

Year	Gross value of catch to fishermen	Wages earned 2/	Total income to district	Wholesale value of pack 3/	Tax revenues to state
1960	$	$	$	$	$
1961	437,000			1,292,300	37,500
1962	361,900			1,275,250	50,400
1963	412,300			1,550,400	42,000
1964	354,400			1,203,800	35,000
1965	542,300			1,412,700	42,000
1966	454,500			1,308,100	37,000
1967	606,400	250,000	856,400	1,864,800	41,700
1968	535,000	264,000	799,000	1,655,156	47,000
1969	519,200	234,000	753,000	1,976,179	40,000
1970	623,100	185,800	808,900	2,113,100	45,000
1971	783,000	357,700	1,140,700	2,106,600	42,000
1972	784,000	445,400	1,229,400	2,405,200	45,300
1973	1,217,000	585,800	1,802,900	4,453,900	62,800
1974	1,921,000	500,100	2,421,100	6,035,900	84,100
1975	1,793,900	596,600	2,390,500	4,939,700	87,100
1976	**2,151,000**	**687,600**	**2,838,600**	**6,815,500**	**96,900**

1/ Information not available for 1960 and wages earned during 1961-1966.
2/ Includes wages paid to tender boat operators, processing plant employees in district.
3/ Based on type of processing when fish were shipped out of the district.

Appendix Table 13. Estimated mean prices paid to fishermen, Yukon district, 1961-1976 1/ (prices per fish)

Year	King	Coho	Chum	Other
1961	$3.50	$	$	$
1962	3.50			
1963	3.50			
1964	3.75	.50	.25	
1965	4.50		.35	
1966	4.50	.50	.35	
1967	4.50	.50	.35	
1968	4.64	.50	.50	
1969	4.60	.55	.50	
1970	5.00	.84	.61	
1971	5.34	.82	.64	
1972	5.90	.92	.75	
1973	7.45	1.27	1.18	
1974	9.00	1.75	1.40	
1975	9.24	1.50	1.36	
1976	11.28	1.63	1.50	

1/ Information not available for some species.

Appendix Table 14. Mean weights and numbers of salmon per case, Yukon district, 1962-1976.[1]

	Mean round weight in pounds[2]			Mean no. of fish/case[3]		
Year	King	Coho	Chum	King	Coho	Chum
1962				3.2	13.3	10.5
1963						
1964	22.6		8.0	3.4		
1965	23.0		6.6	3.3		
1966	23.0		6.9	3.5		
1967	24.0	7.3	7.0	3.2		
1968	26.5		8.3	3.3		11.0
1969	23.9	6.7	6.5	3.4	10.0	12.0
1970	22.3	7.1	6.7	3.7	10.6	11.7
1971	22.6	6.9	6.4	3.3	10.3	12.4
1972	24.6	7.1	6.8	3.2	10.1	11.8
1973	24.5	7.1	7.4	3.1	10.5	10.8
1974	23.4	7.1	6.7	3.4	10.5	11.7
1975	22.0	7.2	6.8	3.8	10.4	11.6
1976	21.7	6.8	6.8			

1/ Information is not available for some species.
2/ Based on age-length-weight samples or fish ticket entries.
3/ Standard 48 lb. case.

Appendix Table 15. Subsistence salmon roe sal[illegible]rmation, Yukon area, 1974-76.

1974

Subdistrict	Pounds of raw product King	Chum	Total	No. of Fishermen	Value of sales	Average value to Fisherman	Number of processors	First 1/ Wholesale value
1								
2		239	239	10	179	17.90		
3		4,103	4,103	25	3,077	123.08		
4	51	23,493	23,544	91	17,665	194.12		
5	238	3,282	3,520	36	2,640	73.33		
6	179	15,784	15,963	24	11,972	498.83		
Total	468	46,901	47,369	186	$35,533	$191.04	11	$74,000

1975

Subdistrict	Pounds of raw product King	Chum	Total	No. of Fishermen	Value of sales	Average value to Fisherman	Number of processors	First 1/ Wholesale value
1								
2	61	786	847	26	974	37.46		
3	551	4,908	5,459	18	6,278	348.78		
4	45	32,478	32,523	108	37,401	346.31		
5	1,300	14,787	16,087	33	18,500	560.60		
6	510	18,369	18,879	40	21,711	542.78		
Total	2,467	71,328	73,795	225	$84,864	$377.17	14	$170,000

1976

Subdistrict	Pounds of raw product King	Chum	Total	No. of Fishermen	Value of sales	Average value to Fisherman	Number of processors	First 1/ Wholesale value
1								
2	209	612	821	20	1,026	51.30		
3	2,044	1,218	3,262	30	5,260	175.33		
4	494	38,532	39,026	126	48,783	387.17		
5	1,377	11,303	12,680	83	15,850	191.33		
6	1,706	16,992	18,698	70	28,511	407.30		
Total	5,830	68,657	74,487	329	$99,430	$302.22	14	$198,860

1/ Based on 2x that of fisherman value.

Appendix Table 16. Yukon River comparative subsistence catch and effort data, 1961-1976 (numbers per fishing family are in parenthesis).

Year	Total Catch		Equivalent Catch[1/]		Mean Equivalent Catch per Family[1/]	
	King Salmon	Other salmon[2/]	King salmon	Other salmon[2/]	King salmon	Other salmon[2/]
1961	23,719	407,814	23,719	405,632	38	650
1962	19,910	358,441	13,010	329,144	23	583
1963	32,656	421,625	26,141	372,578	44	624
1964	22,817	485,630	19,480	460,712	32	765
1965	19,723	458,379	16,950	436,306	31	806
1966	14,017	214,236	11,507	204,913	23	415
1967	19,661	288,595	16,306	256,926	35	545
1968[3/]	14,832	189,607	11,883	170,522	25	358
1969	14,946	213,725	13,916	195,476	30	426
1970	15,926	223,237	13,474	199,163	34	498
1971	24,755	200,568	21,670	171,247	51	399
1972	19,541	140,102	17,079	119,335	43	298
1973	22,215	186,179	19,458	167,106	42	360
1974	20,543	291,080	16,584	256,636	38	586
1975	17,309	274,236	14,155	250,054	32	568
1976	15,097	221,284	12,449	195,454	24	377

Year	Fishing families surveyed[1/]	People in fishing families[1/]	Snowmachines[1/]	Sled dogs[1/]	Gear operated[1/]	
					Gill nets	Fishwheels
1961	624	3,626 (5.8)		4,806 (7.7)	577	169
1962	564	3,279 (5.8)		3,848 (6.8)	613	138
1963	597	3,460 (6.9)		4,155 (7.0)	716	156
1964	602	3,524 (6.0)		4,003 (6.6)	840	155
1965	541	3,453 (7.3)		3,974 (7.3)	647	127
1966	494	3,144 (6.4)		3,112 (6.3)	578	116
1967	471	2,756 (5.9)	192 (0.4)	2,752 (5.8)	530	87
1968	476	3,109 (6.5)	262 (0.6)	2,719 (5.7)	565	71
1969	459	2,974 (6.5)	349 (0.8)	2,442 (5.3)	594	63
1970	400	2,679 (6.7)	346 (0.9)	2,214 (5.5)	647	55
1971	429	2,795 (6.5)	414 (1.0)	1,894 (4.4)	683	56
1972	401	2,508 (6.3)	423 (1.1)	1,375 (3.4)	698	57
1973	463	2,894 (6.3)	485 (1.0)	2,030 (4.4)	840	77
1974	438	2,759 (6.3)	492 (1.1)	1,796 (4.1)	609	83
1975	440	2,772 (6.3)	539 (1.2)	1,932 (4.4)	834	88
1976	518	3,257 (6.3)	660 (1.3)	2,528 (4.9)	846	119

1/ Data from villages surveyed each year since 1961: Mouth to Fort Yukon and Tanana River (does not include Fairbanks area).
2/ Mostly chum salmon, some pinks and cohos.
3/ Total king and other salmon catches have been corrected.

Appendix Table 17. Comparative Yukon River king salmon subsistence catches by village, 1961-1976.

Village	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
Mouth to Anuk River																
Sheldons Point	180	116 1/	921 1/	52	49	127	755	30	728	1,093	731	462	165	265	92	114
Alakanuk	165	53	81	87	177	263	257	205	852	569	986	647	373	575	142	354
Emmonak-Kwiguk	137	21	120	63	145	160	541	42	810	151	543	300	899	202	167	272
Apreka Pass & vicinity	179	181	293	73	281	445	959	147	239	33	2	37	106	5	-	-
Kotlik-Hamilton	141	35	195	53	131	47	162	53	551	351	315	366	714	394	436	399
Subtotal	772	406	1,610	328	783	1,242	2,724	477	3,179	2,2[illegible]	2,577	1,812	2,257	1,441	837	1,139
Anuk River to Owl Slough																
Mountain Village	1,110	619	2,427	985	510	217	1,345	239	557	369	1,648	907	741	450	532	321
Pitkas Point - St. Marys	1,810	391	1,254	521	826	499	993	168	737	575	1,698	1,515	1,053	823	413	1,053
Pilot Station	753	219	801	237	502	440	1,534	784	367	642	1,120	1,513	1,303	467	929	357
Marshall	1,265	503	2,012	290	942	350	306	365	564	5[illegible]	819	656	955	1,068	465	641
Subtotal	4,938	1,732	6,494	2,093	2,780	1,516	4,178	1,555	2,225	2,148	5,285	4,591	4,062	2,808	2,339	2,402
Owl Slough to Bonasila R.																
Russian Mission	1,563	641	1,392	1,185	1,393	800	2,019	2,170	707	9[illegible]	849	914	1,126	1,170	1,661	1,172
Holy Cross	2,648	1,111	3,123	2,243	2,351	2,615	2,876	1,418	1,877	1,6[illegible]	2,799	2,202	3,338	1,944	2,094	1,175
Subtotal	4,211	1,752	4,515	3,428	3,744	3,445	4,895	3,588	2,584	2,6[illegible]	3,648	3,116	4,464	3,114	3,755	2,350
Bonasila R. to Illinois Cr.																
Anvik	22	51	163	153	118	144	54	114	71	62	137	72	67	111	77	84
Grayling	25 2/	37 2/	197 2/	124	246	95	199	208	187	175	394	185	489	519	90	80
Kaltag	33	224	102	330	57	47	199	60	232	1[illegible]	131	123	130	566	163	63
Nulato	513	171	835	355	305	218	575	209	771	734	418	364	281	1,037	861	634
Koyukuk	483	423	629	209	228	93	262	398	357	[illegible]	410	371	411	555	15	401
Galena	626	123	282	158	260	407	210	456	263	319	574	532	436	385	1,247	309
Ruby-Yokrines	1,060	226	1,514	2,555	1,943	957	920	881	1,619	1,3[illegible]	2,275	1,110	2,053	2,319	912	1,399
Subtotal	2,762	1,255	3,722	3,884	3,057	1,881	2,322	2,326	3,500	2,7[illegible]	4,339	2,757	3,912	5,512	3,365	2,969
Illinois Cr. to U.S.-Can. Border																
Tanana	2,379	332	1,414	329	524	421	151	627	683	3[illegible]	609	917	869	789	1,895	1,009
Porpart	605	1,438	1,231	990	1,041	960	369	922	321	1[illegible]	1,071	1,236	1,609	370	467	196
Stevens Village	650	831	1,073	325	910	620	534	787	350	8[illegible]	450	1,002 3/	987 3/	395 3/	391	531
Beaver	185	442	491	710	490	31	210	495	458	7[illegible]	680	241	307	23	84	138
Fort Yukon	2,958	1,822	2,831	2,098	2,747	1,074	692	632	75	1,0[illegible]	647	520	536	883	428	801
Circle	496	393	250	1,200	-	-	-	-	-	-	-	345	225	406	110	317
Eagle	875	400	500	17	100	-	-	-	-	-	111	235	267	22	213	420
Subtotal	8,148	5,658	7,790	5,669	5,802	3,115	1,955	3,763	1,887	3,1[illegible]	3,568	4,496	4,800	2,888	3,578	3,412
Innoko River																
Shageluk																7
Holikachuk																
Subtotal																7
Koyukuk River																
Huslia	-	100	32	112	9	-	7	35	16	12	2	1	29	60	23	21
Hughes	-	-	47	18	-	-	65	82	10	116	315	27	32	7	25	155
Alatna	-	-	-	-	-	-	-	1	8	2	-	3	1	-	-	-
Allakaket	-	-	85	-	-	-	70	3	15	128	190	21	61	69	151	174
Subtotal	-	100	164	130	9	-	142	121	49	258	507	52	123	136	199	350
Tanana River																
Minto-Manley Hot Springs	347	92	325	468	276	146	-	12	76	138	7	99	-	176	71	228
Nenana	310	115	213	194	157	272	252	462	465	357	2,357	788	455	1,073	533	686
Fairbanks	-	-	-	-	-	-	-	-	-	132	98	220	26	38	32	31
Subtotal	657	207	538	662	433	418	252	474	541	627	2,462	1,107	481	1,287	636	945
Chandalar River																
Venetie	-	-	-	-	-	-	-	-	7	10	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-	-	-	7	10	-	-	-	-	-	-
Porcupine River																
Canyon Village	-	-	17	35	-	-	-	-	-	-	-					
Chalkyitsik	-	-	2	2	-	-	-	-	-	-	-					
Old Crow, Y.T.	-	-	44	-	94	65	43	28	27	8	9	-	20	100	100	23
Subtotal	-	-	63	37	94	65	43	28	27	8	9	-	20	100	100	23
Yukon Territory Villages 5/																
Dawson	2,231	2,000	1,500	3,476	351	50	50	100	-	40	-	-	-	-	-	500
Stewart River	-	-	-	-	-	-	-	100	-	30	-	100	99	-	-	-
Mayo-Stewart Crossing	-	300	250	150	400	100	30	-	-	-	250	-	25	233	-	-
Fraser Falls	-	-	-	-	-	-	-	-	-	-	-	-	25	-	-	-
Burwash-Kluane R.	-	-	-	-	-	-	-	-	-	-	-					
Fort Selkirk	-	-	-	-	100	125	400	200	22	11	-	-	45			
Pelly	-	2,000 4/	2,000 4/	1,000	300	350	600	600	200	450	450	380	53	433		200
Faro	-	-	-	-	-	-	-	-	-	-	-	-	75			
Ross River	-	500	600	-	500	120	150	200	-	120	-	35	75	30		
Minto	-	-	-	600	170	350	-	100	-	-	-	15	261			
Tatchun Creek	-	-	-	-	150	-	250	100	100	60	-					
Carmacks	-	3,000	2,500	700	600	1,050	1,450	1,200	450	700	1,400	1,090	1,384	2,563		800
Lake Laberge-Whitehorse	-	-	-	-	-	-	-	-	-	20	180					
Takhini	-	-	-	-	-	-	40	-	-	-	-					
McClintock R.	-	-	-	-	-	-	-	-	-	8	-					
Carcross	-	-	-	-	-	-	-	-	-	-	-					
Teslin-Johnson's Crossing	-	1,000	900	720	450	300	200	200	175	605	80	-	54	20		
Subtotal	10,376	10,500	7,750	6,646	3,021	2,635	3,170	2,872	973	2,092	2,791	1,647	2,096	3,279	2,900 6/	1,500
Total:	31,964	21,610	32,970	22,877	19,723	14,272	19,661	15,006	15,000	15,974	25,186	19,588	22,215	20,565	17,709	15,097

1/ Includes Black River catches. 2/ Includes Shageluk-Holikachuk fish camp catches. 3/ Includes New Minto fish camp catches.
4/ Includes Minto catches. 5/ Data by village obtained from annual reports. Subtotals includes revised catch data and summation of village catches may not equal subtotals. 6/ Catch by village not available.
7/ Includes catches made by Fairbanks permit holders who fished in Yukon River near bridge crossing.

