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Alaska Department of Fish and Game
Division of Commercial Fisheries
333 Raspberry Road
Anchorage, Alaska 99518

June 1999

Subsistence and Personal Use

Salmon Harvest Estimates

Yukon Area, 1998

by

Bonnie M. Borba

Helen H. Hamner

**SUBSISTENCE AND PERSONAL USE
SALMON HARVEST ESTIMATES,
YUKON AREA, 1998**

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and

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Regional Information Report¹ No. 3A99-27

Alaska Department of Fish and Game
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Arctic-Yukon-Kuskokwim Region
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ABSTRACT

The Yukon Area includes all waters of Alaska within the Yukon River drainage and all coastal waters of Alaska from Point Romanof southward to the Naskonat Peninsula. Successful management of Yukon Area fishery resources is dependent upon obtaining accurate estimates of subsistence and personal use harvests.

In some portions of the Yukon Area, fishermen are required to obtain an annual subsistence household permit prior to salmon fishing. However, in the majority of the Yukon Area no regulatory requirements exist for fishermen to report their subsistence salmon harvest. To estimate the subsistence salmon harvest from villages in the non-permitted areas, the department has implemented a voluntary survey program. The 1998 survey program utilized subsistence harvest calendars, postseason household interviews, and postseason household telephone interviews and postal questionnaires. Stratified random sampling techniques were used to select Yukon Area households to be interviewed. Surveyors contacted 970 households in the surveyed villages throughout the Yukon Area in 1998. Information provided by these surveyed households were expanded to estimate the harvest of households that were not contacted. A total of 45,722 chinook *Oncorhynchus tshawytscha*, 120,634 chum *O. keta*, and 8,781 coho salmon *O. kisutch* were estimated to have been harvested by subsistence households in the survey portion of the Yukon Area in 1998. The chum salmon run consists of an early (summer) and late (fall) run. The chum salmon subsistence harvest was collected by its two distinctive runs and totaled 76,603 summer chum and 44,031 fall chum salmon.

In permitted areas, fishermen are required to document their harvest on the permit and return the permit to the department at the end of the fishing season. A total of 390 households were issued subsistence permits in 1998, of which 367 permits or 94 percent were returned. Of the returned permits, 198 households indicated that they fished. The reported permit harvest was 6,924 chinook, 6,117 summer chum, 15,096 fall chum, and 7,617 coho salmon. This reported harvest does not include Stevens Village household permit harvest information. The Yukon River permit information reported by Stevens Village residents was used to supplement the postseason survey of that village.

One non-subsistence area is located within the Yukon Area in which salmon harvests are monitored with household personal use permits. A total of 104 households were issued personal use permits in 1998, of which 102 permits or 98 percent were returned. Of the returned permits, 52 households indicated that they fished. The reported personal use harvest was 357 chinook, 84 summer chum, 2 fall chum, and 9 coho salmon.

The number of fish provided to households for subsistence use from various Yukon Area test fish projects is also documented in this report. In 1998, a total of 1,478 chinook, 4,646 summer chum, 3,774 fall chum, and 1,723 coho salmon were provided to households for subsistence use from test fishery projects throughout the drainage.

Combining survey, permit, and test fishery information, an estimated 54,481 chinook, 87,450 summer chum, 62,903 fall chum, and 18,130 coho salmon were harvested by an estimated 1,477 Yukon Area subsistence and personal use fishing households in 1998.

INTRODUCTION

The Yukon Area includes all waters of Alaska within the Yukon River drainage and all coastal waters of Alaska from Point Romanof southward to the Naskonat Peninsula. For management purposes, the Yukon Area is divided into seven districts: a coastal district and six districts within the Yukon River drainage (Figure 1). The Lower Yukon Area consists of the coastal waters of the Yukon Area and that portion of the Yukon River drainage from its mouth to Old Paradise Village (Yukon River mile 301). The Lower Yukon Area is divided into four districts; the Coastal District and Districts 1, 2 and 3. The Upper Yukon Area consists of that portion of the Yukon River drainage upstream of Old Paradise Village to the Canadian border (Yukon River mile 1,224) and is divided into Districts 4, 5 and 6.

An estimate of the number of salmon harvested in subsistence and personal use fisheries within the Yukon Area is needed to effectively manage the salmon resource. Five species of Pacific salmon are found in the Yukon River drainage: chinook *Oncorhynchus tshawytscha*, chum *O. keta*, coho *O. kitsutch*, pink *O. gorbuscha*, and sockeye *O. nerka* salmon. Chinook, chum, and coho salmon compose the majority of subsistence and personal use harvests. The chum salmon return consists of an early (summer chum) and late (fall chum) salmon run. Yukon Area subsistence salmon fishery and harvest information has been collected by the Alaska Department of Fish and Game (department) since 1961 (ADF&G 1998). Documentation of the subsistence harvest prior to 1961 is limited. However, early exploration reports attest to the importance of subsistence salmon harvests to people living in the Yukon River drainage (Zagoskin [1847] 1967; Allen 1887). Historical accounts document the use of large salmon harvests to support dogs, which were used as draft animals for transportation and packing (Richardson [1900] 1964; Gilbert and O'Malley 1921). Around 1930, the airplane began replacing the sled dog as a primary mail and supply carrier, which contributed to a gradual reduction in the need for subsistence salmon for dog food. Additionally, the introduction of snow machines during the 1960s accelerated the decline of sled dogs and the associated need for subsistence salmon harvests to feed them.

During the early 1970s, additional employment opportunities, including commercial fishing activities, became available to rural residents (ADF&G 1985). From 1974 through 1977 the sale of subsistence caught salmon roe was legal. The slight increase in subsistence harvests observed in those years likely resulted from the legalization of the sale of subsistence caught salmon roe. Beginning in the early 1980s, there was a renewed interest in the recreational use and racing of sled dogs. As the number of dogs increased throughout the drainage, the corresponding need for subsistence salmon to feed dogs also increased. Recent survey information indicates that the practice of keeping sled dogs is much more common in the Upper Yukon Area than in the Lower Yukon Area (Borba and Hamner 1998). The number of dogs within a household is considered to be a major factor affecting the amount of subsistence salmon that a household needs.

Numerous rural communities are located along the coast and major river systems within the Yukon Area. The residents in these rural communities are primarily of Yupik Eskimo and Athabaskan Indian descent. Excluding the greater Fairbanks area (approximately 82,000 people), the most recent census indicates that in 1997 the rural resident population of the Yukon Area was approximately 21,500 people (Williams 1998). The recent five-year (1992 to 1996) average population has

remained stable at 21,000 people, excluding the greater Fairbanks area. An increase in population within the rural communities could increase the need for subsistence salmon for human consumption.

Subsistence and Personal Use Salmon Fishery Description

Yukon Area subsistence fishermen primarily use drift gillnets, set gillnets, and fish wheels to harvest salmon. Set gillnets are utilized throughout the Yukon Area. Drift gillnets are only legal to harvest salmon for subsistence purposes in that portion of the Yukon River drainage 18 miles below Galena (Yukon River mile 514). Although fish wheels are a legal gear type for subsistence fishing throughout the drainage, they are essentially only used in the Upper Yukon Area.

Subsistence salmon fishing activities in the Yukon Area primarily occur from late May through early October. However, salmon fishing in May and October is highly dependent on the ice conditions on the river. Fishing activities are usually based from a fish camp or a home village. Extended family groups, which represent two or more households, often work together to harvest, cut, and preserve salmon for subsistence use. Some households from communities not located along the mainstem Yukon River, such as Shageluk and Birch Creek, operate fish camps along the mainstem Yukon River.

The majority of the subsistence and personal use salmon harvested within the Yukon Area originate from stocks within the Yukon River drainage however, the communities within the Coastal District harvest stocks bound for other areas. Since 1992, the department has conducted subsistence surveys in the Yukon Area coastal villages of Hooper Bay and Scammon Bay. A salmon tagging and recapture study conducted in 1986 (Kerkvliet 1986) indicated that residents of the coastal villages of Hooper Bay and Scammon Bay primarily harvest Yukon Area chum and pink salmon stocks. However, Norton and Kotzebue Sound salmon stocks were also present in the Hooper Bay village harvest.

A significant portion of the salmon harvested are frozen, dried, or smoked for later human consumption. The majority of the large (greater than 21 inches in length) chinook salmon harvested are used for human consumption. Although a large proportion of the small chinook salmon are also used for human consumption, a significant proportion of the small chinook salmon, often referred to as "jacks," are used for dog food. Summer chum, fall chum, and coho salmon are also used for human consumption; however, a relatively large percentage of these salmon is harvested to feed dogs. Dogs are often fed scraps that become available during the processing of freshly harvested salmon, and relatively few whole fresh salmon are fed to dogs. The majority of summer chum salmon is dried for a winter supply of dog food. Additionally, fall chum and coho salmon are commonly "cribbed" for dog food. Cribbing is the freezing of fish by natural air temperature for use later in the winter. There is usually little wastage of fish taken for subsistence purposes, although damp weather may cause some drying fish to spoil.

By regulation, personal use fishermen may only use set gillnets or fish wheels to harvest salmon. Currently, personal use salmon fishing is only allowed within a portion of the Tanana River drainage located near Fairbanks. Personal use salmon fishing activity in this area typically occurs

from late June through early October. Personal use fish can only be harvested by Alaska residents as food for human consumption or for use as bait by that individual or his immediate family. Personal use caught fish cannot be fed to dogs or other animals (White, 1991, Memorandum).

Many subsistence or personal use fishermen also participate in the commercial salmon fishery. During the Yukon Area commercial salmon fishing season, additional restrictions on subsistence and personal use salmon fishing may be required to assist in the enforcement of commercial fishing regulations. However, during the salmon fishing season, substantially more time is allowed for subsistence and personal use salmon fishing than for commercial fishing. Throughout most of the history of the Yukon Area commercial salmon fishery, commercial and subsistence fishing periods coincided. However, in 1993 the Alaska Board of Fisheries adopted regulations which separated subsistence and commercial salmon fishing times in Districts 1, 2, and 3 and in the lower portion of District 4 (Subdistrict 4-A). In these areas, except for 24 hours prior to and immediately following the commercial salmon fishing season, subsistence salmon fishing is allowed seven days per week. By regulation, once the commercial salmon season is open, subsistence salmon fishing may not occur 18 hours immediately before, during, and 12 hours after each District 1, 2 or 3 summer season commercial salmon fishing period. During the fall season in Districts 1, 2 and 3, subsistence salmon fishing may not occur 12 hours immediately before, during, and 12 hours after each commercial fishing period. In Subdistrict 4-A, subsistence salmon fishing may not occur 12 hours immediately before, during, and 12 hours after each commercial fishing period throughout the season.

In the upper portion of District 4 (Subdistricts 4-B and 4-C) and in Subdistricts 5-B and 5-C, subsistence salmon fishing is allowed seven days per week until 24 hours prior to and immediately following the commercial salmon fishing season. In these areas, subsistence salmon fishing periods coincide with commercial salmon fishing periods. Additional subsistence-only salmon fishing periods are also allowed during the commercial salmon fishing season. In Subdistrict 5-A, subsistence fishing is allowed seven days a week until 24 hours prior to the commercial salmon fishing season. Since 1994, excluding 1998, the subsistence fishing schedule in Subdistrict 5-A allows subsistence fishing five days a week after the closure of the commercial salmon fishing season. In 1998, Subdistrict 5-A returned to subsistence salmon fishing seven days a week based on the actions taken by the Alaska Board of Fisheries in December 1997 that relaxed restrictive elements of the Toklat River Fall Chum Salmon Rebuilding Management Plan. In Subdistrict 5-D, subsistence salmon fishing is allowed seven days a week throughout the fishing season. Since 1988, subsistence and personal use fishing within the lower Tanana River drainage (currently subsistence fishing in Subdistricts 6-A and 6-B and personal use salmon fishing in Subdistrict 6-C) were allowed for two 42-hour periods per week throughout the fishing season unless altered by emergency order. In the upper Tanana River drainage, subsistence fishing is allowed seven days a week throughout the fishing season.

History of Survey and Permit Methodologies

Subsistence harvest surveys have been conducted annually by the department since 1961. Survey methodologies prior to 1988 were varied, although in all cases surveyors attempted to census all known *fishing families* in a village. A fishing family was defined as one or more households that fished together. The Division of Subsistence standardized the survey methodology in 1988 (Walker

et al. 1989). In each community, all households were identified and stratified into those that *usually fish* and those that *usually do not fish*. Subsistence salmon harvest surveys use personal or telephone interviews, harvest calendars, and mailed questionnaires to collect household information. Subsistence harvest information gathered through these surveys was expanded for non-contacted fishing households to provide an annual community estimate.

In 1990 and again in 1991, the method for stratifying households was refined by the Division of Commercial Fisheries to improve the accuracy and precision of the subsistence harvest estimate (Holder and Hamner 1991; Bromaghin and Hamner 1993). Since 1990, households have been classified into one of five categories. These categories consist of households that are light, medium, and heavy harvesters, those that do not harvest salmon and those with unknown harvest levels. The 1990 through 1995 use group classifications were based on the household's annual harvest estimates available since 1988. Since 1996, use group classifications have been based on the average harvest of two recent years in the most recent three-year period. A stratified random sample (Cochran 1977) is drawn from the strata formed by combinations of village and harvest levels. The current method assumes that households tend to harvest the same level in the year being surveyed as they have in prior years. The current design samples the households with a recent history of large harvests more intensively.

Data analysis from 1990 to 1995 included using the district's variance to estimate a stratum's variance if only one household was contacted in the stratum. In addition, the district's mean and variance was used to estimate a stratum mean if no households were contacted in the stratum. Since 1996, if only one household was contacted in a stratum, the stratum variance was not estimated. In addition, if no households are contacted in a stratum, the mean and the variance are not estimated.

Permits for subsistence and personal use salmon fishing are required in select areas of the Upper Yukon Area. The areas that require salmon fishing permits and the type of permit required (subsistence or personal use) have varied through time. The first annual subsistence permits were issued in 1973. Personal use permits have only been required in select areas since 1987. From 1973 until 1994 permits had been required for the harvest of salmon carcasses within the Delta River (Borba and Hamner 1998). In November 1994, the Board of Fisheries adopted regulations that closed the lower portion of the Delta River to the collection of salmon carcasses. Permitted areas currently include subsistence fishing in the Yukon River drainage between Hess Creek and the Dall River (Yukon River bridge area) and between the upstream mouth of Twenty-Two Mile Slough and the Canadian border; subsistence and personal use salmon permits within the Tanana River drainage; subsistence fishing and personal use whitefish and sucker permits in the upper Tanana River drainage; and subsistence pike permits in the Tolovana River drainage. In permitted areas, fishing households are required to obtain a permit prior to actively fishing and return the permit at the end of the season with a record of the harvest. The department uses the information collected from permitted households to document the harvest in these areas.

History of the Personal Use Fishery

Personal use fishing is a lower priority use of the resource than subsistence fishing. In 1986, subsistence hunting and fishing was limited to rural Alaskan residents. The Alaska Board of

Fisheries created personal use salmon fisheries in the Yukon Area for non-rural state residents due to changes in the state subsistence law. The regulation directed that fishermen residing within non-rural areas be considered personal use fishermen regardless of where they fished. Correspondingly, fishermen residing in rural areas were considered subsistence fishermen regardless of where they fished. The residents of the greater Fairbanks area were considered non-rural fishermen. In 1987, a personal use fishery was implemented in the Yukon Area which initially only affected the fall chum salmon fishery. Beginning in 1988, personal use regulations were in effect for all salmon species in the Yukon Area. Under the statutes and regulations that were in effect from 1988 until July 1, 1990, Alaska residents domiciled in non-rural areas were prohibited from participating in subsistence fisheries. During that time, non-rural residents harvested salmon under personal use fishing regulations wherever they fished. Personal use salmon harvested in the Lower Yukon Area and upper Yukon River drainage during this period of transition are documented in prior reports (Borba and Hamner 1998).

Effective July 1, 1990, the Alaska Supreme Court struck down the rural residency requirement for subsistence participation (*McDowell vs. State*). In that ruling, the Alaska Constitution prevented the allocation of fish and game to people based on the location of their residence. The result was that every Alaska resident became eligible for subsistence fishing. In effect, this decision made the personal use category obsolete in the Yukon Area. Anyone eligible for a personal use permit could also obtain a less restrictive subsistence fishing permit. For this reason, no Yukon Area personal use salmon fishing permits were issued during 1991 and 1992.

During a special session in 1992, the legislature revised the subsistence law to allow the Joint Boards of Fisheries and Game to divide the state into subsistence and non-subsistence areas. Inside the non-subsistence areas, personal use fishing was authorized, and the regulations, which allowed subsistence fishing, were repealed. The Fairbanks Nonsubsistence Area, the only non-subsistence area created in the Yukon Area, consists of the Fairbanks North Star Borough and surrounding areas. The Fairbanks Nonsubsistence Area includes the Tanana River drainage above the confluence of the Wood River upstream to the mouth of the Volkmar River on the north bank of the Tanana River and to the mouth of the Johnson River on the south bank of the Tanana River (Figure 2). During the 1993 fishing season, personal use fishery regulations were implemented in this area. In October 1993, the state superior court ruled in the *Kenaitze* case that the non-subsistence area provision of the 1992 subsistence law was unconstitutional because it discriminated between different areas of the state. Although the state was initially granted a stay on the effects of that decision pending appeal to the Supreme Court, the stay was vacated on April 11, 1994. With the stay lifted, the state was required to provide subsistence fishing in non-subsistence areas during the 1994 season. All Alaskan residents were again qualified as subsistence users during the 1994 fishing season and, although available, no personal use permits were issued.

On May 9, 1995, the Alaska Supreme Court reversed the superior court's ruling, upholding the constitutionality of the non-subsistence areas. Once again, the Joint Boards of Fisheries and Game adopted regulations that reestablished the Fairbanks Nonsubsistence Area. No subsistence fishing is allowed within non-subsistence areas, however, personal use fishing regulations are applicable. The non-subsistence area regulations primarily affected salmon fishermen within Subdistrict 6-C, which falls entirely within the boundaries of the Fairbanks Nonsubsistence Area. By regulation, Subdistrict 6-C personal use salmon fishery has a household permit limit of 10 chinook, 75 summer chum

salmon and 75 fall chum and coho salmon combined. Additionally the fishery has a harvest limit of 750 chinook, 5,000 summer chum salmon, and 5,200 fall chum and coho salmon combined. These harvest limits have historically been applied to both the personal use or the subsistence fisheries within Subdistrict 6-C.

History of Commercial-Related Harvests

Distinguishing between subsistence and commercial harvests has become more difficult with development of salmon fisheries in which commercial fishermen extract and sell only the roe. A stripped carcass refers to the female salmon flesh that remains after the roe has been removed and sold commercially. Stripped carcasses are a byproduct of the commercial roe fishery and are available to meet subsistence needs. Subsistence salmon harvests are defined as those that are harvested under subsistence fishing regulations. Salmon taken under commercial fishing regulations that provide for both subsistence and commercial use are assigned to a special category referred to as *commercial-related* harvest. Commercial roe fisheries began in 1978 in the Upper Yukon Area, and the first sale of salmon roe occurred in the Lower Yukon Area in 1996. Commercial-related salmon harvests can be combined with the subsistence harvest estimate to provide the total potential subsistence utilization. The commercial-related harvests can also be combined with the salmon sold in the round to provide an estimate of the commercial harvest.

Typically, the commercial-related harvest in the Yukon Area is a small proportion of the subsistence utilization. The relatively large local subsistence needs can easily absorb the commercial-related harvest in most areas. However, in Subdistrict 4-A, in most years since 1981, the number of female summer chum salmon carcasses available from the commercial roe fishery, along with the incidental harvest of male chum salmon, has been greater than the subsistence utilization levels documented prior to the commercial roe fisheries existence. The department estimates the number of male and female summer chum salmon harvested during a commercial fishing period from the pounds of roe sold. The method expands the roe to estimate numbers of fish harvested by using the observed pounds of summer chum salmon roe per female and the sex ratio information collected during each commercial period.

From 1978 to 1990, subsistence survey questions in most areas were not structured to identify the commercial-related harvests. During these years it is believed that many of the commercial-related salmon harvests were reported as subsistence harvests. In 1984, the Division of Subsistence conducted the first subsistence surveys directed at addressing the amount of the commercial-related harvests in Subdistrict 4-A villages of Kaltag and Nulato. These surveys attempted to exclude the commercial-related summer chum salmon used for subsistence purposes from the subsistence harvest. As a result, the subsistence summer chum salmon harvest estimates for Kaltag and Nulato in 1984 were below harvest estimates for previous years. From 1986 to 1989 efforts to identify the commercial-related summer chum salmon harvest from the Subdistrict 4-A subsistence harvest estimates were continued. Although, during these years of transition, it is probable that some portion of the commercial-related harvest was still being reported as subsistence harvest. It was not until 1990 that survey questions and fishermen's reports resulted in satisfactory separation of the subsistence utilization into subsistence and commercial-related harvests (Figure 4).

Prior to 1990, the commercial harvest included the number of fish sold in the round and the number of females taken to produce the roe sold. Since 1990 by regulation, commercial-related harvests in Subdistrict 4-A are considered to be the estimated number of female salmon taken to produce the roe sold plus the estimated incidental harvest of male salmon. Although not required by regulation, the department estimates the commercial harvest of summer chum salmon in Subdistricts 4-B and 4-C and in the lower Yukon Area in the same manner as in Subdistrict 4-A.

Prior to 1993, subsistence and commercial periods were conducted simultaneously, and therefore some salmon harvests during these periods could have occurred under subsistence regulations. Since 1993, the subsistence and commercial periods have been separated in Subdistrict 4-A, and all fish harvested and not sold in the round during the commercial periods are considered commercial-related.

Beginning in 1990, Subdistrict 4-A commercial fishermen have been required by regulation to report on fish tickets the number of male and female salmon harvested to produce the roe sold. An additional series of questions to address the usage of commercial-related harvests were added to the survey questionnaire of Subdistrict 4-A commercial fishermen during the 1992, 1993, and 1995 surveys. The additional survey questions were initiated to evaluate the methods used to estimate the number of salmon harvested in Subdistrict 4-A. In salmon roe fisheries within Subdistrict 4-A, the department estimates the number of fish harvested based on the pounds of roe produced per female and the sex ratios observed during each commercial fishing period. These estimates were compared to what was reported on commercial fish tickets. The majority of the fishermen surveyed agreed that the department's estimate based on sampling was a better representation of the actual harvest. The additional survey questions have since been discontinued, however, the department continues to estimate the commercial-related harvests for the individuals that participate in commercial fisheries in Subdistrict 4-A who are selected to be surveyed in a given year. During the survey the department's estimate is brought to the attention of the fishermen for confirmation. Because the additional survey questions also documented the practice by Subdistrict 4-A fishermen of releasing live male chum salmon directly back into the river during commercial roe fisheries, the fishermen may still be reporting commercial-related harvests that are less than the department estimates.

In 1994, the Alaska Board of Fisheries adopted regulations that allowed a commercial summer chum salmon fishery on the Anvik River (5 ACC 05.368. Anvik River Chum Salmon Fishery Management Plan). Except for 1998, a commercial summer chum salmon roe fishery has occurred in the Anvik River every year since the management plan was adopted. The Anvik River is within Subdistrict 4-A and has been managed as a terminal harvest commercial fishery. The Anvik River commercial summer chum salmon fishery involves only the sale of roe, which has resulted in additional stripped female carcasses becoming available to subsistence users. Commercial-related harvests in the Anvik River fishery are based only on the estimated number of female salmon taken to produce the roe sold. The gear types utilized in this fishery generally allow for the release of male chum salmon.

METHODS

Personal interviews and returned permits are the primary sources of information used to estimate the number of subsistence and personal use salmon harvested in the Yukon Area. Test fisheries are used

throughout the Yukon River drainage to index salmon runs. Salmon harvested in test fisheries are made available to meet local subsistence needs. Salmon provided to subsistence households by these test fisheries are documented by each individual project. Information from surveys, permits, and test fisheries are combined to estimate Yukon Area subsistence and personal use harvests. For the purposes of this report subsistence use would include the estimated subsistence harvests plus the commercial-related harvests. However, it should be noted that many Stevens Village residents fish in both permit and non-permit areas. Subsistence salmon harvest estimates for Stevens Village are based on the survey information, which incorporates information obtained from permits. Stevens Village permit information is removed from the permit total when combining permit harvest information with survey results to avoid double counting the salmon harvested.

Subsistence Survey

The 1998 survey program was designed to provide an accurate estimate of the salmon harvested by subsistence fishing households residing in surveyed villages. Primary components of the survey program were subsistence harvest calendars mailed out prior to fishing activities, postseason personal interviews, and follow up telephone or postal surveys.

The household list database is updated each year by using the survey information collected from the previous year. Additionally, the survey program uses information collected from various other sources to update the household list. These other sources include: contacting knowledgeable individuals in each community to review the household lists and various village census lists, review of telephone and utility registers, and by reviewing the information obtained from applicants for the Alaska Permanent Fund. Prior to the 1998 survey, the department removed 112 households from the previous year's database. The households that were removed included households that moved out of a surveyed community and into another surveyed community, households that were combined with another established household within a surveyed community, or households that no longer reside in a Yukon Area surveyed community. Additionally, 136 households were added to the 1998 household database. New households included those families that moved into a surveyed community or household members who had recently established a household of their own within a survey community. Information is also collected from harvest calendars returned during the previous season. The information collected is used to ensure households are placed in the correct stratum prior to selection for next year's survey.

Prior to salmon fishing activities, the department mailed subsistence harvest calendars to 1,299 Lower Yukon and 1,132 Upper Yukon Area households that were identified in the household list. The Lower Yukon Area calendars contained the months of May through September (Appendix C.1). The Upper Yukon Area calendars contained the months of June through October. Additional calendars were made available to households upon request from department offices in Emmonak and Fairbanks. The calendars provide space for fishermen to record their daily salmon harvest by species. Enclosed with the 1998 calendar was a letter of appreciation for fishermen participating in the subsistence survey program. The letter also included the previous year's subsistence and personal use salmon harvest estimates by village (Appendix C.2). Harvest information from calendars returned prior to or during the subsistence survey was used to assist in the survey of the household. In an effort to improve calendar returns during the surveys of the village, posters were

sent to village post offices to remind fishermen to have their harvest calendars available for the surveyors. Additionally, announcements notifying fishermen of the surveyor's schedule were broadcast over local radio stations prior to the surveyor's arrival in the village.

The database of Yukon Area households located in surveyed communities formed the framework for the stratified random sampling program. Each household in the database was assigned to a subsistence harvest category. These harvest categories consisted of: unknown, do not fish, light, medium, or heavy. Households that had no previous harvest information available for placing them into a harvest classification were categorized as unknown. Households with historical harvest information were placed in a harvest category based upon their average annual harvest of salmon from the two most recent years in the database. The 1998 use group classifications were based on the average harvest within the time period from 1995 to 1997. If household harvest information was not available for two recent years, the household use group classification was left unchanged. In the Lower Yukon Area, an average harvest of 1 to 200 salmon was considered light, a harvest of 201 to 500 salmon was considered medium, and a harvest greater than 500 salmon was considered heavy. In the Upper Yukon Area, an average harvest of 1 to 100 salmon was considered light, a harvest of 101 to 700 salmon was considered medium, and a harvest greater than 700 salmon was considered heavy.

A stratified random sample (Cochran 1977) of households was drawn from the stratified population, with strata being defined by the combinations of community of residence and harvest category. In general, strata sample sizes were established based upon the level of harvest: all of the households in the medium and heavy categories; 30 percent of the households in the light category; 10 percent of the households in the do not fish harvest category; and 20 percent of the households in the unknown harvest category were identified to be sampled during the survey. Further, if any stratum sample size obtained using these guidelines contained five or fewer households, the sample size was made equal to the stratum size. Since 1996, all households were sampled in survey communities with 40 or fewer households.

Several exceptions to this sampling strategy were adopted in 1991 and have been continued since. Due to the large numbers of test fish given away in the villages of Emmonak and Pilot Station, the large subsistence harvests taken in the village of Tanana, and an unusual chinook salmon harvest estimate in Holy Cross in one particular year, sample sizes were increased for select harvest categories in these villages. In Emmonak, Pilot Station, and Tanana, 30 percent of the households in the "do not fish" harvest stratum and 50 percent of the households in the "light" harvest stratum were identified to be sampled. In Holy Cross, 50 percent of the households in the "light" harvest strata were identified to be sampled. These sampling efforts were intended to increase the precision of harvest estimates from these villages.

Prior to conducting surveys, the surveyors received an orientation, which included a review of the project's operational plan, survey form instructions, profiles of villages to be surveyed, an overview of the Yukon Area fisheries, and any issues related to the current fishing season. Additionally, attempts are made to have an experienced surveyor conduct joint surveys with an inexperienced surveyor during the first several interviews. In 1998, the project had two new surveyors but retained an experienced crewleader. Appendix C.3 is an example of the 1998 interview form. During personal interviews, both the surveyor and the surveyed individual contribute to the quality of the

estimate. Surveyors have a responsibility to contact all the households to be surveyed and to ensure that questions are asked consistently and understandably, while fostering a cooperative atmosphere. The household member being interviewed has the responsibility to answer the questions to the best of their ability. Interviews were designed to determine if the household participated in the 1998 subsistence salmon fishery, the number of salmon harvested by species, the number and species of salmon processed by the household for its own use, how many other households assisted in the salmon harvest, which other households shared the harvest, the number of salmon used that were a byproduct of a commercial fishery (commercial-related), the primary gear type used, the location where the subsistence salmon harvest occurred, and whether their household subsistence needs were met. Surveyed households were also asked if they received any salmon from other fishermen or from a test fish project.

The survey questions concentrated on chinook, summer chum, fall chum, and coho salmon, but households were also asked about the number of pink salmon as well as the annual subsistence harvest of other miscellaneous non-salmon species. Reported harvests of whitefish, pike, and sheefish are expanded to obtain estimates of total harvests for surveyed communities. The reported harvests of other non-salmon species besides whitefish, pike and sheefish are not expanded. The survey also included questions regarding the number of people and dogs in the household and the number of chum and coho salmon fed to dogs. Households that indicated they had not met their subsistence salmon needs were queried regarding the cause. Members of households that participated in the interview process were given a pen as a gesture of the department's appreciation. The blue pen was monogrammed in yellow identifying the program "Alaska Department of Fish & Game -Yukon River- Subsistence Salmon Survey." Additionally, everyone who returned a properly filled out subsistence survey calendar was eligible for a \$200 lottery.

Although the households are stratified according to household salmon harvests and not based on household use, an estimate of total salmon use is generated from the various components of the survey questions. Estimated use includes salmon harvested during subsistence activities, fish received from other individuals or test fisheries, and those retained from commercial harvests.

An attempt was made to conduct telephone interviews of all households that were to be surveyed, but were not personally contacted by surveyors while in the community. Survey questionnaires, including a postage-paid return envelope, were mailed to households that were not contacted by personal or telephone interviews. The collection of personal and telephone interviews as well as returned postal survey responses was assumed to constitute a stratified random sample. Estimation was performed using classical stratified random sampling methods (Cochran 1977).

Subsistence Permits

In 1998, households were required to obtain subsistence fishing permits in select areas of the Yukon River drainage prior to conducting fishing activities. Subsistence fishing permits are required in portions of District 5 of the Yukon River, in Subdistricts 6-A and 6-B, and in the upper Tanana River drainage. Since 1990, permit applications for the current season were mailed to all permittees who returned their prior year's permit. Subsistence permit applications sent to rural communities included a letter, which explained how to apply by mail (Appendix C.7). The letter also provided a

schedule of when a department representative would be present in select villages if the applicant preferred to be issued a fishing permit in person. Permits were issued during these preseason permit issuing trips in the villages of Nenana, Manley, Minto, Central, Circle, Delta Junction, Tok, Dot Lake, Tanacross, Northway, and Eagle. Permits were also issued in person or by mail throughout the season from department offices in Fairbanks, Tok, and Delta Junction. Other types of subsistence household fishing permits available in the Tanana River drainage include whitefish and sucker permits, as well as pike fishing permits for portions of the Tolovana River drainage.

Most household fishing permits issued in 1998 had an expiration date of October 15, 1998. Because of the remoteness of certain fishing areas or because of later fishing patterns, several permits had later expiration dates. All Tolovana River drainage pike fishing permits, Kantishna River drainage salmon fishing permits, and subsistence whitefish and sucker permits in the upper Tanana River drainage expired on December 31, 1998.

Permit holders are required to keep a record of their daily fish harvest on the permit and return the permit to the department within 10 days of the expiration date. Households with outstanding expired permits who do not report their required harvest information within 10 days of the expiration date are sent up to two reminder letters, each generally two weeks apart (Appendices C.8 and C.9). Telephone contact with households that do not respond to these reminder letters are attempted as a final measure.

Subsistence salmon permits in that portion of Subdistrict 6-B above a point three miles upstream of Totchaket Slough are required to report their harvests weekly for inseason management purposes. The fishermen who fished in that area and who had complied with the verbal reporting requirement at least once during the fishing season, but failed to return their permit at the end of the season, are also sent reminder letters. The letters express the department's appreciation for the verbal reporting inseason and asked them to confirm their season's total harvest (Appendix C.8). In the event the original permit is lost, the reminder letters become a substitute means to report harvests. Harvests are tabulated postseason for all permit holders who returned their permit, returned a completed reminder letter, or verbally reported their harvest information.

Test Fisheries

Test fishery projects are annually operated throughout the Yukon River drainage by various agencies or organizations. Salmon harvested in Yukon Area test fisheries are frequently provided to local subsistence households to assist them in meeting their needs. It is assumed that salmon provided from test fisheries replace those that would have been obtained through more traditional subsistence fishing activities. Salmon harvests provided to subsistence households from test fisheries are included in village subsistence harvest estimates.

Through the years, test fishery projects have utilized different methods to document the test fish harvests that were provided to local households. In 1998, test gillnet fisheries were operated in the Yukon River delta, at Mountain Village and at Pilot Station. In 1998, test fish wheels operated in several locations. One was operated on the north bank and one on the south bank of the Yukon River near the village of Tanana. Two sets of fish wheels, one on each bank of the Yukon River,

were operated at the "Rampart Rapids" and at Rampart as part on a mark-recapture project. Three test fish wheels were operated on the Tanana River as part of a mark-recapture project, one on the north bank above the confluence with the Kantishna River, the other two (one on each bank) near the village of Nenana. Two fish wheels were located within the Toklat River drainage. The test fish wheels within the Yukon River drainage primarily operate with the use of live boxes.

Personal Use Permits

During the 1998 fishing season, personal use salmon fishing permits were required in Subdistrict 6-C. Personal use fishing permits for whitefish and suckers were required within the entire Fairbanks Nonsubsistence Area (Figure 2). Since 1996, personal use permit applications for the current season have been mailed to all households who returned their prior year permit (Appendix C.6). Applications that were mailed to qualified households included a letter that explained how to apply for a personal use permit by mail or in person (Appendix C.7). Household fishing permits are also required for personal use whitefish and suckers within the Fairbanks Nonsubsistence Area. The household permits for the taking of personal use salmon had an expiration date of October 15, 1998. Personal use whitefish and sucker permits in the Fairbanks Nonsubsistence Area are issued from January through December of the current year to accommodate harvests of these species during the winter months. Personal use salmon fishermen within Subdistrict 6-C are also required to report their harvest weekly for inseason management purposes. The requirements for recording the daily fish harvest on the permit and procedures for the retrieval of permit harvest information by the department are identical to those performed for subsistence permits.

Disaster Relief

In 1998, as in 1993 and 1994, many subsistence households did not meet their needs for both human and dog food (Holder and Hamner 1998a; Holder and Hamner 1998b). To assist subsistence households that did not meet their needs, chum and pink salmon from other locations in the state have been collected and transported by various organizations into the communities that needed them. The subsistence salmon harvest estimates documented by this report are based on fish harvested in the Yukon Area. For this reason, fish brought into the area from other regions of the state are not included in the subsistence harvest estimates of the Yukon Area. These additional resources have played an important role in meeting needs in years when the Yukon Area had experienced low subsistence harvests.

RESULTS

A total of 54,481 chinook, 87,450 summer chum, 62,903 fall chum, and 18,130 coho salmon were estimated to have been harvested in the Yukon Area by 1,477 subsistence and personal use fishing households in 1998 (Table 1). These estimates include salmon given away by the test fish program, but do not include any fish brought into the Yukon Area as part of the disaster relief program. The

1998 permit harvest information is based on permits returned as of March 18, 1999. Appendices B.1 through B.4 document the historical, annual subsistence salmon harvest from 1987 to 1998 by species and by community of residence. Additionally, Appendix B.7 documents the historical personal use harvest from permits issued since 1987 by species, by permit area, and by year.

Subsistence Survey

The 1998 survey database contained 2,596 households, with an estimated 9,708 people, residing in the 34 Yukon Area communities included in the survey area (Table 2 and Table 3). The stratified random sampling design identified 1,083 households to be surveyed in 1998. Surveyors attempted to interview a member of each household identified in the sample, preferably the primary harvester. A total of 970 households, or 90 percent of the households identified to be sampled, were contacted in 1998. The contact number does not include three households that declined to participate in the personal interview. Surveyors from the department's Division of Commercial Fisheries traveled to villages between September 10 and October 27, 1998. A total of 215 calendars, or 9 percent of the estimated 2,431 calendars distributed, were either collected by surveyors during the interviews or were received in the mail by the department. Follow up mail out survey questionnaires were often returned incomplete, resulting in partial surveys. Attempts to contact households by telephone also had limited success. Due to individuals providing partial information during the survey, the number of households contacted for a given question varies. In reporting survey results, the greatest number of contacted households is provided for each topic.

In the survey area, an estimated 1,231 households participated in the subsistence salmon fishery, approximately 47 percent of the estimated total number of households (Table 4). Approximately 56, 37, and 7 percent of households that reported fishing in the surveyed villages indicated their primary gear types were set gillnet, drift gillnet, or fish wheel, respectively (Table 5).

The estimated number of subsistence salmon harvested by surveyed households was 45,722 chinook, 76,603 summer chum, 44,031 fall chum, and 8,781 coho salmon (Table 6). Tables 7 through 10 identify subsistence salmon harvest estimates by species, by community and by fishing area. Commercial fishing districts, subdistricts and major tributaries of the Yukon River represent the areas fished.

The 1998 survey included questions concerning the harvest of pink salmon and select non-salmon species (Table 11). The pink salmon harvest was estimated to be 9,189 fish, most of which were harvested by communities within the Coastal District (Table 11). Pink salmon exhibit a low (odd year) and a high (even year) abundance cycle. The 1998 pink salmon return to the Yukon Area was a high abundance year in the two-year cycle. Whitefish are the most utilized miscellaneous non-salmon species harvested throughout the drainage. Whitefish harvests are distinguished between large whitefish (4 pounds or greater) and small whitefish (less than 4 pounds). The 1998 Yukon Area subsistence harvest includes expanded estimates of 33,468 large whitefish, 36,793 small whitefish, 22,459 pike, and 19,159 sheefish (Table 11).

The estimated numbers of salmon used for subsistence purposes within Yukon Area surveyed villages in 1998 was 37,644 chinook, 75,964 summer chum, 43,115 fall chum, and 8,817 coho

salmon (Table 12). This estimate includes salmon used by fishing and non-fishing households in the surveyed villages. Survey results indicate an estimated total of 172 chinook and 981 summer chum salmon were documented as retained from commercial harvests and used for subsistence purposes (Table 13). In 1998, the lack of a commercial summer chum salmon fishery in Subdistrict 4-A accounts for the low contribution of fish retained from commercial harvests for subsistence use in an area that normally has extremely high contributions. Additionally, no fall season commercial fishing was conducted within the Yukon Area, and therefore no fall chum and coho salmon were retained from this source either.

The survey estimated 1,759 households, or 68 percent of the total households, owned dogs (Table 14). Within the surveyed villages it was estimated that there were 5,491 dogs. An estimated 23,178 summer chum, 33,254 fall chum, and 4,954 coho salmon were retained for dog food from both subsistence and commercial-related salmon harvests in the surveyed communities (Table 15).

A total of 593 surveyed households reported they did not meet their subsistence salmon needs in 1998 (Table 16). The category "poor run of fish" had the most responses. Forty-seven percent of the surveyed households indicated they had not met their needs due to the poor returns of fall chum salmon and the extra effort that was required to harvest chinook salmon in 1998.

Subsistence Permits

A total of 390 subsistence household permits were issued during the 1998 fishing season (Table 17). This total includes 45 households who obtained two permits in order to fish in two different permit areas. Separate permits are required for the taking of salmon on the Yukon or Tanana Rivers and for the subsistence harvest of pike in the Tolovana River drainage. Most of the two-permit fishing households were individuals from the village of Minto who held household permits for both salmon and pike. Prior to the salmon fishing season, department representatives traveled to 11 interior villages and issued 173 subsistence permits. The remainder of the permits were issued either by mail or in person from department offices in Fairbanks, Tok, or Delta Junction.

A total of 367 households reported subsistence harvest information by March 18, 1999. Households reported their subsistence harvest by either returning the expired permit, responding to harvest information requests in the reminder letters, or verbally over the telephone or in person. A total harvest of 7,166 chinook, 6,162 summer chum, 15,156 fall chum, and 7,619 coho salmon were reported by subsistence permit holders in 1998 (Table 17). These harvest totals may be adjusted in future reports as the department continues to receive information from the remaining 23 households with outstanding permits. Table 18 contains similar information, organized by the fishery, permittee's community of residence, and drainage of the harvest. A total of 198 households reported fishing in areas requiring a subsistence permit, and reported operating the following primary gear types: 67 percent set gillnets, 23 percent fish wheels, and 10 percent other gear types (Table 1). Historic subsistence permit harvest information for salmon is summarized in Appendices B.5 and B.6.

A total of 253 households reported on subsistence permits owning 2,233 dogs. Of households with dogs, 143 households indicated they fed whole fish to the dogs. In 1998, subsistence permit fishermen reported harvesting 23,688 salmon for the primary purpose of feeding dogs (Table 19).

Test Fisheries

A total of 1,478 chinook, 4,646 summer chum, 3,774 fall chum, and 1,723 coho salmon were provided to the public by test fish projects in 1998 (Table 20). Residents in the communities of Emmonak, Kotlik, Mountain Village, Pilot Station, and Tanana were the primary recipients of these fish. Operators of the test fish wheels located near the villages of Tanana and Nenana reported salmon harvested from the projects as their own household harvest. This harvest information was reported either during the surveys or on subsistence permits. The Toklat River test fish wheels released the fish alive, except for those that were sampled to remove coded-wire tag implants.

Personal Use Permits

A total of 104 personal use household permits were issued during the 1998 fishing season (Table 17). This total includes three households who obtained permits for both personal use and subsistence fisheries. The permits were issued either through the mail or to individuals who applied for a permit in person at department offices in Fairbanks or Delta Junction.

As of March 18, 1999, a total of 102 households reported personal use harvest information. Households reported their subsistence harvest by either returning the expired permit, responding to harvest information requests in the reminder letters, or verbally over the telephone or in person. A total harvest of 357 chinook, 84 summer chum, 2 fall chum, and 9 coho salmon were reported by personal use permit holders in 1998. These harvest totals may be adjusted in future reports as the department continues to receive information from the two households with outstanding permits. Of the 52 households that indicated they fished in permit areas, 44 households reported using set gillnets and 8 households reported using fish wheels as their primary gear types (Table 1). Personal use permittees were not asked dog-related questions because the fish harvested under the personal use regulations cannot be fed to dogs. Historical harvest information for the personal use salmon fishery is summarized in Appendix B.7.

Disaster Relief

In 1998, several relief efforts provided an estimated 11,359 chum salmon and 1,303 pink salmon for human consumption, along with 47,689 pink salmon for dog food (Table 21). The numbers of fish were estimated based on the pounds of fish delivered. Unusual salmon migration patterns that significantly affected the subsistence harvest in the coastal communities were observed in 1998. Disaster relief funds purchased chum salmon harvested in Kotzebue and Norton Sounds, and paid for processing, storage and eventual distribution. An estimated total of 8,524 chum salmon were distributed in the communities of Hooper Bay, Scammon Bay, and Chevak for human consumption.

Additionally, the remaining 2,835 chum salmon were distributed to select Koyukuk River communities, which were also drastically affected by poor returns of salmon.

An estimated total of 1,303 pink salmon and some cod bellies harvested from Prince William Sound fisheries were supplied to the communities of Chevak and Pilot Station. These fish were also intended for human consumption. An estimated total of 47,689 pink salmon carcasses were supplied from a hatchery in Prince William Sound and distributed for use as dog food to primarily Upper Yukon Area communities. Additionally, some of the owners of the larger dog kennels from Fairbanks and Manley made trips down to the Solomon Gulch Hatchery, at their own expense, to acquire an unknown amount of fish for dog food.

