

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF COMMERCIAL FISHERIES

ANNUAL SALMON MANAGEMENT REPORT

1979

KUSKOKWIM DISTRICT

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PREFACE

This report presents all available information concerning the management of commercial and subsistence salmon fisheries in the Kuskokwim district. Although data from many special research projects are included in this report, complete documentation of these projects and results will be presented in separate reports. All catch data tables are based upon field data.

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 appropriate footnotes.

This report is organized into the following major sections:

1. District Introduction. This is a general and brief description of the area, inhabitants, fishery resources, fisheries and management practices.
2. District Summary. This section summarizes current year data for the area and makes comparisons with previous years.
3. Subdistrict Reports. There are several unique and separate fisheries in the district and separate comprehensive reports are presented for each.

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

Effort and catch per unit effort are derived as follows: Total boat (or fisherman) hours are computed by arbitrarily assuming that if a fishing boat delivers in any 24 hour fishing period, it 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 fishing. The resulting figure, total fisherman hours, is then divided into the catch during the same period to obtain catch per fisherman (or boat) hour.

Total fishermen (or boats) is the total number of fishermen making deliveries, irrespective of the number of deliveries made or of 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.

Commercial catch information presented for the current year is derived from field data and not from finalized computer tabulations. Commercial catch data through 1975 are derived from final computer tabulations.

KUSKOKWIM DISTRICT

INTRODUCTION

District and Subdistrict Boundaries

The Kuskokwim district includes all waters of the Kuskokwim River drainage and all waters of Alaska between Cape Newenham and the Naskonat Peninsula. The present commercial salmon fishing area is divided into four subdistricts: subdistrict 1 (lower Kuskokwim River from Eek Island to Mishevik Slough below Tuluksak); subdistrict 2 (middle Kuskokwim River from the Yukon-Kuskokwim portage to the Kolmakof River near Aniak); subdistrict 4 (approximately five miles of shoreline adjacent to the village of Quinhagak); and subdistrict 5 (Goodnews Bay). Subdistrict 3 (upper Kuskokwim River above the Kolmakof River) has been closed to commercial fishing since 1966 (Figure 1). Table 1 shows the relative distances, in river miles, from three sites on the Kuskokwim River to various locations in the district.

Fishery Resources

All five species of Pacific salmon are indigenous to the district: chinook or "king" salmon (Oncorhynchus tshawytscha), sockeye or "red" salmon (O. nerka), coho or "silver" salmon (O. kisutch), pink or "humpback" salmon (O. gorbuscha) and chum or "dog" salmon (O. keta). The largest population of kings, chums and cohos are found in the Kuskokwim River drainage, while reds and pinks are more numerous in the Kanektok and Goodnews Rivers.

Other important species common to the district include: inconnu or "sheefish" (Stenodus leucichthys) several species of whitefish and cisco (Coregonus sp.), Alaska blackfish (Dallia pectoralis), northern pike (Esox lucius) and burbot or "lush" (Lota lota). Additional species are listed in Table 2.

Commercial Fishery

Although the Kuskokwim district commercial fishery is the oldest in the AYK region with catches reported as early as 1913, commercial fishing did not mature for a half-century. For many years, small commercial mild-cure operations were conducted in or near Kuskokwim Bay while the Kuskokwim River fishery remained virtually undeveloped. During the 1930's when dog teams were intensely utilized for freight hauling, a "quasi-commercial" fishery operated in the McGrath area for the sale of dried, subsistence caught salmon for dog food. However, this fishery declined with the dog teams and the Kuskokwim district experienced little additional commercial effort until Alaska became a state more than twenty years later.

Commercial salmon fishing activity has grown significantly since statehood as district fishermen have been making the difficult transition from a subsistence culture to a cash economy. This has affected fishing effort, resulting in a tremendous expansion in fishermen numbers and in increased, sustained effort. Fishing vessels have remained virtually unchanged over the years, but increased utilization of highly mobile

nylon drift nets has greatly improved the efficiency of the fleet (Appendix Table 1). The overall expansion of the commercial fishery could not have been accomplished without improvements in processing and tendering facilities that have occurred throughout the district.

King, red, coho, pink and chum salmon are of primary commercial significance in the Kuskokwim district. Although these fish are commercially utilized locally, the vast majority are transported from the district as a fresh or frozen product. Sheefish and whitefish are harvested incidentally to the salmon catch, and a limited fall and winter "whitefish" fishery is conducted to satisfy local market requirements.

Subsistence Fishery

District residents have long depended upon the fishery resources as a source of food. Until relatively recently, traditional fishing methods and materials limited the size and scope of the fishery. Spears, dip nets, fish traps, and willow or caribou strip gill nets were slowly supplanted by more efficient linen gill nets. This enabled the fishery to expand tremendously. Whitefish, cisco, blackfish, pike, burbot, and sheefish have been historically utilized along with salmon, particularly chum salmon. Since statehood, improvements in fishing gear, notably the introduction of nylon gill net webbing, have increased the availability and importance of king salmon. Estimated peak subsistence salmon harvest levels were reached during the 1930's coincidental with peak activity of the quasi-commercial McGrath fishery, but records indicate a continuing decline of this fishery into the 1940's. Little catch data is available for the twenty year period prior to statehood (Appendix Table 1).

Today the value of the subsistence fishery to local people remains as important as money realized from the commercial fishery. However, several factors, as yet not totally defined, are affecting the complexion of the subsistence fishery. These factors include:

- (1) Increasing commercialization of subsistence products.
- (2) Cultural changes of local residents.
- (3) Various State and Federal social-aid programs.

Any management of the Kuskokwim district fishery resources must take into account the growing and changing requirements of the subsistence fishery.

Management

The Division of Commercial Fisheries of the Alaska Department of Fish and Game is responsible for the management of the commercial and subsistence fisheries within the Kuskokwim district. The permanent staff assigned to this district includes one management biologist and two research biologists. In addition, 10-15 temporary summer employees are hired each season to assist the permanent staff in conducting various management and research studies.

The main objective of the Department's program is to manage the commercial salmon fisheries on a sustained yield basis in addition to obtaining needed information to determine the potential for commercial fisheries on under-utilized species such as burbot and whitefish. Present commercial salmon fishing regulations are still relatively restrictive in order to insure that sufficient salmon are provided for subsistence fishery and spawning ground requirements.

The basic regulation that governs the commercial salmon harvest in all districts is the scheduled weekly fishing period. Commercial fishing is normally allowed from 6 to 12 hours a week during the open season, dependent upon the subdistrict and species involved. Fishing effort usually occurs during the entire run and not just during any particular segment of the run. Duration of the actual fishing period is dependent upon fishing conditions, the strength of the runs or spawning escapements as determined by special studies conducted by the Department.

Due to the vast size of the area and the turbid nature of many streams, accurate estimates of the size of salmon runs and the spawning escapements are difficult to obtain. Fishery management is also hampered by the relative lack of comparative catch and return information since all the fisheries have been expanding through regulation changes since their initiation in 1961 and 1962. The management problem is further compounded by having to provide sufficient escapement after commercial fishing for the important subsistence fishery as well as for spawning purposes.

For these reasons the present commercial fishery is still considered to be somewhat experimental in nature. It has been a policy of the Alaska Department of Fish and Game to maintain recent levels of commercial utilization for a few years in order to establish definite trends in subsistence utilization and to obtain more information on the relationship between the salmon catch and return.

If there is no apparent change in run size, it is the Department's policy to increase commercial utilization once trends in declining subsistence utilization can be established. It should be pointed out that increases in commercial fishing effort and efficiency have occurred and may balance any immediate decline in subsistence utilization with the result that present regulations will be maintained or even made more restrictive.

A brief list of emergency orders and regulations promulgated during 1979 is presented in Table 3.

Regulatory changes enacted by the Alaska Board of Fisheries at their December meeting in Anchorage are shown in Table 4.

Table 5 lists special studies undertaken during 1979 and include a summary of objectives and results.

A unique problem in the area is the so-called language barrier. Many of the older native people cannot read or speak English. Therefore, the staff must use translators when conducting the many public meetings that are annually conducted throughout the area. In addition, many

special regulation notices are distributed in both the English and Eskimo languages. 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 the information and education program, during the summer months a weekly fishery program is broadcast over radio KYUK in Bethel. Additionally, the Department contributes to a weekly newspaper, The Tundra Drums.

DISTRICT SUMMARY OF THE 1979 COMMERCIAL FISHERIES

In recent years, fishermen participation levels have risen in general. The lower Kuskokwim River (subdistrict 1) and the Quinhagak area (subdistrict 4) have become the centers for most Kuskokwim district fishermen. This is due to the close proximity to the population centers and the liberal harvest goals associated with these fisheries. The subdistrict 2 (middle Kuskokwim River) and subdistrict 5 (Goodnews Bay area) fisheries have remained fairly stable in terms of the number of fishermen working in these areas. This is due to the relative remoteness of these fisheries and smaller harvest levels for these subdistricts. Appendix Table 2 shows the effort levels in each subdistrict over the past nine years.

Ninety-nine percent of all Kuskokwim entry permit holders were residents of the district (Table 7). These fishermen move freely between subdistricts so registration data does not correspond with the total number of fishermen who fished each subdistrict. The total number of fishermen making deliveries at least once in each subdistrict was: 335-10, 685; 335-20, 43; 335-40, 206; and 335-50, 30 (Appendix Table 2).

Entry permit holders are issued permanent registration numbers which do not change during the life of the individual fishermen. Whenever actual numbers of fishermen are given in this report, they refer to data obtained from permanent registration numbers.

Commercial Catches

The 1979 commercial salmon catch of 699,201 was the largest ever recorded and was 4.6% above the previous record 1978 harvest. This catch also exceeded the previous five-year average of 526,224 fish (Appendix Table 1). Species composition was: 53,314 kings, 39,463 reds, 308,683 cohos, 574 pinks and 297,167 chum salmon (Table 8). A better than average run put the king salmon catch at the fourth highest level since 1970 (Appendix Tables 3 & 4). The chum salmon catch was the second largest on record, as was the red salmon harvest. The coho salmon harvest was the largest ever recorded and the pink salmon catch was typically low for this "even year cycle" species. Commercial catches of all species were strongly influenced by intense, consistently high fishing effort increased fleet efficiency, and good runs of salmon.

Average 1979 salmon weights are presented in Table 9.

Buyers and Processors

Table 6 includes all buyers and processors that operated during 1979 in the district. Appendix Table 5 compares the 1979 pack to previous years and Appendix Table 6 presents the mean salmon weights and the prices paid to fishermen for the last fifteen years.

Economic Value

Commercial fishermen received approximately \$3,678,000 for their catch in 1979 (Appendix Table 7) while a minimum of \$275,000 in wages was estimated to have been earned by processing plant employees and tenderboat operators.

Enforcement

Fishermen were cited for the following types of violations during the season: fishing without proper licensing and closed waters violations of both a subsistence and a commercial nature.

The single largest enforcement problem that has persisted for the past several years has been illegal commercial fishing in the Goodnews River. Both Fish and Game and Fish and Wildlife Protection will have to put more emphasis on this problem in the future.

As in the past, the Department of Fish and Game vigorously pursued a program of informing the public of impending closures by utilizing the local radio station, CB radio, telephone and by personal contact.

KUSKOKWIM RIVER (SUBDISTRICTS 1 & 2)

Commercial Fishery

The greatest amount of fishing effort and the largest commercial salmon catches occur within the 108-mile long Kuskokwim River subdistrict 1, (stat. area 335-10). There are 12 villages and at least 15 temporary fish camps located within the boundaries of this subdistrict. A majority of the district residents utilize the fishery resources for both commercial and subsistence purposes.

Set gill nets and drift gill nets are the legal types of commercial gear that can be operated in the Kuskokwim River. The gill nets cannot exceed 50 fathoms in length. After June 25, a six inch maximum mesh size restriction is in effect in the commercial chum salmon fishery located below the City of Bethel.

Lower Kuskokwim River commercial fishermen operate highly mobile drift gill nets. This type of fishing is conducted by laying out 35 to 50 fathoms of gill net from a skiff and then drifting with the river current. Drift net fishing requires a section of river that is relatively free of snags. Set gill nets are not utilized to a great extent by commercial fishermen and are used mainly for subsistence fishing. Commercial set gill nets are fished in small eddies along the bank of the Kuskokwim River and larger eddies out in the main river. Set gillnetting is done with much shorter nets, usually 5 to 15 fathoms in length, which tend to be more poorly constructed than do the drift gill nets.

Although there are no mesh size restrictions regarding nets operated in the lower subdistrict through June 25, most nets used during this time consist of 8-1/2 inch stretched mesh webbing. After June 25, a six inch stretched mesh size limitation is in effect and most nets consist of 5-1/4 - 5-1/2 inch stretched mesh. Depths of king salmon nets are

restricted to a maximum of 35 meshes deep for nets over six inches in stretched mesh and a maximum of 45 meshes for nets six inches or smaller in stretched mesh measure.

Kuskokwim River skiffs are long and narrow with a high bow. Generally, boats vary from 16 to 32 feet (23-foot average) in length and 2-1/2 - 3 feet in deck width, although wider, more stable vessels are now entering the fishery. Boats are generally poor for fishing as they are unstable, too narrow for a stern roller, and the sides and stern are generally too low to carry too much of a load.

Several important regulations affecting commercial fishing efforts on the Kuskokwim River are:

- 1) Until June 26, commercial fishing periods are regulated by emergency order. This allows scheduling of the king salmon harvest throughout a greater portion of the run. This is necessary because of the intensive nature of the king salmon fishery.
- 2) Commercial fishing periods are limited to two 6-hour periods each week during the chum salmon season. This helps offset the increased effort and efficiency of the fleet and distributes the allowable harvests over a greater portion of the salmon run.
- 3) Commercial fishing is allowed only below Bethel (the lower 86 miles of river) during the "chum salmon season" (June 26 - July 31). Only gill nets of six-inch stretch mesh or less can be operated during this time. Restricting fishing to the lower portion of the subdistrict enhances fish quality, helps prevent excessive harvest and wastage, and allows subsistence demands to be met. The gill net mesh restriction minimizes the capture of king salmon, particularly the larger, more fecund females.
- 4) Subsistence fishing is prohibited for 24 hours before and for 6 hours after each commercial fishing period in subdistrict 1 prior to June 25 and August 1 to August 31. During the "chum salmon season" (June 25 - July 31), only the lower subdistrict below Bethel is affected. This regulation reduces the sale of illegal salmon and provides for a more even escapement distribution. It also reduces fish wastage, as subsistence fishermen are required to check their gear at regular intervals throughout the commercial fishing season.
- 5) After July 31, commercial fishing periods are regulated by emergency order. This allows fishing effort to be regulated according to the magnitude of the variable coho salmon run. It also allows fishing time to be altered to insure maximum fishermen safety during poor weather conditions in August.

A limited commercial fishery is also conducted in the 65 mile long subdistrict 2. Commercial fishermen in this subdistrict are limited to catch quotas of 2,000 king and a combined total of 2,000 red and chum salmon and 2,000 coho salmon. The majority of commercial catches are taken in the Kalskag area, while the remainder of the subdistrict is

primarily devoted to subsistence fishing. Set gill nets and drift gill nets are found in this subdistrict, however, set gill netting predominates.

King Salmon: Only since statehood have king salmon stocks been used significantly by Kuskokwim River fishermen. King salmon commercial and subsistence harvests averaged only 56,237 fish for the 10-year period 1960-1969, but increased to 75,336 during 1974-1978. Effort remained high during the 1979 season and total utilization was 94,490 fish (Appendix Table 8); this is the second highest number ever recorded.

Annual commercial catches ranged between 30,000 and 40,000 king salmon from 1968-1972. A guideline harvest was instituted within this range in an attempt to stabilize the fishery until additional data regarding run size and escapement was obtained. The small runs experienced during the years 1974, 1975 and 1976 may indicate the 30,000-40,000 harvest range was too optimistic. Commercial harvests since 1974 have ranged from about 19,000-45,000 and the current guideline harvest for the entire river is 25,000 fish during the "king salmon season". A few thousand additional fish are taken during later seasons when fishing is directed on other species.

