ANNUAL MANAGEMENT REPORT FOR THE SUBSISTENCE AND COMMERCIAL FISHERIES OF THE KUSKOKIM AREA

2002

By:
Timothy C Ward
Michael Coffing
Jeffrey L Estensen
Roberta L Fisher
Douglas B Molyneaux

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AUTHORS

Timothy Ward was the Kuskokwim Area Management Biologist (2002) for the Alaska Department of Fish & Game, Division of Commercial Fisheries, P.O. Box 1467, Bethel, AK 99559-1467; e-mail, *timward@aptalaska.net*

Michael Coffing is the Western Region Subsistence Resource Specialist for the Alaska Department of Fish & Game, Division of Subsistence, P.O. Box 1789, Bethel, AK 99559-1789; e-mail, *mike_coffing@fishgame.state.ak.us*

Jeffrey Estensen is the Assistant Kuskokwim Area Management Biologist for the Alaska Department of Fish & Game, Division of Commercial Fisheries, P.O. Box 1467, Bethel, AK 99559-1467; e-mail, *jeff_estensen@fishgame.state.ak.us*

Roberta L. Fisher is the Kuskokwim Area, Fish & Game Program Technician for the Alaska Department of Fish & Game, Division of Commercial Fisheries, P.O. Box 1467, Bethel, AK 99559-1467; e-mail, *bobbi_fisher@fishgame.state.ak.us*

Douglas B. Molyneaux is the Kuskokwim Area Research Biologist for the Alaska Department of Fish & Game, Division of Commercial Fisheries, 333 Raspberry Road, Anchorage, AK 99518-1599; e-mail, *doug_molyneaux@fishgame.state.ak.us*

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PREFACE

Alaska Department of Fish & Game (ADF&G), Division of Commercial Fisheries (CF) is responsible for management of commercial and subsistence fisheries in the Kuskokwim Area. This annual management report details the activities of the commercial fisheries in 2002. Relevant information from Division of Subsistence and Sport Fish Division personnel is also included.

This report is one of a series of annual management reports detailing the management activities of the Division of Commercial Fisheries staff. The 1960-1974 management reports for the "Kuskokwim District" appear in the Arctic-Yukon-Kuskokwim Area report series. The 1975-1986 management reports appear in the Kuskokwim Area Annual Report series. The Annual Management Reports became part of the Regional Information Report Series in 1987.

Data presented in this report supersede information found in previous management reports. This report includes summary data from many research projects. Complete documentation of these projects and results appear in separate reports. The bibliography includes referenced and unreferenced reports concerning the Kuskokwim Area fisheries. Some of the data presented are preliminary and may be presented with minor differences in future reports.

To simplify use of this report, the tabular data are separated into current year tables and appendices of historical data. The appendices are separated by fishery and fishing district. The appendices of annual comparisons and information seldom change.

Ages of fish are presented as both total age, year spawned to year recorded and in the European notation. In the European system, the number of winters in fresh water after hatching is followed by the number of winters in salt water. The fresh and salt-water winters are separated by a decimal point. To derive total age from the European system you must add the fresh and salt water winters and add one for the year of spawning. For example an age-1.3 chinook salmon's total age is 5 years; 1+3+1=5.

Important subsistence and commercial fisheries include herring and salmon. Other marine and freshwater finfish are harvested primarily for subsistence use. A list of indigenous fishes found in the area is provided in Appendix A.1.

PART I. SALMON FISHERY

Area and District Boundaries

The Kuskokwim Area includes the Kuskokwim River drainage, all waters of Alaska that flow into the Bering Sea between Cape Newenham and the Naskonat Peninsula, and Nunivak and St. Matthew Islands (Figure 1). The area has four commercial salmon fishing Districts: 1, 2, 4, and 5.

District 1, the Lower Kuskokwim River, consists of the Kuskokwim River from a line between Apokak Slough and the southernmost tip of Eek Island and Popokamiut upstream to a line

between ADF&G regulatory markers located at Bogus Creek, about nine miles above Tuluksak River (Figure 2). The downstream boundary has been in effect since 1986, and the upstream boundary was established in 1994 (Appendix A.2). In conjunction with establishment of the District 1 registration regulation (5 AAC 07.370) in 2000, District 1 was divided into two subdistricts. Subdistrict 1A consists of that portion of District 1 upstream from a line between regulatory markers located at the downstream end of Steamboat Slough. Subdistrict 1B consists of that portion of District 1 downstream from the Steamboat Slough regulatory markers.

District 2, the Middle Kuskokwim River, consists of the Kuskokwim River from ADF&G regulatory markers located at the upstream entrance to the second slough on the west bank downstream from Kalskag to the regulatory markers at Chuathbaluk (Figure 3). The downstream boundary of District 2 was used for the first time in 1990 (Appendix A.2).

Present day District 4 was established in 1960. The boundaries of District 4 extend from the northern-most edge of the mouth of Oyak Creek to the southern-most tip of the south mouth of the Arolik River, and expand 3 mi from the coast into Kuskokwim Bay (Figure 4). Before 2001, the northern most boundary of the district was the northern most edge of Wheeling Creek (Figure 5). The northern boundary was moved by regulation to minimize the number of Kuskokwim River bound chinook and chum salmon harvested in the District 4 commercial fishery. The Kanektok and Arolik Rivers are the main spawning streams in the district. The village of Quinhagak is located at the mouth of the Kanektok River (Figure 4).

The District 5 commercial salmon fishery was established in 1968. The boundaries of District 5 extend from the southern most tip of the north spit to the northern most tip of the south spit at the entrance of Goodnews Bay, expanding east to a line between mouth of Ukfigag Creek to the mouth of the Tunulik River (Figure 5). The Goodnews River drainage is the main spawning drainage in the district. The Goodnews and Middle Fork Goodnews Rivers are the primary spawning rivers within the drainage

The letter code assigned to the Kuskokwim Area by the Commercial Fisheries Entry Commission is "W". It precedes the district number on the figures and in news releases (e.g. W-1). This designation helps the public differentiate between announcements for the Yukon River districts (Y) and the Kuskokwim River (W) districts.

Fishery Resources

Five species of Pacific salmon are harvested by commercial and subsistence fishers in the area; chinook or "king" salmon (*Oncorhynchus tshawytscha*), sockeye or "red" salmon (*O. nerka*), coho or "silver" salmon (*O. kisutch*), pink or "humpy" salmon (*O. gorbuscha*), and chum or "dog" salmon (*O. keta*). The Kuskokwim River drainage has the largest populations of chinook, sockeye, coho and chum salmon in the area. Throughout the area, pink salmon have significantly larger returns in even years than in odd years. Little quantitative data on the population size of pink salmon is available because of the lack of commercial markets and interest by subsistence fishers. No commercial fisheries for rainbow trout (*O. mykiss*), sheefish (*Stenodus leucichthys*), or Dolly Varden (*Salvelinus malma*) occur in the area. The contribution of non-salmon species to the overall subsistence fishery is not well quantified. However, subsistence harvest estimates based on community specific harvest surveys are being developed in Aniak and have been developed for Kwethluk (Coffing 1991), Akiachak (Coffing 2000), Bethel (Coffing 2001) and Quinhagak (Wagner 1991). A growing sport fishery targets salmon and resident freshwater fish in the Kuskokwim Area (Minard et al. 1998).

Management

Management of the salmon fishery is complex because of several difficulties: determining run size and run timing, harvesting of mixed stocks, overlapping multispecies salmon runs, allocation issues, and immense size of the Kuskokwim River drainage (Appendix B.1). The overall goal for research and management programs is to manage the salmon runs for sustained yield under policies set forth by the Alaska Board of Fisheries (5 AAC 39.220, 222, and 223). However, information is not yet adequate to determine the escapement levels needed to produce maximum sustained yield for the salmon stocks. Kuskokwim Area has no formal forecast for salmon returns. Broad expectations are developed based on an evaluation of parent-year escapements and trends in harvest and productivity.

Most fisheries within Kuskokwim Area harvest salmon stocks several weeks and hundreds of miles from their spawning grounds. Like most mixed stock fisheries, some individual stocks may be under harvested or over harvested in relation to their abundance. It is not practical, except in a very generalized sense, to manage the stocks separately based on current knowledge.

In 2002, ADF&G managed the Kuskokwim River commercial and subsistence salmon fisheries for the second season under the Kuskokwim River Salmon Rebuilding Management Plan (Rebuilding Plan) (5 AAC 07.365). The portion of the river within the Yukon-Kuskokwim Delta Wildlife Refuge was under dual subsistence fishery management with federal mangers for a third season, and federal managers operated under the Rebuilding Plan. In general, salmon runs under the Rebuilding Plan were managed to achieve established escapement goals, to meet amounts necessary for subsistence, and to allow commercial fishing on harvestable surpluses once escapement goals and subsistence needs were projected to be met. Inseason management decisions were based on salmon run abundance and timing indicators including the Bethel Test Fishery, subsistence harvest reports, tributary escapement monitoring projects, and when available, commercial catch per unit effort data. Inseason run timing models were used to predict the final escapement using the historical percentage of run passage for a particular date (Table 4).

Kuskokwim Bay continued to be managed under the District 4 Salmon Management Plan (5 AAC 07.367). Objectives of the plan were to provide a level of sustainable yield to provide for the subsistence needs and provides commercial, sport, and recreational opportunities in Districts 4 and 5 and freshwater systems flowing into them. Inseason management tools include commercial catch statistics, escapement monitoring projects, and subsistence harvest report information.

In 2002, CF permanent full time staff assigned to the Kuskokwim included one area management biologist, one area research biologist, one assistant area management biologist, one research project biologist, and one program technician. In addition, approximately 25 seasonal employees are employed annually to assist in conducting various management and research projects. The staff aids in enforcement of regulations in cooperation with the Department of Public Safety, Division of Fish and Wildlife Protection (FWP). Staff is increasingly involved with Native organizations and the United States Fish and Wildlife Service (FWS) to develop to operate salmon escapement monitoring projects (Table 1).

SUBSISTENCE SALMON FISHERY

Background

Kuskokwim Area has long supported an important subsistence salmon fishery. Many households throughout the region harvest, process, and preserve salmon for subsistence use. The seasonal movement of families from permanent winter communities to summer fishcamps situated along rivers and sloughs, continues to be a significant element of the annual subsistence harvest effort. Approximately 1,700 households in the Kuskokwim region annually harvest salmon for subsistence use. Many other households, not directly involved in catching salmon, assist family and friends cut, dry, smoke, and help with associated preservation activities (salt, can and freeze). Division of Subsistence studies in the region indicate fish contribute as much as 85 percent of the total pounds of fish and wildlife harvested in a community annually, and salmon as much as 53% of the total annual harvest. (Coffing 1991). Harvest of salmon for subsistence use is as much as 650 pounds per capita in some Kuskokwim River communities (Coffing et al 2001). The subsistence salmon fishery in the Kuskokwim region is one of the largest and most important in the state and supports one of the largest subsistence salmon fisheries in North America.

The department conducts annual household surveys to collect information about the harvest and use of salmon. Before statehood, various federal departments and bureaus collected subsistence salmon harvest information periodically. Since 1960, the department has collected subsistence salmon harvest information from fishers throughout the Kuskokwim River drainage by survey staff visits to fishcamps during late July. Over the years, data collection methods changed several times. Harvest surveys were initiated in Quinhagak in 1967 and in Goodnews Bay and Platinum starting in 1979. The Division of Subsistence took over annual subsistence salmon harvest surveys in 1988 under a reimbursable service agreement with CF and has collected and analyzed data since then. The Division of Subsistence made several changes to methodology for example, they started data collection in October, well after the late summer, early fall salmon harvest was

completed. This change was done primarily to improve estimates of the subsistence coho salmon harvest.

More recently, the department has collaborated in data collection with the FWS and local tribal organizations including the Orutsaramuit Native Council (ONC) in Bethel and the Kuskokwim Native Association (KNA) in Aniak to complete these annual surveys. These subsistence harvest surveys aimed to gather data on the harvest and use of chinook, chum, sockeye, and coho salmon. Pink salmon are harvested in the area; however, they are generally available only during even number years (ie 2000, 2002, 2004). Although data for subsistence pink salmon harvests are not usually collected during the annual fall survey efforts, some data collected from the communities of Bethel and Aniak for the past couple of years is associated with specific cooperative fisheries harvest assessment projects in those two communities funded by the Fisheries Information Service, Office of Subsistence Management (OSM). Other Division of Subsistence community-baseline studies conducted in the region include pink salmon harvest data.

Thirty-eight (38) communities consisting of approximately 4,500 households are located within the Kuskokwim Area (Figure 1). Approximately 75% of the approximately 4,500 households in the region are situated within the Kuskokwim River drainage. Bethel is the largest community in the region, containing approximately 1,500 households. Much of the salmon fishing effort occurs within the mainstem Kuskokwim River; however, fishing occurs in many salmon tributaries. Residents of Quinhagak, Goodnews Bay, and Platinum, located along the south shore of Kuskokwim Bay, harvest salmon stocks primarily from the Kanektok, Arolik, and Goodnews River systems. Residents of Kipnuk, Kwigillingok and Kongiganak, located on the north Kuskokwim Bay harvest salmon from within the Kuskokwim River drainage and from local drainages of Kuskokwim Bay. Residents of Toksook Bay, Nightmute, Tununak, Newtok, Chefornak and Mekoryuk, situated near the Bering Sea Coast, harvest salmon from coastal waters and local tributaries.

Eligibility, Licenses, Permits, and Gear

Statewide eligibility criteria required individuals be Alaskan residents for the proceeding 12 consecutive months before harvesting salmon for subsistence use. Licenses and permits have never been required for subsistence salmon fishing in the area, nor were any required during 2002. Most individuals subsistence fishing for salmon live in the region. People living in other parts of the state who have family or friends in the Kuskokwim region sometimes return to the area to assist friends or relatives with harvesting and processing salmon.

Throughout the area, salmon harvested for subsistence use could be caught using set gillnets, drift gillnets, beach seines, and fish wheels. Rod and reel gear (line attached to a rod or pole) and handlines were added as legal subsistence gear in much of the Kuskokwim Area in 2000 with modifications made to expand that regulation to the entire Kuskokwim Area in 2002. Spears are also legal subsistence fishing gear for harvesting salmon in the Holitna, Kanektok, Arolik, and Goodnews river drainages.

No restrictions were placed on the number of salmon harvested annually by individual subsistence fishers or households. However, daily limits were established on the number of

salmon and other fish (combined daily total of six, no more than three could be salmon) that could be harvested from that portion of the Aniak River drainage upstream of Doestock Creek using rod and reel gear from June 1 through August 31. These limits did not apply to other gear types or to any other waters in the Kuskokwim Area.

Total length of set or drift gillnets in use by an individual fisher could not exceed 50 fathoms. Unless changed by emergency order, gill nets used for harvesting salmon could be of any size mesh. Depth of gillnets were limited; six-inch or smaller mesh could not be more than 45 meshes in depth and nets with greater than six-inch mesh could not be more than 35 meshes in depth. Fishers were required to have their name and address attached to all unattended gillnets and fish wheels.

In 2001 and 2002 gear restrictions were in effect during the subsistence fishing schedule closed days when gillnets and fish wheels could not be used for harvesting salmon. During these closed salmon fishing days, fishers were restricted to using either hook and line gear or gillnets no longer than 60 feet in length and had a mesh size of 4 inches or less ("whitefish net"). These restrictions were in place during June and July throughout the drainage to minimize the harvest of chinook and chum salmon while allowing harvest of non-salmon species such as whitefish and pike. All salmon caught using rod and reel gear and short "whitefish nets" could be kept for subsistence use.

Subsistence Salmon Fishing Schedule

During 2002 (for the second consecutive year), subsistence salmon fishing was regulated by a fishing schedule as part of a salmon management rebuilding plan adopted by the Board of Fisheries in January 2001. The fishing schedule provided for periods of four consecutive days per week opened to subsistence salmon fishing and three consecutive days per week when subsistence salmon fishing was closed to gillnet and fish wheel gear. The department polled the communities throughout the Kuskokwim River drainage for guidance on which days would be most desirable. Based on their response and the recommendation of the Kuskokwim River Salmon Management Working Group, Wednesday through Saturday was selected as the days open to subsistence salmon fishing. Subsistence fishing with rod and reel gear was not included in this schedule.