Appendix Table 18. Comparative Yukon River chum salmon subsistence catches by village, 1961 - 1976. 7/

Village	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
Mouth to Anvik River																
Sheldon's Point	12,683	10,899 1/	32,577 1/	8,701	10,884	3,007	2,757	8,693	5,573	4,238	1,680	3,514	2,267	5,857	1,332	1,899
Alakanuk	8,932	5,747	17,953	11,333	21,473	9,830	9,964	14,184	15,806	10,994	6,716	5,633	5,241	12,279	3,080	10,856
Emmonak-Kwiguk	15,670	9,074	27,749	16,954	47,386	11,824	15,314	16,569	12,836	7,265	4,370	5,190	8,825	6,987	5,161	10,483
Approx Pass & Vicinity	8,409	6,071	8,915	7,712	20,129	10,741	7,910	4,853	4,048	565	541	332	570	1,460	182	231
Kotlik-Hamilton	3,931	5,362	9,942	4,076	4,728	3,003	7,251	1,709	6,391	4,878	4,583	4,824	5,061	6,098	5,933	8,681
Subtotal	49,805	37,153	97,136	48,776	104,600	38,405	43,196	46,008	44,654	27,940	17,890	19,493	21,964	32,681	15,511	32,149
Anvik River to Owl Slough																
Mountain Village	7,373	8,331	10,106	13,593	11,475	7,548	8,305	7,312	10,676	4,865	6,649	5,923	6,142	11,408	7,239	6,955
Pitkas Point - St. Marys	8,771	10,510	7,001	12,508	14,130	8,460	9,790	9,166	11,586	14,604	11,549	11,132	8,355	12,924	8,702	10,046
Pilot Station	5,605	13,926	5,553	10,776	7,865	5,587	6,520	4,770	7,515	5,882	5,058	7,021	7,424	8,410	8,855	4,241
Marshall	5,992	6,595	8,023	10,125	6,631	3,640	3,070	3,530	6,606	4,910	5,455	4,743	4,400	6,763	6,179	3,635
Subtotal	27,741	39,362	30,683	47,002	40,101	25,235	27,685	24,778	36,383	30,261	28,711	28,819	26,321	39,505	30,975	24,877
Owl Slough to Bonasila R.																
Russian Mission	4,098	9,994	5,354	10,069	4,888	2,707	4,897	3,836	3,668	3,114	2,378	2,737	1,997	4,461	3,232	2,124
Holy Cross	21,144	20,424	12,532	31,447	25,709	4,228	22,341	10,309	6,037	4,188	2,203	2,695	3,176	3,986	3,518	1,189
Subtotal	25,242	30,418	17,886	41,516	30,597	6,935	27,238	14,145	9,705	7,302	4,581	5,432	5,173	8,447	6,750	3,313
Bonasila R. to Illinois Cr.																
Anvik	61,406 2/	43,404 2/	28,064 2/	34,341	37,179	14,239	20,793	10,020	8,925	9,924	7,309	3,362	20,850	29,261	32,810	26,660 2/
Grayling	56,284	32,737	18,358	23,784	36,436	11,437	22,852	8,225	18,037	12,548	6,537	6,428	12,105	25,978	23,828	18,260
Kaltag	23,395	25,824	23,193	35,961	29,382	21,729	27,028	12,090	9,942	12,455	9,133	3,543	20,243	14,174	10,745	11,876
Nulato	63,163	27,948	31,742	62,446	43,988	22,017	22,521	13,242	23,853	26,456	16,337	7,298	12,388	33,319	17,348	8,714
Koyukuk	13,544	6,282	7,966	36,167	11,232	7,443	4,613	3,541	3,359	3,789	3,125	1,575	1,428	13,770	1,750	2,237
Galena	10,585	1,673	6,731	3,100	2,741	8,296	2,650	1,079	2,422	3,179	4,710	1,184	3,922	4,531	10,063	9,125
Ruby-Yokrines	15,654	18,243	15,585	30,122	17,603	5,530	10,690	2,382	5,201	8,068	12,328	6,470	10,810	15,388	8,820	7,713
Subtotal	244,031	156,111	131,639	225,921	178,561	90,691	111,147	50,579	71,739	76,429	59,479	29,860	81,746	136,421	105,364	85,223
Illinois Cr. to U.S.-Canadian Border																
Tanana	12,775	7,245	16,646	15,348	14,885	10,421	11,938	13,406	12,455	23,017	21,663	7,713	9,715	12,447	15,862	16,082
Rampart	11,722	6,962	11,209	14,963	13,462	4,056	15,763	2,636	8,935	5,252	10,291	3,694	3,604	1,249	9,759	4,050
Stevens Village	3,490	4,355	8,247	6,979	7,346	1,900	3,145	2,022	2,725	8,292	4,774	1,118 3/	5,236 3/	4,934 3/	2,000	974 9/
Beaver	2,975	2,334	12,119	11,359	3,274	4,135	4,292	3,619	1,965	2,378	1,636	3,057	1,176	1,055	635	255
Fort Yukon	13,252	10,255	31,219	19,407	19,402	3,960	8,983	6,564	3,338	6,354	3,207	1,597	2,732	122	19,777	833
Circle	992	800	100	2,300	-	-	-	-	-	-	-	752	642	1,266	775	92
Eagle	150	100	125	1,582	256	-	-	-	-	-	490	391	1,687	22	3,032	779
Subtotal	45,356	32,051	79,665	71,938	58,625	24,472	44,121	28,247	29,418	45,293	42,061	18,322	24,792	21,095	51,840	23,065
Innoko River																
Shageluk		3,500														739
Holikachuk		100														
Subtotal		3,600														739
Koyukuk River																
Huslia	-	16,000	5,455	13,913	5,101	-	5,489	3,677	2,466	4,018	652	256	3,363	5,776	5,026	8,791
Hughes	-	-	767	559	-	-	5,837	2,237	3,112	6,367	14,084	2,777	2,541	8,786	5,429	4,282
Alatna	-	-	-	-	-	-	170	99	830	1,226	496	490	27	3,510	950	650
Allakaket	-	-	1,972	-	-	-	3,929	1,391	3,254	7,759	6,943	771	1,808	3,517	5,609	3,638
Subtotal	-	16,000	8,194	14,472	5,101	-	15,425	7,404	9,662	19,370	22,175	4,294	7,739	21,589	17,014	17,361

Appendix Table 18 (Cont.) Comparative Yukon River chum salmon subsistence catches by village, 1961 - 1976. 7/

Village	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
Tanana River																
Minto-Manley Hot Springs	6,486	17,228	15,493	17,628	11,358	7,152	22	740	330	540	8	6	-	20	2,450	6,580
Nenana	6,426	13,821	13,599	11,129	7,363	12,023	3,517	6,055	3,247	11,398	19,007	18,546	9,436	19,755	26,634	21,118
Fairbanks	-	-	-	-	-	-	-	-	-	1,072	5,655	8,280	1,657	2,953	1,615	2,826
Subtotal	12,912	31,049	29,092	28,757	18,721	19,175	3,539	6,795	3,577	13,010	24,670	26,832	11,093	22,728	30,969	30,524
Crandalar River																
Venetie	-	1,000	200	-	9,856	1,098	2,626	551	3,116	2,400	801	50	410	-	2,401	608
Subtotal	-	1,000	200	-	9,856	1,098	2,626	551	3,116	2,400	801	50	410	-	2,401	608
Porcupine River																
Canyon Village	-	210	1,566	2,316	1,531											
Chalkytsik	-	500	64	742	1,438											
Old Crow, Y.T.	-	2,800	20,000	-	7,535	7,175	11,768	10,000	3,411	620	100	5,000	5,827	7,000	11,600	3,125
Subtotal		3,510	21,630	3,058	10,504	7,175	11,768	10,000	3,411	620	100	5,000	5,827	7,000	11,600	3,125
Yukon Territory Villages 5/																
Dawson	725	3,000	1,500	3,331		50	50	50		60						
Stewart River																
Mayo-Stewart Crossing																
Fraser Falls																
Burwash-Kluane R.							250	200	760		100		199	32		
Fort Selkirk					1,000	450	1,000	500	500	500		2,000				
Pelly		1,500 4/	1,500 4/		100			50	300					14		100
Faro																
Ross River																
Minto				600	623	450	50	100	100				327			
Tatchun Creek																
Carmacks		2,000	2,500	250	260	100	500	200	400	50			487	1,590		200
Lake Laberge-Whitehorse																
Tachini																
McClintock R.																
Carcross																
Teslin-Johnson's Crossing										2						
Subtotal 5/	5,800	6,500	5,500	4,181	2,265	1,425	1,832	1,100	2,089	580	13,900	3,000	1,111	1,636	6,500 8/	300
Total:	412,889 6/	358,441 6/	421,625	485,621	458,931	214,611	288,577	189,607	213,754	223,205	214,368	141,102	186,176	291,102	278,924	221,284

1/ Includes Black River catches.

2/ Includes Shageluk-Holkachuk fish camp catches.

3 Includes New Minto fish camp catches.

4/ Includes Minto catches.

5/ Data by village obtained from annual reports. Subtotals include revised catch data and summation of village catches may not equal subtotal.

6/ Includes pinks and cohos not provided in breakdown of catch by village data.

7/ Includes small numbers of pink and coho salmon.

8/ Catch by village not available.

9/ Includes catches made by Fairbanks permit holders who fished in Yukon River near bridge crossings.

Appendix Table 19. Comparative Yukon River drainage king salmon escapement estimates, 1959-1976 1/

	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
Andreafsky River																		
East Fork		1,020	1,003	675 2/		867		361		380	231 2/	665	1,904	798	825		993	818
West Fork		1,220		762 2/		705	355 2/	303	276 2/	383	274 2/	574 2/	1,284	582 2/	788	285	421	643
Total		2,240		1,437		1,572		664		763	505	1,239	3,188	1,380	1,613		1,414	1,461
Anvik River Drainage																		
Tower Count														1,104	517	471	548	958
Below Tower Site (includes tributaries)														68	96 2/		172 3/	198 3/4/
Above Tower Site (includes tributaries)														346	126 2/		190	98
Subtotal		1,950	1,226				650 2/	638	336 2/	297 2/	296 2/	368		414	222 2/		362	296
Total (Best estimate of escapements: combined tower, aerial and boat surveys).		1,950	1,226				650 2/	638	336 2/	297 2/	296 2/	368		1,172	813	471	720	1,155
Nulato River																		
North Fork (including main river)		483	376													55	123	471
South Fork		273	167													23	81	177
Total		756	543													78	204	648
Gisasa River		300	266 2/													161	385	332
Tozitna River		106 2/															202	42 2/
Chena River		132			137								193 2/3/	138 2/3/	21	1,035 3/	316 3/	531
Salcha River		1,660	2,878	937		450	408	800		735	461 2/	1,882	159 2/	1,193	249	1,857	1,055	1,691
Tatchun Creek												100 2/	100	97		192	175	52
Misutlin River (Sidney Creek-100 Mile Cr.)										407	105	615	640	317	36 2/	48 2/	249	102
Whitehorse Dam (Fishway Counts)	1,054	660	1,068	1,500	484	587	903	563	533	407	334	625	856	392	228	273	313	121

1/ Data obtained from aerial surveys unless otherwise indicated. Peak estimates listed only.
2/ Incomplete or poor survey conditions resulting in a very minimal count.
3/ Boat survey.
4/ Also includes 94 kings observed in Yellow River.
5/ Foot survey.