The "king salmon season" in the lower subdistrict is not opened until subsistence catches indicate the early portion of the king salmon run has reached the Kalskag-Aniak area and relatively good sustained catches are being made at the Department's test fishing site at Kwegooyuk (56 river miles below Bethel). The late opening of the king salmon season helps to prevent over-harvest of the early run and gives subsistence fishermen an opportunity to begin fishing without interference from the commercial fishery.

In 1979 the ice on the Kuskokwim River first moved on April 27, at Bethel, and the river was completely free of ice by May 7. The first reported king salmon was caught on May 16 at Bethel.

Commercial king salmon season consisted of two 6 hour commercial fishing periods. The season started on June 11 and ended June 15. Good prices and aggressive fishing effort by the fleet were primarily responsible for the short season.

The run of king salmon in the Kuskokwim River can be characterized as above average in 1979.

Commercial fishing effort during the king salmon season in subdistrict 1 totaled 591 fishermen, a 4% decrease over record 1978 levels. Fishermen hours decreased to 6,432 and the number of equivalent days fished was 0.5 (Appendix Table 9). The catch per vessel hour figure of 3.8 was the third highest on record. An additional 11,420 king salmon were taken incidentally during the later chum and coho salmon seasons bringing the total commercial harvest in subdistrict 1 to approximately 36,053 fish (Table 10).

The subdistrict 2 commercial fishery was opened for 24 hours during June 21-26 when 2,913 kings were taken. Forty-one fishermen made commercial landings during the 1979 king salmon season (Table 13). The commercial catch therefore totaled 2,915 which is the third largest subdistrict 2 king salmon catch on record.

The total king salmon catch for the Kuskokwim River numbered 38,966, the fifth largest catch on record. This is 28% above the previous 5 year commercial catch (Appendix Table 8).

Data from the Department's test fishing site indicated that the king salmon run peaked about June 6-14 and was about average in magnitude.

Chum Salmon: Prior to 1971, chum salmon catches represented only fish taken incidentally to the king and coho salmon fisheries. A commercial chum fishery was initiated in 1971 due to several factors:

- 1) Early subsistence catch estimations during 1924-1943 indicate an average annual catch of 448,000 chum salmon, compared to an average 221,000 chum salmon taken yearly during 1960-1970. This represents a reduction of 227,000 fish per year. This subsistence harvest reduction is believed to have been largely influenced by lessening dependence on subsistence fishing.
- 2) There is a minimum of 16 known chum salmon spawning tributaries in the Kuskokwim River system. Most of these streams cannot be surveyed annually due to fund limitations and adverse stream or weather conditions. Usually, not more than three tributary streams can be adequately surveyed in any given season, but as many as 185,000 spawning chums have been counted. This indicated a significant chum salmon population.
- 3) Commercial catches were believed to be able to provide additional information regarding the size, timing and magnitude of the chum salmon run in addition to age, sex and size composition.

Total utilization figures have increased steadily since the inception of the commercial chum salmon fishery with a total of 422,710 fish being caught in 1979. This figure is below the previous 1977 record harvest, but it is 3 percent above the previous five-year average (Appendix Table 10).

The "chum salmon season" in subdistrict 1 is normally opened after June 25 below markers placed at the City of Bethel. Commercial fishermen must use nets of 6-inch or smaller stretched mesh. The delayed opening dates combined with the mesh restriction minimizes incidental harvests of king salmon, while restricting commercial fishing to the lower portion of subdistrict 1 allows subsistence fishermen to meet their requirements.

The 1979 commercial chum salmon season in subdistrict 1 consisted of five 6-hour fishing periods. Due to an early run of chum salmon the season started on June 22 and ended July 10. The season catch for chum salmon was 250,184 (Tables 10-12). This was a record harvest for this season and was 33 percent above the previous five year average of 187,976. Commercial fishing effort totaled 617 fishermen, equal to the record 1978 level (Appendix Table 11). Catch per unit effort data for commercial catches was above average. Test fishing catches were below average.

Subdistrict 2 was not reopened for a special chum salmon period due to the numbers taken incidentally to the king harvest. 3,358 chum were taken during the king and coho seasons.

Coho Salmon:

The commercial coho salmon season in subdistrict 1 opened on August 1 with a 12 hour fishing period. Subsequent fishing periods consisted of six 6 hour periods, followed by two 12 hour openings. The season ended on August 30. Consistently heavy effort dictated a series of shorter periods rather than the long long fishing periods of the past. Total effort for the season (613 boats) was the largest in the history of the fishery.

The total coho season catch this season was 215,430 fish. This was 9 percent smaller than the previous 1977 record catch of 237,658 cohos. However, this year's catch was more than 41 percent larger than the previous five year average. (Tables 10-12, Appendix Table 12).

In subdistrict 2 of the Kuskokwim River the coho season opened for 12 hours on August 13. 3,630 salmon were harvested by 20 fishermen (Table 13).

Subsistence Fishery

Methods: The annual survey of the Kuskokwim River subsistence fishery was initiated in 1960. During the early years, the Department utilized "smokehouse counts" to determine total utilization of subsistence caught fish. In an effort to determine additional timing and magnitude data, the Department began using "subsistence catch calendars" which are distributed to fishermen prior to the fishing season. Subsistence fishermen enter their daily catches of salmon and non-salmon species on the calendar. During July and August a Department crew utilizes a cabin skiff to travel more than 360 river miles (Eek to Swift River) to collect catch data from the individual fishermen in addition to recording certain information from non-fishing families. After the river survey is completed, catch questionnaires are sent to those fishermen not individually contacted. In 1979 interviews were conducted by the newly created Subsistence Section.

In the 1969 Annual Report, a review is presented regarding methods used to obtain subsistence harvest and related information. All subsistence information presented in tabular form in this report, except in Appendix Table 17 represents "expanded data". This includes those families known to have fished but for one reason or another were not personally contacted by the survey crew. Catch data for these families are assumed to be the same as the averages for the particular village and are included in most of the tables.

Reported coho salmon catches are very minimal as the coho salmon run occurs after the survey is completed. Most of the coho salmon catch data is obtained from the return of catch calendars. Prior to 1969, little effort was made to determine the coho salmon harvest. The coho salmon estimates are not included in the comparative catch tables.

Catch and Effort: The Kuskokwim River system's harvest included 55,524 king salmon, 160,836 chum salmon, and 25,099 coho salmon utilized by 850 fishing families during 1979 (Table 15).

The king salmon catch was the third largest since 1970 and was 41 percent above the 1960-73 average. The 1979 king salmon catch was also 17 percent above the 1974-77 "roe sale years" average of 46,926 (Appendix Table 13).

The chum salmon harvest was smaller than the 1960-73 average catch (27%) and smaller than the 1974-78 average catch (28%). Appendix Table 14 contains the comparative subsistence chum salmon catch information.

In order to evaluate the effect of snowmachines on the subsistence harvest, all fishing families interviewed since 1967 have been checked for the number of snowmachines they owned. The number of families owning snowmachines has more than doubled since 1969 (Appendix Table 15). Average numbers of snowmachines per fishing family during 1967-1979 are shown in Appendix Table 16.

The public relations aspect of the annual subsistence fishery survey is important to the success of the survey itself and the Department's management program. By any method tested, the results of the voluntary contribution of the people to this program are as accurate as the people are capable of giving. The major problem is that many of the fishermen are illiterate and speak only Eskimo and have to relay much of the catch information through their school age children.

There is still a moderate sale or trading of dried salmon on the Kuskokwim River, but it is not documented. People from the coastal delta villages still bring their pokes of seal oil to trade for dried fish. The lower river dried fish are now primarily being used for human consumption.

The use of the fishwheel to capture salmon is slowly disappearing from the Kuskokwim River. Only 13 fishwheels were used along the survey route in 1979, compared to 30 in 1965 and 65 in 1960. The fishwheel is being replaced by the more mobile gill net, which involves a lot less time and effort to operate. The use of gill nets is a relatively new technique for most Kuskokwim River residents. The efficiency of the two types of gear is difficult to evaluate, as large catches are often made with both. Table 15 represents an overview of all the subsistence data collected in 1979.

Escapement

Kuskokwim River drainage escapement estimates from aerial surveys have proved difficult and costly to obtain. Varying stream and weather conditions, in addition to pilot and observer skills, often make the data difficult to interpret (Appendix Table 18). Although aerial surveys will be continued for some streams, emphasis will be placed on obtaining accurate escapement figures by use of counting towers or weirs on several "key" spawning tributaries.

All the Kuskokwim River aerial survey results for 1979 are presented in Table 18. Escapements of kings, chums and reds were about average as documented by aerial survey. It should be noted that survey efforts were again hampered in 1979 by high and turbid stream conditions. Surveys were not possible for several of the major salmon spawning streams. The Kogruklu tower operation was discontinued in 1979. An established percentage of the Holitna weir counts can be used to obtain the same information formerly supplied by the tower operation.

The Holitna River weir enumerated 10,125 kings, 2,432 reds, and 13,966 chums during the period July 1-24, 1979. The expanded count from July 1-30 is 11,299 kings, 2,708 reds and 16,207 chums. Record counts for each species from 1976-79 are 13,132 king, 2,708 red and 47,099 chum, 1978, 1979 and

1978 respectively.

QUINHAGAK (SUBDISTRICT 4)

Commercial Fishery

The Quinhagak fishery is one of two located south of the Kuskokwim River mouth (Figure 1). This fishery has traditionally been very sporadic due to unreliable processing facilities; however, the commercial fishery has stabilized during the past few seasons.

Fishing regulations for this subdistrict are very similar to those found on the Kuskokwim River, except that there are no distinct fishing seasons. Beginning with the 1971 season, the basic fishing period was reduced from two 24-hour periods to two 12-hour periods per week. Commercial fishing is allowed only in Kuskokwim Bay waters. This is necessary to ensure escapement of adequate numbers of salmon up the narrow Kanektok River. The vast majority of gear operated consists of drift gill nets that are fished at low tide in "gutters" located two to five miles offshore and are fished next to shore at high tide. Most of the fishing takes place near the mouth of the Kanektok River.

The Kanektok River king salmon run is later than that of the Kuskokwim River and for this reason the Quinhagak fishery opening is delayed until mid-June. The delayed opening prevents possible interception of Kuskokwim River fish and aids in preventing overharvest of the king salmon run.

Fishermen were required to use small mesh gear (6-inch stretched mesh or smaller) during the entire commercial fishing season. This was necessary primarily to prevent selective harvesting of the larger, more productive king salmon by the large mesh nets. However, the mesh limitation was also designed to increase harvests of the more abundant "other salmon" species (i.e. red, pink, chum, and coho).

The commercial salmon season was opened on June 11 with two 12-hour fishing periods a week continuing until July 2 when an additional 12-hour period was added to the schedule. The additional period is normally implemented in July in order to harvest the more numerous chum and red salmon (Table 16). A total of 11,144 kings, 18,828 reds, 47,525 cohos, 295 pinks and 25,995 chums totaling 103,787 fish was taken. All catches were above the recent 5 year averages with the exception of the chum and pink salmon catches (Appendix Table 3). Commercial fishing effort totaled 206 fishermen, a 20 percent decrease from the record 1977 levels, but still above the previous 5 year average.

Subsistence Fishery

Accurate comparable subsistence data has been lacking for the Quinhagak subsistence fishery during recent years. However, observation by the staff indicates that dependence on subsistence fishing has not been high. Apparently the greatest amount of fishing effort occurs in the Kanektok River after the commercial fishing season when mostly coho salmon are taken.

Methods used to tabulate catches made by Quinhagak fishermen were similar to those used for the Kuskokwim River survey. A total of 48 Quinhagak fishing families returning catch calendars reported catching

29 kings and 61 "other salmon".

Appendix Table 17 shows comparative catch data for 1967-79.

Escapement

Escapement counts made during a single aerial survey of the Kanektok River system are shown in Table 18. Poor weather conditions hampered aerial surveys in the Quinhagak subdistrict. The king and red salmon escapements appeared to be about average in magnitude. Because the survey was too early, no chum salmon were seen. Weather and stream conditions prevented further aerial surveillance in 1979.

GOODNEWS BAY (SUBDISTRICT 5)

Commercial Fishery

Traditionally, the male residents from the villages of Goodnews Bay and Platinum have gone to Bristol Bay each summer to fish or work in the canneries, leaving the women and children home to fish for subsistence purposes. Prior to 1968, there are no records indicating that commercial salmon harvests were ever made in Goodnews Bay. The Department held public meetings in the area during the early 1960's regarding the possibility of initiation of a commercial fishery, but the negative response from village residents plus the absence of salmon buyers precluded this development.

In late August of 1968, the commercial salmon fishing was opened by emergency order in Goodnews Bay. This commercial fishery was created as a result of a request from area residents and Department surveys, which indicated that a small harvestable supply of salmon was available. The fishery has been sporadic in nature due to inconsistent processing capabilities and inclement weather.

The commercial salmon season was opened June 11. The harvest was composed of 3,204 kings, 19,581 reds, 42,098 cohos, 201 pinks and 9,298 chums, totaling 74,382 fish. Catches of chums, red and coho were all above the previous five year averages.

A total of 30 fishermen made commercial landings in 1979, a decrease of 5 fishermen from 1978 levels.

Subsistence Fishery:

Fifteen families reported catches of 228 kings, 176 cohos and 554 other salmon.

Escapement:

Based on comparative catch information escapements of all species in the Goodnews River appeared good.

OUTLOOK FOR 1980

KING SALMON

The majority of returning king salmon in 1980 will be five and six years of age. The Kogrukluk tower count in 1975 was the second largest harvest on record. The 1974 tower count was the third largest on record. However, a majority of the kings passing the tower (61%) were identified as three and four year old males. Aerial surveys conducted during 1974 and 1975 indicated below average escapements in spawning streams surveyed. Commercial and subsistence catch records indicate below average runs occurred in 1974 and 1975.

Based on below average brood year escapements, the 1980 run would normally be expected to be below average in magnitude. However apparent good survival of fish from the 1974 brood (large return of age 5 fish in 1979) and decreased interception by the Japanese high seas fishery could result in run improvement.

CHUM SALMON

Chum salmon will return as three, four and five year old fish from the 1977, 1976 and 1975 brood years. The majority of the run will be composed of four year olds which are the progeny of 1976 spawners. Little comparative escapement information is available, but escapements past the Kogrukluk River counting tower during 1975-77 were average in magnitude.

The projected chum salmon run in 1980 is expected to be average to above average in magnitude.