DISCUSSION

Communities not included within the Yukon Area salmon harvests include Arctic Village and Chevak. Arctic Village is located in the upper reaches of the Chandalar River drainage and little salmon fishing is known to occur in this area. Chevak is located within the Coastal District and its residents harvest salmon stocks, of which some portion may be bound for the Yukon River. Additionally, there are households excluded from either method of data collection based on demographics. These households reside in areas monitored by permits but typically fish in areas covered by the subsistence survey program. Because of the fishing patterns of these households, it must be recognized that neither survey nor permit methods account for all subsistence harvests taken in the Yukon Area. In recent years, attempts have been made to distribute subsistence survey calendars to these households when identified, but so far none of the calendars have been returned.

The variability of water levels from year to year and within the season can greatly affect the available opportunity and efficiency of fishermen. During high water events, debris moving downstream results in decreased fishing opportunities or efficiency of gear, as well as increasing the occurrence of lost or destroyed gear. However, it has been observed that high levels of harvest can occur during high water events in sites that remain relatively drift free, possibly due to the velocity of water forcing the fish to the banks. Additionally, during low water events, loss of a fishing site becomes an important factor in the fisherman's opportunity to harvest salmon. The department monitors the water level in select locations by comparing the current year's water level with historical water levels represented by maximums, averages, and minimums back to 1987 (Appendix A.11). Due, in part, to minimal snowfalls during the previous winter, below average water levels were observed during June of 1998 in all monitored locations. Record low water levels continued throughout the season, from July until mid September, in the upper reaches of the mainstem Yukon River. The Salcha River, a tributary of the Tanana River, is significantly affected by spring run off and rainstorm events. The Salcha River water level was also well below average throughout the season. Water levels on the Tanana River are largely a function of spring run off and glacial melt within the drainage, although it is also affected by rainstorm events in its tributaries. In 1998, the Tanana River water level remained below average during July and August.

Subsistence Surveys

The sampling design and questionnaire have changed periodically throughout the history of the program (Brannian and Gnath 1988; Holder and Hamner 1990; Holder and Hamner 1991; Bromaghin and Hamner 1993). However, since 1988, survey methods and the corresponding harvest estimates are relatively comparable. Commercial-related harvests retained for subsistence purposes were included in the estimates of subsistence harvests prior to 1988. Additionally, prior to 1979, surveys were conducted prior to completion of the fishing season and only partially documented the harvest of the later running fall chum and coho salmon.

Species identification of the harvest is often a concern, as varying local names for species must constantly be considered as the surveyors travel throughout the drainage. For example, fishermen in portions of the Upper Yukon Area use the term "chinook" to refer to coho salmon and "king" to refer to chinook salmon. In 1992, surveyors attempted to show pictures of the different salmon species to assist fishermen in identifying the salmon harvested. Unfortunately, it was difficult for many fishermen to associate the salmon they harvested with the pictures. The most effective technique used is for surveyors to be familiar with the local, common names of the fish species. Since 1993, surveyors have been provided with the common species names for each village surveyed.

The 1998 subsistence harvest of chinook salmon was average when compared to the recent five-year (1993 to 1997) average, (Figure 3). The summer chum salmon harvest was 33 percent below average (Figure 4). The summer chum salmon average harvest for the preceding five-year period (1988 to 1992) is substantially greater, primarily due to changes in methodology that occurred between 1988 and 1990.

The 1998 subsistence harvest of fall chum salmon was 41 percent below the recent five-year (1993 to 1997) average, (Figure 5). The 1998 fall chum salmon harvest is the lowest on record since 1979, when surveys were first conducted after the majority of the fall season harvests were completed. The 1993 to 1997 average includes harvests from 1993 and 1994, years in which emergency orders restricted the fall season fishery by reducing fishing opportunities. In the Upper Yukon Area, unlike summer chum salmon, fall chum salmon are typically sold in the round in the commercial fishery. However, due to changes in salmon markets, subsistence harvests of fall chum salmon in 1995 and 1996 appear lower than historical harvests. The decrease in these years is primarily due to the increase in commercial-related harvests, in which fall chum salmon carcasses became available from the commercial roe fishery and satisfied a larger proportion of subsistence needs than usual. The 1997 harvests were affected in part by the poor return of fall chum salmon to the Tanana River drainage. The record low 1998 fall chum salmon harvest was primarily due to the poor return of fall chum salmon and the corresponding fishery restrictions implemented.

Because coho salmon have a later but overlapping run timing, the coho salmon harvests in 1993, 1994, and 1998 were subject to the same fishing restrictions as the fall chum salmon. However, the coho salmon subsistence harvests did not drop in 1994 as it did in 1993 and 1998. In 1994, subsistence restrictions targeting fall chum salmon were relaxed prior to the end of the season, providing fishing opportunity during the time period when coho salmon are in greater abundance. During the fishery restrictions in 1994, the operation of fish wheels with live boxes was allowed to

provide for selective harvesting of coho salmon while releasing fall chum salmon. The 1998 coho salmon harvest was 35 percent below the recent five-year (1993 to 1997) average (Figure 6).

Pink salmon harvest information has been collected in surveyed communities in the Yukon Area since 1993 (Appendix B.8). Although pink salmon are abundant in the Lower Yukon Area in some years, they are not highly sought after and harvests remain low.

In 1998, fishermen commented they had to work much harder than usual for their catch of chinook salmon and that the implementation of fishery restrictions, due to a weak return of fall chum salmon, limited fishing opportunity during the fall season. During the 1998 surveys, many fishermen commented on the poor quality of the fish that were being harvested. The chinook salmon, in particular, were noted to have large heads and thin bodies, and higher percentages of fish had noticeable external and internal sores, many of which are thought to have been caused by an infection of *Ichthyophonus hoferi*. Survey notes documented an increase from previous years of chinook salmon in this condition being fed to dogs because they were unfit for human consumption. Some individuals felt the fish appeared even too poor to feed to dogs. The chinook salmon are highly prized for human consumption in the Yukon Area. It is conceivable that additional harvests of chinook salmon were required to make up for the inedible chinook salmon harvested. These factors all contributed to maintaining an average harvest of chinook salmon, although the overall run abundance was considered to be weak. Households in Koyukuk River communities reported that they reduced their fishing effort after viewing the poor quality of the chinook and chum salmon, and because of concerns for water quality in the drainage. Levels of Coliform bacteria in water samples taken from the Koyukuk River at Evansville were within the normal range. However, rumors concerning water quality spread throughout several Koyukuk River communities that resulted in some households reducing their fishing effort and therefore not meeting their needs.

Fishermen who participate in the subsistence surveys are requested to estimate the number of salmon they obtained from the commercial roe fishery (commercial-related) to meet their subsistence needs. In years with typical commercial fishing activities for summer chum salmon, the majority of the harvest is taken in District 4. The recent average (1992 to 1997) commercial-related harvest reported by surveyed communities is approximately 134,000 summer chum salmon, 98 percent of which is generated in District 4. During the 1998 season, limited commercial fishing opportunity throughout the season severely decreased the amount of both summer and fall chum salmon available from this source (Tables 13 and 15).

Since 1992, the subsistence survey has attempted to document the portion of the subsistence salmon harvest that is used by that household or given away to another household. When a household was given salmon, the surveyor asked them to identify the household that gave the salmon to them. In 1993, the households were also asked if they shared the salmon catch with any other household. The individuals understandably find naming the sources difficult, but the responses to these questions provide the department with some estimate of the amount shared between households. Sharing is a very common practice in rural Yukon Area communities, but is difficult to quantify. The information gathered from this line of questioning also assists the department in ensuring that each fishing household is in the proper harvest stratum, which is based on the amount of salmon caught and not the amount used.

The unknown use group often contains transient individuals who leave the communities during the summer months and generally never participate in the fishery. In recent years, surveyors have been provided with lists of households in the unknown harvest category and they attempt to contact these households in order to classify them for inclusion in the database. Methods for updating and maintaining an accurate sampling frame must continually be explored. Along with maintaining the sampling frame by identifying households, contact rates of the selected households are also crucial. In 1998, approximately 90 percent of the households selected to be sampled were contacted, and approximately 95 percent of the subsistence and personal use permits were returned. To maintain these high contact rates, several techniques have been implemented in recent years, including spending more time in the villages and increasing the effort to make contacts through the telephone and postal systems. Experience has shown that spending more time in the villages is the best practical method of increasing the number of contacts. Telephone contacts are constrained due to the limited availability of telephones in the villages and the reluctance of people to return messages even when they can call collect. Interview forms may be sent to households that could not be personally interviewed or contacted by telephone, but usually this method has a low response rate and forms are often returned incomplete.

Although the subsistence survey program is designed to estimate the number of salmon harvested, it also is the primary source of information on subsistence harvests of miscellaneous non-salmon species in the Yukon River drainage. Harvests of selected miscellaneous non-salmon species have been collected from surveyed areas consistently since 1993; species include whitefish, pike, sheefish, burbot, lamprey, tomcod, grayling, suckers, arctic char, and blackfish (Appendix B.10). Selected miscellaneous non-salmon harvest information has also been consistently collected from permit areas since 1988, but the information is not presented in this report prior to 1993 to correspond with the historical survey data presented. In 1995, the survey began attempting to distinguish between large and small whitefish.

Harvests of non-salmon species from Yukon Area subsistence and personal use fisheries since 1993 are included in this report. However, the estimates may be imprecise as the stratification system is based on historical salmon harvests. The correspondence between the level of salmon harvest and the level of non-salmon harvest has not yet been studied. Stratification systems and sampling designs that might result in improved estimates for non-salmon species would need to be identified and developed. Several additional concerns are documented in previous reports that should be considered before utilizing this information in other formats (Borba and Hamner 1998).

Prior to 1992, only surveyed subsistence fishing households were asked dog-related information. Beginning in 1992, all surveyed and permit households, whether they fished or not, were asked how many dogs they owned and the number of whole salmon fed to the dogs. The difference in asking all households for dog information accounts for the significant increase in the estimated number of dogs reported since 1992 (Appendix B.11). Dog-related questions are not asked of personal use households fishing in the Fairbanks Nonsubsistence Area since personal use salmon cannot legally be fed to dogs. The numbers of dogs reported by permit holders, in District 6, has fluctuated substantially during the establishment of the current personal use fisheries within Subdistrict 6-C, since the area had been regulated by subsistence regulations during 1991, 1992 and 1994.

Test Fisheries

Each test fishing project has different requirements for documenting the subsistence harvests, depending on the type of project. The projects that supply the department information on the disposition of the harvest are documented in Table 20. To avoid double counting of salmon, care must be taken when documenting test fish given away which supplemented subsistence harvests. The Lower Yukon Area projects report annually, by community, the numbers of fish dispersed. The households in these surveyed areas are asked if they received fish from any of the projects so that the fish are not included in their estimate of the households' harvest. The number of fish harvested from the test fish wheels located in the survey community of Tanana are collected during the surveys and included as part of the operator's subsistence harvest. The "Rapids" and Rampart test fish wheel project reported some summer chum salmon that were sampled for biological research and given to an individual in the community of Tanana. However, the majority of the fish caught are released during the tagging operation. The fish captured by the Tanana River tag deployment fish wheel are also released alive. The Tanana River right and left bank recovery test fish wheels located near the community of Nenana did not give any fish away for subsistence use. The fish caught in the recovery fish wheels were either released alive or retained by the operator for his own subsistence use and reported on the operator's household subsistence permit.

Subsistence and Personal Use Permits

Distribution of subsistence and personal use permits has been augmented by annual spring permit issuing trips, conducted by department personnel primarily in rural areas, as well as the availability of permits through the mail or at department offices in Fairbanks, Tok, and Delta Junction. However, additional effort has been used to improve the weekly harvest reporting requirement from subsistence fishermen in that portion of Subdistrict 6-B above a point three miles upstream of Totchaket Slough and personal use fishermen in Subdistrict 6-C. The department often must initiate contact with fishermen known to operate in the area in an attempt to collect the harvest reports promptly.

Some fishermen expressed confusion concerning where to report subsistence fish taken during commercial periods which coincide with subsistence periods. Since 1992, a regulatory reporting requirement was established to include the number of fish taken but not sold on the fish tickets from commercial/subsistence salmon fishing periods. This created a problem in the Yukon Area for both commercial/subsistence fishermen and the department. These unsold fish were reported either on the fish tickets, reported during the surveys, or documented on subsistence calendars or harvest permits, increasing the possibility of the fish being double-counted in the final village harvest estimates. During the Board of Fisheries meeting held in December of 1997, the regulation was amended to remove the requirement of reporting on fish tickets salmon taken but not sold, with the exception of Subdistrict 6-C. In Subdistrict 6-C, the personal use fishery has a permit harvest limit. To avoid exceeding the personal use permit harvest limit, commercial fishermen are required to report the fish taken but not sold on the fish tickets and not on the household permit.

Fishery Restrictions and Closures

In 1998, the Yukon River drainage experienced chinook, summer and fall chum salmon returns that were late in run timing and weak in abundance. The poor runs had disastrous impacts on the subsistence, personal use, and commercial fisheries within the Yukon River drainage. During the summer season, the poor returns of chinook and summer chum salmon resulted in limited commercial fishing effort and harvests. Personal use fishing for chinook and summer chum salmon was closed on July 24, for the remainder of the summer season through August 15, 1998. Additionally, sport fishing for chinook and summer chum salmon was restricted to catch and release in three major tributaries of the Tanana River beginning July 25, 1998.

Fall chum salmon enter the Yukon River beginning in mid-July. As the 1998 run materialized, the department used inseason assessment tools to adjust the run size projection and the corresponding allowable harvest. Lower Yukon River monitoring tools available to the department in 1998 included the lower Yukon River set gillnet test fishery, the Mountain Village drift gillnet test fishery, Pilot Station sonar passage estimates, subsistence catch reports, and age composition data. This information, in combination with the preseason projection, was the basis for initial management decisions in the lower Yukon River fisheries.

By early August, it was estimated that the 1998 fall chum salmon return would be significantly below the preseason projection (880,000 fall chum salmon), and likely below 600,000 fall chum salmon. The management plan directs that for an overall run assessment below 600,000 fall chum salmon, the department shall close the commercial, sport, and personal use fisheries. No commercial salmon fishing occurred during the fall season in 1998. Effective August 15, 1998 the entire Yukon River drainage including its tributaries was closed to sport fishing for chum salmon. Also, effective August 16, the Subdistrict 6-C personal use salmon fishery near Fairbanks was closed and remained closed until October 16, 1998, essentially for the majority of the fishing season. The sport and personal use fishing restrictions were imposed prior to the availability of the vast majority of fall chum salmon that would be migrating through these respective fisheries. Essentially, because of these actions, no fall chum salmon were harvested in the commercial, sport, or personal use fisheries in 1998.

By late August, the department reviewed the available information and estimated that the 1998 fall chum salmon run size would probably be below 450,000 fall chum salmon. When the overall run size is between 350,000 and 450,000 fall chum salmon, the management plan directs that the department manage the subsistence fisheries to achieve a minimum 350,000 drainage-wide fall chum salmon escapement level. In most years, the subsistence harvest within the Yukon River drainage ranges between 100,000 and 200,000 fall chum salmon. Based on the projected run size, implementing subsistence salmon fishing restrictions became necessary.

Effective August 27, the department restricted the subsistence salmon fisheries throughout most of the Yukon River drainage in Districts 1, 2, 3, 4, and 5 to a schedule of two 48-hour periods per week. Most areas were on a seven-days per week subsistence salmon fishing schedule prior to imposing these restrictions. Exceptions to these restrictions were the tributaries of the Yukon River below the confluence of the Koyukuk River and within the Coastal District. In these areas, because of the low abundance of fall chum salmon present, subsistence salmon fishing remained

on a seven-day per week schedule. The department also put Subdistricts 6-A and 6-B in their entirety on a schedule of two 42-hour subsistence salmon fishing periods per week. The majority of Subdistricts 6-A and 6-B was already on this schedule, and the Old Minto area and Kantishna River drainage fishing periods were also reduced to coincide with this schedule.

Typically, the vast majority of fall chum salmon enter the Yukon River by early September. Additionally, by early September, escapement and fishery monitoring projects within the upper Yukon River drainage begin to provide valuable inseason information on run strength and timing of fall chum salmon. These upriver indicators include the village of Tanana test fish wheels, Chandalar and Sheenjek River sonar projects, and the Rapids-Rampart and Tanana River tagging projects. As the department became more confident in the inseason run size projection, it became apparent that further restrictions in the subsistence salmon fishery were needed in order to achieve a 350,000 drainage-wide fall chum salmon escapement level.

Effective September 4, in Districts 4, 5, and in Subdistricts 6-A and 6-B, the department further restricted the subsistence salmon fisheries to 48-hours per week. In most areas, subsistence fishing was placed on a schedule of two 24-hour periods per week. Further restrictions to the subsistence salmon fishing schedule occurred in District 5 and Subdistricts 6-A and 6-B, when these areas were eventually placed on a one 24-hour period per week schedule. Subdistricts 5-B, 5-C and 5-D subsistence fishing was placed on one 24-hour period per week schedule effective September 22. Subdistricts 5-A, 6-A and 6-B subsistence fishing was placed on this same very restrictive fishing schedule effective September 28.

Subsistence salmon fishing restrictions, imposed to conserve fall chum salmon, were removed after the majority of fall chum salmon had migrated through traditional fishing areas bound for upriver spawning grounds. Lifting of the subsistence salmon fishing restrictions provided for additional subsistence fishing opportunities on later running coho salmon as well as other non-salmon species such as whitefish. Subsistence salmon fishing restrictions were lifted in Districts 1, 2 and 3 on September 4 and in Subdistricts 5-A, 6-A and 6-B on October 5, 1998.

As a result of the poor returns of salmon, considerable efforts were made to assist subsistence households throughout the drainage in their human and dog food needs. The department extends its appreciation to those individuals, organizations and agencies who contributed labor, transportation, and funds which provided fish from other areas of the state to help alleviate the hardships created by the lack of salmon in the Yukon Area.

LITERATURE CITED

- ADF&G (Alaska Department of Fish and Game). 1985. Annual management report 1985 Yukon Area, Division of Commercial Fisheries, (Region III, unpublished report), Anchorage.
- ADF&G (Alaska Department of Fish and Game). 1998. Annual management report Yukon Area, 1997, Division of Commercial Fisheries, Regional Information Report 3A97-41, Anchorage.
- Allen, Henry T. 1887. Report of an Expedition to the Copper, Tanana, and Koyukuk Rivers, in the Territory of Alaska, in the year 1885. Washington, D.C.
- Borba, B. M. and H. H. Hamner. 1998. Subsistence and personal use salmon harvest estimates, Yukon Area, 1997. Alaska Department of Fish and Game, Commercial Fisheries Management and Development Division, Regional Information Report 3A98-23, Anchorage.
- Brannian L. K. and D. G. Gnath. 1988. Subsistence harvest of Pacific salmon in the Yukon River drainage, Alaska, 1986 with a historical review. Alaska Department of Fish and Game, Division of Commercial Fisheries, Fishery Research Bulletin 88-03, Juneau.
- Bromaghin J. F. and H. H. Hamner. 1993. Estimates of subsistence salmon harvests within the Yukon River drainage in 1991. Alaska Department of Fish and Game, Division of Commercial Fisheries, Technical Fishery Report 93-06, Juneau.
- Cochran, W. G. 1977. Sampling techniques, 3rd edition. John Wiley and Sons, New York.
- Gilbert, C. H. and H. O'Malley. 1921. Investigation of the salmon fisheries of the Yukon River. In Alaska Fishery and Fur-Seal Industries in 1920. Bureau of Fisheries Document 909, Government Printing Office, Washington D.C.
- Holder, R. R. and H. H. Hamner. 1990. Preliminary estimates of subsistence salmon harvest in the Yukon River drainage, 1989. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3F90-22, Anchorage.
- Holder, R. R. and H. H. Hamner. 1991. Preliminary estimates of subsistence salmon harvest in the Yukon River drainage, 1990. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3F91-20, Anchorage.
- Holder, R. R. and H. H. Hamner. 1998a. Estimates of subsistence salmon harvests within the Yukon River drainage in Alaska, 1993. Alaska Department of Fish and Game, Commercial Fisheries Management and Development Division, Regional Information Report 3A98-06, Anchorage.

LITERATURE CITED (CONTINUED)

- Holder, R. R. and H. H. Hamner. 1998b. Estimates of subsistence salmon harvests within the Yukon River drainage in Alaska, 1994. Alaska Department of Fish and Game, Commercial Fisheries Management and Development Division, Regional Information Report 3A98-20, Anchorage.
- Kerkvliet, C. M. 1986. 1986 Hooper Bay salmon tagging study. Bering Sea Fishermen's Association, Anchorage, Alaska.
- Richardson, W. P. [1900] 1964. Yukon River Exploring Expedition: winter conditions along the Yukon, 1899. Extracted from 56th Congress, 1st Session, Senate Report 1023, Washington, D.C.
- Walker, R. J., E. Andrews, D. Andersen, and N. Shishido. 1989. Subsistence harvest of Pacific salmon in the Yukon River drainage, Alaska, 1977-1988. Alaska Department of Fish and Game, Division of Subsistence, Technical Paper 187, Juneau.
- Williams, J. Gregory. 1998. Alaska Population Overview 1997 Estimates. Alaska Department of Labor, Research and Analysis Section, Juneau.
- White, S. M. 1991. Use of subsistence and personal use salmon as dog food, State of Alaska Memorandum, Juneau.
- Zagoskin, Lavrenti A. [1847] 1967. Lieutenant Zagoskin's travels in Russian America, 1842-44. Arctic Institute of North America, Anthropology of the North: Translations from Russian Sources, No. 7, University of Toronto Press, Toronto, Ontario, Canada.

Table 1. Subsistence and personal use salmon harvest estimates which include test fish harvests given away for subsistence use, and related information, Yukon Area, 1998.

Community a	Survey Date or Permit Village	Fishing Households b	Dogs	Estimated Harvest				Primary Gear Used		
				Chinook	Summer Chum	Fall Chum	Coho	Set Nets	Drift Nets	Fish Wheels
Hooper Bay	9/16-9/17	102	263	13	261	0	145	102	0	0
Scammon Bay	9/16	47	240	378	1,101	34	204	47	0	0
Coastal District Total c		149	503	391	1,362	34	349	149	0	0
Sheldon Point	9/11-9/12	21	86	527	1,872	266	229	21	0	0
Alakanuk	9/11-9/12, 9/14	86	122	1,930	5,643	665	292	67	19	0
Emmonak d	9/10-9/11, 9/14	84	128	2,396	9,558	867	696	12	72	0
Kotlik f	9/13-9/14	65	219	2,389	9,815	1,365	954	65	0	0
<i>District 1 Subtotal</i>		256	555	7,242	26,888	3,163	2,171	165	91	0
Mountain Village g	9/22	95	191	2,533	9,596	2,031	954	16	79	0
Pitkas Point	9/23	20	92	817	1,302	233	305	7	13	0
St. Marys	9/21	63	162	2,679	9,047	416	290	5	58	0
Pilot Station h	9/26-9/27	46	170	1,715	5,042	1,162	413	8	36	2
Marshall	9/28-9/29	30	351	1,711	1,293	640	335	5	25	0
<i>District 2 Subtotal</i>		254	966	9,455	26,280	4,482	2,297	41	211	2
Russian Mission	9/29	24	111	1,314	702	137	233	11	13	0
Holy Cross	9/25	30	124	2,648	269	1,095	100	6	24	0
Shageluk	9/28	19	159	552	5,501	329	67	16	3	0
<i>District 3 Subtotal</i>		73	394	4,514	6,472	1,561	400	33	40	0
Lower Yukon River Total		583	1,915	21,211	59,640	9,206	4,868	239	342	2
Anvik	9/28-9/29	20	113	1,025	2,139	388	20	14	4	2
Grayling	9/27-9/28	30	150	2,177	4,032	648	133	9	15	6
Kaltag	10/5	36	112	1,870	175	499	71	9	27	0
Nulato	10/6	73	209	4,147	3,518	367	34	11	54	8
Koyukuk	10/7	15	105	800	1,819	1,583	421	6	9	0
Galena	10/8-10/9	47	248	1,668	2,333	1,915	322	19	19	9
Ruby	10/8	24	366	3,891	2,251	2,427	1,459	12	0	12
<i>District 4 Yukon River Subtotal</i>		245	1,303	15,578	16,267	7,827	2,460	80	128	37
Huslia	10/6-10/7	14	171	23	449	0	128	7	7	0
Hughes	10/5	14	74	91	334	60	5	14	0	0
Allakaket	10/13	13	119	85	901	11	0	13	0	0
Alatna	10/13	3	10	4	13	0	0	3	0	0
Bettles	10/14	2	54	20	82	0	0	2	0	0
<i>Koyukuk River Subtotal</i>		46	428	223	1,779	71	133	39	7	0
<i>District 4 Subtotal</i>		291	1,731	15,801	18,046	7,898	2,593	119	135	37
Tanana j	10/26-10/27	45	424	5,212	1,966	24,956	2,572	28	0	17
Rampart	10/12	5	29	885	19	100	20	5	0	0
Fairbanks NSB k	permits	27	213	1,231	57	96	11	26	0	1
Stevens Village m	10/20, permits	19	116	1,232	171	1,076	63	18	0	1
Birch Creek	10/23	4	11	48	0	0	0	4	0	0
Beaver	10/22	13	41	470	15	409	0	13	0	0
Fort Yukon	10/21-10/22	100	498	1,771	30	3,035	39	55	0	45
Circle	permits	7	80	685	1	37	0	1	0	6
Central	permits	6	22	170	1	0	0	6	0	0
Eagle	permits	32	218	2,473	52	543	132	24	0	8
Other n	permits	9	65	446	2	50	2	8	0	1
<i>District 5 Yukon River Subtotal</i>		267	1,717	14,623	2,314	30,302	2,839	188	0	79

-Continued-

Table 1. (page 2 of 2).

Community a	Survey Date or Permit Village	Fishing Households b	Dogs	Estimated Harvest				Primary Gear Used		
				Chinook	Summer Chum	Fall Chum	Coho	Set Nets	Drift Nets	Fish Wheels
Venetie	10/20	16	165	168	0	658	0	16	0	0
Chalkyitsik	10/27-10/28	6	58	11	0	433	0	6	0	0
<i>Chandalar/Black Rivers Subtotal</i>		22	223	179	0	1,091	0	22	0	0
<i>District 5 Subtotal</i>		289	1,940	14,802	2,314	31,393	2,839	210	0	79
Manley	permits	14	406	214	215	4,411	2,362	9	0	5
Minto p	permits	26	204	275	148	505	31	21	0	4
Nenana	permits	27	469	1,207	5,041	6,781	3,519	11	0	16
Healy	permits	6	154	18	0	1,642	765	3	0	3
Fairbanks NSB r	permits	75	249	552	682	962	795	54	0	10
Delta Junction	permits	0	15	0	0	0	0	0	0	0
Other s	permits	17	113	10	2	71	9	14	0	0
<i>District 6 Tanana River Subtotal</i>		165	1,610	2,276	6,088	14,372	7,481	112	0	38
Upper Yukon River Total		745	5,281	32,879	26,448	53,663	12,913	441	135	154
Survey Village Subtotals		1,231	5,491	45,722	76,603	44,031	8,781	652	477	102
Subsistence Permit Subtotals		194	2,208	6,924	6,117	15,096	7,617	133	0	46
Subsistence Test Fish Subtotals t		-	-	1,478	4,646	3,774	1,723	-	-	-
<i>Subsistence Harvests Subtotal</i>		1,425	7,699	54,124	87,366	62,901	18,121	785	477	148
Personal Use Permit Subtotals		52	-	357	84	2	9	44	0	8
Alaska, Yukon River Total v		1,328	7,196	54,090	86,088	62,869	17,781	680	477	156
Alaska, Yukon Area Total		1,477	7,699	54,481	87,450	62,903	18,130	829	477	156

- a Data collected by Alaska Department of Fish and Game (ADF&G), Division of Commercial Fisheries. Survey data is expanded for number of fishing households, number of dogs, and harvest. Permit data is unexpanded. The number of dogs is based on information obtained from permits issued, while the number of fishing households and their harvest is based on returned permits. Gear data represents the primary gear types used by fishing households. Of the 494 permits issued, 45 households obtained permits for more than one location.
- b Estimated number of households that fished in surveyed communities or number of permit households who reported fishing in permit required areas.
- c A 1986 Hooper Bay salmon tagging study conducted by the Bering Sea Fishermen's Association (BSFA) suggested that harvests in the Nuok Spit area of Hooper Bay intercepted Yukon River and Norton Sound chum salmon stocks.
- d Includes 712 chinook, 1,228 summer chum, 764 fall chum, and 342 coho salmon from ADF&G test fish catches.
- f Includes 323 chinook, 1,062 summer chum, 1,236 fall chum, and 450 coho salmon from ADF&G test fish catches.
- g Includes 8 chinook, 664 fall chum and 567 coho salmon from BSFA test fish catches.
- h Includes 435 chinook, 2,209 summer chum, 1,110 fall chum, and 364 coho salmon from ADF&G test fish catches.
- j Includes 147 summer chum salmon from United States Fish Wildlife Service (USFWS) "Rapids" tagging fish wheel catches.
- k Fairbanks North Star Borough (Fairbanks NSB) households that obtained a permit and indicated they fished in a Yukon River permit required area.
- m Permit harvest information from Stevens Village residents was used to compliment the information obtained by the survey.
- n Other includes residents of Manley, Nenana, Minto and the Upper Tanana River drainage villages of Northway and Tok, who obtained a household permit and fished in a Yukon River permit required area.
- p Number of fishing households includes 17 Tolovana River pike permits that were fished.
- r Fairbanks North Star Borough (Fairbanks NSB) households that obtained a permit and indicated they fished in the Tanana River permit required area. The number of fishing households includes 14 Tolovana River pike permits that were fished.
- s Other includes residents of Slana, Gakona, Galena, Paxson and the Upper Tanana River drainage villages of Dot Lake, Northway, Tanacross, and Tok who fished in the Tanana River.
- t Test fish given away for subsistence use.
- v Yukon River Total does not include Coastal District.

Table 2. Estimated total number of households, the sample size, the number contacted, and the percentage of the sampled households that were contacted in surveyed villages, by harvest stratum, with village and district totals, Yukon Area, 1998. a

Community	Unknown				Does Not Harvest Salmon				Light Harvester				Medium Harvester				Heavy Harvester				Community Totals			
	N	n	C	%C	N	n	C	%C	N	n	C	%C	N	n	C	%C	N	n	C	%C	N	n	C	%C
Hooper Bay	2	2	0	0.0	88	9	9	100.0	92	28	27	96.4	13	13	13	100.0	1	1	1	100.0	196	53	50	94.3
Scammon Bay	5	5	4	80.0	24	5	3	60.0	51	15	15	100.0	1	1	1	100.0	0	0	0	-	81	26	23	88.4
Coastal District	7	7	4	57.1	112	14	12	85.7	143	43	42	97.6	14	14	14	100.0	1	1	1	100.0	277	79	73	92.4
Sheldon's Point	0	0	0	-	8	8	8	100.0	21	21	19	90.4	6	6	6	100.0	0	0	0	-	35	35	33	94.2
Alakanuk	0	0	0	-	39	5	5	100.0	74	22	21	95.4	7	7	6	85.7	0	0	0	-	120	34	32	94.1
Emmonak	0	0	0	-	75	24	21	87.5	70	34	32	94.1	14	12	9	75.0	0	0	0	-	159	70	62	88.5
Kotlik	0	0	0	-	29	5	3	60.0	54	17	15	88.2	10	9	7	77.7	2	2	2	100.0	95	33	27	81.8
District 1	0	0	0	-	151	42	37	88.0	219	94	87	92.5	37	34	28	82.3	2	2	2	100.0	409	172	154	89.5
Mountain Village	0	0	0	-	45	6	6	100.0	93	29	26	89.6	9	8	8	100.0	1	1	1	100.0	148	44	41	93.1
Pitkas Point	1	1	1	100.0	9	9	6	66.6	15	15	13	86.6	6	6	6	100.0	0	0	0	-	31	31	26	83.8
St. Mary's	0	0	0	-	37	6	5	83.3	62	19	16	84.2	14	13	13	100.0	3	3	3	100.0	116	41	37	90.2
Pilot Station	0	0	0	-	39	12	12	100.0	49	25	25	100.0	2	2	2	100.0	0	0	0	-	90	39	39	100.0
Marshall	0	0	0	-	16	6	4	66.6	42	13	13	100.0	4	4	4	100.0	0	0	0	-	62	23	21	91.3
District 2	1	1	1	100.0	146	39	33	84.6	261	101	93	92.0	35	33	33	100.0	4	4	4	100.0	447	178	164	92.1
Russian Mission	0	0	0	-	19	5	5	100.0	25	8	8	100.0	4	4	4	100.0	2	2	1	50.0	50	19	18	94.7
Holy Cross	0	0	0	-	20	5	4	80.0	39	20	19	95.0	5	5	4	80.0	0	0	0	-	64	30	27	90.0
Shageluk	0	0	0	-	14	14	8	57.1	13	13	9	69.2	5	5	5	100.0	7	7	6	85.7	39	39	28	71.7
District 3	0	0	0	-	53	24	17	70.8	77	41	36	87.8	14	14	13	92.8	9	9	7	77.7	153	88	73	82.9
Anvik	0	0	0	-	15	15	13	86.6	19	19	18	94.7	4	4	4	100.0	1	1	1	100.0	39	39	36	92.3
Grayling	0	0	0	-	20	5	4	80.0	23	7	7	100.0	12	12	12	100.0	0	0	0	-	55	24	23	95.8
Kaltag	0	0	0	-	12	5	4	80.0	33	10	8	80.0	5	5	5	100.0	1	0	0	-	51	20	17	85.0
Nulato	0	0	0	-	58	8	7	87.5	41	14	12	85.7	7	6	6	100.0	1	0	0	-	107	28	25	89.2
Koyukuk	1	1	0	0.0	21	4	2	50.0	15	6	6	100.0	4	4	3	75.0	2	2	2	100.0	43	17	13	76.4
Galena	0	0	0	-	126	19	17	89.4	64	17	17	100.0	10	9	9	100.0	3	3	3	100.0	203	48	46	95.8
Ruby	1	0	0	-	58	10	8	80.0	20	5	3	60.0	1	0	0	-	4	4	3	75.0	84	19	14	73.6
Huslia	1	0	0	-	60	7	6	85.7	16	7	7	100.0	6	5	5	100.0	1	1	1	100.0	84	20	19	95.0
Hughes	0	0	0	-	17	17	17	100.0	6	6	6	100.0	2	2	2	100.0	1	1	1	100.0	26	26	26	100.0
Allakaket	0	0	0	-	37	9	8	88.8	16	6	6	100.0	5	5	5	100.0	3	3	3	100.0	61	23	22	95.6
Alatna	0	0	0	-	10	10	10	100.0	2	2	2	100.0	1	1	1	100.0	0	0	0	-	13	13	13	100.0
Bettles	0	0	0	-	24	24	19	79.1	2	2	2	100.0	1	1	1	100.0	0	0	0	-	27	27	22	81.4
District 4	3	1	0	0.0	458	133	115	86.4	257	101	94	93.0	58	54	53	98.1	17	15	14	93.3	793	304	276	90.7
Tanana	1	0	0	-	85	22	16	72.7	22	11	11	100.0	7	7	7	100.0	13	13	13	100.0	128	53	47	88.6
Rampart	0	0	0	-	10	10	8	80.0	2	2	2	100.0	12	12	12	100.0	1	1	0	0.0	25	25	22	88.0
Stevens Village	1	1	1	100.0	17	17	13	76.4	11	11	9	81.8	5	5	4	80.0	2	2	2	100.0	36	36	29	80.5
Birch Creek	0	0	0	-	10	10	9	90.0	3	3	3	100.0	1	1	0	0.0	0	0	0	-	14	14	12	85.7
Beaver	0	0	0	-	16	16	15	93.7	10	10	10	100.0	6	6	5	83.3	0	0	0	-	32	32	30	93.7
Fort Yukon	0	0	0	-	123	14	9	64.2	49	15	13	86.6	19	19	19	100.0	1	1	1	100.0	192	49	42	85.7
Venetie	0	0	0	-	40	5	5	100.0	7	5	4	80.0	5	5	4	80.0	3	3	3	100.0	55	18	16	88.8
Chalkyitsik	0	0	0	-	30	30	28	93.3	1	1	1	100.0	4	4	3	75.0	0	0	0	-	35	35	32	91.4
District 5	2	1	1	100.0	331	124	103	83.1	105	58	53	91.3	59	59	54	91.5	20	20	19	95.0	517	262	230	87.7
Survey Totals	13	10	6	60.0	1,251	376	317	84.3	1,062	438	405	92.5	217	208	195	93.8	53	51	47	92.2	2,596	1,083	970	89.6

a Total number of households (N), the sample size (n), the number of households contacted (C), and the percent of the sampled households that were contacted (%C). Dashes indicate indefinable values.

Table 3. Estimated number of people in households in surveyed villages, by harvest stratum, with village and district totals, Yukon Area, 1998. a

Community	Unknown				Does Not Harvest Salmon				Light Harvester				Medium Harvester				Heavy Harvester				Combined			
	N	n	Mean	SE	N	n	Mean	SE	N	n	Mean	SE	N	n	Mean	SE	N	n	Mean	SE	Total		Est	CI(95%)
																					N	n		
Hooper Bay	2	0	-	-	88	9	4.4	0.6	92	27	5.7	0.4	13	13	5.7	0.0	1	1	6.0	0.0	196	50	1,003	129
Scammon Bay	5	4	3.5	0.4	24	3	5.3	1.3	51	15	5.2	0.5	1	1	4.0	0.0	0	0	-	-	81	23	418	79
Coastal District	7	4	2.5	0.3	112	12	4.6	0.6	143	42	5.6	0.3	14	14	5.6	0.0	1	1	6.0	0.0	277	73	1,421	152
Sheldon's Point	0	0	-	-	8	7	5.0	0.2	21	19	5.3	0.1	6	6	5.2	0.0	0	0	-	-	35	32	183	7
Alakanuk	0	0	-	-	39	5	2.8	0.8	74	21	5.8	0.4	7	6	5.5	0.4	0	0	-	-	120	32	581	83
Emmonak	0	0	-	-	75	21	4.2	0.5	70	32	5.0	0.3	14	9	3.6	0.5	0	0	-	-	159	62	724	90
Kotlik	0	0	-	-	29	3	2.0	0.6	54	15	6.6	0.5	10	7	6.9	0.7	2	2	3.5	0.0	95	27	490	67
District 1	0	0	-	-	151	36	3.5	0.3	219	87	5.7	0.2	37	28	5.1	0.3	2	2	3.5	0.0	409	153	1,978	140
Mountain Village	0	0	-	-	45	6	3.5	0.9	93	26	5.1	0.4	9	8	4.9	0.3	1	1	6.0	0.0	148	41	683	109
Pitkas Point	1	1	4.0	0.0	9	6	3.3	0.6	15	13	4.4	0.2	6	6	5.3	0.0	0	0	-	-	31	26	133	13
St. Mary's	0	0	-	-	37	5	4.4	0.6	62	16	3.1	0.5	14	13	5.4	0.2	3	3	6.0	0.0	116	37	450	77
Pilot Station	0	0	-	-	39	12	3.3	0.5	49	25	5.8	0.3	2	2	7.5	0.0	0	0	-	-	90	39	430	47
Marshall	0	0	-	-	16	4	2.5	0.6	42	13	4.1	0.4	4	4	3.8	0.0	0	0	-	-	62	21	229	42
District 2	1	1	4.0	0.0	146	33	3.5	0.4	261	93	4.6	0.2	35	33	5.2	0.1	4	4	6.0	0.0	447	164	1,925	148
Russian Mission	0	0	-	-	19	5	5.2	1.1	25	8	5.5	0.7	4	4	4.5	0.0	2	1	3.0	-	50	18	260	55
Holy Cross	0	0	-	-	20	4	1.5	0.3	39	19	4.1	0.4	5	4	5.8	0.2	0	0	-	-	64	27	221	32
Shageluk	0	0	-	-	14	8	4.1	0.6	13	9	3.3	0.4	5	5	2.8	0.0	7	5	4.0	0.3	39	27	143	20
District 3	0	0	-	-	53	17	3.5	0.5	77	36	4.5	0.3	14	13	4.3	0.1	9	6	3.8	0.0	153	72	624	67
Anvik	0	0	-	-	15	13	2.0	0.2	19	18	2.9	0.0	4	4	4.8	0.0	1	1	1.0	0.0	39	36	106	6
Grayling	0	0	-	-	20	4	5.5	0.8	23	7	3.7	0.4	12	12	4.0	0.0	0	0	-	-	55	23	243	37
Kallag	0	0	-	-	12	4	3.3	1.1	33	8	4.0	0.5	5	5	5.6	0.0	1	0	-	-	51	17	199	43
Nulato	0	0	-	-	58	7	3.1	0.8	41	12	4.4	0.3	7	6	3.7	0.2	1	0	-	-	107	25	389	91
Koyukuk	1	0	-	-	21	2	1.5	0.5	15	6	4.1	0.7	4	3	4.0	0.6	2	2	3.5	0.0	43	13	117	29
Galena	0	0	-	-	126	17	2.7	0.4	64	17	2.7	0.3	10	9	3.9	0.2	3	3	2.0	0.0	203	46	559	106
Ruby	1	0	-	-	58	7	1.7	0.5	20	3	2.6	0.6	1	0	-	-	4	3	4.0	0.8	84	13	169	65
Huslia	1	0	-	-	60	6	2.5	0.6	16	7	3.5	0.6	6	5	7.0	0.5	1	1	4.0	0.0	84	19	253	77
Hughes	0	0	-	-	17	17	2.4	0.0	6	6	2.1	0.0	2	2	5.0	0.0	1	1	1.0	0.0	26	26	64	0
Allakaket	0	0	-	-	37	8	2.4	0.5	16	6	2.5	0.4	5	5	5.2	0.0	3	3	6.3	0.0	61	22	173	41
Alatna	0	0	-	-	10	10	1.7	0.0	2	2	2.5	0.0	1	1	5.0	0.0	0	0	-	-	13	13	27	0
Bettles	0	0	-	-	24	19	2.1	0.1	2	2	1.0	0.0	1	1	3.0	0.0	0	0	-	-	27	22	54	6
District 4	3	0	0.0	0.0	458	114	2.6	0.2	257	94	3.3	0.1	58	53	4.5	0.1	17	14	3.2	0.0	793	275	2,353	188
Tanana	1	0	-	-	85	16	2.2	0.3	22	11	2.4	0.3	7	7	4.0	0.0	13	13	3.6	0.0	128	47	315	54
Rampart	0	0	-	-	10	8	1.9	0.2	2	2	1.0	0.0	12	12	3.3	0.0	1	0	-	-	25	22	61	3
Stevens Village	1	1	1.0	0.0	17	12	2.4	0.3	11	9	3.3	0.2	5	4	2.8	0.2	2	2	4.0	0.0	36	28	101	12
Birch Creek	0	0	-	-	10	9	1.9	0.2	3	3	2.3	0.0	1	0	-	-	0	0	-	-	14	12	26	3
Beaver	0	0	-	-	16	15	2.5	0.1	10	10	3.3	0.0	6	5	2.0	0.2	0	0	-	-	32	30	84	4
Fort Yukon	0	0	-	-	123	9	2.9	0.5	49	13	3.0	0.3	19	19	4.4	0.0	1	1	1.0	0.0	192	42	586	129
Venetie	0	0	-	-	40	5	2.2	0.7	7	4	4.2	0.3	5	4	2.5	0.4	3	3	3.7	0.0	55	16	141	54
Chalkyitsik	0	0	-	-	30	27	2.2	0.1	1	1	4.0	0.0	4	2	5.5	0.4	0	0	-	-	35	30	93	6
District 5	2	1	0.5	0.0	331	101	2.5	0.2	105	53	3.0	0.1	59	53	3.6	0.1	20	19	3.4	0.0	517	227	1,407	151
Survey Totals	13	6	1.7	0.2	1,251	313	3.0	0.1	1,062	405	4.5	0.1	217	194	4.5	0.1	53	46	3.6	0.0	2,596	964	9,708	357

a The total number of households (N), the number of households contacted (n), standard error (SE), and includes 95 percent confidence interval, CI (95%). Dashes indicate indefinable values.