Appendix Table 20. Comparative Yukon River drainage summer chum salmon escapement estimates, 1958-1976 1/

	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
Andreafsky River																			
East Fork			3,830	9,110	18,040				25,619		17,600 4/	119,000	84,090	98,095	41,460	10,149 2/	3,215 2/	223,485	105,347
West Fork					19,530		12,810	14,670 2/	18,145	14,495 4/	74,600 4/	159,500	91,710 2/	71,745	25,573	51,835	33,258	235,954	118,420
Total					37,570				43,764		92,200	278,500	175,800	169,840	67,033			459,439	223,767
Anvik River Drainage																			
Tower Count															108,342	71,475	201,277	601,880	237,851
Below Tower Site (indicates tributaries)															137,515	15,190		211,130	168,315
Above Tower Site (includes tributaries)															74,118	10,966		634,355	243,695
Subtotal	100-200,000	200,000	11,100		20,600		12-14,000 2/	100,000	37,500	116,000	51,580 2/		232,780		208,763	26,156		845,485	412,010
Total (Best estimate of escapement combined tower, aerial & boat surveys)	100-200,000	200,000	11,100		20,600		12-14,000 2/	100,000	37,500	116,000	51,580 2/		232,780		245,857	86,665	201,277	845,485	406,166
Rodo River		3,000	3,483														16,137	25,335	38,258
Nulato River																			
North Fork (including main river)	50,000																22,144	87,280	39,690
South Fork	2,500			1,560													29,016	51,215	9,230
Total	52,500																51,160	138,495	48,920
Gisasa River			400														22,022	56,904	21,342
Toritna River																	1,823	3,512	725 2/
Chena River					469 3/	898									670	79	4,350 3/	2,702 3/	685
Salcha River				670	1,152	1,161	250 2/	2,375	2,200		3,790	425 2/	3,879	306 2/	947 2/	290	8,040 5/	7,573	6,474

1/ Data obtained from aerial surveys unless otherwise indicated. Peak estimates listed only.
2/ Incomplete or poor survey conditions resulting in a very minimal count.
3/ Boat survey.
4/ Includes pink salmon.
5/ Combined aerial and boat surveys.

Appendix Table 21. Comparative Yukon River drainage fall chum salmon aerial survey escapement estimates, 1971-1976.[1/]

	1971	1972	1973	1974	1975	1976
Tanana River drainage						
Bear Paw River	--	--	1,530	2,996	1,657	--
Toklat River drainage						
Upper Toklat River[3/]	--	1,000[2/]	6,957	34,310	42,418	35,224
Lower Toklat River	--	--	--	--	35,867	2,000[2/]
					78,285	37,224
Benchmark #735 Slough	--	5,255	127[2/]	1,450	--	336
Delta River	--	3,650	7,971	4,010	3,946[7/]	5,526
Upper Tanana River[4/]	--	8,350	5,635	4,567	--	4,979
Bluff Cabin Slough	--	6,040	3,450	4,840	5,000[2/]	3,197
Delta Clearwater Slough (1 Mile Slough)	--	--	1,720	1,235	745[2/]	1,552
Chandalar River	--	--	--	17,455	6,345[2/]	58[2/]
Porcupine River drainage						
Sheenjek River	--	--	1,175	40,507	78,060	12,023
Fishing Branch River (Yukon Territory)	250-300,000	35,125[5/]	15,987[6/]	32,525[6/]	353,282[6/]	13,450

1/ All surveys rated fair-good unless rated otherwise. Only peak estimates listed.
2/ Poor or incomplete survey; very minimal and/or rough estimate.
3/ Includes following areas: Toklat River in vicinity of roadhouse, Shushana River and Geiger Creek.
4/ Richardson Highway Bridge to Blue Creek.
5/ Combined tagging population estimate and weir count.
6/ Weir count.
7/ Foot survey.

Appendix Table 22. Comparative Yukon River drainage coho salmon aerial survey escapement estimates, 1971-1976 1/

	1971	1972	1973	1974	1975	1976
Nenana River drainage						
Lost Slough						
East Bank 1 mile below Anderson	-	-	-	900	116	118
East Bank 3 miles below Anderson	-	-	-	488	827	-
	-	-	-	-	-	-
Clear Creek	-	-	-	-	-	13
Seventeen Mile Slough	-	-	-	27	956	229
Delta Clearwater River	3,000	632 3/	1,982	3,950	5,100 3/	1,920
Clearwater Lake and Outlet	-	417	249 2/	560	1,530	460 3/
Richardson Clearwater R.	-	527 2/	175	235	4 2/	80 2/

1/ Peak estimates presented only
2/ Poor or incomplete survey
3/ Boat survey

Appendix 23. Cumulative king salmon catch data from 8 1/2 inch mesh gill nets at Flat Island, Yukon River, 1963-1976

Date	Cumulative Catch Per Gill Net Hour													
	1963 1/	1964 1/ a/	1965 1/	1966 1/ a/	1967 2/ b/	1968 3/	1969 3/	1970 3/	1971 3/ a/	1972 3/ a/	1973 3/	1974 3/ b/	1975 3/ a/	1976 3/
6/ 1												4		
2							8					11		
3					3		49					12		
4					3	5	67					13		
5					44(.47)	8(.08)	97(.62)				13(.27)	30(.19)		
6			1		61	22	117	4			20	68		
7			1		63	46	167	9			41	94		
8	11		3		70	91	193	29			62	118		
9	52		8		71	175	436	50			78	161		
10	58(.81)		8(.08)		76(.36)	253(.75)	538(1.36)	66(.28)			132(.49)	226(.57)	2 (.08)	
11	122		13		98	284	659	145		7	150	258	2	
12	217		36		106	337	720	156		12	173	260	4	
13	227		47		117	405	735	162	1	14	175	296	4	
14	229		57		120	408	735	177	9	36	176	307	6	
15	273(1.42)		62(.29)		120(.36)	427(.74)	757(1.22)	216(.45)	23(.29)	66(.36)	216(.44)	314(.53)	6 (.03)	
16	334		79	4	120	468	778	227	54	78	259	349	7	
17	352		110	11	120	487	795	331	68	89	379	367	7	
18	359	2	111	65	123	501	838	437	74	153	411	378	9	
19	427	13	202	87	124	596	905	467	105	235	423	380	25	
20	443(1.42)	46(2.30)	319(.95)	88(.80)	124(.27)	625(.77)	921(1.07)	499(.75)	162(.53)	263(.62)	427(.58)	385(.46)	25 (.05)	8(.17)
21	445	94	385	89	142	669	933	578	227	278	439	386	27	11
22	449	110	438	144	150	773	969	617	247	281	448	411	65	16
23	558	111	480	150	151	796	1004	621	254	289	469	415	138	30
24	583	111	518	154	174	880	1037	663	321	290	511	421	152	108
25	586(1.36)	114(2.48)	518(1.13)	240(1.04)	194(.29)	902(.85)	1073(.98)	748(.84)	393(.73)	298(.45)	561(.58)	431(.40)	162 (.24)	112(.39)
26	637	122	563	303	198	924	1088	833	427	316	574	433	171	116
27		137	570	312	214	960	1092	851	489	320	585	435	174	158
28		156	571	341	236	960	1121	858	561	345	660	435	177	185
29		156	572	416	250	964	1147	889	665	373	667	443	177	209
30		157(2.34)	573(.99)	427(1.22)	263(.32)	968(.75)	1153(.86)	918(.81)	765(1.01)	374(.42)	697(.58)	451(.35)	247 (.27)	297(.56)
7/ 1		158	573	429	271	995	1158	922	780	378	700	458	264	376
2		176	578	438	332	1010	1161	927	780	403	703	460	271	419
3		185	585	439	340	1013	1164	952	792	408	713	461	281	464
4		194	586	441	349	1020	1166	976	846	419	737	462	287	473
5		197(1.93)			360(.34)	1025(.67)	1170(.74)	955(.74)	858(.86)	479(.43)	745(.52)	462(.31)	290 (.25)	498(.69)
6		201			362	1029	1170	1014	879	503	761	464	292	501
7		201			367		1171	1026	925	521	767	469	299	504
8		204						1036	967	548	775	471	299	518
9		206						1038	1015	556	782	471	303	518
10		207(1.63)							1153(.93)	592(.44)	782(.50)	471(.28)	309 (.23)	523(.55)
11		207							1196	600	783	472	312	534
12		210							1196	614	789	472	312	547
13		211							1231	621		473	312	547
14									1238			474	314	549
15									1240(.86)					549(.46)
TOTALS	637(1.40)	211(1.59)	586(.89)	441(.99)	367(.32)	1029(.65)	1171(.70)	1038(.67)	1240(.86)	621(.41)	789(.49)	474(.26)	314 (.21)	549(.46)

1/ One 25 fathom net.
2/ 1-3 nets fishing.
3/ Two 25 fathom nets.

a/ Very late run timing.
b/ Very early run timing.

NOTE: Data includes only those dates during which first and last fish were captured.

Appendix Table 24 Cumulative chum salmon catch data from 5 1/2 inch mesh set gillnets at Flat Island, Yukon River, 1967-1976

Date	Cumulative Catch Per Gill Net Hour									
	1967 1/ a/	1968 2/	1969 2/	1970 2/	1971 2/ b/	1972 2/ b/	1973 2/	1974 2/ b/	1975 2/ b/	1976 2/ b/
6/ 1								1		
2								2		
3								7		
4			4					18		
5		1(.08)	8(.19)					60(.58)		
6		1	8					151		
7		1	10				2	307		
8	1	1	10				7	398		
9	1	3	22				12	507		
10	1(.06)	32(.40)	23(.14)				17(.22)	633(2.83)		
11	1	38	40				22	672		
12	2	41	57	2			126	837		
13	2	44	65	2			187	972		1
14	2	45	100	15		1	195	1,039		2
15	4(.08)	45(.23)	364(1.29)	40(.53)		4(.08)	240(1.21)	1,091(3.17)	2 (.08)	3(.04)
16	4	47	582	44		5	461	1,206	2	3
17	4	47	582	248		6	741	1,350	2	4
18	11	47	614	508		6	958	1,507	2	13
19	13	47	674	508	10	6	979	1,621	7	74
20	13(.18)	47(.19)	929(3.64)	533(3.81)	32(1.07)	8(.05)	980(3.08)	1,749(3.77)	11 (.08)	176(.91)
21	31	47	929	723	46	13	983	1,772	11	206
22	38	52	1,241	840	47	13	1,044	1,978	-	412
23	38	54	1,241	962	51	60	1,262	1,986	279	878
24	72	84	1,376	1,092	68	127	1,509	2,048	432	1196
25	154(1.16)	89(.26)	1,376(3.82)	1,242(4.78)	218(1.45)	142(.49)	1,634(3.73)	2,524(4.52)	575 (1.29)	1221(3.91)
26	192	98	1,376	1,529	236	160	1,786	2,674	825	1253
27	192	107	1,376	1,539	241	188	1,819	2,722	1,428	1614
28	233	120	1,540	1,539	241	283	1,867	2,733	1,592	1680
29	254	153		1,546	241	337	1,883	2,821	-	1709
30		155(.33)		1,598(4.21)	241(1.22)	344(.85)	1,995(3.58)	2,939(4.33)	1,993 (5.19)	1831(4.24)
7/ 1		173		1,618	241	345	2,013	3,079	2,113	1899
2		179		1,622	245	360	2,069	3,181	2,241	1989
3		179		1,645	249	360	2,105	3,228	2,364	2169
4		179		1,712	294	360	2,183	3,349	2,459	2199
5		179(.31)		1,716(3.43)	332(1.10)	384(.73)	2,193(3.23)	3,445(4.54)	2,471 (4.90)	2229(4.20)
6		184		1,717	403	422	2,275	3,576	2,508	2243
7		186		1,723	514	439	2,308	3,858	2,575	2249
8				1,748	581	453	2,319	3,897	2,621	2253
9				1,753	614	455	2,334	3,912	2,666	2253
10					782(1.85)	502(.78)	2,338(2.93)	3,950(4.50)	2,686 (4.67)	2274(3.49)
11					782	530	2,340	3,993	2,708	2286
12					919	563	2,389	3,998	2,712	2299
13						598	2,405	4,128	2,723	2305
14								4,198	2,827	2313
15										2328(3.15)
TOTALS	254(1.46)	186(.30)	1,540(4.18)	1,753(2.94)	919(1.96)	598(.83)	2,405(2.76)	4,198(4.14)	2,827 (4.21)	2328(3.15)

1/ One 15 fathom net.
2/ One 25 fathom net.

a/ Very early run timing.
b/ Very late run timing.

NOTE: Data includes only those dates between which the first and last fish were captured.

Appendix

Table 25. Comparative age and sex composition of lower Yukon River king salmon, commercial catch sample taken with 8-1/2" mesh gill nets, 1/ 1964-1976.