COHO SALMON

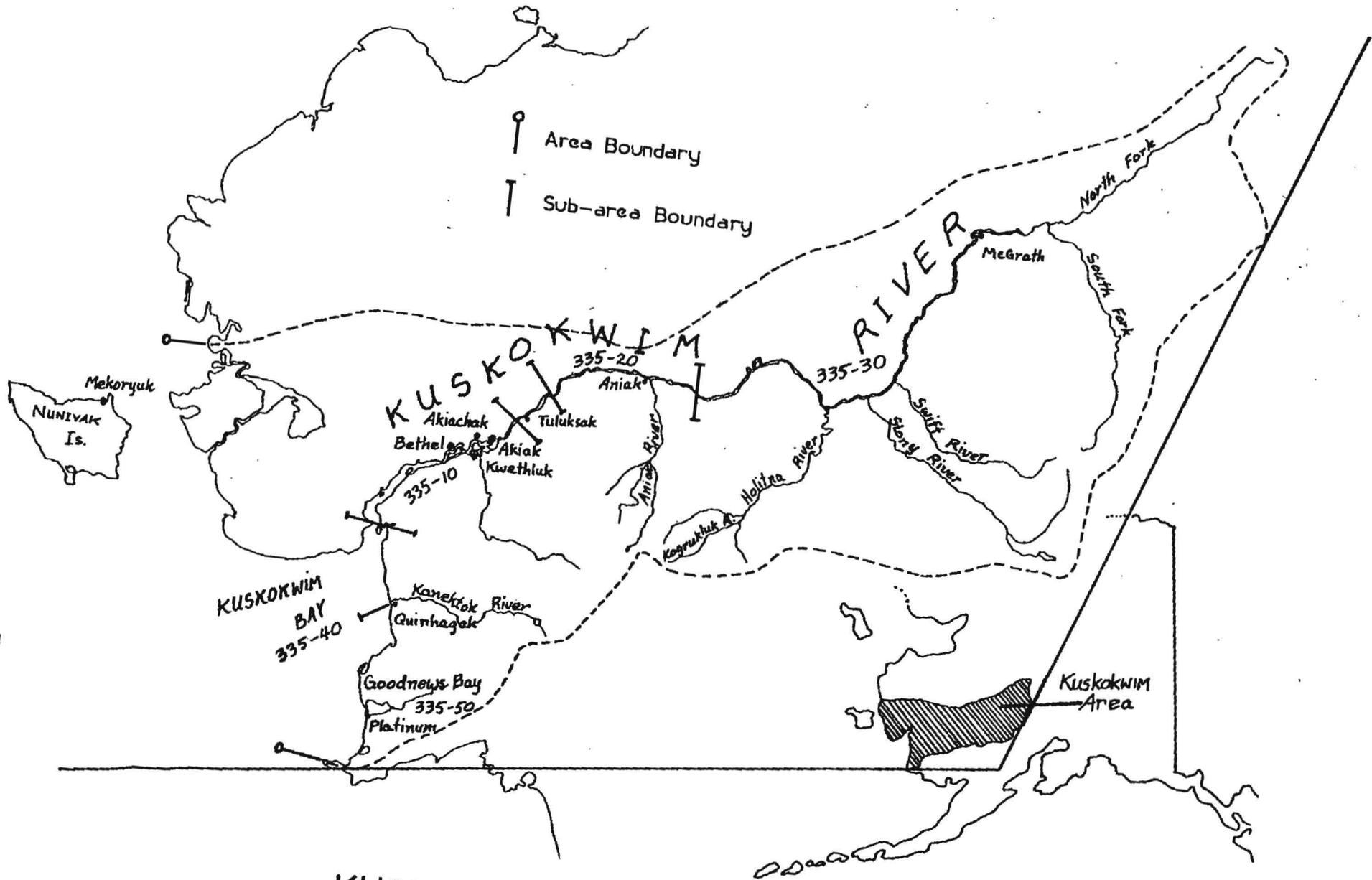
There is little information available to assess coho salmon abundance in 1980. The majority of cohos mature at four years of age with a few maturing at five years. Due to a lack of funding, very few coho salmon escapement surveys can be made.

Relatively high catches and catch per unit effort were attained in this fishery in 1977, 1978, and 1979, due to large returns and more intense fishing efforts in these years. In 1975 and 1976, the parent years for the 1980 return catches and catch per unit effort were far below those experienced during the past 3 years. Due to the changed nature of the fishery since 1975 and 1976, and the lack of escapement data on this species, it is unclear whether the run magnitude in 1975 and 1976 was comparable to the three succeeding years.

However, it appears likely that parent year escapements were adequate and that the environmental factors favoring freshwater and ocean survival for the past 3 years will also favorably influence returns in 1980. The 1980 return is therefore anticipated to be average or above average in magnitude.

PINK SALMON

Pink salmon returns during even-years (1976, 1978, 1980, etc.) are normally good.



KUSKOKWIM AREA
FIGURE 1.

Table 1. Kuskokwim District Mileages.

Location	Mileages from		
	Mouth	Kwegooyuk ^{1/}	Bethel
<u>Kuskokwim River</u>			
Mouth	0	-30	-86
Eek Island 60°10' N. lat.	23	- 7	-63
Kwegooyuk 1/	30	0	-56
Tuntutuliak Village	43	13	-43
Kialik River Mouth	42	12	-44
Kialik Forks	58	28	-60
Fowler Island	55	25	-31
Johnson River	66	36	-20
Nunapitchuk	98	68	-52
Kasigluk	99	69	-53
Napakiak	72	42	-14
Oscarville	79	49	- 7
Napaskiak	79	49	- 7
Bethel	86	56	0
Kuskokwak River	102	72	16
Kwethluk	104	74	18
Akiachuk	112	82	26
Akiak	126	96	40
Mishevik Slough	131	101	45
Tuluksak	143	113	57
Lower Kalskag	189	159	103
Kalskag	192	162	106
Aniak	225	195	139
Chuathbaluk (Russian Mission)	236	206	150
Kolmakof River	249	219	163
Napaimiut	258	228	172
Oskawalik River	292	262	206
Crooked Creek	295	265	209
Georgetown	313	283	227
Red Devil	332	302	246
Sleetmute	339	309	253
Holitna River	341	311	255
Kashegluk	465	435	379
Kogruklu River	467	437	381
Stony River Village	369	339	283
Stony River			
Lime Village			
Swift River	386	356	300
Devil's Elbow	407	377	321
Candle	491	461	405
McGrath	511	481	425
Big River	558	528	472
Medfra	582	552	496
Nicolai			
Telida			
<u>Kuskokwim Bay</u>			
Quinhagak	-19	-49	-105
Kagati Lake			
Goodnews Bay	-54	-84	-140
Platinum	-57	-87	-143
Goodnews Bay Village	-66	-96	-152
Chagvan Bay	-73	-103	-159

1/ Kwegooyuk is the location of Department's test fishing site.

Table 2. Fishes commonly found in the Kuskokwim Area.

Species code	Genre species	Common name
161	<i>Cottus aleuticus</i>	Coastrange Sculpin
162	<i>Cottus cognatus</i>	Slimy Sculpin
410	<i>Oncorhynchus tshawytscha</i>	King Salmon
420	<i>Oncorhynchus nerka</i>	Red Salmon
430	<i>Oncorhynchus kisutch</i>	Coho Salmon
440	<i>Oncorhynchus gorbuscha</i>	Pink Salmon
450	<i>Oncorhynchus keta</i>	Chum Salmon
500	<i>Esox lucius</i>	Pike
513	<i>Osmerus eperlanus</i>	Boreal Smelt
514	<i>Hypomesus olidus</i>	Pond Smelt
520	<i>Salvelinus alpinus</i>	Arctic Char
530	<i>Salvelinus malma</i>	Dolly Varden
541	<i>Salmo gairdneri</i>	Rainbow Trout
550	<i>Salvelinus namaycush</i>	Lake Trout
570	<i>Stenodus leucichthys</i>	Shee
581	<i>Coregonus nasus</i>	Broad Whitefish
582	<i>Coregonus pidschian</i>	Humpback Whitefish
583	<i>Coregonus sardinella</i>	Least Cisco
584	<i>Coregonus autumnalis</i>	Arctic Cisco
585	<i>Prosopium cylindraceum</i>	Round Whitefish
590	<i>Lota lota</i>	Burbot, Lush
601	<i>Lampetra japonica</i>	Arctic Lamprey
610	<i>Thymallus arcticus</i>	Arctic Grayling
630	<i>Dallia pectoralis</i>	Blackfish
640	<i>Catostomus catostomus</i>	Longnose Sucker
650	<i>Hybopsis plumbea</i>	Lake Chub
660	<i>Gasterosteus aculeatus</i>	3-spine Stickleback
661	<i>Pungitius pungitius</i>	9-spine Stickleback
670	<i>Percopsis omiscomaycus</i>	Trout-perch

ESTUARINE

113	<i>Eleginus gracilis</i>	Saffron Cod
121	<i>Pleuronectes stellatus</i>	Starry Flounder
122	<i>Liopsetta glacialis</i>	Arctic Flounder
166	<i>Oligocottus maculosus</i>	Sculpin
200	<i>Hippoglossus stenolepis</i>	Pacific Halibut
230	<i>Clupea pallasii</i>	Pacific Herring
516	<i>Mallotus villosus</i>	Caplin

Table 3.
1979 EMERGENCY ORDERS
KUSKOKWIM DISTRICT

<u>E.O. No.</u>	<u>Date</u>	<u>Action Taken</u>	<u>Justification</u>
1	9 May	Opens Goodnews Bay to commercial herring fishing beginning at 12:01 AM May 10, 1979.	Aerial surveys in the district indicate the presence of good numbers of herring.
2	10 June	Opens the commercial fishing season in subdistrict 1 and establishes the first commercial fishing period from 6:00 PM June 11 until 12:00 midnight the same date.	King salmon present in sufficient numbers.
3	10 June	Opens Quinhagak and Goodnews Bay subdistricts to commercial fishing and establishes twice weekly periods from 6:00 PM Mondays to 6:00 AM Tuesdays and from 6:00 PM Thursdays until 6:00 AM Friday.	King salmon present in sufficient numbers.
4	14 June	Establishes the second fishing period from 6:00 PM June 15 until 12:00 midnight the same date. in subdistrict 1.	King salmon present in sufficient numbers.
5	20 June	Opens commercial fishing in subdistrict 2 and establishes the first period from 6:00 PM June 20 until 6:00 AM June 21.	King salmon present in sufficient numbers.
6	21 June	Establishes an early chum period from 6:00 PM June 22 until midnight the same date. Reduces the size of the commercial fishery to that area from Bethel down to the north end of Eek Island. Mandates the use of 6-inch or smaller mesh.	Early chum/sockeye run of sufficient numbers. Regulations prohibit commercial use of over 6" mesh gillnets after June 25.
7	21 June	Decreases area subject to subsistence closure 24 hours before and 6 hours after each period.	During chum season commercial fishermen are restricted to the lower portion of subdistrict 1.

<u>E.O. No.</u>	<u>Date</u>	<u>Action Taken</u>	<u>Justification</u>
8	25 June	Establishes a second commercial king period in subdistrict 2 from 6:00 PM June 25 until 6:00 AM June 26.	King salmon present in sufficient numbers.
9	25 June	Establishes a second commercial chum period in subdistrict 1 from 6:00 PM June 26 until 12:00 midnight the same date.	Chum salmon present surplus to subsistence and escapement needs.
10	28 June	Opens subdistrict 1 for third commercial chum period; from 6:00 PM Friday until 12:00 midnight the same date.	Chum salmon present in sufficient numbers.
11	29 June	Continues fishing season and increases fishing time to three 12-hour periods a week in subdistricts 4 and 5.	Prohibitive weather, early run timing and large escapements.
12	2 July	Opens subdistrict 1 for the fourth commercial chum period from 6:00 PM, July 3 until 12:00 midnight the same day	Chum salmon present in sufficient numbers.
13	9 July	Opens subdistrict 1 for the fifth commercial chum period from 6 PM, July 10 until 12:00 midnight the same date.	Chum salmon present in sufficient numbers.
14	31 July	Reopens subdistrict 1 to commercial coho fishing and schedules two 12-hour fishing periods a week; 9 AM to 9 PM, Mondays and Thursdays.	Sufficient numbers of coho present and additional hours for fishermen safety.
15	4 August	Decreases fishing time to two 6-hour fishing periods per week; 9 AM to 3 PM Mondays and Thursdays in subdistrict 1.	Record catches and effort during the first coho period.
16	4 August	Establishes daylight fishing schedules in Quinhagak and Goodnews Bay subdistricts; Quinhagak- Monday, Wednesday, Friday 6 AM to 6 PM and Goodnews- 9 AM to 9 PM Monday, Wednesday and Friday.	Allows maximum daylight fishing hours to facilitate fisherman safety.

<u>E.O. No.</u>	<u>Date</u>	<u>Action Taken</u>	<u>Justification</u>
17	12 August	Reopens subdistrict 2 to commercial coho salmon fishing from 9 AM to 9 PM on Monday August 13.	Sufficient numbers of coho salmon present.
18	25 August	Increases fishing time in subdistrict 1 to two 12-hour fishing periods per week; 9 AM to 9 PM Mondays and Thursdays.	Decrease in commercial catches and effort. Subsistence fishermen in villages above open area report good numbers of cohos have passed.

Table 4. Kuskokwim district regulatory changes adopted by the Board of Fisheries for the 1979 season.

1. Clarified that the operator is responsible for insuring that a gillnet does not block more than halfway any waterway in the AYK areas.
2. In subdistrict 1 (lower Kuskokwim River) subsistence fishing was prohibited during commercial salmon fishing periods. This will help stop sale of subsistence caught salmon.
3. In subdistrict 1 (lower Kuskokwim River) decreased the amount of time, from 24 hours to 15 hours, closed to subsistence fishing prior to each commercial coho salmon fishing period.
4. In area of Kuskokwim River between Eek Island and the Kalmakoff River, in tributaries, no one may have gill nets set closer than 150 feet to one another.
5. Correction of errors in regulation book pertaining to the depths of subsistence gill nets and the official stating that subsistence permits are not required.

Table 5. Kuskokwim Area Project Review.

1. Kuskokwim River Test Fishing.
 - a. Location: Kwegooyuk on the east bank of the mouth of the Kuskokwim River located 56 river miles downstream from Bethel.
 - b. Objectives: Determine run timing and relative abundance of kings, red and chum salmon.
 - c. Results: The 197⁹ project captured 979 kings, 412 chums and 566 sockeye, totaling 1,957 salmon between May 22 and July 15. The king catch was average and the chum catch, though substantially below average, was probably not indicative of run magnitude which was judged average based on other escapement parameters.
2. Ignatti Weir.
 - a. Location: Upper Holitna River, about 1.5 miles below the KogrukluK River.
 - b. Objectives: Develop a portable weir and trap to enumerate salmon escapement by species and sex and to obtain salmon for sampling without causing harm to the fish.
 - c. Results: Overall salmon escapement was average but the proportion of female king salmon was very low. The expanded totals were 11,299 king, 2,708 sockeye, 16,204 chum and 2 pink salmon. Sex ratios for king, sockeye and chum salmon were (male:female) 82:18, 50:50, and 66:34, respectively.
3. Kasigluk Sonar
 - a. Location: 20 miles up the Kasigluk River from its confluence with the Kuskokwim River.
 - b. Objectives: 1) Determine feasibility of using the side scan sonar as an inseason salmon management tool on the lower Kuskokwim River, and 2) determine salmon run timing and population characteristics.
 - c. Results: 1) 10,699 salmon were counted by the sonar. Run timing was 1 to 2 weeks later than in the commercial fishery at Bethel. Because the relatively small number of fish counted renders use of the sonar inefficient, the operation will be moved to the Aniak River in 1980.

Table 5. Kuskokwim Area Review (continued).

4. Commercial Salmon Catch Sampling.
 - a. Location: Bethel, Quinhagak and Goodnews Bay.
 - b. Objectives: Obtain age, sex and size information for commercial caught fish.
 - c. Results: Samples of all species were sampled, analyzed and presented in separate reports.

5. Aerial Surveys
 - a. Location: Kuskokwim River drainage (and Kuskokwim Bay).
 - b. Objectives: Determine if spawning escapements for king and chum salmon are adequate.
 - c. Results: Due to poor surveying weather and turbid stream conditions only four of the nearly 20 targeted streams were surveyed.