The subsistence salmon fishing schedule started June 2 in District 1, was expanded to include all waters downstream of Chuathbaluk starting June 9, and was further expanded to include all waters of the entire Kuskokwim River drainage starting June 16. Some non-salmon tributaries in the lower and middle Kuskokwim drainage were not closed by this schedule. Waters outside the Kuskokwim River drainage were not affected by this schedule. Compliance with the schedule was excellent. Department staff made specific efforts to inform the public through the newspaper and radio media starting in late March 2002 and continued through late June.

The rebuilding plan called for establishing the schedule during June and July. Assessment of chinook and chum salmon runs was achieved using the cooperative inseason subsistence fishing monitoring project in the Bethel area operated by ONC, in the Kalskag and Aniak area operated by KNA, and in the McGrath area operated by the McGrath Native Village Council, and the numerous cooperative escapement monitoring projects throughout the Kuskokwim River

drainage. This resulted in the department opening the commercial salmon fishing season in Districts 1 and 2 in the Kuskokwim River on Sunday June 30 in response to strong salmon returns and expectations that escapement needs would be met. Simultaneously, subsistence salmon fishing regulations reverted back to seven days per week open subsistence fishing with gillnets and fish wheels, effectively ending the subsistence salmon fishing schedule for the 2002 fishing season. After that time, subsistence salmon fishing closures were those periodic closures associated with commercial fishing periods.

Subsistence Closures

Waters within the commercial salmon fishing districts were closed to subsistence salmon fishing using net gear and fish wheels 16 hours before, during, and 6 hours after commercial salmon fishing periods. Many commercial fishers are local residents who participate in the subsistence fishery. The purpose of the subsistence salmon fishing closures was to discourage illegal commercial fishing and the potential sale of subsistence caught salmon in the commercial fishery. Specific waters closed to subsistence fishing in each area varied. During 2002, the first periodic subsistence salmon fishing closure in the Kuskokwim River occurred from 1:00 a.m. August 1 until 1:00 a.m. August 3 in District 1. Three additional subsistence salmon fishing closures were in District 1 from August 4 and August 13. Numerous subsistence fishing closures occurred during the commercial fishing season in both the District 4 (Quinhagak) and District 5 (Goodnews Bay-Platinum) areas from June through August.

In 2002, the department issued an emergency order to modify subsistence fishing closure time in Kuskokuak Slough. By regulation, Kuskokuak Slough remains open to subsistence salmon fishing seven days per week after July 31. The modified regulation established subsistence salmon fishing closures in Kuskokuak Slough 16 hours before, during and 6 hours after each commercial fishing period anywhere in District 1, consistent with the remainder of District 1 waters. This change was proposed for the upcoming 2004 AYK Board of Fisheries meeting.

SUBSISTENCE SALMON HARVEST SURVEYS

Methods

The methods used to gather subsistence salmon harvest data during 2002 were:

- subsistence salmon catch calendars,
- postseason community household surveys,
- postcard surveys.

Division of Subsistence maintains a database of households in each community. This database is updated annually after the household surveys are completed each fall. Each household is designated as either "usually fish" or "does not usually fish" depending on past fishing history. Households listed in the database were the basis of sampling and estimation of subsistence salmon harvests. Each household on the list was assigned a unique identifier through which subsequent information could be tracked.

The goals of the postseason survey were to:

- collect harvest data to result in an estimate of the total subsistence salmon harvest by species for Kuskokwim Fisheries Management Area by community;
- compile information on fishing effort, gear types, participation rates, and timing of subsistence harvest;
- update community household lists and identify fishing households;
- determine if subsistence fishing success during 2002 was better than average, average, or poor, and if poor why.

Salmon Catch Calendars

The department used subsistence catch calendars since the early 1970s. In May 2002, subsistence salmon catch calendars were mailed to all households identified as "usually fish" and to all households that fished the previous fishing season. Three similar, but unique, catch calendars (Appendix S.1) were designed for recording daily catch of each salmon species harvested for subsistence use. One style of calendar was sent to households in communities along the Lower and Middle regions of Kuskokwim River, to communities along the Bering Sea coast and along North Kuskokwim Bay, and to those communities in the Upper Kuskokwim River region upstream as far as the community of Stony River. A second style of calendar was sent to the remaining households in the Upper Kuskokwim River region and a third style was sent to households in Quinhagak, Goodnews Bay, and Platinum. Differences in calendar style sent to households signify the species available, salmon run-timing, and timing of subsistence fishing activities. Calendars were mailed to available addresses, otherwise, calendars were sent general delivery for the post office clerk to distribute. Each calendar was postage paid and addressed for return to the Division of Subsistence office in Bethel. Subsistence salmon catch calendars were mailed to 2,504 households.

Household Surveys

The primary method of collecting subsistence salmon harvest information was post-season household surveys. This method required staff to travel to communities and go house-to-house to interview families. Similar to the approach used in developing catch calendars, three color-coded survey instruments were used to survey most communities (Appendix S.2). Except for local terms for salmon species, the survey questions in each region were identical. The survey form used in Bethel and Aniak households included a space for recording the households resident address and quantified harvests by gear type and harvest locations for fish caught with hook and line gear. Bethel and Aniak surveys included questions to collect subsistence harvest information for non-salmon species.

During 2002, Division of Subsistence staff conducted house-to-house surveys in 27 communities. Budget constraints have precluded attempts to conduct house-to-house surveys in Mekoryuk, Newtok, Nightmute, Toksook Bay, Tununak, Chefornak, and Telida. As in past years, house-to-house surveys were not done in the communities of Kwigillingok, Kipnuk, and Kasigluk. For the first time in several years, surveys were not done in Lime Village because of weather and logistical difficulties. Through funding administered through OSM, ONC hired survey technicians to assist Division of Subsistence to in gather data in Bethel. Through a similar

funding arrangement between KNA and OSM, postseason surveys in Aniak were done by staff of KNA. In both of these cooperative efforts, Division of Subsistence trained ONC and KNA staff, provided survey forms used to collect data and oversaw survey efforts. ONC and KNA followed the methods and protocols developed by the division to collect the survey data.

Survey efforts occurred primarily over a two-month period, beginning in early October, after most residents had completed salmon fishing for the season and after most hunters had returned home from fall moose and caribou hunting. Communities in which residents usually harvest salmon through late fall were surveyed in November. Time spent in any one community ranged from one-half day to two days depending on the size of the community. Surveys in Bethel were conducted over an 11 week period from early October through much of September.

Households were interviewed systematically. Before beginning community surveys, efforts were made to inform and prepare residents for the arrival of staff conducting the surveys. This preparation was done weeks or days in advance of their arrival through letters to City, Tribal, or Traditional Council offices in each community, radio announcements, posters in public buildings and phone calls to community officials. Before traveling to each community, staff identified households that had already mailed in or returned their salmon harvest calendars to the division office in Bethel.

In Bethel, survey staff used a map of the community originally developed by the Bethel Fire Department. This map identified the street addresses of much of the community and was used to divide the community into areas that could be assigned to each of the two survey staff. This map was edited and modified using aerial photos taken in late August by the Division of Subsistence SRS III in Bethel. Survey staff working in Bethel also had access to a list of all Bethel households identified through previous surveys and a list of households which had been sent and returned their salmon fishing calendar.

Upon arrival in a community, staff checked in with the City or Council office to introduce themselves and outline their task. Staff used community household checklists, prepared in advance, to help them identify households they needed to contact while conducting household surveys. Each "checklist" contained a listing of all known households in the community, identified those households which were reported to have subsistence fished for salmon the previous year (2001), and households which were mailed 2002 catch calendars. Knowledgeable individuals in the community helped staff update the community household list and identify which households "usually fished" and which households "usually did not fish". These individuals also helped to identify households that subsistence fished for salmon in 2002.

Attempts were made to contact all households identified either as "usually fish" or were known to have fished during 2002. Structured interviews were conducted with these households through use of the survey instrument. Subsistence salmon catch calendars not mailed back to the department were collected during the interview if available. If time permitted, other households on the community list were contacted about their salmon fishing activities.

Survey methods used in Bethel were initially designed the same as the three previous years; to contact every household (a census) so that a more accurate list of households in Bethel could be developed. Unlike the other communities, no single community entity in Bethel could provide a

current list of households in Bethel. Survey efforts in Aniak were designed to complete a census of the community; attempts were made to survey all households regardless of prior fishing history. Survey staff hired by ONC and KNA changed, some quit and others were hired to replace them, delaying progress in the surveys in those two communities. ADFG staff hired two technicians to conduct village surveys and they remained through the entire project, marking 13 years of working on the project for one of them and the second for the other. Overall, 2,631 households were surveyed in-person, 1,320 in Bethel and 162 in Aniak.

Postcard Surveys

The third method of collecting subsistence salmon harvest information was through the use of postcard surveys (Appendix S.3). The postcard survey simply asked if the household harvested salmon from the Kuskokwim Area for subsistence use during 2002, asked the species and quantities harvested, the type of fishing gear used, and how fishing was for each of the four salmon species usually harvested. The postcard could be separated in half and returned postage paid to the department. This type of survey was the primary method of obtaining harvest data from households in Kipnuk, Kwigillingok, Kasigluk, Mekoryuk, Newtok, Nightmute, Toksook Bay, Tununak and households in other communities not available during the community surveys.

In Bethel, several postcard surveys were left at occupied homes where multiple attempts to contact the residents to conduct an in-person survey failed, because the residents were never home during the survey efforts. As a final effort to contact households in Bethel, those individuals on the "usually fish" strata for which the department had a mailing address were also mailed a survey postcard, if they had not already been surveyed. Overall, 300 postcards were distributed to Bethel residents. Several postcards were returned with an address correction indicating the individual had moved away. If the address correction included a current address, a follow-up postcard was sent to determine if the individual harvested salmon during 2002. Overall, 1,655 households in the region were mailed postcard surveys.

Subsistence Salmon Harvest Estimation

Data from the three information sources (catch calendars, household and postcard surveys) were entered into a computer database. Data were verified against source documents, and several logic checks of the data were made. The division's list of names and addresses of resident households was updated to reflect changes in household composition and number of households residing in each community. The unique household numbering system was maintained on the list and on the database tables containing information from each of the three information sources.

To provide a single best estimate for a household's harvest of a salmon species during 2002, information was compiled from various information sources. This process was conducted by a single researcher on the project to ensure data consistency. In most cases, there were few discrepancies between the information available from the different sources. In those cases where a household was known to have fished for salmon but their harvest could not be quantified through any information source, the household's harvest was estimated based on the mean harvest in the "usually fishes" strata for that community. Likewise, if a household could not be contacted but was reported by a reliable source to not have fished, the household was assigned a harvest of zero.

Guidelines developed during the course of the project to composite harvest information included the assumptions:

- the salmon catch calendar contained the best means of recording the household's harvest;
- information from different sources needed to be evaluated concurrently to identify the harvest for each species;
- information from the different sources for a particular species may be different because of the timing of the collection of this information;
- information on the use of salmon to feed dogs would be used as a minimum estimate of the household's harvest if no other information was available.

Salmon harvests that were identified as "removed from the commercial catch for subsistence use" were included in the household's subsistence harvest. The Bethel and Aniak surveys did not include a question to specifically ask a household if they commercial fished for salmon during 2002. The Bethel and Aniak surveys form did, however, include a question aimed at determining the amount of the subsistence harvest obtained from each gear type used, including those caught while commercial fishing.

The average community catch (Ck) was estimated for salmon species from the composite catch per household data using the following formula:

Ck = Ö1i=0 (Nki * Cki) /Ö1i=0 Nki

where k = community
i = indicates whether the group "usually fishes" (1) or "usually does not fish"(0)
Nki = number of households that "usually fish" or "usually do not fish"
Cki = mean harvest for households that "usually fish" or "usually do not fish"

The total community catch (Tk) was estimated by Tk =Ö1i=0 (Nki * Cki) and its variance (Vk) includes a finite population correction factor:

Vk = Ö1i=0 ((Nki2)(1-(nki/ Nki))(ski2/ nki))

where nki = number of households for which information is available that "usually fish" or "usually do not fish" and ski2 = variance for the amount harvested for the "usually fish" or "usually do not fish" households.

If fewer than 30 households, or less than 50% of all households in a stratum in a community were contacted, the reported harvest was used for the estimated harvest. Community catch estimates and their variances were summed across communities for region subtotals and across all regions for Kuskokwim Management Area totals.

2002 Sampling Summary

A summary of the sampling information by community and fishing area is presented in Table 13. Of the estimated 3,759 households located in the Kuskokwim River drainage and the South Kuskokwim Bay area, information was obtained for 2,767 (74%). Relatively few (39) of the estimated 580 households in the Bering Sea Coast area were contacted because the Division does not conduct household in-person surveys there.

A total 1,711 households have been classified as "usually fish." In 2002, 1,431 (84%) of these households were contacted. Households classified as "usually do not fish" for salmon totaled 2,628, however, this number included most (460) households in the Bering Coast region, and 389 households in Kasigluk, Kipnuk and Kwigillingok where the household fishing status was not specifically known. Of the remaining 1,779 households identified as "usually do not fish," information was collected from 1,329 (75%). Most (978) of the households classified as "usually do not fish" resided in Bethel.

Information on the fishing status (fished or didn't fish during 2002) was determined for 2,806 households. Of these, 1,696 households were identified as having harvested salmon during 2002. Including households who were known to have not harvested salmon, harvest data was obtained for 2,767 households.

Within the Kuskokwim River drainage (including North Kuskokwim Bay communities), 2,603 (73%) of 3,549 households living in the region were surveyed. Households determined not to have fished during 2002 were not targeted for the survey, however, some were surveyed. This region contains 82% of the total households in the Kuskokwim Area and 92% of the identified as fishing during 2002.

In the South Kuskokwim Bay region, containing the communities of Quinhagak, Goodnews Bay, and Platinum, information on salmon fishing was obtained for 156 (74%) of the 210 households. A total of 114 households harvested salmon in 2002 for subsistence use.

A total of 580 households have been estimated for the communities of Mekoryuk, Newtok, Nightmute, Toksook Bay, Tununak and Chefornak. A current and complete list of households was not available for these communities. Because house-to-house surveys were not conducted in these communities, data were obtained only by postcard surveys and catch calendar returns. Forty-one households in this region provided information and 27 indicated they harvested salmon. Based on previous years data, actual participation in salmon harvesting activities by households in the Bering coast area is thought to be much greater than reported by catch calendars or postcard surveys alone.

For most communities, house-to-house surveys continue to be the most effective method for obtaining data on harvest and use of subsistence salmon. A total of 304 (12 %) of the 2,504 subsistence salmon calendars which were mailed pre-season were used and returned or picked up during the household surveys. There were 139 responses to the 1,655 postcard surveys mailed to households.

2002 Harvest Summary

The total subsistence salmon harvest estimates for was 74,746 chinook, 76,818 chum, 28,844 sockeye, and 35,937 coho salmon (Table 14). Seventy-six percent of the total estimated subsistence salmon harvest was taken by residents of communities located from Tuluksak downstream to Eek. The estimated salmon harvested by the community of Bethel represented 27% of the total estimated harvest in the area, however, Bethel comprises 35% of the total households in the region.

When comparing the total (all species) subsistence salmon harvest with that of 2001, the overall harvest was about the same. During 2002, the subsistence chum salmon harvest increased by 50% over the 2001 harvest, which was a relatively low harvest. The 2002 chum salmon harvest was still about 3% below the 1989 to 2001 average harvest for the area (Appendix A.13). In contrast, the 2002 sockeye salmon harvest was 44% lower than the 2001 sockeye harvest, 31% lower than the 1989 to 2001 average harvest (Appendix A.11).

The 2002 chinook salmon harvest was about the same as it was in 2001. The slight decline was likely caused by a reduction in the estimated harvest in Bethel for 2002 compared to the 2001 harvest. The 2002 chinook harvest was still about 12% below the 1989 to 2001 harvest (Appendix A.10). The 2002 coho harvest increased by 13% over the 2001 catch but was still about 8% below the 1989 to 2001 harvest (Appendix A.12).