Year	Sex	Combined Age Classes No.	Combined Age Classes %	Age 3_2 No.	Age 3_2 %	Age 4_2 No.	Age 4_2 %	Age 5_2 No.	Age 5_2 %	Age 6_2-63 No.	Age 6_2-63 %	Age 7_2-7_3 No.	Age 7_2-7_3 %	Age 8_2-8_3 No.	Age 8_2-8_3 %
1964	Male	276	56.7	0	0.0	34	7.0	53	10.9	135	27.7	52	10.7	2	0.4
	Female	211	43.3	0	0.0	1	0.2	19	3.9	146	30.0	44	9.0	1	0.2
	Total	487	100.0	0	0.0	35	7.2	72	14.8	281	57.7	96	19.7	3	0.6
1965 2/	Male	328	56.2	0	0.0	6	1.0	90	15.4	162	27.8	69	11.8	1	0.2
	Female	256	43.8	0	0.0	0	0.0	21	3.6	165	28.2	68	11.7	2	0.3
	Total	584	100.0	0	0.0	6	1.0	111	19.0	327	56.0	137	23.5	3	0.5
1966 2/	Male	526	53.5	0	0.0	8	0.8	122	12.4	327	33.3	69	7.0	0	0.0
	Female	457	46.5	0	0.0	0	0.0	11	1.1	383	39.0	63	6.4	0	0.0
	Total	983	100.0	0	0.0	8	0.8	133	13.5	710	72.3	132	13.4	0	0.0
1967 2/	Male	488	49.2	0	0.0	7	0.7	72	7.2	338	34.1	70	7.1	1	0.1
	Female	503	50.8	0	0.0	1	0.1	28	2.8	389	39.3	83	8.4	2	0.2
	Total	991	100.0	0	0.0	8	0.8	100	10.0	727	73.4	153	15.5	3	0.3
1968	Male	600	45.0	0	0.0	34	2.6	152	11.4	315	23.6	99	7.4	0	0.0
	Female	735	55.0	0	0.0	0	0.0	19	1.4	546	40.9	170	12.7	0	0.0
	Total	1335	100.0	0	0.0	34	2.6	171	12.8	861	64.5	269	20.1	0	0.0
1969	Male	594	47.3	0	0.0	20	1.6	177	14.1	340	27.1	57	4.5	0	0.0
	Female	661	52.7	0	0.0	0	0.0	39	3.1	544	43.3	78	6.3	0	0.0
	Total	1255	100.0	0	0.0	20	1.6	216	17.2	884	70.4	135	10.8	0	0.0
1970	Male	723	58.7	0	0.0	123	10.0	410	33.3	157	12.8	33	2.6	0	0.0
	Female	508	41.3	0	0.0	0	0.0	113	9.2	364	29.6	31	2.5	0	0.0
	Total	1231	100.0	0	0.0	123	10.0	523	42.5	521	42.4	64	5.1	0	0.0
1971	Male	507	52.8	1	0.1	6	0.6	220	22.9	274	28.6	6	0.6	0	0.0
	Female	454	47.2	0	0.0	0	0.0	60	6.2	387	40.3	7	0.7	0	0.0
	Total	961	100.0	1	0.1	6	0.6	280	29.1	661	68.9	13	1.3	0	0.0
1972	Male	269	37.2	0	0.0	6	0.8	72	10.0	173	23.9	18	2.5	0	0.0
	Female	454	62.8	0	0.0	0	0.0	22	3.0	402	55.6	30	4.2	0	0.0
	Total	723	100.0	0	0.0	6	0.8	94	13.0	575	79.5	48	6.7	0	0.0
1973	Male	544	53.3	0	0.0	3	0.3	166	16.3	347	34.0	28	2.7	0	0.0
	Female	477	46.7	0	0.0	1	0.1	19	1.9	424	41.5	33	3.2	0	0.0
	Total	1021	100.0	0	0.0	4	0.4	185	18.2	771	75.5	61	5.9	0	0.0
1974	Male	571	54.2	0	0.0	5	0.4	187	17.8	324	30.8	55	5.2	0	0.0
	Female	482	45.8	0	0.0	0	0.0	24	2.3	398	37.8	60	5.7	0	0.0
	Total	1053	100.0	0	0.0	5	0.4	211	20.1	722	68.6	115	10.9	0	0.0
1975	Male	446	54.1	0	0.0	61	7.4	221	26.8	116	14.1	48	5.8	0	0.0
	Female	378	45.9	0	0.0	0	0.0	105	12.7	182	22.1	91	11.1	0	0.0
	Total	824	100.0	0	0.0	61	7.4	326	39.5	298	36.2	139	16.9	0	0.0
1976	Male	483	53.4	0	0.0	36	4.0	314	34.7	119	13.2	14	1.5	0	0.0
	Female	421	46.6	0	0.0	0	0.0	57	6.3	346	38.3	18	2.0	0	0.0
	Total	904	100.0	0	0.0	36	4.0	371	41.0	465	51.5	32	3.5	0	0.0

1/ Majority of gear 8-1/2" mesh, but some smaller mesh gear also used.

2/ Includes some test fishing catch samples.

Appendix
Table 26. Comparative age and sex composition of Yukon River king salmon, commercial catch sample taken with 5 1/2" mesh gill nets, at Emmonak, 1972-1976

Year	Combined Age Classes			Age 3_2		Age 4_2		Age 5_2		Age 6_2-6_3		Age 7_2-7_3	
	Sex	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1972	Male	11	61.7	0	0.0	1	5.6	4	22.2	5	27.7	1	5.[illegible]
	Female	7	38.9	0	0.0	0	0.0	4	22.2	3	16.7	0	0.[illegible]
	Total	18	100.0	0	0.0	1	5.6	8	44.4	8	44.4	1	5.[illegible]
1973	Male	95	56.5	0	0.0	9	5.3	16	9.1	63	36.0	7	4.[illegible]
	Female	79	43.5	0	0.0	0	0.0	1	0.6	69	39.7	9	5.[illegible]
	Total	174	100.0	0	0.0	9	5.3	17	9.7	132	75.7	16	9.[illegible]
1974	Male	145	86.3	0	0.0	73	43.5	62	36.9	9	5.4	0	0.[illegible]
	Female	23	13.7	0	0.0	0	0.0	1	0.6	20	11.9	3	1.[illegible]
	Total	168	100.0	0	0.0	73	43.5	63	37.5	29	17.3	3	1.[illegible]
1975	Male	21	70.0	0	0.0	14	46.7	2	6.7	4	13.3	1	3.[illegible]
	Female	9	30.0	0	0.0	0	0.0	2	6.7	4	13.3	3	10.0
	Total	30	100.0	0	0.0	14	46.7	4	13.4	8	26.6	4	13.3
1976	Male	71	50.4	0	0.0	8	5.7	44	31.2	14	9.9	5	3.6
	Female	70	49.6	0	0.0	0	0.0	14	9.9	53	37.6	3	2.1
	Total	141	100.0	0	0.0	8	5.7	58	41.1	67	47.5	8	5.7

Appendix
Table 27. Comparative age and sex composition of king salmon sampled at Salcha River, 1970-1976.1/

Year	Sex	Combined Age Classes No.	Combined Age Classes %	Age 3_2 No.	Age 3_2 %	Age 4_2 No.	Age 4_2 %	Age 5_2 No.	Age 5_2 %	Age 6_2 No.	Age 6_2 %	Age 7_2 No.	Age 7_2 %
1970	Male	132	79.0	0	0.0	72	43.1	49	29.3	6	3.6	5	3.0
	Female	35	21.0	0	0.0	-	--	15	9.0	17	10.2	3	1.8
	Total	167	100.0	0	0.0	72	43.1	64	38.3	23	13.8	8	4.8
1972	Male	131	44.7	0	0.0	22	7.5	16	5.5	89	30.3	4	1.4
	Female	162	55.3	0	0.0	-	--	6	2.0	150	51.3	6	2.0
	Total	293	100.0	0	0.0	22	7.5	22	7.5	239	81.6	10	3.4
1973	Male	58	62.4	0	0.0	10	10.8	29	31.2	11	11.8	8	8.6
	Female	35	37.6	0	0.0	-	--	3	3.2	16	17.2	16	17.2
	Total	93	100.0	0	0.0	10	10.8	32	34.4	27	29.0	24	25.8
1974	Male	157	75.0	0	0.0	91	44.0	21	10.0	39	18.0	4	2.0
	Female	51	25.0	0	0.0	-	--	3	1.0	47	23.0	1	1.0
	Total	208	100.0	0	0.0	91	44.0	24	11.0	86	41.0	5	3.0
1975	Male	124	61.1	1	0.5	51	25.1	42	20.7	25	12.3	5	2.5
	Female	79	38.9	-	--	-	--	24	11.8	49	24.1	6	3.0
	Total	203	100.0	1	0.5	51	25.1	66	32.5	74	36.4	11	5.5
1976	Male	88	58.7	0	0.0	21	14.0	51	34.0	15	10.0	1	0.7
	Female	62	41.3	0	0.0	0	0.0	14	9.3	45	30.0	3	2.0
	Total	150	100.0	0	0.0	21	14.0	65	43.3	60	40.0	4	2.7

1/ Not sampled in 1971.

Appendix Table 28. Age and sex of king salmon sampled at Whitehorse fishway, 1970-1976

Year	Combined Age Classes			Age Group									
				3_2		4_2		5_2		6_2		7_2	
	Sex	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1970	male	86	86.8	-	-	29	29.3	46	46.4	9	9.1	2	2.0
	female	13	13.2	-	-	-	-	6	6.1	6	6.1	1	1.0
	total	99	100.0	-	-	29	29.3	52	52.5	15	15.2	3	3.0
1971	male	132	48.7	-	-	1	0.4	90	33.2	40	14.7	1	0.4
	female	139	51.3	-	-	-	-	28	10.3	111	41.0	-	-
	total	271	100.0	-	-	1	0.4	118	43.5	151	55.7	1	0.4
1972	male	24	46.2	-	-	-	-	7	13.5	15	28.9	2	3.8
	female	28	53.8	-	-	-	-	3	5.8	23	44.2	2	3.8
	total	52	100.0	-	-	-	-	10	19.3	38	73.1	4	7.6
1973	male	30	61.0	-	-	-	-	23	47.0	7	14.0	-	-
	female	19	39.0	-	-	-	-	2	4.0	16	33.0	1	2.0
	total	49	100.0	-	-	-	-	25	51.0	23	47.0	1	2.0
1974	male	52	60.0	-	-	12	14.0	19	22.0	19	22.0	2	2.0
	female	34	40.0	-	-	-	-	3	4.0	28	33.0	3	3.0
	total	86	100.0	-	-	12	14.0	22	26.0	47	55.0	5	5.0
1976	male	10	45.5	-	-	-	-	9	41.0	1	4.5	-	-
	female	12	54.5	-	-	1	4.5	8	36.4	3	13.6	-	-
	total	22	100.0			1	4.5	17	77.4	4	18.1		

1/ Samples not collected in 1975.

Appendix
Table 29. Comparative age and sex composition of Yukon River summer chum salmon, test fishing catch sample, taken with 5 1/2" mesh gill nets at Flat Island, 1965-1976

Year	No. of Samples	Males Percent	Females Percent	Age-Percent			
				3_1	4_1	5_1	6_1
1965 1/	486	57.6	42.4	0.2	97.3	2.5	-
1966	300	28.0	72.0	3.3	70.3	26.4	-
1967	140	31.4	68.6	1.4	78.6	20.0	-
1968 2/	413	59.5	40.5	4.4	43.1	51.8	0.7
1969	528	62.9	37.1	5.5	87.3	7.2	-
1970	396	53.5	46.5	1.2	91.2	7.6	-
1971	279	55.6	44.4	0.7	59.5	39.8	-
1972	456	40.4	59.6	2.4	46.1	51.3	0.2
1973	648	43.1	56.9	2.3	62.4	34.1	1.2
1974	297	52.2	47.8	8.4	83.2	8.1	0.3
1976	128	46.1	53.9	3.1	28.1	68.8	-

1/ Various mesh sizes used, majority of samples from 5 1/2" and 8 1/2" mesh gill nets.
2/ 5 1/2" and 8 1/2" mesh gill net samples combined.

Appendix

Table 30. Comparative age and sex composition of Yukon River chum salmon,[1/] commercial catch sample taken with 5 1/2" mesh gill nets at Emmonak, 1972-1976.

Year	Combined Age classes			Age 3		Age 4		Age 5		Age 6	
	Sex	No.	%	No.	%	No.	%	No.	%	No.	%
1972	Male	383	47.5	43	5.3	232	28.8	108	13.4		
	Female	424	52.5	43	5.3	262	32.5	119	14.7		
	Total	807	100.0	86	10.6	494	61.3	227	28.1		
1973	Male	388	41.1	24	2.5	251	26.6	108	11.5	5	0.5
	Female	555	58.9	31	3.3	411	43.6	110	11.7	3	0.3
	Total	943	100.0	55	5.8	662	70.2	218	23.2	8	0.8
1974	Male	362	48.5	141	18.9	210	28.2	11	1.5		
	Female	384	51.5	152	20.4	225	30.2	6	0.8		
	Total	746	100.0	293	39.3	435	58.4	17	2.3		
1975	Male	298	27.6	2	0.2	292	27.1	4	0.4	0	0.0
	Female	780	72.4	9	0.8	751	69.7	20	1.8	0	0.0
	Total	1078	100.0	11	1.0	1043	96.8	24	2.2	0	0.0
1976	Male	373	46.5	53	6.6	126	15.7	194	24.2	0	0.0
	Female	429	53.5	37	4.6	165	20.6	227	28.3	0	0.0
	Total	802	100.0	90	11.2	291	36.3	421	52.5	0	0.0

1/ Mostly fall chums but includes some late summer chums.

APPENDIX TABLE 31 . Western Alaska king salmon catch compared to Japanese mothership catch in the Bering Sea, 1960-1976. 1/

	Yukon Area 2/	A-Y-K Region 3/	Total Western Alaska 4/	Japanese Mothership Bering Sea
1960	78,647	93,017	220,031	142,000
1961	155,570	201,358	295,514	10,000
1962	120,381	156,413	245,960	-
1963	152,247	209,456	279,426	42,000
1964	119,672	171,070	317,598	204,000
1965	140,086	189,888	314,086	116,000
1966	109,643	184,268	275,382	122,000
1967	151,554	243,328	370,244	70,000
1968	123,846	201,319	316,625	293,000
1969	106,891	214,606	351,860	450,000
1970	99,290	235,510	387,125	404,000
1971	138,936	229,379	359,223	157,000
1972	114,224	216,428	291,798	220,000
1973	99,537	193,069	248,872	32,000
1974	120,868	177,988	238,789	234,000
1975	84,703	161,909	196,709	200,000 5/
1976 5/	107,636	221,680	331,081	126,000

1/ Catch data presented in numbers of fish.

2/ Commercial and subsistence catch data combined (includes Canadian catches).

3/ Commercial and subsistance catch data combined.

4/ Combined commercial and subsistence catches of AYK region and Bristol Bay area plus North Alaska Peninsula commercial catches.

5/ Preliminary data.

Attachment 1. List of Yukon area emergency orders and regulations issued, 1976.