Table 6. Kuskokwim District Processors and Associated Data, 1979

<u>Commercial Operator</u>	<u>Product</u>	<u>Subdistrict</u>
Alaska Sea-Pack Inc. Box 722 Girdwood, Alaska 99597	Fresh Salmon King Red Chum Coho Pink	5
Ball Bros. Inc. General Delivery Dillingham, Alaska 99576	Fresh Salmon King Red Chum Coho Pink	4,5
Bethel Packing Co. Box 504 Bethel, Alaska 99559	Fresh Salmon King Red Chum Coho Pink	1
Crow & Sons Box 567 Bethel, Alaska 99559	Fresh Salmon King Red Chum Coho Pink	1,2,4
Elm Corporation d/b/a Elm Fisheries Box 888 Bethel, Alaska 99559	Fresh Salmon King Red Chum Coho Pink	1,4,5
Fish Products LTD Box 19 Aniak, Alaska 99557	Fresh Salmon King Chum Coho	2
Foss Seafood 3209 Denali Street Anchorage, Alaska 99503	Fresh Salmon King Red Chum Coho Pink	5
Goodnews Bay Associates Box 567 Bethel, Alaska 99559	Fresh Salmon King Red Chum Coho Pink	1

Table 6. Kuskokwim District Processors and Associated Data (Continued)

<u>Commercial Operator</u>	<u>Product</u>	<u>Subdistrict</u>
K & A Fisheries c/o Larry Peterson Aniak, Alaska 99557	Fresh Salmon King Red Chum Coho	1,2
Kemp & Paulucci Seafoods 4832 West Superior Street Box 6506	Frozen Salmon King Red Chum Coho Pink	1,4
Kuskokwim Fish Co. Box 727 Bethel, Alaska 99559	Fresh Salmon Cured Salmon King (fresh/smoked) Red (fresh) Chum (fresh) Coho (fresh/smoked) Pink (fresh)	1,4,5
Long Fish Company Box 394 Bethel, Alaska 99559	Fresh Salmon King Red Chum Coho Pink	4
Mendenhall Village Supermarket Juneau, Alaska 99801	Fresh Salmon King	1
Midko Alaska Box 64 Aniak, Alaska 99557	Frozen Salmon Cured Salmon King (fresh/smoked) Red (fresh/smoked) Chum (fresh/smoked)	2
Pal-Gon Fisheries Box 106 Girdwood, Alaska 99587	Frozen Salmon King Red Chum Coho Pink	1
Patson Fisheries Box 445 Bethel, Alaska 99559	Fresh Salmon King Red Chum Coho	1,4

Table 6. Kuskokwim District Processors and Associated Data (Continued)

Commercial Operator	Product	Subdistrict
Swanson's Box 478 Bethel, Alaska 99559	Fresh Salmon Frozen Salmon King (fresh/frozen) Chum (fresh/frozen)	1,4
Yugtak Fish Company Box 668 Bethel, Alaska 99559	Frozen Salmon Cured Salmon King (frozen/salted) Red (frozen/salted) Chum (frozen/salted) Coho (frozen/salted) Pink (frozen/salted)	1,5

Table 7. Kuskokwim District entry permits issued by village, 1979. 1/

Village	Number of Entry Permits
Akiachak	44
Akiak	25
Aniak	7 —
Atmauthluak	31
Bethel	171
Chauthbaluk	1 —
Chefornak	2
EEK	35
Goodnews Bay	34
Kalskag	5 —
Kasigluk	43
Kipnuk	13
Kongiganak	20
Kwethluk	71
Kwigillingok	13
Lower Kalskag	3 —
McGrath	1
Napakiak	47
Napaskiak	27
Nunapitchuk	42
Oscarville	7
Platinum	4
Quinhagak	83
Tuluksak	23 —
Tuntutuliak	46
Anchorage	4
St. Marys	1
Copper Center	1
<u>California</u>	<u>1</u>
Total	805

1/ Permits issued by 17 August, 1979.

Table 8. Commercial and subsistence salmon catches by species and statistical area, Kuskokwim district, 1979.

<u>Subdistrict</u>	<u>King</u>	<u>Red</u>	<u>Coho</u>	<u>Pink</u>	<u>Chum</u> ^{1/}	<u>Total</u>
<u>335-10 Lower Kuskokwim</u>						
Commercial	36,053	460	215,430	78	258,516	510,537
Subsistence ^{2/}	41,537	-	19,265	-	86,472	147,274
Total	77,590	460	234,695	78	344,988	657,811
<u>335-20 Middle Kuskokwim</u>						
Commercial	2,913	594	3,630	0	3,358	10,495
Subsistence ^{2/}	8,534	-	1,323	-	34,424	44,281
Total	11,447	594	4,953	0	37,782	54,776
<u>335-30 Upper Kuskokwim</u>						
Commercial	-	-	-	-	-	-
Subsistence ^{2/}	5,457	-	4,611	-	39,940	50,008
Total	5,457	-	4,611	-	39,940	50,008
<u>Subtotal Kuskokwim River</u>						
Commercial	38,966	1,054	219,060	78	261,874	521,032
Subsistence ^{2/}	55,528	-	25,199	-	160,836	241,563
Total	94,494	1,054	244,259	78	422,710	762,595
<u>335-40 Quinhagak River</u>						
Commercial	11,144	18,828	47,525	295	25,995	103,787
Subsistence ^{2/}	1,420	-	1,754	-	1,130	4,304
Total	12,564	18,828	49,279	295	27,125	108,091
<u>335-50 Goodnews Bay</u>						
Commercial	3,204	19,581	42,098	201	9,298	74,382
Subsistence	338	-	226	-	1,082	1,646
Total	3,542	19,581	42,324	201	10,380	76,028
<u>Total Kuskokwim District</u>						
Commercial	53,314	39,463	308,683	574	297,167	699,201
Subsistence ^{2/}	57,286	-	27,179	-	163,048	247,513
Total	110,600	39,463	335,862	574	460,215	946,714

^{1/} Subsistence catches contain small numbers of red and pink salmon.

^{2/} Expanded data.

Table 9. Average weight of salmon taken in the Kuskokwim district commercial fishery, 1979. 1/

<u>Subdistrict</u>	<u>Statistical Area</u>	<u>King</u>	<u>Average Weights by Species</u> ^{2/}			<u>Chum</u>
			<u>Red</u>	<u>Coho</u>	<u>Pink</u>	
Kuskokwim River:	335-10					
	335-20	16.6 (7.5)	6.9 (3.1)	7.4 (3.4)	3.9 (1.8)	7.1 (3.2)
Quinhagak:	335-40	17.2 (7.8)	6.5 (3.0)	8.4 (3.8)	4.1 (1.9)	7.0 (3.2)
Goodnews Bay:	335-50	16.0 (7.3)	7.3 (3.3)	8.7 (4.0)	3.8 (1.7)	6.9 (3.1)

1/ Data obtained from processor weights, randomly sampled.

2/ Pounds (kilograms).

Table 10. Commercial salmon catch data, lower Kuskokwim River (Subdistrict 1, Stat. Area 335-10), all gear combined, 1979.

Period Code	Date of Landing	Hours Open to Fishing	Fishermen	Fishermen Hours	Catch					Catch/Fisherman Hour		
					King	Red	Coho	Pink	Chum	King	Coho	Chum
1	6/11 Period	6	523	3,138	12,270	14			462	3.9		0.2
2	6/15 Period	6	549	3,294	12,363	37			2,055	3.8		0.6
	Subtotal <u>1/</u>	12	591	6,432	24,633	51			2,517	3.8		0.4
3	6/22 Period	6	502	3,012	5,651	50		2	32,295	1.9		10.7
4	6/26 Period	6	531	3,186	2,277	23		0	53,648	0.7		16.8
5	6/29 Period	6	542	3,252	1,583	8		3	48,643	0.5		14.9
6	7/3 Period	6	542	3,252	1,233	21		11	83,164	0.4		25.6
7	7/10 Period	6	520	3,120	470	23		9	32,434	0.2		10.4
	Subtotal <u>2/</u>	30	617	15,822	11,214	125		25	250,184	0.7		15.8
8	8/2 Period	12	478	5,736	67	186	52,276	15	3,643	+	9.1	0.6
9	8/6 Period	6	480	2,880	38	54	53,797	6	1,148	+	18.7	0.4
10	8/9 Period	6	497	2,982	34	19	26,422	6	502	+	8.9	0.2
11	8/13 Period	6	463	2,778	20	11	27,915	8	179	+	10.1	0.1
12	8/16 Period	6	467	2,802	16	4	21,675	8	129	+	7.7	+
13	8/20 Period	6	390	2,340	23	7	19,445	2	104	+	8.3	+
14	8/23 Period	6	328	1,968	0	0	5,376	1	54	-	2.7	+
15	8/27 Period	12	310	3,720	6	2	6,342	3	40	+	1.7	+
16	8/30 Period	12	179	2,148	2	1	2,182	4	16	+	1.0	+
	Subtotal <u>3/</u>	72	613	27,354	206	284	215,430	53	5,815	+	7.9	0.2
	Grand Total	114	685	49,608	36,053	460	215,430	78	258,516	0.7	4.3	5.2

1/ King salmon season 6/11-6/15 2/ Chum season 6/22-7/10 3/ Coho season 8/2-8/30.

Table 11. Commercial salmon catch data, lower Kuskokwim River downstream of Napakiak (Subdistrict 1, Stat. Area 335-11), all gear combined, 1979.

Period Code	Date of Landing	Hours Open to Fishing	Fishermen	Fishermen Hours	Catch				Catch/Fisherman Hour			
					King	Red	Coho	Pink	Chum	King	Coho	Chum
1	6/11 Period	6	225	1,350	6,420				195	4.8		0.1
2	6/15 Period	6	183	1,098	4,344	1			670	4.0		0.6
	Subtotal <u>1/</u>	12	260	2,448	10,764	1			865	4.4		0.4
3	6/22 Period	6	346	2,076	3,778			2	24,700	1.8		11.9
4	6/26 Period	6	315	1,890	1,181	4			27,654	0.6		14.6
5	6/29 Period	6	268	1,608	730	3		3	25,276	0.5		15.7
6	7/3 Period	6	277	1,662	515	10		3	37,767	0.3		22.7
7	7/10 Period	6	241	1,446	217	1		7	15,585	0.2		10.8
	Subtotal <u>2/</u>	30	499	8,682	6,421	18		15	130,982	0.7		15.1
8	8/2 Period	12	233	2,796	26	186	27,532	7	1,146	+	9.9	0.4
9	8/6 Period	6	177	1,062	11	42	12,858	2	208	+	12.1	0.2
10	8/9 Period	6	224	1,344	15	15	10,505	4	147	+	7.8	0.1
11	8/13 Period	6	226	1,356	5	6	14,231	4	70	+	10.5	0.1
12	8/16 Period	6	135	810	3	4	5,625	0	25	+	6.9	+
13	8/20 Period	6	128	768	2	4	5,373	0	13	+	7.0	+
14	8/23 Period	6	85	510	0	0	1,161	1	7	-	2.3	+
15	8/27 Period	12	96	1,152	0	2	1,434	0	1	-	1.2	+
16	8/30 Period	12	60	720	1	1	714	1	1	+	1.0	+
	Subtotal <u>3/</u>	72	405	10,518	63	260	79,433	19	1,618	+	7.6	0.2
	Grand Total	114	584	21,648	17,248	279	79,433	34	133,465	0.8	3.7	6.2

1/ King Season 6/11-6/15 2/ Chum Season 6/22-7/10 3/ Coho Season 8/2-8/30

Table 12. Commercial salmon catches Lower Kuskokwim River upstream of Napakiak (Subdistrict 1, Stat Area 335-12) all gear combined, 1979.

Period Code	Date of Landing	Hours Open to Fishing	Fishermen	Fishermen Hours	Catch					Catch/Fisherman Hour		
					King	Red	Coho	Pink	Chum	King	Coho	Chum
1	6/11 Period	6	307	1,842	5,850	14			267	3.2		0.1
2	6/15 Period	6	372	2,232	8,019	36			1,385	3.6		0.6
	Subtotal <u>1/</u>	12	414	4,074	13,869	50			1,652	3.4		0.4
3	6/22 Period	6	165	990	1,873	50			7,595	1.9		7.7
4	6/26 Period	6	235	1,410	1,096	19			25,994	0.8		18.4
5	6/29 Period	6	286	1,716	853	5			23,367	0.5		13.6
6	7/3 Period	6	295	1,770	718	11	8		45,397	0.4		25.6
7	7/10 Period	6	286	1,716	253	22	2		16,849	0.2		9.8
	Subtotal <u>2/</u>	30	446	7,602	4,793	107	10		119,202	0.6		15.7
8	8/2 Period	12	281	3,372	41	0	24,744	8	2,497	+	7.3	0.7
9	8/6 Period	6	312	1,872	27	12	40,939	4	940	+	21.9	0.5
10	8/9 Period	6	278	1,668	19	4	15,917	2	355	+	9.5	0.2
11	8/13 Period	6	250	1,500	15	5	13,684	4	109	+	9.1	0.1
12	8/16 Period	6	333	1,998	13	0	16,050	8	104	+	8.0	0.1
13	8/20 Period	6	269	1,614	21	3	14,072	2	91	+	8.7	0.1
14	8/23 Period	6	246	1,476	0	0	4,215	0	47	-	2.9	+
15	8/27 Period	12	218	2,616	6	0	4,908	3	39	+	1.9	+
16	8/30 Period	12	123	1,476	1	0	1,468	3	15	+	1.0	+
	Subtotal <u>3/</u>	72	488	17,592	143	24	135,997	34	4,197	+	7.7	0.2
	Grand Total	114	570	29,268	18,805	181	135,997	44	125,051	0.6	4.7	4.3

1/ King Season 6/11-15 2/ Chum Season 6/22-7/10 3/ Coho Season 8/2-8/30

Table 13. Commercial salmon catches, Middle Kuskokwim River (subdistrict 2, Stat. Area 335-20), all gear combined 1979.

Period Code	Date of Landing	Hours Open to Fishing	Fishermen	Fishermen Hours	Catch					Catch/Fisherman Hour		
					King	Red	Coho	Pink	Chum	King	Coho	Chum
1	6/21 Period <u>1/</u>	12	29	348	1,030	142			982	3.0	-	2.8
2	6/25 Period <u>1/</u>	12	33	396	1,883	452			1,946	4.8	-	4.9
<u>1/</u>	King Salmon Season (6/21-6/25)	24	41	744	2,913	594			2,928	3.9	-	3.9
3	8/13 Period <u>3/</u>	12	20	240	0	0	3,630	0	430	-	15.1	1.8
<u>3/</u>	Coho Salmon Season (8/13)	12	20	240	0	0	3,630	0	430	-	15.1	1.8
Grand Total		36	43	984	2,913	594	3,630	0	3,358	3.0	3.7	3.4

Table 14. Age and sex composition of Kuskokwim district king salmon sampled at various locations, 1979.

Area (gear)	Combined Age Classes			Age 42		Age 52		Age 62		Age 72	
	Sex	No.	%	No.	%	No.	%	No.	%	No.	%
Kwegooyuk <u>2/</u> (8-1/2" mesh set gillnet)	Male	143	54.4	37	14.1	38	14.4	53	20.2	15	5.7
	Female	120	45.6	22	8.4	30	11.4	54	20.5	14	5.3
	Total	263	100.0	59	22.5	68	25.8	107	40.7	29	11.0
Kwegooyuk <u>2/</u> (5-1/2" mesh set gillnet)	Male	22	56.4	18	46.2	2	5.1	2	5.1	0	0.0
	Female	17	43.6	8	20.5	6	15.4	3	7.7	0	0.0
	Total	39	100.0	26	66.7	8	20.5	5	12.8	0	0.0
Bethel <u>1/</u> (8-1/2" mesh gillnet)	Male	121	54.0	19	8.4	36	16.0	51	22.8	15	6.7
	Female	103	46.0	14	6.3	24	10.7	51	22.8	14	6.3
	Total	224	100.0	33	14.7	60	26.7	102	45.6	29	13.0
Quinhagak <u>1/</u> (6" mesh gillnet)	Male	170	59.4	42	14.7	81	28.3	44	15.3	3	1.1
	Female	116	40.6	7	2.5	41	14.3	58	20.3	10	3.5
	Total	286	100.0	49	17.2	122	42.6	102	35.6	13	4.6
Holitna weir <u>3/</u>	Male	323	82.3	248	63.1	59	15.0	24	6.1	4	1.0
	Female	70	17.7	0	0	2	0.5	46	11.7	10	2.5
	Total	393	100.0	248	63.1	61	15.5	70	17.8	14	3.5

1/ Commercial catch sample.

2/ Test fish samples.

3/ Weir samples.

Table 15. Kuskokwim District Subsistence Fishery Summary, 1979.