Harvest trends described above were also true for the Kuskokwim River drainage, where most of the salmon is harvested. While chinook salmon harvests in the Lower Kuskokwim declined slightly, chinook harvest in the middle Kuskokwim River increased by 15% and in the Upper Kuskokwim Area increased by about 41% over the 2001 harvest in the same areas. Chinook harvests in both Quinhagak and Goodnews Bay/Platinum also declined from 2001. The 2002 chinook harvest in Quinhagak was 31% lower than the 1989 to 2001 average.

Sockeye salmon harvests were down about the same percentages (46 to 48%) in each portion of the Kuskokwim River and down only slightly in Quinhagak (6%) compared to 2001. Compared to catches since 1989, sockeye salmon catches were down by at least 28% in each portion of the Kuskokwim River and down by 24% in Quinhagak. Only in Goodnews Bay/Platinum were catches higher.

The stronger chum salmon return in 2002 resulted in increased harvests ranging from 35% over the 2001 harvest in the Middle Kuskokwim Area to 53% higher in the Upper Kuskokwim Area. However, chum salmon catches in both the Middle and Upper Kuskokwim regions during 2002 were 12% and 35% below the 1989 to 2001 average for each region. Chum salmon catches in the Lower River area during 2002 were equal to the average harvest from 1989 through 2001.

Coho salmon harvests during 2002 had the greatest relative increase in the Middle and Upper Kuskokwim regions (38% and 32% respectively) with a slight increase in the Lower Kuskokwim region of 11% compared to the 2001 catch. Compared to the 1989 to 2001 average coho catch, the Middle Kuskokwim Area was substantially higher (52%) and the Upper Kuskokwim was significantly lower (31%). Coho harvests in both Quinhagak and Goodnews Bay/Platinum during 2002 were more than 50% below the 1989 to 2001 harvest.

Historically, the harvest of salmon for use as dog food was a significant portion of the overall subsistence harvest of salmon, specifically for chum and coho salmon. Over the past 10 years, the number of households harvesting salmon specifically for dog food has declined. During 2002, relatively few salmon were harvested specifically for dog food. Seventy-one households reported harvesting salmon specifically to process and use as dog food. Chum salmon represented most of the reported harvest for dog food at 5,918 fish. Coho salmon accounted for 1,321 fish and sockeye contributed a reported 513 fish for dog food. Residents did not specifically target chinook salmon for dog food, however, some chinook salmon unfit for human food because of their condition may be fed to dogs. It is common for most households to feed scraps, backbones, entrails and salmon unfit for human consumption to their dogs so nothing is wasted. When asked the question about feeding salmon to dogs, a total of 247 households responded they fed scraps, entrails and salmon backbones to dogs but did not harvest and process salmon specifically for dog food.

Subsistence fishing households often use more than one type of gear (ie set gillnet, drift gillnet, fish wheel or rod and reel) when harvesting salmon. Households that harvested salmon were asked to provide information on the types of gear they used. The most common gear type used throughout the area is drift gillnet. During the 2002 season, 1,153 households reported using drift gillnets when harvesting subsistence salmon. Drift net gear is used by most fishing households from Crooked Creek downriver and including the coastal communities (Table 15). Set gillnets are used throughout the area, however, they are used in a greater proportion in the upper Kuskokwim River communities of Red Devil, Lime Village, Stony River, McGrath and Nikolai and Mekoryuk located on Nunivak Island. Overall, 313 households reported using set gillnets when harvesting salmon.

Rod and reel gear is used for subsistence fishing in many communities throughout the area. Rod and reel gear is used by families without access to other gear types; is used by fishers in areas where other gear types are not as effective or efficient, and is used to harvest relatively few fish when less is needed. Chinook and coho salmon are the two salmon species most frequently harvested by rod and reel gear. Rod and reel gear is the primary gear type used by McGrath and Nikolai residents for harvesting subsistence chinook salmon. Use of rod and reel gear is also a popular method for harvesting coho salmon during August and provides a method for individuals and families to harvest what they need without fear of catching too many with a gillnet. During 2002, 369 households in 23 communities reported using rod and reel gear to harvest salmon for subsistence use.

Fish wheels are used in the middle and upper Kuskokwim Areas for harvesting salmon. This gear type is most frequently used by fishers in Aniak, Stony River, Lime Village and McGrath. Fish wheels in the Kuskokwim River are used primarily for harvesting sockeye, chum and coho salmon. During 2002, two households reported using fish wheel gear for harvesting salmon; both were in Aniak. There are generally one or two fish wheels operated by households in McGrath, however, during 2002, none of the households that reported harvest numbers to the division reported using a fish wheel. Possibly households that did use a fish wheel were not available to be surveyed and did not return a survey postcard. During 2002, no households reported using spears for harvesting salmon. Three households in Mekoryuk reported using seine gear to harvest salmon for subsistence.

Households involved in commercial salmon fishing sometimes keep some salmon caught through their commercial fishing activities to bring home for subsistence use. The number of salmon retained from commercial fishing activities for subsistence use is usually relatively low. During 2002 there were no commercial salmon fishing period in the Kuskokwim River drainage until early August. There were, however, commercial fishing periods in Districts 4 and District 5 during June and July as well as August. Forty-one households reported retaining salmon for subsistence use from commercial fishing activities during 2002 (Table 16). The amount of salmon reportedly kept for subsistence use from commercial harvests amounted to 56 chinook, 15 chum, 77 sockeye and 177 coho salmon.

Fishing households interviewed in-person and those mailed a survey postcard were asked to respond to a qualitative question about subsistence salmon fishing for the season. The purpose of this question was to learn how households viewed their 2002 subsistence fishing success. Households were asked to rate their subsistence fishing success for each of the four species surveyed (chinook, sockeye, chum, and coho) as "Very Good," "Average," or "Poor". A total of 1,198 households responded to this survey question (Table 17).

Most responding households rated their subsistence fishing during 2002 as very good or average. Harvest success was highest for coho (88%), chum (85%) and chinook salmon (83%). Sixty-three percent of the households that responded regarding sockeye fishing during 2002 indicated fishing was very good or average; most of those (44%) indicated only average fishing success and 19% indicated very good fishing success. Thirty-seven percent rated sockeye fishing during 2002 as poor.

Since the division began asking fishing households to rate their fishing success in the early 1990s, the upriver fishers always rated their fishing success lower than fishers located further downriver. During 2002, responses to fishing success were similar in Lower Kuskokwim, Middle Kuskokwim and Upper Kuskokwim Areas.

A total of 166 households that rated their 2002 chinook fishing as poor provided reasons why they rated it as they did. Sixty-nine households reported not enough fish. Seven households indicated it was too sunny and hot and fish were deeper than usual, and eight had gear or equipment problems. Twenty-two households located in the Lower Kuskokwim Area (12) and the Middle Kuskokwim Area (10) reported the subsistence fishing schedule prevented them from harvesting enough chinook salmon. Other reasons given were personal in nature.

One hundred and eleven households reported chum salmon fishing as poor. Forty-three of these households indicated low numbers of fish returning as the reason. Thirteen households identified the subsistence salmon fishing schedule as the reason their chum salmon fishing was poor, seven identified gear or equipment problems and the rest were of a personal nature.

A total of 296 households rated their sockeye salmon fishing as poor. Most (169) indicated relatively few sockeye salmon available during the 2002 fishing season. Few (17) listed the subsistence fishing schedule as the reason. Personal reasons were reported why fishing was poor by many families. Seventy four households rated subsistence coho salmon fishing as poor for

2002. Thirty-five households reported a weak coho return as the reason, and personal reasons accounted for the rest.

COMMERCIAL SALMON FISHERY

Background

The commercial salmon fishery dates back to the late 1800s. In the early years of the fishery, most of the commercial catch was sold locally for dog food (Oswalt 1990, Brown 1983). Salmon have been harvested for export since 1913 (Pennoyer 1965). The current system of fishing districts, formerly called subdistricts, was established in 1960 for the Kuskokwim River and District 4. District 5 was created in 1968. District 3 was eliminated in 1966 because of a lack of landings, and District 2 has had commercial fishing during only one season since 1998. (Appendix A.2).

Before 1983, a management strategy of conservatively increasing the commercial harvest guidelines to establish definite trends between catch and escapement allowed development of the fishery. After changing from a harvest-guideline-based management strategy to an escapement-objective-based strategy in 1983, average harvests generally increased until the mid 1990's. (Appendix A.4). Since then the commercial salmon fishery has been characterized by generally weak returns, lower effort levels, lower harvests, and collapsing salmon prices.

Commercial salmon fishing is allowed with set or drift gill nets. Mesh size allowed in Districts 4 and 5 has always been six inches or less. Mesh size in Districts 1 and 2 was reduced to six inches after June 25 each season from 1971 through 1984. Since 1985, commercial regulations have limited gill net length to 50 fathoms, mesh size to six inches, and depth to 45 meshes for all districts. (Appendix A.2).

Fishery Data

Catch per unit of effort (CPUE) is used in this report to describe the relative success of fishing and as an index of abundance. Commercial CPUE is the number of fish caught during a fishing period divided by the product of the number of unique CFEC permits used in a fishing period and the total number of hours the district was open to commercial fishing.

Computer tabulations of fish tickets provide commercial catch data presented in this report. The computer software program is a statewide system provided by the CF Computer Services section.

Coho salmon are the most important species in the commercial fishery in terms of both harvest numbers and value to the fishers. Cohos are targeted in late July and August. Even with the poor chum returns to the Kuskokwim River in recent years, chum salmon are still second in importance in terms of numbers harvested, but they have dropped to fourth in value of harvest. Although sockeye and chinook salmon continue to be third and fourth in terms of numbers harvested, the value of the harvest of each species is nearly equal and surpassed only by the value of the coho harvest. The only directed sockeye fisheries are in Districts 4 and 5, and the only directed chinook fishery is in District 4. The directed chinook salmon fishery in the

Kuskokwim River was discontinued in 1987. Pink salmon are the least valuable species in the commercial fishery (Table 3).

Adjusting the number and duration of commercial fishing periods and time intervals between fishing periods are primary methods to distribute the harvest throughout the run. This strategy helps to avoid over harvesting discrete stocks, to achieve escapement goals, and allow sufficient subsistence fishing time. Commercial fishing periods are set depending on the district, species, effort, processing capacity, and run abundance and timing. This latter factor is assessed with test fishery data, subsistence harvest reports, escapement project information, and, when available, commercial fishery statistics.

Fishing periods in District 1 are usually six hours long and from 1:00 p.m. until 7:00 p.m. The extra time in longer periods is usually added equally before and after 1:00 p.m. and 7:00 p.m. In 2002, at the request of processors, periods shorter than six hours ended at 7:00 p.m. so that fishing and delivering could be done during cooler parts of the day. In Districts 4 and 5, fishing periods are normally 12 hours in length. Periods are normally 9:00 a.m. until 9:00 p.m to accommodate fisher preference for daylight hours. In 2002, at the request of fishers and processors, some periods were longer than 12 hours to compensate for lower fishing effort.

The value of salmon harvested, the number of salmon harvested, and the fishing effort— except during run-up to the limited entry program—all peaked in 1988. However, the commercial fishery remained strong into the mid 1990's because of the earlier shift to escapement-objective-based management and improvements in fishing gear, tendering, and processing capabilities. Since 1996 the harvest value, numbers harvested, and fishing effort have all declined sharply. Generally lower salmon returns in recent years and often inadequate processing capacity have contributed to this sharp drop, the main cause has been collapsing wild salmon prices. By 2002, the harvest value, number of salmon harvested, and fishing effort had declined to levels not seen since 1969, 1972, and 1965, respectively (Appendices A.4, A.5, A.6).

Kuskokwim Area fishers owned 96% of the 817 commercial permits renewed in 2002, and non-local Alaskan residents owned 3% or 25 permits. Non-residents owned 5 permits (Table 2).

Alaska Board of Fisheries Actions

In March 2000, the Alaska Board of Fisheries (Board) implemented a new district registration regulation for District 1 (5 AAC 07.370). This new regulation divided District 1 into two parts; Subdistrict 1-B, downstream of Bethel and Subdistrict 1-A, upstream of Bethel. The purpose was to reduce the magnitude of the commercial harvest during a single fishing period in District 1 when processing capacity was inadequate to handle the harvest from a full-district opening. If processing capacity is limited, only one subdistrict will open to commercial fishing at a time.

Fishers must choose which subdistrict they will fish in and cannot fish in the other subdistrict without first reregistering with ADF&G. Permit holders are automatically registered to fish in the subdistrict where they make their first delivery of the season. After contacting the department and declaring their intent to transfer to the other subdistrict, they cannot fish commercially for 48 hours. The number of transfers between the subdistricts in District 1 was limited to one in June

and July and one in August. This regulation did not limit the ability of permit holders to transfer freely between District 1, 2, 4 and 5.

One regulation was modified and a new regulation was adopted by the Board to implement the district registration regulation. The regulation describing the boundaries of District 1 (5 AAC 07.200) was modified. District 1, Lower Kuskokwim River, was divided into two registration areas, 1-B (below Bethel) and 1-A (above Bethel). A new regulation adopted by the Board required permit holders to identify their fishing vessel by permanently marking their ADFG vessel license or CFEC entry permit number on both sides of the vessel (5 AAC 07.340).

In September 2000, the Board designated Kuskokwim River chinook and chum salmon to be stocks of concern under the Policy for the Management of Sustainable Salmon Fisheries (5 AAC 39.222). These stocks were determined to be yield concerns based on very poor runs and harvests since 1997 and expected poor runs in 2001.

To guide the department in the management of these stocks of concern, the Board replaced the Kuskokwim River Salmon Management Plan in January 2001 with the Kuskokwim River Salmon Rebuilding Management Plan (Rebuilding Plan) (5 AAC 07.365). The Rebuilding Plan directs management of the Kuskokwim River commercial and subsistence salmon fisheries during June and July. The Federal Subsistence Board uses the plan to guide federal fishery managers on the Kuskokwim River. In general, salmon runs under the Rebuilding Plan are managed to achieve established escapement goals, to meet amounts necessary for subsistence, and to allow commercial fishing on harvestable surpluses as escapement goals and subsistence needs are met. If low abundance is assessed as in 2001, subsistence salmon fishing may be reduced to less than four days per week as it was in 2001. If a harvestable surplus of salmon is identified and the commercial salmon season is opened as it was in 2002, subsistence salmon fishing will be extended to seven days per week subject to the usual closures associated with commercial fishing periods in 5 AAC 01.260.

In October 2002, the Board accepted an Agenda Change Request proposing the formation of a salmon cooperative fishery on the Kuskokwim River in 2003. The proposal was developed by two members of the Kuskokwim River Salmon Management Working Group and endorsed by that body (Table 4). The envisioned cooperative would have emulated, to a large degree, the Chignik salmon cooperative fishery, which operated in 2002. The principal idea was; through management, fishing technique, and processing changes; to dramatically slash harvest costs and boost product quality to make Kuskokwim River salmon more competitive on the world market. However, the proposal was withdrawn with plans for re-submittal at a later date before more Board action could be taken.

Public Communications

Special regulation notices are broadcast over local radio stations and printed in local newspapers in English and Yupik. The department and the Kuskokwim River Salmon Management Working Group relationship has dramatically improved the acceptance and understanding of fisheries management by many users. The department participates in school and workshop programs in the winter. News releases are now more widely distributed via FAX and e-mail.

SPORT SALMON FISHERY

Management of Kuskokwim Area sport fisheries is divided between two area management biologists, one stationed in Bethel and one in Fairbanks, within the Arctic-Yukon-Kuskokwim region. The Bethel position manages all sport fisheries from Cape Newenham to Point Romanof. This area is referred to as the Lower Yukon /Lower Kuskokwim Management Area (LY/LKMA) and includes the lower portion of the Yukon River downstream of Paimiut Slough and the lower portion of the Kuskokwim River downstream from the Aniak River, including the Aniak River. Remaining sport fisheries of the Kuskokwim and Yukon Rivers are managed from the Fairbanks office.