Table 4. Estimated number of subsistence fishing households in surveyed villages, by harvest stratum, with village and district totals, Yukon Area, 1998. a

Community	Unknown				Does Not Harvest Salmon				Light Harvester				Medium Harvester				Heavy Harvester				Combined			
	N	n	Mean	SE	N	n	Mean	SE	N	n	Mean	SE	N	n	Mean	SE	N	n	Mean	SE	Total	Est	CI(95%)	
																					N	n	Total	(+/-)
Hooper Bay	2	0	-	-	88	9	0.3	0.2	92	27	0.6	0.0	13	13	0.8	0.0	1	1	1.0	0.0	196	50	102	31
Scammon Bay	5	4	0.5	0.1	24	3	0.0	0.0	51	15	0.8	0.0	1	1	0.0	0.0	0	0	-	-	81	23	47	8
Coastal District	7	4	0.4	0.1	112	12	0.3	0.1	143	42	0.7	0.0	14	14	0.7	0.0	1	1	1.0	0.0	277	73	149	32
Sheldon's Point	0	0	-	-	8	8	0.3	0.0	21	19	0.8	0.0	6	6	1.0	0.0	0	0	-	-	35	33	21	1
Alakanuk	0	0	-	-	39	5	0.6	0.2	74	21	0.7	0.0	7	6	0.8	0.1	0	0	-	-	120	32	86	21
Emmonak	0	0	-	-	75	21	0.3	0.1	70	32	0.6	0.0	14	9	0.8	0.1	0	0	-	-	159	62	84	16
Kotlik	0	0	-	-	29	3	0.3	0.3	54	15	0.8	0.0	10	7	1.0	0.0	2	2	1.0	0.0	95	27	65	20
District 1	0	0	-	-	151	37	0.4	0.1	219	87	0.7	0.0	37	28	0.9	0.0	2	2	1.0	0.0	409	154	256	33
Mountain Village	0	0	-	-	45	6	0.3	0.2	93	26	0.7	0.0	9	8	0.9	0.0	1	1	1.0	0.0	148	41	95	22
Pitkas Point	1	1	0.0	0.0	9	6	0.3	0.1	15	13	0.7	0.0	6	6	0.8	0.0	0	0	-	-	31	26	20	3
St. Mary's	0	0	-	-	37	5	0.2	0.2	62	16	0.6	0.1	14	13	1.0	0.0	3	3	1.0	0.0	116	37	63	19
Pilot Station	0	0	-	-	39	12	0.2	0.1	49	25	0.7	0.0	2	2	1.0	0.0	0	0	-	-	90	39	46	9
Marshall	0	0	-	-	16	4	0.0	0.0	42	13	0.6	0.1	4	4	1.0	0.0	0	0	-	-	62	21	30	10
District 2	1	1	0.0	0.0	146	33	0.2	0.1	261	93	0.7	0.0	35	33	0.9	0.0	4	4	1.0	0.0	447	164	254	32
Russian Mission	0	0	-	-	19	5	0.0	0.0	25	8	0.7	0.1	4	4	0.8	0.0	2	1	1.0	-	50	18	24	7
Holy Cross	0	0	-	-	20	4	0.0	0.0	39	19	0.6	0.0	5	4	1.0	0.0	0	0	-	-	64	27	30	6
Shageluk	0	0	-	-	14	8	0.1	0.1	13	9	0.4	0.1	5	5	0.8	0.0	7	6	1.0	0.0	39	28	19	3
District 3	0	0	-	-	53	17	0.0	0.0	77	36	0.6	0.0	14	13	0.9	0.0	9	7	1.0	0.0	153	73	73	10
Anvik	0	0	-	-	15	13	0.0	0.0	19	18	0.7	0.0	4	4	1.0	0.0	1	1	1.0	0.0	39	36	20	1
Grayling	0	0	-	-	20	4	0.5	0.3	23	7	0.4	0.1	12	12	0.8	0.0	0	0	-	-	55	23	30	13
Kaltag	0	0	-	-	12	4	0.3	0.2	33	8	0.8	0.1	5	5	0.8	0.0	1	0	-	-	51	17	36	9
Nulato	0	0	-	-	58	7	0.6	0.2	41	12	0.8	0.0	7	6	0.8	0.1	1	0	-	-	107	25	73	23
Koyukuk	1	0	-	-	21	2	0.0	0.0	15	6	0.6	0.1	4	3	0.7	0.2	2	2	1.0	0.0	43	13	15	5
Galena	0	0	-	-	126	17	0.1	0.1	64	17	0.4	0.1	10	9	1.0	0.0	3	3	1.0	0.0	203	46	47	19
Ruby	1	0	-	-	58	8	0.0	0.0	20	3	1.0	0.0	1	0	-	-	4	3	1.0	0.0	84	14	24	0
Huslia	1	0	-	-	60	6	0.0	0.0	16	7	0.5	0.1	6	5	0.8	0.1	1	1	0.0	0.0	84	19	14	5
Hughes	0	0	-	-	17	17	0.4	0.0	6	6	0.6	0.0	2	2	1.0	0.0	1	1	1.0	0.0	26	26	14	0
Allakaket	0	0	-	-	37	8	0.1	0.1	16	6	0.1	0.1	5	5	0.6	0.0	3	3	1.0	0.0	61	22	13	9
Alatna	0	0	-	-	10	10	0.1	0.0	2	2	0.5	0.0	1	1	1.0	0.0	0	0	-	-	13	13	3	0
Bettles	0	0	-	-	24	19	0.1	0.0	2	2	0.0	0.0	1	1	1.0	0.0	0	0	-	-	27	22	2	1
District 4	3	0	0.0	0.0	458	115	0.1	0.0	257	94	0.6	0.0	58	53	0.8	0.0	17	14	0.8	0.0	793	276	291	35
Tanana	1	0	-	-	85	16	0.2	0.1	22	11	0.5	0.1	7	7	0.7	0.0	13	13	0.9	0.0	128	47	45	16
Rampart	0	0	-	-	10	8	0.0	0.0	2	2	0.0	0.0	12	12	0.4	0.0	1	0	-	-	25	22	5	0
Stevens Village	1	1	0.0	0.0	17	13	0.2	0.1	11	9	0.7	0.0	5	4	1.0	0.0	2	2	1.0	0.0	36	29	19	2
Birch Creek	0	0	-	-	10	9	0.1	0.0	3	3	1.0	0.0	1	0	-	-	0	0	-	-	14	12	4	1
Beaver	0	0	-	-	16	15	0.1	0.0	10	10	0.7	0.0	6	5	0.8	0.1	0	0	-	-	32	30	13	1
Fort Yukon	0	0	-	-	123	9	0.4	0.2	49	13	0.5	0.1	19	19	0.9	0.0	1	1	1.0	0.0	192	42	100	42
Venetie	0	0	-	-	40	5	0.2	0.2	7	4	0.5	0.1	5	4	0.8	0.1	3	3	0.3	0.0	55	16	16	15
Chalkyitsik	0	0	-	-	30	28	0.0	0.0	1	1	1.0	0.0	4	3	1.0	0.0	0	0	-	-	35	32	6	1
District 5	2	1	0.0	0.0	331	103	0.3	0.1	105	53	0.6	0.0	59	54	0.8	0.0	20	19	0.8	0.0	517	230	208	48
Survey Totals	13	6	0.2	0.1	1,251	317	0.2	0.0	1,062	405	0.7	0.0	217	195	0.8	0.0	53	47	0.9	0.0	2,596	970	1,231	82

a The total number of households (N), the number of households contacted (n), standard error (SE), and includes 95 percent confidence interval, CI (95%). Dashes indicate indefinable values.

Table 5. Primary fishing gear used to harvest salmon by subsistence fishing households in surveyed villages, Yukon Area, 1998.

Community	Total Number of Households	Number of Households Surveyed	Number of Households Subsistence Fished		Primary Gear Used								
					Set Gillnets		Drift Gillnets		Fish Wheels		Hook and Line		
Hooper Bay	196	50	(25.5%)	32	(64.0%)	31	(100.0%)	0	(0.0%)	0	(0.0%)	0	(0.0%)
Scammon Bay	81	23	(28.4%)	15	(65.2%)	15	(100.0%)	0	(0.0%)	0	(0.0%)	0	(0.0%)
<i>Coastal District</i>	277	73	(26.4%)	47	(64.4%)	46	(100.0%)	0	(0.0%)	0	(0.0%)	0	(0.0%)
Sheldon's Point	35	33	(94.3%)	20	(60.6%)	19	(100.0%)	0	(0.0%)	0	(0.0%)	0	(0.0%)
Alakanuk	120	32	(26.7%)	24	(75.0%)	18	(78.3%)	5	(21.7%)	0	(0.0%)	0	(0.0%)
Emmonak	159	62	(39.0%)	36	(58.1%)	5	(14.7%)	29	(85.3%)	0	(0.0%)	0	(0.0%)
Kotlik	95	27	(28.4%)	22	(81.5%)	19	(100.0%)	0	(0.0%)	0	(0.0%)	0	(0.0%)
<i>District 1</i>	409	154	(37.7%)	102	(66.2%)	61	(64.2%)	34	(35.8%)	0	(0.0%)	0	(0.0%)
Mountain Village	148	41	(27.7%)	30	(73.2%)	5	(16.7%)	25	(83.3%)	0	(0.0%)	0	(0.0%)
Pitkas Point	31	26	(83.9%)	17	(65.4%)	6	(35.3%)	11	(64.7%)	0	(0.0%)	0	(0.0%)
St. Mary's	116	37	(31.9%)	27	(73.0%)	2	(7.4%)	25	(92.6%)	0	(0.0%)	0	(0.0%)
Pilot Station	90	39	(43.3%)	23	(59.0%)	4	(18.2%)	17	(77.3%)	1	(4.5%)	0	(0.0%)
Marshall	62	21	(33.9%)	12	(57.1%)	2	(16.7%)	10	(83.3%)	0	(0.0%)	0	(0.0%)
<i>District 2</i>	447	164	(36.7%)	109	(66.5%)	19	(17.6%)	88	(81.5%)	1	(0.9%)	0	(0.0%)
Russian Mission	50	18	(36.0%)	10	(55.6%)	4	(44.4%)	5	(55.6%)	0	(0.0%)	0	(0.0%)
Holy Cross	64	27	(42.2%)	16	(59.3%)	3	(18.8%)	13	(81.3%)	0	(0.0%)	0	(0.0%)
Shageluk	39	28	(71.8%)	15	(53.6%)	11	(84.6%)	2	(15.4%)	0	(0.0%)	0	(0.0%)
<i>District 3</i>	153	73	(47.7%)	41	(56.2%)	18	(47.4%)	20	(52.6%)	0	(0.0%)	0	(0.0%)
Anvik	39	36	(92.3%)	19	(52.8%)	13	(68.4%)	4	(21.1%)	2	(10.5%)	0	(0.0%)
Grayling	55	23	(41.8%)	15	(65.2%)	4	(28.6%)	7	(50.0%)	3	(21.4%)	0	(0.0%)
Kaltag	51	17	(33.3%)	12	(70.6%)	3	(25.0%)	9	(75.0%)	0	(0.0%)	0	(0.0%)
Nulato	107	25	(23.4%)	19	(76.0%)	3	(15.8%)	14	(73.7%)	2	(10.5%)	0	(0.0%)
Koyukuk	43	13	(30.2%)	8	(61.5%)	3	(37.5%)	5	(62.5%)	0	(0.0%)	0	(0.0%)
Galena	203	46	(22.7%)	20	(43.5%)	8	(40.0%)	8	(40.0%)	4	(20.0%)	0	(0.0%)
Ruby	84	14	(16.7%)	6	(42.9%)	3	(50.0%)	0	(0.0%)	3	(50.0%)	0	(0.0%)
Huslia	84	19	(22.6%)	8	(42.1%)	4	(50.0%)	4	(50.0%)	0	(0.0%)	0	(0.0%)
Hughes	26	26	(100.0%)	14	(53.8%)	13	(100.0%)	0	(0.0%)	0	(0.0%)	0	(0.0%)
Allakaket	61	22	(36.1%)	8	(36.4%)	8	(100.0%)	0	(0.0%)	0	(0.0%)	0	(0.0%)
Alatna	13	13	(100.0%)	3	(23.1%)	3	(100.0%)	0	(0.0%)	0	(0.0%)	0	(0.0%)
Bettles	27	22	(81.5%)	2	(9.1%)	2	(100.0%)	0	(0.0%)	0	(0.0%)	0	(0.0%)
<i>District 4</i>	793	276	(34.8%)	134	(48.6%)	67	(50.8%)	51	(38.6%)	14	(10.8%)	0	(0.0%)
Tanana	128	47	(36.7%)	26	(55.3%)	16	(61.5%)	0	(0.0%)	10	(38.5%)	0	(0.0%)
Rampart	25	22	(88.0%)	5	(22.7%)	5	(100.0%)	0	(0.0%)	0	(0.0%)	0	(0.0%)
Stevens Village	36	29	(80.6%)	16	(55.2%)	14	(93.3%)	0	(0.0%)	1	(6.7%)	0	(0.0%)
Birch Creek	14	12	(85.7%)	4	(33.3%)	4	(100.0%)	0	(0.0%)	0	(0.0%)	0	(0.0%)
Beaver	32	30	(93.8%)	12	(40.0%)	12	(100.0%)	0	(0.0%)	0	(0.0%)	0	(0.0%)
Fort Yukon	192	42	(21.9%)	30	(71.4%)	16	(55.2%)	0	(0.0%)	13	(44.8%)	0	(0.0%)
Venetie	55	16	(29.1%)	7	(43.8%)	7	(100.0%)	0	(0.0%)	0	(0.0%)	0	(0.0%)
Chalkyitsik	35	32	(91.4%)	5	(15.6%)	5	(100.0%)	0	(0.0%)	0	(0.0%)	0	(0.0%)
<i>District 5</i>	517	230	(44.5%)	105	(45.7%)	79	(78.7%)	0	(0.0%)	24	(23.3%)	0	(0.0%)
<i>Survey Totals</i>	2,596	970	(37.4%)	538	(55.5%)	290	(55.6%)	193	(37.0%)	39	(7.5%)	0	(0.0%)

Table 6. Subsistence salmon harvest estimates and corresponding confidence intervals (CI) for surveyed villages, Yukon Area, 1998.

Community	Total Households	Households Contacted ^a	Chinook Salmon		Summer Chum Salmon		Fall Chum Salmon		Coho Salmon	
			Estimated Total	CI(95%) (+/-)	Estimated Total	CI(95%) (+/-)	Estimated Total	CI(95%) (+/-)	Estimated Total	CI(95%) (+/-)
Hooper Bay	196	50	13	11	261	184	0	0	145	140
Scammon Bay	81	23	378	162	1,101	326	34	56	204	336
Coastal District	277	73	391	162	1,362	375	34	56	349	364
Sheldon's Point	35	33	527	107	1,872	375	266	67	229	42
Alakanuk	120	32	1,930	779	5,643	2,124	665	590	292	199
Emmonak	159	62	1,684	545	8,330	2,365	103	101	354	337
Kotlik	95	26	2,066	591	8,753	2,452	129	100	504	487
District 1	409	153	6,207	1,124	24,598	4,032	1,163	610	1,379	626
Mountain Village	148	41	2,525	925	9,596	2,899	1,367	1,160	387	294
Pitkas Point	31	26	817	110	1,302	137	233	54	305	89
St. Mary's	116	37	2,678	949	9,047	2,049	416	138	290	158
Pilot Station	90	39	1,281	407	2,833	961	52	55	49	55
Marshall	62	21	1,711	750	1,293	556	640	575	335	237
District 2	447	164	9,012	1,580	24,071	3,722	2,708	1,304	1,366	422
Russian Mission	50	18	1,314	651	702	317	137	160	233	51
Holy Cross	64	27	2,648	1,153	269	141	1,095	553	100	79
Shageluk	39	26	552	185	5,501	2,181	329	201	67	27
District 3	153	71	4,514	1,337	6,472	2,208	1,561	610	400	98
Anvik	39	36	1,025	54	2,139	379	388	24	20	0
Grayling	55	23	2,177	1,122	4,032	2,314	648	328	133	44
Kaltag	51	17	1,870	586	175	116	499	489	71	0
Nulato	107	25	4,147	2,624	3,518	2,111	367	277	34	36
Koyukuk	43	13	800	192	1,819	810	1,583	590	421	11
Galena	203	46	1,668	767	2,333	1,885	1,915	314	322	173
Ruby	84	14	3,891	6,026	2,251	1,277	2,427	2,236	1,459	1,319
Huslia	84	19	23	11	449	312	0	0	128	134
Hughes	26	26	91	0	334	0	60	0	5	0
Allakaket	61	22	85	80	901	241	11	4	0	0
Alatna	13	12	4	0	13	0	0	0	0	0
Bettles	27	22	20	9	82	28	0	0	0	0
District 4	793	275	15,801	6,740	18,046	3,996	7,898	2,423	2,593	1,338
Tanana	128	46	5,212	2,170	1,819	53	24,955	1,083	2,572	386
Rampart	25	22	885	0	19	0	100	0	20	0
Stevens Village	36	28	1,232	190	171	49	1,076	485	63	38
Birch Creek	14	12	48	0	0	0	0	0	0	0
Beaver	32	30	470	167	15	7	409	0	0	0
Fort Yukon	192	42	1,771	255	30	0	3,035	632	39	14
Venetie	55	16	168	145	0	0	659	462	0	0
Chalkyitsik	35	32	11	5	0	0	433	188	0	0
District 5	517	228	9,797	2,204	2,054	73	30,667	1,438	2,694	388
Survey Totals	2,596	964	45,722	7,474	76,603	7,148	44,031	3,223	8,781	1,629

^a The number of households contacted per species may vary. The number of households indicated is the greatest number of households contacted for a given species.

Table 7. Estimated subsistence harvest of chinook salmon by fishing location in surveyed villages, Yukon Area, 1998.

Community	Coastal District	Districts			Subdistricts						River Drainages					Total by Community	
		1	2	3 a	4-A b	4-B	4-C	5-A	5-B	5-C	5-D c	Innoko	Koyukuk	Chandalar	Porcupine d		Black
Hooper Bay	13	0															13
Scammon Bay	0	378															378
Coastal District	13	378															391
Sheldon's Point	0	527															527
Alakanuk	0	1,930															1,930
Emmonak	121	1,563															1,684
Kotlik	0	2,066															2,066
District 1	121	6,086															6,207
Mountain Village	0	262	2,263														2,525
Pitkas Point	0	17	800														817
St. Mary's	58	143	2,478														2,679
Pilot Station	0	278	1,002														1,280
Marshall	0	291	1,420														1,711
District 2	58	991	7,963														9,012
Russian Mission			1,314									0					1,314
Holy Cross			2,648									0					2,648
Shageluk			68									484					552
District 3			4,030									484					4,514
Anvik	0	0	0	1,025	0	0							0				1,025
Grayling	6	0	0	2,171	0	0							0				2,177
Kaltag	0	0	0	1,870	0	0							0				1,870
Nulato	0	0	0	4,147	0	0							0				4,147
Koyukuk	0	169	0	631	0	0							0				800
Galena	0	0	565	587	286	230							0				1,668
Ruby	0	0	0	0	16	3,875							0				3,891
Huslia	0	0	0	18	0	0							5				23
Hughes	0	0	0	40	0	0							51				91
Allakaket	0	0	0	0	0	0							85				85
Alatna	0	0	0	0	0	0							4				4
Bettles	0	0	0	0	0	0							20				20
District 4	6	169	565	10,489	302	4,104						165					15,801
Tanana							450	4,762	0	0			0	0			5,212
Rampart							0	0	885	0			0	0			885
Stevens Village							0	0	880	352			0	0			1,232
Birch Creek							0	0	0	48			0	0			48
Beaver							0	0	0	470			0	0			470
Fort Yukon							0	0	0	1,770			0	1			1,771
Venetie							0	0	0	105			63	0			168
Chalkyitsik							0	0	0	11			0	0			11
District 5							450	4,762	1,765	2,756			63	1			9,797
Survey Totals	198	7,624	7,963	4,595	10,489	302	4,104	450	4,762	1,765	2,756	484	165	63	1	0	45,722

a Except for the Innoko River drainage.
b Except for the Koyukuk River drainage.
c Except for the Chandalar and Porcupine River drainages.
d Except for the Black River drainage.

Table 8. Estimated subsistence harvest of summer chum salmon by fishing location in surveyed villages, Yukon Area, 1998.

Community	Coastal District	Districts			Subdistricts							River Drainages					Total by Community
		1	2	3 a	4-A b	4-B	4-C	5-A	5-B	5-C	5-D c	Innoko	Koyukuk	Chandalar	Porcupine d	Black	
Hooper Bay	261	0															261
Scammon Bay	0	1,101															1,101
Coastal District	261	1,101															1,362
Sheldon's Point	0	1,872															1,872
Alakanuk	0	5,643															5,643
Emmonak	508	7,822															8,330
Kotlik	0	8,753															8,753
District 1	508	24,090															24,598
Mountain Village	0	1,431	8,165														9,596
Pitkas Point	0	23	1,279														1,302
St. Mary's	581	787	7,679														9,047
Pilot Station	0	719	2,114														2,833
Marshall	0	233	1,060														1,293
District 2	581	3,193	20,297														24,071
Russian Mission			702													0	702
Holy Cross			269													0	269
Shageluk			0													5,501	5,501
District 3			971													5,501	6,472
Anvik	0		0	2,139	0	0										0	2,139
Grayling	200		0	3,832	0	0										0	4,032
Kaltag	0		0	175	0	0										0	175
Nulato	0		0	3,518	0	0										0	3,518
Koyukuk	0		0	1,456	0	0							363				1,819
Galena	0		151	1,130	377	675										0	2,333
Ruby	0		0	0	528	1,723										0	2,251
Huslia	0		0	0	0	0							449				449
Hughes	0		0	0	0	0							334				334
Allakaket	0		0	0	0	0							901				901
Alatna	0		0	0	0	0							13				13
Bettles	0		0	0	0	0							82				82
District 4	200		151	12,250	905	2,398							2,142				18,046
Tanana							415	1,404	0	0						0	1,819
Rampart							0	0	19	0						0	19
Stevens Village							0	0	165	6						0	171
Birch Creek							0	0	0	0						0	0
Beaver							0	0	0	15						0	15
Fort Yukon							0	0	0	1					29	0	30
Venetie							0	0	0	0					0	0	0
Chalkyitsik							0	0	0	0					0	0	0
District 5							415	1,404	184	22					29		2,054
Survey Totals	1,550	28,384	20,297	1,122	12,250	905	2,398	415	1,404	184	22	5,501	2,142	0	29	0	76,603

a Except for the Innoko River drainage.

b Except for the Koyukuk River drainage.

c Except for the Chandalar and Porcupine River drainages.

d Except for the Black River drainage.

Table 9. Estimated subsistence harvest of fall chum salmon by fishing location in surveyed villages, Yukon Area, 1998.

Community	Coastal District	Districts			Subdistricts					River Drainages					Total by Community		
		1	2	3 a	4-A b	4-B	4-C	5-A	5-B	5-C	5-D c	Innoko	Koyukuk	Chandalar		Porcupine d	Black
Hooper Bay		0															0
Scammon Bay		34															34
Coastal District		34															34
Sheldon's Point		266															266
Alakanuk		665															665
Emmonak		103															103
Kotlik		129															129
District 1		1,163															1,163
Mountain Village		1,030	337														1,367
Pitkas Point		0	233														233
St. Mary's		0	416														416
Pilot Station		0	52														52
Marshall		0	640														640
District 2		1,030	1,678														2,708
Russian Mission			0	137	0							0					137
Holy Cross			0	1,095	0							0					1,095
Shageluk			38	0	10							281					329
District 3			38	1,232	10							281					1,561
Anvik	0			15	373	0	0						0				388
Grayling	35			0	613	0	0						0				648
Kallag	0			0	499	0	0						0				499
Nulato	0			0	367	0	0						0				367
Koyukuk	0			0	1,583	0	0						0				1,583
Galena	0			0	353	769	793						0				1,915
Ruby	0			0	0	0	2,427						0				2,427
Huslia	0			0	0	0	0						0				0
Hughes	0			0	0	0	0						60				60
Allakaket	0			0	0	0	0						11				11
Alatna	0			0	0	0	0						0				0
Bettles	0			0	0	0	0						0				0
District 4	35		15		3,788	769	3,220						71				7,898
Tanana								5,639	19,316	0	0			0	0	0	24,955
Rampart								0	0	100	0			0	0	0	100
Stevens Village								0	0	1,064	12			0	0	0	1,076
Birch Creek								0	0	0	0			0	0	0	0
Beaver								0	0	0	409			0	0	0	409
Fort Yukon								0	0	0	2,561			0	474	0	3,035
Venette								0	0	0	63			596	0	0	659
Chalkyitsik								0	0	0	0			0	0	433	433
District 5								5,639	19,316	1,164	3,045			596	474	433	30,667
Survey Totals	35	2,227	1,716	1,247	3,798	769	3,220	5,639	19,316	1,164	3,045	281	71	596	474	433	44,031

a Except for the Innoko River drainage.

b Except for the Koyukuk River drainage.

c Except for the Chandalar and Porcupine River drainages.

d Except for the Black River drainage.

Table 10. Estimated subsistence harvest of coho salmon by fishing location in surveyed villages, Yukon Area, 1998.

Community	Coastal District	Districts			Subdistricts							River Drainages					Total by Community	
		1	2	3 a	4-A b	4-B	4-C	5-A	5-B	5-C	5-D c	Innoko	Koyukuk	Chandalar	Porcupine d	Black		
Hooper Bay	145	0																145
Scammon Bay	0	204																204
Coastal District	145	204																349
Sheldon's Point		229																229
Alakanuk		292																292
Emmonak		354																354
Kotlik		504																504
District 1		1,379																1,379
Mountain Village	0	303	84															387
Pitkas Point	0	0	305															305
St. Mary's	78	0	212															290
Pilot Station	0	0	49															49
Marshall	0	0	335															335
District 2	78	303	985															1,366
Russian Mission				233												0		233
Holy Cross				100												0		100
Shageluk				0												67		67
District 3				333												67		400
Anvik						20	0	0								0		20
Grayling						133	0	0								0		133
Kaltag						71	0	0								0		71
Nulato						34	0	0								0		34
Koyukuk						421	0	0								0		421
Galena						105	165	52								0		322
Ruby						0	0	1,459								0		1,459
Huslia						94	0	0						34				128
Hughes						0	0	0						5				5
Allakaket						0	0	0						0				0
Alatna						0	0	0						0				0
Bettles						0	0	0						0				0
District 4						878	165	1,511						39				2,593
Tanana								1,300	1,272	0	0							2,572
Rampart								0	0	20	0							20
Stevens Village								0	0	63	0							63
Birch Creek								0	0	0	0							0
Beaver								0	0	0	0							0
Fort Yukon								0	0	0	39							39
Venetie								0	0	0	0							0
Chalkyitsik								0	0	0	0							0
District 5								1,300	1,272	83	39							2,694
Survey Totals	223	1,886	985	333	878	165	1,511	1,300	1,272	83	39	67	39	0	0	0		8,781

a Except for the Innoko River drainage.

b Except for the Koyukuk River drainage.

c Except for the Chandalar and Porcupine River drainages.

d Except for the Black River drainage.

Table 11. Estimated or reported subsistence harvest of pink salmon and other select miscellaneous fish species by surveyed villages, Yukon Area, 1998.

Community	Estimated Subsistence Harvest with Corresponding Confidence Intervals (CI) (Expanded to Estimate Survey Village Harvest)											Reported Harvest of Miscellaneous Fish Species, (Not Expanded)									
	Total Households	Households Contacted ^b	Whitefish ^a								Pike		Sheefish		Burbot	Lamprey	Tomcod	Grayling	Sucker	Arctic Char	Blackfish
			Pink Salmon		Large Whitefish		Small Whitefish		Estimated Total	CI(95%) (+/-)	Estimated Total	CI(95%) (+/-)	Estimated Total	CI(95%) (+/-)							
			Estimated Total	CI(95%) (+/-)	Estimated Total	CI(95%) (+/-)	Estimated Total	CI(95%) (+/-)													
Hooper Bay	196	49	1,941	1,110	647	624	4,972	1,822	1,000	1,150	44	58	2	0	825	0	0	0	0	0	11,648
Scammon Bay	81	23	1,791	1,552	1,219	781	1,957	970	3,591	1,752	109	76	55	0	2,649	0	0	0	0	0	51,800
Coastal District	277	72	3,732	1,908	1,866	1,000	6,929	2,064	4,591	2,096	153	96	57	0	3,274	0	0	0	0	0	63,448
Sheldon's Point	35	32	299	82	556	169	1,807	409	24	11	2,577	579	433	0	251	0	0	0	8	58,450	
Alakanuk	120	32	239	172	284	189	2,198	1,035	615	711	2,390	1,825	151	0	195	0	0	2	10,920		
Emmonak	159	62	145	112	2,284	1,159	4,215	1,903	613	269	2,083	799	332	0	1,421	0	0	0	0	22,505	
Kotlik	95	26	907	791	1,206	471	1,199	644	1,206	1,313	3,152	1,293	326	0	260	0	0	0	0	5,200	
District 1	409	152	1,590	822	4,330	1,276	9,419	2,296	2,458	1,517	10,202	2,445	1,242	0	2,127	0	0	10	97,075		
Mountain Village	148	41	753	729	4,352	2,419	670	513	4,118	1,860	1,437	1,208	1,208	2,172	0	313	0	44	49,410		
Pitkas Point	31	26	330	128	1,384	297	473	220	458	157	277	80	225	0	0	12	0	0	0	12,800	
St. Mary's	116	37	467	785	4,827	3,512	777	695	3,801	2,894	1,451	696	948	402	0	2	0	0	0	49,775	
Pilot Station	90	39	0	0	1,856	725	350	259	782	334	845	411	1,035	0	0	20	0	0	0	25,990	
Marshall	62	21	0	0	2,734	1,770	0	0	2,201	1,522	492	279	1,288	0	0	0	0	0	0	1,400	
District 2	447	164	1,550	1,079	15,153	4,683	2,270	928	11,360	3,780	4,502	1,483	4,704	2,574	0	347	0	44	139,175		
Russian Mission	50	18	211	5	188	75	0	0	1,261	730	71	66	23	0	0	0	0	0	0	0	
Holy Cross	64	27	150	131	483	236	344	507	413	251	160	173	76	0	0	0	0	0	0	80	
Shageluk	39	26	1,256	885	418	206	3,233	2,887	142	64	243	140	18	0	0	0	0	0	0	0	
District 3	153	71	1,617	894	1,089	322	3,577	2,931	1,816	775	474	232	117	0	0	0	0	0	0	80	
Anvik	39	36	50	0	1,241	106	1,060	0	167	4	81	14	3	0	0	20	0	0	0	0	
Grayling	55	23	649	161	677	315	618	562	213	107	263	106	17	1	0	10	2	38	0	0	
Kaltag	51	17	1	0	301	410	357	427	65	0	249	204	7	0	0	126	0	21	0	0	
Nulato	107	25	0	0	334	478	85	141	10	17	97	76	26	0	0	232	0	84	0	0	
Koyukuk	43	13	0	0	48	23	50	26	93	52	101	73	9	0	0	0	0	0	0	0	
Galena	203	46	0	0	840	272	1,318	108	305	406	242	105	102	0	0	10	11	0	0	2,830	
Ruby	84	14	0	0	1,300	1,082	900	787	60	59	147	133	20	2	0	0	20	0	0	0	
Huslia	84	19	0	0	55	50	75	101	94	49	113	132	0	0	0	0	0	0	0	0	
Hughes	26	26	0	0	295	0	638	0	10	0	144	0	1	0	0	47	0	0	0	0	
Allakaket	61	22	0	0	357	85	0	0	301	124	516	163	201	0	0	0	0	10	0	0	
Alatna	13	13	0	0	63	13	50	0	4	0	16	7	0	0	0	2	0	0	0	0	
Bettles	27	22	0	0	12	10	0	0	5	4	7	7	8	0	0	40	0	0	0	0	
District 4	793	276	700	161	5,523	1,327	5,151	1,077	1,327	448	1,976	370	394	3	0	487	33	151	2,830		
Tanana	128	46	0	0	4,926	819	8,463	667	379	46	1,557	259	116	3	0	28	95	1	15		
Rampart	25	22	0	0	5	3	5	3	0	0	0	0	0	0	0	104	0	0	0	0	
Stevens Village	36	28	0	0	57	15	189	164	153	60	40	22	20	0	0	0	0	0	0	0	
Birch Creek	14	12	0	0	36	7	0	0	63	8	3	0	0	0	0	0	0	0	0	0	
Beaver	32	30	0	0	68	10	0	0	42	19	50	0	2	0	0	0	0	0	0	0	
Fort Yukon	192	42	0	0	395	245	675	115	127	85	158	129	28	0	0	0	0	0	0	0	
Venelle	55	16	0	0	10	9	0	0	73	56	0	0	20	0	0	569	0	0	0	0	
Chalkyitsik	35	32	0	0	8	4	115	62	70	37	44	15	4	0	0	43	0	0	0	0	
District 5	517	228	0	0	5,507	855	9,447	699	907	134	1,852	291	190	3	0	744	95	1	15		
Survey Totals	2,586	963	9,189	2,511	33,468	5,211	36,793	4,543	22,459	4,669	19,159	2,908	8,704	2,580	5,401	1,578	128	206	302,623		

a Large whitefish are considered those 4 pounds or larger and small whitefish are less than 4 pounds.

b The number of households contacted per species may vary. The number of households indicated is the greatest number of households contacted for a given species.

Table 12. Estimated number of salmon used for subsistence purposes and corresponding confidence intervals (CI) for surveyed villages, Yukon Area, 1998.

Community	Total Households	Households Contacted ^a	Chinook Salmon		Summer Chum Salmon		Fall Chum Salmon		Coho Salmon	
			Estimated Total	CI(95%) (+/-)	Estimated Total	CI(95%) (+/-)	Estimated Total	CI(95%) (+/-)	Estimated Total	CI(95%) (+/-)
Hooper Bay	196	49	9	6	477	441	0	0	123	140
Scammon Bay	81	23	343	163	1,220	448	32	50	220	303
Coastal District	277	72	352	163	1,697	628	32	50	343	333
Sheldon's Point	35	31	554	98	2,191	254	282	86	218	52
Alakanuk	120	31	1,937	795	5,438	1,671	503	363	269	204
Emmonak	159	62	1,226	303	8,473	1,627	844	762	504	333
Kotlik	95	25	2,200	689	7,867	2,319	485	543	477	469
District 1	409	149	5,917	1,099	23,969	3,299	2,114	1,007	1,468	613
Mountain Village	148	39	2,087	894	8,894	2,613	737	491	280	169
Pitkas Point	31	26	612	106	956	117	189	38	253	60
St. Mary's	116	37	2,855	976	7,973	1,638	381	122	411	210
Pilot Station	90	39	1,554	458	3,838	1,137	115	80	93	67
Marshall	62	21	1,543	671	1,810	869	683	473	350	211
District 2	447	162	8,651	1,557	23,471	3,401	2,105	699	1,387	354
Russian Mission	50	18	1,536	484	863	167	293	275	233	51
Holy Cross	64	26	2,434	512	206	77	687	242	157	103
Shageluk	39	25	532	166	5,594	2,192	330	247	67	27
District 3	153	69	4,502	724	6,663	2,200	1,310	441	457	118
Anvik	39	31	926	84	1,302	21	339	13	20	0
Grayling	55	22	2,056	1,068	3,899	2,156	517	330	140	76
Kalltag	51	17	1,626	633	146	95	349	346	65	0
Nulato	107	25	2,526	1,201	2,581	1,767	338	232	30	34
Koyukuk	43	12	485	164	2,332	1,343	1,152	222	421	11
Galena	203	46	1,037	323	1,256	1,256	1,277	312	315	173
Ruby	84	13	1,504	1,424	4,903	4,829	1,847	1,417	1,365	1,384
Huslia	84	19	39	38	396	271	0	0	136	131
Hughes	26	26	99	0	305	0	60	0	5	0
Allakaket	61	22	214	239	836	121	11	4	0	0
Alatna	13	10	4	1	16	1	0	0	0	0
Bettles	27	22	19	9	82	28	0	0	0	0
District 4	793	265	10,535	2,282	18,054	5,879	5,890	1,562	2,497	1,403
Tanana	128	46	4,017	1,105	1,799	28	25,863	1,059	2,572	386
Rampart	25	20	498	28	81	56	100	0	20	0
Stevens Village	36	28	902	114	183	53	1,662	751	63	38
Birch Creek	14	12	39	1	0	0	0	0	0	0
Beaver	32	29	375	118	15	7	212	36	0	0
Fort Yukon	192	40	1,622	421	32	21	2,795	1,575	10	7
Venetie	55	15	205	140	0	0	680	468	0	0
Chalkyitsik	35	29	29	6	0	0	352	416	0	0
District 5	517	219	7,687	1,202	2,110	84	31,664	2,135	2,665	388
Survey Totals	2,596	936	37,644	3,292	75,964	7,891	43,115	2,949	8,817	1,657

^a The number of households contacted per species may vary. The number of households indicated is the greatest number of households contacted for a given species.

Table 13. Estimated number of salmon retained from commercial harvests for subsistence use (commercial-related) and corresponding confidence intervals (CI) for surveyed villages, Yukon Area, 1998.

Community	Total Households	Households Contacted ^a	Chinook Salmon		Summer Chum Salmon		Fall Chum Salmon		Coho Salmon	
			Estimated Total	CI(95%) (+/-)	Estimated Total	CI(95%) (+/-)	Estimated Total	CI(95%) (+/-)	Estimated Total	CI(95%) (+/-)
Hooper Bay	196	50	0	0	0	0	0	0	0	0
Scammon Bay	81	23	0	0	153	224	0	0	0	0
Coastal District	277	73	0	0	153	224	0	0	0	0
Sheldon's Point	35	33	18	11	223	130	0	0	0	0
Alakanuk	120	32	4	6	190	215	0	0	0	0
Emmonak	159	62	10	10	146	81	0	0	0	0
Kotlik	95	26	102	169	108	104	0	0	0	0
District 1	409	153	134	170	667	283	0	0	0	0
Mountain Village	148	41	0	0	113	88	0	0	0	0
Pitkas Point	31	26	0	0	2	0	0	0	0	0
St. Mary's	116	37	0	0	5	2	0	0	0	0
Pilot Station	90	39	0	0	0	0	0	0	0	0
Marshall	62	21	0	0	0	0	0	0	0	0
District 2	447	164	0	0	120	88	0	0	0	0
Russian Mission	50	18	28	45	41	51	0	0	0	0
Holy Cross	64	27	0	0	0	0	0	0	0	0
Shageluk	39	26	0	0	0	0	0	0	0	0
District 3	153	71	28	45	41	51	0	0	0	0
Anvik	39	36	0	0	0	0	0	0	0	0
Grayling	55	23	0	0	0	0	0	0	0	0
Kaltag	51	17	0	0	0	0	0	0	0	0
Nulato	107	25	0	0	0	0	0	0	0	0
Koyukuk	43	13	0	0	0	0	0	0	0	0
Galena	203	46	0	0	0	0	0	0	0	0
Ruby	84	14	0	0	0	0	0	0	0	0
Huslia	84	19	0	0	0	0	0	0	0	0
Hughes	26	26	0	0	0	0	0	0	0	0
Allakaket	61	22	0	0	0	0	0	0	0	0
Alatna	13	13	0	0	0	0	0	0	0	0
Bettles	27	22	0	0	0	0	0	0	0	0
District 4	793	276	0	0	0	0	0	0	0	0
Tanana	128	46	10	0	0	0	0	0	0	0
Rampart	25	22	0	0	0	0	0	0	0	0
Stevens Village	36	29	0	0	0	0	0	0	0	0
Birch Creek	14	12	0	0	0	0	0	0	0	0
Beaver	32	30	0	0	0	0	0	0	0	0
Fort Yukon	192	42	0	0	0	0	0	0	0	0
Venetie	55	16	0	0	0	0	0	0	0	0
Chalkyitsik	35	32	0	0	0	0	0	0	0	0
District 5	517	229	10	0	0	0	0	0	0	0
Survey Totals	2,596	966	172	176	981	375	0	0	0	0

^a The number of households contacted per species may vary. The number of households indicated is the greatest number of households contacted for a given species.

Table 14. Estimated number of households with dogs, numbers of dogs, and corresponding confidence intervals (CI) for surveyed villages, Yukon Area, 1998.

Community	Total Households	Households Contacted	Number of Households with Dogs		Number of Dogs	
			Estimated Total	CI(95%) (+/-)	Estimated Total	CI(95%) (+/-)
Hooper Bay	196	49	117	34	263	97
Scammon Bay	81	23	68	9	240	117
Coastal District	277	72	185	35	503	152
Sheldon's Point	35	31	25	2	86	13
Alakanuk	120	32	88	19	122	28
Emmonak	159	62	81	17	128	33
Kotlik	95	27	65	20	219	88
District 1	409	152	259	33	555	99
Mountain Village	148	41	96	23	191	50
Pitkas Point	31	25	20	3	92	7
St. Mary's	116	37	80	19	162	49
Pilot Station	90	38	54	11	170	60
Marshall	62	21	43	11	351	175
District 2	447	162	293	34	966	198
Russian Mission	50	18	32	10	111	47
Holy Cross	64	26	43	12	124	60
Shageluk	39	25	31	5	159	47
District 3	153	69	106	16	394	90
Anvik	39	33	28	3	113	7
Grayling	55	22	49	5	150	45
Kaltag	51	16	40	11	112	49
Nulato	107	25	85	20	209	89
Koyukuk	43	13	38	4	105	34
Galena	203	46	150	28	248	51
Ruby	84	14	53	20	366	211
Huslia	84	19	50	25	171	84
Hughes	26	26	13	0	74	0
Allakaket	61	22	31	11	119	15
Alatna	13	11	6	2	10	3
Bettles	27	22	17	2	54	22
District 4	793	269	560	50	1,731	262
Tanana	128	46	64	19	424	34
Rampart	25	2	20	1	29	4
Stevens Village	36	26	25	3	116	29
Birch Creek	14	12	6	1	11	2
Beaver	32	30	21	1	41	6
Fort Yukon	192	40	170	27	498	182
Venetie	55	16	29	18	165	89
Chalkyitsik	35	29	21	2	58	28
District 5	517	201	356	38	1,342	210
Survey Totals	2,596	944	1,759	88	5,491	439

Table 15. Estimated number of salmon retained for dog food from subsistence and commercial (commercial-related) harvests with corresponding confidence intervals (CI) for surveyed villages, Yukon Area, 1998.

Community	Total Households	Households Contacted ^a	Summer Chum Salmon Fed to Dogs				Fall Chum Salmon Fed to Dogs				Coho Salmon Fed to Dogs				Subsistence and Commercial		
			Subsistence		Commercial		Subsistence and Commercial	Subsistence		Commercial		Subsistence		Commercial			
			Estimated Total	CI(95%) (+/-)	Estimated Total	CI(95%) (+/-)		Estimated Total	CI(95%) (+/-)	Estimated Total	CI(95%) (+/-)	Estimated Total	CI(95%) (+/-)	Estimated Total		CI(95%) (+/-)	
Hooper Bay	196	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scammon Bay	81	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Coastal District	277	73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sheldon's Point	35	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alakanuk	120	32	7	12	0	0	7	0	0	0	0	0	0	0	0	0	0
Emmonak	159	62	107	96	0	0	107	0	0	0	0	0	0	0	0	0	0
Kotlik	95	27	1,597	1,434	0	0	1,597	270	450	0	0	270	0	0	0	0	0
District 1	409	154	1,711	1,437	0	0	1,711	270	450	0	0	270	0	0	0	0	0
Mountain Village	148	41	407	271	0	0	407	0	0	0	0	0	0	0	0	0	0
Pitkas Point	31	26	10	7	0	0	10	10	7	0	0	10	22	16	0	0	22
St. Mary's	116	37	265	327	0	0	265	0	0	0	0	0	35	26	0	0	35
Pilot Station	90	39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Marshall	62	21	0	0	0	0	0	100	0	0	0	100	80	0	0	0	80
District 2	447	164	682	425	0	0	682	110	7	0	0	110	137	30	0	0	137
Russian Mission	50	18	0	0	0	0	0	18	0	0	0	18	202	0	0	0	202
Holy Cross	64	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Shageluk	39	26	4,288	2,019	0	0	4,288	14	15	0	0	14	0	0	0	0	0
District 3	153	70	4,288	2,019	0	0	4,288	32	15	0	0	32	202	0	0	0	202
Anvik	39	35	1,238	8	0	0	1,238	200	0	0	0	200	20	0	0	0	20
Graying	55	23	3,575	2,115	0	0	3,575	0	0	0	0	0	100	0	0	0	100
Kaltag	51	17	56	63	0	0	56	0	0	0	0	0	0	0	0	0	0
Nulato	107	25	1,371	977	0	0	1,371	0	0	0	0	0	0	0	0	0	0
Koyukuk	43	13	2,332	1,343	0	0	2,332	887	131	0	0	887	392	0	0	0	392
Galena	203	46	193	22	0	0	193	531	34	0	0	531	127	0	0	0	127
Ruby	84	14	4,310	4,279	0	0	4,310	1,728	1,336	0	0	1,728	1,296	1,281	0	0	1,296
Huslia	84	19	324	238	0	0	324	0	0	0	0	0	0	0	0	0	0
Hughes	26	26	264	0	0	0	264	40	0	0	0	40	0	0	0	0	0
Alakaket	61	22	751	124	0	0	751	8	0	0	0	8	0	0	0	0	0
Alatna	13	13	9	0	0	0	9	0	0	0	0	0	0	0	0	0	0
Bettles	27	22	45	0	0	0	45	0	0	0	0	0	0	0	0	0	0
District 4	793	275	14,468	5,061	0	0	14,468	3,394	1,342	0	0	3,394	1,935	1,291	0	0	1,935
Tanana	128	46	1,760	0	0	0	1,760	25,175	1,061	0	0	25,175	2,592	380	0	0	2,592
Rampart	25	22	79	56	0	0	79	0	0	0	0	0	20	0	0	0	20
Stevens Village	36	29	160	49	0	0	160	1,501	615	0	0	1,501	58	31	0	0	58
Birch Creek	14	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Beaver	32	30	1	0	0	0	1	212	36	0	0	212	0	0	0	0	0
Fort Yukon	192	42	29	0	0	0	29	1,610	632	0	0	1,610	10	6	0	0	10
Venetie	55	16	0	0	0	0	0	598	471	0	0	598	0	0	0	0	0
Chalkyitsik	35	30	0	0	0	0	0	352	416	0	0	352	0	0	0	0	0
District 5	517	227	2,029	74	0	0	2,029	29,448	1,516	0	0	29,448	2,680	382	0	0	2,680
Survey Totals	2,596	963	23,178	5,652	0	0	23,178	33,254	2,075	0	0	33,254	4,954	1,337	0	0	4,954

^a The number of households contacted per species may vary. The number of households contacted indicated is the greatest number of households contacted for a given question.