Estimated Catch and Family Data, Fishing Families Only.								
Village	Families	People	Dogs	Snow- Machines	King Salmon	Small* Salmon	Coho Salmon	Fish- Wheels
Eek	33	167	88	53	2,003	625	500	0
Tuntutuliak	34	211	116	67	2,268	5,300	332	0
Kasigluk	38	237	117	66	1,142	2,179	438	0
Nunapitchik	35	244	140	65	2,109	5,189	548	0
Atmautluak	25	167	175	22	2,242	5,170	117	0
Napakiak	40	218	201	50	2,191	6,281	1,738	0
Oscarville	8	48	30	15	629	956	13	0
Napsakiak	33	198	63	56	2,085	5,251	522	0
Bethel	236	1,433	710	259	11,564	21,240	9,800	0
Kwethluk	66	390	281	88	6,919	14,173	2,688	0
Akiachak	48	352	254	72	4,818	8,403	2,056	0
Akiak	27	181	315	32	3,567	11,705	513	0
Tuluksak	29	226	185	42	1,489	4,874	375	0
Lower Kalskag	31	159	144	39	2,821	8,659	475	0
Upper Kalskag	19	116	99	26	1,590	5,955	162	0
Aniak	42	166	200	52	2,634	14,936	311	1
Chuathbaluk	12	74	77	17	2,189	5,513	1,133	3
Napamute	3	8	19	5	149	2,057	46	1
rooked Creek	12	59	35	9	728	3,105	36	0
Red Devil	11	49	67	6	488	7,782	504	2
Sleetmute	9	46	25	10	755	1,200	66	1
Holitna River	10	32	57	8	233	5,239	1,757	0
Stony River	9	66	48	7	171	3,355	+	2
Subtotals	810	4,847	3,446	1,066	54,780	149,147	24,130	10
Lime Village	5	25	37	0	38	3,580	75	1
Decon's Landing	1	4	0	0	0	0	30+	0
McGrath	18	73	122	23	581	5,398	864	2
Takotna	3	-	-	-	65+	?	?	?
Nikolai	9	-	-	-	60	2,711	15	0
Telida	4	19	-	-	?°	?	?	0
Subtotals	40				744	11,689	969	3
Totals Kuskokwim R.	850				55,524	160,836	25,099	13
Quinhagak	48	251	82	80	1,420	1,130	1,754	0
Platinum	6	36	9	9	110	528	50	0
Goodnews Bay	15	89	31	21	228	554	176	0
Mekoryuk	1	24	0	2	1	403	52	0

*Includes chum, red, pink and some small king salmons.

Table 16. Commercial salmon catch data, Quinhegak (Subdistrict 4, Stat. Area 334-40), all gear combined, 1979.

Period Code	Date of Landing	Hours Open to Fishing	Fishermen	Fishermen Hours	Catch					Catch/Fisherman Hour			
					King	Red	Coho	Pink	Chum	King	Red	Coho	Chum
1	6/11	6	58	696	1,170	2			22	1.7	+	+	
	6/12	6											
2	6/14	6	61	732	1,037	36		41	1.4	+		0.1	
	6/15	6											
3	6/18	6	42	504	1,201	50		108	2.4	0.1		0.2	
	6/19	6											
4	6/21	6	108	1,296	2,201	254		1,427	1.7	0.2		1.1	
	6/22	6											
5	6/25	6	59	708	980	307		1,034	1.3	0.4		1.3	
	6/26	6											
6	6/28	6	88	1,056	645	826	6	1,747	0.6	0.8		1.7	
	6/29	6											
7	7/2	6	57	684	338	720		984	0.5	1.1		1.4	
	7/3	6											
8	7/4	6	55	660	507	556		832	0.8	0.8		1.3	
	7/5	6											
9	7/6	6	62	744	604	2,001	1	2,208	0.8	2.7		3.0	
	7/7	6											
10	7/9	6	81	972	493	2,674	15	2,595	0.5	2.8		2.7	
	7/10	6											
11	7/11	6	103	1,236	431	2,632	17	2,043	0.3	2.1		1.7	
	7/12	6											
12	7/13	6	126	1,512	270	1,914	26	1,896	0.2	1.3		1.3	
	7/14	6											
13	7/15	6	81	972	300	1,367	25	2,687	0.3	1.4		2.8	
	7/17	6											
14	7/18	6	95	1,140	186	982	38	32	1,519	0.2	0.9	+	1.3
	7/19	6											
15	7/20	6	77	924	192	782	12	33	1,525	0.2	0.9	+	1.7
	7/21	6											
16	7/22	6	67	804	107	827	0	18	1,111	0.1	1.0	-	1.4
	7/23	6											
17	7/24	6	63	756	118	666	193	9	902	0.2	0.9	0.3	1.2
	7/25	6											
18	7/26	6	64	768	71	767	279	13	1,169	0.1	1.0	0.4	1.5
	7/27	6											
19	7/28	6	49	588	53	583	770	4	959	0.1	1.0	1.3	1.6
	7/29	6											
20	7/30	6	43	516	34	332	1,571	8	414	0.1	0.6	3.0	0.8
	7/31	6											
21	8/1	6	45	540	20	111	2,335	2	156	+	0.2	4.3	0.3
	8/2	6											
22	8/3	6	54	648	48	89	3,417	6	163	0.1	0.1	5.3	0.3
	8/4	6											
23	8/5	6	74	888	33	130	3,768	14	160	+	0.2	4.2	0.2
	8/6	6											
24	8/7	6	67	804	22	106	2,600	13	119	+	0.1	3.2	0.2
	8/8	6											
25	8/9	6	58	696	25	42	5,014	10	53	+	0.1	7.2	0.1
	8/10	6											
26	8/11	6	77	924	27	29	5,384	7	22	+	+	5.8	+
	8/12	6											
27	8/13	6	75	900	15	24	4,203	9	38	+	+	4.7	+
	8/14	6											
28	8/15	6	60	720	1	8	5,491	10	30	+	+	7.6	+
	8/16	6											
29	8/17	6	52	624	0	1	1,972	0	7	-	+	3.2	+
	8/18	6											
30	8/19	6	55	660	3	5	1,708	0	7	+	+	2.6	+
	8/20	6											
31	8/21	6	58	696	4	6	2,687	3	5	+	+	3.9	+
	8/22	6											
32	8/23	6	45	540	1	1	1,731	5	5	+	+	3.2	+
	8/24	6											
33	8/25	6	38	456	3	3	2,198	5	5	+	+	4.8	+
	8/26	6											
34	8/27	6	25	300	3	1	1,020	0	0	+	+	3.4	-
	8/28	6											
35	8/29	6	24	288	0	0	773	2	2	-	-	2.7	+
	8/30	6											
36	8/31	6	12	144	1	0	367	2	0	+	-	2.5	-
	9/1	6											
Grand Total		432	206	27,096	11,144	18,828	47,525	295	25,995				

Table 17. Commercial salmon catch data, Goodnews Bay (Subdistrict 5, Stat. Area 335-50), all gear combined, 1979.

Period Code	Date of Landing	Hours Open to Fishing	Fishermen	Fishermen Hours	Catch				Catch/Fisherman Hour				
					King	Red	Coho	Pink	Chum	King	Red	Coho	Chum
1	6/11	6											
	6/12	6											
	Period	12	6	72	69	12			23	1.0	0.2		0.3
2	6/14	6											
	6/15	6											
	Period	12	14	168	113	81				0.7	0.5		
3	6/18	6											
	6/19	6											
	Period	12	15	399	217				52	2.2	1.2		0.3
4	6/21	6											
	6/22	6											
	Period	12	20	240	323	979			291	1.3	4.1		1.2
5	6/25	6											
	6/26	6											
	Period	12	19	228	475	1,045			226	2.1	4.6		1.0
6	6/28	6											
	6/29	6											
	Period	12	23	276	341	2,045			620	1.2	7.4		2.2
7	7/2	6											
	7/3	6											
	Period	12	21	252	230	1,432			799	0.9	5.7		3.2
8	7/4	6											
	7/5	6											
	Period	12	17	204	363	811			1,071	1.8	4.0		5.3
9	7/6	6											
	7/7	6											
	Period	12	18	216	199	1,596			975	0.9	7.4		4.5
10	7/9	6											
	7/10	6											
	Period	12	18	216	175	1,269			1,083	0.8	5.9		5.0
11	7/11	6											
	7/12	6											
	Period	12	20	240	171	1,605			1,246	0.7	6.7		5.2
12	7/13	6											
	7/14	6											
	Period	12	22	264	67	827			676	0.3	3.1		2.6
13	7/16	6											
	7/17	6											
	Period	12	16	192	31	585		3	80	0.2	3.1		0.4
14	7/18	6											
	7/19	6											
	Period	12	18	216	41	615		32	231	0.2	2.8		1.1
15	7/20	6											
	7/21	6											
	Period	12	19	228	57	608	1	50	395	0.3	2.7	+	1.7
16	7/23	6											
	7/24	6											
	Period	12	17	204	45	787	14	25	790	0.2	3.9	0.1	3.9
17	7/25	6											
	7/26	6											
	Period	12	21	252	27	1,007	40	27	423	0.1	4.0	0.2	1.7
18	7/27	6											
	7/28	6											
	Period	12	18	216	15	973	36	6	56	0.1	4.5	0.2	0.3
19	7/30	6											
	7/31	6											
	Period	12	15	180	2	549	49	3	19	+	3.1	0.3	0.1
20	8/1	6											
	8/2	6											
	Period	12	16	192	8	608	203	12	17	+	3.2	1.1	0.1
21	8/3	6											
	8/4	6											
	Period	12	17	204	9	401	370	2	43	+	2.0	1.8	0.2
22	8/6	6											
	8/8	6											
	Period	12	19	228	4	320	1,130	6	89	+	1.5	5.0	0.4
23	8/10	6											
	8/13	6											
	Period	12	24	168	4	374	2,113	5	38	+	2.2	12.4	0.4
24	8/15	6											
	8/17	6											
	Period	12	24	252	9	242	2,201	10	13	+	1.0	8.7	0.1
25	8/19	6											
	8/21	6											
	Period	12	23	252	12	189	3,781	3	8	0.1	0.8	15.0	+
26	8/23	6											
	8/25	6											
	Period	12	27	300	2	153	4,688	1	12	+	0.5	15.8	+
27	8/27	6											
	8/29	6											
	Period	12	26	288	2	69	4,515	4	11	+	0.2	13.2	+
28	8/31	6											
	9/1	6											
	Period	12	21	252	2	85	2,678	2	3	+	0.3	10.6	+
29	9/3	6											
	9/5	6											
	Period	12	15	120	0	19	1,723	0	3	-	0.2	9.4	+
30	9/7	6											
	9/9	6											
	Period	12	23	192	3	20	2,281	1	2	+	0.1	7.2	+
31	9/11	6											
	9/13	6											
	Period	12	22	264	4	31	1,985	4	2	+	0.1	7.5	+
32	9/15	6											
	9/17	6											
	Period	12	17	204	0	6	2,638	0	0	-	+	12.9	-
33	9/19	6											
	9/21	6											
	Period	12	21	252	2	0	3,479	1	1	+	-	14.2	+
34	9/23	6											
	9/25	6											
	Period	12	16	192	0	0	3,822	2	0	-	-	19.9	-
35	9/27	6											
	9/29	6											
	Period	12	21	252	0	1	2,695	2	0	-	+	10.7	-
36	9/31	6											
	Grand Total	432	30	8,220	3,204	19,581	42,098	201	9,298				

Appendix Table 1. Kuskokwim district commercial and subsistence salmon catches, 1913-1979.

Year	Commercial Catch					Subsistence Catch ^{1/}			
	King	Red	Coho	Pink	Chum	Total	King	Other Salmon ^{2/}	Total
1913	7,800					7,800			
1914		2,667				2,667			
1915									
1916	949					949			
1917	7,878					7,878			
1918	3,055					3,055			
1919	4,836					4,836			
1920	34,853					34,853			
1921	9,854					9,854			
1922	8,944	6,120				15,064			180,000
1923	7,254					7,254			
1924	19,253	900	7,167		7,167	34,487	14,700	203,148	217,848
1925	1,664	5,800				7,514	10,800	230,850	241,650
1926								738,576	738,576
1927								286,254	286,254
1928								481,090	481,090
1929								560,196	560,196
1930	7,515	2,448				9,963		538,650	538,650
1931	8,541					8,541		389,367	389,367
1932	9,339					9,339		746,415	746,415
1933							6,290	433,998	440,288
1934							20,800	597,132	617,932
1935	6,448		8,296			14,744	22,930	554,040	576,970
1936	624					624	33,500	549,423	582,923
1937	480					480		537,111	537,111
1938	624		828			1,452	10,153	400,242	410,395
1939	134					134	14,000	125,425	139,425
1940	247		500			747	8,000	415,523	423,523
1941	187		674			861	8,000	415,523	423,523
1942							6,400	325,339	331,739
1943							6,400	325,800	332,200

1946	2,288		674			2,962			
1947	5,356					5,356			

1951	4,210					4,210			
1954	57					57			
1959	3,760					3,760			
1960	5,969	5,649	5,498		3	17,119	20,361	327,297	347,658
1961	23,246	2,308	5,090	91	18,864	49,599	30,910	185,447	216,357
1962	20,867	10,313	12,598	4,340	45,707	93,831	14,642	165,626	180,268
1963	18,571		15,660			34,231	37,246	141,550	178,796
1964	21,230	13,422	28,992	939	707	65,290	30,853	214,942	245,795
1965	24,965	1,886	12,191		4,242	43,284	31,143	323,002	354,145
1966	25,823	1,030	22,985	268	2,610	52,716	53,606	201,002	254,608
1967	29,986	652	58,239		8,235	97,112	61,224	252,447	313,671
1968	43,157	5,884	154,302	75,318	19,694	298,845	34,986	301,531	336,517
1969	64,777	10,362	110,473	1,251	50,377	237,240	43,732	245,299	289,031
1970	65,082	12,654	62,245	27,422	60,566	227,979	71,376	263,746	335,112
1971	44,936	6,054	10,006	13	99,423	160,432	45,465	130,329	175,794
1972	55,482	4,312	23,880	1,952	97,197	182,823	43,335	131,514	174,849
1973	51,374	5,224	152,408	634	184,207	393,847	41,697	211,468	253,165
1974	30,670	29,003	179,579	60,052	196,127	495,431	29,590	321,358	350,848
1975 ^{3/}	27,799	17,535	109,814	899	223,532	379,579	51,045	180,429	231,474
1976	49,262	14,636	112,130	39,998	231,877	447,903	60,603	239,461	300,064
1977	58,256	18,621	263,728	434	298,959	639,998	58,163	218,824	276,987
1978	63,194	13,734	247,271	61,968	282,044	668,211	38,209 ^{4/}	137,489 ^{4/}	175,698 ^{4/}
1979	53,314	39,463	308,683	574	297,167	699,201	57,263	190,582	247,865
Previous									
5-yr. ave	45,836	18,706	182,504	32,670	246,508	526,224	47,524	219,500	267,024

^{1/} Subsistence catches for 1960-1976 have been revised and corrected.

^{2/} Primarily chum salmon.

^{3/} Final catch data used.

^{4/} Goodnews Bay not surveyed.

Appendix Table 2. Kuskokwim District, Commercial Effort by Subdistrict, 1970-1979. 1/

<u>Subdistrict 1</u>				
<u>Year</u>	<u>King Season</u>	<u>Chum Season</u>	<u>Coho Season</u>	<u>Total</u>
1970	361	2/	266	387
1971	418	216	83	422
1972	405	176	245	425
1973	456	341	411	530
1974	606	467	516	666
1975	472	540	533	737
1976	561	517	516	674
1977	563	522	572	653
1978	615	617	597	723
1979	591	617	613	685
Previous 5 year ave.	563	533	547	691

<u>Subdistrict 2</u>				
<u>Year</u>	<u>King Season</u>	<u>Chum Season</u>	<u>Coho Season</u>	<u>Total</u>
1970	10	2/	11	18
1971	22	2/	2/	22
1972	12	2/	2/	12
1973	28	2/	2/	28
1974	36	2/	16	37
1975	38	2/	2/	38
1976	55	2/	11	57
1977	83	54	24	105
1978	28	2/	16	43
1979	41	2/	20	43
Previous 5 year ave.	48	11	13	56

<u>Subdistrict 4</u>		<u>Subdistrict 5</u>	
<u>Year</u>	<u>Total</u>	<u>Year</u>	<u>Total</u>
1970	88	1970	35
1971	61	1971	16
1972	107	1972	14
1973	109	1973	21
1974	196	1974	49
1975	127	1975	50
1976	181	1976	40
1977	258	1977	34
1978	200	1978	35
1979	206	1979	30
Previous 5 year ave.	192	Previous 5 year ave.	42

1/ Number of actual fishing vessels.
 2/ No commercial fishing allowed.