Historically, sport-fishing effort rarely exceeded 10,000 angler days of effort (Lafferty *in press* and Burr *in press*). Most sport salmon fishing effort and harvest occurs within the Kuskokwim Bay streams, particularly the Kanektok and Goodnews Rivers. Recent declines in chinook and chum salmon harvest and catch can be attributed to conservation measures for rebuilding of chinook and chum salmon stocks (Lafferty *in press* and Burr *in press*). However, the small sport harvests remain a concern with area residents and are a frequent discussion topic at public meetings. Specific details of the sport fisheries of the area are found in the area management reports of Lafferty, *in press* and Burr, *in press*.

In June 2002, the Federal Subsistence Board (FSB) adopted a special action to tie the time allowed for sport salmon fishing to the time allowed for subsistence salmon net and fish wheel fishing in waters of the Kuskokwim River drainage that flowed through the Yukon Delta National Wildlife Refuge. Upon a request for reconsideration by ADF&G, the FSB rescinded its decision. The reason for the rescission was that under ANILCA, sport fishing in Yukon Delta National Wildlife Refuge waters is managed by ADF&G unless overriding conservation or subsistence concerns exist. With such concerns, the FSB can close refuge waters to other uses to provide a priority to federally qualified rural subsistence users. In this instance, however, there were no overriding conservation or subsistence concerns existed (Table 4).

ESCAPEMENT MONITORING AND ASSESSING RUN ABUNDANCE

The vast size, remoteness and geomorphic diversity of the Kuskokwim Area present tremendous challenges to monitor salmon escapements and to assess salmon run abundance. Aerial spawning ground surveys are the most cost-effective means of monitoring salmon escapements, but their usefulness and reliability are limited. The more thorough and rigorous ground based projects such as weirs, counting towers, and sonar were operated in only a few locations because of budget limitations. Over the past few years, however, the number of escapement projects has increased through cooperative partnerships with federal agencies and local organizations (Table 1). These cooperative efforts added substantially to our ability to monitor salmon escapements and to evaluate the effectiveness of inseason management actions.

Aerial Surveys

Many escapement goals established for Kuskokwim Area streams in 1983 were based on aerial survey counts (Appendix A.3, Buklis 1993). Several of these aerial survey goals were formally discontinued before the 2001 salmon season (Burkey et al. 2000a and Burkey et al. 2000b). The aerial survey based escapement goals do not represent entire spawning populations in the respective streams. The surveys are mostly conducted one time each season during a window of a few days when the maximum numbers of fish are expected to be on the spawning grounds. Escapement goals developed from these surveys are based on the raw, unexpanded counts; therefore, each count serves as an index of abundance rather than complete census.

Aerial surveys are ordinarily restricted to clear water streams and lakes, the distribution of which is geographically skewed toward the lower Kuskokwim River basin and coastal streams. Tributaries in the middle and upper Kuskokwim River are oftentimes stained from organics or clouded by glacier runoff, which markedly reduce visibility. Escapement assessment through aerial surveys is subject to a high degree of variability depending on viewing conditions and the persons surveying.

Aerial surveys are best directed to index spawning populations of sockeye and chinook salmon because these fish are typically more visible than chum and coho salmon. In addition, chum salmon have protracted run timing, and coho salmon are frequently difficult to survey because of poor weather conditions.

In 2002 aerial surveys were flown in 49 streams (Table 8), including 10 used for the Kuskokwim River Chinook Salmon Index (Figure 6). Overall, chinook salmon escapements continued to show improvement over the low escapements of 1998, 1999 and 2000.

Ground Based Escapement Assessment

Weir, sonar, mark and recapture, and radio telemetry projects operated allow estimation of entire spawning populations or major segments of those populations. Twelve such projects were operated in 2002 (Figure 1). Three of the projects--Aniak River sonar, Kogrukluk River weir, and Middle Fork Goodnews River weir, have escapement goals associated with them (Appendix A.3). Other information collected at ground based projects may include salmon sex and length composition, scales for age determination, statistics on the occurrence of gillnet marks on fish, samples for genetic stock identification, data on resident species, and information from recovery of tagged fish coordinated with mark and recapture and radio telemetry projects.

Kuskokwim River

Kogrukluk River Weir

The 2002 Kogrukluk River salmon escapements included 10,104 chinook, 4,050 sockeye, 51,570 chum and 14,516 coho salmon during the 25 June through 24 September operational period (Appendix A.7; Clark and Molyneaux 2003a). The escapement goals of 10,000 chinook salmon and 30,000 chum salmon were achieved, but passage fell 42% short of the escapement goal of 25,000 coho salmon. The origin of the escapement goals was based on historic average passage coupled with some subjective weighting determined by area biologists in the early 1980s (Buklis 1993). Sockeye are considered incidental at the site and currently do not have an escapement

goal; however, the 2002 passage was about half the average historic escapement. Project funding in 2002 was provided through State of Alaska general funds, plus ONC provided a technician for part of the season through a grant from the Bering Sea Fishermen's Association (BSFA).

The Kogrukluk River is a tributary of the Holitna River sub-basin and has the most extensive history of salmon escapement monitoring in the area (Figure 1). The Holitna River joins the Kuskokwim at river mile 335, and the Kogrukluk River weir is located an additional 138 river miles upstream (Baxter, 1976). Salmon escapement monitoring began in that vicinity in 1969 with a counting tower located several miles upstream of the current weir site (Yanagawa 1972a). The tower was also upstream of Shotgun Creek, a productive salmon spawning area. The department tried to install a weir near the tower site in 1971, but was unsuccessful (Yanagawa 1972b). Operation of the counting tower continued through 1978 (Yanagawa 1972a, and 1973, Kuhlmann 1973, 1974, 1975; Baxter 1976 and 1977). Weir operation at the current site, located downstream of Shotgun Creek, began in 1976 (Baxter, 1976), and the tower project was discontinued after 1978.

Aniak River Sonar

In 2002, total estimated fish passage at the Aniak River sonar site was 362,075 fish, during the 26 June through 31 July operational period (Appendix A.7; Sandal and Pfisterer 2003, *in review*). This passage exceeded the minimum escapement goal of 250,000 unapportioned fish counts. Area biologists derived the escapement goal in the early 1980s by subjectively relating the sonar passage estimates to trends in harvest and other escapement indices (Schneiderhan 1984c, Buklis 1993). Project funding in 2002 was provided through State of Alaska general funds, and the Association of Village Council Presidents (AVCP) provided a technician to the project through a grant from BSFA. In addition, 2002 was the second year of a species apportionment feasibility study funded as part of the Western Alaska Fishery Disaster Relief grant administered by the National Marine Fisheries Service (NMFS).

Aniak River joins the Kuskokwim River near the community of Aniak at river mile 225 and the sonar site is located approximately 12 mile upstream of the confluence (Figure 1). Salmon escapement monitoring began in that vicinity with the use of non-configurable sonar equipment in 1980 (Schneiderhan 1981). A transducer was deployed from one bank and passage in the unensonified section of the river was estimated using an expansion factor (Schneiderhan 1989). Results from the 1995 sonar operations were considered unusable because of abnormalities in the operation that could not be resolved (Burkey et al. 1996b), including the lack of documentation inherent with non-user configurable sonar. In 1996, the project was redesigned to incorporate user-configurable sonar technology (Vania 1998). At the same time, the project was relocated to the current site about a mile downstream where a transducer was deployed from each bank to allow full channel ensonification.

Sonar passage estimates for Aniak River include a mix of species; but sonar counts are currently unapportioned to species. During the first few years of sonar use, investigators tried to apportion counts between chinook, chum and in one year coho salmon (Schneiderhan 1981, 1982a, 1982b, 1984c). Apportionment was done using gillnets catches, but the practice was discontinued after 1986 because of inadequate sample sizes, gillnet selectivity problems and the perceived dominance of chum salmon (Schneiderhan 1989). The overall dominance of chum salmon has generally been

confirmed through periodic netting activities (Schneiderhan 1989, Vania 1998); however, other species, including residents such as longnose suckers, may periodically vie with chum salmon for dominance of daily passage estimates. Continued interest in species apportionment initiated renewed investigations with gillnets in 2001 and 2002, but the practice was again found unfeasible (Sandal, ADF&G, personal communication). The current project-operating period of mid-June through late July is when the majority of the fish passage is typically chum salmon.

Other Kuskokwim River Escapement Projects

Additional escapement projects operated the past few years through cooperative efforts with FWS and other organizations. In 2002, these efforts included salmon weirs operated on the Takotna, Tatlawiksuk, George, Tuluksak and Kwethluk rivers (Table 1, Figure 1), plus mark and recapture and radio-telemetry projects operated on the main stem Kuskokwim and Holitna Rivers. These projects received federal funding through grants obtained by BSFA, Bureau of Indian Affairs (BIA), OSM and the NMFS. The department and USFWS worked jointly to provide varying levels of support to each project, including an on-site crew leader or crewmember.

Takotna River Weir

The 2002 Takotna River salmon escapements included 316 chinook, 4,366 chum and 3,984 coho salmon during the 24 June through 20 September operational period (Appendix A.7; Clark and Molyneaux 2003b). Currently no escapement goals are established for the river; however, the 2002 chinook salmon escapement was the lowest of four years in which annual escapements were determined, contrary to findings at most other Kuskokwim River tributaries in 2002. Chum salmon escapement ranked second of four years, and coho salmon ranked highest of three years, for years in which annual escapement was determined. Project funding in 2002 was provided by grants from BSFA and NMFS, with matching support from the State of Alaska.

Takotna River joins the Kuskokwim River across from McGrath at river mile 507, and the weir is located about 53 river miles upstream of the confluence, near the community of Takotna (Figure 1, Appendix B.1). Salmon escapement monitoring began in that vicinity in 1995 with a counting tower located a few miles downstream of the current weir site (Molyneaux et al. 2000). The counting tower was operated by Iditarod Area School District (IASD) in consultation with ADF&G. The tower project was replaced in 2000 with the current resistance board weir, and project administration transferred from IASD to Takotna Tribal Council (TTC) (Schwanke et al. 2001). Establishment of the weir in 2000 broadened, project objectives to include assessment of coho salmon escapement.

Tatlawiksuk River Weir

The 2002 Tatlawiksuk River salmon escapements included 2,237 chinook, 24,542 chum and 11,345 coho salmon during the 15 June through 20 September operational period (Appendix A.7; Linderman et al. 2003a). Currently, no escapement goals are established for the river; however, the 2002 escapements were the highest recorded among the four years reported for chinook and chum salmon, and the three years coho salmon. Project funding in 2002 was provided by grants from OSM, NMFS and BSFA, with matching support from the State of Alaska.

Tatlawiksuk River joins the Kuskokwim River at river mile 383 and the weir is located about 2.5 river miles upstream of the confluence (Figure 1, Appendix B.1). Salmon escapement monitoring began at the site in 1998 through the joint effort of KNA and ADF&G (Linderman et al. 2002). Operations in 1998 were incomplete and the fixed-panel weir design was replaced with a resistance board weir, which improved performance in subsequent years.

George River Weir

The 2002 George River salmon escapements included 2,444 chinook, 6,543 chum and 6,759 coho salmon during the 15 June through 20 September operational period (Appendix A.7; Linderman et al. 2003). The river currently has no escapement goals established. The 2002 chinook salmon escapement was the lowest yet recorded of six years of annual escapement records, which is contrary to what was found at most other Kuskokwim River tributaries in 2002. Chum salmon escapement ranked fourth of six years, and coho salmon ranked lowest of five years, in which annual escapement was determined. Project funding in 2002 was provided by grants from BSFA and NMFS with matching support from the State of Alaska.

George River joins the Kuskokwim River at river mile 309 and the weir is located about 4 river miles upstream of the confluence (Figure 1, Appendix B.1). Salmon escapement monitoring began at the site in 1996 through the joint effort of KNA and ADF&G (Molyneaux et al. 1997). The original fixed-panel weir design was replaced with a resistance board weir in 1999, which improved performance subsequent years (Linderman et al. 2003).

Tuluksak River Weir

The 2002 Tuluksak River salmon escapements included 1,346 chinook, 9,958 chum and 11,487 coho salmon during the 10 June through 10 September operational period (Appendix A.7; Gates and Harper 2002b). Currently, the river has no escapement goals established, however among the six years for which annual escapements were determined, the 2002 chinook salmon escapement ranked third, chum salmon ranked fifth, and coho salmon second. Project funding in 2002 was provided by a grant from OSM with matching support from the USFWS and in-kind support from the State of Alaska.

Tuluksak River joins the Kuskokwim River at river mile 136 and the weir is located about 47 river miles upstream of the confluence (Figure 1, Appendix B.1). The USFWS operated a resistance board weir in that vicinity from 1991 to 1994 (Harper 1995a, 1995b, 1995c, 1997). The project was discontinued after 1994 because of concerns from some local residents, but reestablished in 2001 as a cooperative venture between USFWS and Tuluksak Traditional Council (Gates and Harper 2002a, Gates and Harper 2002b).

Kwethluk River Weir

The 2002 Kwethluk River salmon escapements included 8,502 chinook, 35,854 chum and 23,298 coho salmon during the 22 June through 19 September operational period (Appendix A.7; Roettiger et al. 2001). Currently, the river has no escapement goals established; however, the 2002 chinook salmon escapement ranked second and chum salmon escapement ranked highest among four years in which annual escapements were determined. Coho salmon escapement ranked the lowest among three years in which annual escapement was determined. Project funding in 2002 was provided by a grant from OSM with matching support from the USFWS and in-kind support from the State of Alaska.

Kwethluk River joins the Kuskokwim River at river mile 99 and the current weir is located about 55 river miles upstream of the confluence (Figure 1, Appendix B.1). The USFWS operated a resistance board weir there in 1992 (Harper 1998), but the project was discontinued because of concerns from some local residents. AVCP and Kwethluk Joint Council operated a counting tower there from 1996 to 1999, but success was limited (Cappiello and Sundown 1998, Chris and Cappiello 1999, and Hooper 2001). The weir project was re-establish in 2001 as a cooperative venture between USFWS and Organized Village of Kwethluk (Harper and Watry 2001, Roettiger et al 2002, Roettiger et al. *in press*).

Holitna River Radio Telemetry

For the second consecutive year, a radio telemetry study was conducted to estimate the annual escapements of chinook, chum and coho salmon in the Holitna River drainage (Wuttig and Evenson 2002), which joins the Kuskokwim River at river mile 335 (Figure 1, Appendix B.1). ADF&G Sport Fish Division operated the project with assistance from KNA. Project funding was through a grant from OSM. Details of the study will be reported in the Fishery Data Series of ADF&G Sport Fish Division.

Kuskokwim River Fish Wheel Mark and Recapture

A mark and recapture study was conducted in 2002 to estimate the total passage of chum, sockeye and coho salmon in the mainstem Kuskokwim River, upstream of Kalskag at river mile 192 (Figure 1, Appendix B.1). This was the second year of the project; however, in 2001 the study was limited to coho salmon (Kerkvliet and Hamazaki 2003). Fish were captured with fish wheels and gillnets deployed near Kalskag (river mile 192) and Birch Tree Crossing (river mile 221), and marked with uniquely number spaghetti tags. The recapture event was considered from two aspects: the recovery of tags from catches in the fish wheels and gillnets fished at Birch Tree Crossing, and the observation of tagged fish at Aniak River sonar and at George, Tatlawiksuk, Kogrukluk and Takotna River weirs. ADF&G Commercial Fisheries Division operated the project with assistance from KNA. Project grants from the Western Alaska Fishery Disaster Relief Program administered by NMFS and OSM, coupled with matching funds from the State of Alaska. Details of the study will be reported in the Regional Information Report series of ADF&G Commercial Fisheries Division.

Kuskokwim River Chinook Radio Telemetry

A radio telemetry study was conducted in 2002 to estimate total passage of chinook salmon in mainstem Kuskokwim River, upstream of Birch Tree Crossing at river mile 221 (Figure 1, Appendix B.1). Preliminary estimated passage, excluding Aniak River, is 100,733 (+/- 24,267) chinook salmon (L. Stuby, ADF&G Sport Fish Division, Fairbanks, personal communication). Aniak River was excluded because of suspected sampling bias. ADF&G Sport Fish Division operated the project with assistance from KNA. Project funding was through a grant from OSM. Details of the study will be reported in the Fishery Data Series of ADF&G Sport Fish Division.