Table 16. Summary of responses from surveyed households that indicated their subsistence salmon needs were not met in 1998.

Response Summary Category	Number of Responses	Percent of Total
Poor run of fish	281	47.4%
Miscellaneous reasons, includes "No reason given"	51	8.6%
Working in another occupation	37	6.2%
Not enough fish caught	34	5.7%
No gear - boat, net, motor, gas	33	5.6%
Not enough available to share/barter	33	5.6%
Due to environmental conditions, i.e., high water	32	5.4%
Department fishing regulations/restrictions	22	3.7%
Busy doing other things	18	3.0%
Medical reasons or elderly	16	2.7%
Didn't fish - normally don't use fish	14	2.4%
Out of town	10	1.7%
No helper to harvest or process fish	7	1.2%
Still fishing	5	0.8%
TOTALS a	593	100%

a A total of 970 households were surveyed in 1998, of which 593 households (61 percent) indicated their subsistence salmon needs were not met.

Table 17. Reported subsistence and personal use fish harvested under the authority of a permit, listed by permit area, Yukon Area, 1998. a

Permit Fishing Area	Permit			Percent Returned	Number of Permits Returned that Fished	Reported Harvest										
	Type	Issued	Returned			Chinook	Summer Chum	Fall Chum	Coho	Whitefish	Sheefish	Burbot	Pike	Suckers	Grayling	
Subsistence Use																
Yukon River near Haul Road Bridge	SY	48	47	98%	31	1,685	103	156	15	486	30	4	8	0	0	
Yukon River near Circle and Eagle	SE	101	95	94%	54	3,562	55	630	132	299	34	30	50	120	20	
Tanana River Subdistrict 6A	SA	25	25	100%	15	510	519	3,648	1,288	141	25	52	74	88	0	
Tanana River Subdistrict 6B	SB	94	84	89%	46	1,406	5,485	9,573	5,937	1,000	23	27	116	39	1	
Tanana River Upstream of Subdistrict 6C	SU	46	46	100%	17	0	0	71	9	1,804	0	6	85	101	6	
Kantishna River Subdistrict 6A	SK	6	6	100%	4	2	0	1,078	238	53	1	4	29	15	7	
Tolovana River Pike Subdistrict 6B	ST	70	64	91%	31	1	0	0	0	235	24	14	431	96	18	
Subsistence Permit Subtotals		390	367	94%	198	7,166	6,162	15,156	7,619	4,018	137	137	793	459	52	
Personal Use																
Tanana River Subdistrict 6C	PC	103	101	98%	52	357	84	2	9	1	0	0	0	0	3	
Tanana River Whitefish Upstream of Subdistrict 6C	PW	1	1	100%	0	0	0	0	0	0	0	0	0	0	0	
Personal Use Permit Subtotals		104	102	98%	52	357	84	2	9	1	0	0	0	0	3	
Permit Totals		494 b	469	95%	250 c	7,523	6,246	15,158	7,628	4,019	137	137	793	459	55	

a Includes 1998 permit information received as of March 18, 1999.

b Includes 45 households that were issued permits for more than one different area, includes 31 Minto households who were issued Tolovana River drainage (ST) pike permits.

c Includes six households that fished in two different permit areas.

Table 18. Reported subsistence and personal use fish harvested under the authority of a permit, listed by fishery, by community of residence, and by drainage, Yukon Area, 1998. a

Community	Harvest by Drainage	Permits		Percent Returned	Number of Permits Returned that Fished	Reported Harvest									
		Issued	Returned			Chinook	Summer Chum	Fall Chum	Coho	Whitefish	Sheefish	Burbot	Pike	Sucker	Grayling
Subsistence Use															
Central	Yukon River	8	8	100%	6	170	1	0	0	0	0	0	0	0	0
Circle	Yukon River	16	14	88%	7	685	1	37	0	36	0	0	0	0	0
Eagle	Yukon River	55	51	93%	32	2,473	52	543	132	148	23	30	46	120	20
FNSB b	Yukon River	44	43	98%	27	1,231	57	96	11	39	12	1	6	0	0
	Tolovana River	28	27	96%	14	1	0	0	0	28	1	2	37	0	18
	Tanana River	17	17	100%	13	229	604	960	786	331	5	15	52	2	0
	<i>FNSB Subtotal</i>	89	87	98%	54	1,461	661	1,056	797	398	18	18	95	2	18
Healy	Tanana River	11	10	91%	6	18	0	1,642	765	318	7	19	16	0	0
Manley	Tanana River	18	18	100%	13	209	211	4,411	2,362	123	20	37	48	86	0
Minto	Tolovana River	41	36	88%	17	0	0	0	0	207	23	12	394	96	0
	Tanana River	37	31	84%	9	275	148	505	31	164	7	0	97	25	0
	<i>Minto Subtotal</i>	78	67	86%	26	275	148	505	31	371	30	12	491	121	0
Nenana	Tanana River	40	37	93%	23	1,185	5,041	6,516	3,447	430	9	8	1	14	1
	Kantishna River	4	4	0%	2	2	0	265	72	28	1	4	5	15	7
	<i>Nenana Subtotal</i>	44	41	93%	25	1,187	5,041	6,781	3,519	458	10	12	6	29	8
Stevens Village	Yukon River	4	4	100%	4	242	45	60	2	152	20	0	0	0	0
Upper Tanana Villages (UTV) c	Yukon River	18	18	100%	6	130	0	50	0	112	9	0	1	0	0
	Tanana River	37	37	100%	13	0	0	71	9	1,257	0	2	50	101	6
	<i>UTV Subtotal</i>	55	55	100%	19	130	0	121	9	1,369	9	2	51	101	6
Other d	Yukon River	4	4	100%	3	316	2	0	2	298	0	3	5	0	0
	Tanana River	8	8	100%	3	0	0	0	0	347	0	4	35	0	0
	<i>Other Subtotal</i>	12	12	100%	6	316	2	0	2	645	0	7	40	0	0
<i>Subsistence Permit Subtotals</i>		390	367	94%	198	7,166	6,162	15,156	7,619	4,018	137	137	793	459	52
Personal Use															
FNSB b	Tanana River	96	95	99%	48	322	78	2	9	1	0	0	0	0	3
Nenana	Tanana River	3	3	100%	2	20	0	0	0	0	0	0	0	0	0
Other e	Tanana River	5	4	80%	2	15	6	0	0	0	0	0	0	0	0
<i>Personal Use Permit Subtotals</i>		104	102	98%	52	357	84	2	9	1	0	0	0	0	3
Permit Totals		494 f	469	95%	250 g	7,523	6,246	15,158	7,628	4,019	137	137	793	459	55

a Includes permit information received as of March 18, 1999.

b Fairbanks North Star Borough (FNSB) includes residents from the communities of College, Eielson Air Force Base, Ester, Fairbanks, Ft. Wainwright, North Pole, and Salcha.

c Upper Tanana Villages include residents from the communities of Delta Junction, Dot Lake, Northway, Tanacross, and Tok.

d Other subsistence permits include residents from the communities of Gakona, Manley, Minto, Nenana, Paxson and Slana.

e Other personal use permits include residents from the communities of Chitina, Delta Junction, and Galena.

f Includes 45 households that were issued permits for more than one different area, includes 31 Minto households who were issued Tolovana River drainage (ST) pike permits.

g Includes six households that fished in two different permit areas.

Table 19. Household and dog information reported by subsistence and personal use permits issued and returned, listed by fishery and by community of residence, Yukon Area, 1998. a

Community	Permit Information b				Reported Household Information (Based on Permits Issued)					Whole Salmon Fed to Dogs (Based on Permits Returned)	
	Permits		Percent Returned	Numbers of Permits Returned that Fished	Number of People	Number of Fishermen	Number of Households with Dogs	Number of Dogs	Households Indicating Feeding Whole Salmon to Dogs	Number of Households Who Put Whole Salmon up for Dogs	Number of Whole Salmon Fed to Dogs
	Issued	Returned									
Subsistence Use											
Central	8	8	100%	6	18	11	7	22	3	2	21
Circle	16	14	88%	7	40	21	13	80	8	1	25
Eagle	55	51	93%	32	146	101	40	218	26	6	1,138
FNSB c	89	87	98%	54	255	131	49	462	22	6	1,778
Healy	11	10	91%	6	32	24	10	154	9	4	1,318
Manley	19	19	100%	14	46	32	19	407	17	8	5,950
Minto	80	69	86%	27	252	129	31	229	22	3	385
Nenana	45	42	93%	26	129	66	34	470	29	12	12,853
Stevens Village	4	4	100%	4	13	5	4	25	2	1	115
Upper Tanana Villages d	55	55	100%	19	210	114	44	145	5	2	105
Other e	8	8	100%	3	7	4	2	21	0	0	0
Subsistence Permit Subtotal	390	367	94%	198	1,148	638	253	2,233	143	45	23,688
Personal Use											
FNSB c	96	95	99%	48	265	141	-	-	-	-	-
Nenana	3	3	100%	2	4	3	-	-	-	-	-
Other f	5	4	80%	2	16	11	-	-	-	-	-
Personal Use Permit Subtotal	104	102	98%	52	285	155	-	-	-	-	-
TOTAL	494	469	95%	250 g	1,433	793	253	2,233	143	45	23,688

a Includes permit information received as of March 18, 1999.

b Includes 45 households that were issued permits for more than one different area, including 31 Minto households who were issued Tolovana River drainage (ST) pike permits.

c Fairbanks North Star Borough (FNSB) includes residents from the communities of College, Eielson Air Force Base, Ester, Fairbanks, Ft. Wainwright, North Pole, and Salcha.

d Upper Tanana Villages Include residents from the communities of Delta Junction, Dot Lake, Northway, Tanacross, and Tok.

e Other subsistence permits include residents from the communities of Gakona, Paxson and Slana.

f Other personal use permits include residents from the communities of Delta Junction, Chitina and Galena.

g Includes six households that fished in two different permit areas.

Table 20. Salmon provided for subsistence purposes by test fish programs, Yukon Area, 1998.

Projects by Location	Primary Distribution	Chinook	Summer Chum	Fall Chum	Coho
Big Eddy Set Gillnet Sites	Emmonak	712	1,228	764	342
Middle Mouth Set Gillnet Sites	Kotlik	323	1,062	1,236	450
Mountain Village Drift Gillnet Sites	Mountain Village	8	0	664	567
Pilot Station Drift Gillnet Sites	Pilot Station	435	2,209	1,110	364
Tanana River Tag Deployment Fish Wheel	None	0	0	0	0
Rampart "Rapids" Tagging Fish Wheel	Tanana	0	147	0	0
Subtotal a		1,478	4,646	3,774	1,723
Tanana Right Bank Test Fish Wheel	Tanana	0	0	1,000	250
Tanana Left Bank Test Fish Wheel	Tanana	20	0	4,061	343
Nenana Test Fish Wheels Combined	Nenana	48	15	43	14
Subtotal b		68	15	5,104	607
Total		1,546	4,661	8,878	2,330

a Test fish given away that were not accounted for in subsistence harvest.

b Test fish given away that were accounted for in harvests reported during subsistence surveys or on permits.

Table 21. Disaster relief salmon provided to Yukon Area communities, 1998.

Community	Estimated Number of Chum Salmon Distributed by Emergency Services a	Estimated Number of Pink Salmon Distributed by Food Bank b	Estimated Number of Pink Salmon Distributed by PEPPA c
Chevak	2,956	853	
Hooper Bay	5,368		
Scammon Bay	200		
Pilot Station		450	
Kaltag			656
Huslia	1,417		3,500
Hughes	315		1,313
Allakaket/Alatna	1,103		6,344
Bettles			438
Galena			2,406
Ruby			438
Tanana			12,250
Birch Creek			d
Fort Yukon			7,656 d
Circle			656
Eagle			5,469
Venetie			d
Chalkyitsik			d
Manley			2,625
Minto			3,938
Total	11,359	1,303	47,689

a Division of Emergency Services purchased chum salmon for human consumption in Kotzebue with disaster relief funds. The fish were processed and stored in Unalakleet prior to transportation to the communities indicated.

b Food Bank of Alaska (Anchorage) arranged shipment of frozen pink salmon and cod bellies, for human consumption, from North Pacific Seafoods in Cordova. The product shipped was estimated to be 90 percent pink salmon averaging 5-6 pounds per fish.

c People for Emergency Preparedness Planning for Animals (PEPPA) of Anchorage provided pink salmon carcasses from Solomon Gulch Hatchery, roe removed, for feeding dogs. Information provided was in number of totes shipped. Estimated number of fish was based on the average weight per fish (4 pounds) and the average weight of the totes (875 pounds). Fish were allocated according to amount requested by individuals in each community. Applicants were asked, "What can you get by with?"

d Fish shipped to Fort Yukon was shared with the communities of Birch Creek, Chalkyitsik, and Venetie.

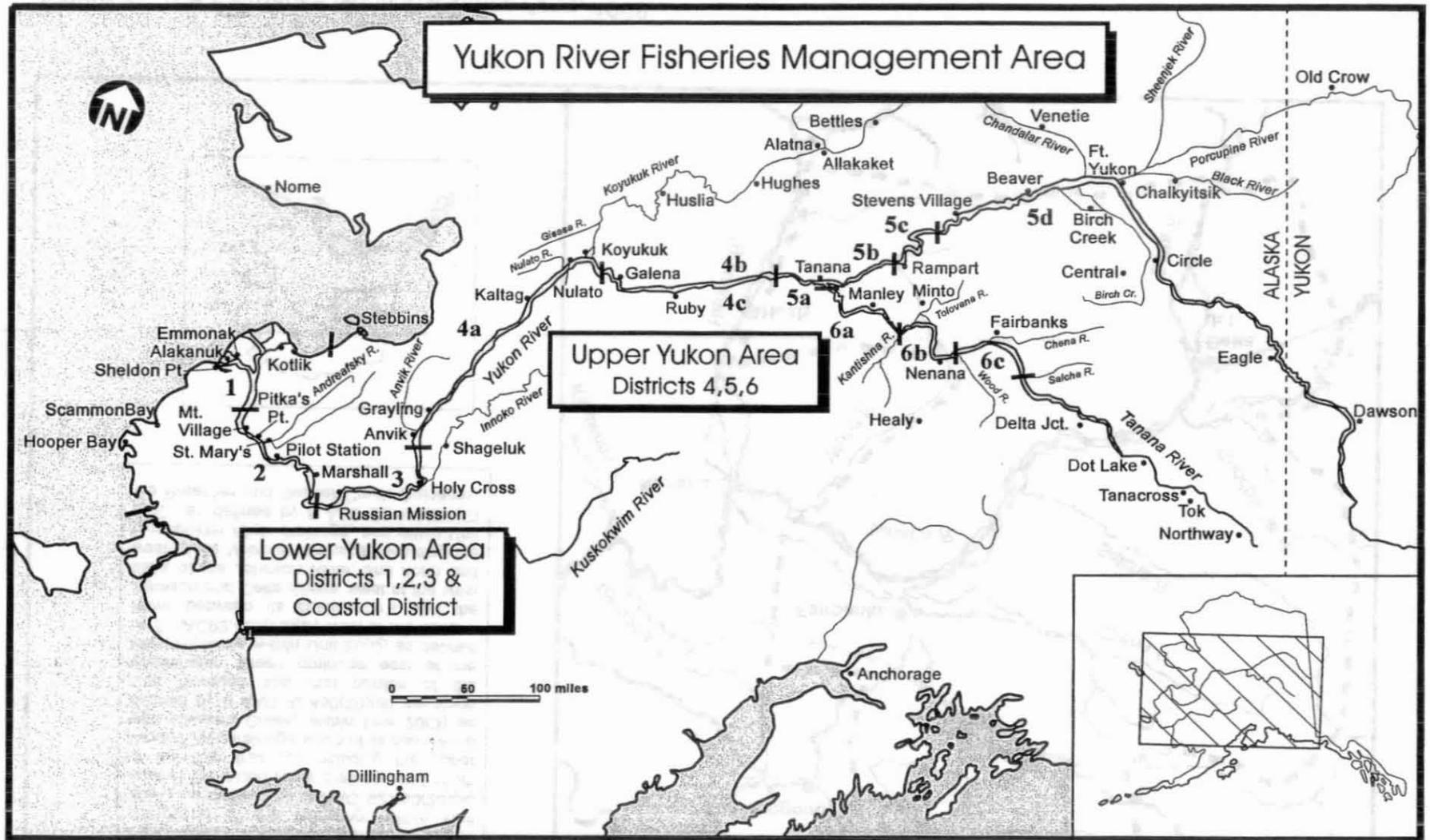


Figure 1. The Yukon Area showing communities and fishing districts, 1998.

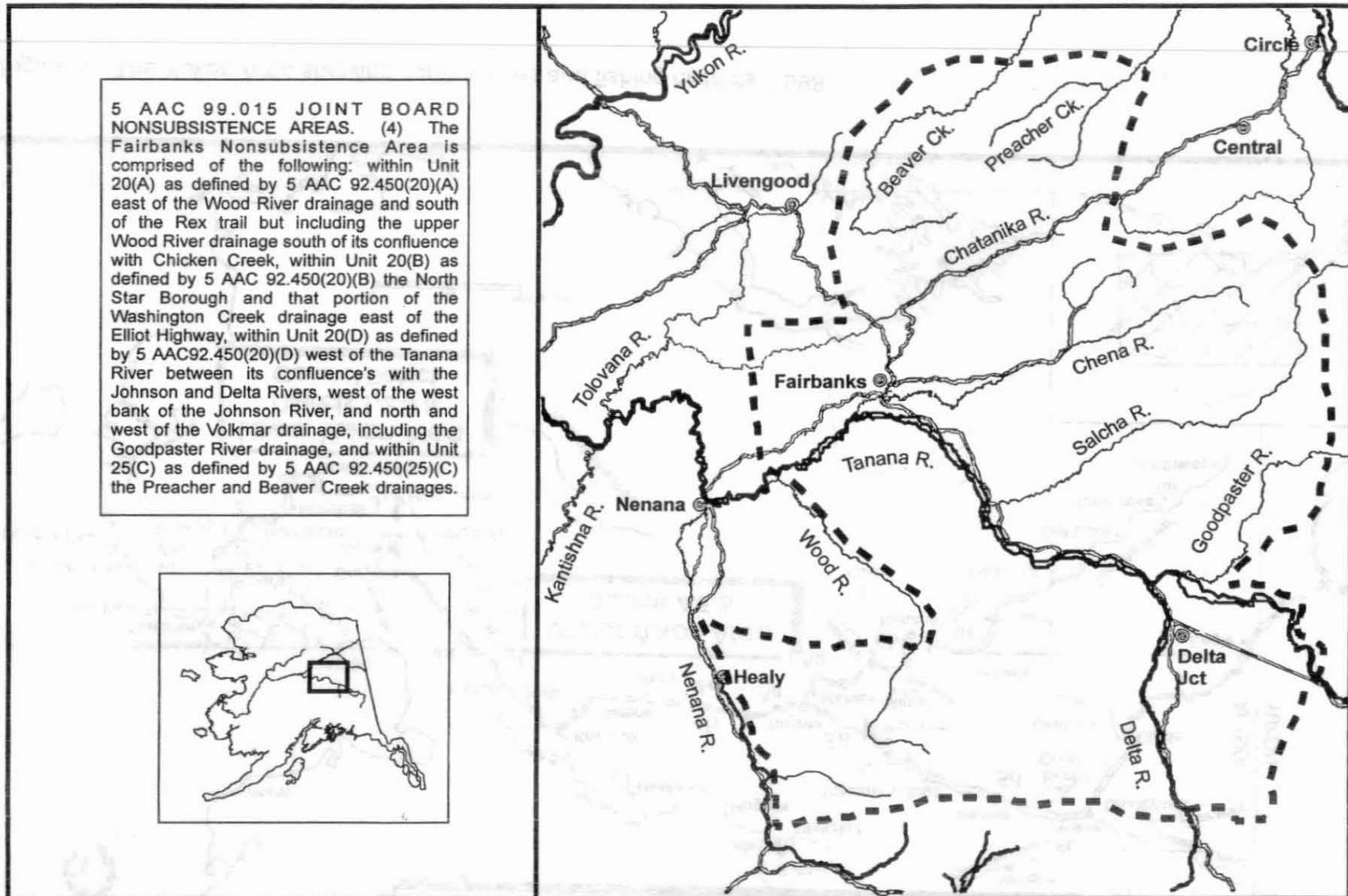
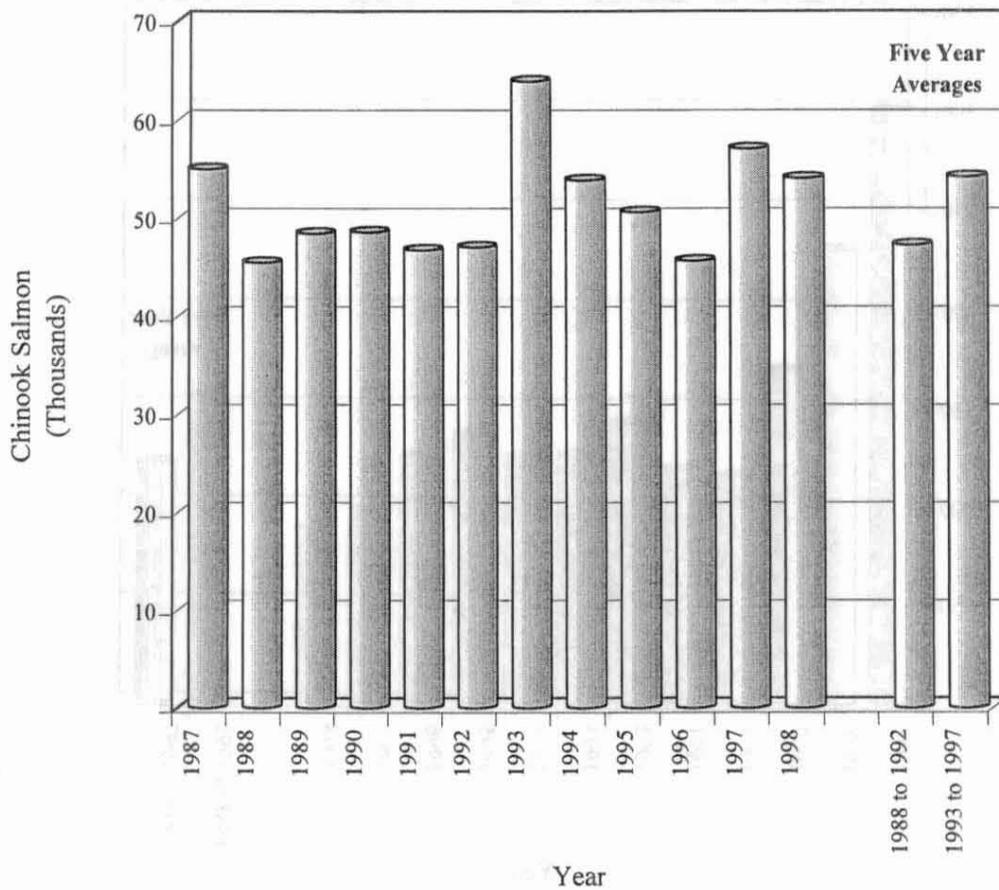


Figure 2. The Fairbanks Nonsubsistence Area, 1998.

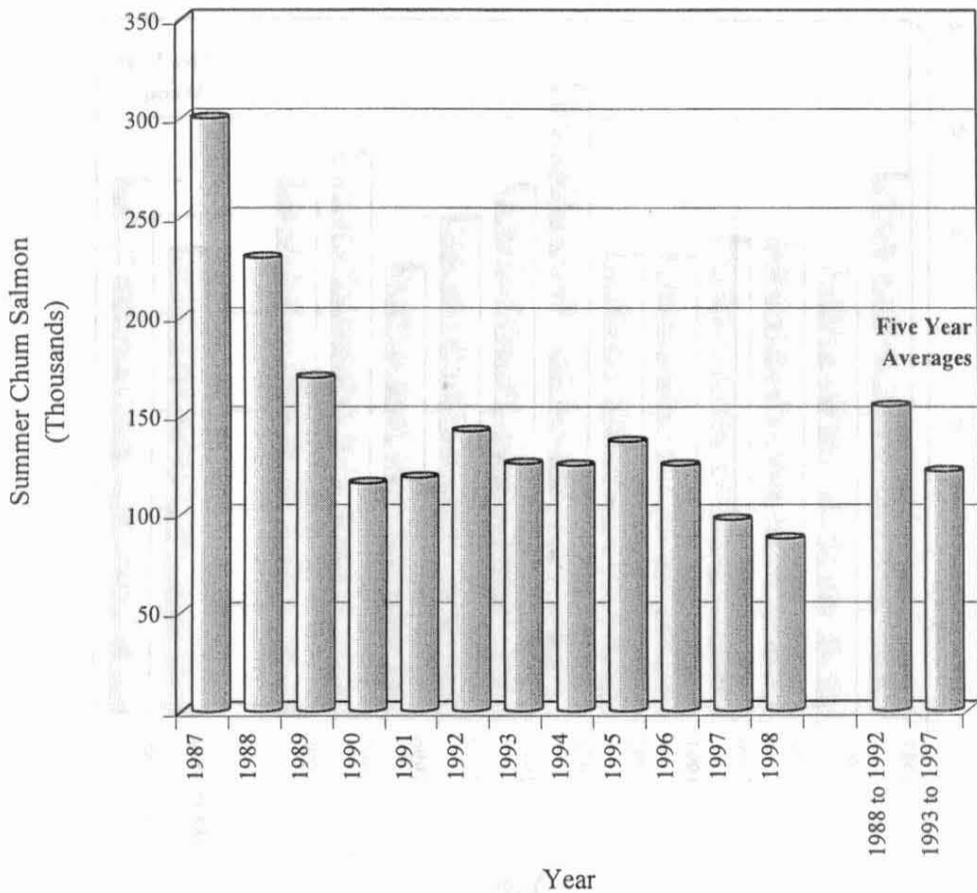
**Estimated Chinook Salmon
Subsistence Harvest Yukon Area**



Beginning in 1988, subsistence salmon harvest estimates have been generated from a stratified random sample of village households. Coastal District harvests are not included in 1990 and 1991.

Figure 3. The estimated harvest of chinook salmon in the subsistence fishery, Yukon Area, 1987 to 1998.

Estimated Summer Chum Salmon Subsistence Harvest Yukon Area

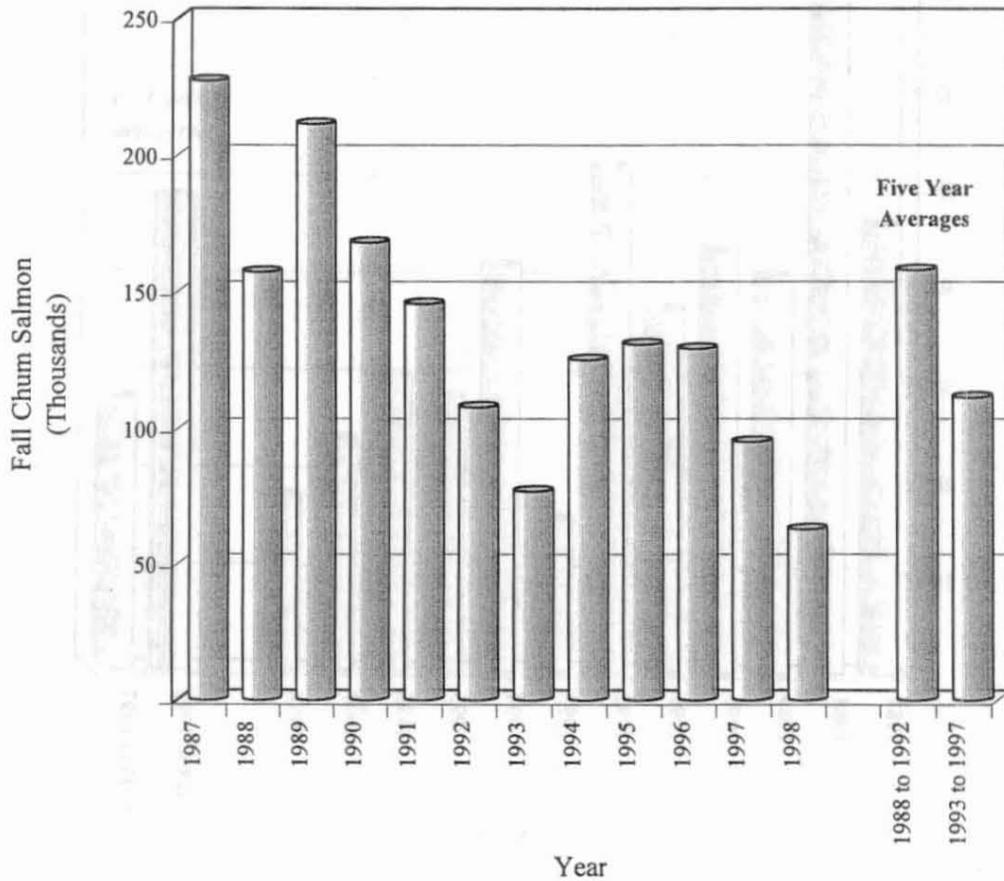


Summer chum salmon harvest estimates prior to 1988 included commercial caught summer chum salmon carcasses retained for subsistence use.

Beginning in 1988, subsistence salmon harvest estimates have been generated from a stratified random sample of village households. Coastal District harvests are not included in 1990 and 1991.

Figure 4. The estimated harvest of summer chum salmon in the subsistence fishery, Yukon Area, 1987 to 1998.

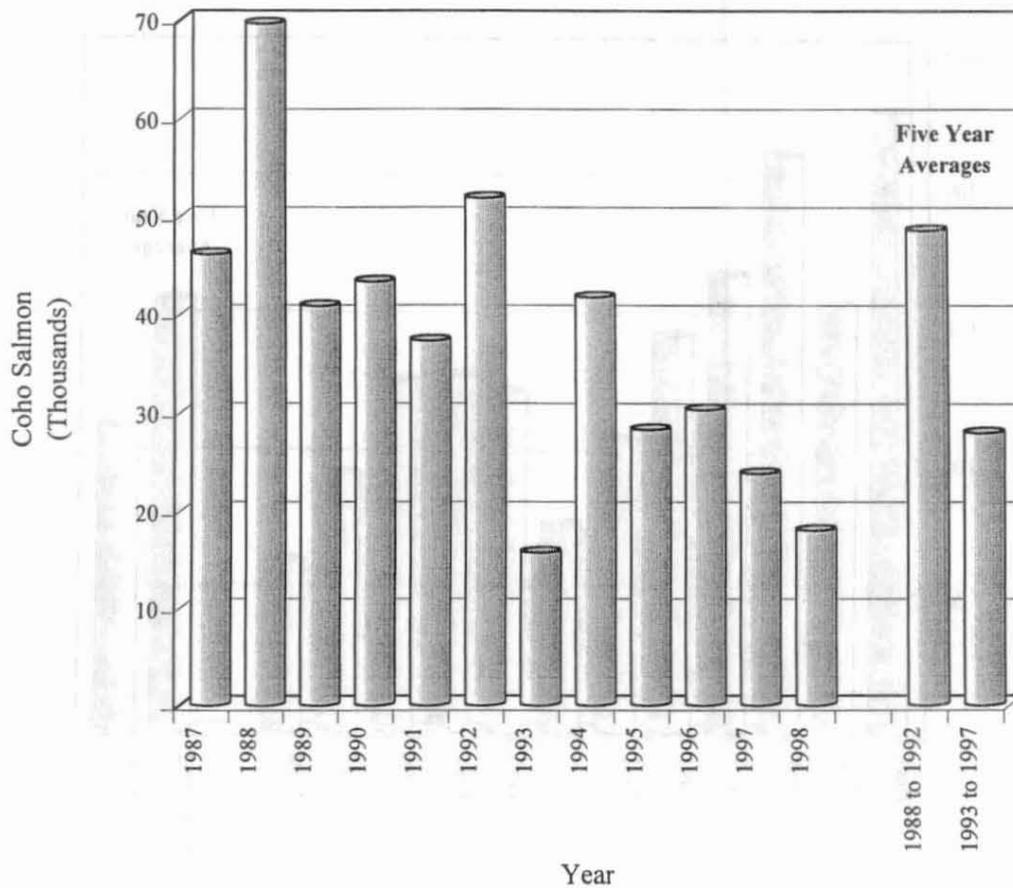
**Estimated Fall Chum Salmon
Subsistence Harvest Yukon Area**



Beginning in 1988, subsistence salmon harvest estimates have been generated from a stratified random sample of village households. Coastal District harvests are not included in 1990 and 1991.

Figure 5. The estimated harvest of fall chum salmon in the subsistence fishery, Yukon Area, 1987 to 1998.

Estimated Coho Salmon Subsistence Harvest Yukon Area



Beginning in 1988, subsistence salmon harvest estimates have been generated from a stratified random sample of village households. Coastal District harvests are not included in 1990 and 1991.

Figure 6. The estimated harvest of coho salmon in the subsistence fishery, Yukon Area, 1987 to 1998.

APPENDIX A

DETAILED YUKON RIVER SALMON HARVEST
ESTIMATES AND RELATED INFORMATION

Appendix A.1. Estimated chinook salmon subsistence harvest by residents of surveyed villages, by harvest stratum, with village and district totals, Yukon Area, 1998. a

Community	Unknown				Does Not Harvest Salmon				Light Harvester				Medium Harvester				Heavy Harvester				Combined			
	N	n	Mean	SE	N	n	Mean	SE	N	n	Mean	SE	N	n	Mean	SE	N	n	Mean	SE	Total		Est CI(95%)	
																					N	n	Total	(+/-)
Hooper Bay	2	0	-	-	88	9	0.0	0.0	92	27	0.0	0.0	13	13	0.5	0.0	1	1	0.0	0.0	196	50	13	11
Scammon Bay	5	4	3.5	0.9	24	3	0.0	0.0	51	15	7.0	1.6	1	1	0.0	0.0	0	0	-	-	81	23	378	162
Coastal District	7	4	2.5	0.7	112	12	0.0	0.0	143	42	2.6	0.5	14	14	0.4	0.0	1	1	0.0	0.0	277	73	391	162
Sheldon's Point	0	0	-	-	8	8	4.4	0.0	21	18	13.3	2.0	8	5	35.2	5.7	0	0	-	-	35	31	527	107
Alakanuk	0	0	-	-	39	5	5.2	3.8	74	21	22.1	4.9	7	6	12.7	3.0	0	0	-	-	120	32	1,930	779
Emmonak	0	0	-	-	75	21	5.0	2.1	70	32	11.3	2.4	14	9	36.6	11.2	0	0	-	-	159	62	1,684	545
Kotlik	0	0	-	-	29	3	0.0	0.0	54	14	20.8	5.1	10	7	64.0	11.7	2	2	150.0	0.0	95	26	2,066	591
District 1	0	0	-	-	151	37	4.1	1.4	219	85	17.5	2.2	37	27	39.2	5.4	2	2	150.0	0.0	409	151	6,207	1,124
Mountain Village	0	0	-	-	45	6	2.8	1.9	93	26	21.6	4.9	9	8	26.3	3.1	1	1	151.0	0.0	148	41	2,525	925
Pitkas Point	1	1	0.0	0.0	9	6	3.3	1.6	15	13	26.3	3.6	6	6	65.3	0.0	0	0	-	-	31	26	817	110
St. Mary's	0	0	-	-	37	5	10.0	9.3	62	16	21.1	5.4	14	13	55.9	2.5	3	3	72.0	0.0	116	37	2,679	949
Pilot Station	0	0	-	-	39	12	4.8	3.3	49	25	21.3	3.3	2	2	22.5	0.0	0	0	-	-	90	39	1,280	407
Marshall	0	0	-	-	16	4	0.0	0.0	42	13	36.3	9.1	4	4	46.5	0.0	0	0	-	-	62	21	1,711	750
District 2	1	1	0.0	0.0	146	33	4.9	2.6	261	93	24.1	2.7	35	33	46.9	1.3	4	4	91.8	0.0	447	164	9,012	1,580
Russian Mission	0	0	-	-	19	5	0.0	0.0	25	8	38.7	13.2	4	4	60.8	0.0	2	1	51.0	-	50	18	1,314	651
Holy Cross	0	0	-	-	20	4	0.0	0.0	39	19	50.0	15.0	5	4	139.3	12.1	0	0	-	-	64	27	2,648	1,153
Shageluk	0	0	-	-	14	8	4.9	3.2	13	8	0.0	0.0	5	5	11.4	0.0	7	5	61.0	11.8	39	26	552	185
District 3	0	0	-	-	53	17	1.3	0.8	77	35	37.9	8.7	14	13	71.2	4.3	9	6	58.8	9.0	153	71	4,514	1,337
Anvik	0	0	-	-	15	13	0.0	0.0	19	18	30.0	1.4	4	4	93.8	0.0	1	1	80.0	0.0	39	36	1,025	54
Grayling	0	0	-	-	20	4	15.0	7.8	23	7	51.5	23.9	12	12	57.6	0.0	0	0	-	-	55	23	2,177	1,122
Kaltag	0	0	-	-	12	4	5.0	4.1	33	8	47.2	8.9	5	5	50.2	0.0	1	0	-	-	51	17	1,870	586
Nulato	0	0	-	-	58	7	42.1	22.2	41	12	31.7	8.8	7	6	57.3	10.1	1	0	-	-	107	25	4,147	2,624
Koyukuk	1	0	-	-	21	2	0.0	0.0	15	6	12.5	4.3	4	3	62.7	18.3	2	2	181.0	0.0	43	13	800	192
Galena	0	0	-	-	126	17	0.6	0.6	64	17	15.0	6.0	10	9	40.9	2.5	3	3	75.0	0.0	203	46	1,668	767
Ruby	1	0	-	-	58	8	0.0	0.0	20	3	166.6	153.6	1	0	-	-	4	3	139.3	20.3	84	14	3,891	6,026
Hustlia	1	0	-	-	60	6	0.0	0.0	16	7	0.2	0.2	6	5	3.0	0.8	1	1	0.0	0.0	84	19	23	11
Hughes	0	0	-	-	17	17	3.6	0.0	6	6	1.1	0.0	2	2	9.0	0.0	1	1	5.0	0.0	26	26	91	0
Allakaket	0	0	-	-	37	8	1.3	1.1	16	6	0.0	0.0	5	5	0.6	0.0	3	3	12.0	0.0	61	22	85	80
Alatna	0	0	-	-	10	10	0.0	0.0	2	1	0.0	-	1	1	4.0	0.0	0	0	-	-	13	12	4	0
Bettles	0	0	-	-	24	19	0.4	0.2	2	2	0.0	0.0	1	1	10.0	0.0	0	0	-	-	27	22	20	9
District 4	3	0	0.0	0.0	458	115	6.5	2.8	257	93	35.4	12.3	58	53	41.9	1.8	17	14	74.4	5.0	793	275	15,801	6,740
Tanana	1	0	-	-	85	16	25.0	13.0	22	11	5.5	2.5	7	6	14.5	4.6	13	13	220.2	0.0	128	46	5,212	2,170
Rampart	0	0	-	-	10	8	0.0	0.0	2	2	0.0	0.0	12	12	73.8	0.0	1	0	-	-	25	22	885	0
Stevens Village	1	1	0.0	0.0	17	13	5.2	2.0	11	9	47.8	5.6	5	4	62.8	13.3	2	2	152.0	0.0	36	29	1,232	190
Birch Creek	0	0	-	-	10	9	0.0	0.0	3	3	16.0	0.0	1	0	-	-	0	0	-	-	14	12	48	0
Beaver	0	0	-	-	16	15	2.5	0.5	10	10	11.7	0.0	6	5	52.2	14.2	0	0	-	-	32	30	470	167
Fort Yukon	0	0	-	-	123	9	1.2	0.8	49	13	4.3	1.8	19	19	70.3	0.0	1	1	75.0	0.0	192	42	1,771	255
Venetie	0	0	-	-	40	5	0.0	0.0	7	4	15.0	9.8	5	4	12.5	5.6	3	3	0.0	0.0	55	16	168	145
Chalkyitsik	0	0	-	-	30	28	0.4	0.1	1	1	0.0	0.0	4	2	0.0	0.0	0	0	-	-	35	31	11	5
District 5	2	1	0.0	0.0	331	103	7.3	3.4	105	53	10.8	1.3	59	52	51.0	2.0	20	19	162.1	0.0	517	228	9,797	2,204
Survey Totals	13	6	1.3	0.4	1,251	317	5.4	1.4	1,062	401	22.3	3.1	217	192	44.0	1.2	53	46	107.8	2.1	2,596	962	45,722	7,474

a The total number of households (N), the number of households contacted (n), standard error (SE), and includes 95 percent confidence interval, CI (95%). Dashes indicate indefinable values.