Number	Effective Date	Action Taken	Comments
E.O. #1(Yukon)	June 7	Change weekly fishing schedule from a single four day period to two 2 day periods in subdistrict 3.	Action taken to provide for more balanced harvest of stocks throughout subdistrict.
E.R. #1(Yukon)	June 18	Allow taking of fish other than salmon by permit in subdistrict 4 between the mouths of the Rodo and Nowitna Rivers during June 15-July 15.	Action taken to allow continuance of traditional subsistence fishery.
E.O. #2(Yukon)	July 1	Reduce fishing time in subdistrict 1 from 3 to 2 days/week.	Action required to provide for increased king salmon escapements because of indicated below average strength of the run.
E.O. #3(Yukon)	July 3	Reduce fishing time in subdistrict 2 from 3 to 2 days/week.	Action required to provide for increased king salmon escapements because of indicated below average strength of the run.
E.O. #4(Yukon)	July 2	Closure of fishing season in subdistrict 3.	3,000 king salmon season catch quota taken.
3-Y-05-76	July 5	Specify that only gill nets of 6 inch or less mesh size may be used in subdistricts 1 and 2.	Action taken to allow harvest of the more abundant summer chums and minimize catch of the late run of kings.
3-Y-06-76	July 11	Increase fishing time from 2 to 3 days a week in subdistricts 1 and 2.	Action taken to allow increased harvest of summer chums as the king run was nearly completed.
3-Y-07-76	July 13	Prohibit sale of subsistence caught chum salmon roe in subdistrict 4.	Roe quota, based on traditional harvest levels, was exceeded. Closure necessary to prevent excessive subsistence harvest.

Attachment 1. (Continued)

Number	Effective Date	Action Taken	Comments
3-Y-08-76	July 15	Open the fishing season in subdistrict 3 and provide that only gill nets of 6 inch or less mesh may be used.	Action taken to allow harvest of the more abundant summer chums and minimize catch of the late run of kings.
3-Y-09-76	July 30	Close fishing season in subdistrict 6.	1,000 king salmon season catch quota taken.
3-Y-10-76	August 4	Prohibit sale of subsistence caught king salmon roe in subdistrict 6.	Roe quota, based on traditional harvest levels, was exceeded. Closure necessary to prevent excessive subsistence harvest.
3-Y-11-76	August 5	Close of fishing season in subdistrict 5.	3,000 king salmon season catch quota taken.
3-Y-12-76	August 17	Re-open fishing season in subdistricts 5 and 6.	Action taken since the majority of king and summer chum salmon runs have passed through the fishing areas into spawning streams.
3-Y-13-76	August 11	Reduce fishing time from 3 to 1 1/2 days/ week in subdistricts 1 and 2.	Action required because indicated strength of fall chum run is below average and reduction in fishing time necessary to provide for upriver escapement and fishery requirements.
3-Y-14-76	August 14	Close fishing season in subdistricts 1 and 2.	Action required because of continued low abundance of fall chums as indicated by comparative catch data.
3-Y-15-76	August 22	Reduce fishing time from 5 to 3 1/2 days/ week in subdistricts 4, 5, and 6.	Action taken because of indicated below average run of fall chums and the necessity to provide for escapement.
3-Y-16-76	August 27	Close fishing season in subdistricts 4, 5, and 6.	Action taken because of continued below average abundance of fall chums and the necessity to provide for subsistence and escapement requirements.

Attachment 1. (Continued)

Number	Effective Date	Action Taken	Comments
3-Y-08-76	July 15	Open the fishing season in subdistrict 3 and provide that only gill nets of 6 inch or less mesh may be used.	Action taken to allow harvest of the more abundant summer chums and minimize catch of the late run of kings.
3-Y-09-76	July 30	Close fishing season in subdistrict 6.	1,000 king salmon season catch quota taken.
3-Y-10-76	August 4	Prohibit sale of subsistence caught king salmon roe in subdistrict 6.	Roe quota, based on traditional harvest levels, was exceeded. Closure necessary to prevent excessive subsistence harvest.
3-Y-11-76	August 5	Close of fishing season in subdistrict 5.	3,000 king salmon season catch quota taken.
3-Y-12-76	August 17	Re-open fishing season in subdistricts 5 and 6.	Action taken since the majority of king and summer chum salmon runs have passed through the fishing areas into spawning streams.
3-Y-13-76	August 11	Reduce fishing time from 3 to 1 1/2 days/ week in subdistricts 1 and 2.	Action required because indicated strength of fall chum run is below average and reduction in fishing time necessary to provide for upriver escapement and fishery requirements.
3-Y-14-76	August 14	Close fishing season in subdistricts 1 and 2.	Action required because of continued low abundance of fall chums as indicated by comparative catch data.
3-Y-15-76	August 22	Reduce fishing time from 5 to 3 1/2 days/ week in subdistricts 4, 5, and 6.	Action taken because of indicated below average run of fall chums and the necessity to provide for escapement.
3-Y-16-76	August 27	Close fishing season in subdistricts 4, 5, and 6.	Action taken because of continued below average abundance of fall chums and the necessity to provide for subsistence and escapement requirements.

Attachment 2. Summary of 1976 Yukon district commercial and subsistence fishing regulations promulgated by Board of Fisheries at December, 1975 meeting in Juneau.

Section	Action Taken
5AAC 03.200. FISHING DISTRICTS AND SUBDISTRICTS. (e)(5)(B)	Changed the downstream boundary of section 5B of subdistricts 5 from a marker placed two miles downstream of Waldron Creek (instead of Long Point).
5AAC 03.200 FISHING DISTRICTS AND SUBDISTRICTS. (e)(6)(A)(B)(C)	Divided subdistrict 6 into three sections: section 6A - mouth of Tanana River upstream to mouth Kantishna River; section 6B - mouth Kantishna River upstream to mouth of Wood River; section 6C - mouth of Wood River upstream to Chena River.
5AAC 03.320. WEEKLY FISHING PERIODS. (c)(4)	Changed the weekly fishing schedule in subdistrict 5 from 6:00 P.M. Tuesday (instead of Sunday) until 6:00 P.M. Sunday (instead of Friday).
5AAC 03.320. WEEKLY FISHING PERIODS. (c)(5)	Allowed seven days a week fishing in section 5B of subdistrict 5.
5AAC 03.330. GEAR. (b)(1)	Prohibited use of fishwheels for commercial salmon fishing in subdistricts 1, 2 and 3.
5AAC 03.331. GILL NET SPECIFICATIONS AND OPERATION. (c)(2)	Established a flexible range of dates from June 27 to July 5 after which salmon may be taken for commercial purposes with gill nets of six inch or smaller mesh in subdistrict 1 and 2.
5AAC 03.331. GILL NET SPECIFICATIONS AND OPERATION. (c)(3)	Established a flexible range of dates from July 5 to July 15 after which salmon may be taken for commercial purposes with gill nets of six inch or smaller mesh in subdistrict 3.
5AAC 03.334. IDENTIFICATION OF GEAR. (c)	Required that the permanent registration number of the operator be placed on the outboard side of a commercial fishwheel.
5AAC 03.335. MINIMUM DISTANCE BETWEEN UNITS OF GEAR. (b)(3)	Established a minimum distance of 200 feet between commercial and subsistence fishing gear in subdistricts 4, 5 & 6.

5AAC 03.360 QUOTAS. (1)(A)	Established dates of July 18 in subdistrict 2 and July 21 in subdistrict 3 after which the 200,000 chum and salmon quota for subdistricts 1, 2 and 3 combined takes effect.
5AAC 03.990. RESTRICTIONS. (e)(2)	Established a two days a week subsistence fishing closure throughout subdistrict 4 excluding the Koyukuk and Innoko River drainages. Also excluded the Tozitna River drainage from the present two days a week subsistence fishing closure in section 5-A of subdistrict 5.
5AAC 03.990. RESTRICTIONS (e)(3)	Established a flexible range of dates from June 27 to July 5 after which commercial fishermen may not take salmon for subsistence purposes with gill nets of six inch or smaller mesh in subdistricts 1 and 2.
5AAC 03.990. RESTRICTIONS. (e)(4)	Establish a flexible range of dates from July 5 to July 15 after which commercial fishermen may not take salmon for subsistence purposes with gill nets of six inch or smaller mesh in subdistrict 3.
5AAC 03.990 RESTRICTIONS. (e)(5)	Specified that during the weekly open periods of the commercial salmon fishing season, a commercial fisherman may not fish for commercial and subsistence purposes simultaneously with more than one type of gear in the Yukon district.
5AAC 03.990. RESTRICTIONS (e((6)	Specified that the aggregate subsistence set gill net in use and by individual may not exceed 150 fathoms and each subsistence drift gill net in use by an individual may not exceed 50 fathoms in length in the Yukon district.
5AAC 03.990. RESTRICTIONS (e)(10)	Closed the main Tanana River and its adjoining sloughs to subsistence fishing between the mouth of the Salcha River and the mouth of the Gerstle River except that salmon may be taken in the area upstream of the Richardson Highway bridge to the mouth of Clearwater Creek after November 20.

5AAC 03.990. RESTRICTIONS. (h)	Provided for special marking requirements for subsistence fishwheels and gear operated under the ice to facilitate identification of gear operators in the Arctic-Yukon-Kuskokwim area.
5AAC 03.805. SALE OF SALMON ROE (a) through (n)	Established necessary regulations governoring the purchase and sale of subsistence caught salmon roe in the Arctic-Yukon-Kuskokwim area in accordance with AS16.05.827: 1. Permits required of all persons or companies purchasing or processing subsistence caught roe. 2. Revocation of permits upon violation of permit terms, regulations or laws. 3. Strict reporting requirements in regard to amount of subsistence caught roe purchased in order that estimates of subsistence harvests can be made. 4. Prohibition of subsistence-caught roe sales when subsistence harvests are likely to exceed traditional personal use needs.
5AAC 03.810. SALMON ROE SALES PROHIBITED. (1) (2) (3) (4)	Prohibition of subsistence-caught sales in districts and subdistricts of the Arctic-Yukon-Kuskokwim area where salmon runs are especially vulnerable to overharvest or where subsistence catches in the past have been negligible.

Attachment 3. Summary of special projects conducted in the Yukon Area by the Division of Commercial Fisheries, 1976.

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1. YUKON RIVER TEST FISHING
   a. Location: Flat Island in the south mouth of the Yukon River.
   b. Objectives: Determine run timing and relative abundance of king and summer chum salmon in the south mouth channel of the Yukon River.
   c. Results: A total of 643 king and 3,303 chum salmon was taken in index set gillnets from June 13 through July 15. Peaks in the king salmon migration occurred during June 23-24 and June 30-July 3. Peaks in the summer chum migration occurred during June 20-24 and June 27-July 3. Based on comparative catch data, the 1976 king salmon run was below average in magnitude. The 1976 summer chum salmon run was above average in magnitude.

2. SUBSISTENCE SALMON FISHERY SURVEYS
   a. Location: Yukon, Koyukuk, Tanana Rivers, and Yukon Territory Villages.
   b. Objectives: Determine subsistence utilization of salmon and fishing effort needed for formulating future management procedures and goals, also collect tag recoveries from high seas and Department tagging programs.
   c. Results: A total of 651 fishing families were surveyed and their catches totaled 15,097 king salmon and 221,284 other salmon. A total 1,000 river miles traveled by boat and 500 air miles by single engine aircraft in the conducting of the survey. Yukon Territory subsistence catch data was furnished by Environment Canada - Fisheries Service (Whitehorse office).

3. YUKON RIVER ANADROMOUS FISH INVESTIGATION
   a. Location: Yukon River drainage.
   b. Objectives: Develop estimates or indices of the magnitude and quality of king and chum salmon escapements; determine size and effect of commercial and subsistence harvest on various stocks of king and chum salmon; plus relate collected data to long-term trends in the salmon stocks and evaluate management procedures needed to maintain them at their level of maximum yield.
   c. Results: The king salmon escapement for the Anvik River in 1976 was estimated to be 1,155.

      One hundred and twenty king salmon were enumerated at the Whitehorse fishway in 1976. This count was only 19% of the average yearly count of 634 for the seventeen year period beginning in 1959 and ending in 1975.

      The 1976 expanded Anvik tower count of summer chums was 237,851, 40% of the 1975 record count. Escapements of summer chums in other systems were also less than 1975, but overall escapements were considered above average throughout most of the Yukon River drainage.

Two of the primary producing fall chum salmon streams in 1976, the Sheenjek and Fishing Branch rivers, all had substantially less escapements than in 1975. Escapements in these spawning areas in 1976 were 12,023 and 13,450 fall chums, respectively, only 15 and 4% of the 1975 escapements.

4. COMMERCIAL SALMON CATCH SAMPLING
   a. Location: Various locations in the different subdistrict fisheries.
   b. Objectives: Obtain age, sex and size information for commercially caught fish.
   c. Results: Several hundred samples of king, chum and coho salmon were collected in 1976. Detailed age, sex and size composition data has been compiled and will be presented in a subsequent separate report.

5. YUKON RIVER FALL CHUM AND COHO SALMON TAG-RECOVERY PROJECT
   a. Location: Yukon River drainage.
   b. Objectives: The primary objective of this study is to determine the relative timing and distribution of various stocks past the commercial fishery in order to provide for more effective management.
   c. Results: In 1976 a total of 1,224 fall chum and 14 coho salmon, captured with two fishwheels (each located on the north and south bank of the Yukon River) near Galena, were tagged. A total of 574 (46.9%) tagged chum and 6 (42.9%) coho salmon were recovered. The greater majority of the recoveries of fish tagged on the north bank were destined for spawning areas in the upper Yukon area upstream of the Tanana River mouth. Conversely, most of the recoveries of fish tagged at the south bank were recovered within the Tanana River system. Although analysis of recovery data in respect to timing is inconclusive, there are indications based on fishwheel tagging catches at Galena that the timing of upper Yukon stocks (presumed to be mainly Porcupine River origin) is earlier than the Tanana River run.