Other Projects

Other escapement monitoring projects operated in the Kuskokwim River basin over the years have included South Fork Salmon River weir in 1981 and 1982 (Schneiderhan 1982b, 1982d) and experimental sonar deployment in the Kwethluk and Kasigluk Rivers in 1978 and 1979

(Schneiderhan 1979,1980). These projects were discontinued because of funding shortages, technical limitations or lack of local support.

District W-4

Kanektok River Weir

Establishing an accurate and viable salmon escapement monitoring project for the Kanektok River has been problematic since the inception of the District 4 commercial fishery. Counting towers were attempted from 1960-62, and again from 96-99, but were limited by logistical problems, poor visibility into the water column, and difficulties in species identification (ADF&G 1960, ADF&G 1961, 1962, Fox 1997, Menard and Caole 1999). Hydroacoustic sonar was attempted from 1982 through 1987, but this method was unsuccessful because of budget constraints, technical obstacles, and site limitations (Schultz and Williams 1984, Huttunen 1984c, 1985c, 1986a, 1988). In 1999, resources were redirected toward developing a resistance board-floating weir (Burkey et al 2001). Despite initial technical and logistical difficulties (Linderman 2000, Estensen 2002), the weir has demonstrated its ability to be a viable and accurate method to monitor salmon escapement in the Kanektok River. The weir saw a partial achievement of its annual objectives in 2001, and a complete achievement in 2002. The weir continues to operate as a cooperative project with NVK and ADF&G, and funding from OSM.

Because of the difficulties in establishing an escapement monitoring project, escapement information for salmon in the Kanektok River is scant (Appendix A.7). Aerial spawning ground surveys have been flown for the Kanektok River since 1962 (Appendix C.4), but their reliability, accuracy, and usefulness are limited. Aerial survey escapement goals were established in 1993 and set at 5,800, 15,000, 30,500, and 25,000 fish for chinook, sockeye, chum, and coho salmon, respectively (Buklis 1993). Chinook salmon achieved their goal on thirteen of the twenty-six surveys flown since 1962, averaging 6,158 fish (Appendix C.4). Sockeye salmon achieved their goal on seventeen of the twenty-six surveys flown since 1962, averaging 25,093 (Appendix C.4). Chum salmon met their goal on four of the twenty-three surveys flown since 1966, averaging 19,107 (Appendix C.4). Aerial surveys for coho salmon have been sporadic (Appendix C.3). Poor weather conditions, typical of the area during September, limit the ability to fly coho salmon surveys.

Kanektok River weir was operational from July 1 through September 23. Salmon escapement at the weir was 5,343 chinook, 58,367 sockeye, 42,014 chum, 24,883 coho, and 87,036 pink salmon (Appendix A.7). Because of a nearly two week delay in the installation of the weir, a substantial number of chinook, sockeye, and chum salmon undoubtedly passed the weir site before operation, Also, because of the location of the weir, it is likely a substantial number of chinook and chum spawned below the weir. An aerial survey for chinook, sockeye, and chum salmon was flown on August 3. Malfunctioning equipment resulted in the data being lost. However, two-hundred chinook salmon redds were observed approximately 2 miles below the Kanektok River weir.

Interpretation of the escapement information collected at the weir is difficult because historical escapement data for comparison is absent. Thus, run assessment continues to be based primarily on the performance of the District 4 commercial fishery. The 2002 chinook salmon run in District 4 was characterized as below average. Commercial chinook salmon harvests in District 4

were below average throughout the entire directed fishery, likely the result of below average number of permit holders that fished. Chinook salmon CPUE was mostly below average throughout the directed fishery. Fishing time was reduced to one 12-hour period per week the last two weeks of the directed fishery because of below average CPUE.

The estimated exploitation of the chinook salmon in the Kanektok River is 73%. This percentage is a maximum estimate, taking into account the number of chinook salmon escapement missed because of the delay in weir operation, and location of the weir. Further confounding this estimate is the uncertainty of what percentage of chinook salmon harvested in District 4 are bound for other drainages (see Baxter 1971).

The 2002 sockeye salmon run in District 4 was characterized as average to below average. Sockeye salmon harvests were below average throughout the directed fishery, likely the result of the below average number of permits fishing. CPUE was mostly average, although this could be misleading taking into account the below average number of permit holders fishing. CPUE would be expected to increase with the low number of permit holders fishing. The normal three 12-hour periods per week were allowed during the sockeye salmon directed fishery. The estimated exploitation of sockeye salmon in the Kanektok River is 24%. This percentage is a maximum estimate taking into consideration the number of sockeye salmon escapement missed because of the delay in weir operation.

The 2002 chum salmon run in District 4 could be characterized as above average. Chum salmon harvests and CPUE were mostly average or above throughout the entire commercial season (no chum salmon directed fishery in District 4, their harvest is incidental), even though the number of permit holders fishing the district was below average. The estimated maximum exploitation of chum salmon stocks in the Kanektok River is 42%. This percentage is overestimated considering the number of chum salmon escapement missed because of the delay in the operation of the weir, and the uncertainty of what percentage of chum salmon harvested in District 4 are bound for other drainages (see Baxter 1971).

The 2002 coho salmon run in District 4 could be characterized as average. Coho salmon harvests were below average throughout their entire directed fishery, likely the result of the below average number of permits fishing. CPUE was average to above average. The estimated exploitation of coho stocks in the Kanektok River is 54%.

District W-5

Middle Fork Goodnews River Weir

The MFGR weir enumerates the chinook, sockeye, chum, and coho salmon escapements into the MFGR. The MFGR project is the third oldest continuing escapement monitoring project in the area. The project was initiated in 1981 as a counting tower and continued through 1990 (Schultz 1982, 1984a, 1984b, 1985, 1987; Schultz and Burkey 1989; Burkey 1989, 1990). Though successful, the tower was limited by difficulties in species apportionment and high labor costs (Menard 1999). In 1991, resources were directed towards a fixed-panel weir. The fixed-panel weir greatly reduced labor costs and improved species identification. However, the fixed panel weir was susceptible to frequent high water levels that often exceeded the height of the panels, rendering the weir inoperable. In July of 1997, the fixed-panel weir was replaced with a

resistance-board floating weir designed to withstand high water levels (Menard 1998). Use of the resistance-board floating weir allows the project to remain operational during high water events, and to operate into September, traditionally a period of high water level in the Goodnews drainage.

Total chinook, sockeye, and chum salmon escapements in the Goodnews River are estimated by expanding aerial survey counts of each species by the MFGR weir index. This index is calculated, for each species, by dividing the number of fish observed during an aerial survey of the MFGR upriver of the weir by the cumulative number of fish having passed the weir on the day the survey was flown. To account for the escapement occurring after the survey was flown, the percentage of the run occurring at the MFGR weir after the survey was flown is then added. For years when surveys were not flown (1981-82, 90-91, 93-96,99-00), escapement at the MFGR weir is expanded by the average Middle Fork/Goodnews River escapement ratio (calculated from the years 1983-1989) to estimate Goodnews River escapement.

Escapement objectives for the MFGR counting tower were tentatively established in 1984 as ranges set at 3,000 to 4,000 fish for chinook, 35,000 to 45,000 fish for sockeye, and 13,000 to 18,000 fish for chum salmon (Schultz, 1984b). An escapement objective was not established for coho salmon as the project typically ceased operation in mid-August. In 1989, the sockeye salmon escapement objective range was lowered to 20,000 to 30,000 fish. An evaluation of the sockeye salmon exploitation rate in previous years indicated that historical harvest levels could be maintained with a reduced escapement objective (Burkey, 1990). These ranges remained in place when the tower was replaced with the fixed picket weir in 1991.

In 1993, escapement goals for chinook, sockeye, and chum salmon were established for the MFGR weir (Buklis 1993). These escapement goals were set as the midpoints of the objective ranges: 3,500 for chinook, 25,000 for sockeye, and 15,000 for chum salmon. An escapement goal was not established for coho salmon because of insufficient escapement data. In 1997, operation of the MFGR weir was extended into September to monitor coho salmon escapement and run assessment. The project continues to add coho salmon escapement data to the long term database, which should lead to the establishment of an escapement goal for the MFGR weir.

Aerial escapement goals for chinook, sockeye, chum, and coho salmon were established in 1993 for the Goodnews River and lakes, and the Middle Fork Goodnews River and lakes. Aerial survey escapement goals for the Goodnews River and lake were set at 1,600 chinook, 15,000 sockeye and 17,000 chum, and 15,000 coho (Buklis 1993). Aerial survey escapement goals for Middle Fork Goodnews River and lakes are set at 800 chinook, 5,000 sockeye, 4,000 chum, and 2,000 coho salmon (Buklis 1993).

Salmon Run Strength Assessment

Fishery managers require timely inseason assessment of salmon run abundance. In the Kuskokwim River, escapement projects provide limited usefulness in this regard because of great distances between areas of harvest and project locations. Consequently, managers rely on test fisheries, commercial catch statistics, and informal reports from subsistence and sport fishers to augment escapement data.

In Kuskokwim Bay, escapement monitoring projects are much closer to commercial fishing districts, so escapement data can be effectively used for inseason management. Kuskokwim Bay managers make use of commercial catch statistics and information from subsistence and sport fishers. Catch statistics are especially important in District 4 where reliable escapement monitoring is historically lacking.

Bethel Test Fishery

Daily inseason assessment of Kuskokwim River relative salmon run strength and timing is available from a drift gillnet test fishery operated near Bethel. The Bethel test fishery is located at river mile 80 of the Kuskokwim River, which is about midpoint of District 1 (Figure 2). The project began in 1984 and the methodology has remained largely unchanged (Molyneaux 2003). From early June through late August the test fish crew conducts three or four systematic gillnet drifts beginning one hour after high tide. Drifts are done at three stations distributed across the width of the channel. Each drift is 20 minutes in duration. Two 50 fathom gillnets are used, one net is hung with 5-3/8-inch mesh web and the other with 8-inch mesh. Two gillnets are rotated between three stations following a systematic schedule. Both mesh sizes are operated from early June through about 10 July when chinook, sockeye and chum salmon all occur in relatively good abundance. The 8-inch mesh is discontinued after about 10 July when chinook abundance diminishes. Test fishing with the 5-3/8-inch mesh continues until late August.

The test fish catch from each tide is tallied by species then distributed to charities or sold to a local fish buyer when available. Catch statistics for chinook, sockeye, chum and coho salmon are presented as daily catch-per-unit-effort data. Comparisons are made with test fish results from previous years to assess relative abundance and run timing. The comparisons are subjective in that managers need to consider variables such as water level, fishing patterns and changing river morphology when comparing data from between years, and even within years. For the past several years, ONC has provide a technician for the project through grants from BSFA.

Historically, other test fisheries have been attempted in the Kuskokwim River: Kwegooyuk test fishery, 1966-1983 (Baxter 1970, Huttunen 1984b); Eek test fishery, 1988 to 1994 (unpublished); Kuskokwim River subsistence test fishery, 1988 to 1990 (Kuskokwim Fishermen's Cooperative, 1991); Aniak test fishery, 1992 to 1995 (unpublished); Chuathbaluk test fishery, 1992 to 1993 (unpublished); and the Lower Kuskokwim River test fishery, 1995 (unpublished). Most of these projects were initiated at the prompting of groups other than ADF&G. They were all eventually discontinued for a variety of reasons including lack of funding, inconsistent methods, catch disposition and ambiguous results.

Commercial Catch Statistics

Comparison of commercial catch statistics is another common method for assessing run strength; however, the usefulness of this approach can be confounded by inconsistencies in the number of participating fishers, duration of commercial fishing periods, river levels, and other variables that might influence catch or the effort applied by fishers.

Subsistence and Sport Fish Information

Throughout each season ADF&G staff communicates closely with subsistence to assess fishing success and degree to which their needs are met. These catch reports sometimes play a pivotal role in management decisions. In 2002, subsistence fishers were formally surveyed inseason by technicians from ONC, KNA and McGrath Native Village Council to assess fishing success and to collect ASL data from the chinook salmon harvest. Findings were reported to ADF&G and Kuskokwim River Salmon Management Working Group on a weekly basis. These projects were funded from grants from OSM.

Kuskokwim River Sonar

The department began developing a user-configurable sonar project in 1988 for deployment in mainstem Kuskokwim River near Bethel (Mesiar et al. 1994). Shortages in technical support and restructuring of the regional sonar program precluded its operation after 1995. Since 1995, the original sonar site has degraded and is considered unsuitable. In addition, two sloughs that bypass the site have enlarged enough to possibly allow significant salmon migration, which could compromise estimates of salmon passage. As part of the regional sonar-rebuilding program, ADF&G staff conducted limited site surveys in 1998 and began development of a redesigned sonar project in 1999 at a new site located 16 miles upriver of Bethel. Development, however, has been suspended indefinitely because of continued staffing shortages and technical challenges.

SEASON SUMMARY

The first 2002 commercial salmon period was opened by emergency order in District 4 on June 14. The final area closure was by regulation in the Kuskokwim Bay districts on September 8.

Harvest consisted of 12,531 chinook; 24,190 sockeye; 113,199 coho; 0 pink; and 34,951 chum salmon for a total of 184,871 fish. These figures exclude test fish catches. This total harvest figure was 64% lower than the 2001 total of 316,626, 80% lower than the 10-year average of 928,011 (Table 3), and the lowest since 1972. The 2002 chinook, chum, and sockeye harvests were the lowest since 1960, 1968, and 1978. The coho harvest was the second lowest since 1976 (Appendix A.4). Factors contributing to these poor harvests included low salmon prices, low abundance for some stocks, below average effort, limited fishing time, limited processor capacity, and, for Kuskokwim River chum salmon, no processor interest.

2002 Commercial Salmon Harvest and 10-Year (1992-2001) Average - Kuskokwim Area

	Chinook	Sockeye	Coho	Pink	Chum	Total
2002	12,531	24,190	113,199	0	34,951	184,871
10-year avg	37,459	137,418	500,956	17,549	234,629	928,011

The chinook salmon catch was only one-third of the most recent 10-year average and 13% below the 2001 catch. The price per pound for chinook salmon was $0.35, 19% below the most recent 10-year average of $0.43, but only a penny below the 2001 price. The sockeye salmon harvest was less than one-fifth the 10-year average and 59% below the 2001 catch. The $0.35 price per

pound paid for sockeye salmon was the same as the 2001 price, almost 40% below the 10-year average of $0.57. The coho salmon catch was less than one-fourth of the 10-year average, and the price slipped to $0.20 per pound, from $0.28 in 2001, which is 47% below the 10-year average price of $0.38. The chum salmon catch was 85% below the 10-year average, and the chum price of $0.10 was 47% below the 10-year average of $0.19, but the same as 2001 (Table 3).

No chum price was offered by any processor on the Kuskokwim River although the chum salmon season was opened from June 28 through the end of July. No pink salmon were purchased in 2002. Inlet Salmon and Woodbine Alaska Fish Company purchased salmon in District 1 in August. The former flew salmon to Kenai for processing and the latter barged salmon to Egegik for processing. Coastal Villages Seafoods, LLC purchased salmon in District 1 in August, but its primary operations were in Districts 4 and 5 in June, July, and August, and all salmon were processed at Quinhagak (Table 5).

A total of 407 permit holders, 21% fewer than in 2001, harvested salmon. Effort, measured by permit-hours, was the lowest since 1964 (Appendix A.5). Permit holders received approximately $322,679 for their catch (excluding bonuses and other incentives not reported on fish tickets), which is less than half the amount received in 2001. Value of the 2002 catch was 88% below the previous 10-year average of $2,630,595. The average permit holder received $793, well below the 10-year average of $3,520 and about one-half the average amount permit holders received in 2001 (Table 2).

Largely as a result of the poor fishing season, the State of Alaska declared the Kuskokwim Area an economic disaster area for the fifth time in six years.

Kuskokwim River

District W-1 and W-2

The 2002 Kuskokwim River chinook and chum salmon runs were expected to be too small to allow a commercial fishery in June and July and too small to allow subsistence fishing more than four days a week. As the season progressed, the Kuskokwim River Salmon Management Working Group met frequently with the department and federal managers to evaluate information from salmon assessment projects and to help implement the Rebuilding Plan (Table 4). Early inseason indicators--the Bethel Test Fishery, subsistence reports, and escapement projects--pointed to promising chinook and chum runs. By the last week in June the indicators were so positive that the commercial chum season was opened, and subsistence salmon fishing reverted to seven days per week from four days per week. However, no commercial fishing periods were announced because no processors were interested in purchasing chum salmon.