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Appendix A.2. Estimated summer chum salmon subsistence harvest by residents of surveyed villages, by harvest stratum, with village and district totals, Yukon Area, 1998. a

Community	Combined																				Total	N	n	Est	CI(95%) (+/-)
	Unknown				Does Not Harvest Salmon				Light Harvester				Medium Harvester				Heavy Harvester								
	N	n	Mean	SE	N	n	Mean	SE	N	n	Mean	SE	N	n	Mean	SE	N	n	Mean	SE					
Hooper Bay	2	0	-	-	88	9	0.0	0.0	92	27	2.5	1.0	13	13	2.1	0.0	1	1	2.0	0.0	196	50	261	184	
Scammon Bay	5	4	8.0	2.3	24	3	0.0	0.0	51	15	20.8	3.2	1	1	0.0	0.0	0	0	-	-	81	23	1,101	326	
Coastal District	7	4	5.7	1.7	112	12	0.0	0.0	143	42	9.0	1.3	14	14	1.9	0.0	1	1	2.0	0.0	277	73	1,362	375	
Sheldon's Point	0	0	-	-	8	6	1.4	0.0	21	18	73.0	8.9	6	5	54.4	5.5	0	0	-	-	35	31	1,872	375	
Alakanuk	0	0	-	-	39	5	8.4	6.7	74	21	63.0	14.1	7	6	92.3	16.5	0	0	-	-	120	32	5,643	2,124	
Emmonak	0	0	-	-	75	21	13.0	5.6	70	32	62.8	14.8	14	9	210.9	31.6	0	0	-	-	159	62	8,330	2,365	
Kotlik	0	0	-	-	29	3	0.0	0.0	54	14	103.2	22.3	10	7	277.6	32.5	2	2	200.0	0.0	95	26	8,753	2,452	
District 1	0	0	-	-	151	37	8.7	3.3	219	85	73.9	8.7	37	27	181.1	15.2	2	2	200.0	0.0	409	151	24,598	4,032	
Mountain Village	0	0	-	-	45	6	19.5	13.9	93	26	74.3	14.3	9	8	151.6	10.0	1	1	443.0	0.0	148	41	9,596	2,899	
Pitkas Point	1	1	0.0	0.0	9	6	1.5	0.6	15	13	39.6	4.6	6	6	115.5	0.0	0	0	-	-	31	26	1,302	137	
St. Mary's	0	0	-	-	37	5	9.0	8.4	62	16	77.0	16.0	14	13	192.8	5.8	3	3	413.7	0.0	116	37	9,047	2,049	
Pilot Station	0	0	-	-	39	12	12.2	6.9	49	25	42.0	8.3	2	2	150.0	0.0	0	0	-	-	90	39	2,833	961	
Marshall	0	0	-	-	16	4	0.0	0.0	42	13	22.6	6.7	4	4	85.0	0.0	0	0	-	-	62	21	1,293	556	
District 2	1	1	0.0	0.0	146	33	11.6	5.1	261	93	58.6	6.6	35	33	154.2	3.4	4	4	421.0	0.0	447	164	24,071	3,722	
Russian Mission	0	0	-	-	19	5	0.0	0.0	25	8	16.2	6.4	4	4	26.5	0.0	2	1	95.0	-	50	18	702	317	
Holy Cross	0	0	-	-	20	4	0.0	0.0	39	19	4.3	1.7	5	4	19.8	4.8	0	0	-	-	64	27	269	141	
Shageluk	0	0	-	-	14	8	0.0	0.0	13	8	28.1	15.3	5	5	165.2	0.0	7	5	615.6	156.3	39	26	5,501	2,181	
District 3	0	0	-	-	53	17	0.0	0.0	77	35	12.2	3.4	14	13	73.6	1.7	9	6	499.9	122.0	153	71	6,472	2,208	
Anvik	0	0	-	-	15	13	0.0	0.0	19	18	45.6	10.1	4	4	317.8	0.0	1	1	0.0	0.0	39	36	2,139	379	
Grayling	0	0	-	-	20	4	83.5	43.1	23	7	63.8	35.0	12	12	74.4	0.0	0	0	-	-	55	23	4,032	2,314	
Kallag	0	0	-	-	12	4	0.0	0.0	33	8	4.3	1.7	5	5	6.2	0.0	1	0	-	-	51	17	175	116	
Nulato	0	0	-	-	58	7	26.7	14.6	41	12	5.3	1.7	7	6	250.0	94.5	1	0	-	-	107	25	3,518	2,111	
Koyukuk	1	0	-	-	21	2	0.0	0.0	15	6	26.1	18.4	4	3	153.3	76.7	2	2	406.5	0.0	43	13	1,819	810	
Galena	0	0	-	-	126	17	0.0	0.0	64	17	20.8	15.0	10	9	10.8	2.2	3	3	297.7	0.0	203	46	2,333	1,885	
Ruby	1	0	-	-	58	8	0.0	0.0	20	3	33.3	30.7	1	0	-	-	4	3	396.0	53.9	84	14	2,251	1,277	
Huslia	1	0	-	-	60	6	0.0	0.0	16	7	8.5	6.4	6	5	52.0	20.2	1	1	0.0	0.0	84	19	449	312	
Hughes	0	0	-	-	17	17	1.2	0.0	6	6	6.6	0.0	2	2	62.0	0.0	1	1	150.0	0.0	26	26	334	0	
Allakaket	0	0	-	-	37	8	3.8	3.3	16	6	0.6	0.5	5	5	46.0	0.0	3	3	174.0	0.0	61	22	901	241	
Alatna	0	0	-	-	10	10	0.1	0.0	2	2	1.0	0.0	1	1	10.0	0.0	0	0	-	-	13	13	13	0	
Bettles	0	0	-	-	24	19	1.3	0.6	2	2	0.0	0.0	1	1	50.0	0.0	0	0	-	-	27	22	82	28	
District 4	3	0	0.0	0.0	458	115	7.4	2.7	257	94	20.5	5.6	58	53	93.0	12.8	17	14	233.1	13.0	793	276	18,046	3,996	
Tanana	1	0	-	-	85	16	0.3	0.2	22	11	1.8	0.8	7	6	0.0	0.0	13	13	135.2	0.0	128	46	1,819	53	
Rampart	0	0	-	-	10	8	0.0	0.0	2	2	0.0	0.0	12	12	1.6	0.0	1	0	-	-	25	22	19	0	
Stevens Village	1	1	0.0	0.0	17	12	0.3	0.1	11	9	0.5	0.1	5	4	11.5	5.0	2	2	51.5	0.0	36	28	171	49	
Birch Creek	0	0	-	-	10	9	0.0	0.0	3	3	0.0	0.0	1	0	-	-	0	0	-	-	14	12	0	0	
Beaver	0	0	-	-	16	15	0.0	0.0	10	10	0.1	0.0	6	5	2.4	0.6	0	0	-	-	32	30	15	7	
Fort Yukon	0	0	-	-	123	9	0.0	0.0	49	13	0.0	0.0	19	19	1.6	0.0	1	1	0.0	0.0	192	42	30	0	
Venetie	0	0	-	-	40	5	0.0	0.0	7	4	0.0	0.0	5	4	0.0	0.0	3	3	0.0	0.0	55	16	0	0	
Chalkyitsik	0	0	-	-	30	28	0.0	0.0	1	1	0.0	0.0	4	3	0.0	0.0	0	0	-	-	35	32	0	0	
District 5	2	1	0.0	0.0	331	102	0.1	0.1	105	53	0.4	0.1	59	53	2.0	0.4	20	19	93.1	0.0	517	228	2,054	73	
Survey Totals	13	6	3.1	0.9	1,251	316	5.2	1.2	1,062	402	36.8	2.8	217	193	86.0	4.3	53	46	234.1	21.0	2,596	963	76,603	7,148	

a The total number of households (N), the number of households contacted (n), standard error (SE), and includes 95 percent confidence interval, CI (95%). Dashes indicate indefinable values.

Appendix A.3. Estimated fall chum salmon subsistence harvest by residents of surveyed villages, by harvest stratum, with village and district totals, Yukon Area, 1998. a

Community	Combined																				Total N	n	Est Total	CI(95%) (+/-)
	Unknown				Does Not Harvest Salmon				Light Harvester				Medium Harvester				Heavy Harvester							
	N	n	Mean	SE	N	n	Mean	SE	N	n	Mean	SE	N	n	Mean	SE	N	n	Mean	SE				
Hooper Bay	2	0	-	-	88	9	0.0	0.0	92	27	0.0	0.0	13	13	0.0	0.0	1	1	0.0	0.0	196	50	0	0
Scammon Bay	5	4	0.0	0.0	24	3	0.0	0.0	51	15	0.6	0.5	1	1	0.0	0.0	0	0	-	-	81	23	34	56
Coastal District	7	4	0.0	0.0	112	12	0.0	0.0	143	42	0.2	0.2	14	14	0.0	0.0	1	1	0.0	0.0	277	73	34	56
Sheldon's Point	0	0	-	-	8	8	0.0	0.0	21	19	7.4	1.6	6	6	18.3	0.0	0	0	-	-	35	33	266	67
Alakanuk	0	0	-	-	39	5	0.0	0.0	74	21	8.3	4.0	7	6	6.3	2.4	0	0	-	-	120	32	665	590
Emmonak	0	0	-	-	75	21	0.6	0.5	70	32	0.7	0.4	14	9	0.1	0.1	0	0	-	-	159	62	103	101
Kotlik	0	0	-	-	29	3	0.0	0.0	54	14	1.0	0.9	10	7	2.1	1.2	2	2	25.0	0.0	95	26	129	100
District 1	0	0	-	-	151	37	0.3	0.3	219	86	4.1	1.4	37	28	4.8	0.6	2	2	25.0	0.0	409	153	1,163	610
Mountain Village	0	0	-	-	45	6	0.0	0.0	93	26	14.2	6.3	9	8	1.3	0.4	1	1	32.0	0.0	148	41	1,367	1,160
Pitkas Point	1	1	0.0	0.0	9	6	0.0	0.0	15	13	9.3	1.8	6	6	15.5	0.0	0	0	-	-	31	26	233	54
St. Mary's	0	0	-	-	37	5	1.0	0.9	62	16	1.6	0.9	14	13	5.6	0.8	3	3	66.7	0.0	116	37	416	138
Pilot Station	0	0	-	-	39	12	0.1	0.1	49	25	1.0	0.5	2	2	0.0	0.0	0	0	-	-	90	39	52	55
Marshall	0	0	-	-	16	4	0.0	0.0	42	13	10.1	6.9	4	4	53.5	0.0	0	0	-	-	62	21	640	575
District 2	1	1	0.0	0.0	146	33	0.3	0.2	261	93	7.8	2.5	35	33	11.3	0.4	4	4	58.0	0.0	447	164	2,708	1,304
Russian Mission	0	0	-	-	19	5	0.0	0.0	25	8	4.7	3.2	4	4	0.0	0.0	2	1	9.0	-	50	18	137	160
Holy Cross	0	0	-	-	20	4	0.0	0.0	39	19	17.7	7.0	5	4	80.8	14.4	0	0	-	-	64	27	1,095	553
Shageluk	0	0	-	-	14	8	0.0	0.0	13	8	13.2	7.7	5	5	18.0	0.0	7	5	9.6	3.2	39	26	329	201
District 3	0	0	-	-	53	17	0.0	0.0	77	35	12.8	3.9	14	13	35.3	5.1	9	6	9.5	2.0	153	71	1,561	610
Anvik	0	0	-	-	15	13	0.0	0.0	19	18	3.8	0.6	4	4	78.8	0.0	1	1	0.0	0.0	39	36	388	24
Grayling	0	0	-	-	20	4	10.0	6.3	23	7	5.7	4.7	12	12	26.4	0.0	0	0	-	-	55	23	648	328
Kaltag	0	0	-	-	12	4	0.0	0.0	33	8	13.2	7.5	5	5	12.4	0.0	1	0	-	-	51	17	499	489
Nulato	0	0	-	-	58	7	0.0	0.0	41	12	8.6	3.4	7	6	1.7	0.6	1	0	-	-	107	25	367	277
Koyukuk	1	0	-	-	21	2	0.0	0.0	15	6	17.3	9.5	4	3	132.3	66.2	2	2	397.0	0.0	43	13	1,583	590
Galena	0	0	-	-	126	17	0.6	0.6	64	17	2.4	2.0	10	9	22.0	5.9	3	3	489.0	0.0	203	46	1,915	314
Ruby	1	0	-	-	58	8	0.0	0.0	20	3	104.0	56.4	1	0	-	-	4	3	86.7	41.1	84	14	2,427	2,236
Huslia	1	0	-	-	60	6	0.0	0.0	16	7	0.0	0.0	6	5	0.0	0.0	1	1	0.0	0.0	84	19	0	0
Hughes	0	0	-	-	17	17	0.0	0.0	6	6	0.0	0.0	2	2	0.0	0.0	1	1	60.0	0.0	26	26	60	0
Allakaket	0	0	-	-	37	8	0.0	0.0	16	6	0.1	0.1	5	5	0.0	0.0	3	3	2.7	0.0	61	22	11	4
Alatna	0	0	-	-	10	10	0.0	0.0	2	1	0.0	-	1	1	0.0	0.0	0	0	-	-	13	12	0	0
Bettles	0	0	-	-	24	19	0.0	0.0	2	2	0.0	0.0	1	1	0.0	0.0	0	0	-	-	27	22	0	0
District 4	3	0	0.0	0.0	458	115	0.6	0.3	257	93	13.6	4.6	58	53	25.1	4.7	17	14	157.4	10.0	793	275	7,898	2,423
Tanana	1	0	-	-	85	16	0.0	0.0	22	11	6.3	2.9	7	6	257.5	78.4	13	13	1770.2	0.0	128	46	24,956	1,083
Rampart	0	0	-	-	10	8	0.0	0.0	2	2	0.0	0.0	12	12	8.3	0.0	1	0	-	-	25	22	100	0
Stevens Village	1	1	0.0	0.0	17	12	27.2	14.7	11	9	1.1	0.4	5	4	15.0	6.7	2	2	263.5	0.0	36	28	1,076	495
Birch Creek	0	0	-	-	10	9	0.0	0.0	3	3	0.0	0.0	1	0	-	-	0	0	-	-	14	12	0	0
Beaver	0	0	-	-	16	15	0.0	0.0	10	10	40.9	0.0	6	5	0.0	0.0	0	0	-	-	32	30	409	0
Fort Yukon	0	0	-	-	123	9	0.0	0.0	49	13	8.8	6.5	19	19	133.0	0.0	1	1	75.0	0.0	192	42	3,035	632
Venetie	0	0	-	-	40	5	6.0	5.6	7	4	0.0	0.0	5	4	75.0	14.4	3	3	14.3	0.0	55	16	658	462
Chalkyitsik	0	0	-	-	30	28	0.0	0.0	1	1	52.0	0.0	4	3	95.3	23.9	0	0	-	-	35	32	433	188
District 5	2	1	0.0	0.0	331	102	2.1	1.0	105	53	10.0	3.1	59	53	89.2	9.5	20	19	1182.9	0.0	517	228	30,667	1,438
Survey Totals	13	6	0.0	0.0	1,251	316	0.8	0.3	1,062	402	8.0	1.3	217	194	35.9	2.9	53	46	503.8	3.1	2,596	964	44,031	3,223

a The total number of households (N), the number of households contacted (n), standard error (SE), and includes 95 percent confidence interval, CI (95%). Dashes indicate indefinable values.

Appendix A.4. Estimated coho salmon subsistence harvest by residents of surveyed villages, by harvest stratum, with village and district totals, Yukon Area, 1998. a

Community	Unknown				Does Not Harvest Salmon				Light Harvester				Medium Harvester				Heavy Harvester				Combined			
	N	n	Mean	SE	N	n	Mean	SE	N	n	Mean	SE	N	n	Mean	SE	N	n	Mean	SE	Total		Est	CI(95%)
																					N	n		
Hooper Bay	2	0	-	-	88	9	0.0	0.0	92	27	1.0	0.7	13	13	3.8	0.0	1	1	0.0	0.0	196	50	145	140
Scammon Bay	5	4	0.0	0.0	24	3	0.0	0.0	51	15	4.0	3.3	1	1	0.0	0.0	0	0	-	-	81	23	204	336
Coastal District	7	4	0.0	0.0	112	12	0.0	0.0	143	42	2.1	1.3	14	14	3.6	0.0	1	1	0.0	0.0	277	73	349	364
Sheldon's Point	0	0	-	-	8	8	0.0	0.0	21	19	6.5	1.0	6	6	15.3	0.0	0	0	-	-	35	33	229	42
Alakanuk	0	0	-	-	39	5	0.0	0.0	74	21	3.4	1.3	7	6	5.5	1.4	0	0	-	-	120	32	292	199
Emmonak	0	0	-	-	75	21	3.7	2.3	70	32	0.8	0.4	14	9	1.4	0.7	0	0	-	-	159	62	354	337
Kotlik	0	0	-	-	29	3	0.0	0.0	54	14	8.1	4.5	10	7	1.4	0.8	2	2	25.0	0.0	95	26	504	487
District 1	0	0	-	-	151	37	1.8	1.1	219	86	4.1	1.2	37	28	4.5	0.4	2	2	25.0	0.0	409	153	1,379	626
Mountain Village	0	0	-	-	45	6	0.0	0.0	93	26	3.1	1.6	9	8	6.3	2.1	1	1	34.0	0.0	148	41	387	294
Pitkas Point	1	1	0.0	0.0	9	6	0.0	0.0	15	13	13.4	3.0	6	6	17.2	0.0	0	0	-	-	31	26	305	89
St. Mary's	0	0	-	-	37	5	0.0	0.0	62	16	2.0	1.2	14	13	11.8	2.0	3	3	0.0	0.0	116	37	290	158
Pilot Station	0	0	-	-	39	12	0.0	0.0	49	25	1.0	0.5	2	2	0.0	0.0	0	0	-	-	90	39	49	55
Marshall	0	0	-	-	16	4	0.0	0.0	42	13	6.0	2.8	4	4	20.8	0.0	0	0	-	-	62	21	335	237
District 2	1	1	0.0	0.0	146	33	0.0	0.0	261	93	3.5	0.8	35	33	11.7	1.0	4	4	8.5	0.0	447	164	1,366	422
Russian Mission	0	0	-	-	19	5	0.0	0.0	25	8	1.2	1.0	4	4	37.5	0.0	2	1	26.0	-	50	18	233	51
Holy Cross	0	0	-	-	20	4	0.0	0.0	39	19	2.2	1.0	5	4	2.8	0.7	0	0	-	-	64	27	100	79
Shageluk	0	0	-	-	14	8	0.0	0.0	13	8	0.0	0.0	5	5	5.0	0.0	7	5	6.0	1.9	39	26	67	27
District 3	0	0	-	-	53	17	0.0	0.0	77	35	1.5	0.6	14	13	13.5	0.3	9	6	10.4	2.0	153	71	400	98
Anvik	0	0	-	-	15	13	0.0	0.0	19	18	0.0	0.0	4	4	5.0	0.0	1	1	0.0	0.0	39	36	20	0
Grayling	0	0	-	-	20	4	1.3	1.1	23	7	0.0	0.0	12	12	9.0	0.0	0	0	-	-	55	23	133	44
Kaltag	0	0	-	-	12	4	0.0	0.0	33	8	0.0	0.0	5	5	14.2	0.0	1	0	-	-	51	17	71	0
Nulato	0	0	-	-	58	7	0.0	0.0	41	12	0.8	0.4	7	6	0.0	0.0	1	0	-	-	107	25	34	36
Koyukuk	1	0	-	-	21	2	0.0	0.0	15	8	0.5	0.3	4	3	0.0	0.0	2	2	206.5	0.0	43	13	421	11
Gatena	0	0	-	-	126	17	0.3	0.3	64	17	1.4	1.2	10	9	5.0	1.1	3	3	47.0	0.0	203	46	322	173
Ruby	1	0	-	-	58	8	0.0	0.0	20	3	38.0	28.8	1	0	-	-	4	3	174.7	86.8	84	14	1,459	1,319
Hustla	1	0	-	-	60	6	0.0	0.0	16	7	8.0	4.2	6	5	0.0	0.0	1	1	0.0	0.0	84	19	128	134
Hughes	0	0	-	-	17	17	0.0	0.0	6	6	0.8	0.0	2	2	0.0	0.0	1	1	0.0	0.0	26	26	5	0
Allakaket	0	0	-	-	37	8	0.0	0.0	16	6	0.0	0.0	5	5	0.0	0.0	3	3	0.0	0.0	61	22	0	0
Alatna	0	0	-	-	10	10	0.0	0.0	2	1	0.0	-	1	1	0.0	0.0	0	0	-	-	13	12	0	0
Bettles	0	0	-	-	24	19	0.0	0.0	2	2	0.0	0.0	1	1	0.0	0.0	0	0	-	-	27	22	0	0
District 4	3	0	0.0	0.0	458	115	0.1	0.1	257	93	4.0	2.2	58	53	4.3	0.2	17	14	73.7	20.0	793	275	2,593	1,338
Tanana	1	0	-	-	85	16	0.0	0.0	22	11	0.0	0.0	7	6	113.0	28.2	13	13	137.0	0.0	128	46	2,572	386
Rampart	0	0	-	-	10	8	0.0	0.0	2	2	0.0	0.0	12	12	1.7	0.0	1	0	-	-	25	22	20	0
Stevens Village	1	1	0.0	0.0	17	12	2.1	1.1	11	9	0.0	0.0	5	4	0.5	0.2	2	2	12.5	0.0	36	28	63	38
Birch Creek	0	0	-	-	10	9	0.0	0.0	3	3	0.0	0.0	1	0	-	-	0	0	-	-	14	12	0	0
Beaver	0	0	-	-	16	15	0.0	0.0	10	10	0.0	0.0	6	5	0.0	0.0	0	0	-	-	32	30	0	0
Fort Yukon	0	0	-	-	123	9	0.0	0.0	49	13	0.0	0.0	19	18	1.8	0.3	1	1	1.0	0.0	192	41	39	14
Venetie	0	0	-	-	40	5	0.0	0.0	7	4	0.0	0.0	5	4	0.0	0.0	3	3	0.0	0.0	55	16	0	0
Chalkyitsik	0	0	-	-	30	28	0.0	0.0	1	1	0.0	0.0	4	2	0.0	0.0	0	0	-	-	35	31	0	0
District 5	2	1	0.0	0.0	331	102	0.1	0.1	105	53	0.0	0.0	59	51	14.4	3.3	20	19	90.4	0.0	517	226	2,694	388
Survey Totals	13	6	0.0	0.0	1,251	316	0.3	0.1	1,062	402	3.1	0.6	217	192	8.8	0.9	53	46	61.1	6.5	2,596	962	8,781	1,629

a The total number of households (N), the number of households contacted (n), standard error (SE), and includes 95 percent confidence interval, CI (95%). Dashes indicate indefinable values.

Appendix A.5. Estimated chinook salmon subsistence use by residents of surveyed villages, by harvest stratum, with village and district totals, Yukon Area, 1998. a

Community	Unknown				Does Not Harvest Salmon				Light Harvester				Medium Harvester				Heavy Harvester				Combined			
	N	n	Mean	SE	N	n	Mean	SE	N	n	Mean	SE	N	n	Mean	SE	N	n	Mean	SE	Total		Est CI(95%)	
																					N	n	Total	(+/-)
Hooper Bay	2	0	-	-	88	8	0.0	0.0	92	27	0.0	0.0	13	13	0.5	0.0	1	1	0.0	0.0	196	49	9	6
Scammon Bay	5	4	4.0	0.8	24	3	0.0	0.0	51	15	6.2	1.6	1	1	3.0	0.0	0	0	-	-	81	23	343	163
Coastal District	7	4	2.9	0.6	112	11	0.0	0.0	143	42	2.3	0.5	14	14	0.6	0.0	1	1	0.0	0.0	277	72	352	163
Sheldon's Point	0	0	-	-	8	7	8.6	1.8	21	18	13.1	1.8	6	5	34.8	4.9	0	0	-	-	35	30	554	98
Alakanuk	0	0	-	-	39	4	7.0	4.5	74	20	21.0	4.9	7	6	15.2	2.9	0	0	-	-	120	30	1,937	795
Ermonak	0	0	-	-	75	21	4.3	1.3	70	32	9.8	1.6	14	9	15.6	3.1	0	0	-	-	159	62	1,226	303
Kotlik	0	0	-	-	29	3	1.0	1.0	54	13	22.6	6.1	10	7	65.0	11.1	2	2	150.0	0.0	95	25	2,200	689
District 1	0	0	-	-	151	35	4.6	1.4	219	83	17.1	2.3	37	27	32.0	3.4	2	2	150.0	0.0	409	147	5,917	1,099
Mountain Village	0	0	-	-	45	5	2.2	1.3	93	25	17.4	4.8	9	8	25.5	3.1	1	1	140.0	0.0	148	39	2,087	894
Pitkas Point	1	1	0.0	0.0	9	6	0.5	0.3	15	13	25.0	3.6	6	6	38.7	0.0	0	0	-	-	31	26	612	106
St. Mary's	0	0	-	-	37	4	12.0	10.4	62	16	25.8	5.0	14	13	42.3	1.6	3	3	71.3	0.0	116	36	2,855	976
Pilot Station	0	0	-	-	39	12	9.2	4.1	49	25	23.6	3.5	2	2	19.0	0.0	0	0	-	-	90	39	1,554	458
Marshall	0	0	-	-	16	4	17.5	6.5	42	13	27.4	7.7	4	4	27.5	0.0	0	0	-	-	62	21	1,543	671
District 2	1	1	0.0	0.0	146	31	8.1	3.0	261	92	22.6	2.5	35	33	34.3	1.0	4	4	88.5	0.0	447	161	8,650	1,557
Russian Mission	0	0	-	-	19	5	5.6	2.3	25	8	47.3	9.7	4	4	50.8	0.0	2	1	21.0	-	50	18	1,536	484
Holy Cross	0	0	-	-	20	3	6.7	2.5	39	18	42.5	6.2	5	4	128.3	15.1	0	0	-	-	64	25	2,434	512
Shageluk	0	0	-	-	14	8	2.8	1.2	13	7	0.7	0.3	5	5	11.4	0.0	7	5	61.0	11.8	39	25	532	166
District 3	0	0	-	-	53	16	5.2	1.3	77	33	37.1	4.4	14	13	64.4	5.4	9	6	52.1	9.0	153	68	4,502	724
Anvik	0	0	-	-	15	10	2.8	0.7	19	16	23.5	2.1	4	4	90.0	0.0	1	1	76.0	0.0	39	31	926	84
Grayling	0	0	-	-	20	4	24.0	7.3	23	7	49.4	22.7	12	11	36.6	3.7	0	0	-	-	55	22	2,056	1,068
Kalltag	0	0	-	-	12	4	0.0	0.0	33	8	42.8	9.7	5	5	42.2	0.0	1	0	-	-	51	17	1,626	633
Nulato	0	0	-	-	58	7	24.0	10.1	41	12	23.3	4.3	7	6	25.3	2.4	1	0	-	-	107	25	2,526	1,201
Koyukuk	1	0	-	-	21	1	0.0	-	15	6	10.5	3.8	4	3	35.0	15.1	2	2	93.5	0.0	43	12	485	164
Galena	0	0	-	-	126	17	1.1	0.6	64	17	7.3	2.2	10	9	33.6	2.6	3	3	30.0	0.0	203	46	1,037	323
Ruby	1	0	-	-	58	7	0.0	0.0	20	3	47.3	36.0	1	0	-	-	4	3	139.3	20.3	84	13	1,504	1,424
Huslia	1	0	-	-	60	6	0.3	0.3	16	7	0.5	0.2	6	5	1.6	0.4	1	1	0.0	0.0	84	19	39	38
Hughes	0	0	-	-	17	17	3.8	0.0	6	6	2.1	0.0	2	2	8.0	0.0	1	1	5.0	0.0	26	26	99	0
Allakaket	0	0	-	-	37	8	4.5	3.3	16	6	0.8	0.5	5	5	0.8	0.0	3	3	10.0	0.0	61	22	214	239
Alatna	0	0	-	-	10	8	0.1	0.1	2	1	0.0	-	1	1	3.0	0.0	0	0	-	-	13	10	4	1
Bellies	0	0	-	-	24	19	0.5	0.2	2	2	1.0	0.0	1	1	4.0	0.0	0	0	-	-	27	22	19	9
District 4	3	0	0.0	0.0	458	108	5.1	1.4	257	91	21.7	3.8	58	52	29.3	1.4	17	14	55.6	5.0	793	265	10,534	2,282
Tanana	1	0	-	-	85	16	13.8	6.6	22	11	5.7	1.8	7	6	25.3	4.5	13	13	195.8	0.0	128	46	4,017	1,105
Rampart	0	0	-	-	10	8	5.5	1.4	2	1	10.0	-	12	12	35.3	0.0	1	0	-	-	25	21	498	28
Stevens Village	1	1	0.0	0.0	17	12	9.1	1.7	11	9	20.3	1.7	5	4	59.0	9.3	2	2	114.5	0.0	36	28	902	114
Birch Creek	0	0	-	-	10	9	0.2	0.1	3	3	12.3	0.0	1	0	-	-	0	0	-	-	14	12	39	1
Beaver	0	0	-	-	16	14	2.7	0.4	10	10	9.0	0.0	6	5	40.2	10.0	0	0	-	-	32	29	375	118
Fort Yukon	0	0	-	-	123	8	1.0	0.4	49	13	11.9	3.9	19	17	44.2	4.4	1	1	75.0	0.0	192	39	1,622	421
Venette	0	0	-	-	40	5	0.4	0.2	7	4	18.0	9.2	5	4	12.5	5.6	3	2	0.0	0.0	55	15	205	140
Chalkyitsik	0	0	-	-	30	26	0.7	0.1	1	1	0.0	0.0	4	2	2.0	0.0	0	0	-	-	35	29	29	6
District 5	2	1	0.0	0.0	331	98	4.8	1.7	105	52	11.5	1.9	59	50	34.7	2.1	20	18	142.5	0.0	517	219	7,686	1,202
Survey Totals	13	6	1.5	0.3	1,251	299	4.8	0.8	1,062	393	18.5	1.2	217	189	32.4	1.0	53	45	92.8	2.1	2,596	932	37,641	3,292

a The total number of households (N), the number of households contacted (n), standard error (SE), and includes 95 percent confidence interval, CI (95%). Dashes indicate indefinable values.

Appendix A.6. Estimated summer chum salmon subsistence use by residents of surveyed villages, by harvest stratum, with village and district totals, Yukon Area, 1998. a

Community	Unknown				Does Not Harvest Salmon				Light Harvester				Medium Harvester				Heavy Harvester				Combined			
	N	n	Mean	SE	N	n	Mean	SE	N	n	Mean	SE	N	n	Mean	SE	N	n	Mean	SE	Total N	Total n	Total Est	CI(95%) (+/-)
Hooper Bay	2	0	-	-	88	8	2.9	2.4	92	27	2.1	0.9	13	13	1.8	0.0	1	1	2.0	0.0	196	49	477	441
Scammon Bay	5	4	10.0	2.0	24	3	0.7	0.6	51	15	22.3	4.4	1	1	15.0	0.0	0	0	-	-	81	23	1,220	448
Coastal District	7	4	7.1	1.5	112	11	2.4	1.9	143	42	9.3	1.7	14	14	2.8	0.0	1	1	2.0	0.0	277	72	1,697	628
Sheldon's Point	0	0	-	-	8	7	15.9	2.7	21	18	74.6	6.0	6	6	82.8	0.0	0	0	-	-	35	31	2,191	254
Alakanuk	0	0	-	-	39	5	14.0	6.4	74	20	56.2	10.9	7	6	104.2	14.5	0	0	-	-	120	31	5,438	1,671
Emmonak	0	0	-	-	75	21	29.1	6.4	70	32	61.1	7.5	14	9	143.3	30.3	0	0	-	-	159	62	8,473	1,627
Kotlik	0	0	-	-	29	3	5.3	2.6	54	13	90.9	20.8	10	7	240.3	35.8	2	2	200.0	0.0	95	25	7,867	2,319
District 1	0	0	-	-	151	36	20.0	3.6	219	83	68.1	6.8	37	28	152.3	15.2	2	2	200.0	0.0	409	149	23,969	3,299
Mountain Village	0	0	-	-	45	5	23.8	16.3	93	25	67.6	11.9	9	8	143.4	8.5	1	1	238.0	0.0	148	39	8,894	2,613
Pitkas Point	1	1	0.0	0.0	9	6	3.0	0.5	15	13	33.4	3.9	6	6	71.2	0.0	0	0	-	-	31	26	956	117
St. Mary's	0	0	-	-	37	5	10.0	7.0	62	16	68.5	12.7	14	13	159.3	6.1	3	3	375.3	0.0	116	37	7,973	1,638
Pilot Station	0	0	-	-	39	12	27.6	8.9	49	25	51.4	9.4	2	2	120.0	0.0	0	0	-	-	90	39	3,838	1,137
Marshall	0	0	-	-	16	4	39.8	25.1	42	13	21.7	4.4	4	4	65.0	0.0	0	0	-	-	62	21	1,810	869
District 2	1	1	0.0	0.0	146	32	21.8	6.5	261	92	55.5	5.5	35	33	127.1	3.3	4	4	341.0	0.0	447	162	23,471	3,401
Russian Mission	0	0	-	-	19	5	4.2	2.4	25	8	22.8	2.8	4	4	20.3	0.0	2	1	65.0	-	50	18	863	167
Holy Cross	0	0	-	-	20	4	0.0	0.0	39	18	2.8	0.7	5	4	19.0	5.0	0	0	-	-	84	26	206	77
Shageluk	0	0	-	-	14	8	2.5	1.0	13	7	33.7	18.9	5	5	165.2	0.0	7	5	613.6	155.8	39	25	5,594	2,192
District 3	0	0	-	-	53	17	2.2	0.9	77	33	14.6	3.3	14	13	71.6	1.8	9	6	491.7	121.0	153	69	6,663	2,200
Anvik	0	0	-	-	15	10	1.0	0.6	19	16	1.3	0.3	4	4	315.3	0.0	1	1	0.0	0.0	39	31	1,302	21
Grayling	0	0	-	-	20	4	96.0	37.8	23	7	61.5	34.2	12	11	46.9	11.6	0	0	-	-	55	22	3,899	2,156
Kaltag	0	0	-	-	12	4	0.0	0.0	33	8	3.6	1.4	5	5	5.2	0.0	1	0	-	-	51	17	146	95
Nulato	0	0	-	-	58	7	19.3	13.0	41	12	3.6	1.2	7	6	187.5	70.9	1	0	-	-	107	25	2,581	1,767
Koyukuk	1	0	-	-	21	1	0.0	-	15	6	26.1	18.4	4	3	313.3	156.7	2	2	343.0	0.0	43	12	2,332	1,343
Galena	0	0	-	-	126	17	0.1	0.1	64	17	13.6	10.0	10	9	7.6	1.5	3	3	100.0	0.0	203	46	1,256	1,256
Ruby	1	0	-	-	58	7	42.9	40.2	20	3	41.6	38.4	1	0	-	-	4	3	396.0	53.9	84	13	4,903	4,829
Huslia	1	0	-	-	60	6	0.5	0.5	16	7	8.5	6.4	6	5	38.2	14.6	1	1	0.0	0.0	84	19	396	271
Hughes	0	0	-	-	17	17	0.6	0.0	6	6	4.1	0.0	2	2	59.5	0.0	1	1	150.0	0.0	26	26	305	0
Allakaket	0	0	-	-	37	8	0.3	0.2	16	6	6.0	3.8	5	5	12.0	0.0	3	3	223.7	0.0	61	22	836	121
Alatna	0	0	-	-	10	8	0.3	0.1	2	1	2.0	-	1	1	9.0	0.0	0	0	-	-	13	10	16	1
Bettles	0	0	-	-	24	19	1.3	0.6	2	2	2.5	0.0	1	1	45.0	0.0	0	0	-	-	27	22	82	28
District 4	3	0	0.0	0.0	458	108	12.3	5.6	257	91	15.9	5.1	58	52	85.4	14.1	17	14	199.5	13.0	793	265	18,054	5,879
Tanana	1	0	-	-	85	16	0.0	0.0	22	11	0.9	0.6	7	6	0.0	0.0	13	13	136.8	0.0	128	46	1,799	28
Rampart	0	0	-	-	10	8	6.3	2.8	2	1	0.0	-	12	12	1.5	0.4	1	0	-	-	25	20	81	56
Stevens Village	1	1	0.0	0.0	17	12	1.1	0.6	11	9	0.3	0.0	5	4	11.5	5.0	2	2	51.5	0.0	36	28	183	53
Birch Creek	0	0	-	-	10	9	0.0	0.0	3	3	0.0	0.0	1	0	-	-	0	0	-	-	14	12	0	0
Beaver	0	0	-	-	16	14	0.0	0.0	10	10	0.1	0.0	6	5	2.4	0.6	0	0	-	-	32	29	15	7
Fort Yukon	0	0	-	-	123	9	0.0	0.0	49	13	0.0	0.0	19	17	1.7	0.6	1	1	0.0	0.0	192	40	32	21
Venetie	0	0	-	-	40	5	0.0	0.0	7	4	0.0	0.0	5	4	0.0	0.0	3	2	0.0	0.0	55	15	0	0
Chaikytisik	0	0	-	-	30	26	0.0	0.0	1	1	0.0	0.0	4	2	0.0	0.0	0	0	-	-	35	29	0	0
District 5	2	1	0.0	0.0	331	99	0.2	0.1	105	52	0.2	0.1	59	49	2.1	0.5	20	18	94.1	0.0	517	219	2,110	84
Survey Totals	13	6	3.8	0.8	1,251	303	9.8	2.2	1,062	393	33.9	2.3	217	189	74.7	4.6	53	45	216.3	20.9	2,596	936	75,964	7,891

a The total number of households (N), the number of households contacted (n), standard error (SE), and includes 95 percent confidence interval, CI (95%). Dashes indicate indefinable values.

Appendix A.7. Estimated fall chum salmon subsistence use by residents of surveyed villages, by harvest stratum, with village and district totals, Yukon Area, 1998. a

Community	Unknown				Does Not Harvest Salmon				Light Harvester				Medium Harvester				Heavy Harvester				Combined			
	N	n	Mean	SE	N	n	Mean	SE	N	n	Mean	SE	N	n	Mean	SE	N	n	Mean	SE	Total		Est	CI(95%)
																					N	n		
Hooper Bay	2	0	-	-	88	8	0.0	0.0	92	27	0.0	0.0	13	13	0.0	0.0	1	1	0.0	0.0	196	49	0	0
Scammon Bay	5	4	0.3	0.1	24	3	0.0	0.0	51	15	0.6	0.5	1	1	0.0	0.0	0	0	-	-	81	23	32	50
Coastal District	7	4	0.2	0.1	112	11	0.0	0.0	143	42	0.2	0.1	14	14	0.0	0.0	1	1	0.0	0.0	277	72	32	50
Sheldon's Point	0	0	-	-	8	7	0.0	0.0	21	18	7.8	2.0	6	6	19.3	0.0	0	0	-	-	35	31	282	86
Alakanuk	0	0	-	-	39	5	0.0	0.0	74	20	5.9	2.4	7	6	9.5	2.3	0	0	-	-	120	31	503	363
Emmonak	0	0	-	-	75	21	6.2	4.8	70	32	5.2	1.9	14	9	1.0	0.5	0	0	-	-	159	62	844	762
Kotlik	0	0	-	-	29	3	2.0	1.9	54	13	6.6	5.0	10	7	1.6	0.9	2	2	25.0	0.0	95	25	485	543
District 1	0	0	-	-	151	36	3.5	2.4	219	83	6.1	1.6	37	28	5.7	0.5	2	2	25.0	0.0	409	149	2,114	1,007
Mountain Village	0	0	-	-	45	5	0.0	0.0	93	25	7.4	2.6	9	8	1.5	0.3	1	1	32.0	0.0	148	39	737	491
Pitkas Point	1	1	0.0	0.0	9	6	0.0	0.0	15	13	8.8	1.2	6	6	9.3	0.0	0	0	-	-	31	26	189	38
St. Mary's	0	0	-	-	37	5	1.0	0.9	62	16	1.1	0.8	14	13	4.6	0.8	3	3	68.7	0.0	116	37	381	122
Pilot Station	0	0	-	-	39	12	1.3	0.8	49	25	1.3	0.5	2	2	0.0	0.0	0	0	-	-	90	39	115	80
Marshall	0	0	-	-	16	4	13.8	11.9	42	13	5.9	3.5	4	4	53.5	0.0	0	0	-	-	62	21	683	473
District 2	1	1	0.0	0.0	146	32	2.1	1.3	261	92	4.6	1.1	35	33	9.9	0.3	4	4	59.5	0.0	447	162	2,105	699
Russian Mission	0	0	-	-	19	5	0.0	0.0	25	8	11.0	5.6	4	4	0.0	0.0	2	1	9.0	-	50	18	293	275
Holy Cross	0	0	-	-	20	4	1.5	1.1	39	18	7.6	2.2	5	4	72.0	16.6	0	0	-	-	64	26	687	242
Shageluk	0	0	-	-	14	8	0.0	0.0	13	7	15.1	9.6	5	5	18.0	0.0	7	5	6.2	2.1	39	25	330	247
District 3	0	0	-	-	53	17	0.6	0.4	77	33	10.0	2.7	14	13	32.1	5.9	9	6	6.8	2.0	153	69	1,310	441
Anvik	0	0	-	-	15	10	0.0	0.0	19	16	1.3	0.3	4	4	78.5	0.0	1	1	0.0	0.0	39	31	339	13
Grayling	0	0	-	-	20	4	10.0	6.3	23	7	5.7	4.7	12	11	15.5	1.7	0	0	-	-	55	22	517	330
Kaltag	0	0	-	-	12	4	0.0	0.0	33	8	8.7	5.3	5	5	12.0	0.0	1	0	-	-	51	17	349	346
Nulato	0	0	-	-	58	7	0.3	0.3	41	12	7.8	2.8	7	6	0.0	0.0	1	0	-	-	107	25	338	232
Koyukuk	1	0	-	-	21	1	0.0	-	15	6	15.0	6.1	4	3	33.3	16.7	2	2	397.0	0.0	43	12	1,152	222
Galena	0	0	-	-	126	17	0.9	0.6	64	17	2.8	2.0	10	9	16.4	4.4	3	3	269.7	0.0	203	46	1,277	312
Ruby	1	0	-	-	58	7	0.0	0.0	20	3	75.0	35.2	1	0	-	-	4	3	86.7	41.1	84	13	1,847	1,417
Huslia	1	0	-	-	60	6	0.0	0.0	16	7	0.0	0.0	6	5	0.0	0.0	1	1	0.0	0.0	84	19	0	0
Hughes	0	0	-	-	17	17	1.2	0.0	6	6	0.0	0.0	2	2	0.0	0.0	1	1	40.0	0.0	26	26	60	0
Allakaket	0	0	-	-	37	8	0.0	0.0	16	6	0.1	0.1	5	5	0.0	0.0	3	3	2.7	0.0	61	22	11	4
Alatna	0	0	-	-	10	8	0.0	0.0	2	1	0.0	-	1	1	0.0	0.0	0	0	-	-	13	10	0	0
Bettles	0	0	-	-	24	19	0.0	0.0	2	2	0.0	0.0	1	1	0.0	0.0	0	0	-	-	27	22	0	0
District 4	3	0	0.0	0.0	458	108	0.8	0.3	257	91	10.4	2.9	58	52	14.8	1.4	17	14	117.5	10.0	793	265	5,890	1,562
Tanana	1	0	-	-	85	16	0.0	0.0	22	11	3.4	1.1	7	6	339.2	77.1	13	13	1801.0	0.0	128	46	25,863	1,059
Rampart	0	0	-	-	10	8	0.0	0.0	2	1	0.0	-	12	12	8.3	0.0	1	0	-	-	25	21	100	0
Stevens Village	1	1	0.0	0.0	17	12	62.3	22.5	11	9	0.0	0.0	5	4	15.0	6.7	2	2	263.5	0.0	36	28	1,662	751
Birch Creek	0	0	-	-	10	9	0.0	0.0	3	3	0.0	0.0	1	0	-	-	0	0	-	-	14	12	0	0
Beaver	0	0	-	-	16	14	0.0	0.0	10	10	16.8	0.0	6	5	7.4	3.0	0	0	-	-	32	29	212	36
Fort Yukon	0	0	-	-	123	8	0.0	0.0	49	13	26.5	15.9	19	17	74.7	9.9	1	1	75.0	0.0	192	39	2,795	1,575
Venetie	0	0	-	-	40	5	6.0	5.6	7	4	0.0	0.0	5	4	75.0	14.4	3	2	21.5	12.4	55	15	680	468
Chalkyitsik	0	0	-	-	30	26	0.0	0.0	1	1	52.0	0.0	4	2	75.0	53.0	0	0	-	-	35	29	352	416
District 5	2	1	0.0	0.0	331	98	3.9	1.3	105	52	15.2	7.4	59	50	79.5	10.4	20	18	1204.0	2.0	517	219	31,664	2,135
Survey Totals	13	6	0.1	0.0	1,251	302	2.0	0.5	1,062	393	7.2	1.1	217	190	30.2	2.9	53	45	498.6	3.1	2,596	936	43,115	2,949

a The total number of households (N), the number of households contacted (n), standard error (SE), and includes 95 percent confidence interval, CI (95%). Dashes indicate indefinable values.