Appendix Table 3. Kuskokwim districts commercial catch by drainage, 1960-1979.

Kuskokwim River ^{1/}	King	Red	Coho	Pink	Chum	Total
1960	5,969	0	2,498	0		8,467
1961	18,918	0	5,044	0		23,962
1962	15,341	0	12,432	0		27,773
1963	12,016	0	15,660	0		27,676
1964	17,149	0	28,613	0		45,762
1965	21,989	0	12,191	0		34,180
1966	25,545	0	22,985	0		48,530
1967	29,986	0	56,313	0	148	86,447
1968	34,278	0	127,306	0	187	161,771
1969	43,997	322	83,765	0	7,165	135,249
1970	39,290	117	38,601	44	1,664	79,716
1971	40,274	2,606	5,253	0	68,914	117,047
1972	39,454	102	22,579	8	78,619	140,762
1973	32,838	369	130,876	33	148,746	312,862
1974	18,664	136	147,269	37	171,887	337,984
1975 ^{4/}	21,720	23	81,945	10	181,840	285,538
1976	30,735	2,971	88,501	133	177,864	300,204
1977	35,830	9,379	241,364	203	248,721	535,451
1978	45,641	733	213,393	5,832	248,656	514,255
1979	38,966	1,054	219,060	78	261,874	521,032
5 year average	30,518	2,648	154,494	1,243	205,794	394,337

Quinhagak (Kanektok River) ^{2/}	King	Red	Coho	Pink	Chum	Total
1960	0	5,649	3,000	0	0	8,649
1961	4,328	2,308	46	90	18,854	25,636
1962	5,526	10,313	0	4,340	45,707	65,886
1963	6,555	0	0	0	0	6,555
1964	4,081	13,422	379	939	707	19,528
1965	2,976	1,886	0	0	4,242	9,104
1966	278	1,030	0	268	2,610	4,186
1967	0	652	1,926	0	8,087	10,665
1968	8,879	5,884	21,511	75,818	19,497	131,589
1969	16,802	3,784	15,077	953	38,206	74,822
1970	18,629	5,393	16,850	15,195	46,556	102,623
1971	4,185	3,118	2,982	13	30,208	40,506
1972	15,880	3,286	376	1,878	17,247	38,667
1973	14,993	2,783	16,515	277	19,680	54,248
1974	8,704	19,510	10,979	43,642	15,298	98,133
1975 ^{4/}	3,928	8,584	10,742	486	35,233	58,973
1976	14,110	6,090	13,777	31,412	43,659	109,048
1977	19,090	5,519	9,028	202	43,707	77,546
1978	12,335	7,589	20,114	47,033	24,798	111,869
1979	11,144	18,828	47,525	295	25,995	103,787
5 year average	11,633	9,458	12,928	24,555	32,539	91,113

Goodnews Bay (Goodnews River) ^{3/}	King	Red	Coho	Pink	Chum	Total
1968			5,485			5,485
1969	3,978	6,256	11,631	298	5,006	27,169
1970	7,163	7,144	6,974	12,183	12,346	45,630
1971	477	330	1,771	0	301	2,879
1972	264	924	925	66	1,331	3,510
1973	3,543	2,072	5,017	324	15,781	26,737
1974	3,302	9,357	21,340	16,373	8,942	59,314
1975 ^{4/}	2,151	8,928	17,127	403	6,459	35,068
1976	4,417	5,575	9,852	8,453	10,354	38,651
1977	3,336	3,723	13,335	29	6,531	26,954
1978	5,218	5,412	13,764	9,103	8,590	42,087
1979	3,204	19,581	42,098	201	9,298	74,382
5 year average	3,685	6,599	15,084	6,872	8,175	40,415

^{1/} Includes subdistricts 335-10, 335-20 and 335-30. Commercial fishing in 335-30 has been prohibited since 1966.

^{2/} Subdistrict 335-40.

^{3/} Subdistrict 335-50 and includes Chagvan Bay.

^{4/} Final catch data used.

Appendix Table 5. Commercial salmon pack by species in round weight (lbs), Kuskokwim district, 1968-1979 ^{1/}

	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
<u>Fresh or frozen</u>										
king	794,682	1,032,863	1,113,890	801,628	1,400,243	1,371,685	566,941	159,845	935,652	1,326,773
red	36,480	25,351	68,116	30,635	4,319	37,816	179,768	108,216	95,761	154,706
coho	1,090,690	322,254	453,125	64,457	152,832	883,966	1,245,132	670,598	809,916	2,009,171
pink	303,270	3,413	90,703		6,442	2,092	246,134	2,809	133,911	1,678
chum	146,230	249,007	367,715	678,173	631,781	1,252,607	1,220,496	1,350,936	1,609,718	2,185,549
<u>Salmon roe, (lbs. of finished product.)</u>										
	<u>2/</u>	56,926	42,958	64,136	62,963	165,574	<u>2/</u>	43,113	120,405 ^{3/}	109,105 ^{3/}
<u>Subsistence roe (lbs. of raw product).</u>										
									157,151	167,155
	<u>1978</u>			<u>1979</u>						
<u>Fresh or frozen</u>										
king	1,530,461			999,043						
red	89,489			320,541						
coho	1,758,213			2,418,186						
pink	241,523			2,290						
chum	2,508,123			2,059,686						
<u>Salmon roe, (lbs of finished product)</u>	142,496 ^{3/}									

^{1/} Pack represents type of processing when fish were shipped out of district.

^{2/} Information not available.

^{3/} Raw product

Appendix Table 4. Commercial king salmon catches, Kuskokwim district, 1960-1979.

Total catch							
Year	335-10 ^{1/}	335-20 ^{1/}	335-30	335-40	335-50	335-60	Total
1960	2,927	1,231	1,811	0			5,969
1961	15,820	1,551	1,547	4,328			23,246
1962	13,306	2,035	0	5,526			20,867
1963	9,095	2,921	0	6,555			18,571
1964	15,754	1,395	0	4,081			21,230
1965	21,452	537	0	2,976			24,965
1966	25,212	333	0	278			25,823
1967	29,367	615		0			29,986
1968	33,451	826		8,879	0		43,157
1969	43,141	853		16,802	3,978	7	64,777
1970	37,715	1,463		18,629	7,163		65,082
1971	35,421	2,439		4,185	477		44,936
1972	37,699	1,755		15,880	264		55,482
1973	28,194	2,244		14,993	3,543		51,374
1974	16,031	951		8,704	3,302		30,670
1975	18,235	1,319		3,928	2,151		27,799
1976	20,010	3,316		14,110	4,417		49,262
1977	28,685	3,975		19,090	3,336		55,086
1978	36,139	2,087		12,335	5,218		55,779
1979	24,633	2,913		11,144	3,204		41,894
Previous 5 year average	23,820	2,330		11,633	3,685		41,468

^{1/} King salmon season only.

Appendix Table 6. Mean salmon weights and prices paid to fishermen, Kuskokwim district, 1964-1979.

Year	King	Mean weights-lbs. (kgs)			Chum
		Coho	Red	Pink	
1964	23.2 (10.5)	6.5 (3.0)	5.8 (2.6)		6.1 (2.8)
1965	21.7 (9.9)	6.5 (3.0)	6.6 (3.0)		
1966	23.2 (10.5)	6.7 (3.0)			
1967	27.8 (12.6)	5.9 (2.7)	7.4 (3.4)		7.0 (3.2)
1968	23.8 (10.8)	7.2 (3.3)	6.2 (2.8)	4.0 (1.8)	7.9 (3.6)
1969	19.6 (8.9)	7.3 (3.3)	6.2 (2.8)	3.6 (1.6)	5.8 (2.6)
1970	18.9 (8.6)	7.3 (3.3)	5.4 (2.5)	3.3 (1.5)	6.1 (2.8)
1971	26.2 (11.9)	6.1 (2.8)	6.9 ^{1/} (3.1)	<u>2/</u>	6.4 (2.9)
1972	24.7 (11.2)	6.4 (2.9)	<u>2/</u>	<u>2/</u>	6.5 (3.0)
1973	26.7 (12.1)	5.8 (2.6)	<u>2/</u>	<u>2/</u>	6.8 (3.1)
1974	17.1 (7.7)	7.5 (3.4)	6.3 (2A)	4.1 (1.9)	6.8 (3.1)
1975	14.9 (6.8)	8.2 (3.7)	<u>2/</u>	<u>2/</u>	6.4 (2.9)
1976	17.0 (7.7)	7.8 (3.5)	6.7 (3.0)	3.5 (1.6)	7.0 (3.2)
1977	22.7 (10.3)	7.8 (3.5)	8.3 (3.8)	3.9 (1.8)	7.3 (3.3)
1978	24.2 (11.0)	7.1 (3.2)	6.5 (3.0)	3.9 (1.8)	8.9 (4.0)
1979	16.6 (7.5)	7.9 (3.6)	6.9 (3.1)	3.9 (1.8)	7.0 (3.2)

Year	King	Mean prices (per fish)			Chum
		Coho	Red	Pink	
1964	\$3.25	\$.35	\$.50	\$	\$
1965	^{1/}				
1966	3.00	.40	.50	.10	.10
1967	3.55	.52	.40		.25
1968	3.74	.67	.60	.20	.35
1969	3.80	.76	.91	.22	.43
1970	3.78	1.03	1.15	.26	.51
1971	^{3/} 4.53	.82	.71	<u>2/</u>	.50
1972	4.92	1.00	.88	.25	.54
1973	6.83	1.50	2.32	.53	1.28
1974	7.96	2.00	2.15	.93	1.71
1975	8.05	2.54	<u>2/</u>	<u>2/</u>	1.67
1976	10.82	3.12 ^{4/}	2.85	.88	1.89
1977	26.11	5.07	3.74	.98	3.29
1978	12.09	2.85	3.18	.48	2.83
1979	10.96	5.93	3.66	.43	2.59

^{1/} Samples available only for two periods - 7/1-2 - 7/5-6.

^{2/} Information unavailable.

^{3/} Information not available for 335-50 (Goodnews) only fished one day.

^{4/} Information not available for 335-40 (Quinhagak).

Appendix Table 7. Dollar value estimates of Kuskokwim district commercial fishery, 1964-1979 ^{1/}

Year	Gross Value of catch to fishermen	Wages earned ^{2/}	Total income to district	Wholesale value of pack ^{3/}	Tax revenues to state
1964	\$ 83,030.00	\$	\$	\$ 409,700.00	\$ 6,100.00
1965	90,950.00			370,000.00	8,200.00
1966	87,466.00			406,500.00	8,100.00
1967	138,647.00	20,000.00	158,647.00	727,000.00	
1968	290,370.00	40,000.00+	330,370.00+	1,135,000.00	17,000.00
1969	297,233.00	60,435.00+	357,668.00+		
1970	362,470.00	127,327.00	489,797.00	1,300,000.00	20,000.00
1971	371,220.00	80,510.00	451,730.00	672,180.00	16,770.00
1972	360,727.00	86,895.00	447,622.00		
1973	827,735.00	150,000.00+	977,735.00	3,600,000.00	32,000.00
1974	1,056,042.00	150,000.00+	1,206,042.00		
1975	899,173.00	165,000.00+	1,064,173.00	2,000,000.00	25,000.00
1976	1,380,229.00	175,000.00 +	1,555,229.00		
1977	3,891,950.00	200,000.00 +	4,091,950.00		
1978	2,337,470.00	250,000.00*	2,587,470.00		
1979	3,678,000.00	275,000.00+	3,953,000.00+		

^{1/} Information not available for wages earned during 1964-1966.

^{2/} Includes wages paid to tenderboat operators, processing plant employees in district.

^{3/} Based on type of processing when fish were shipped out of the district.

Appendix Table 8. Utilization of Kuskokwim River king salmon, 1960-1979.

Year	Commercial Catch <u>1/</u>	Subsistence Catch <u>2/</u>	Total Utilization
1960	5,969	20,361	26,330
1961	18,918	30,910	49,828
1962	15,341	14,642	29,983
1963	12,016	37,246	49,262
1964	17,149	29,017	46,166
1965	21,989	27,143	49,132
1966	25,545	49,606	75,151
1967	29,986	57,875	87,861
1968	34,278	30,230	64,508
1969	43,997	40,138	84,135
1970	39,290	69,204	108,494
1971	40,274	42,926	83,200
1972	39,454	40,145	79,599
1973	32,838	38,526	71,365
1974	18,664	26,665	45,329
1975	21,720	47,784	69,504
1976	30,735	58,185	88,920
1977	35,830	55,577	91,407
1978	45,641	35,881	81,522
1979	38,966	55,524	94,490
Previous 5 yr. average	30,518	44,818	75,336

1/ Subdistricts 335-10, 335-20 and 335-30 to the Swift River.

2/ Catches are expanded and include all villages surveyed each year.
Data includes a few villages not included in comparative catch tables.

Appendix Table 9. Commercial king salmon catches fishing period during the king salmon season, Kuskokwim River (Subdistrict 1, 335-10), 1974-1979.

Fishing periods (1974)	1974			1975			1976		
	Catch	Boats	C.F.H.	Catch	Boats	C.F.H.	Catch	Boats	C.F.H.
June									
4-6									
6-9									
10-13 (10-11)	4,384	422	0.9						
13-16 (13-14)	5,790	488	1.0	381	11	5.7			
16-20 (17-18)	5,857	506	1.0	991	40	2.1	6,962	459	2.5
20-23				16,863	463	3.0	13,048	495	4.4
23-35									
27-28									
Totals	16,031	606	0.9	18,235	472	3.0	20,010	561	3.5
Associated Data									
Fishermen hours		16,922			6,102			5,724	
Days open to fishing									
2/		1 1/2			1 1/4			1/2	
Kuskokwim River Breakup (Bethel)		May 7			May 19			May 18	
Kuskokwim River Clear of ice		May 19			May 25			May 28	
First king salmon Smelt at Bethel		May 23			May 26			+ June 1	
First frost		May 25			May 29			-	
Freezeup at Bethel		-			Oct 29			Oct 27	
Fishing Periods	1977			1978			1979		
	Catch	Boats	C.F.H.	Catch	Boats	C.F.H.	Catch	Boats	C.F.H.
June									
4-6									
6-9				7,590	509	2.5			
10-13 (10-11)							12,270	523	3.9
13-16 (13-14)	12,458	467	4.5	6,142	266	3.9	12,363	549	3.8
16-20 (17-18)	16,277	484	5.6	12,341	396	5.2			
20-23				1,724	72	6.0			
23-35				8,342	429	4.9			
27-28									
Totals	28,685	563	5.0	36,139	615	4.0	24,633	591	3.8
Associated Data									
Fishermen hours		5,706			9,030			6,432	
Days open to fishing 2/									
		1/2			1.08			1/2	
Kuskokwim River Breakup (Bethel)		May 23			-			April 27	
Kuskokwim River Clear of ice		June 1			-			May 7	
First king salmon Smelt at Bethel		May 31			May 18			May 16	
Freezeup at Bethel		June 2			May 22				
		Oct 18			Oct 25			Nov 19	

1/ Open for only 12 hours.

2/ One day is equivalent to 24 hours fishing time.