Attachment 4.

SALE OF ROE FROM SUBSISTENCE CAUGHT SALMON IN THE ARCTIC-YUKON-KUSKOKWIM REGION, 1974-1976

REPORT TO THE ALASKA LEGISLATURE

FEBRUARY, 1977

ALASKA DEPARTMENT OF FISH AND GAME

DIVISION OF COMMERCIAL FISHERIES

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Preface

The sale of roe from subsistence caught salmon has been allowed in the Arctic-Yukon-Kuskokwim region since 1974. Statutes that provide for legalization of these sales expired January 1, 1977. Presumably the Legislature intended to thoroughly review this subject in order to determine if subsistence roe sales should be allowed beyond the 1976 season. This report reviews the history, production, economic values and fishery management implications associated with subsistence roe sales.

SALE OF ROE FROM SUBSISTENCE-CAUGHT SALMON IN THE ARCTIC-YUKON-KUSKOKWIM REGION

Introduction

In years past when native people were experiencing a traditional or "pure" subsistence type of livelihood, all or nearly all portions of fish captured were probably utilized. Salmon roe, a fish by-product, was consumed by people with probably greater quantities fed to their sled dogs. Due to recent changes in employment and welfare opportunities, there has been a gradual decline in the dependence upon subsistence fishing in many areas. Replacement of sled dogs with snowmachines has also been a very important influence on the decline in utilization of salmon and salmon roe. From reports received from various village residents, much of the roe from subsistence caught salmon was discarded in the recent years prior to 1974. Actual amounts of salmon roe either discarded or utilized during these earlier years were never documented.

There are many problems involving the documentation of the amount of roe utilized and/or wasted in the subsistence fishery. It is believed that some native fishermen continued to store or dry their salmon roe with the intention of some future use, but significant amounts were probably never used. Most fishermen would be hard pressed to quantify the amount of roe retrieved from their salmon catch, the amount consumed or the amount wasted.

Initial interest in permitting sales of subsistence caught salmon roe came from commercial salmon buyers. Beginning with the 1973 season, most Kuskokwim

area buyers and a few buyers in the upper Yukon illegally augmented their roe production to some extent from subsistence fishing channels. It was estimated that illegal purchases of subsistence salmon roe represented 10-15 percent of the reported commercial roe production for the Kuskokwim area in 1973.

Three different bills were introduced in the 1974 Legislature that involved legalization of the sale of subsistence caught salmon roe. None of these bills passed as they remained in committee through adjournment.

In the spring of 1974 it was apparent that several commercial salmon buyers were gearing up to illegally purchase even larger amounts of subsistence roe. Both the Departments of Fish and Game and Public Safety assigned additional personnel for fishery patrol in an attempt to minimize the illegal purchases of subsistence roe. The major thrust of the enforcement program consisted of increased surveillance of buying and processing stations. News releases and notices were issued to clarify existing regulations.

An emergency regulation with an effective date of June 15, 1974 was issued by the Commissioner which allowed the unrestricted sale of salmon roe obtained as an unavoidable product of legal subsistence fishing throughout the entire A-Y-K region. Issuance of the emergency regulation, in effect for 120 days, was coincidental with the beginning of the salmon runs.

In 1975 the Legislature adopted an Act (Appendix 1) with an effective date of

May 29 that legalized subsistence salmon roe sales only in the A-Y-K region. These statutes contained the following important provisions:

1. Expiration date is January 1, 1977. Sales after this date will presumably depend on further legislative review and action.

2. No person may purchase or trade for subsistence salmon roe unless he possesses an annual permit issued by the Commissioner.

3. The Commissioner may close any or all areas to the sale of subsistence salmon roe if the waste of carcasses, damage to stocks or circumvention of management programs is occurring. A separate section defining the "waste of salmon" and penalties for violators is included.

4. If the subsistence catch in an area exceeds or is likely to exceed by 10 percent the 1974 subsistence catch for that area, the Commissioner shall close that area to the sale of subsistence salmon roe.

5. The Board of Fisheries may adopt regulations necessary to allow the sale of roe based on traditional subsistence needs in harmony with the maintenance of salmon stocks on a sustained yield basis.

In order to administer the legislation, the Commissioner issued an emergency regulation in June of 1975. This emergency regulation (Appendix 2) contained provisions pertaining to permitting and reporting requirements in addition to prohibiting subsistence roe sales in areas where the salmon runs were especially vulnerable or where recent subsistence salmon catches were negligible.

The Board of Fisheries in December of 1975 adopted regulations for the 1976 season that were similar to the provisions contained in the aforementioned emergency regulation. The Board regulations contain an additional important provision which provides that sale of subsistence roe may be prohibited when the subsistence catch exceeds or is likely to exceed the 1970-74 average annual harvest in any district or subdistrict. These regulations (Appendix 3) will remain in effect until changed by future Board action or superseded by Legislation.

Description of Subsistence Roe "Fishery"

Current Board of Fisheries' regulations allow the sale of subsistence salmon roe only in the main Yukon River, main Tanana River downstream of the Chena River, main Kuskokwim River downstream of the Kolmakoff River, Goodnews Bay and at Quinhagak (subdistrict 4 of the Kuskokwim area). Although permitted over a greater portion of the region in 1974 and 1975, the vast majority of sales occurred in the aforementioned areas.

Table 1 presents information on the poundages of subsistence roe sold, number of persons making sales and economic values for each management area. Locations of the various management areas are shown in Figure 1. Chum salmon roe comprises approximately 75 percent (by weight) of all sales with the remainder being king salmon roe. Small amounts of roe from the other salmon species are sold and these are included in the chum salmon totals.

Record roe sales were made in 1976 totaling 232,000 pounds from all species. A total of 182,000 and 156,000 pounds were sold in 1974 and 1975 respectively. Record sales were also made in 1976 from the standpoint of fishermen sales ($431,000), average earnings ($261) and first wholesale value ($862,000).

The numbers of persons making roe sales each year ranged from 1425 to 1650. In 1976 it was determined that of the 1650 persons that sold roe, approximately one-half (699) held an entry permit and fished commercially. All persons that made sales were probably not fishermen since it was common practice for parents to give roe to their children to sell.

Twenty subsistence roe buyers operated in the region during 1976, with four major buyers processing 75 percent (by weight) of all roe purchased. Prices paid to Kuskokwim River fishermen (average $2.12/lb in 1976) were substantially greater than prices paid to Yukon fishermen (average $1.38/lb. in 1976). First wholesale prices listed in Table 1 are based on 1975 values and are considered low.

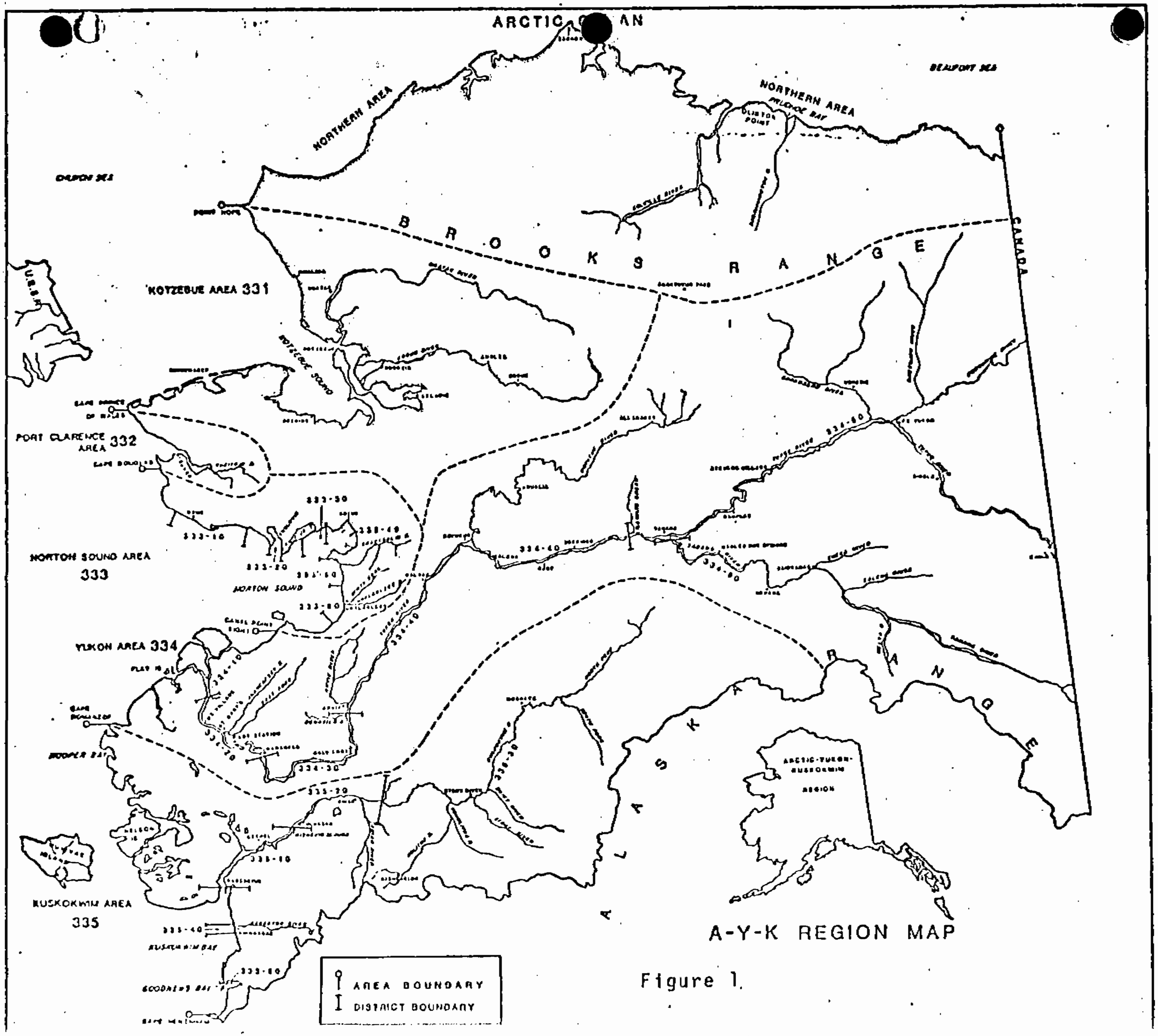
Table 1. Subsistence salmon roe sale information by management area and year, Arctic-Yukon-Kuskokwim Region, 1974-76.

Pounds of raw product	1974 Kuskokwim	1974 Yukon	1974 Total	1975 Kuskokwim	1975 Yukon	1975 Total	1976 Kuskokwim	1976 Yukon	1976 Total
King	34,581	717 1/	35,298	24,399	2,467	26,866	61,714	5,830	67,544
Chum	98,602	48,528 1/	147,130	57,711	71,328	129,039	95,389	68,647	164,046
Total	133,183	49,245 1/	182,428	82,110	73,795	155,905	157,103	74,487	231,590
Value of Sales	$180,000	$ 37,000 2/	$ 217,000 2/	$124,000	$ 85,000	$209,000	$334,000	$ 97,000	$431,000
Number of persons reporting sales	1,438	186 2/	1,624 2/	1,200	225	1,425	1,321	329	1,650
Average sales value per person	$ 125	$ 191 2/	$ 133 2/	$ 103	$ 378	$ 147	$ 253	$ 295	$ 261
Number of processors	4	11	15	4	14	18	6	14	20
First wholesale value 3/	$360,000	$74,000	$434,000	$248,000	$170,000	$418,000	$668,000	$194,000	$862,000

1/ Includes small amounts of roe taken in Norton Sound.

2/ Does not include small undetermined number of Norton Sound Fishermen.

3/ Based on 2x that of fishermen value.



A-Y-K REGION MAP

Figure 1.

Table 2 shows subsistence roe data recorded during 1974 through 1976 for each sub-area. The largest quantities of roe were sold in the following sub-areas: Kuskokwim River from the mouth to Akiak (63% by weight), mid-Yukon River (17%) and Tanana River (10%). Small amounts were sold in the lower and upper Yukon river areas and in some coastal villages. The small subsistence fisheries or remote locations of these latter areas make it uneconomical to transport the roe long distances to central processing plants.

Since subsistence fishing occurs in many widely scattered villages and fish camps, the roe buyers have developed an extensive collection system. Buyer representatives are placed in most villages and the larger fish camps in areas where subsistence roe sales are permitted. Fishermen are provided plastic buckets in which to place roe and these are transported almost daily by boat or aircraft to processing plants, most of which are located in Bethel, Galena, Nenana and Fairbanks. For the most part, processing is accomplished by Japanese technicians who slat and pack the roe using conventional methods required for marketing in Japan.

Due to the extensive nature of the subsistence fishery, the monitoring of roe sales is a substantial task. Accurate and timely information regarding the amounts of roe sold is essential since sales are prohibited when subsistence harvests exceed levels specified in the regulations. For example, with subsistence fishing occurring from 5 to 7 days a week, as much as 45,000 pounds of roe representing a subsistence catch of nearly 100,000 fish can be made in

Table 2. Subsistence salmon roe sale information by sub-areas, Arctic-Yukon-Kuskokwim region, 1974-1976 1/

	Pounds of King Salmon Roe	Pounds of Chum Salmon Roe	Value of Sales	Number of persons reporting sales	Value of sales per person
Kuskokwim Area					
Kuskokwim River					
Mouth to Akiak	33,859	66,710	$170,473	1,055	$162.00
Upstream of Akiak	4,179	16,144	36,323	169	215.00
Totals	38,038	82,854	$206,796	1,224	$169.00
Quinhagak	2,047	1,096	$ 5,397	95	$ 57.00
Goodnews Bay	163	2	$ 222	2/	2/
Hooper Bay	0	34	51	1	51.00
Area Totals	40,085	83,984	$212,244	1,320	$277.00
Yukon Area					
Lower Yukon River (mouth-Holy Cross)	955	3,955	$ 5,598	43	$130.00
Mid-Yukon River (Anvik-Ruby)	197	31,501	34,616	108	321.00
Upper Yukon River (Upstream of Tanana)	972	10,985	12,330	51	242.00
Tanana River	798	17,048	20,062	45	445.00
Area Totals	2,922	63,489	$ 72,606	247	$294.00
Norton Sound Area 2/	249	1,627	3/	3/	3/

1/ All data represents averages for 1974-76.
2/ Sales occurred only during 1974.
3/ Information not available.

the Kuskokwim River during a single week. Pounds of roe sold daily and weekly are obtained from written reports and special roe tickets provided buyers.