Appendix A.8. Estimated coho salmon subsistence use by residents of surveyed villages, by harvest stratum, with village and district totals, Yukon Area, 1998. a

Community	Unknown				Does Not Harvest Salmon				Light Harvester				Medium Harvester				Heavy Harvester				Combined			
	N	n	Mean	SE	N	n	Mean	SE	N	n	Mean	SE	N	n	Mean	SE	N	n	Mean	SE	N	n	Total	Est
Hooper Bay	2	0	-	-	88	8	0.0	0.0	92	27	1.0	0.7	13	13	2.2	0.0	1	1	0.0	0.0	196	49	123	140
Scammon Bay	5	4	1.5	0.7	24	3	0.0	0.0	51	15	4.1	3.0	1	1	2.0	0.0	0	0	-	-	81	23	220	303
Coastal District	7	4	1.1	0.5	112	11	0.0	0.0	143	42	2.1	1.1	14	14	2.1	0.0	1	1	0.0	0.0	277	72	343	333
Sheldon's Point	0	0	-	-	8	7	0.0	0.0	21	18	5.6	1.2	6	6	16.7	0.0	0	0	-	-	35	31	218	52
Alakanuk	0	0	-	-	39	4	0.0	0.0	74	20	3.2	1.4	7	6	4.7	1.2	0	0	-	-	120	30	269	204
Emmonak	0	0	-	-	75	21	4.1	2.1	70	32	2.2	0.7	14	9	2.7	1.1	0	0	-	-	159	62	504	333
Kotlik	0	0	-	-	29	3	0.0	0.0	54	13	7.6	4.4	10	7	1.1	0.6	2	2	25.0	0.0	95	25	477	469
District 1	0	0	-	-	151	35	2.0	1.1	219	83	4.2	1.2	37	28	4.9	0.5	2	2	25.0	0.0	409	148	1,468	613
Mountain Village	0	0	-	-	45	5	0.0	0.0	93	25	2.0	0.9	9	8	6.3	2.1	1	1	34.0	0.0	148	39	280	169
Pitkas Point	1	1	0.0	0.0	9	6	0.0	0.0	15	13	12.8	2.0	6	6	10.0	0.0	0	0	-	-	31	26	253	60
St. Mary's	0	0	-	-	37	5	2.0	1.9	62	16	2.7	1.2	14	13	11.7	2.0	3	3	1.0	0.0	116	37	411	210
Pilot Station	0	0	-	-	39	12	1.3	0.8	49	25	0.8	0.3	2	2	0.0	0.0	0	0	-	-	90	39	93	67
Marshall	0	0	-	-	16	4	5.0	4.3	42	13	4.4	1.9	4	4	20.8	0.0	0	0	-	-	62	21	350	211
District 2	1	1	0.0	0.0	146	32	1.4	0.7	261	92	3.0	0.5	35	33	10.4	1.0	4	4	9.3	0.0	447	162	1,387	354
Russian Mission	0	0	-	-	19	5	0.0	0.0	25	8	1.2	1.0	4	4	37.5	0.0	2	1	26.0	-	50	18	233	51
Holy Cross	0	0	-	-	20	4	0.0	0.0	39	18	2.3	1.1	5	4	13.3	5.9	0	0	-	-	64	26	157	103
Shageluk	0	0	-	-	14	8	0.0	0.0	13	7	0.0	0.0	5	5	5.0	0.0	7	5	6.0	1.9	39	25	67	27
District 3	0	0	-	-	53	17	0.0	0.0	77	33	1.6	0.6	14	13	17.2	2.1	9	6	10.4	2.0	153	69	457	118
Anvik	0	0	-	-	15	10	0.0	0.0	19	16	0.0	0.0	4	4	5.0	0.0	1	1	0.0	0.0	39	31	20	0
Grayling	0	0	-	-	20	4	1.3	1.1	23	7	0.0	0.0	12	11	9.5	2.6	0	0	-	-	55	22	140	76
Kaltag	0	0	-	-	12	4	0.0	0.0	33	8	0.0	0.0	5	5	13.0	0.0	1	0	-	-	51	17	65	0
Nulato	0	0	-	-	58	7	0.0	0.0	41	12	0.5	0.4	7	6	0.8	0.3	1	0	-	-	107	25	30	34
Koyukuk	1	0	-	-	21	1	0.0	-	15	6	0.5	0.3	4	3	0.0	0.0	2	2	206.5	0.0	43	12	421	11
Galena	0	0	-	-	126	17	0.3	0.3	84	17	1.4	1.2	10	9	4.8	1.1	3	3	45.3	0.0	203	46	315	173
Ruby	1	0	-	-	58	7	0.0	0.0	20	3	33.3	30.7	1	0	-	-	4	3	174.7	86.8	84	13	1,365	1,384
Huslia	1	0	-	-	60	6	0.0	0.0	16	7	8.4	4.1	6	5	0.2	0.1	1	1	0.0	0.0	84	19	136	131
Hughes	0	0	-	-	17	17	0.0	0.0	6	6	0.8	0.0	2	2	0.0	0.0	1	1	0.0	0.0	26	26	5	0
Allakaket	0	0	-	-	37	8	0.0	0.0	16	6	0.0	0.0	5	5	0.0	0.0	3	3	0.0	0.0	61	22	0	0
Atatna	0	0	-	-	10	8	0.0	0.0	2	1	0.0	-	1	1	0.0	0.0	0	0	-	-	13	10	0	0
Bettles	0	0	-	-	24	19	0.0	0.0	2	2	0.0	0.0	1	1	0.0	0.0	0	0	-	-	27	22	0	0
District 4	3	0	0.0	0.0	458	108	0.1	0.1	257	91	3.6	2.4	58	52	4.4	0.6	17	14	73.4	20.0	793	265	2,497	1,403
Tanana	1	0	-	-	85	16	0.0	0.0	22	11	0.0	0.0	7	6	113.0	28.2	13	13	137.0	0.0	128	46	2,572	386
Rampart	0	0	-	-	10	8	0.0	0.0	2	1	0.0	-	12	12	1.7	0.0	1	0	-	-	25	21	20	0
Stevens Village	1	1	0.0	0.0	17	12	2.1	1.1	11	9	0.0	0.0	5	4	0.5	0.2	2	2	12.5	0.0	36	28	63	38
Birch Creek	0	0	-	-	10	9	0.0	0.0	3	3	0.0	0.0	1	0	-	-	0	0	-	-	14	12	0	0
Beaver	0	0	-	-	16	14	0.0	0.0	10	10	0.0	0.0	6	5	0.0	0.0	0	0	-	-	32	29	0	0
Fort Yukon	0	0	-	-	123	9	0.0	0.0	49	13	0.0	0.0	19	17	0.3	0.1	1	1	1.0	0.0	192	40	10	7
Venetie	0	0	-	-	40	5	0.0	0.0	7	4	0.0	0.0	5	4	0.0	0.0	3	2	0.0	0.0	55	15	0	0
Chalkyitsik	0	0	-	-	30	26	0.0	0.0	1	1	0.0	0.0	4	2	0.0	0.0	0	0	-	-	35	29	0	0
District 5	2	1	0.0	0.0	331	99	0.1	0.1	105	52	0.0	0.0	59	50	13.9	3.3	20	18	90.4	0.0	517	220	2,665	388
Survey Totals	13	6	0.6	0.3	1,251	302	0.5	0.2	1,062	393	2.9	0.6	217	190	8.7	1.0	53	45	61.1	6.5	2,596	936	8,817	1,657

a The total number of households (N), the number of households contacted (n), standard error (SE), and includes 95 percent confidence interval, CI (95%). Dashes indicate indefinable values.

Appendix A.9. Estimated number of salmon given away by commercial fishermen to subsistence households and corresponding confidence intervals (CI) for surveyed villages, Yukon Area, 1998.

Community	Total Households	Households Contacted ^a	Chinook Salmon		Summer Chum Salmon		Fall Chum Salmon		Coho Salmon	
			Estimated Total	CI(95%) (+/-)	Estimated Total	CI(95%) (+/-)	Estimated Total	CI(95%) (+/-)	Estimated Total	CI(95%) (+/-)
Hooper Bay	196	49	0	0	0	0	0	0	0	0
Scammon Bay	81	23	0	0	0	0	0	0	0	0
Coastal District	277	72	0	0	0	0	0	0	0	0
Sheldon's Point	35	31	0	0	0	0	0	0	0	0
Alakanuk	120	32	0	0	0	0	0	0	0	0
Emmonak	159	62	0	0	64	107	0	0	0	0
Kotlik	95	27	0	0	0	0	0	0	0	0
District 1	409	152	0	0	64	107	0	0	0	0
Mountain Village	148	41	0	0	0	0	0	0	0	0
Pitkas Point	31	26	0	0	0	0	0	0	0	0
St. Mary's	116	37	0	0	0	0	0	0	0	0
Pilot Station	90	39	0	0	0	0	0	0	0	0
Marshall	62	21	0	0	0	0	0	0	0	0
District 2	447	164	0	0	0	0	0	0	0	0
Russian Mission	50	18	0	0	0	0	0	0	0	0
Holy Cross	64	26	0	0	0	0	0	0	0	0
Shageluk	39	26	0	0	0	0	0	0	0	0
District 3	153	70	0	0	0	0	0	0	0	0
Anvik	39	35	0	0	0	0	0	0	0	0
Grayling	55	23	0	0	0	0	0	0	0	0
Kaltag	51	17	0	0	0	0	0	0	0	0
Nulato	107	25	0	0	0	0	0	0	0	0
Koyukuk	43	13	0	0	0	0	0	0	0	0
Galena	203	46	0	0	0	0	0	0	0	0
Ruby	84	13	0	0	0	0	0	0	0	0
Huslia	84	19	0	0	0	0	0	0	0	0
Hughes	26	26	0	0	0	0	0	0	0	0
Allakaket	61	22	0	0	0	0	0	0	0	0
Alatna	13	12	0	0	0	0	0	0	0	0
Bettles	27	22	0	0	0	0	0	0	0	0
District 4	793	273	0	0	0	0	0	0	0	0
Tanana	128	46	0	0	0	0	0	0	0	0
Rampart	25	22	0	0	0	0	0	0	0	0
Stevens Village	36	28	0	0	0	0	0	0	0	0
Birch Creek	14	12	0	0	0	0	0	0	0	0
Beaver	32	30	0	0	0	0	0	0	0	0
Fort Yukon	192	40	0	0	0	0	0	0	0	0
Venetie	55	16	0	0	0	0	0	0	0	0
Chalkyitsik	35	31	0	0	0	0	0	0	0	0
District 5	517	225	0	0	0	0	0	0	0	0
Survey Totals	2,596	956	0	0	64	107	0	0	0	0

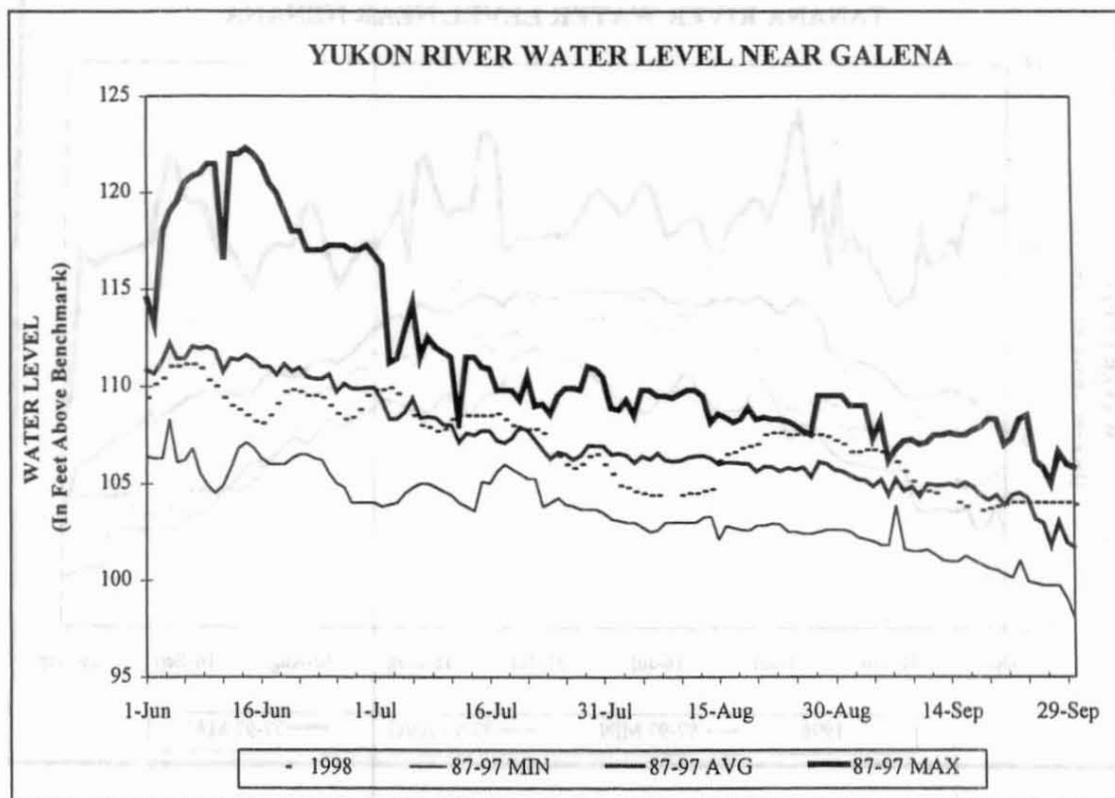
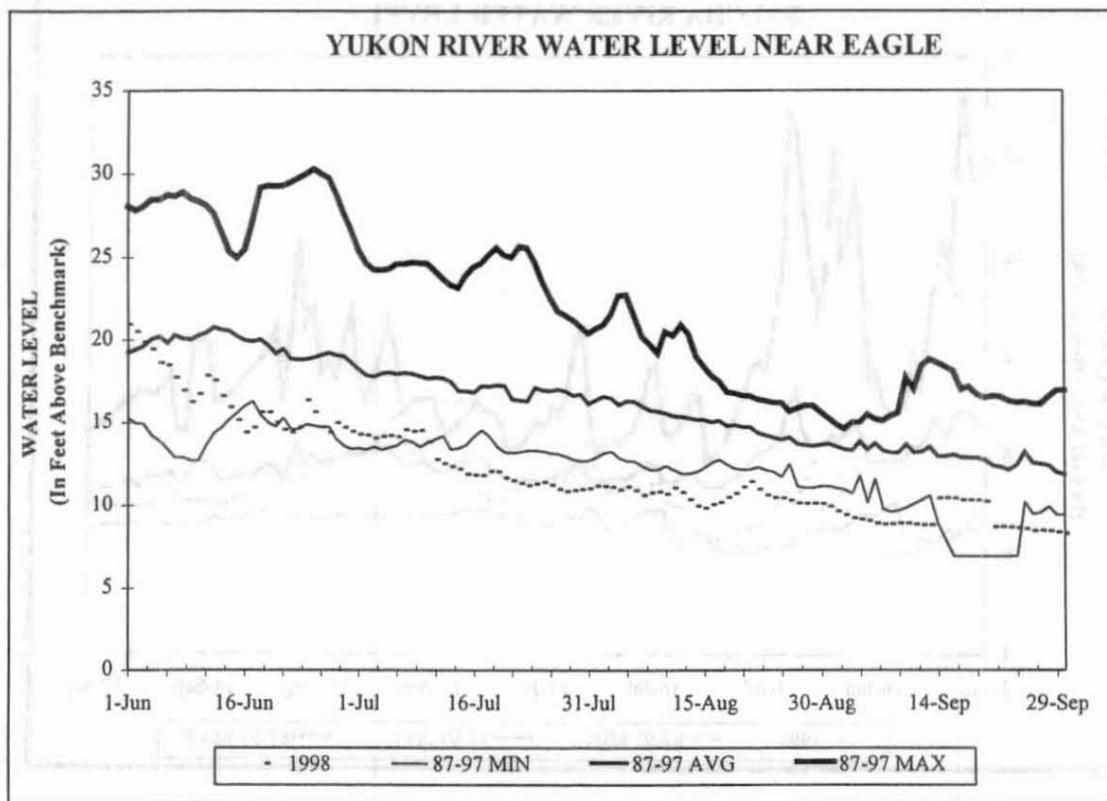
^a The number of households contacted per species may vary. The number of households indicated is the greatest number of households contacted for a given species.

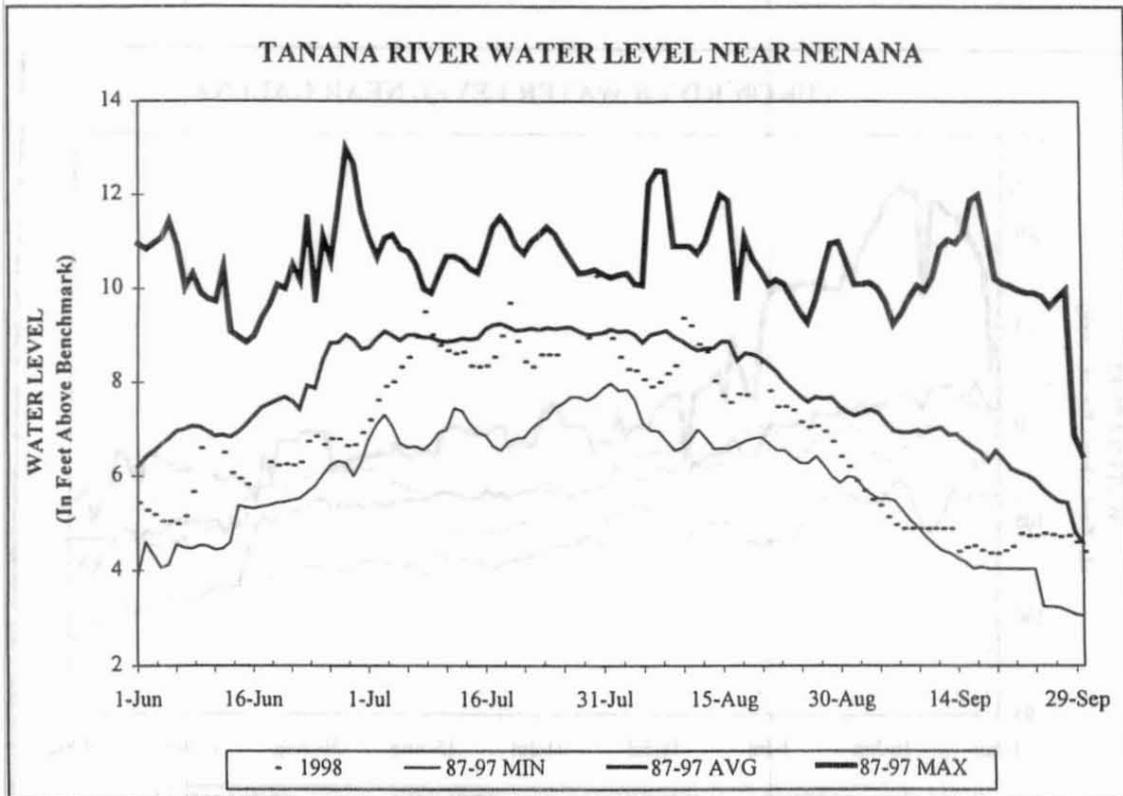
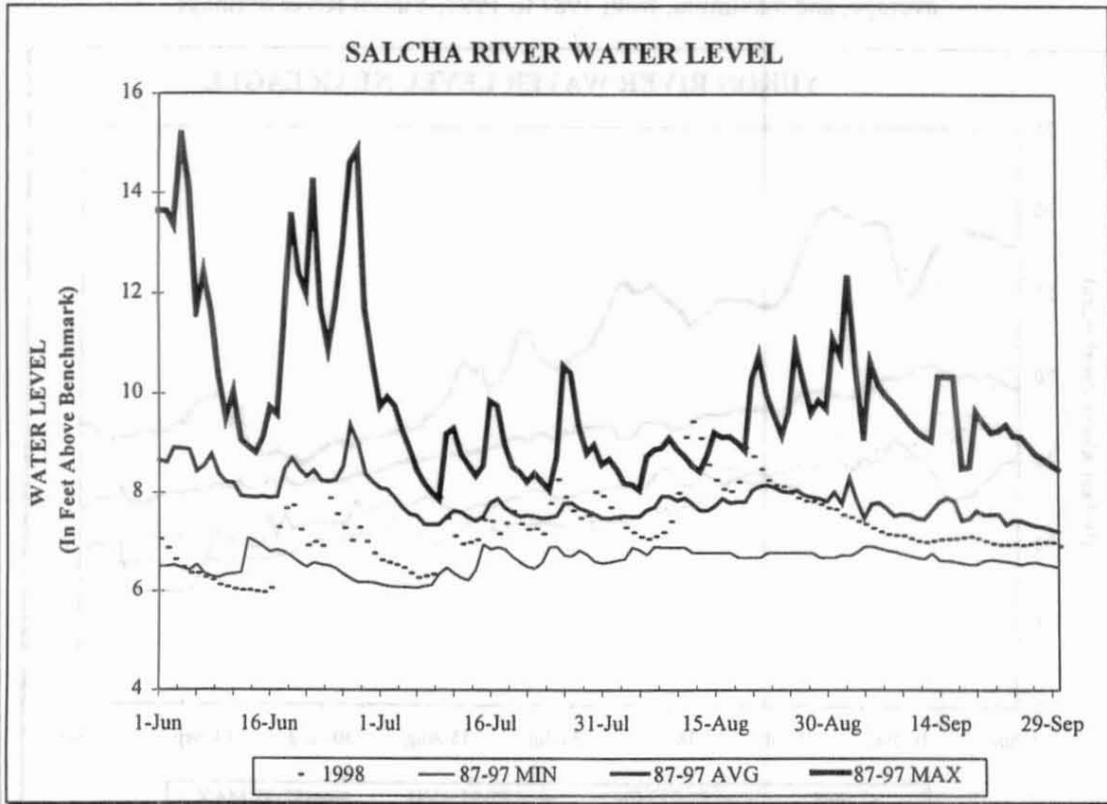
Appendix A.10. Estimated number of salmon given away by subsistence fishermen to another subsistence household and corresponding confidence intervals (CI) for surveyed villages, Yukon Area, 1998.

Community	Total Households	Households Contacted ^a	Chinook Salmon		Summer Chum Salmon		Fall Chum Salmon		Coho Salmon	
			Estimated Total	CI(95%) (+/-)	Estimated Total	CI(95%) (+/-)	Estimated Total	CI(95%) (+/-)	Estimated Total	CI(95%) (+/-)
Hooper Bay	196	49	0	0	270	408	0	0	0	0
Scammon Bay	81	23	6	2	41	31	1	1	37	45
Coastal District	277	72	6	2	311	409	1	1	37	45
Sheldon's Point	35	31	70	19	466	117	28	13	16	5
Alakanuk	120	31	82	58	520	518	50	36	7	7
Emmonak	159	62	140	75	1,577	739	7	12	4	6
Kotlik	95	26	35	33	174	263	58	108	0	0
District 1	409	150	327	102	2,737	947	143	115	27	10
Mountain Village	148	39	26	25	1,236	1,258	63	94	11	19
Pitkas Point	31	26	18	10	30	12	36	26	62	45
St. Mary's	116	37	483	398	783	751	6	0	98	137
Pilot Station	90	39	345	342	1,080	714	0	0	33	53
Marshall	62	21	312	211	882	810	220	373	80	136
District 2	447	162	1,184	566	4,011	1,820	325	386	284	206
Russian Mission	50	18	573	337	315	182	0	0	0	0
Holy Cross	64	26	491	293	11	16	52	52	63	55
Shageluk	39	25	22	16	55	37	14	15	0	0
District 3	153	69	1,086	447	381	187	66	54	63	55
Anvik	39	32	70	22	20	15	6	5	0	0
Grayling	55	22	304	370	265	439	0	0	0	0
Kaltag	51	17	17	28	0	0	25	42	0	0
Nulato	107	25	152	139	0	0	17	30	6	4
Koyukuk	43	12	0	0	640	627	35	53	0	0
Galena	203	46	138	82	38	41	79	86	0	0
Ruby	84	13	113	205	3,319	4,810	833	1,506	0	0
Huslia	84	19	25	37	30	56	0	0	13	17
Hughes	26	26	36	0	1	0	20	0	0	0
Allakaket	61	22	155	241	244	124	0	0	0	0
Alatna	13	11	1	1	3	1	0	0	0	0
Bettles	27	22	5	2	5	0	0	0	0	0
District 4	793	267	1,016	516	4,565	4,873	1,015	1,510	19	17
Tanana	128	46	240	106	52	28	3,779	432	0	0
Rampart	25	20	98	28	63	55	0	0	0	0
Stevens Village	36	28	161	59	14	15	598	600	0	0
Birch Creek	14	12	2	1	0	0	0	0	0	0
Beaver	32	29	25	6	0	0	44	36	0	0
Fort Yukon	192	40	456	354	0	0	867	1,456	0	0
Venetie	55	15	37	28	0	0	0	0	0	0
Chalkyitsik	35	29	23	3	0	0	0	0	0	0
District 5	517	219	1,042	376	129	63	5,288	1,634	0	0
Survey Totals	2,596	939	4,661	968	12,134	5,307	6,838	2,262	430	219

^a The number of households contacted per species may vary. The number of households indicated is the greatest number of households contacted for a given species.

Appendix A.11. Water levels for select locations, 1998 compared to the minimum, average, and maximum, from 1987 to 1997, Yukon River drainage.





APPENDIX B

YUKON RIVER DRAINAGE HISTORICAL SUBSISTENCE
AND PERSONAL USE SALMON HARVESTS

Appendix B.1 Estimated chinook salmon subsistence harvest by fishing district and by community of residence, Yukon Area, 1987-1998. a

Community	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1988-1992 Average	1993-1997 Average
Hooper Bay	2,783	1,099 b	14 b			503	230	157	1,500	1,127	613	13	539 c	725
Scammon Bay	838	489 b	2 b			948	1,199	668	585	1,238	526	378	480 c	843
Coastal District Subtotal	3,621	1,588	16			1,451	1,429	825	2,085	2,365	1,139	391	1,018	1,569
Sheldon Point	1,173	302	165	756	445	388	561	606	459	450	970	527	411	609
Alakanuk	1,180	738	820	871	1,044	623	2,562	1,045	1,191	662	2,058	1,930	819	1,504
Emmonak	2,518	1,786	1,598	1,873	1,311	2,336	4,372	2,384	1,711	702	3,080	2,396	1,781	2,450
Kotlik	2,407	1,112	1,982	3,119	3,125	1,794	2,913	2,505	2,599	1,832	1,442	2,389	2,226	2,258
District 1 Subtotal	7,278	3,938	4,565	6,619	5,925	5,141	10,408	6,540	5,960	3,646	7,550	7,242	5,238	6,821
Mountain Village	2,252	740	2,001	1,792	1,171	1,249	3,217	1,511	1,542	1,315	2,081	2,533	1,391	1,933
Pitkas Point	380	367	592	391	652	851	1,001	469	559	762	793	817	571	717
St. Marys	2,077	1,011	1,592	2,085	1,836	1,753	2,042	2,722	2,031	1,766	2,592	2,679	1,655	2,231
Pilot Station	2,593	674	1,498	3,786	2,681	1,818	2,661	1,977	1,614	1,811	2,373	1,715	2,091	2,087
Marshall	2,564	1,031	1,464	1,492	1,277	1,403	2,592	2,277	3,291	2,126	1,511	1,711	1,333	2,359
District 2 Subtotal	9,866	3,823	7,147	9,546	7,617	7,074	11,513	8,956	9,037	7,780	9,350	9,455	7,041	9,327
Russian Mission	2,036	1,850	2,367	1,694	1,349	1,282	3,273	1,793	2,450	2,709	1,459	1,314	1,708	2,337
Holy Cross	2,625	2,593	2,379	2,337	1,649	3,491	3,191	4,040	2,808	3,953	3,472	2,648	2,490	3,493
Shageluk	47	104	32	62	189	218	128	291	161	121	1,380	552	121	416
District 3 Subtotal	4,708	4,547	4,778	4,093	3,187	4,991	6,592	6,124	5,419	6,783	6,311	4,514	4,319	6,246
Lower Yukon River Total	21,852	12,308	16,490	20,258	16,729	17,206	28,513	21,620	20,416	18,209	23,211	21,211	16,598	22,394
Anvik	428	211	418	481	619	389	663	424	450	768	951	1,025	424	651
Grayling	1,322	1,571	1,082	144	874	1,074	1,045	1,843	1,340	1,036	2,391	2,177	949	1,531
Kaltag	1,117	1,168	1,306	2,244	1,866	1,084	1,260	1,653	1,890	994	1,036	1,870	1,534	1,367
Nulato	1,573	1,986	2,079	2,788	2,500	1,596	1,660	1,735	1,533	1,461	1,576	4,147	2,190	1,593
Koyukuk	609	711	1,003	876	885	510	853	589	146	402	851	800	797	568
Galena	1,270	1,982	1,374	3,134	2,574	1,870	1,732	1,834	1,336	2,770	2,350	1,668	2,187	2,004
Ruby/Kokrines	927	1,402	1,016	811	971	498	3,263	1,539	1,435	557	2,260	3,891	940	1,811
District 4 Yukon River Subtotal (Excluding the Koyukuk River)	7,246	9,031	8,278	10,478	10,289	7,021	10,476	9,617	8,130	7,988	11,415	15,578	9,019	9,525
Huslia	182	89	177	198	198	751	232	239	932	67	57	23	283	305
Hughes	177	29	181	90	146	29	88	107 d	77	54	34	91	95	72
Allakaket	309 f	339	438 f	284	446	395	135	338 d	321	82	423	85	366 g	260
Alatna	- f	27	- f	72	5	42	4	26 d	10	2	38	4	37 g	16
Bettles		0	0	0	16	53	1	0	4	0	39	20	17	9
Koyukuk River Subtotal	668	484	796	644	811	1,270	460	710	1,344	205	591	223	797	662
District 4 Subtotal	7,914	9,515	9,074	11,122	11,100	8,291	10,936	10,327	9,474	8,193	12,006	15,801	9,817	10,187

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Community	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1988-1992 Average	1993-1997 Average
Tanana	4,021	3,537	3,008	2,284	2,483	2,477	3,362	2,999	2,398	2,741	3,596	5,212	2,758	3,019
Rampart	2,815	3,145	3,177	1,481	988	2,802	1,956	1,354	1,461	1,751	2,203	885	2,319	1,745
Fairbanks (permits) h j	613	0	200	420	982	1,394	1,514	1,920	1,447	1,166	955	1,231	599	1,400
Stevens Village	2,076	2,845	3,101	1,295	2,035	1,887	1,754	2,814	2,674	691	2,070	1,232	2,233	1,999
Birch Creek		0 b	0	0	196	44	0	119	93	0	373	48	48	117
Beaver	466	940	1,694	721	713	1,564	1,557	850	1,021	886	1,859	470	1,126	1,235
Fort Yukon	3,950	2,245	4,898	4,051	5,585	4,122	6,361	4,727	3,132	4,957	3,145	1,771	4,180	4,464
Circle (permits) j	1,614 k	1,773	1,785 k	1,767	1,720	1,585	745	1,377	1,145	1,781	1,091	685	1,711 g	1,228
Central (permits) j	- k	261	- k	184	151	167	210	240	171	131	146	170	191 g	180
Eagle (permits) j	1,988	2,333	2,385	1,742	1,193	1,040	753	1,234	1,886	1,092	1,534	2,473	1,739	1,300
Other (permits) j m				615	374	571	437	602	1,004	377	763	446	520 n	637
District 5 Yukon River Subtotal (Excluding Chandalar/Black Rivers)	17,543	17,079	20,248	14,560	16,420	17,653	18,649	18,236	16,432	15,563	17,735	14,623	17,423	17,323
Venette	13	121	88	29	9	35	2,716	524	434	134	314	168	56	824
Chalkyitsik	0	0	0	0	0	3	0	0	0	30	0	11	1	6
Chandalar/Black Rivers Subtotal	13	121	88	29	9	38	2,716	524	434	164	314	179	57	830
District 5 Subtotal	17,556	17,200	20,336	14,589	16,429	17,691	21,365	18,760	16,866	15,727	18,049	14,802	17,225	17,767
Manley p	40	572	992	1,169	401	551	238	480	335	134	242	209	737	286
Minto p	374	466	366	100	134	142	468	316	535	523	1,208	275	242	610
Nenana p	3,151	3,846	1,188	1,265	1,599	1,267	693	759	607	423	1,082	1,187	1,833	713
Fairbanks (permits) j r	531	0	0	84	378	402	273	775	285	97	176	230	173	321
Other p s		0	0	0	3	76	0	40	17	0	4	18	16	12
District 6 Tanana River Subtotal	4,096	4,884	2,546	2,618	2,515	2,438	1,672	2,370	1,779	1,177	2,712	1,919	3,000	1,942
Upper Yukon River Total	29,566	31,599	31,956	28,329	30,044	28,420	33,973	31,457	28,119	25,097	32,767	32,522	30,042	29,896
Alaska, Yukon River Total t	51,418	43,907	48,446	48,587	46,773	45,626	62,486	53,077	48,535	43,306	55,978	53,733	46,640	52,290
Alaska, Yukon Area Total	55,039	45,495	48,462	48,587	46,773	47,077	63,915	53,902	50,620	45,671	57,117	54,124	47,659	53,858

a Historic estimated subsistence harvests are available in each year's respective Yukon Area Annual Management Report (1961 to 1997). Beginning in 1988 subsistence salmon harvest estimates have been generated from a stratified random sample of village households. Numbers include test fish catches given away. Blanks indicate harvest information was not collected.

b The village was not surveyed, harvest estimates were calculated from calendar and post card replies.

c Average harvest includes 1988, 1989 and 1992.

d Due to floods in 1994, Hughes, Allakaket, and Alatna were not surveyed. The 1994 chinook salmon harvest is estimated based on a five-year-average, 1989-1993.

f Alatna and Allakaket harvests combined.

g Average harvest includes 1988 and 1990-1992.

h Harvests by Fairbanks subsistence permit holders who fished in District 5 near the Yukon River bridge crossing.

j Salmon catches expanded for permits not returned and household interviews (1981-1989). Beginning in 1990, reported harvest is from returned permits only.

k Circle and Central harvests are combined.

m Other permit holders who fished in District 5 but did not reside in the villages listed.

n Average harvest includes 1990-1992.

p Permits required beginning in 1988 for Subdistricts 6-A and 6-B. In 1988 and 1989, permit and household interview data were expanded. Beginning in 1990, reported harvest is from returned permits only.

r Harvests by Fairbanks subsistence permit holders who fished in the Tanana River.

s Other permit holders who fished in District 6 but did not reside in the villages listed.

t Does not include the Coastal District.

Appendix B.2 Estimated summer chum salmon subsistence harvest by fishing district and by community of residence, Yukon Area, 1987-1998. a

Community	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1988-1992 Average	1993-1997 Average
Hooper Bay	23,468	23,059 b	2,293 b			12,900	16,106	10,556	13,374	15,870	12,310	261	23,264 c	13,234
Scammon Bay	6,200	8,171 b	48 b			3,795	4,692	4,347	3,986	6,365	3,401	1,101	7,186 c	4,205
Coastal District Subtotal	29,668	31,230	2,341			16,695	20,798	14,903	17,360	22,235	15,711	1,362	30,449	17,465
Sheldon Point	2,460	2,589	4,314	1,458	2,226	1,415	2,362	1,941	2,979	2,634	2,603	1,872	2,609	2,174
Alakanuk	9,913	6,992	12,108	7,265	8,058	9,951	8,935	5,947	10,538	6,171	7,443	5,643	8,867	8,843
Emmonak	11,177	10,528	22,985	15,215	8,401	12,296	15,568	13,060	11,696	6,097	12,399	9,558	13,661	13,155
Kotik	7,210	8,825	13,437	13,061	9,105	9,577	7,121	11,197	9,777	12,387	4,803	9,815	10,328	9,418
District 1 Subtotal	30,760	28,934	52,844	36,999	27,790	33,239	33,986	32,145	34,990	27,289	27,248	26,888	35,465	33,590
Mountain Village	12,456	9,248	15,869	9,950	4,743	7,864	10,505	3,938	10,554	9,285	11,310	9,596	10,453	8,215
Pitkas Point	1,184	2,384	4,176	1,438	1,452	759	1,481	1,103	1,665	1,619	747	1,302	2,127	1,252
St. Marys	11,218	8,117	8,948	8,077	7,832	7,796	5,925	10,128	5,950	6,736	8,874	9,047	8,838	7,450
Pilot Station	4,279	4,242	6,783	6,698	4,634	6,236	5,641	5,450	4,427	6,355	4,532	5,042	5,327	5,439
Marshall	3,997	4,796	3,927	2,290	2,042	2,076	1,745	2,288	4,594	4,431	1,508	1,293	3,410	2,676
District 2 Subtotal	33,134	28,787	39,703	28,453	20,703	24,731	25,297	22,907	27,190	28,426	26,971	26,280	30,156	25,031
Russian Mission	2,283	2,794	2,229	2,146	837	3,331	1,838	801	3,653	3,554	585	702	2,058	2,406
Holy Cross	1,878	3,036	1,753	857	1,028	1,001	1,517	1,479	948	1,700	487	269	1,710	1,236
Shageluk	8,015	8,779	8,842	6,518	3,680	5,267	4,183	6,212	7,642	6,114	9,244	5,501	7,167	5,801
District 3 Subtotal	12,176	14,609	12,824	9,521	5,545	9,599	7,538	8,492	12,143	11,368	10,316	6,472	10,935	9,443
Lower Yukon River Total	76,070	72,330	105,371	74,973	54,038	67,569	66,821	63,544	74,323	67,083	64,535	59,640	76,556	68,064
Arvik	28,887	12,607	410	2,032	876	1,142	1,735	907	9	185	6,306	2,139	8,962	948
Graying	21,264	22,634	14,570	1,430	8,094	3,805	1,137	1,418	3,385	587	2,446	4,032	13,598	2,386
Kaltag	28,550	3,592	632	6,956	2,267	1,204	1,116	3,683	139	31	73	175	8,403	1,536
Nulato	16,299	10,201	200	502	159	889	15	975	228	1,003	115	3,518	5,472	527
Koyukuk	9,718	284	381	283	2,326	1,130	230	2,039	315	41	739	1,819	2,598	929
Galena	11,776	7,413	6,216	1,760	3,493	3,232	2,477	1,198	1,954	3,902	4,575	2,333	6,132	2,215
Ruby/Kokrine	8,786	4,010	1,844	351	1,352	2,420	1,459	4,586	4,445	2,016	3,286	2,251	3,269	3,228
District 4 Yukon River Subtotal (Excluding the Koyukuk River)	125,280	60,741	24,253	13,314	18,587	13,622	8,169	14,806	10,475	7,765	17,540	16,267	48,435	11,768
Huslia	11,042	14,895	10,005	7,368	7,857	13,670	8,343	6,014	4,885	2,372	840	449	10,233	8,228
Hughes	4,369	2,445	3,667	509	1,257	1,625	827	1,581 d	2,448	1,411	1,579	334	2,453	1,620
Allakaket	8,700 f	7,066	2,915 f	5,247	6,451	6,368	2,651	4,693 d	6,396	4,668	3,916	901	6,283 g	5,027
Alatna	- f	1,458	- f	72	962	490	52	365 d	140	209	145	13	746 g	262
Bettles		18	75	24	155	37	34	45	740	0	210	82	68	214
Koyukuk River Subtotal	24,111	25,882	16,682	13,220	16,882	22,190	11,907	12,698	14,609	8,660	6,690	1,779	19,783	15,351
District 4 Subtotal	149,391	86,623	40,935	26,534	35,269	35,812	20,076	27,504	25,084	16,425	24,230	18,046	68,218	27,119

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Community	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1988-1992 Average	1993-1997 Average
Tanana	10,876	13,972	7,756	5,905	2,779	4,553	4,245	7,022	3,660	5,190	2,526	1,966	8,258	4,870
Rampart	2,434	3,383	28	58	20	4,494	1,489	559	1,168	1,188	738	19	1,185	1,928
Fairbanks (permits) h j	1,493	0	0	25	1,068	706	465	360	722	2,958	424	57	517	563
Stevens Village	1,446	865	2,375	1,671	1,385	460	653	459	158	530	191	171	1,548	433
Beaver	657	214	124	108	2,355	12	134	655	36	572	2	15	692	209
Fort Yukon	1,187	7,717	1,760	145	11,974	1,700	3,830	2,043	998	26 k	134 k	30	4,557	2,143
Circle (permits) j	2,078 m	742	361 m	1,262	51	265	83	98	70	271	257	1	580 g	129
Central (permits) j	- m	129	- m	5	0	91	2	8	2	53	25	1	56 g	26
Eagle (permits) j	417	1,273	547	361	607	23	32	38	57	105	17	52	641	38
Other (permits) j n				187	32	291	24	21	232	616	130	2	110 p	142
District 5 Yukon River Subtotal (Excluding Chandalar/Black Rivers)	20,588	28,295	12,951	9,727	20,271	12,595	10,957	11,263	7,103	11,509	4,444	2,314	18,143	10,480
Veneta	0	701	30	0	3,393	0	129	567	552	0	76	0	825	312
Chalkyitsik	0	327	0	90	500	17	0	0	0	0	0	0	183	4
Chandalar/Black Rivers Subtotal	0	1,028	30	90	3,893	17	129	567	552	0	76	0	1,008	316
District 5 Subtotal	20,588	29,323	12,981	9,817	24,164	12,612	11,086	11,830	7,655	11,509	4,520	2,314	19,151	10,796
Manley r	267	3,731	2,457	2,250	1,716	850	1,310	1,405	1,657	1,219	576	211	2,084	1,306
Minto r	1,383	947	1,425	500	748	625	367	509	1,320	1,421	1,056	148	1,001	705
Nenana r	21,214	5,654	3,986	1,383	1,499	6,372	5,019	1,352	5,043	4,411	1,899	5,041	6,747	4,447
Fairbanks j s	1,461	0	0	152	1,096	1,342	97	3,693	3,528	392	271	604	542	2,165
Other r t	0	0	0	0	10	315	0	67	113	43	22	0	3	124
District 6 Tanana River Subtotal	24,325	10,332	7,868	4,285	5,069	9,504	6,793	7,026	11,661	7,486	3,824	6,004	10,376	8,746
Upper Yukon River Total	194,304	126,278	61,784	40,636	64,502	57,928	37,955	46,360	44,400	35,420	32,574	26,364	97,746	46,661
Alaska, Yukon River Total v	270,374	198,608	167,155	115,609	118,540	125,497	104,776	109,904	118,723	102,503	97,109	86,004	174,302	114,725
Alaska, Yukon Area Total	300,042	229,838	169,496	115,609	118,540	142,192	125,574	124,807	136,083	124,738	112,820	87,366	204,751	132,190

a Historic estimated subsistence harvests are available in each year's respective Yukon Area Annual Management Report (1961 to 1997). Beginning in 1988 subsistence salmon harvest estimates have been generated from a stratified random sample of village households. Numbers include test fish catches given away. District 4 summer chum salmon subsistence harvest estimates prior to 1988 and District 5 and 6 prior to 1989 included commercially caught summer chum salmon carcasses retained for subsistence use. Beginning in 1988 and 1989, efforts were made to exclude commercial carcasses from subsistence harvest estimates. Blanks indicate harvest information was not collected.

b The village was not surveyed, harvest estimates were calculated from calendar and post card replies.

c Average harvest includes 1988, 1989 and 1992.

d Due to floods in 1994, Hughes, Alakaket, and Alatna were not surveyed. The 1994 summer chum salmon harvest is estimated based on a five-year-average, 1989-1993.

f Alatna and Alakaket harvests are combined.

g Average harvest includes 1988 and 1990-1992.

h Harvests by Fairbanks subsistence use permit holders who fished in District 5 near the Yukon River bridge crossing.

j Salmon catches expanded for permits not returned and household interviews (1981-1989). Beginning in 1990, reported harvest is from returned permits only.

k Includes Birch Creek.

m Circle and Central harvests are combined.

n Other permit holders who fished in District 5 but did not reside in the villages listed.

p Average harvest includes 1990-1992.

r Permits required beginning in 1988 for Subdistricts 6-A and 6-B. In 1988 and 1989, permit and household interview data were expanded. Beginning in 1990, reported harvest is from returned permits only.

s Harvests by Fairbanks subsistence use permit holders who fished in the Tanana River.

t Other permit holders who fished in District 6 but did not reside in the villages listed.

v Does not include the Coastal District.