Appendix Table 10. Utilization of Kuskokwim River chum salmon, 1960-1979. ^{3/}

Year	Commercial Catch <u>1/</u>	Subsistence Catch <u>2/</u>	Total Utilization
1960		327,297	327,297
1961		185,447	185,447
1962		165,626	165,626
1963		141,550	141,550
1964		189,660	189,660
1965		283,459	283,459
1966		174,660	174,660
1967	148	205,263	205,411
1968	187	260,023	260,210
1969	7,165	198,628	205,793
1970	1,664	245,550	247,214
1971	68,914	116,391	185,305
1972	78,619	120,316	198,935
1973	143,746	179,259	328,005
1974	171,887	277,170	449,057
1975	181,840	176,389	360,560
1976	177,864	227,765	405,629
1977	248,721	213,418	462,139
1978	248,656	131,049	379,705
1979	261,874	160,836	422,710
Previous 5 yr. average	205,794	205,158	410,952

1/ Subdistricts 335-10 and 335-20.

2/ Catches are expanded and include all villages surveyed each year, 335-10, 335-20 and 335-30 to the Swift River.

3/ Includes minimal numbers of red, pink and coho salmon.

Appendix Table 11. Commercial chum salmon catches by fishing period during the chum salmon season Kuskokwim River (Subdistrict 1, statistical area 335-10), 1971-1979.

Fishing periods	1971			1972			1973			1974			1975		
	Catch	Boats	C.F.H. ^{1/}	Catch	Boats	C.F.H.	Catch	Boats	C.F.H.	Catch	Boats	C.F.H.	Catch	Boats	C.F.H.
June 22-24															
June 25-27							19,073	202	7.9	27,017	267	16.9			
June 28-30	11,386	150	6.3	9,863	87	9.4	47,258	250	7.9				31,114	253	20.5
July 1-3	8,949	111		19,084	115	13.8	21,410	242	7.4	55,356	380	12.1	34,417	374	15.3
July 4-6	17,672	104		19,839	101	16.8	31,056	212	12.2	27,211	282	8.0			
July 7-9	12,603	93					24,593	217	9.4	50,672	376	11.2	38,752	368	17.6
July 10-12	2,550	18		13,972	113	10.3							39,791	301	22.0
July 13-15	8,000	69		6,290	80	6.5							20,945	329	10.6
July 16-18										6,661	190	5.8			
July 19-21	5,989	71													
Total	67,149	216	9.1	69,048	176	11.6	143,390	341	8.7	166,917	467	11.0	165,049	540	16.9

Associated Data
Fishermen hrs.
2/
Days open to
fishing 3/

	7,392	5,952	16,476	15,198	9,750
	3.5	2.5	3.0	2.0	1.25

Fishing periods	1976			1977			1978			1979		
	Catch	Boats	C.F.H.									
June 22-24										32,295	502	10.7
June 25-27										53,648	531	16.8
June 28-30	42,464	348	20.3	40,321	378	17.8	44,296	449	16.4	48,643	542	14.9
July 1-3	44,024	415	17.7	58,884	409	24.0	36,793	442	13.9	83,164	542	25.6
July 4-6				37,500	331	19.0	26,629	476	9.3			
July 7-9	48,669	381	21.3	56,943	368	25.8	48,031	485	8.3			
July 10-12	21,153	377	9.4							32,434	520	10.4
July 13-15	14,176	265	8.9	24,765	385	10.7	48,931	428	9.5			
July 16-18							14,935	422	5.9			
July 19-21												
Total	170,486	5.7	15.9	218,413	522	14.0	219,615	617	10.1	250,184	617	15.8

Associated Data
Fishermen hrs.
2/
Days open to
fishing 3/

	10,716	15,660	21,690	15,822
	1.25	1.25	2	1.25

- 1/ Catch per fisherman hour.
2/ Number of fishermen multiplied by hours open to fishing.
3/ One day is equivalent to 24-hours of fishing time.

Appendix Table 12. Commercial coho salmon catches by week, lower Kuskokwim River (Subdistrict 1, stat. area 335-10). 1974-1979.

Date	1974				1975				1976			
	Catch	Fisher- men	Fisher- man hrs	C.F.H.	Catch	Fisher- men	Fisher- man hrs	C.F.H.	Catch	Fisher- men	Fisher- man hrs	C.F.H.
Aug 1-8	9,576	267	3,444	2.8	2,346	148	888	2.6	10,534	286	6,864	1.5
Aug 9-15	59,090	444	31,968	1.9	12,171 ^{2/}	293	14,064	0.9	29,728	400	19,200	1.5
Aug 12-21	58,066	396	28,512	2.0	18,020	362	17,376	1.0	28,664	387	18,576	1.5
Aug 19-29	12,301	263	18,936	0.6	33,128	387	18,576	1.8	14,543	300	14,400	1.0
Aug 26-Sep 3	5,360	107	7,704	0.7	16,280	274	13,152	1.2	4,420	174	7,308	0.6
Sep 3-9	430	25	1,815	0.2								
Totals	144,823	516	92,379	1.2	81,945	533	64,056	1.3	87,889	516	66,348	1.3

(Continued)

Appendix Table 12 (continued) Commercial coho salmon catches by week,
lower Kuskokwim R. (subdistrict 1, stat area 335-10), 1974-79.

Date	Catch	1977		C.F.H.
		Fisher- men	Fisher- man hrs	
Aug 1-8	23,987	360	8,640	2.8
Aug 9-15	91,474 ^{3/}	487	23,376	3.9
Aug 12-21	60,935	438	10,512	5.8
Aug 19-29	25,589 ^{4/}	378	4,536	5.6
Aug 26-Sept 3	16,980 ^{5/}	361	4,332	3.9
Sept 3-9	11,874 ^{6/}	264	3,168	3.8
	6,819 ^{7/}	204	2,448	2.8
Totals	237,658	572	57,012	4.2

Date	Catch	1978		C.F.H.
		Fisher- men	Fisher- man hrs	
Aug 1	6,311	297	3,564	1.7
Aug 4	9,455	364	4,368	2.2
Aug 8	20,501	433	5,196	5.5
Aug 11	42,428	485	5,820	7.3
Aug 15	48,950	476	5,712	8.6
Aug 18	29,485	434	5,208	5.7
Aug 22	22,287	396	4,752	4.7
Aug 25	11,168	293	3,516	3.2
Aug 29	12,215	250	3,000	4.1
Totals	210,790	597	41,136	5.2

Date	Catch	1979		C.F.H.
		Fisher- men	Fisher- man hrs	
Aug 2	52,276	478	5,736	9.1
Aug 6	53,797	480	2,880	18.7
Aug 9	26,422	497	2,982	8.9
Aug 13	27,915	463	2,778	10.1
Aug 16	21,675	467	2,802	7.7
Aug 20	19,445	390	2,340	8.3
Aug 23	5,376	328	1,968	2.7
Aug 27	6,342	310	3,720	1.7
Aug 30	2,182	179	2,148	1.0
Totals	215,430	613	27,354	7.9

^{3/} Aug 8-10. ^{4/} Aug 18. ^{5/} Aug 25. ^{7/} Aug 29.

Appendix Table 13. Subsistence king salmon Kuskokwim River catches by village, 1960-1979.

Village	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
Kwigillingok, Kipnuk, Kongiganak	250	283	54	229	414	0 ^{1/}	205	957	70	385	1,111
Eek	1,474 ^{2/}	2,238 ^{3/}	1,060 ^{3/}	2,697 ^{3/}	1,857	2,737	2,872	4,375	2,760	2,037	2,065
Tuntutuliak	226	2,226	842	2,853	1,826	1,978	3,061	3,338	2,026	2,195	3,558
Kasigluk	135	1,215	127	1,302	4/	513	1,875	2,766	1,360	2,888	3,931
Nunapitchuk	683	2,042	848	1,874	636	490	2,875	1,926	1,360	2,279	4,680
Atmauthluak ^{5/}											1,205
Napakiak	1,830	2,573	2,191	3,148	2,677	1,670	3,592	3,922	2,317	3,546	4,960
Oscarville	1,968	282	75	309	339	678	301	1,327	393	457	542
Napaskiak	536	1,258	759	1,569	2,201	1,412	2,935	3,091	1,647	2,227	3,446
Bethel	1,923	4,150	1,378	7,019	4,114	3,342	7,604	11,772	4,900	7,472	17,026
Kwethluk	2,692	3,763	2,329	5,050	3,262	4,538	6,135	6,889	3,549	3,187	7,932
Akiakchak	1,626	3,052	1,800	2,533	3,488	3,952	4,957	5,543	3,415	2,602	7,022
Akiak	1,865	3,159	906	2,869	2,495	1,774	3,941	3,790	1,332	1,275	3,290
Tuluksak	737	1,486	493	1,295	572	1,019	1,559	1,710	1,048	1,131	1,995
Lower Kalskag	961	571	805	2,661	710	841	1,918	1,733	1,463	2,083	2,146
Upper Kalskag	667	1,049	7/	7/	1,143	719	1,333	1,699	1,404	1,623	734
Aniak	1,057	688	185	602	1,104	494	2,002	1,415	467	1,406	2,136
Chuathbaluk	64	54	10	30	74	29	139	217	40	180	219
Napamute	20	16	44	52	134	2	78	60	100	19	22
Crooked Creek	747	518	561	859	1,358	363	1,249	638	77	541	684
Georgetown	10/	10/	10/	10/	10/	10/	12	10/	10/	9	2
Red Devil	10/	40	144	228	314	10/	182	10/	111	142	232
Sleetmute	465	222	9/	9/	9/	491	149	343	200	267	161
Stony River	435	25	31	67	299	101	632	364	191	2,187	105
Totals	20,361	30,910	14,642	37,246	29,017	27,143	49,606	57,875	30,230	40,138	69,204

Village	1971	1972	1973	1974	1975	1976	1977	1978	1979	1960-	1974-
										Average	Average
Kwigillingok, Kipnuk, Kongiganak	241	10	75	10/	10/	197	743	75	0	330	254
Eek	1,882	1,969	1,981	2,356	2,110	3,232	2,675	1,807	2,003	2,286	2,364
Tuntutuliak	1,841	3,214	2,859	1,577	3,492	4,807	2,470	1,656	2,268	2,289	2,711
Kasigluk	1,645	1,292	8,864	1,411	1,713	1,613	1,324	608	1,142	1,609	1,302
Nunapitchuk	1,970	2,496	2,663	1,165	2,092	2,578	2,622	2,178	2,109	1,916	2,124
Atmauthluak ^{6/}	548	864	1,106	382	1,042	1,159	1,015	966	2,242	931	1,134
Napakiak	1,868	2,009	1,763	1,224	2,864	3,330	2,702	2,140	2,191	2,719	2,408
Oscarville	570	196	586	180	891	623	672	349	629	573	557
Napaskiak	1,916	1,578	2,048	900	2,303	3,566	1,989	2,122	2,085	1,902	2,161
Bethel	8,731	8,371	8,898	4,631	11,688	13,215	9,408	6,905	11,564	6,907	9,568
Kwethluk	5,564	5,137	3,444	2,694	3,179	4,193	5,563	3,172	6,919	4,534	4,286
Akiakchak	4,818	3,872	2,592	1,726	3,534	4,915	5,407	2,951	4,818	3,662	3,892
Akiak	2,688	1,899	1,895	1,292	2,837	3,076	2,880	1,850	3,567	2,366	2,584
Tuluksak	1,280	1,318	1,322	883	1,338	1,411	2,906	1,906	1,489	1,212	1,656
Lower Kalskag	2,355	2,604	1,309	1,586	2,755	4,536	1,750	1,951	2,821	1,583	2,567
Upper Kalskag	601	401	938	463	1,752	1,431	2,813	1,253	1,590	1,026	1,550
Aniak	1,076	2,105	1,030	1,952	1,391	1,490	4,991	1,331	2,634	1,126	2,298
Chuathbaluk	179	261	942	674	594	657	1,507	1,238	2,189	174	1,143
Napamute	17	20	13	6	16	420	176	144	149	43	152
Crooked Creek	291	183	269	650	238	264	619	488	728	596	406
Georgetown	0	0	0	9/	10/	10/	66	10/	0	4	-
Red Devil	135	182	138	205	623	195	324	153	488	168	331
Sleetmute	181	69	504	269	256	356	684	456	988	277	501
Stony River	2,521	11/	95	287	439	861	653	11/	33	182	390
Totals	42,926	40,145	38,526	26,665	47,569	57,917	55,339	35,881	54,780	38,757	46,172

1/ Included with other villages.
 2/ Does not include 1965.
 3/ Estimates based on catch data through 1969.
 4/ Included with Eek.
 5/ Does not include 1964.
 6/ New village of Atmauthluak segregated in 1970 from parent village of Nunapitchuk.
 7/ Included with Lower Kalskag.
 8/ Does not include 1962 and 1963.
 9/ Included with Red Devil.
 10/ Data not available.
 11/ Includes Lime Village.

Appendix Table 14. Comparative Kuskokwim River "other salmon" subsistence catches by village, 1960-1973. ^{1/} ^{2/}

Village	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1960-1973 Average
Kipnuk															
Kongiganak															
Kwigillingok	1,430	3,279 _{3/}	1,990 _{3/}	2,562 _{3/}	2,323	0	680	2,846	2,800	2,481	3,937	1,110	1,284	807	1,966
Eek	4,094 _{3/}	2,321 _{3/}	2,072	1,771	3,151	2,898	1,324	1,922	3,503	3,436	4,855	2,213	783	2,401	2,625
Tuntutuliak	4,101	8,526	9,692	6,791	8,421	18,993	9,747	11,531	14,090	17,462	10,600	9,964	11,103	13,572	11,042
Kasigluk	1,400	3,657	1,705	1,020	4/	4,041	3,058	2,309	4,311	3,308	5,731	2,043	1,934	6,090	3,124
Nunapitchuk	2,743	4,868	7,474	2,462	1,171	4,251	4,145	6,278	7,731	6,934	11,412	3,375	5,600	7,663	5,436
Atmauthluak												1,191	947	2,818	1,538
Napakiak	19,888	5,789	6,167	3,711	12,312	12,928	9,275	12,685	12,700	12,390	16,371	4,427	5,191	8,461	10,164
Oscarville	3,948	1,680	1,723	1,025	487	8,010	407	2,580	2,104	2,743	4,669	1,675	498	3,081	2,474
Napaskiak	5,199	4,286	5,546	3,584	6,275	26,206	8,743	8,585	12,409	11,655	11,169	7,039	8,858	8,478	9,145
Bethel	12,972	12,845	8,470	8,623	15,623	19,099	14,011	14,055	28,603	14,613	33,475	9,905	16,885	33,930	17,365
Kwethluk	32,975	21,106	22,788	13,180	19,186	37,780	18,707	23,872	36,645	23,462	27,702	13,941	11,721	19,565	23,046
Akiakchak	15,932	12,518	10,521	6,725	10,096	25,138	15,049	13,584	19,461	10,306	29,776	12,298	9,266	9,864	14,324
Akiak	13,061	8,205	6,551	8,478	9,659	12,297	10,622	9,332	13,775	9,854	13,003	9,264	5,108	6,118	9,666
Tuluksak	19,261	7,928	8,526	10,289	9,777	12,820	11,670	8,898	11,114	6,058	7,626	5,115	5,145	5,946	9,298
Lower Kalskag	11,563	7,764	16,478	23,249	9,472	21,906	10,346	16,018	8,114	8,468	11,158	3,509	3,490	2,873	11,029
Upper Kalskag	38,398	27,149	5/	5/	11,391	11,970	6,236	8,364	9,733	9,413	5,309	3,530	1,460	5,607	11,547
Aniak	36,673	15,935	10,120	10,608	17,874	11,353	12,484	16,788	17,341	15,127	10,030	4,933	5,243	13,547	14,147
Chuathbaluk	22,370	2,922	3,784	2,629	5,059	6,507	5,625	7,249	11,588	7,523	10,971	5,632	8,509	14,171	8,181
Rapamute	11,017	6,235	3,898	5,192	4,873	704	3,704	5,750	1,774	1,453	1,224	1,862	4,645	3,451	3,984
Crooked Creek	41,263	17,558	27,259	23,166	32,550	18,986	19,467	14,365	12,704	6,810	9,216	3,094	3,658	1,981	16,577
Georgetown	6/	6/	6/	6/	6/	6/	70	6/	2,030	3,664	800	0	0	10	939
Red Devil	6/	1,358	9,007	5,367	5,706	6/	2,746	6/	2,400	1,130	2,454	1,067	1,695	2,782	3,246
Sleetmute	17,259	6,884	7/	7/	7/	11,707	2,611	6,875	11,218	8,258	4,464	3,203	4,293	2,168	7,176
Stony River	11,750	2,642	1,855	1,110	4,254	15,865	3,933	11,377	13,875	12,080	8,407	5,995	3,000	3,875	7,144
Totals	327,297	185,447	165,626	141,550	189,660	283,459	174,660	205,263	260,023	198,628	245,550	116,391	120,316	179,259	205,183