The department began managing the salmon fishery on the strength of the coho run after chum abundance was adequate to meet escapement and subsistence needs and after coho relative abundance in the Bethel Test Fishery exceeded chum relative abundance. Coho salmon run timing was near normal and run strength, according to the early inseason indicators, appeared to be near average. The first coho salmon fishing period, which was also the first commercial

salmon fishing period in the Kuskokwim River in 2002, was a two-hour opening on August 2 in the lower half of District W-1 (Subdistrict W-1B). This period was restricted to two hours and to the lower half of District W-1 because of limited processing capacity and uncertain coho run size.

District W-1 had five subsequent commercial fishing periods. The second opening was four hours long, and the remaining four periods were each six hours long. Only the second opening was a full district opening, the others were restricted to half the district because of limited processing capacity. The half-district openings alternated between the lower half (Subdistrict W-1B) and the upper half (Subdistrict W-1A) of District W-1. No commercial fishing periods were allowed in District W-2 because of lack of processor interest.

The last commercial period in the river was on August 13, shortly after the peak of the run at Bethel. At that time, Bethel Test Fishery index was strong, commercial CPUE was near average, and processing capacity was adequate. However, the department allowed no additional commercial fishing time because of very low coho escapement numbers at the six weir projects in the drainage and commercial CPUE should have been higher given the very low fishing effort (Table 7).

The 2002 Kuskokwim River commercial coho harvest of 83,463 fish was the second lowest since 1975, 80% below the recent 10-year average of 410,973 fish, and 57% below the 2001 harvest of 192,998 fish. The 318 permit holders who participated received $126,360 for their catch. This is only 8% of the previous 10-year average exvessel value of $1,682,832 and 30% of the 2001 value of $424,199. The average participating permit holder received $397 for the season. Because there was no commercial fishing occurred in June and July, chinook, sockeye, and chum salmon commercial catches made only 1% of the value of the 2002 harvest; coho salmon made up 99% of the value (Table 3).

2002 Commercial Salmon Harvest & 10-Year (1992-2001) Average - Districts W-1 & W-2

	Chinook	Sockeye	Coho	Pink	Chum	Total
2002	72	84	83,463	0	1900	85,519
10-year avg	14,860	40,427	434,949	4016*	177,016	671,268

*even years only

The department Bethel test fishery project sold 0 chinook, 8 chum, 0 sockeye and 680 coho salmon. Revenue from the sales was used to help fund operating costs of the test fishery. The 2002 test fish harvest was 288 chinook, 2,666 chum, 228 sockeye, 21 pink, and 2484 coho salmon. Those fish not sold were distributed to the public through the Bethel Group Home. None of the test fish harvest was included in commercial harvest data.

Overall, 2002 Kuskokwim River chinook, chum, sockeye, and coho runs were average, above average, below average, and below average, respectively. The inseason indicators used to make this determination were subsistence harvest reports, escapement projects, commercial coho CPUE, and the Bethel Test Fishery index. Data from the test fishery is most useful when compared to years with similar water level, fishing effort, and riverbed morphology. The new tagging program at Kalskag and Birch Tree Crossing will be an additional inseason indicator as a database develops.

Chinook salmon escapements were below average at the Kwethluk, George, and Takotna River weirs; average at the Kogrukluk River weir; and above average at the Tuluksak and Tatlawiksuk River weirs. The Tatlawiksuk count was the highest on record, and the George and Takotna counts were the lowest on record (Appendix A.7). The chinook salmon escapement at the Kogrukluk River weir of 10,059 met the objective of 10,000. The Bethel Test Fishery chinook index was above average. Chinook abundance was generally good in aerial survey streams above average in the Kwethluk, Kisaralik, Aniak, Kipchuk, Salmon (Anaik), Holokuk, and Oskawalik Rivers. In the Pitka Fork drainage and the Holitna River, chinook abundance was near average, and below average in the Gagaryah and Cheeneetnuk Rivers.

The 2002 chum salmon run was better than expected. The Aniak River sonar estimate exceeded objectives. Chum salmon passage at the Kwethluk, Kogrukluk, and Tatlawiksuk River weirs was above average; passage at the Takotna River weir was average; and passage at the Tuluksak and George River weirs was below average. Escapement at Kwethluk and Tatlawiksuk was the best on record (Appendix A.7). The Kogrukluk River weir chum salmon passage was third highest in the past 27 years. The Bethel Test Fishery chum salmon cumulative index was second highest on record.

Sockeye salmon passage at the Kogrukluk River weir, 4,017, was 57% below the average escapement of 9,424. Sockeye escapement is inconsequential at other weir sites in the drainage. The Bethel Test Fishery sockeye index was the lowest since the project began in 1984.

2002 Kogrukluk River Weir Escapement and Escapement Objectives

	Chinook	Chum	Coho
2002 Escapement	10,059	51,382	14,515
Escapement Objective	10,000	30,000	25,000

Escapement monitoring for coho salmon at the six weir sites in the drainage indicated above average escapement into the Tuluksak, Tatlawiksuk, and Takotna Rivers and below average escapement into the Kwethluk, George, and Kogrukluk Rivers. The Tatlawiksuk and Takotna River escapements were the highest on record, and the George River escapement was lowest on record (Appendix A.7). Although coho salmon escapement of 14,515 at the Kogrukluk River weir was 42% below escapement objective of 25,000, the Bethel Test Fishery index for coho salmon was fourth highest on record. Possibly, persistently low river levels caused a high test fishery index for coho salmon.

Kuskokwim Bay

District W-4 (Quinhagak)

The chinook salmon harvest of 11,480 fish (Appendix C.1) was 10% below the 2001 harvest of 12,774 fish, and 44% below the most recent 10-year average of 20,539 fish. The sockeye salmon harvest of 17,802 fish (Appendix C.1) was 47% below the 2001 harvest of 33,807 fish, and 70% below the most recent 10-year harvest of 59,466 fish. The coho salmon harvest of 26,695 fish (Appendix C.1) was 41% greater than the 2001 harvest of 18,531 fish, albeit 54% below the most recent 10-year average of 57,934 fish. The chum salmon harvest of 29,252 fish (Appendix C.1) was 41% greater than the 2001 harvest of 17,209 fish, although 38% below the most recent 10-year average of 47,387 fish. The total 2001 commercial harvest of 85,229 fish (Appendix C.1) was a 4% increase over the 2001 harvest of 82,322 fish, and 55% below the most recent 10-year average of 190,844 fish.

In 2002, 144 permit holders fished the district (Appendix C.2), 7% below the 159 fished in 2001, and 48% below the most recent 10-year average of 277. Twenty-four commercial fishing periods were allowed in 2002 (Appendix C.2), 17% more than the 20 periods in 2001 and 17% below the most recent 10-year average of 29. The 294 hours of fishing time was 22% more than the 231 hours in 2001 and 15% below the most recent 10-year average of 346 (Appendix C.2).

In 2002, the exvessel value of the District 4 commercial harvest was $167,615 (Appendix C.3), 26% below the 2001 exvessel value of $225,789, and 73% below the most recent 10-year average of $624,428. The most valuable species was chinook salmon, providing 33% of the fishery's value. Coho salmon was second, providing 28% of the fishery's value, and sockeye and chum salmon were the third and fourth, providing 24% and 14% of the fisheries' value.

District 4 had its first commercial opening for salmon on June 14. Chinook salmon catches were below average throughout the 2002 season, likely the result of the below average number of permit holders that fished. Chinook salmon catch rates were mostly below average for the entire directed fishery, and fishing time was reduced to one 12-hour period per week for the last two weeks in June. On July 1, the sockeye salmon harvest exceeded that of chinook salmon and district management was directed to that species. Sockeye salmon catches were below average throughout the 2002 season, likely the result of the below average number of permits that fished the district. The sockeye salmon catch rates were mostly average and the district fished a three 12-hour per week schedule for the entire sockeye salmon directed fishery. No commercial fishery was opened in the district from July 20 through the 31 as the single registered buyer ceased operations in response to the poor quality of sockeye salmon being harvested.

On August 1, the coho salmon harvest exceeded sockeye salmon and management was directed to that species. Coho salmon catches were below average for their entire directed fishery, likely explained by the below average number of permits fishing. Coho salmon catch rates were mostly average to above average throughout the season. The district fished a three 12-hour period per week schedule for the entire coho salmon directed fishery. In 2002, the single buyer in the district ceased operations after the August 26 commercial opening. District W-4 commercial salmon season closed on September 8 by regulation.

No chum salmon are not directly fished in the district, their harvest is incidental in other fisheries. The chum catch was mostly average throughout the entire 2002 commercial salmon season.

District W-5 (Goodnews Bay)

In 2002, the chinook salmon harvest of 979 fish (Appendix D.1) was 36% below the 2001 harvest of 1,519 fish, and 63% below the most recent 10-year harvest of 2,608 fish. The 2002 harvest was the fourth lowest harvest on record. The sockeye salmon harvest of 6,304 fish (Appendix D.1) was 76% below the 2001 harvest of 25,654 fish, and 84% the most recent 10-year harvest of 38,047 fish. The coho salmon harvest of 3,041 fish (Appendix D.1) was 67% below the 2001 harvest of 9,275 fish, and 85% below the most recent 10-year harvest of 20,061 fish. The chum salmon harvest of 3,799 fish (Appendix D.1) was 20% greater than the 2001 harvest of 3,412 fish, and 72% below the most recent 10-year average of 13,689 fish. The total commercial harvest of 14,123 fish (Appendix D.1) was 39% below the 2001 harvest of 39,860 fish, and 82% below the most recent 10-year average of 77,685 fish. The 2002 total commercial harvest was the fourth lowest on record.

A total of 30 permit holders fished the district in 2002 (Appendix D.2), 6% less than the 32 permit holders in 2001, and 61% less than the most recent 10-year average of 77. The decrease in permits fished is likely the result of the declining market value of salmon, increasing fuel prices, and other economic opportunity in the area. A total of 12 periods were allowed (Appendix D.2) 25% less than the 16 periods in 2001, and 52% less than the most recent 10-year average of 25. The 144 hours of fishing time (Appendix D.2) was 21% less than the 183 hours in 2001, and 54% less than the most recent 10-year average of 315. Sockeye salmon escapement concerns and limited processing capacity were the primary factors for reduction in fishing time during the sockeye salmon directed fishery.

The exvessel value of the 2002 District W-5 commercial catch was $24,802 (Appendix D.3), 75% below the 2001 exvessel value of $98,849, and 91% below the most recent 10-year average of $272,797. Sockeye salmon were the most valuable species contributing 64% of the fisheries' value. Coho, chum, and chinook salmon each contributed 23%, 12%, and 1% to the value, respectively.

In 2002, District 5 opened to commercial salmon fishing on June 27. Sockeye salmon harvests were below average for the entire directed fishery, likely because of the below average number of permit holders who fished the district. Sockeye salmon catch rates were below average for the last week in June and the first week in July, and were average the second week in July. During the sockeye salmon fishery, fishing time was reduced to two-12-hour periods per week because of escapement concerns at the Middle Fork Goodnews River weir, and because of limited processing capacity. No commercial fisheries opened in the district from July 13 through July 31 because the single buyer in the district ceased operations in response to the low volume of sockeye salmon harvested. Commercial fishing resumed on August 1 when the coho salmon catch exceeded sockeye salmon, and management was directed to that species. Coho salmon catches were below average for their entire directed fishery, (likely the result of the below average number of permits) that fished the district. Coho salmon catch rates were average to above average the first 2 weeks in August. However, the district fished a reduced two 12-hour

period per week schedule because of limited processing capacity. Coho salmon catch rates were average to below average during the third week in August. Therefore the district continued the reduced schedule. A single registered buyer in the district ceased operation for the season after the August 24 commercial opening. The District W-5 commercial salmon season closes on September 8 by regulation. This district has no directed chinook or chum salmon fishery, their harvests are incidental. The chinook and chum salmon catches were mostly below average for the entire season.

OUTLOOK FOR 2003

The Alaska Department of Fish and Game does not produce formal forecasts for any salmon runs in the Kuskokwim Area. Salmon run outlooks are qualitative in nature because of a lack of adequate information with which to develop more rigorous forecasts. Commercial harvest outlooks are typically based on a qualitative assessment of parent year spawning escapement, age composition, harvest trends, implications of the current fishery management plan, and expected processing capacity. Although commercial harvest outlooks provide a general level of expectation, the fisheries are managed based on inseason assessments of the actual runs.

As in some other areas of the state, salmon production has decreased notably for many stocks (Kruse 1998, NOAA 1999). Causes for the loss of productivity have been the subject of much interest and concern, but the cause or causes for the declines are unknown. Continued decline in productivity is unknown.

Kuskokwim River

Chinook, Chum, and Sockeye

The department expects the 2003 chinook, chum, and sockeye salmon runs to be similar to the 2002 salmon runs or slightly stronger. In 2002, chinook and chum salmon run sizes provided for adequate escapements and subsistence harvests throughout most of the drainage. In addition, inseason indicators of run abundance for chinook and chum salmon were sufficient to allow an opportunity for a commercial chum salmon fishery. The 2003 commercial salmon harvests are expected to range from 0 and 1,000 chinook salmon; 0 and 150,000 chum salmon; and 0 to 15,000 sockeye salmon.

Coho

The department anticipates a modest commercial fishery will be allowed for coho salmon in 2003. An average to below average coho run and commercial harvest are expected given the trend since 1997 and the tendency of weaker odd year runs. The 2003 coho commercial fishery is expected to be similar to the 2002 fishery, which was characterized by a below average harvest, limited processor capacity, and subdistrict registration in District 1. The 2003 commercial harvest is expected to be within the range of 50,000 to 250,000 coho salmon.

2003 Kuskokwim River Management Strategy

State and federal staff will continue to follow the guidelines in the Rebuilding Plan, as adopted by the Alaska Board of Fisheries. Salmon runs will be managed to achieve established escapement goals, to meet amounts necessary for subsistence, and to allow commercial fishing on harvestable surpluses after escapement goals and subsistence needs are projected to be met.

Commercial Fishery

- There may be a directed commercial fishery for chum salmon.
- Regulations do not allow for a directed chinook or sockeye salmon commercial fishery.
- In the event of an abundant chum salmon run, a commercial harvest opportunity may be provided if it appears that chinook and chum salmon escapement and subsistence harvest needs will be met.
- A directed coho salmon fishery is anticipated in late July or early August contingent upon adequate chum and coho salmon abundance and run timing.

Subsistence Fishery

The regulatory subsistence salmon fishing schedule for gillnet and fish wheel gear, as detailed in the Rebuilding Plan, will continue in 2003. The schedule provides four consecutive days of subsistence salmon fishing per week during June and July, unless modified inseason based on run abundance. Subsistence fishing time may be reduced if inseason indicators show a reduction in time is necessary for conservation purposes. Subsistence fishing time reverts to seven days per week, with the usual closures around commercial fishing periods, when there is a harvestable surplus in excess of subsistence needs.

Sport Fishery

Kuskokwim stocks of chinook and chum salmon remain a yield concern and are managed in accordance to the Rebuilding Plan. Within this plan, sport fisheries will be managed on abundance. Persistent below average run performance of chinook and chum salmon stocks in Kuskokwim River require additional conservation measures to protect escapement and ensure the state's subsistence needs are met. For these reasons, a preseason emergency order will be issued in 2003 closing the sport fishery for chinook and chum salmon until June 15 in the Kuskokwim River drainage. Additionally, bag and possession limit will be reduced from three to one chinook salmon or one chum salmon. Kuskokwim River drainage chinook salmon sport fishing season will close July 26. Further restrictions to the salmon sport fisheries will be by determined abundance from inseason run assessments.