Appendix B.3 Estimated fall chum salmon subsistence harvest by fishing district and by community of residence, Yukon Area, 1987-1998. a

Community	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1988-1992 Average	1993-1997 Average
Hooper Bay	105	1,711 b	146 b			127	113	284	207	392	0	0	661 c	199
Scammon Bay	117	551 b	10 b			79	7	63	147	0	0	34	213 c	43
Coastal District Subtotal	222	2,262	156			206	120	347	354	392	0	34	875	243
Sheldon Point	882	289	586	102	84	490	158	25	256	21	337	266	310	159
Alakanuk	3,748	1,194	430	267	193	401	182	73	631	100	900	665	497	377
Emmonak	8,160	1,792	840	2,353	2,027	1,628	1,507	3,441	1,614	1,501	1,039	867	1,728	1,820
Kotlik	5,677	2,200	3,058	2,613	1,631	2,697	5,923	1,348	2,197	2,525	656	1,365	2,440	2,570
District 1 Subtotal	18,467	5,475	4,914	5,335	3,935	5,216	7,770	4,887	4,698	4,147	3,132	3,163	4,975	4,927
Mountain Village	4,897	1,880	4,641	1,566	1,473	1,052	1,113	797	1,347	1,366	2,698	2,031	2,122	1,464
Pitkas Point	1,143	622	275	150	610	77	268	294	99	603	178	233	347	288
St. Marys	2,823	1,911	1,695	806	1,592	2,356	440	1,062	542	658	310	416	1,672	602
Pilot Station	583	1,372	1,872	1,941	1,062	1,170	1,017	1,527	575	448	1,106	1,162	1,483	935
Marshall	4,008	2,815	1,532	1,724	891	2,727	256	471	754	2,212	388	640	1,938	816
District 2 Subtotal	13,454	8,600	10,015	6,187	5,628	7,382	3,094	4,151	3,317	5,287	4,680	4,482	7,562	4,106
Russian Mission	1,255	1,151	308	878	425	648	172	11	865	587	0	137	682	327
Holy Cross	1,598	596	711	1,178	190	845	1,066	665	681	1,814	420	1,095	704	929
Shageluk	434	0	4	0	0	865	211	186	126	305	367	329	174	239
District 3 Subtotal	3,287	1,747	1,023	2,056	615	2,358	1,449	862	1,672	2,706	787	1,561	1,560	1,495
Lower Yukon River Total	35,208	15,822	15,952	13,578	10,178	14,956	12,313	9,900	9,687	12,140	8,599	9,206	14,097	10,526
Anvik	394	136	168	583	452	894	420	155	269	457	514	388	447	363
Grayling	4,750	1,780	830	1,405	3,616	2,993	2,083	811	1,155	1,759	1,531	648	2,121	1,468
Kaltag	7,474	2,293	1,654	2,327	2,834	2,522	704	630	644	1,049	1,142	499	2,326	834
Nulato	2,200	1,673	2,436	3,546	1,637	1,910	571	1,109	1,137	2,299	697	367	2,240	1,163
Koyukuk	2,492	587	2,460	860	2,761	2,817	2,052	1,049	814	2,458	1,954	1,583	1,897	1,665
Galena	10,509	4,308	6,436	3,202	5,525	2,393	3,255	3,963	3,202	6,620	3,370	1,915	4,373	4,082
Ruby/Kokrines	11,000	5,171	6,599	3,352	2,656	4,499	1,085	5,553	4,695	561	2,195	2,427	4,495	2,818
District 4 Yukon River Subtotal (Excluding the Koyukuk River)	38,819	15,928	20,583	15,275	19,681	18,028	10,170	13,270	11,916	15,203	11,403	7,627	17,899	12,392
Huslia	585	1,697	1,728	846	411	1,286	258	55	1,035	298	10	0	1,194	331
Hughes	586	311	260	70	270	325	169	0 d	263	274	51	60	247	151
Allakaket	1,477 f	326	1,969 f	2,470	475	1,452	233	0 d	260	961	270	11	1,181 g	345
Alatna	- f	117	- f	580	38	127	2	0 d	0	0	0	0	216 g	0
Bettles		0	0	0	0	14	0	0	583	50	0	0	4	127
Koyukuk River Subtotal	2,648	2,451	3,957	3,966	1,194	3,204	662	55	2,141	1,583	331	71	2,841	954
District 4 Subtotal	41,467	18,379	24,540	19,241	20,875	21,232	10,832	13,325	14,057	16,786	11,734	7,698	20,740	13,347

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Community	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1988-1992 Average	1993-1997 Average
Tanana	41,825	55,998	40,845	41,145	40,868	19,365	23,103	34,881	14,409	21,420	25,058	24,958	39,844	23,734
Rampart	5,092	3,600	2,472	10,818	5,801	5,701	3,272	1,007	1,403	896	646	100	5,678	1,445
Fairbanks (permits) h j	5,264	0	7	82	2,022	2,491	930	2,870	2,184	2,727	491	96	920	1,840
Stevens Village	7,538	1,451	6,833	3,857	2,481	150	862	45	3,194	991	1,585	1,076	2,914	1,335
Beaver	5,750	96	7,242	757	7	361	692	2,069	1,231	9	243	409	1,693	849
Ft. Yukon	15,200	2,766	27,790	11,627	7,467	2,284	2,380	6,827	9,196	8,144 k	6,119 k	3,035	10,387	6,533
Circle (permits) j	7,691 m	3,646	4,478 m	6,639	6,340	6,279	349	4,581	5,102	5,308	3,707	37	5,726 g	3,809
Central (permits) j	- m	750	- m	165	73	100	0	0	0	132	0	0	272 g	26
Eagle (permits) j	19,678	14,800	11,557	8,027	7,985	5,630	2,070	8,263	13,115	14,916	14,488	543	9,800	10,570
Other (permits) j n				529	100	0	1,750	0	830	505	421	50	210 p	701
District 5 Yukon River Subtotal (Excluding Chandalar/Black Rivers)	108,038	83,107	101,024	83,646	73,144	42,361	35,408	60,343	50,664	55,048	52,758	30,302	77,044	50,844
Venetie	2,774	34	7,977	5,377	758	3,066	7,881	4,302	6,085	7,195	1,564	658	3,442	5,405
Chaikyltsik	2,686	1,068	3,000	1,490	100	274	475	1,751	845	1,230	936	433	1,186	1,047
Chandalar/Black Rivers Subtotal	5,460	1,102	10,977	6,867	858	3,340	8,356	6,053	6,930	8,425	2,500	1,091	4,629	6,453
District 5 Subtotal	113,498	84,209	112,001	90,513	74,002	45,701	43,764	66,396	57,594	63,473	55,258	31,393	81,673	57,297
Manley r	4,267	6,899	21,087	25,860	13,243	7,010	3,215	13,722	20,272	10,662	5,887	4,411	14,820	10,752
Minto r	5,419	2,615	2,005	3,852	5,276	3,017	301	1,419	4,782	4,381	2,361	505	3,313	2,649
Nenana r	26,909	26,889	25,340	12,464	17,932	13,253	5,929	11,201	15,500	14,207	3,799	6,781	19,176	10,127
Fairbanks (permits) j s	0	0	0	309	1,671	1,394	56	5,006	6,384	5,736	4,031	960	675	4,243
Other r t			10,222	2,283	2,347	1,039	352	2,249	2,230	1,481	3,472	1,713	3,973	1,957
District 6 Tanana River Subtotal	36,595	36,403	58,654	44,568	40,469	25,713	9,853	33,597	49,168	36,467	19,550	14,370	41,956	29,727
Upper Yukon River Total	191,560	138,991	195,195	154,322	135,346	92,646	64,449	113,318	120,819	116,726	86,542	53,661	144,369	100,371
Alaska, Yukon River Total v	226,768	154,813	211,147	167,900	145,524	107,602	76,762	123,218	130,506	128,866	95,141	62,867	158,466	110,899
Alaska, Yukon Area Total	226,990	157,075	211,303	167,900	145,524	107,808	76,882	123,565	130,860	129,258	95,141	62,901	159,340	111,141

a Historic estimated subsistence harvests are available in each year's respective Yukon Area Annual Management Report (1961 to 1997). Beginning in 1988 subsistence salmon harvest estimates have been generated from a stratified random sample of village households. Numbers include test fish catches given away. Includes commercial related harvest to produce roe sold, 1982-1988. Blanks indicate harvest information was not collected.

b The village was not surveyed, harvest estimates were calculated from calendar and post card replies.

c Average harvest includes 1988, 1989 and 1992.

d Due to floods in 1994, Hughes, Allakaket, and Alaina were not surveyed and the estimated harvest of fall chum salmon was zero.

f Alaina and Allakaket harvests are combined.

g Average harvest includes 1988 and 1990-1992.

h Harvests by Fairbanks subsistence use permit holders who fished in District 5 near the Yukon River bridge crossing.

j Salmon catches expanded for permits not returned and household interviews (1981-1989). Beginning 1990, reported harvest is from returned permits only.

k Includes Birch Creek.

m Circle and Central harvests are combined.

n Other permit holders who fished in District 5 but did not reside in the villages listed.

p Average harvest includes 1990-1992.

r Permits required beginning in 1988 for Subdistricts 6-A and 6-B. In 1988 and 1989, permit and household interview data were expanded. Beginning in 1990, reported harvest is from returned permits only.

s Harvests by Fairbanks subsistence use permit holders who fished in the Tanana River.

t Other permit holders who fished in District 6 but did not reside in the villages listed.

v Does not include the Coastal District.

Appendix B.4 Estimated coho salmon subsistence harvest by fishing district and by community of residence, Yukon Area, 1987-1998. a

Community	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1988-1992 Average	1993-1997 Average
Hooper Bay	69	1,523 b	211 b			28	0	1	48	92	0	145	587 c	28
Scammon Bay	64	326 b	2 b			31	40	80	104	0	0	204	120 c	45
Coastal District Subtotal	133	1,849	213			59	40	81	152	92	0	349	707	73
Sheldon Point	308	169	487	78	35	441	78	52	419	138	51	229	242	148
Alekanuk	1,116	634	334	156	391	966	138	94	658	103	882	292	496	375
Emmonak	3,497	1,578	1,259	1,283	801	666	196	959	485	594	358	696	1,117	518
Kotlik	1,475	2,008	2,997	1,784	581	3,353	1,931	2,167	689	1,610	534	954	2,145	1,386
District 1 Subtotal	6,396	4,389	5,077	3,301	1,808	5,426	2,343	3,272	2,251	2,445	1,823	2,171	4,000	2,427
Mountain Village	2,481	1,314	2,385	1,754	868	1,971	447	968	921	276	1,089	954	1,658	740
Pitkas Point	273	1,015	601	52	347	641	349	364	554	691	427	305	531	477
St. Marys	1,467	2,132	370	463	1,270	2,130	102	614	154	292	329	290	1,273	298
Pilot Station	300	878	379	1,968	553	300	477	811	241	1,258	323	413	815	622
Marshall	2,373	1,767	1,304	2,107	259	1,545	320	1,124	272	958	256	335	1,396	586
District 2 Subtotal	6,894	7,104	5,039	6,344	3,297	6,587	1,695	3,881	2,142	3,475	2,424	2,297	5,674	2,723
Russian Mission	423	604	20	688	396	1,148	152	55	891	255	10	233	571	273
Holy Cross	259	935	517	338	944	105	88	171	0	0	20	100	588	56
Shageluk	72	128	0	0	0	296	39	137	0	189	736	67	85	220
District 3 Subtotal	754	1,667	537	1,026	1,340	1,549	279	363	891	444	766	400	1,224	549
Lower Yukon River Total	14,044	13,160	10,653	10,871	6,445	13,562	4,317	7,516	5,284	6,364	5,013	4,868	10,898	5,699
Anvik	405	97	40	236	347	202	115	95	10	44	24	20	184	58
Grayling	599	692	969	10	1,363	859	164	36	97	236	1,055	133	779	318
Kaltag	0	0	792	501	1,260	2,105	334	245	428	298	60	71	932	273
Nulato	85	234	276	845	75	435	37	27	25	149	444	34	373	136
Koyukuk	894	10	110	162	307	1,877	70	305	33	476	345	421	493	246
Galena	1,349	1,029	415	572	422	1,398	124	803	275	780	1,002	322	767	597
Ruby/Kokrine	0	2,169	1,069	974	410	1,299	308	1,957	607	376	474	1,459	1,164	744
District 4 Yukon River Subtotal (Excluding the Koyukuk River)	3,332	4,231	3,671	3,300	4,184	8,175	1,152	3,468	1,473	2,359	3,404	2,460	4,712	2,371
Huslia	124	201	150	235	150	233	9	47	307	18	50	128	194	86
Hughes	0	104	91	43	9	21	3	0 d	153	51	250	5	54	91
Allakaket	23 f	160	118	31	25	0	3	0 d	0	39	50	0	67	18
Alatna	- f	18	0	5	83	0	0	0 d	0	0	0	0	21	0
Bettles		0	0	0	0	0	0	0	1	0	0	0	0	0
Koyukuk River Subtotal	147	483	359	314	267	254	15	47	461	108	350	133	335	196
District 4 Subtotal	3,479	4,714	4,030	3,614	4,451	8,429	1,167	3,515	1,934	2,467	3,754	2,593	5,048	2,567

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Community	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1988-1992 Average	1993-1997 Average
Tanana	6,680	16,922	5,518	8,580	4,448	11,406	5,576	2,587	2,154	6,110	3,045	2,572	9,375	3,894
Rampart	81	842	87	591	58	75	38	99	0	5	34	20	331	35
Fairbanks (permits) g h	6	0	0	5	8	34	0	25	18	42	26	11	9	22
Stevens Village	0	604	208	479	0	20	0	0	1	2	1	63	262	1
Beaver	0	164	774	172	1	398	135	10	20	7	0	0	302	34
Fort Yukon	41	370	408	727	380	341	5	963	4	157	251 j	39	445	276
Circle (permits) h	0	41	1	201	5	54	10	30	0	0	210	0	60	50
Central (permits) h	0	0	0	5	0	0	0	0	0	0	0	0	1	0
Eagle (permits) h	0	11	0	0	0	3	85	0	1	1	2	132	3	18
Other (permits) h k	0	0	165	450	12	0	0	0	7	0	0	2	125	1
<i>District 5 Yukon River Subtotal (Excluding Chandalar/Black Rivers)</i>	6,808	18,954	7,159	11,210	4,912	12,331	5,849	3,714	2,205	6,324	3,569	2,839	10,913	4,332
Venetie	17	0	2	348	12	45	135	4	0	264	7	0	81	82
Chalkyitsik	2	801	26	4	7	0	0	456	0	0	7	0	168	93
<i>Chandalar/Black River Subtotal</i>	19	801	28	352	19	45	135	460	0	264	14	0	249	175
<i>District 5 Subtotal</i>	6,827	19,755	7,187	11,562	4,931	12,376	5,984	4,174	2,205	6,588	3,583	2,839	11,162	4,507
Manley m	1,467	2,103	5,310	7,574	6,361	4,725	1,535	10,410	7,395	2,462	3,236	2,362	5,215	5,008
Minto m	671	2,729	1,179	818	526	614	300	2,616	338	1,223	364	31	1,173	968
Nenana m	19,592	25,369	7,593	7,381	10,171	8,895	1,314	9,387	7,142	7,883	5,147	3,519	11,882	6,175
Fairbanks (permits) h n	0	0	0	66	2,501	2,281	0	2,103	3,076	2,314	1,230	786	970	1,745
Other m p			4,759	1,774	2,002	1,039	1,155	1,973	851	1,011	1,618	774	2,394 r	1,322
<i>District 6 Tanana River Subtotal</i>	21,730	30,201	18,841	17,613	21,561	17,554	4,304	26,489	18,802	14,893	11,595	7,472	21,633	15,217
Upper Yukon Area Total	32,036	54,670	30,058	32,789	30,943	38,359	11,455	34,178	22,941	23,948	18,932	12,904	37,843	22,291
Alaska, Yukon River Total s	46,080	67,830	40,711	43,460	37,388	51,921	15,772	41,694	28,225	30,312	23,945	17,772	48,741	27,990
Alaska, Yukon Area Total	46,213	69,679	40,924	43,460	37,388	51,980	15,812	41,775	28,377	30,404	23,945	18,121	49,448	28,063

a Historic estimated subsistence harvests are available in each year's respective Yukon Area Annual Management Report (1961 to 1997). Beginning in 1988 subsistence salmon harvest estimates have been generated from a stratified random sample of village households. Numbers include test fish catches given away. Blanks indicate harvest information was not collected.

b The village was not surveyed, harvest estimates were calculated from calendar and post card replies.

c Average harvest includes 1988, 1989 and 1992.

d Due to floods in 1994, Hughes, Allakaket, and Alatna were not surveyed and the estimated harvest of coho salmon was zero.

f Alatna and Allakaket harvests are combined.

g Harvests by Fairbanks subsistence use permit holders who fished in District 5 near the Yukon River bridge crossing.

h Salmon catches expanded for permits not returned and household interviews (1981-1989). Beginning 1990, reported harvest is from returned permits only.

j Includes Birch Creek.

k Other permit holders who fished in District 5 but did not reside in the villages listed.

m Permits required beginning in 1988 for Subdistricts 6-A and 6-B. In 1988 and 1989, permit and household interview data were expanded. Beginning in 1990, reported harvest is from returned permits only.

n Harvests by Fairbanks subsistence use permit holders who fished in the Tanana River.

p Other permits holders who fished in District 6 but did not reside in the villages listed.

r Average harvest includes 1989-1992.

s Does not include the Coastal District.

Appendix B.5. Subsistence salmon harvests taken under authority of a permit in portions of District 5, Yukon Area, 1974-1998. a

Yukon River "Bridge" Area Subsistence Salmon Fishery b							
Year	Number of Permits Issued	Number of Permits Returned	Number Reporting Harvest	Reported Harvest			Coho
				Chinook	Summer Chum c	Fall Chum c	
1974	29	-	-	591	-	1,857	1,271
1975	19	-	-	727	-	778	70
1976	28	-	18	531	-	974	-
1977	38	-	-	467	-	2,567	-
1978	57	-	-	1,333	-	9,735	-
1979	55	-	41	2,194	-	12,374	-
1980	70	-	67	1,350	-	6,488	36
1981	57	-	24	1,095	-	12,034	-
1982	64	-	44	1,935	-	11,328	20
1983	68	-	46	2,672	-	15,059	-
1984	67	-	54	4,676	-	27,869	399
1985	55	-	42	2,618	-	21,832	33
1986	76	-	58	3,827	-	18,690	759
1987	16	-	14	1,818	2,091	7,631	6
1988	24	21	18	1,747	2,097	3,183	606
1989	26	20	13	2,483	574	1,157	309
1990	26	25	16	2,033	3,493	1,109	455
1991	52	46	34	2,529	1,295	3,953	20
1992	45	42	33	2,241	975	2,491	34
1993	49	47	36	3,767	492	2,915	16
1994	50	49	36	3,073	384	2,911	25
1995	59	59	39	3,253	954	2,244	59
1996	47	45	31	1,157	3,475	2,727	42
1997	44	42	28	1,588	683	491	26
1998	48	47	31	1,685	103	156	15
Five Year Average 1993-1997							
	50	48	34	2,568	1,198	2,258	34
Ten Year Average 1988-1997							
	42	40	28	2,387	1,442	2,318	159

Upper Yukon River Subsistence Salmon Fishery d							
Year	Number of Permits Issued	Number of Permits Returned	Number Reporting Harvest	Reported Harvest			Coho
				Chinook	Summer Chum c	Fall Chum c	
1979	75	-	6	4,063	-	30,475	114
1980	48	-	39	3,649	-	18,477	6
1981	71	-	51	4,510	-	38,333	-
1982	60	-	61	3,833	-	15,432	-
1983	53	-	52	2,831	-	23,708	-
1984	58	-	54	2,543	-	21,675	17
1985	59	-	36	2,419	-	19,059	2
1986	40	-	52	4,148	-	20,701	43
1987	51	51	58 f	3,602	2,495	27,369	0
1988	58	57	50	2,783	2,134	9,078	101
1989	59	56	42	1,186	68	7,515	1
1990	81	75	54	3,746	1,629	14,992	206
1991	70	69	48	3,219	658	14,898	5
1992	85	79	54	2,984	409	12,009	57
1993	79	79	49	1,910	118	2,419	95
1994	79	76	51	3,093	145	12,844	30
1995	87	87	53	3,628	129	19,047	1
1996	86	84	51	3,458	528	20,861	1
1997	98	93	60	3,148	393	18,616	212
1998	101	95	54	3,562	55	630	132
Five Year Average 1993-1997							
	86	84	53	3,047	263	14,757	68
Ten Year Average 1988-1997							
	78	76	51	2,916	621	13,228	71

- a Prior to 1988 the reported harvest was expanded for permits not returned. Beginning in 1988, reported harvest was not expanded. Dashes in the table indicate the information is not available.
- b That portion of the Yukon River drainage from Hess Creek to Dall River.
- c Summer chum and fall chum salmon undifferentiated from 1974-1986.
- d That portion of the Yukon River drainage from Twenty-Two Mile Slough, above the village of Fort Yukon, to the United States/Canadian border.
- f Some fishermen reporting harvests did not have permits.

Appendix B.6. Subsistence salmon harvests taken under authority of a permit, Tanana River drainage, 1973-1998. a

Subdistrict 6-A Subsistence Salmon Fishery

Year	Number of Permits Issued	Number of Permits Returned	Number Reporting Harvest	Reported Harvest			
				Chinook	Summer Chum	Fall Chum	Coho
1988 b	28	24	18	845	1,389	9,165	3,455
1989 b, c	29	28	24 d	651	1,918	25,266	5,292
1990 c	42	36	26	1,369	2,250	27,957	8,408
1991	45	41	31	420	1,716	17,472	8,486
1992	38	35	26	508	450	5,999	5,028
1993 c	42	41	22	331	784	2,617	1,317
1994 f	37	37	30	576	3,793	18,076	12,449
1995	41	38	29	456	4,898	23,522	11,344
1996	31	29	23	209	1,338	18,931	5,959
1997	33	32	21	887	542	10,621	3,703
1998	31	31	19	512	519	4,726	1,526
Five Year Average 1993-1997	37	35	25	492	2,271	14,753	6,954

Subdistrict 6-B Subsistence Salmon Fishery

Year	Number of Permits Issued	Number of Permits Returned	Number Reporting Harvest	Reported Harvest			
				Chinook	Summer Chum	Fall Chum	Coho
1988	75	66	52	3,721	3,167	18,902	18,906
1989 g	60	51	37 d	455	363	18,506	8,453
1990 g	70	58	38	1,234	1,966	16,332	9,155
1991 g	87	78	51	1,796	2,373	21,629	11,971
1992 g	98	89	57	1,587	7,820	18,782	11,409
1993	99	89	38	1,341	5,976	7,166	2,987
1994	102	94	49	1,337	2,035	13,726	12,480
1995	98	98	59	1,322	6,712	25,364	7,458
1996	105	96	59	968	6,138	17,439	8,934
1997	103	95	55	1,825	3,282	8,723	7,892
1998	94	84	46	1,406	5,485	9,573	5,937
Five Year Average 1993-1997	101	94	52	1,359	4,829	14,484	7,950

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Subdistrict 6-C Subsistence Salmon Fishery

Year	Number of Permits Issued	Number of Permits Returned	Number Reporting Harvest	Reported Harvest			Coho h
				Chinook	Summer Chum	Fall Chum	
1973	22	-	4	26	771	886	-
1974	70	-	-	38	1,373	1,580	-
1975	36	-	-	32	751	864	-
1976	110	-	-	31	1,314	1,512	-
1977	89	-	33	81	118	607	-
1978	160	-	126	126	2,729	1,188	-
1979	246	-	199	264	2,384	4,459	-
1980	315	-	254	282	3,729	4,059	-
1981	346	-	228	440	3,239	5,770	-
1982	330	-	209	451	2,708	4,521	-
1983	259	-	147	475	2,276	3,830	-
1984	308	-	212	321	3,177	5,134	-
1985	291	-	155	326	2,646	3,937	-
1986	323	-	211	637	4,031	4,437	-
1987 j	217	-	123	531	2,739	0	0
1988	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0
1990 k	19	18	6	15	69	279	50
1991	149	142	98	299	980	1,080	1,089
1992	149	146	90	343	1,234	896	1,116
1993 m	0	0	0	0	0	0	0
1994 n, o	145	142	107	457	1,198	1,600	1,545
Five Year Average 1990-1994	92	90	60	223	696	771	760

Upper Tanana River Drainage Subsistence Salmon Fishery

Year	Number of Permits Issued	Number of Permits Returned	Number Reporting Harvest	Reported Harvest			Coho
				Chinook	Summer Chum	Fall Chum	
1988	0	0	0	0	0	0	0
1989	2	2	2	5	0	39	0
1990	1	1	0	0	0	0	0
1991	8	7	6	0	0	288	14
1992	11	11	4	0	0	36	1
1993	10	10	8	0	0	5	0
1994	7	7	3	0	0	202	15
1995	50	46	12	0	0	88	0
1996	42	39	15	0	10	97	0
1997	61	58	26	0	0	200	0
1998	46	46	17	0	0	71	9
Five Year Average 1993-1997	34	32	13	0	2	118	3

- a Prior to 1988, salmon harvests were expanded for permits not returned. Beginning in 1988, the reported harvests were not expanded. Dashes in the table indicate the information is not available.
- b Many Subdistrict 6-A fishermen did not obtain a permit in 1988 and 1989.
- c Includes salmon given away as part of the department's test fishing project in Manley.
- d Includes harvests reported by fishermen who did not have permits.
- f Beginning in 1994, a separate Kantishna River drainage permit was required. The Subdistrict 6-A harvest totals include the harvest from the Kantishna River drainage.
- g Includes salmon given away as part of the department's test fish project in Nenana.
- h Prior to 1988 fall chum and coho salmon were not reported as separate species.
- j Personal use fishery established for nonrural residents beginning in July of 1987.
- k Some fishermen had both personal use and subsistence permits. The McDowell Decision became effective July 1990. (midway through the season), and stated that all Alaskan residents were eligible subsistence participants.
- m Personal use fishery was established for those fishing for salmon in the Fairbanks Nonsubsistence Area, which includes Subdistrict 6-C.
- n No personal use permits were issued in 1994 for this area.
- o After 1994 subsistence regulations were repealed within the Fairbanks Nonsubsistence Area, which includes Subdistrict 6-C.

Subdistrict 6-A Personal Use Salmon Fishery

Year	Number of Permits Issued	Number of Permits Returned	Number Reporting Harvest	Reported Harvest			
				Chinook	Summer Chum	Fall Chum	Coho
1987	0	0	0			0	
1988	1	1	0	0	0	0	0
1989	1	1	1	0	4	0	0
1990	1	1	0	0	0	0	0
1991	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0
1995	0	0	0	0	0	0	0
1996	0	0	0	0	0	0	0
1997 b	0	0	0	0	0	0	0

Subdistrict 6-B Personal Use Salmon Fishery

Year	Number of Permits Issued	Number of Permits Returned	Number Reporting Harvest	Reported Harvest			
				Chinook	Summer Chum	Fall Chum	Coho
1987	0	0	0			0	
1988	1	1	1	306	60	40	22
1989	1	1	1	56	220	0	0
1990	4	4	3	9	12	40	35
1991	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0
1995	0	0	0	0	0	0	0
1996	0	0	0	0	0	0	0
1997 b	0	0	0	0	0	0	0

Subdistrict 6-C Personal Use Salmon Fishery

Year	Number of Permits Issued	Number of Permits Returned	Number Reporting Harvest	Reported Harvest			
				Chinook	Summer Chum	Fall Chum	Coho
1987	132 c	-	60 d			3,316	2,465
1988	208	162	120	317	1,182	2,074	1,125
1989	175	160	112	397	991	1,770	731
1990	152	144	102	442	918	1,353	1,120
1991 f	0	0	0	0	0	0	0
1992 f	0	0	0	0	0	0	0
1993	133	131	79	426	674	163	0
1994 f	0	0	0	0	0	0	0
1995	139	138	91	399	780	863	417
1996	129	125	73	215	905	356	198
1997	112	109	61	313	391	284	350
1998	103	101	52	357	84	2	9
Five Year Average 1990, 1993, and 1995-1997							
	133	129	81	359	734	604	417

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Upper Tanana River Personal Use Salmon Fishery

Year	Number of Permits Issued	Number of Permits Returned	Number Reporting Harvest	Reported Harvest			
				Chinook	Summer Chum	Fall Chum	Coho
1987	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0
1991 g	0	0	0	0	0	0	0

- a Personal use fishery during 1987 applied to nonrural residents harvesting only fall chum salmon. Beginning in 1988, nonrural personal use fishing applied to all salmon species and reported harvest is from returned permits only. Effective July 1, 1990 all Alaskan residents became eligible for subsistence fishing permits. In 1993 the Board established the Fairbanks Nonsubsistence Area (FNA), this designated fishermen residing in the area as personal use harvesters. In 1994 a Superior Court decision invalidated the FNA and subsistence regulations applied. In 1995 the Board amended the FNA to apply personal use regulations to all fishermen fishing in the area. Dashes in the table indicate the information is not available.
- b After 1997 the regulations did not provide for a personal use fishery in these areas.
- c Includes 60 former subsistence fishermen who were reissued personal use permits to fish for fall chum salmon
- d Some fishing families used both subsistence and personal use permits.
- f From July 1, 1990 through 1992, and in 1994, the regulations did not provide for a personal use fishery in this area.
- g After July 1, 1991 the regulations did not provide for a personal use fishery in this area.

Appendix B.8. Estimated pink salmon subsistence harvest by residents of surveyed villages, Yukon Area, 1994 to 1998. a

Community	1994 b		1995		1996		1997		1998		Even Years	Odd Years	1994 to 1998
	Est. Total	CI (95%) (+/-)	Est. Total	CI (95%) (+/-)	Est. Total	CI (95%) (+/-)	Est. Total	CI (95%) (+/-)	Est. Total	CI (95%) (+/-)	Average Estimated Total	Average Estimated Total	Average Estimated Total
Hooper Bay	734	760	326	175	3,212	2,075	265	286	1,941	1,110	1,962	296	1,296
Scammon Bay	1,319	1,063	559	596	305	399	0	0	1,791	1,552	1,138	280	795
Coastal District	2,053	1,307	885	621	3,517	2,113	265	286	3,732	1,908	3,101	575	2,090
Sheldon's Point	1,388	218	1	0	262	129	1	1	299	82	650	1	390
Alakanuk	54	31	124	132	35	52	33	34	239	172	109	78	97
Emmonak	1,451	821	5	5	46	0	35	0	145	112	547	20	336
Kotlik	1,340	1,279	2	1	100	0	0	0	907	791	782	1	470
District 1	4,233	1,536	132	132	443	139	69	34	1,590	822	2,089	101	1,293
Mountain Village	806	280	35	15	611	573	10	0	753	729	723	23	443
Pilkas Point	163	142	4	0	280	96	101	24	330	128	258	53	176
St. Mary's	850	327	0	0	42	27	4	7	467	785	453	2	273
Pilot Station	32	31	0	0	0	0	0	0	0	0	11	0	6
Marshall	880	1,159	6	0	0	0	0	0	0	0	293	3	177
District 2	2,731	1,245	45	15	933	582	115	24	1,550	1,079	1,738	80	1,075
Russian Mission	200	0	0	0	0	0	0	0	211	5	137	0	82
Holy Cross	89	93	0	0	140	175	0	0	150	131	126	0	76
Shageluk	0	0	0	0	40	0	0	0	1,256	885	432	0	259
District 3	289	93	0	0	180	175	0	0	1,617	894	695	0	417
Anvik	475	520	0	0	0	0	0	0	50	0	175	0	105
Grayling	451	574	0	0	4	2	0	0	649	161	368	0	221
Kalltag	0	0	0	0	0	0	11	0	1	0	0	6	2
Nulato	4	2	0	0	0	0	0	0	0	0	1	0	1
Koyukuk	4	0	0	0	0	0	23	29	0	0	1	12	5
Galena	61	6	0	0	52	0	0	0	0	0	38	0	23
Ruby	0	0	0	0	3	0	0	0	0	0	1	0	1
Huslia	0	0	0	0	0	0	0	0	0	0	0	0	0
Hughes	0	0	0	0	0	0	0	0	0	0	0	0	0
Allakaket	0	0	0	0	0	0	0	0	0	0	0	0	0
Alatna	0	0	0	0	0	0	0	0	0	0	0	0	0
Bettles	0	0	0	0	0	0	0	0	0	0	0	0	0
District 4	995	775	0	0	59	2	34	29	700	161	585	17	358
Tanana	0	0	0	0	0	0	0	0	0	0	0	0	0
Rampart	0	0	0	0	0	0	0	0	0	0	0	0	0
Stevens Village	0	0	0	0	0	0	0	0	0	0	0	0	0
Birch Creek	0	0	0	0	0	0	0	0	0	0	0	0	0
Beaver	0	0	0	0	0	0	0	0	0	0	0	0	0
Fort Yukon	0	0	0	0	0	0	0	0	0	0	0	0	0
Venetie	0	0	0	0	0	0	0	0	0	0	0	0	0
Chalkyitsik	0	0	0	0	0	0	0	0	0	0	0	0	0
District 5	0	0	0	0	0	0	0	0	0	0	0	0	0
Survey Totals	10,301	2,496	1,062	635	5,132	2,204	483	290	9,189	2,511	8,207	773	5,233

a Includes 95 percent confidence interval, CI (95%).

b Due to floods in 1994, Hughes, Allakaket, and Alatna were not surveyed and the estimated harvest of pink salmon was zero.

Appendix B.9. Summary of responses of surveyed households which indicated that their subsistence salmon needs were not met, Yukon Area, 1992 to 1998.

Response Summary Category	1992		1993		1994		1995	
	Number of Response	Percent of Total						
Due to environmental conditions, i.e., high water	54	19.9%	33	6.4%	42	12.2%	14	6.8%
Working in another occupation	35	12.9%	57	11.1%	52	15.1%	26	12.6%
No gear - boat, net, motor, gas	30	11.0%	64	12.5%	32	9.3%	32	15.5%
No helper to harvest or process fish	15	5.5%	11	2.1%	19	5.5%	14	6.8%
Busy doing other things	21	7.7%	25	4.9%	15	4.3%	28	13.5%
Medical reasons or elderly	23	8.5%	34	6.6%	20	5.8%	25	12.1%
Poor run of fish	19	7.0%	41	8.0%	4	1.2%	1	0.5%
Out of town	9	3.3%	6	1.2%	13	3.8%	12	5.8%
Will buy or be given more fish	10	3.7%	6	1.2%	1	0.3%	0	0.0%
Not enough fish caught	17	6.3%	22	4.3%	11	3.2%	8	3.9%
Miscellaneous reasons, includes "No reason given"	26	9.6%	40	7.8%	36	10.4%	24	11.6%
Still fishing	13	4.8%	6	1.2%	3	0.9%	6	2.9%
Department fishing regulations/restrictions	0	0.0%	131	25.5%	70	20.3%	0	0.0%
Didn't fish - normally don't use fish	0	0.0%	29	5.6%	27	7.8%	17	8.2%
Not enough available to share/barter	0	0.0%	9	1.8%	0	0.0%	0	0.0%
TOTALS	272		514		345		207	
Total Number of Households Contacted	870		979		933		1,011	
Percentage Not Met	31.3%		52.5%		37.0%		20.5%	

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Response Summary Category	1996		1997		1998		1992 to 1997 Average	
	Number of Response	Percent of Total	Number of Response	Percent of Total	Number of Response	Percent of Total	Number of Response	Percent of Total
Due to environmental conditions, i.e., high water	11	4.8%	15	7.0%	32	5.4%	28	9.5%
Working in another occupation	34	14.8%	37	17.4%	37	6.2%	40	14.0%
No gear - boat, net, motor, gas	24	10.4%	16	7.5%	33	5.6%	33	11.0%
No helper to harvest or process fish	5	2.2%	11	5.2%	7	1.2%	13	4.5%
Busy doing other things	33	14.3%	14	6.6%	18	3.0%	23	8.6%
Medical reasons or elderly	21	9.1%	16	7.5%	16	2.7%	23	8.3%
Poor run of fish	12	5.2%	13	6.1%	281	47.4%	15	4.7%
Out of town	12	5.2%	6	2.8%	10	1.7%	10	3.7%
Will buy or be given more fish	4	1.7%	0	0.0%	0	0.0%	4	1.1%
Not enough fish caught	24	10.4%	20	9.4%	34	5.7%	17	6.2%
Miscellaneous reasons, includes "No reason given"	15	6.5%	36	16.9%	51	8.6%	30	10.5%
Still fishing	1	0.4%	5	2.3%	5	0.8%	6	2.1%
Department fishing regulations/restrictions	6	2.6%	2	0.9%	22	3.7%	35	8.2%
Didn't fish - normally don't use fish	24	10.4%	18	8.5%	14	2.4%	19	6.8%
Not enough available to share/barter	4	1.7%	4	1.9%	33	5.6%	3	0.9%
TOTALS	230		213		593		297	
Total Number of Households Contacted	951		915		970		943	
Percentage Not Met	24.2%		23.3%		61.1%		31.5%	

Appendix B.10. Estimated or reported subsistence and personal use harvest of miscellaneous non-salmon fish species, Yukon Area, 1993 to 1998.

	1993	1994	1995	1996	1997	1998	Five Year Average 1993 to 1997
Survey Estimates							
Whitefish	70,479	84,734	58,660	63,610	77,630	70,261	71,023
Pike	11,787	28,515	17,646	18,833	29,540	22,459	21,264
Sheefish	12,039	17,117	12,186	17,793	19,538	19,159	15,735
Survey Reported							
Burbot	316	9,181	4,602	13,654	6,381	6,704	6,827
Lamprey	2	2,565	5,122	4,630	2,533	2,580	2,970
Tomcod	2,069	1,875	4,724	4,554	6,088	5,401	3,862
Grayling	122	1,559	1,285	1,664	1,600	1,578	1,246
Suckers	67	304	210	191	667	128	288
Arctic Char	2	174	265	210	131	206	156
Blackfish	8,810	190,736	233,890	145,752	275,469	302,623	170,931
Permit Reported							
Whitefish	3,139	3,509	3,172	5,474	5,157	4,019	4,090
Pike	1,150	1,214	1,280	2,113	1,978	793	1,547
Sheefish	49	361	87	127	190	137	163
Burbot	66	196	187	105	215	137	154
Grayling	-	3	10	315	154	55	121 a
Suckers	-	68	456	1,156	858	459	635 a
Yukon Area Totals							
Whitefish	73,618	88,243	61,832	69,084	82,787	74,280	75,113
Pike	12,937	29,729	18,926	20,946	31,518	23,252	22,811
Sheefish	12,088	17,478	12,273	17,920	19,728	19,296	15,897
Burbot	382	9,377	4,789	13,759	6,596	6,841	6,981
Lamprey	2	2,565	5,122	4,630	2,533	2,580	2,970
Tomcod	2,069	1,875	4,724	4,554	6,088	5,401	3,862
Grayling	122	1,562	1,295	1,979	1,754	1,633	1,342
Suckers	67	372	666	1,347	1,525	587	795
Arctic Char	2	174	265	210	131	206	156
Blackfish	8,810	190,736	233,890	145,752	275,469	302,623	170,931

a Average harvest includes 1994 to 1997.

Appendix B.11. Households with dogs, number of dogs, and salmon fed to dogs, as estimated in surveyed villages or reported in permit areas, Yukon Area, 1990-1998. a

Districts Survey or Permit	Number of Households with Dogs	Number of Dogs	Summer Chum Salmon Fed to Dogs	Fall Chum Salmon Fed to Dogs	Coho Salmon Fed to Dogs	Total Salmon Fed to Dogs
1990						
Coastal District Survey	-	-	-	-	-	-
District 1 Survey	-	455	2,859	372	0	3,231
District 2 Survey	-	775	3,278	415	3,665	7,358
District 3 Survey	-	272	8,248	120	166	8,534
District 4 Survey	-	1,385	91,256	6,911	2,511	100,678
District 5 Survey	-	1,286	5,697	72,424	9,118	87,239
District 5 Permit b	-	-	-	-	-	-
District 6 Permit	-	-	-	-	-	-
Totals	0	4,173	111,338	80,242	15,460	207,040
1991						
Coastal District Survey	-	-	-	-	-	-
District 1 Survey	-	349	30	0	16	46
District 2 Survey	-	543	723	652	874	2,249
District 3 Survey	-	145	1,747	150	0	1,897
District 4 Survey	-	1,660	169,866	903	591	171,360
District 5 Survey	-	1,520	28,518	54,657	2,754	85,929
District 5 Permit b	49	400	-	-	-	11,522
District 6 Permit	220	1,980	-	-	-	19,479
Totals	269	6,597	200,884	56,362	4,235	292,482
1992						
Coastal District Survey	133	513	659	0	0	659
District 1 Survey	262	617	512	1,000	153	1,665
District 2 Survey	285	971	694	247	2,237	3,178
District 3 Survey	113	507	4,893	74	37	5,004
District 4 Survey	436	2,065	139,513	6,950	3,323	149,786
District 5 Survey	323	1,577	12,897	38,529	14,529	65,955
District 5 Permit b	52	492	-	-	-	7,026
District 6 Permit	255	2,270	-	-	-	18,115
Totals	1,859	9,012	159,168	46,800	20,279	251,388
1993						
Coastal District Survey	150	391	0	0	0	0
District 1 Survey	280	690	654	70	22	746
District 2 Survey	232	880	794	260	670	1,724
District 3 Survey	118	447	2,671	734	162	3,567
District 4 Survey	435	1,645	44,793	3,905	579	49,277
District 5 Survey	348	1,840	5,490	38,888	5,147	49,525
District 5 Permit b	54	1,031	-	-	-	1,133
District 6 Permit	143	1,857	-	-	-	1,547
Totals	1,760	8,781	54,402	43,857	6,580	107,519
1994						
Coastal District Survey	161	367	1,287	0	0	1,287
District 1 Survey	288	819	267	144	384	795
District 2 Survey	286	1,074	1,066	653	2,470	4,189
District 3 Survey	123	413	5,279	0	162	5,441
District 4 Survey c	427	1,649	92,127	4,720	2,916	99,763
District 5 Survey	355	1,426	10,903	51,674	4,422	66,999
District 5 Permit b	103	534	-	-	-	9,824
District 6 Permit	212	2,269	-	-	-	34,111
Totals	1,955	8,551	110,929	57,191	10,354	222,409
1995						
Coastal District Survey	158	596	2,919	214	0	3,133
District 1 Survey	223	391	531	43	7	581
District 2 Survey	213	677	1,587	436	979	3,002
District 3 Survey	111	347	8,450	265	100	8,815
District 4 Survey	423	1,830	183,386	9,092	1,151	193,629
District 5 Survey	356	1,442	6,222	50,680	2,107	59,009
District 5 Permit b	54	495	-	-	-	17,980
District 6 Permit	103	1,723	-	-	-	50,731
Totals	1,641	7,501	203,095	60,730	4,344	336,880

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Districts Survey or Permit	Number of Households with Dogs	Number of Dogs	Summer Chum Salmon Fed to Dogs	Fall Chum Salmon Fed to Dogs	Coho Salmon Fed to Dogs	Total Salmon Fed to Dogs ^a
1996						
Coastal District Survey	159	406	0	0	0	0
District 1 Survey	298	682	1,847	250	38	2,135
District 2 Survey	251	1,044	1,460	1,724	1,423	4,607
District 3 Survey	134	513	3,558	0	0	3,558
District 4 Survey	468	1,607	130,575	5,771	1,324	137,670
District 5 Survey	325	1,289	10,155	48,836	5,966	64,957
District 5 Permit ^b	53	293	-	-	-	14,345
District 6 Permit	176	1,907	-	-	-	43,590
Totals	1,864	7,741	147,595	56,581	8,751	270,862
1997						
Coastal District Survey	174	494	837	0	0	837
District 1 Survey	255	683	103	0	0	103
District 2 Survey	301	1,075	779	498	142	1,419
District 3 Survey	111	492	11,418	400	746	12,564
District 4 Survey	430	1,209	63,850	4,481	3,141	71,472
District 5 Survey	254	1,146	2,943	33,188	2,961	39,092
District 5 Permit ^b	95	569	-	-	-	19,584
District 6 Permit	156	1,898	-	-	-	12,813
Totals	1,776	7,566	79,930	38,567	6,990	157,884
1998						
Coastal District Survey	185	503	0	0	0	0
District 1 Survey	259	555	1,711	270	0	1,981
District 2 Survey	293	966	682	110	137	929
District 3 Survey	106	394	4,288	32	202	4,522
District 4 Survey	560	1,731	14,468	3,394	1,935	19,797
District 5 Survey	356	1,342	2,029	29,448	2,680	34,157
District 5 Permit ^b	113	598	-	-	-	1,262
District 6 Permit	136	1,610	-	-	-	22,311
Totals	2,008	7,699	23,178	33,254	4,954	84,959
1992-1997 Average						
Coastal District Survey	156	461	950	36	0	986
District 1 Survey	268	647	652	251	101	1,004
District 2 Survey	261	954	1,063	636	1,320	3,020
District 3 Survey	118	453	6,045	246	201	6,492
District 4 Survey	437	1,668	109,041	5,820	2,072	116,933
District 5 Survey	327	1,453	8,102	43,633	5,855	57,590
District 5 Permit ^b	69	569	-	-	-	11,649
District 6 Permit	174	1,987	-	-	-	26,818
Totals	1,809	8,192	125,853	50,621	9,550	224,490

^a Beginning in 1993, the estimated number of salmon includes those retained from subsistence and commercial (commercial-related) harvests. Dashes indicate information was not collected.

^b Permit totals do not include the community of Stevens Village.

^c Does not include the villages of Hughes, Allakaket and Alatna which were not surveyed due to a major flood event.

APPENDIX C

YUKON RIVER DRAINAGE SUBSISTENCE SALMON
SURVEY AND PERMIT HARVEST FORMS

Appendix C.1. Example of the subsistence salmon harvest calendar mailed to Lower Yukon Area fishermen, 1998.

May 1998

Dear Subsistence Fishermen:

The 1998 Yukon River drainage subsistence salmon harvest reporting calendar is provided by the Department of Fish and Game, (ADF&G) Commercial Fisheries Management and Development Division. Please record the number of salmon harvested each day for your household on this calendar. Include salmon that were caught by your household but given to other households. Additionally, include on this calendar all salmon that were caught for dog food. However, do not include salmon sold in the round when commercial fishing or female salmon that had roe stripped and the roe sold separately. Additionally, do not include fish caught by other households and given to you.

At the end of your subsistence salmon season close the calendar by applying tape to the appropriately marked areas, and place the self-addressed, postage-paid calendar in the mail (NO POSTAGE IS REQUIRED), or have the calendar available for pick up by our surveyor.

\$200 LOTTERY! \$200 LOTTERY! \$200 LOTTERY!

Each household that returns a properly completed subsistence salmon harvest reporting calendar will get a chance at winning a \$200 prize. To qualify for the lottery, the original calendar must be received at the ADF&G Fairbanks office by November 30, 1998 with the return address label and household identification number intact. Each calendar must have the addressed household's complete subsistence harvest record for the 1998 fishing season. If no one in the household fished for subsistence salmon in 1998, then the "DID NOT FISH" box on the last page must be checked. One household, drawn at random, that completed and returned a calendar, will receive \$200. The drawing will be held December 1, 1998.