Since statehood, annual subsistence harvests have been obtained by comprehensive surveys made at the end of the fishing season. Present regulations require that estimates of in-season catches also be obtained. This is accomplished by translating pounds of subsistence roe sold to numbers of fish using sex ratio and average roe weight information.

Several emergency orders were issued prohibiting subsistence roe sales in various subdistricts when subsistence catch levels or "quotas" specified in the regulations are attained. These "quotas", which have been utilized for management purposes since 1975, represent traditional recent harvests made prior to the legalization of subsistence roe sales. Subsistence fishing could continue after roe sales were prohibited, but it was observed that effort often declined sharply thereafter.

King and chum salmon "quotas" are based on the 1974 (+10%) harvest and the 1970-1974 average annual harvest respectively. The Department has exercised the option provided in current statutes and regulations of selecting the base period for establishing "quotas" of moderate magnitudes.

Table 3 compares the catch "quotas" with in-season catch estimates from roe

Table 3. Comparison of estimated and recorded subsistence salmon catches to "quotas", AYK Region, 1974-76. (1976 actual catches are preliminary).

	Kuskokwim River (subdistricts 1 & 2		
King Salmon	1974	1975	1976
"Quota" 1/	None	27,600	27,600
Estimated Catch 2/	20,300	32,000	43,000
Actual Catch 3/	25,100	45,400	59,600
Chum Salmon			
"Quota" 1/	None	169,800	169,800
Estimated Catch 2/	313,000	185,100	246,100
Actual Catch 3/	260,900	158,300	205,700

	Yukon River (excluding Yukon Territory)		
King Salmon	1974	1975	1976
"Quota" 1/	None	17,050	17,050
Estimated Catch 2/	687	2,363	3,533
Actual Catch 3/	15,741	13,874	12,185
Chum Salmon			
"Quota" 1/	None	207,491	207,491
Estimated Catch 2/	97,056	142,656	171,567
Actual Catch 3/	238,149	210,622	238,702

1/ "Quotas" established by Department in 1975 and adopted as Board regulations in 1976: subsistence roe sales prohibited when king salmon catches exceed 1974 recorded catches by 10% and when chum salmon catches exceed 1970-74 average annual recorded catches.

2/ Catches estimated from lbs. of subsistence roe sold using sex ratio and average roe weight per fish information.

3/ Catches from systematic personal interview and survey of subsistence fishermen conducted at end of fishing season.

sales and actual catches from end of the season surveys. Differences between these data point out the difficulty associated with determining the magnitude of subsistence catches by any method. Large differences between estimated and actual catches are generally the result of roe not being sold from all salmon captured and catches made after roe sales were prohibited. Roe sales in the Kuskokwim River during 1976 should have been prohibited earlier in the season as the "quotas" were greatly exceeded. This was largely the result of problems encountered by the staff in making timely in-season catch estimates.

Management Considerations

Traditionally, the subsistence salmon fishery was naturally limited by personal food requirements and the numbers of salmon that could be handled in a day and hung to dry or smoke during the season. These restraints do not apply to any fishery where the profit motive can be paramount. For example, a Kuskokwim River subsistence fisherman currently is paid approximately $6.80 and $1.58 for the roe sold from a single king and chum salmon respectively. These prices are only slightly less than what the carcass of these species are worth to a commercial fisherman in the same area. The high value of subsistence salmon roe is an incentive for some individuals - buyers and fishermen - to risk violating either the intent or legal wording contained in existing statutes and regulations. Wastage, misuse and overfishing of the salmon resource were documented for specific times and locations during the past three seasons. Increased violations or erosion of management control could jeopardize future maintenance

of salmon stocks on a sustained yield basis.

During 1974-76 the Department received twelve documented reports or complaints from local residents concerning intentional wastage of salmon carcasses during the fishing season. These reports involved persons observed throwing carcasses into the river and piles of rotting carcasses. During this same time, department personnel documented only two instances of intentional wastage, both involving carcasses left to rot on the beach. These discarded carcasses contained females that had been stripped of their roe. In most instances the names of persons involved could not be determined. The problem of carcass disposal during the fishing season apparently declined during the last two seasons. This was probably the result of publicizing wanton waste provisions and penalties, placement of additional Department employees to monitor sales in key villages and social pressures exerted by law-abiding local residents.

Another difficult to detect, but potentially greater form of wastage exists. Large quantities of dried salmon captured the previous summer were observed by Department personnel in caches and smokehouses of several Kuskokwim villages during the spring of 1975. Due to the very poor condition of these fish, most were probably discarded as the current year salmon run was just beginning. Often the portion of the catch in excess of real need is stored in the open and is very susceptible to spoilage. Again, local residents have reported that this form of wastage does occur in some Yukon and Kuskokwim River communities.

Unintentional wastage of fish due to improper curing and storage methods coupled with adverse weather conditions has always been associated with the subsistence fishery. Compared to the amounts of salmon presently utilized for food, wastage that is traceable to subsistence roe sales is probably relatively insignificant.

New areas being fished, fishing late at night, cessation of fishing after subsistence roe sales have been prohibited and substantially larger catches were documented for specific times and locations during the last three seasons. This is indicative of changing subsistence fishing patterns including increased effort.

Subsistence catches of chum salmon, the most abundant species, declined in most areas during 1966-73 due to decreased effort resulting from fewer sled dogs being kept and more employment opportunities. Kuskokwim River catches did not exhibit a similar decline during this period. Yukon and Kuskokwim River chum salmon catches increased substantially during 1974-76 compared to previous recent years. This increase was probably due to a combination of factors that included above average run magnitudes and increased fishing effort. The effect that roe sales had on fishing effort cannot be quantitatively assessed at this time.

During 1974 through 1976, when subsistence roe sales were permitted, the average annual chum salmon catch increased 70 percent in the Kuskokwim

Table 4. Annual subsistence salmon catches made during 1964-1976 in portions of the Kuskokwim and Yukon Rivers where subsistence roe sales occurred in 1974-76.

	Kuskokwim River 1/		Yukon River 2/	
Year	King Salmon	Chum Salmon 3/	King Salmon	Chum Salmon 3/
1964	26,912	142,277	19,480	460,712
1965	26,186	236,197	16,950	436,306
1966	47,304	142,129	11,507	204,913
1967	56,470	166,896	16,306	256,926
1968	29,551	216,022	11,883	170,522
1969	36,973	165,233	13,916	195,476
1970	66,807	218,985	13,474	199,163
1971	39,781	101,170	21,670	171,247
1972	39,596	103,025	17,079	119,335
1973	37,315	164,992	19,458	167,106
1974	25,096	260,912	16,584	256,636
1975	45,365	158,257	14,155	250,054
1976 4/	59,629	205,676	12,095	190,225

1/ Mouth to Chauathbaluk.

2/ Mouth to Fort Yukon and Tanana River (does not include Fairbanks).

3/ Includes small numbers of the other salmon species.

4/ Preliminary data.

River and 50 percent in the Yukon River when compared to the previous 3 year averages. In the upper Kuskokwim River (upstream of Chuathbaluk), where subsistence roe sales were prohibited, the average annual catch made during 1974-76 increased only 20% compared to the previous three year average. In the Koyukuk River system, where roe sales were prohibited, the increased 1974 through 1976 catch was similar to that for portions of the Yukon River drainage open to subsistence roe sales.

There are some indications that subsistence fishermen are exerting more effort during the early portion of the season (and runs) which may be in response to competition for an increased share of the subsistence roe sales. Figure 2 shows seasonal catch patterns for the Kuskokwim River during and prior to the legalization of subsistence roe sales. Generally these graphs show catches were made during a longer time span during years when roe sales were not allowed. The 1964 season was an exception, but the run that year was exceptionally late and of short duration. If this trend of greater fishing effort early in the season continues, then measures will have to be taken to spread subsistence harvests throughout the run to prevent overharvesting of specific stocks. This will require additional weekly closures.

A possible consequence resulting from the authorization of the sale of subsistence caught salmon roe is that the concept and management of subsistence fishing may be permanently altered. Present subsistence fishing regulations in the A-Y-K region are quite liberal which is in recognition of the traditional personal needs of the large native population. If the problems cited in this section continue, then the state policy which assigns the highest priority among beneficial uses to subsistence fishing must be re-examined. Most

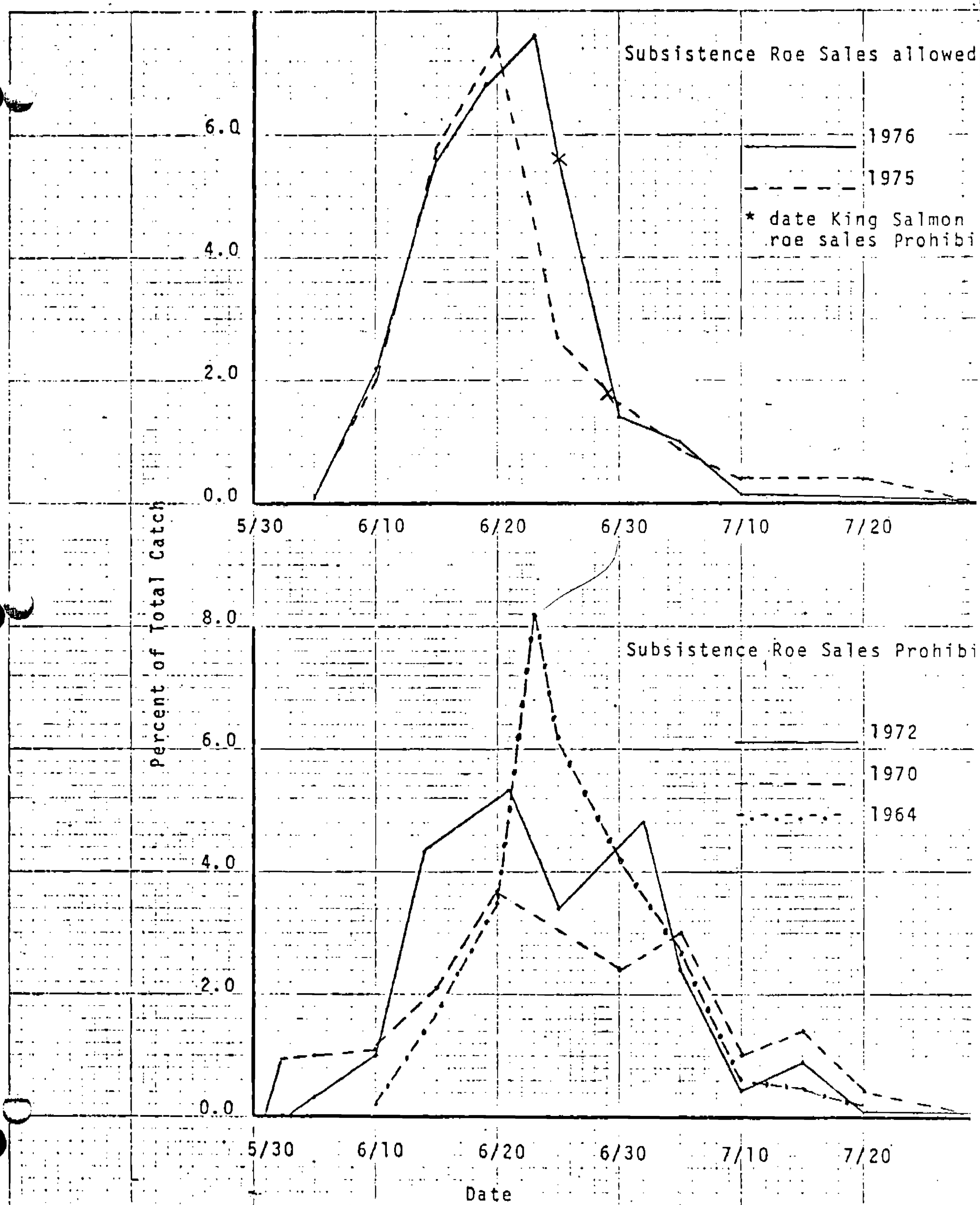


Figure 2. Kuskokwim River (subdistrict 1) daily subsistence king salmon catch
(Usable daily catch information available only for above years)

salmon populations are being harvested at maximum levels, and an increase in subsistence fishing effort and utilization must be countered with additional restrictions on subsistence fishing, commercial fishing or on both fisheries. If subsistence fishing requires further definition and restriction, many persons with genuine subsistence needs will be adversely affected by others who are much less dependent on a subsistence livelihood, but continue to fish mainly for the purpose of selling roe. This concern has been expressed to Department personnel on occasion by several long-term residents, who still fully utilize their catch for traditional use. These persons are opposed to the sale of subsistence roe because they feel it threatens their traditional life style.

The Department received an additional $19,000 in FY '77 (July 1, 1976 to June 30, 1977) to monitor the subsistence roe "fishery". Although three seasonal fishery technicians were hired, it was estimated that Yukon and Kuskokwim area biologists still devoted approximately one-quarter of their time to some aspect of monitoring roe sales during the 1976 fishing season. Thus, less time was afforded biological studies and management of commercial fisheries.

Recommendations

It is not the purpose of this report to recommend whether or not subsistence

roe sales should be extended beyond the 1976 season. The issues are very complex and require careful examination of economic and social as well as biological factors.