Kuskokwim Bay

The Kuskokwim Bay Area has no formal forecast for salmon returns. Broad expectations are developed based on evaluation of parent-year escapements and trends in productivity and harvest. The harvest trend will be affected by effort and price, both of which are anticipated to be low. Run abundance and anticipated harvest are described as follows:

- **Chinook:** District 4—average run, below average harvest of 8,000 to 20,000 fish, District 5—below average to average run, below average harvest of 1,000 to 3,000 fish.
- **Sockeye:** District 4—average to above average run, below average harvest of 15,000 to 60,000 fish.
  District 5—average run, below average harvest of 5,000 to 30,000 fish.
- **Chum:** District 4—average run, below average harvest of 15,000 to 40,000 fish.
  District 5—average run, below average harvest of 3,000 to 15,000 fish.
- **Coho:** District 4—below average to average run, below average harvest of 15,000 to 50,000 fish.
  District 5—below average to average run, below average harvest of 2,000 to 15,000 fish.

2003 Kuskokwim Bay Management Strategy

Commercial Fishery

The department will work closely with buyers and fishers to manage the Kuskokwim Bay commercial fisheries by timing harvests for fish quality and processor capacity to the extent feasible within biological constraints. Throughout this process, fishery management action will assure subsistence harvest needs are met.

District 4

- District 4 Salmon Management Plan will be used to manage the fishery.
- Normal fishing schedule is two 12-hour periods per week for chinook salmon and three 12-hour periods per week for sockeye and coho salmon. Because of anticipated low fishing effort and limited processing capacity, adjustment may be necessary to fishing period duration and/or number of periods per week.
- No directed chum salmon fishery in District 4.
- If subsistence salmon harvest needs will be met, the first commercial fishing period is expected to occur before June 16.
- Northernmost edge of Oyak Creek will continue to serve as the northern boundary for District 4.

District 5

- Normal fishing schedule is three 12-hour periods per week for sockeye and coho salmon. Because of anticipated low fishing effort and limited processing capacity, adjustment may be necessary to fishing period duration and/or number of periods per week.
- No directed chinook or chum salmon fishery in District 5.
- First commercial fishing period will be delayed until late June, as it has for the past several years, to allow for increased chinook salmon escapement into the Goodnews River drainage.

Subsistence Fishery

Subsistence fishery will be managed in the usual fashion with closures before, during, and after commercial fishing periods.

Sport Fishery

Regulations remain as published. Any additional inseason restrictions to the sport fishery will be based on abundance. Daily bag and possession limits for chinook salmon are three per day with only two over 28 inches. The area spawning season closure for chinook sport fishing of July 26 will remain unchanged. The daily bag and possession limit for other salmon is five per day with no size limit.

PART II. FRESHWATER FINFISH FISHERY

Several species of fish other than salmon, herring, and halibut are used for commercial, subsistence, and sport purposes: sheefish (*Stenodus leucichthys*), whitefish (*Coregonus*) and (*Prosopium*), char (*Salvelinus alpinus*), burbot (*Lota lota*), Arctic grayling (*Thymallus arcticus*), northern pike (*Esox lucius*), Arctic lamprey (*Lampetra japonica*), rainbow smelt (*Osmerus mordax*), blackfish (*Dallia pectoralis*), rainbow trout (*Oncorhynchus mykiss*), lake trout (*Salvelinus namaycush*), threespine stickleback (*Gasterosteus aculeatus*), ninespine stickleback (*Pungitius pungitius*), and longnose sucker (*Catostomus catostomus*).

Subsistence Fishery

Gear used for harvesting subsistence freshwater finfish includes set and drift gillnets, seines, fish wheels, long lines, dip nets, jigging devices (hook and line through the ice), rod-and-reels, and pots (locally called "traps"). Subsistence harvests occur year round; and fish may be eaten fresh, dried, smoked, or frozen. Most are used for human consumption, but some are used for dog food. Regulations do not limit the number of freshwater fish harvested for subsistence. Harvest data for these species are not collected on an annual basis. Data for some communities may be found in the Division of Subsistence Technical Paper series.

Commercial Fishery

The commercial fishery has been sporadic with the primary harvest consisting of whitefish and burbot for local markets. Some of the whitefish harvest occurs under the ice in the winter.

A permit from the Commercial Fisheries Entry Commission and a permit from the department are required to commercially harvest whitefish, pike, smelt, burbot and lamprey. Those species may be taken incidentally to commercial salmon fishing. The guidelines for permits include:

- All waters of the area except the Johnson River drainage and Whitefish Lake are open to the commercial harvest of freshwater finfish. These areas are closed because of heavy use of freshwater species by subsistence fishers.
- Only whitefish, cisco, smelt, pike, burbot, and lamprey may be taken. Sheefish, char, and trout may not be taken because of their smaller populations, lower reproductive rates, and their heavy use by subsistence and sport fishers, if these latter species are caught in a commercial operation, they may be used for subsistence purposes.
- All legal commercial gear types are allowed.
- Gillnets may not be less than 2 ½ inches nor greater than five inches stretch mesh. Long lines and setlines must use hooks with a gap between the point and shank larger than ¾ of an inch.

In 2002, after four years of no commercial activity in the area, one lower Kuskokwim River fisher who made four landings in October had an exvessel value of $339. The harvest included 166 whitefish and 27 ciscos, which were sold; and one cisco, 39 pike, 30 sheefish, seven burbot, and nine coho salmon, which were used for subsistence purposes. Two nets were used and each was 100 feet long and 20 feet deep. One net had four-inch stretch mesh and the other had 3 ½ inch stretch mesh (Appendix F.1).

Stock Status

The department does not monitor the status of freshwater species, but FWS began operating a weir in the river below Whitefish Lake to monitor whitefish in 2001. Concern is growing in the Kuskokwim River drainage that beaver dams are impacting freshwater finfish stocks. In addition, residents of Kasigluk, Atmautluak and Nunapitchuk have expressed concerns subsistence fishers are overexploiting the whitefish stocks in Nunavakpak Lake (near Kasigluk).

PART III. MISCELLANEOUS SALTWATER FINFISH

A poorly documented commercial fishery on Saffron cod or "Tom Cod" (*Eleginus gracilus*) has occurred for some time. These fish are surplus to subsistence needs, and fishers and local stores are often unaware of the regulatory requirements for their commercial harvest and sale. Since 1988, the department has had sporadic information on the sale of these fish, harvested near coastal villages and sold in Bethel (Appendix G.1). Sales within the villages have never been documented. No commercial sales in Bethel were documented in 2002.

PART IV. HERRING FISHERY

Area and District Boundaries

Five commercial gillnet sac roe districts and a significant subsistence herring fishery exist in the Kuskokwim Area.

Security Cove District includes all waters between the latitude of Cape Newenham and the latitude of Salmon River.

Goodnews Bay District includes the waters of Goodnews Bay inside of a line between the north and south spits at the mouth of the bay and a line between Ukfigag Creek and Tunulik River at the head of the bay.

Cape Avinof District consists of all waters landward of Kikegtek, Pingurbek and Kwigluk Islands and northward of a line from the southernmost tip of Kwigluk Island and westward of a line from the longitude of Ishkowik River. The district also includes waters south of a line along the latitude of Tern Mountain to a point at 60° 42' N. lat., 164° 14' W. long. and landward of a line from that point to the northernmost point of Kikegtek Island.

Nelson Island District consists of waters north of Chinigyak Cape and east of Atrnak Point, all waters north of Talurarevuk Point and south of the southernmost tip of Chinit Point and east of 165° 30' W. long., and all waters north of the northernmost tip of Chinit Point and south of Kigigak Island and east of 165° 30' W. long.

Nunivak Island District includes the waters extending three miles seaward of mean low water along the northern, eastern, and southern sides of Nunivak Island from Kikoojit Rocks to Cape Mendenhall (Figure 7) (5 AAC 27.875).

Fishery Management

The Bering Sea Herring Fishery Management Plan (Plan) requires minimum spawning biomass thresholds for each district before commercial fishing. The thresholds are: Security Cove, 1,200 short tons (st); Goodnews Bay, 1,200 st; Cape Avinof, 500 st; Nelson Island, 3,000 st; and Nunivak Island, 1,500 st. The Plan sets the maximum exploitation rate at 20% of the estimated spawning biomass for Security Cove, Goodnews Bay, Nunivak Island, and Nelson Island (5 AAC 27.060). Other regulations further reduce the maximum Nunivak Island exploitation rate to 15% if aerial surveys are inadequate (5 AAC 27.894(e)), and the maximum 20% exploitation rate at Nelson Island must include a 200-st subsistence herring harvest estimate. Regulations set the maximum allowable exploitation rate in the Cape Avinof District at 15% (5 AAC 27.895).

All commercial herring fisheries are opened and closed by emergency order for an orderly fishery and to allow periodic assessment of herring biomass. The department attempts to harvest stocks in good condition (large volume, increasing abundance, good recruitment) at the upper end of the exploitation range (15-20%). Stocks in poor condition (small volume, decreasing abundance, poor recruitment) are exploited at lower than maximum rates (0-15%).

Goodnews Bay and Cape Avinof Districts are superexclusive use areas. Nelson Island and Nunivak Island Districts are a combined superexclusive use area (5 AAC 27.899).

In 1990, Nelson and Nunivak Island Districts were given limited entry status by the Commercial Fisheries Entry Commissions (CFEC). Goodnews Bay District was closed to new entry beginning in 1997 and given limited entry status, only 182 limited entry permits were issued.

In the winter of 2000, the Board adopted regulations to allow for development of a cooperative herring purse seine fishery in Nunivak Island District. In 2001, the Board made the regulation permanent by removing the sunset clause in the 2000 regulation (5 AAC 27.894). During the 2001 season, no processor showed interest in buying herring in the district and no commercial fishery occurred. However, an active cooperative herring purse seine fishery operated in the district in 2002.

SUBSISTENCE HERRING FISHERY

Subsistence fishing for Pacific herring in the northeastern Bering Sea is very important in villages of the Yukon-Kuskokwim River delta. The subsistence fishery is conducted primarily by residents of the coastal villages of Kwigillingok, Kongiganak, Kipnuk, Chefornak, Toksook Bay, Nightmute, Tununak, and Newtok. The herring stocks utilized by the subsistence fishery are the same ones targeted by area residents in the commercial fishery in the nearby commercial fishing districts.

Subsistence harvest surveys occurred annually in Nelson Island villages from 1985 to 1996 and have occurred sporadically in Kuskokwim delta villages since 1975. Average annual herring subsistence harvests have been at least 110 st since 1975 (Burkey et al. 1998). Subsistence survey results reflect harvest trends and reported catches represent minimum figures because not all area villages are surveyed and not all fishers are contacted in each surveyed village. No subsistence surveys were conducted in Kuskokwim Area communities in 2002.

COMMERCIAL HERRING FISHERY

Assessment Methods

Aerial surveys were flown throughout the Pacific herring spawning season in all commercial fishing districts to determine relative abundance, distribution, and biomass of herring. Occurrence and extent of milt, numbers of fishing vessels, and visibility features affecting survey quality were recorded. Data collection methods were similar to those used since 1978.

Thirty-three herring aerial surveys were flown in Kuskokwim Bay Area in 2002: five in Security Cove, seven in Goodnews Bay, one at Cape Avinof, 15 at Nelson Island, and five at Nunivak Island. Weather and sea conditions were variable throughout Kuskokwim Bay districts for most of the season. Surveys were conducted under fair to poor conditions.

Standard conversions of 1.52 tons/538 ft^2 (water depths less than 16 ft), 2.58 tons/538 ft^2 (water depths between 16 and 26 ft) and 2.83 tons/538 ft^2 (water depths greater than 26 ft) were used to convert estimated herring school surface areas to biomass within all districts.

The department conducts test fishing in the herring districts with variable mesh gillnets (VMG). The test fishing data are used to determine age, sex, size, and sexual maturity of herring and to note occurrence of other schooling fishes. The sampling goal for test fish crews was to sample a minimum of 60 herring per day or 420 per week from each district. Herring sampled in 2002 were 4,296 VMG (Tables 18 and 19).

The timing of the herring runs, ice and weather conditions, and crew availability affect validity of the VMG data. Samples taken at the Security Cove, Goodnews Bay, and Nelson Island Districts were probably more representative of the run in 2002 than samples taken at the Avinof Bay District where the run appears to have peaked significantly earlier than usual. No test fishing was conducted at the Nunivak Island District in 2002; data from Nelson Island was used to estimate the Nunivak Island metrics.

Commercial landings were sampled in all fishing districts in 2002. Age composition of herring collected from the commercial catch is summarized, by district, in Table 19. Additionally, within all districts, commercial vessels voluntarily collected herring samples evaluated by industry roe technicians for quality of roe content. This program allowed the openings to be timed to maximize roe production. This information also assists with interpretation of aerial survey biomass data.

Ground surveys conducted some years in some districts provide information on the distribution and density of eelgrass beds and herring spawn deposition.

Spawning Populations

Security Cove District

Five aerial surveys were flown from May 10 to May 15. During an aerial survey flown under fair to poor conditions on May 10, an estimated 1,390 st of herring and 3.5 miles of spawn were sighted in the district. This observation was adequate to trigger the opening of the commercial season as the spawning biomass threshold for this district is 1200 st. The largest observed biomass and spawning event occurred during an aerial survey on May 12 when 4,748 st of herring and 4.5 miles of spawn from four events was documented during poor survey conditions. This biomass was greater than the 4,487 st 2002 preseason forecast. As a result, the department increased the district guideline harvest level from 896 st to 950 st. Ten and a half miles of spawn was observed in the district during 2002 aerial surveys.

A total of 834 herring were sampled using VMG and 144 herring were sampled from the commercial catch for Age-Sex-Length (ASL) data in Security Cove. Age 9 and older herring comprised 16% of the biomass from the test fishery while age 9 and older fish comprised 93% of the commercial sample (Table 18).

Goodnews Bay District

Seven aerial surveys were flown between May 10 and May 16. The surveys were flown under fair to unsatisfactory conditions. The largest concentration of herring was observed during a survey flown on May 16 and was estimated at 5,309 st. Approximately 2.1 miles of spawn from six spawning events was observed during aerial surveys of the district.

Test fishing crews sampled 1,237 herring and 101 fish from the commercial harvest for ASL data. Age 9 and older herring made up 30% of the test fish biomass (Table 18) while age 9 and older herring made up 93% of the commercial harvest sample (Table 19).

Cape Avinof District

This district is notoriously difficult to survey because of turbid water conditions, and the 2002 season was no exception. Only one aerial survey was flown, and no biomass estimate could be formed from observations from that flight. As a result, the preseason biomass estimate of 3,491 st was used as the total biomass estimate, and 15% of this estimate—524 st—was used as the guideline harvest level.

The department's test fish crew at Kipnuk captured 1,070 herring to sample for ASL data; 394 commercially harvested herring were sampled too. Age 9 and older herring made up only 7.9% of the biomass (Table 18) and only 70% of the commercial harvest sample was age 9 and older.

Nelson Island District

Fifteen aerial surveys were flown in this district between May 15 and June 1. All surveys were flown under fair to unsatisfactory conditions. During an aerial survey flown on May 25, a peak biomass of 6,130 st of herring was observed. Since this sighting was 834 st more than the projected returning biomass, the guideline harvest level was increased 1,026 st. This figure represents 20% of the available spawning biomass less the 200 st subsistence set-aside. Approximately 2.25 miles of spawn from five spawning events was observed during aerial surveys.

VMG test fishing was conducted during the commercial fishing season. ASL information was collected from 1,125 test fish herring and 614 commercial herring. Age 9 herring made up 20% of the biomass sample (Table 18) and 84% of the commercial sample. Five spawning events approximately 2.25 miles in length were observed during aerial surveys of the district.

Nunivak Island District

This district is vast, far offshore, and even more subject to the vicissitudes of ocean ice and foul weather than the four other Kuskokwim districts. Nonetheless, five aerial surveys were flown between May 15 and June 2. All surveys were made under fair to unsatisfactory conditions. During an aerial survey on May 15, 5,083 st of herring were observed, the peak survey. About two miles of spawn from three events were observed during the aerial surveys.

No herring were sampled using VMG for ASL data, but 500 fish were sampled from the commercial catch. Age composition indicated that only 12% of the commercial harvest was age 9 or older herring (Table 19).