(continued)

Appendix Table 14 (continued). Comparative Kuskokwim River "other salmon" subsistence catches by village, 1974-1979. ^{1/ 2/}

Village	1974	1975	1976	1977	1978	1979	1974- 1979 Average
Kipnuk							
Kongiganak							
Kwigillingok	9/	9/	902	2,190	78	0	880
Eek	4,227	2,754	4,425	3,251	1,874	1,125	2,942
Tuntutuliak	28,321	7,429	8,440	9,340	5,564	5,632	10,121
Kasigluk	6,773	3,708	4,050	3,504	1,242	2,617	2,982
Nunapitchuk	12,498	5,447	6,551	8,991	4,977	5,737	7,592
Atmauthluak	4,585	2,524	3,446	3,693	3,860	5,287	3,900
Napakiak	21,494	11,630	9,477	8,420	6,074	8,019	10,852
Oscarville	5,617	3,237	2,416	2,030	1,276	969	2,591
Napaskiak	20,467	12,930	21,518	11,588	9,286	5,773	13,594
Bethel	34,892	26,808	26,970	15,982	13,731	31,040	24,904
Kwethluk	39,747	19,183	27,120	28,193	14,038	16,861	24,189
Akiachak	15,108	14,008	16,050	18,607	9,445	10,459	13,946
Akiak	18,434	18,890	12,337	13,952	9,237	12,218	14,178
Tuluksak	13,261	7,819	11,833	7,835	4,478	5,249	8,412
Lower Kalskag	12,265	9,823	17,169	8,964	3,704	9,134	10,110
Upper Kalskag	9,631	6,904	8,694	11,845	7,279	6,117	8,412
Aniak	9,305	9,597	13,507	21,610	8,042	15,247	12,884
Chuathbaluk	4,287	561	7,967	5,141	4,885	6,646	4,914
Napamute	76	226	1,653	4,969	1,887	2,103	1,819
Crooked Creek	4,954	2,461	3,236	3,072	2,469	3,141	3,222
Georgetown	9/	9/	9/	1,127	9/	0	939
Red Devil	2,688	4,481	4,231	5,916	6,161	8,286	5,294
Sleetmute	4,212	5,761	7,628 ^{8/}	6,674	7,917	8,262	6,743
Stony River	4,328	5,202	8,484	3,300	3,545	3,355	4,702
Totals	277,170	176,389	228,104	210,194	131,049	149,147	200,122 195,342

1/ Catches include a majority of chum salmon but include small numbers of red, coho, pink and small king salmon.

2/ 1965 to 1972 catches do not include late coho salmon catches.

3/ Estimate based on catch data through 1970.

4/ Included with Eek.

5/ Included with Lower Kalskag

6/ Data not available.

7/ Included with Red Devil

8/ Includes Lime Village.

Appendix Table 15. Comparative subsistence fishing data between families owning or not owning snowmachines, Kuskokwim River, 1967 to 1979, unexpanded data.

Year	Families	People	Dogs	Snow machines	AVERAGES PER FAMILY					Percent families with snowmachines
					People	Dogs	Snow-machines	King Salmon	Small Salmon	
1967										
With snowmachines	59	410	288	63	6.95	4.88	1.07	143	355	14
Without snowmachine	359	2,264	1,963	0	6.31	5.47	0	101	404	
1968										
With snowmachines	159	1,100	808	182	6.92	5.08	1.14	70	382	30
Without snowmachine	374	2,247	2,052	0	6.01	5.49	0	51	493	
1969										
With snowmachines	158	1,097	876	189	6.94	5.54	1.20	78	306	46
Without snowmachine	191	1,208	1,173	0	6.32	6.14	0	71	425	
1970										
With snowmachines	287	1,962	1,413	375	6.84	4.92	1.31	121	380	68
Without snowmachine	212	1,201	972	0	5.66	4.58	0	87	413	
1971										
With snowmachines	361	2,459	1,504	494	6.79	4.16	1.37	89	243	74
Without snowmachine	128	734	601	0	5.73	4.70	0	84	278	
1972										
With snowmachines	278	2,096	949	385	7.54	3.41	1.38	76	220	77
Without snowmachine	85	508	328	0	5.98	3.86	0	48	247	
1973										
With snowmachines	343	2,246	1,375	506	6.55	4.00	1.48	79	362	81
Without snowmachine	81	429	283	0	5.15	3.49	0	47	254	
1974										
With snowmachines	337	2,153	1,339	491	6.39	3.97	1.46	47	495	88
Without snowmachine	68	350	158	0	5.15	2.32	0	29	342	

-continued-

Appendix Table 15. Comparative subsistence fishing data between families owning or not owning snowmachines, Kuskokwim River, 1967 to 1979, unexpanded data (Continued).

Year	Families	People	Dogs	Snow- Machines	AVERAGES PER FAMILY					
					People	Dogs	Snow machines	King Salmon	Small Salmon	Percent families with snowmachines
1975										
With snowmachines	313	2,029	1,252	482	6.55	4.00	1.54	79	309	84
Without snowmachine	59	313	126	0	5.30	2.13	0	62	301	
1976										
With snowmachines	416	2,815	1,578	607	6.77	3.79	1.46	91	340	81
Without snowmachine	78	410	302	0	5.26	3.87	0	60	306	
1977										
With snowmachines	435	2,829	1,712	674	6.50	3.94	1.55	91	287	86
Without snowmachine	59	303	187	0	5.14	3.17	0	59	201	
1978										
With snowmachines	476	3,025	2,203	725	6.36	4.63	1.52	64	180	85
Without snowmachine	83	450	303	0	5.42	3.65	0	37	165	
1979										
With snowmachines	459	2,852	1,997	733	6.21	4.35	1.60	74	203	85
Without snowmachine	82	426	376	0	5.20	4.59	0	53	253	

Appendix Table 16. Subsistence Fishery Historical Summary, Kuskokwim River, 1960-1979*

Year	Fishing Families Surveyed	Average numbers per fishing family					
		People	Dogs	Snow-Machines	King Salmon	Small Salmon _{2/}	Fishwheels
1960	247	5.89	6.66		60	1,074	?
1961	342	6.02	6.33		39	453	0.19
1962	349	6.50	6.30		79	470	.18
1963	405	6.14	5.29		87	351	.11
1964	394	6.33	5.44		70	454	.10
1965	332	5.95	5.45		64	669	.08
1966	492	5.91	4.49	<u>1/</u>	91	320	.06
1967	472	6.36	5.22	0.18	106	375	.06
1968	567	6.23	5.31	0.35	53	447	.06
1969	376	6.49	5.51	0.53	78	385	.05
1970	514	6.33	4.65	0.75	108	384	.02
1971	488	6.53	4.30	1.01	88	238	.01
1972	576	6.78	3.08	1.00	51	166	.02
1973	408	6.55	3.84	1.48	81	356	.02
1974	596	6.24	3.61	1.12	45	466	.02
1975	437	6.41	3.99	1.35	79	310	.02
1976	494	6.53	3.81	1.23	86	335	.02
1977	502	6.33	3.83	1.36	89	309	.02
1978	613	6.02	4.29	1.24	53	190	.01
1979	698	5.98	4.25	1.32	68	184	.01

* Unexpanded data only

1/ Snowmachine count started in 1967

2/ Does not include coho salmon.

Appendix Table 17. Quinhagak Subsistence Fishery Summary, 1967-1979.*

Year	Fishing Families Surveyed	Average numbers per fishing family					
		People	Dogs	Snow-machines	King Salmon	"Dog" Salmon	Coho Salmon
1967	19	6.43	4.00	?	71	231	?
1968	46	5.59	4.07	0.28	88	234	380
1969	59	5.38	3.41	0.46	27	29	179
1970	46	6.02	2.76	0.74	47	110	?
1971	41	5.83	2.37	0.73	55	87	36
1972	54	6.41	2.30	0.80	56	116	9
1973	44	5.80	2.07	0.98	61	98	83
1974	47	5.53	2.31	1.17	46	78	87
1975	46	5.86	1.85	1.13	71	88	?
1976	50	5.62	2.20	1.42	44	119	?
1977	60	6.63	1.59	1.42	34	70	?
1978	65	5.59	1.86	1.70	36	96	3
1979	48	5.23	1.72	1.66	29	24	37

* Expanded data

Appendix Table 18. King salmon escapement counts, Kuskokwim River drainage, 1970-1979 (p. 1 of 3).

Goodnews River				Kanektok River			
Year	Estimated Count	Area Surveyed	Survey Rating	Year	Estimated Count	Area Surveyed	Survey Rating
1960	2,503	Entire ^{3/}	Fair	1960	6,047	Entire ^{3/}	Fair
1961	1,780	Entire	Fair	1961	1,650	60 miles	Poor
1968	1,790	Entire	Fair	1962	935	Entire	Fair
1969	75	Entire	Poor	1964	627	Entire	Poor
1970	600	Entire	Poor	1966	3,718	Entire	Fair
1975	829	Mouth to Nimgun Cr.	--	1968	4,170	Entire	Fair
1976	1,150	Mouth to Slate Cr.	Good	1969	119	10 miles	Poor
1977	2,163	Mouth to Goodn. L.	Good	1970	3,112	Lake to mile 20	Fair
1979	635	Mouth to Goodn. L.	Fair	1972	73	Lake to Nukluk Cr.	Poor
				1973	814	Entire	--
				1974	197	Kanuktic Cr. to mouth	--
				1975	1,278	Entire	--
				1976	2,115	Entire	Fair
				1977	5,787	Entire	Fair
				1978	9,181	Entire	Fair
				1979	601	Entire	Poor

Kwethluk River				Kisaralik River			
Year	Estimated Count	Area Surveyed	Survey Rating	Year	Estimated Count	Area Surveyed	Survey Rating
1960	1,320	Upper 40 miles	?	1960	1,104	Entire ^{3/}	Fair
1962	248	Entire ^{3/}	Poor	1962	327	Entire	Poor
1966	516	Upper 35 miles	Fair	1965	194	Below canyon	Poor
1968	800	Entire	Fair	1966	204	Upper 60 miles	Poor
1972	68	Upper 20 miles	Poor	1968	487	Upper river	Fair
1974	88	Upper 30 miles	Poor	1970	531	Airstrip to Quicksilver Cr.	Fair
1975	Few	Lower 40 miles	Poor	1973	152	Airstrip to 1 mi. above falls	Fair
1976	997	40 miles d.s. from mouth of Canyon Cr.	Fair	1974	4	Airstrip to 30 mi. upstream	Poor
1977	1,999	3-step Mt. to Canyon Creek	Fair	1975	129	Entire	Poor/Fair
1978	1,276	3-step Mt. to Canyon Creek	Fair	1976	873	10 mi. below foothills to lake	Fair
1979	822	3-step Mt. to Canyon Creek	Fair	1978	2,417	Airstrip to lake	Fair
				1979	38	Entire	Poor

Appendix Table 18. King salmon escapement counts, Kuskokwim River drainage, 1970-1979 (p. 2 of 3)

Aniak River 4/				Aniak River (above Salmon River)			
Year	Estimated Count	Area Surveyed	Survey Rating	Year	Estimated Count	Area Surveyed	Survey Rating
1960	1,881	Entire ^{3/}	Fair	1966	485	Salmon R. to lake	Fair
1961	497	Entire	Fair	1967	758	Salmon R. to lake	Poor
1962	925	Entire	Fair	1968	783	Salmon R. to lake	Good
1965	646	Mile 20 to lake	Poor	1969	537	Salmon R. to lake	--
1966	2,184	Buckstock R. to lake	Fair	1970	592	Salmon R. to Waterboot Cr.	Fair
1968	1,420	Buckstock to Kipchuk R.	Fair	1971	144	Waterboot Creek to Aniak Lake	Poor
1970	1,231	20 mi. below Salmon R. to Waterboot Cr.	Fair	1972	93	Salmon R. to lake	Poor
1974	196	Entire	Poor	1973	200	Salmon R. to lake	Poor
1975	202	Entire	Fair	1974	57	Salmon to lake	Poor
1976	281	Kipchuk River to Gemuk Mt.	--	1975	145	Salmon to lake	Fair
1979		Not surveyed		1976		No information available	
				1977	21	5 mi. below lake to canyon	Fair
						below Gemuk Mt.	
				1978	140	Salmon R. to lake	Good
				1979		Not surveyed	

Salmon River (Aniak)				Kipchuk River (Aniak)			
Year	Estimated Count	Area Surveyed	Survey Rating	Year	Estimated Count	Area Surveyed	Survey Rating
1960	223	Entire	Good	1960	513	Entire	Good
1966	141	Lower 25 miles	Poor	1966	491	Lower 22 miles	Good
1970	381	Lower 25 miles	Fair	1967	200	Lower 25 miles	Poor
1972	43	Entire	Poor	1968	319	?	Fair
1973	100	Mouth to Marvel Cr.	Poor	1970	821	Mouth Bulldog Cr.	Fair
1974	35	Entire	Good	1974	73	Entire	Good
1975	32	Entire	Fair	1975	94	Entire	Fair
1976	86	Mouth to Marvel Cr.	Poor	1976	177	Mouth to Big Bend	Fair
1977	625	Mouth to Marvel Creek	Fair	1977	16	5 mi. from canyon downstream	Poor
1978	322	Entire	Fair	1978	187	Lower 25 miles	Poor
1979		Not surveyed		1979		Not surveyed	

Appendix Table 18. King salmon escapement counts, Kuskokwim River drainage, 1970-1979 (p. 3 of 3).

Chukowan River (Holitna)				Kogrukluk River (Holitna)					
Year	Estimated Count	Area Surveyed	Survey Rating	Year	Tower Count	Weir Count	Aerial Survey Count	Area Surveyed	Survey Rating
1966	986	Mouth - Gemuk River	Good	1961			214	Entire ^{3/}	Fair
1968	1,260	Mouth - Gemuk River	Fair	1966			1,645	Entire	Good
1970	1,118	Mouth - Gemuk River	Good	1967			1,033	Entire	Poor
1972	163	Mouth - Gemuk River	Poor	1968			2,180	Entire	Fair
1973	229	Mouth - Gemuk River	Fair	1969	2,980		-	-	-
				1970	3,868		1,598	Entire	Fair
1975	667	Mouth - Gemuk River	Fair	1971	42 ^{5/}		636	Headwater to 15 mi. above mouth	Poor
				1972	1,934		476	Entire	Fair
				1973	1,725		610	Entire	Poor
				1974	3,724		-	-	-
				1975	1,970		1,062	Entire	Fair
1976	727	Entire ^{3/}	Fair	1976	3,261	5,507	518	Tower to Maka Ck.	Fair
1978	1,064	Mouth to Enatalik Creek	Good						
1979		Not surveyed		1977 ^{6/}	1,988	1,385 ^{5/}	1,342	Entire	Good
				1978	7,405	13,132	-	-	-
				1979	-	11,299	-	-	-
Salmon River (Pitka Fork)									
Year	Estimated Count	Area Surveyed	Survey Rating						
1975	272	Entire	Poor						
1976	1,149	Middle Fork	Good						
1977	1,930	Entire	Good						
1978	1,083	Entire	Good						
1979	667	Entire	Fair						

^{1/} All counts are from aerial surveys, except as noted.

^{2/} Aerial survey counts were made only in main stem of each river listed.

^{3/} "Entire" usually does not include several miles of the lower sections of streams where turbid water conditions prevent observation of fish.

^{4/} Includes data listed under Aniak River (above Salmon River).

^{5/} Count is very low due to water conditions.

^{6/} Last year of tower operation.