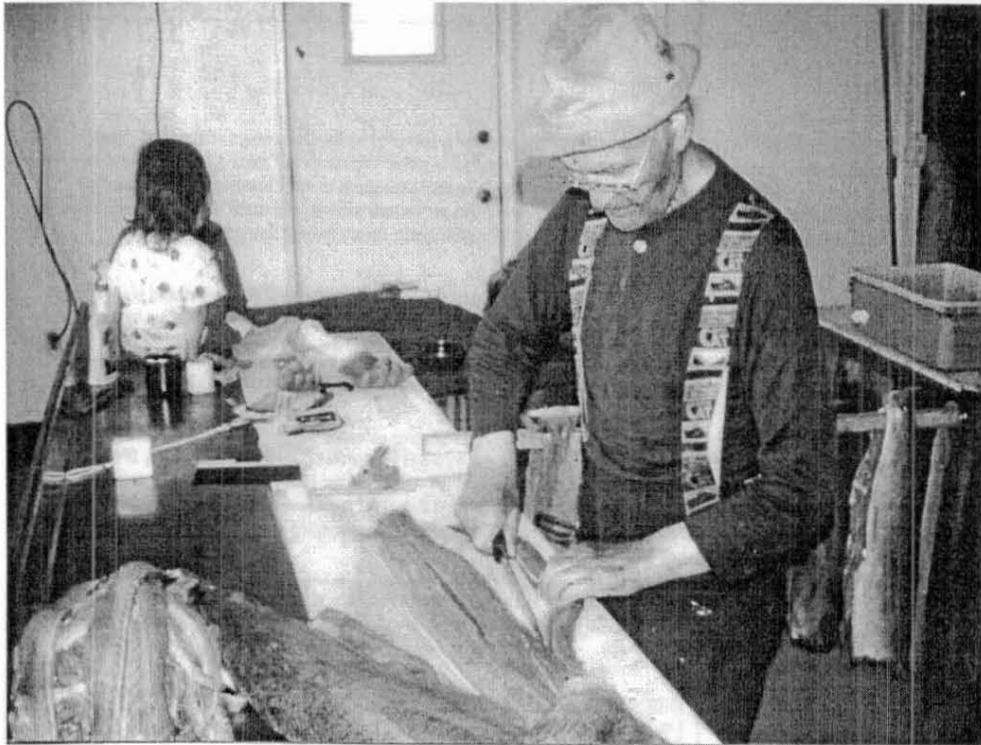
The information obtained through these calendars and the surveys is used to document the subsistence salmon needs and to try to make sure there will be enough salmon for the future. If you have any questions or comments, please call (907) 459-7274.

THANK YOU, and we hope you have a successful fishing season.

KEY:	SPECIES	COMMON LOCAL NAMES
Early Season	Chinook Salmon Summer Chum Salmon Pink Salmon	King, Daryaqvak, Daryukfaqs, Taryaqvaq, Kingiaq, Chuk-cho Dog, Chum, Kavluvak, Kundekluk, Turmarluk, Poke Fish, Early Chum, Iqalluk, Teggmamluk Humpy, Amaqayak, Chukpak
Late Season	Fall Chum Salmon Coho Salmon	Silver, Okliq, Oklek, Dog, Late Chum, Red Chum, Qkleeq, Oqleeq, Schee, Dalayak, Uqurliq, Nar'aaniq Chinook, Silver, Red, Redfish, Gakiyaq, Kakeyak, Kukeeyuk, Gegeeyuk, Crooked-Nose Fish, Jack, Oqogtolit, Net-jee

MAY 1998

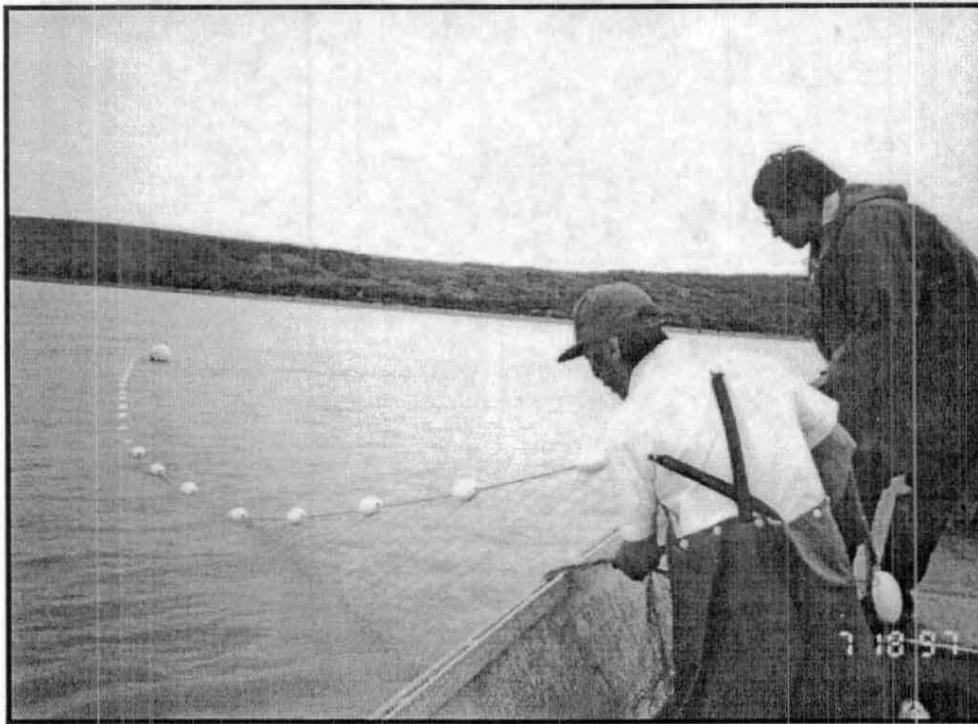
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1 King ____ Dog ____	2 King ____ Dog ____
3 King ____ Dog ____	4 King ____ Dog ____	5 King ____ Dog ____	6 King ____ Dog ____	7 King ____ Dog ____	8 King ____ Dog ____	9 King ____ Dog ____
10 King ____ Dog ____	11 King ____ Dog ____	12 King ____ Dog ____	13 King ____ Dog ____	14 King ____ Dog ____	15 King ____ Dog ____	16 King ____ Dog ____
17 King ____ Dog ____	18 King ____ Dog ____	19 King ____ Dog ____	20 King ____ Dog ____	21 King ____ Dog ____	22 King ____ Dog ____	23 King ____ Dog ____
24 King ____ Dog ____	25 King ____ Dog ____	26 King ____ Dog ____	27 King ____ Dog ____	28 King ____ Dog ____	29 King ____ Dog ____	30 King ____ Dog ____
31 King ____ Dog ____	LOWER YUKON SUBSISTENCE SALMON CALENDAR					



Sydney Huntington cutting king salmon strips at Dairty Island.

Photo by: Orin Wear, CFMD Division, Fairbanks

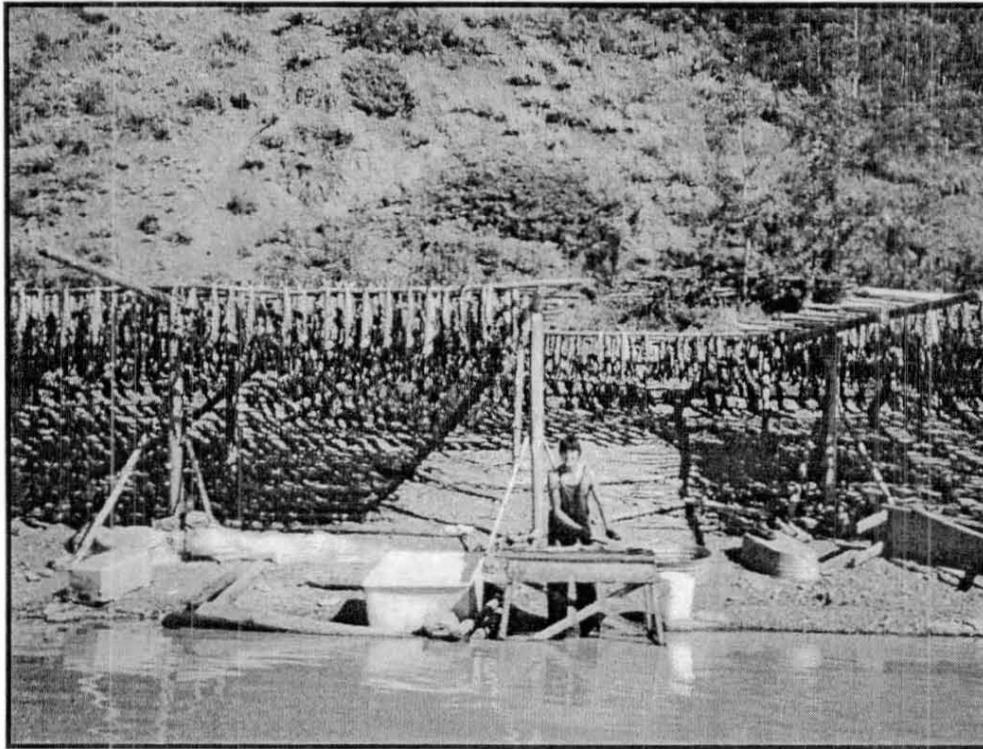
JUNE 1998						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5	6
SUBSISTENCE SALMON FISHING	King _____ Dog _____ Humpy _____					
7	8	9	10	11	12	13
King _____ Dog _____ Humpy _____						
14	15	16	17	18	19	20
King _____ Dog _____ Humpy _____						
21	22	23	24	25	26	27
King _____ Dog _____ Humpy _____						
28	29	30				
King _____ Dog _____ Humpy _____	King _____ Dog _____ Humpy _____	King _____ Dog _____ Humpy _____				



Mountain Village salmon test fishing program.

Photo by: Bonnie Borba, CFMD Division, Fairbanks

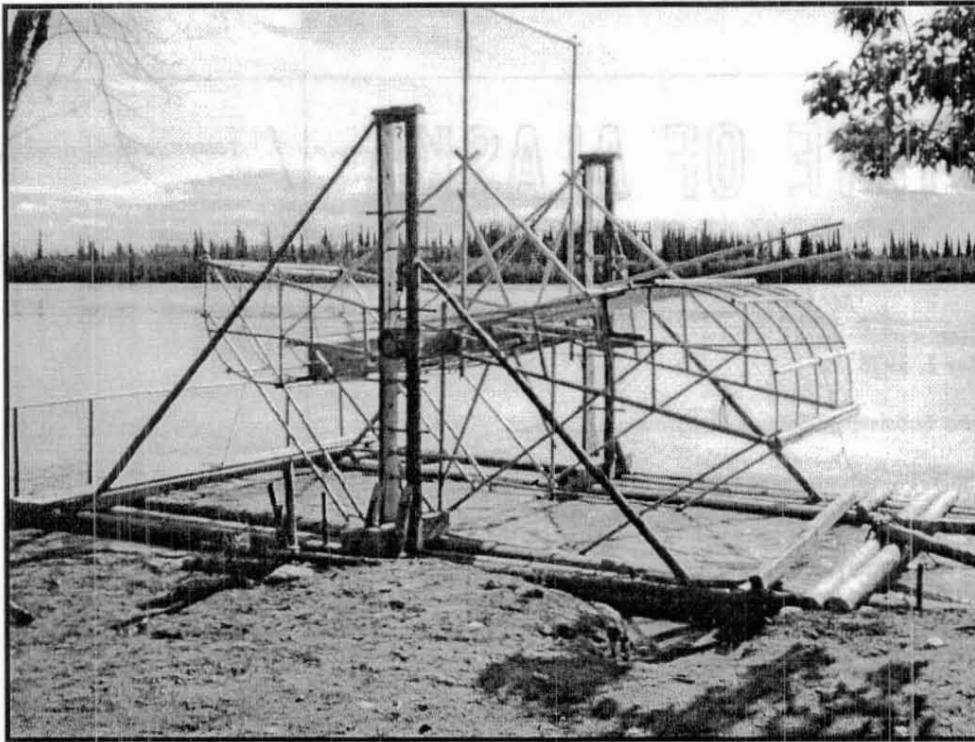
JULY 1998						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1 King _____ Dog _____ Humpy _____	2 King _____ Dog _____ Humpy _____	3 King _____ Dog _____ Humpy _____	4 King _____ Dog _____ Humpy _____
5 King _____ Dog _____ Humpy _____	6 King _____ Dog _____ Humpy _____	7 King _____ Dog _____ Humpy _____	8 King _____ Dog _____ Humpy _____	9 King _____ Dog _____ Humpy _____	10 King _____ Dog _____ Humpy _____	11 King _____ Dog _____ Humpy _____
12 King _____ Dog _____ Humpy _____	13 King _____ Dog _____ Humpy _____	14 King _____ Dog _____ Humpy _____	15 King _____ Dog _____ Humpy _____ Fall Chum _____	16 King _____ Dog _____ Humpy _____ Fall Chum _____	17 King _____ Dog _____ Humpy _____ Fall Chum _____	18 King _____ Dog _____ Humpy _____ Fall Chum _____
19 King _____ Dog _____ Humpy _____ Fall Chum _____	20 King _____ Dog _____ Humpy _____ Fall Chum _____	21 King _____ Dog _____ Humpy _____ Fall Chum _____	22 King _____ Dog _____ Humpy _____ Fall Chum _____	23 King _____ Dog _____ Humpy _____ Fall Chum _____	24 King _____ Dog _____ Humpy _____ Fall Chum _____	25 King _____ Dog _____ Humpy _____ Fall Chum _____
26 King _____ Dog _____ Humpy _____ Fall Chum _____	27 King _____ Dog _____ Humpy _____ Fall Chum _____	28 King _____ Dog _____ Humpy _____ Fall Chum _____	29 King _____ Dog _____ Humpy _____ Fall Chum _____	30 King _____ Dog _____ Humpy _____ Fall Chum _____	31 King _____ Dog _____ Humpy _____ Fall Chum _____	GOOD LUCK FISHING!!



Dewayne Dayton cutting and drying dog salmon at Bishop Rock.

Photo by: Bonnie Borba, CFMD Division, Fairbanks

AUGUST 1998						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1 Fall Chum _____ Coho _____
2 Fall Chum _____ Coho _____	3 Fall Chum _____ Coho _____	4 Fall Chum _____ Coho _____	5 Fall Chum _____ Coho _____	6 Fall Chum _____ Coho _____	7 Fall Chum _____ Coho _____	8 Fall Chum _____ Coho _____
9 Fall Chum _____ Coho _____	10 Fall Chum _____ Coho _____	11 Fall Chum _____ Coho _____	12 Fall Chum _____ Coho _____	13 Fall Chum _____ Coho _____	14 Fall Chum _____ Coho _____	15 Fall Chum _____ Coho _____
16 Fall Chum _____ Coho _____	17 Fall Chum _____ Coho _____	18 Fall Chum _____ Coho _____	19 Fall Chum _____ Coho _____	20 Fall Chum _____ Coho _____	21 Fall Chum _____ Coho _____	22 Fall Chum _____ Coho _____
23 Fall Chum _____ Coho _____	24 Fall Chum _____ Coho _____	25 Fall Chum _____ Coho _____	26 Fall Chum _____ Coho _____	27 Fall Chum _____ Coho _____	28 Fall Chum _____ Coho _____	29 Fall Chum _____ Coho _____
30 Fall Chum _____ Coho _____	31 Fall Chum _____ Coho _____	LOWER YUKON SUBSISTENCE SALMON CALENDAR				



Terry Duyck's new fishwheel under construction near Nenana.

Photo by: Terry Duyck

SEPTEMBER 1998						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
		Fall Chum _____ Coho _____	Fall Chum _____ Coho _____	Fall Chum _____ Coho _____	Fall Chum _____ Coho _____	Fall Chum _____ Coho _____
6	7	8	9	10	11	12
Fall Chum _____ Coho _____	Fall Chum _____ Coho _____	Fall Chum _____ Coho _____	Fall Chum _____ Coho _____	Fall Chum _____ Coho _____	Fall Chum _____ Coho _____	Fall Chum _____ Coho _____
13	14	15	16	17	18	19
Fall Chum _____ Coho _____	Fall Chum _____ Coho _____	Fall Chum _____ Coho _____	Fall Chum _____ Coho _____	Fall Chum _____ Coho _____	Fall Chum _____ Coho _____	Fall Chum _____ Coho _____
20	21	22	23	24	25	26
Fall Chum _____ Coho _____	Fall Chum _____ Coho _____	Fall Chum _____ Coho _____	Fall Chum _____ Coho _____	Fall Chum _____ Coho _____	Fall Chum _____ Coho _____	Fall Chum _____ Coho _____
27	28	29	30	THANK YOU !!! PLEASE MAIL IN WHEN DONE FISHING		
Fall Chum _____ Coho _____	Fall Chum _____ Coho _____	Fall Chum _____ Coho _____	Fall Chum _____ Coho _____			

Appendix C.2. Example of the preseason letter mailed with the subsistence harvest calendars, Yukon Area, 1998.

STATE OF ALASKA

DEPARTMENT OF FISH AND GAME

DIVISION OF COMMERCIAL FISHERIES
MANAGEMENT AND DEVELOPMENT

TONY KNOWLES, GOVERNOR

1300 COLLEGE ROAD
FAIRBANKS, ALASKA 99701-1599
PHONE: (907) 459-7274
FAX: (907) 452-1668

May 1, 1998

Dear Subsistence Salmon Fisherman:

The 1998 salmon fishing season is rapidly approaching. In preparation for the fishing season, I have enclosed a subsistence catch calendar for your household's use. The department will continue to use the information you provide through catch calendars, postseason surveys, and fishing permits to estimate the Yukon Area subsistence and personal use salmon harvests. These estimates are very important in managing the Yukon Area salmon fisheries. The harvest estimates are used by the Alaska Board of Fisheries to make regulatory decisions and they are also used in international treaty negotiations with Canada.

During last year's community visits many of you expressed interest in the results of the survey. The department estimated that 57,430 chinook, 113,211 summer chum, 95,425 fall chum, and 24,295 coho salmon were harvested in the subsistence and personal use fishery in the Yukon Area during the 1997 fishing season. Table 1 on the reverse side of this letter contains the survey and permit information collected by community and by species. To improve our understanding of the subsistence fishery, information is also collected on the number of people in households, the primary type of fishing gear used, the number of dogs, and the number of whole fish fed to dogs. If you would like more detailed information concerning the results of the 1997 survey, feel free to contact me at the telephone number indicated on the letterhead.

I appreciated all the households who participated in the 1997 survey by returning their catch calendars or by responding to the department's postseason personal, telephone or mail interviews. The Yukon Area subsistence survey project is successful because of the cooperation of fishermen throughout the drainage. Use the enclosed calendar to record your household's daily harvest of subsistence fish. If you fish in more than one location, please keep track of the fish you catch in each area. To return the calendar after you are done fishing for the season, simply put it in the mail. **The calendars are postage paid.** You may also give the calendar to the postseason surveyor when they are in your community after the fishing season. **All properly filled out and returned household calendars will be entered into a \$200 LOTTERY. Read the details inside the cover of the calendar.** Thank you again for your cooperation!

Sincerely,

Bonnie Borba

Bonnie Borba
Fishery Biologist

11-K102LH

TABLE 1. PRELIMINARY SUBSISTENCE AND PERSONAL USE SALMON HARVEST ESTIMATES, YUKON AREA, 1997 a/

COMMUNITY	Estimation Method b/	Total Households or Permits Issued	Households Contacted or Permits Returned	Estimated Fishing Households	Estimated Harvest			
					Chinook	Summer Chum	Fall Chum	Coho
Hooper Bay	Survey	190	52	96	613	12,310	0	0
Scammon Bay	Survey	76	17	40	526	3,401	0	0
<i>Coastal District Subtotal</i>		266	69	136	1,139	15,711	0	0
Sheldon Pt.	Survey	37	27	24	970	2,603	337	51
Alakanuk	Survey	125	33	75	2,058	7,443	900	882
Ermonak c/	Survey	158	67	77	3,080	12,399	1,039	356
Kotik d/	Survey	94	30	47	1,442	4,803	856	534
<i>District 1 Subtotal</i>		414	157	223	7,550	27,248	3,132	1,823
Mt. Village e/	Survey	136	38	89	2,081	11,310	2,698	1,089
Pitkas Pt.	Survey	31	27	18	793	747	178	427
St. Marys	Survey	119	35	92	2,592	8,874	310	329
Pilot Station f/	Survey	94	34	52	2,373	4,532	1,106	323
Marshall	Survey	62	20	35	1,511	1,508	388	256
<i>District 2 Subtotal</i>		442	154	286	9,350	26,971	4,680	2,424
Russian Mission	Survey	53	19	16	1,459	585	0	10
Holy Cross	Survey	83	28	38	3,472	487	420	20
Shageluk	Survey	34	32	21	1,380	9,244	367	738
<i>District 3 Subtotal</i>		150	79	75	6,311	10,316	787	766
Anvik	Survey	38	37	17	951	6,306	514	24
Grayling	Survey	57	19	46	2,391	2,448	1,531	1,055
Kaitag	Survey	52	21	34	1,036	73	1,142	60
Nulato	Survey	86	24	40	1,578	115	697	444
Koyukuk	Survey	46	14	16	851	739	1,954	345
Galena	Survey	122	31	45	2,350	4,575	3,370	1,002
Ruby	Survey	62	15	19	2,260	3,286	2,195	474
<i>District 4 Subtotal</i>		463	161	217	11,415	17,540	11,403	3,404
Huslia	Survey	70	17	5	57	840	10	50
Hughes	Survey	24	20	7	34	1,579	51	250
Allakaket	Survey	47	18	20	423	3,916	270	50
Alatna	Survey	10	7	3	38	145	0	0
Bettles	Survey	25	20	3	39	210	0	0
<i>Koyukuk River Subtotal</i>		176	82	38	591	6,690	337	350
Tanana	Survey	105	39	36	3,596	2,528	25,058	3,045
Rampart	Survey	25	23	10	2,203	738	646	34
Stevens Village	Survey	29	26	14	2,070	191	1,585	1
Birch Creek	Survey	14	11	3	373	1	0	3
Beaver	Survey	32	24	14	1,859	2	243	0
Ft. Yukon	Survey	199	48	31	3,145	133	6,119	248
Fairbanks NSB	Permit	35	35	25	955	424	491	26
Circle	Permit	21	17	10	1,091	257	3,707	210
Central	Permit	6	6	4	146	25	0	0
Eagle	Permit	50	48	35	1,534	17	14,488	2
Other g/	Permit	23	22	11	763	130	421	0
<i>District 5 Subtotal</i>		539	299	193	17,735	4,444	52,758	3,569
Venetie	Survey	54	16	6	314	76	1,564	7
Chaikytaiik	Survey	29	26	4	0	0	936	7
<i>Chandalar/Black Rivers Subtotal</i>		83	42	10	314	76	2,500	14
Manley	Permit	21	20	14	242	576	5,887	3,236
Minto	Permit	85	70	38	1,208	1,056	2,361	364
Nenana	Permit	45	41	30	1,082	1,899	3,799	5,147
Healy	Permit	8	8	5	4	22	3,272	1,618
Fairbanks NSB	Permit	177	174	92	489	662	4,315	1,580
Delta Junction	Permit	4	4	3	0	0	0	0
Other h/	Permit	62	57	24	0	0	200	0
<i>District 6 Tanana River Subtotal</i>		402	374	204	3,025	4,215	19,834	11,945
Survey Village Subtotal		2,398	915	1,093	49,916	108,143	56,484	12,112
Permit Area Subtotal i/		537	502	289	7,514	5,068	36,941	12,183
Yukon River Area Total		2,935	1,417	1,382	57,430	113,211	95,425	24,295

a/ Source: "Subsistence and Personal Use Salmon Harvests, Yukon Area, 1997" (in prep.) by Bonnie Borba and Helen Hamner, AK Department of Fish and Game (ADF&G). Harvest are listed by fishermen's community of residence.

b/ Includes permit information received as of April 6, 1998.

c/ Includes 1,345 chinook; 4,184 summer chum; 893 fall chum and 334 coho salmon from ADF&G test fish catches.

d/ Includes 480 chinook; 355 summer chum; 573 fall chum and 259 coho salmon from ADF&G test fish catches.

e/ Includes 2 chinook, 962 fall chum and 309 coho salmon from Berring Sea Fishermen's Association (BSFA) test fish catches.

f/ Includes 330 chinook; 2,420 summer chum, 997 fall chum, and 283 coho salmon from ADF&G test fish catches.

g/ Other includes residents of other communities who fished in District 5, of the Yukon River.

h/ Other includes residents of other communities who fished in District 6, of the Tanana River.

i/ Permit totals include 50 permits issued for two different areas and include Toiovana River Pike permits. Permit totals do not include 7 subsistence salmon permits issued to Stevens Village residents. Permit harvest information from Stevens Village residents was included in the survey data.

Appendix C.3. Example of the subsistence salmon postseason interview form, Yukon Area, 1998.

Community _____ HHID# _____
 Date of Survey _____ Person Interviewed _____
 Interviewer _____ Relation to HH _____

1998 Post-Season Subsistence Salmon Harvest Survey Yukon Area
 CONFIDENTIAL INFORMATION

1. We would like to make sure we have the correct name and address for your household.

Head of Household _____
 Mailing Address _____ Telephone: _____
 Permanent Note _____
 Significant Other _____
 Permanent Note _____

Adult household member was contacted and declined to be interviewed. [] Reason given: _____

2. Did anyone in your household catch salmon for subsistence use this year? Yes _____ No _____ (If no go to area II.)
 Fish use includes salmon eaten fresh, frozen, dried, smoked, and those used for dog food. Include all salmon kept for subsistence use. Include female carcasses from which roe was removed and sold commercially.

I. HOUSEHOLD FISHER

3. May I have your fish catch calendar?

Picked up by interviewer _____ Didn't get one _____ Didn't Use _____ Not available _____ Already sent in _____
 If you used a calendar are all the fish harvested on it? Yes _____ No _____ (if no, estimate remainder on calendar)
 How many total salmon did you or your fishing group catch this year? ("group" may include other households)

CHINOOK _____ SUMMER CHUM _____ FALL CHUM _____ COHO _____ PINK _____

How many households help catch these fish? _____ (Names) _____

4. How many total salmon did your household catch this year? (Include only fish caught by this household, not the group)

CHINOOK _____ SUMMER CHUM _____ FALL CHUM _____ COHO _____ PINK _____

5. Where do you catch your subsistence salmon? (Circle all that apply and show harvest by area if more than one)

Ocean 1 2 3 4A 4B 4C 5A 5B 5C 5D Innoko, Koyukuk, Chandalar, Porcupine, Black
 Area _____ CHINOOK _____ SUMMER CHUM _____ FALL CHUM _____ COHO _____ PINK _____
 Area _____ CHINOOK _____ SUMMER CHUM _____ FALL CHUM _____ COHO _____ PINK _____

6. What is your households' primary type of subsistence salmon fishing gear? (In order of importance 1= primary)

Set net _____ Drift net _____ Fish Wheel _____ Hook & Line _____ Other _____

7. How many salmon did you keep for your household's use?

CHINOOK _____ SUMMER CHUM _____ FALL CHUM _____ COHO _____ PINK _____

8. Did your household share the salmon catch with any other households? (Names, HHIDs, Species and Numbers)

9. How many of your households' salmon catch was taken commercially? (i.e. retained by a commercial fisherman during a commercial fishing period for subsistence use. Include female carcasses with roe removed and sold separately and all male salmon.)

CHINOOK _____ SUMMER CHUM _____ FALL CHUM _____ COHO _____ PINK _____

10. How many of the fish you caught were lost to spoilage or wild animals (i.e. bears and birds)? (Include these numbers in the catch, by species.) _____

II. ALL HOUSEHOLDS

11. Did your household catch any other fish besides salmon this year? (From Sept./Oct. of last year to now.)

LG WHITEFISH _____ SM WHITEFISH _____ SHEEFISH _____ BURBOT _____ PIKE _____ BLACKFISH _____
 GRAYLING _____ SUCKERS _____ TROUT (Arctic Char) _____ EELS (Lamprey) _____ TOMCOD (Saffron) _____

12. Was your household given any salmon? Yes _____ No _____

Subsistence Fishermen (Name) _____

CHINOOK _____ SUMMER CHUM _____ FALL CHUM _____ COHO _____ PINK _____

Subsistence Fishermen (Name) _____

CHINOOK _____ SUMMER CHUM _____ FALL CHUM _____ COHO _____ PINK _____

Commercial Fishermen (Name) (list only fish retained for subsistence use while commercial fishing) _____

CHINOOK _____ SUMMER CHUM _____ FALL CHUM _____ COHO _____ PINK _____

From Test Fish Projects (Where) _____

CHINOOK _____ SUMMER CHUM _____ FALL CHUM _____ COHO _____ PINK _____

13. How many people live in your household? _____

14. How many dogs does your household have? _____ (If none go to question 15)

Do you feed whole salmon to your dogs? Yes _____ No _____ Only Feed Scraps _____ (If no go to question 15)

How many whole salmon will you feed to your dogs this year? (These can be subsistence and/or commercial. Numbers should represent whole fish, not scraps.)

Were any of the salmon put up for the dogs from the commercial fishery? Yes _____ No _____ Some _____

Estimate harvest by fishery:

(subsistence harvest) SUMMER CHUM _____ FALL CHUM _____ COHO _____

(commercial harvest) SUMMER CHUM _____ FALL CHUM _____ COHO _____

15. Did your household get enough subsistence salmon this year? Yes _____ No _____ Could not estimate _____

If the answer is no, ask:

Why didn't you meet your salmon needs this year? _____

THANK YOU FOR YOUR HELP. THIS HARVEST INFORMATION IS USED TO DOCUMENT THE SUBSISTENCE SALMON NEEDS AND TO TRY TO MAKE SURE THERE WILL BE ENOUGH SALMON FOR THE FUTURE. Interviewer, please note any comments about this interview or anything of value for assisting data analysis.

THIS HOUSEHOLD'S TOTAL SUBSISTENCE SALMON CATCH (This area is to be filled in by the surveyor after the interview.)
 (Subtract numbers obtained in question 9 from numbers obtained from question 4.)

CHINOOK _____ SUMMER CHUM _____ FALL CHUM _____ COHO _____ PINK _____

THIS HOUSEHOLD'S TOTAL SUBSISTENCE SALMON USE (This area is to be filled in by the surveyor after the interview.)
 (Add numbers obtained from question 7 to numbers obtained from question 12.)

CHINOOK _____ SUMMER CHUM _____ FALL CHUM _____ COHO _____ PINK _____

Complete Survey _____ Partial Survey _____ No Survey _____

Appendix C.4. Example of the Kantishna River and Upper Yukon River subsistence fishing permit application, 1998.

Household Application and Permit for Subsistence Fishing

Dept. of Fish and Game, Commercial Fisheries Management and Development Division
1300 College Road, Fairbanks, AK 99701 Telephone (907) 459-7274



Name _____ Telephone _____
(PLEASE PRINT) (Home, Work, or Message)

Mailing Address _____
City State Zipcode

Total Household Member(s) _____ Other Household Member(s) _____
(Include yourself) (Names of other household members authorized to fish this permit)

Number of Dogs in Household _____ Do you feed whole salmon to dogs? (Circle one) yes no

Area to be Fished: (Circle one) Kantishna River, Yukon River Bridge, Circle/Eagle

Fishing Gear to be Used: Primary _____ Secondary _____

Conditions of Permit: All regulations pertaining to subsistence fishing in the area to be fished are to be observed. Anyone fishing this household's permit must be named above and carry this permit on their person during any fishing activity. For a 24-hour recording of personal use, subsistence, or commercial salmon fishing schedules, call (907) 459-7387. It is unlawful to buy or sell subsistence-taken fish, their parts, or their eggs.

An accurate record of fish taken under authority of this permit must be recorded on the reverse side of this permit on the same day the fish are landed. Return this permit with your completed catch information to the Alaska Department of Fish and Game, Commercial Fisheries Management and Development Division, 1300 College Road, Fairbanks, Alaska, 99701 within 10 days after permit expiration date. **FAILURE TO RETURN THIS PERMIT OR REPORT THIS HOUSEHOLD'S CATCH INFORMATION MAY RESULT IN YOU BEING DENIED A HOUSEHOLD PERMIT NEXT YEAR.**

X _____ Birthdate or _____
Date Drivers License No. _____

Signature of Permittee - I hereby claim I am a resident of Alaska and that the above information I have provided is a true statement as witnessed by my signature.

TO BE COMPLETED BY ISSUING OFFICER

The above named household member(s) is authorized to take fish according to the following stipulations:
Permit is valid for the location marked below and expires October 15 of the year issued, unless otherwise noted.

Kantishna River/SK Under authority of this permit 60 chinook salmon and 500 chum salmon may be taken from the Kantishna River drainage from the date of issue through August 15. From August 16 through December 31, a total of 2,000 chum and coho salmon may be taken. The permit holder is required to keep daily and cumulative harvest information at the fishing site that is accessible to department. Permit expiration date is December 31 of the year issued.

Circle, Eagle/SE Under authority of this permit fish may be taken from the Yukon River drainage from the mouth of Twenty-two Mile Slough upstream to the U.S./Canada border.

Yukon Bridge/SY Under authority of this permit fish may be taken from the Yukon River drainage from the mouth of Hess Creek to the mouth of the Dall River.

Signature of Issuing Officer Date Issued Permit Number

Revised 4/98

Household Application and Permit for Subsistence Fishing

Dept. of Fish and Game, Commercial Fisheries Management and Development Division
1300 College Road, Fairbanks, AK 99701 Telephone (907) 459-7274



Name _____ Telephone _____
(PLEASE PRINT) (Home, Work, or Message)

Mailing Address _____
City State Zipcode

Total Household Member(s) _____ Other Household Member(s) _____
(Include yourself) (Names of other household members authorized to fish this permit)

Number of Dogs in Household _____ Do you feed whole salmon to dogs? (Circle one) yes no

Area to be Fished: (Circle one) Tanana 6A, Tanana 6B, or Upper Tanana (above the Fairbanks nonsubsistence area)

Fishing Gear to be Used: Primary _____ Secondary _____

Conditions of Permit: All regulations pertaining to subsistence fishing in the area to be fished are to be observed. Anyone fishing this household's permit must be named above and carry this permit on their person during any fishing activity. For a 24-hour recording of personal use, subsistence, or commercial salmon fishing schedules, call (907) 459-7387. It is unlawful to buy or sell subsistence-taken fish, their parts, or their eggs.

An accurate record of fish taken under authority of this permit must be recorded on the reverse side of this permit on the same day the fish are landed. PERMITTEES FISHING IN THE UPPER PORTION OF SUBDISTRICT 6-B (three miles upstream of Totchaket Slough) ARE REQUIRED TO REPORT THEIR WEEKLY CATCHES BY CALLING THE DEPARTMENT OF FISH AND GAME AT (907) 459-7388 BY 4:30 P.M. EVERY THURSDAY. Return this permit with your completed catch information to the Alaska Department of Fish and Game, Commercial Fisheries Management and Development Division, 1300 College Road, Fairbanks, Alaska, 99701 within 10 days after the permit expiration date. FAILURE TO RETURN THIS PERMIT OR REPORT THIS HOUSEHOLD'S CATCH INFORMATION MAY RESULT IN YOU BEING DENIED A HOUSEHOLD PERMIT NEXT YEAR.

X _____ Date _____ Birthdate or Drivers License No. _____
Signature of Permittee - I hereby claim I am a resident of Alaska and that the information I have provided on this permit is true as witnessed by my signature.

TO BE COMPLETED BY ISSUING OFFICER

The above named household member(s) is authorized to take fish according to the following stipulations:
Permit is valid for the location marked and expires October 15 of the year issued, unless otherwise noted.

Tanana 6A/SA Under authority of this permit 60 chinook salmon and 500 chum salmon may be taken from the date of issue through August 15. In addition, from August 16 through October 15, a combined total of 2,000 chum and coho salmon may be taken (Note: A separate permit is required for the Kantishna River drainage).

Tanana 6B/SB

Upper Tanana/SU Under authority of this permit fish may be taken in the upper Tanana River drainage upstream of the Fairbanks Nonsubsistence Area. Permit expires December 31 of the year issued.

Signature of Issuing Officer _____ Date Issued _____ Permit Number _____

Revised 4/98

Household Application and Permit for Personal Use Salmon Fishing

Dept. of Fish and Game, Commercial Fisheries Management and Development Division
1300 College Road, Fairbanks, AK 99701 Telephone (907) 459-7274



Name _____ Telephone _____
(PLEASE PRINT) (Home, Work, or Message)

Mailing Address _____
City State Zipcode

Total Household Member(s) _____ Other Household Member(s) _____
(Include yourself) (Names of other household members authorized to fish this permit)

Area to be Fished: Subdistrict 6-C - Including the Tanana River upstream of the confluence with Wood River to the mouth of the Salcha River.

Fishing Gear to be Used: Primary _____ Secondary _____

Conditions of Permit: All regulations pertaining to personal use fishing in the area to be fished are to be observed. Anyone fishing this household's permit must be named above and carry this permit on their person during any fishing activity. For a 24-hour recording of personal use, subsistence, or commercial salmon fishing schedules, call (907) 459-7387. It is unlawful to buy, sell, trade, or barter fish or their parts, taken under personal use.

An accurate record of fish taken under authority of this permit must be recorded on the reverse side of this permit on the same day the fish are landed. PERSONAL USE SALMON PERMITTEES ARE REQUIRED TO REPORT THEIR WEEKLY CATCHES BY CALLING THE DEPARTMENT OF FISH AND GAME AT (907) 459-7388 BY 4:30 P.M. EVERY THURSDAY. Return this permit with your completed catch information within 10 days after the permit expiration date. FAILURE TO RETURN THIS PERMIT OR REPORT THIS HOUSEHOLD'S CATCH INFORMATION MAY RESULT IN YOU BEING DENIED A HOUSEHOLD PERMIT NEXT YEAR.

A resident Alaska sport fishing license is required by 5 AAC 77.010.
Permit is invalid unless permittee has in their possession a valid resident Alaska sport fishing license.

X _____ Date _____ Sport Fish License No. _____
Signature of Permittee - I hereby claim I am a resident of Alaska and that the above information I have provided on this permit is true as witnessed by my signature.

TO BE COMPLETED BY ISSUING OFFICER

The above named household member(s) is authorized to take salmon according to the following stipulations:
Permit is valid for Subdistrict 6-C and expires October 15 of the year issued, unless otherwise noted.

Tanana 6C/PC Under authority of this permit 10 chinook salmon and 75 chum salmon may be taken from the date of issue through August 15. In addition, from August 16 through October 15, a combined total of 75 chum and coho salmon may be taken.

Signature of Issuing Officer _____ Date Issued _____ PC - Permit Number _____

Revised 4/98

Appendix C.7. Example of the letter sent to selected subsistence fishermen from the listed villages that complied with 1997 reporting requirements, announcing the dates and times for 1998 permit issuance, Yukon Area.

STATE OF ALASKA

DEPARTMENT OF FISH AND GAME

DIVISION OF COMMERCIAL FISHERIES
MANAGEMENT AND DEVELOPMENT

TONY KNOWLES, GOVERNOR

1300 COLLEGE ROAD
FAIRBANKS, ALASKA 99701-1599
PHONE: (907) 459-7274
FAX: (907) 452-1668

May 1, 1998

Dear Subsistence Fishermen:

Regulations require subsistence fishermen to obtain a permit prior to fishing in three areas within the upper Yukon River drainage. Subsistence fishing permits are required upstream of Twenty-two Mile Slough to the Canada Border (includes the villages of Circle and Eagle), near the "Yukon River Bridge" (between Hess Creek and the Dall River), and within the Tanana River drainage (except in the Fairbanks Nonsubsistence Area). Our records indicate that you were issued a 1997 subsistence permit for one of the above areas. If you are planning to fish in the upper Yukon River drainage in 1998, we are providing you with the opportunity to obtain a subsistence fishing permit in the following villages at the date and times indicated:

Village	Place	Day/Date	Time
NENANA	Boat Landing	Friday, May 15, 1998	10:00 a.m. to 2:00 p.m.
CENTRAL	Post Office	Tuesday, May 19, 1998	12:00 noon to 3:00 p.m.
CIRCLE	Boat Landing	Wednesday, May 20, 1998	11:00 a.m. to 2:00 p.m.
MINTO	Lake View Lodge	Thursday, May 21, 1998	12:00 noon to 3:00 p.m.
MANLEY	Manley Roadhouse	Friday, May 22, 1998	10:00 a.m. to 1:00 p.m.
EAGLE	Post Office	Wednesday, May 27, 1998	10:30 a.m. to 2:00 p.m.
DELTA JUNCT.	Delta Fish and Game	Wednesday, May 27, 1998	10:00 a.m. to 10:30 p.m.
DOT LAKE	Community Hall	Wednesday, May 27, 1998	12:00 noon to 1:30 p.m.
TANACROSS	Community Center	Wednesday, May 27, 1998	3:00 p.m. to 6:00 p.m.
TOK	Tok Fish and Game	Thursday, May 28, 1998	8:00 a.m. to 10:00 a.m.
NORTHWAY	Community Hall	Thursday, May 28, 1998	12:00 noon to 4:00 p.m.

If you would like to be issued a subsistence fishing permit, please complete the top portion of the enclosed "Household Application and Permit" form. Present this form to the department representative at the place and times indicated above. The issuing officer will complete the bottom portion of the application and return the 1998 subsistence fishing permit to you.

If you would like to obtain a permit by mail, please complete the top portion of the enclosed "Household Application and Permit" form and return the application to the address indicated at the top of the application. Address the letter attention to the Subsistence Permit Issuing Officer. The bottom section of the application will be completed by the issuing officer and mailed back. The application is not a permit until you have completed and signed the top portion, and the issuing officer has completed and signed the bottom.

Subsistence permits are also available at the Alaska Department of Fish and Game offices in Delta Junction, Tok, and Fairbanks during regular business hours. I appreciated all the households who have returned their past permits with their harvest information in a timely manner. Our effort to document the Yukon Area subsistence harvest has been successful because of the cooperation of fishermen throughout the drainage.

If you have any questions or comments, please contact me.

Sincerely,

William H. Busher

William H. Busher
Fishery Biologist
Commercial Fisheries Management
and Development Division

Enclosures: Permit Application, Regulation Summary

Appendix C.8. Example of the first subsistence fishing permit reminder letter sent to households that complied with the inseason reporting requirement by telephone but had not reported postseason, 1998.

STATE OF ALASKA

DEPARTMENT OF FISH AND GAME

DIVISION OF COMMERCIAL FISHERIES

TONY KNOWLES, GOVERNOR

1300 COLLEGE ROAD
FAIRBANKS, ALASKA 99701-1599
PHONE: (907) 459-7274
FAX: (907) 452-1668

November 12, 1998

Jane Doe
Cutter's Way
Riverbank, AK 99###

Dear Jane:

The Department of Fish and Game (department) issued subsistence fishing permit SB-####-98 to you for the 1998 fishing season. Your permit expired on October 15, 1998, however, our office has not received your expired permit. Although poor salmon returns this year required the department to severely limit the Tanana River subsistence fishery this season, the harvest information you recorded on the permit is still needed for accurate documentation. Our records show that we received telephone catch reports from you during the 1998 fishing season. Your telephone reports indicate you harvested the following number of fish:

Chinook/King 62 Summer Chum 3 Fall Chum 0 Coho 0

We appreciate your reporting efforts and we utilize the telephone catch reports for inseason fisheries management. Although you may feel that you have completed your reporting requirement, a condition of the permit requires that you keep an accurate record of your catch and return your expired permit with the total number of fish you harvested this season. If you have already returned your permit, please disregard this reminder notice. If you are unable to locate your expired permit, please fill in the total number of fish you harvested this past season and return this letter to the department.

Chinook/King _____ Summer Chum _____ Fall Chum _____ Coho _____

Whitefish _____ Pike _____ Grayling _____ Suckers _____

Burbot _____ Other (specify species) _____

Number of whole salmon fed to dogs or put up for dog food _____

Signature _____

Date _____

In an effort to allow adequate spawning escapement, fishermen in the entire Yukon River drainage were limited in the amount of subsistence fishing time available this season. Despite these efforts, the majority of the chinook, summer chum and fall chum salmon index spawning streams did not meet the minimum biological escapement goals. We are hoping the factors that contributed to the poor returns in 1998 will not affect salmon returns next season, but we should all be prepared for the possibilities. If you have any questions, feel free to contact me.

Sincerely,

Bonnie Borba
Fishery Biologist

Appendix C.9. Example of the second personal use permit reminder letter, 1998.

STATE OF ALASKA

DEPARTMENT OF FISH AND GAME

DIVISION OF COMMERCIAL FISHERIES

TONY KNOWLES, GOVERNOR

1300 COLLEGE ROAD
FAIRBANKS, ALASKA 99701-1599
PHONE: (907) 459-7274
FAX: (907) 452-1668

December 10, 1998

Jane Doe
Cutter's Way
Riverbank, AK 99###

Dear Jane:

The Department of Fish and Game (department) issued personal use fishing permit PC-####-98 to you for the 1998 fishing season. To date, the department has not received your expired permit and harvest information. Regulations require you to keep an accurate record of your harvest and to return the expired permit with the harvest record at the end of the season. Even if you did not fish, or caught no fish, you must return your permit or this letter. **FAILURE TO REPORT YOUR HARVEST INFORMATION MAY RESULT IN DENIAL OF A PERMIT NEXT YEAR.**

Please return your expired permit and harvest information at this time. If you are unable to locate the expired permit, please answer the following questions and return this letter in the postage-paid envelope provided.

I fished in the **Tanana River** drainage in 1998. (Circle one) Yes No

If you fished for personal use salmon in the Tanana River in 1998 but misplaced your permit, please fill in the number of freshwater finfish you caught below:

Chinook/King _____ Summer Chum _____ Fall Chum Coho _____
Whitefish _____ Pike _____ Grayling _____ Burbot _____
Suckers _____ Other (specify species) _____

Signature

Date

The information from your permit is needed to accurately document this past season's harvest. This is your second and **FINAL** notice that we have not received your expired permit with the recorded harvest information.

Sincerely,

Bonnie Borba
Fishery Biologist