The Department cannot predict in quantifiable terms what effects continued subsistence roe sales will have on the fishery and salmon resource. Based on current information and trends, there is a strong likelihood that additional fishing restrictions will be necessary to manage the roe "fishery". The extent of changes in regulations or management strategies will be dependent on the extent of problems associated with future subsistence roe sales.

Statutory or regulatory prohibition of future subsistence roe sales will not necessarily eliminate such sales. Due to the small staff, remoteness and vast size of the region and the existence of subsistence fisheries within major commercial fishing areas, blackmarketing of roe would be difficult to control. The Kuskokwim River fishery would be easier to control in this regard than the upper Yukon-Tanana River fishery.

The following recommendations should be considered only if the Legislature approves future subsistence roe sales:

1. These roe sales must continue to be regarded as an experiment and should not be given more than a 2-year extension. Many questions concerning this subject cannot now be determined and

will require additional time for data collection and to more clearly distinguish trends in subsistence utilization. This should also enhance regulatory and statutory compliance on the part of all fishery participants.

2. An annual Department report covering all aspects of this subject should be submitted to the Legislature for determining necessary changes to enabling legislation.

3. Criteria and procedures involving revocation of permits issued to buyers of subsistence salmon roe should either be clarified or implemented. An existing Board of Fisheries regulation states that "any permittee who violates the terms of his permit or any other regulation or provision of law may have his permit revoked immediately by the Commissioner". Experience has shown that permit revocation is not easily accomplished. Permit revocation is an important deterrent and, to remain effective, must be initiated when serious violations occur.

4. Existing Board of Fisheries regulations controlling sale of subsistence salmon roe should be maintained.

APPENDICES

Appendix I

LAWS OF ALASKA

1975

Source

SB 451 am

Chapter No.

99

AN ACT

Relating to the sale of subsistence caught salmon eggs; and providing for an effective date.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

* Section 1. INTENT. (a) It is the intent of sec. 2 of this Act to permit the sale or trade of salmon roe in the Arctic-Yukon-Kuskokwim District under strict permit and regulatory provisions to assure the health of subsistence economies in areas where such use will not jeopardize or interfere with the maintenance of existing salmon stocks.

(b) It is the intent of sec. 3 of this Act to control the waste of salmon resources.

* Sec. 2. AS 16.05 is amended by adding a new section to read:

Sec. 16.05.827. SALE OF SUBSISTENCE SALMON ROE. (a) Notwithstanding sec. 940(17) of this chapter, the board may adopt regulations permitting the sale of subsistence salmon roe under conditions the board considers advisable.

(b) The board may permit subsistence salmon roe sales under (a) of this section if

(1) the accustomed contribution of salmon to particular subsistence economies will be maintained, as modified by current needs; and

(2) subsistence salmon roe sales will not jeopardize or interfere with the maintenance of salmon stocks on a sustained yield basis.

(c) No person may purchase or trade for or attempt to purchase or trade for subsistence salmon roe unless he

possesses an annual permit issued by the commissioner. The commissioner may specify terms and conditions of a permit required under this section. No license, entry permit or interim permit is required for the specific act of selling subsistence salmon roe. No person may purchase or transport or attempt to purchase or transport salmon roe which he knows or has reason to know was taken in violation of this section or regulations adopted under it.

(d) If the commissioner finds that sale of subsistence salmon roe is resulting in waste of salmon carcasses, damage to salmon stocks, or circumvention of salmon management programs, he may close any or all areas to subsistence salmon roe sale by emergency order. If the commissioner finds that the subsistence catch in an area exceeds or is likely to exceed, by 10 per cent, the 1974 subsistence catch for that area, he shall close that area to subsistence salmon roe sale by emergency order.

(e) Original purchasers of subsistence salmon roe shall record information required by the department on fish tickets supplied by the department.

(f) The board may adopt regulations it considers necessary for the administration of this section. The board may delegate its authority under this section to the commissioner.

(g) A person who violates this section or a regulation adopted under it is punishable by a fine of not more than $10,000, or by imprisonment for not more than six months, or by both.

(h) In this section, "subsistence salmon roe" means salmon roe incidentally obtained as an unavoidable by-product of lawful subsistence fishing.

* Sec. 3. AS 16.05 is amended by adding a new section to read:

Sec. 16.05.831. WASTE OF SALMON. (a) It is unlawful for a person to waste salmon intentionally, knowingly, or with reckless disregard for the consequences. In this section, "waste" means the failure to utilize the majority of the carcass, excluding viscera and sex parts, of salmon which are to be

(1) sold to a commercial buyer or processor;

(2) utilized for consumption by humans or domesticated animals; or

(3) utilized for scientific, educational, or display purposes.

(b) The commissioner may authorize other uses of salmon upon request if he finds that to do so would be consistent with maximum and wise use of the resource.

(c) A person who violates this section or a regulation adopted under it is punishable by a fine of not more than $10,000, or by imprisonment for not more than six months, or

by both. In addition, a person who violates this section is subject to a civil action by the state for the cost of replacing the salmon wasted.

* Sec. 4. Sections 1(a) and (2) of this Act expire January 1, 1977.

* Sec. 5. This Act takes effect immediately in accordance with AS 01.10.070(c).

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Approved by governor: May 29, 1975
Actual effective date: May 30, 1975

NOTICE OF ADOPTION OF EMERGENCY REGULATIONS

Pursuant to the Administrative Procedure Act (Alaska Statutes 44.62) notice is hereby given that the Alaska Board of Fish and Game has adopted the following emergency regulations:

REGULATIONS PERMITTING THE SALE OF SUBSISTENCE CAUGHT SALMON ROE IN THE ARCTIC-YUKON-KUSKOKWIM AREA

CHAPTER 3. ARCTIC-YUKON-KUSKOKWIM AREA

ARTICLE 8. PURCHASE AND SALE OF SALMON ROE

5 AAC 03.805. SALE OF SALMON ROE. (a) Salmon roe incidentally obtained as an unavoidable by-product of the lawful subsistence fishing may be purchased or sold in accordance with the provisions of AS 16.05.827 and the provisions of this section and sec. 810 of this chapter.

(b) Each person, company, firm or other organization who purchases or processes subsistence-caught salmon roe shall obtain an annual permit issued by the commissioner or his authorized representative. Permits must be in the possission of the permittee at all times. Permits shall be obtained by the permittee in person from a representative of the department at least two days prior to purchasing or processing any subsistence-caught salmon roe. A separate permit must be obtained for each district, as described in sec. 200 of this chapter, in which purchases are made. No person may initiate any purchase of, or accept any subsistence-caught salmon roe, unless that person has a valid permit for the district.

(c) Purchasers of subsistence-caught salmon roe shall complete all purchases on the basis of the price per pound of unprocessed roe.

(d) Any permittee who violates the terms of his permit or any other regulation or provision of law may have his permit revoked immediately by the commissioner.

(e) Each person, company, firm or other organization who purchases or processes salmon roe shall submit weekly reports to a local representative of the department containing the following information:

(1) weight in pounds by species of unprocessed subsistence-caught salmon roe purchased;

(2) weight in pounds by species of unprocessed commercially-caught salmon roe purchased; and

(3) number of whole salmon by species purchased from commercial fishermen.

(f) Information required by (e) of this section shall be in the form of totals for the previous week and for the entire season to date.

(g) Permittees shall record information of each purchase of subsistence-caught salmon roe on fish tickets provided by the department. All entries on the fish ticket shall be completed by the permittee. Fish tickets required by this section may not be used to record information pertaining to purchases of commercially-caught salmon or salmon roe. Fish tickets required by this section shall be completed at the time the transfer of roe to the permittee is made. A copy of each fish ticket shall be given to the fisherman selling the roe and to the local representative of the department.

(h) All purchases of subsistence-caught salmon roe shall be made from the fisherman who took the salmon or a member of his immediate household. No person may act as a sales agent or in a similar capacity for purposes of vending subsistence-caught salmon roe to any permittee or other person.

(i) If the commissioner closes any district, subdistrict, or other area to subsistence-caught roe sales, no person shall initiate, enter into, or consummate any purchase agreement within the closed area for subsistence-caught roe after the closure becomes effective.

(j) No person shall enter into, initiate, or consummate any purchase agreement for any subsistence-caught salmon roe in any district or subdistrict which is closed to sale of subsistence-caught salmon roe. No permittee may purchase or process roe from any subsistence-caught salmon which he knows or has reason to know were taken from waters described in sec. 810 of this chapter.

(k) As used in this section, "purchase" means to buy, trade for, or otherwise receive subsistence-caught salmon roe for valuable consideration. No person may give or receive without valuable consideration subsistence-caught salmon roe.

(l) in areas open to the sale of subsistence-caught salmon roe, salmon taken for subsistence purposes must be consumed by the fisherman taking the fish or by a member of his immediate household.

5 AAC 03.810. SALMON ROE SALES PROHIBITED. No person may sell, trade, purchase, give, transport, or attempt to do any of the foregoing with salmon roe from salmon taken from any of the following waters:

(1) all waters in the Northern and Port Clarence districts;

(2) in the Norton Sound district, all waters listed under sec. 350 of this chapter and all rivers and streams within 500 yards of their termini as defined in 5 AAC 39.975 (14);

(3) in the Yukon district, all waters listed under sec. 350 of this chapter;

(4) in the Kuskokwim district, all waters listed under sec. 350 of this chapter except the lower portions of the Eek, Kwethluk, and Kisaralik rivers as indicated by stream markers placed by the department.

(5) in any waters closed to subsistence salmon fishing.

ARTICLE 8.
PURCHASE AND SALE OF SALMON ROE

Section
805. Sale of salmon roe
810. Salmon roe sales prohibited

5 AAC 03.805. SALE OF SALMON ROE. (a) Salmon roe incidentally obtained as an unavoidable by-product of lawful subsistence fishing may be purchased or sold only in accordance with the provisions of AS 16.05.827 and the provisions of this section and sec. 810 of this chapter.

(b) Each person who purchases or processes subsistence-caught salmon roe shall obtain an annual permit issued by the commissioner or his authorized representative. Permits must be retained in the possession of the permittee and readily accessible for inspection at all times. Permits shall be obtained by the permittee in person from a representative of the department at least 48 hours prior to purchasing or processing any subsistence-caught salmon roe. A separate permit must be obtained for each district, as described in sec. 200 of this chapter, in which purchases are made. No person may initiate any purchase of or accept any subsistence-caught salmon roe, unless that person has a valid permit for the district. Permits may designate requirements for weekly reports, roe ticket reporting, times and areas open to sale or processing and plant inspection.

(c) Purchasers of subsistence-caught salmon roe shall complete all purchases on the basis of the price per pound of unprocessed roe.

(d) Any permittee who violates the terms of his permit or any other regulation or provision of law may have his permit revoked immediately by the commissioner.

(e) Each person who purchases or processes salmon roe shall submit weekly reports to a local representative of the department containing the following information:

(1) weight in pounds by species of unprocessed subsistence-caught salmon roe purchased;

(2) weight in pounds by species of unprocessed commercially caught salmon roe purchased; and

(3) number of whole salmon by species purchased from commercial fishermen.

(f) Information required by (e) of this section must be in the form of totals for the previous week and for the entire season to date.

(g) Permittees shall record information for each purchase of subsistence-caught salmon roe on roe tickets provided by the department. All entries on the roe ticket shall be completed by the permittee. Roe tickets required by this section may not be used to record information pertaining to purchases of commercially caught salmon or salmon roe. Roe tickets required by this section shall be completed at the time the transfer of roe to the permittee is made. A copy of each roe ticket shall be given to the fisherman selling the roe and to the local representative of the department.

(h) Unless waived by stipulations contained in the permit required by this section, permittees shall comply with provisions of 5 AAC 39.130(a) and (b). Fish ticket requirements in 5 AAC 39.130(b) apply to roe tickets.

(i) All purchases of subsistence-caught salmon roe may be made only from the fisherman who took the salmon or a member of his immediate household. No person may act as a sales agent or in a similar capacity for purposes of vending subsistence-caught salmon roe to any permittee or other person.

(j) The sale of subsistence-caught salmon roe will be prohibited by emergency order in any district or subdistrict when the subsistence salmon catch exceeds or is likely to exceed the 1970-74 average annual harvest. In no instance will the sale of subsistence-caught roe be allowed to continue in any district or subdistrict if the subsistence salmon harvest exceeds or is likely to exceed the 1974 subsistence harvest by 10 percent.

(k) If the commissioner closes any district, subdistrict, or other area to subsistence-caught roe sales, no person may initiate, enter into, or consummate any purchase agreement within the closed area for subsistence-caught roe after the closure becomes effective.

(l) No person may enter into, initiate, or consummate any purchase agreement for any subsistence-caught salmon roe in any district or subdistrict which is closed to sale of subsistence-caught salmon roe. No permittee may purchase or process roe from any subsistence-caught salmon which he knows or has reason to know were taken from waters described in sec. 810 of this chapter.

(m) As used in this section, "purchase" means to buy, trade for, or otherwise receive subsistence-caught salmon roe for valuable consideration. No person may give or receive without valuable consideration subsistence-caught salmon roe.

(n) In areas open to the sale of subsistence-caught salmon roe, salmon taken for subsistence purposes must be consumed by the fisherman taking the fish or by a member of his immediate household.

Authority: AS 16.05.827

5 AAC 03.810. SALMON ROE SALES PROHIBITED. No person may sell, trade, purchase, transport, or attempt to do any of these acts with roe from subsistence-caught salmon taken from any of the following waters:

(1) all waters in the Northern, Kotzebue, Port Clarence and Norton Sound districts;

(2) in the Yukon district, all waters listed under sec. 350 of this chapter;

(3) in the Kuskokwim district, all waters listed under sec. 350 of this chapter except in the lower portions of the Eek and Kwethluk Rivers as indicated by stream markers placed by the department;

(4) in any waters closed to subsistence salmon fishing.

Authority: AS 16.05.827