Season Summary

The Pacific herring harvest for 2002 of 1,326.7 st had a value to fishers of approximately $139,000 (Appendix H.1). The price paid in all districts was $100 per st for 10% roe recovery, with an increase or decrease of $10/st for each percentage point above or below 10%. The Coastal Villages Region community development quota (CDQ) program paid additional amounts to fishers in Goodnews Bay, Cape Avinof, Nelson Island, and Nunivak Island Districts. If roe content was 10%, 11%, or 12%; an additional $75, $140, or $180/st was paid. When roe content was greater than 12%, $25/st more was paid to fishers. These CDQ payments were based on a fisher's combined roe content for the season, not individual sales. Average roe recovery, from sac roe quality herring, ranged from 7.6% at Nunivak Island District to 10.4% at Nelson Island District. The overall average sac roe content for all districts was 9.9%.

Six companies bought herring in the area. All but 3.1 st were purchased as sac roe (Appendix H.1), defined as having roe content over 8%; the balance was purchased as bait. In 2002, processing capacity was severely limited because of low processor interest caused by depressed herring markets.

Fishing effort, measured in number of fishers who made deliveries, decreased from 173 permit holders in all districts in 2001 to 150 in 2002. Effort decreased by 57% in Security Cove, 88% in Goodnews Bay, and 18% at Cape Avinof; but increased by 10% at Nelson Island. Although no fishery in the Nunivak Island District occurred in 2001, 29 permit holders participated through the herring cooperative in that district in 2002. (Appendix H.2). Average income per permit holder ranged from $200 in the Goodnews Bay District to $1,870 at Nelson Island (Appendix H.3).

The total estimated herring spawning biomass was 25,230 st for the surveyed portion of the herring districts. This total was 4% lower than the 2001 estimate (Appendix H.1). Ages 9 and older herring comprised 19% of the total biomass while recruit herring (ages 3, 4, and 5) accounted for 43% of the total biomass (Table 18). Exploitation rates in individual districts ranged from 0.2% in Goodnews Bay District to 15.5% in Nelson Island District (Appendix H.1). The overall exploitation rate was 5.2% of the available biomass.

Security Cove District

Harvest was 106.2 st of sac roe herring with an average roe content of 10.1% and 2.9 st of bait herring. No waste herring was reported (Appendix H.1). Five processors bought herring from 25 permit holders who made 54 deliveries (Appendix H.2) in four fishing periods with 17.0 hours of total fishing time (Table 20). The estimated exvessel value was $10,000. The exploitation rate was 2.3% based on the aerial survey biomass estimation of 4,748 st (Appendix H.1).

On May 14 the first fishing period opened for 1.5 hours, 18 permit holders delivered 53.1 st of herring with an average roe content of 9.6%. The second opening occurred on May 15 for four hours, 13 permit holders delivered 23.6 st of herring with a 10.5% average roe content. The third opening occurred on May 15 for seven hours (Table 20), 21 permit holders delivered 29.5 st with an average roe content of 10.5%. The final period was for 4.5 hours on May 16, 1 permit holder delivered 2.9 st of bait herring with an average roe content of 0.8% (Appendix H.1).

Goodnews Bay District

The total harvest was 13.2 st of sac roe herring with an average roe content of 9.7% and 0.1 st of bait herring. No waste herring was reported (Appendix H.1). One processor bought herring from 5 permit holders who made 13 deliveries (Appendix H.2) in five fishing periods with 28.5 hours total fishing time (Table 20). The estimated exvessel value was $1,000. Exploitation rate was 0.2% of the available biomass (Appendix H.1).

On May 15, the first fishing period opened for 4.5 hours no fishers participated. Four more openings were announced between May 15 and May 17 (Table 20). The lackluster season was closed because of low fisher effort and low roe content.

Cape Avinof District

The harvest was 79.2 st of sac roe herring with an average roe content of 9.6% (Appendix H.1). One processor bought herring from 37 permit holders who made 160 deliveries (Appendix H.2) in 15 fishing periods with a total fishing time of 97 hours (Table 20). No bait herring sales or waste herring were reported. The estimated exvessel value was $8,000. Exploitation rate was 2.3% based on the preseason biomass projection (Appendix H.1).

On May 26 the first fishing period opened for 4.0 hours starting at 9:00 a.m. Two permit holders delivered 0.1 st of herring with a 10.8% average roe content. Between May 26 and June 2 there were 14 more fishing periods for a total of 92.5 more hours of fishing time. Catches ranged from 0 st on May 29 to 18.7 st on May 28 (Table 20).

Nelson Island District

Harvest was 950.1 st of sac roe herring with an average roe content of 10.4%. No bait sales or waste was reported (Appendix H.1). One processor bought herring from 54 permit holders who made 447 deliveries (Appendix H.2) in 16 fishing periods with a total fishing time of 80.5 hours (Table 20). The estimated exvessel value was $101,000. Exploitation rate was 15.5% based on available biomass (Appendix H.1).

Sixteen commercial fishing periods were opened from May 22 to May 30. Effort ranged from no participation in a fishing period on May 24 to 40 permit holders on May 25, and harvests during commercial openings ranged from nothing during a May 25 opening to 140.7 st on May 26 (Table 20).

Nunivak Island District

Harvest was 175.2 st of sac roe herring from five cooperative purse seine landings with an average roe content of 7.5% (Appendix H.1). One processor bought five deliveries of herring from the 29 permit holders who worked through the herring cooperative which utilized a herring purse seiner (Appendix H.2). The fishery opened on May 17 and remained open continuously until May 27 for a total of 243 hours of fishing time (Table 20). Exploitation rate was 3.2% of available biomass. Estimated value of the fishery was $19,000 (Appendix H.1).

Public Communications

Since the herring fishery is managed on the fishing grounds, announcements are made on-the-scene using appropriate VHF channels. The announcements were widely relayed via email and fax from the Bethel ADF&G office.

OUTLOOK AND MANAGEMENT STRATEGY FOR 2003

Projections from postseason escapement estimates; using historical mean rates of survival, current mean weights for each age class, and estimates of recruitment for each age class (Wespedstad 1982); suggest the spawning biomass will be approximately 23,890 st. The projected harvest, using this biomass figure and allowable exploitation, is 4,387 st (Table 21). Overall, these projections are slightly lower than comparable 2002 projections.

If the return develops as expected, a moderate increase over the projected 2002 biomass will be observed in the Security Cove and Cape Avinof Districts while a decrease in biomass will be observed in the Goodnews Bay, Nelson Island, and Nunivak Island Districts. However, variability in the quality of aerial survey assessments of biomass and deviations from the assumed survival or recruitment rates may result in the observed biomass being either above or below these projections. Therefore, harvest levels will be adjusted during the season according to the observed herring spawning biomass. In addition, in accordance with AYK Region harvest policy, newly recruited age classes (age 2 through 5- year-old herring) will not be targeted by the commercial fishery. If herring abundance is not possible to determine using aerial survey methods, stock abundance will be assessed using information from the projected biomass, test and commercial catches, and spawn deposition observations.

Security Cove District

The 2003 projected return is 4,590 st. A 20% exploitation rate would result in a harvest of 918 st (Table 21). A larger catch may occur if the biomass assessment is greater than the projection. Commercial fishing will not be allowed until the observed biomass reaches 1,200 st or significant spawning activity is observed. The occurrence and length of fishing periods will depend on stock strength, fishing effort, and spawning activity.

Ages 6, 7 and 10 are expected to comprise 81.2% of the returning biomass, contributing 48.1%, 24.6% and 8.5%, respectively. Age 9 and older herring are expected to comprise 20.7% of the

biomass. The age structure of herring samples from Security Cove and Goodnews Bay Districts in 2002 was combined and used to project the 2003 herring return to Security Cove District.

Goodnews Bay District

Management strategy for this district will be similar to that planned for Security Cove. The season will open and close by emergency order when a biomass of 1,200 st or significant spawning activity is observed. The projected return of herring to the district is 5,186 st. A 20% exploitation rate would result in a harvest of 1,037 st (Table 21). Larger harvests may occur if the 2003 biomass assessment is greater than the projection.

Ages 6, 7, and 10 herring are expected to dominate the biomass, contributing 41.9%, 22.5%, and 11.7%, respectively. Age 9 and older herring are expected to comprise 28.3% of the biomass.

Cape Avinof District

Either significant spawning activity or a biomass of 500 st must be observed before the commercial herring season can be opened. The projected biomass for the is 3,812 st (Table 21). Exploitation rate will be no greater than 15% because of the limited database for this area and subsistence fishing priority. Assuming a 15% commercial exploitation rate, projected harvest would be 572 st of herring.

Ages 6 and 7 are expected to comprise 78.7% of the returning biomass, contributing 59.2% and 19.6%, respectively. Age 9 and older herring are expected to comprise 10.5% of the biomass.

Nelson Island District

In the Bering Sea Herring Fishery Management Plan, the Board set a minimum spawning biomass threshold of 3,000 tons. The inseason estimate of herring biomass must exceed the threshold level before a commercial fishery can be allowed. The spawning biomass projected to return is 5,120 tons (Table 21). At an exploitation rate of 20%, minus a 200-st subsistence harvest, the commercial harvest would be 824 st.

Ages 6, 7 and 10 are expected to dominate the returning population, contributing 40.3%, 19.8% and 15.4%, respectively. Age 9 and older herring are expected to comprise 31.9% of the biomass.

Nunivak Island District

Commercial fishing season will open when biomass reaches 1,500 st or when significant spawning is observed. Projected biomass of herring returning is 5,182 st. A 20% exploitation rate would result in a 1,036 st harvest (Table 21). A larger catch may occur if the biomass assessment is greater than the projection.

Ages 6, 7 and 10 are expected to dominate the returning population, contributing 39.9%, 19.7% and 15.6%, respectively. Age 9 and older herring are expected to comprise 32.3% of the biomass. The estimated 2003 herring age composition was calculated using 2002 data from the Nelson Island District.

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TABLES

Table 1. Salmon run assessment programs operated in the Kuskokwim Area during 2002.

Project Name	Location	Primary Objectives	Duration	Agency	Responsibility
Salmon Management Plan	Kuskokwim Area	- develop a comprehensive plan for managing salmon stocks of the Kuskokwim Area. - define goals and objectives. - identify potential opportunities and concerns. - recommend appropriate procedures. - evaluate priorities.	June - Sept.	ADFG/CF	all aspects
Post-season Subsistence Catch and Effort Assessment	Kuskokwim Area	- document and estimate the catch and associated effort of the subsistence salmon fisheries via interviews, catch calendars, mail-out questionnaires and telephone interviews.	Post-season	ADFG/S	all aspects
				ONC	survey crew
		- Household surveys in Bethel		KNA	survey crew
		- Household surveys in Aniak.		OSM	funding - Bethel & Aniak
Age-Sex-Length Processing and Reporting	Kuskokwim Area	- scale aging, sample processing and reporting fo salmon age, sex and length information about of chinook, sockeye, chum and coho salmon from escapement, commerical and subsistence samples.	All Year	ADFG/CF	all aspects
				OSM	funding
Escapement Sampling	Kuskokwim Area	- sample collection for age, sex and length information about of chinook, sockeye, chum and coho salmojn from selected tributary spawning populations.	June - Sept	ADFG/CF	all aspects
				OSM	funding
Aerial Surveys	Kuskokwim Area	- index relative abundance of chinook salmon spawning escapement in selected streams througout the Kuskokwim Area. - index relative abundance of sockeye salmon spawning escapement in the Kanektok and Goodnews Rivers.	July - Aug	ADFG/CF	all aspects
				NMFS	Funding - Upper Kusko
Sport Catch, Harvest and Effort Assessment	Kuskokwim Area	- statewide mail-out survey to estimate sport catch, harvest and effort	post-season	ADFG/SF	all aspects
Chinook Genetic Sampling	Kuskokwim Area	- collect genetic baseline samples from discreet spawning populations	June - July post-season	ADFG/CF	all aspects
				USFWS	sample collection
				OSM	funding
Coho Genetic Sampling	Kuskokwim Area	- collect genetic baseline samples from discreet spawning populations	August - July post-season	USFWS	all aspects
				ADFG/CF	sample collection
				OSM	funding
Commercial Catch and Effort Assessment	Districts 1, 2, 4 and 5	- document and estimate the catch and associated effort of the commercial salmon fishery via receipts (fish tickets) of commercial sales and dock side sampling.	June - Sept	ADFG/CF	all aspects

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Table 1. (page 2 of 3)

Project Name	Location	Primary Objectives	Duration	Agency	Responsibility
Commercial Catch Sampling	Districts 1, 4 and 5	- determine age, sex, and length of salmon harvested in the commercial fisheries.	June - Sept	ADFG/CF	all aspects
In-Season Subsistence Harvest Monitoring	Kuskokwim River	- weekly interviews with subsistence fishers to assess adequacy and quality of harvest - collect age-sex-length samples from subsistence caught chinook salmon to determine composition of Kuskokwim River subsistence harvest.	June - Aug.	ADFG/S	fisher interviews
				ADFG/CF	chinook ASL collection
				ONC	all aspects - Bethel
				KNA	all aspects - middle Kusko
				MNVC	all aspects - upper Kusko
				OSM	funding
Kuskokwim River Mark-Recapture	RM. 192	- estimate passage and stock run timing of chum, sockeye and coho salmon passing Kalskag	June - Sept	ADFG/CF	all aspects
				KNA	crew support tag recovery
				TATC	tag recovery
				OSM	funding
				NMFS	funding
Kuskokwim River Radio Telemetry	RM. 221	- estimate escapement and distribution of chinook salmon passing Kalskag	June - Sept	ADFG/S	all aspects
				KNA	crew support
				ADFG/CF	tag recovery
				OSM	funding
Bethel Test Fishery	Bethel Area RM. 80	- index relative run timing of chinook, sockeye, chum, and coho salmon using drift gillnets - index relative run abundance of chinook, sockeye, chum, and coho salmon using CPUE derived from drift gillnet catches.	June - Aug	ADFG/CF	all aspects
				ONC	crew support
				OSM	funding ONC crew
Heavy Metal Sampling	Bethel Area RM. 80	- collect whole chinook, chum, sockeye pink and coho salmon for examination of heavy metal content.	June - Aug	DEC	all aspects
				ADFG/CF	sample collection
				ONC	
Kwethluk River Weir	mile 55 Kwethluk River RM. 99	- estimate daily escapement of chinook, sockeye, chum, coho and pink salmon into the Kwethluk River. - estimate age, sex and length composition of chinook, chum, and coho salmon escapement. - collect environmental / habitat information	June - Sept	USFWS	all aspects
				ADFG/CF	inseason data mgt.
				OVK	crew support
				ONC	funding
Tuluksak River Weir	mile 47 Tuluksak River RM. 136	- estimate daily escapement of chinook, sockeye, chum, coho, and pink salmon into the Tuluksak River. - estimate age, sex and length composition of chinook, chum, and coho salmon escapement. - collect environmental / habitat information	June - Sept	USFWS	all aspects
				ADFG/CF	inseason data mgt.
				TUTC	crew support
				OSM	funding
Aniak River Sonar	mile 12 Aniak River RM. 225	- estimate daily escapement of salmon into the Aniak River. - estimate age, sex and length composition of chum salmon escapement	June - July	ADFG/CF	all aspects
				AVCP	crew support
				NMFS	funding
				BSFA	funding AVCP crew

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Table 1. (page 3 of 3)

Project Name	Location	Primary Objectives	Duration	Agency	Responsibility
George River Weir	mile 4 George River RM. 309	- estimate daily escapement of chinook, sockeye, chum, pink, and coho salmon into the George River. - estimate age, sex and length composition of chinook, chum, and coho salmon escapement. - collect environmental / habitat information	June - Sept	KNA ADFG/CF BSFA OSM NMFS	all aspects all aspects funding
Holitna River Radio Telemetry	RM. 335	- estimate escapement and distribution of chinook, chum, and coho salmon into the Holitna River sub-basin.	June - Sept	ADFG/S KNA ADFG/CF OSM	all aspects crew support tag recovery funding
Kogrukluk River Weir	mile 138 Holitna River Drainage RM. 335	- estimate daily escapement of chinook, sockeye, chum, and coho salmon into the Kogrukluk River. - estimate age, sex and length composition of chinook, chum, and coho salmon escapement	June - Sept	ADFG/CF ONC NMFS OSM	all aspects crew support funding
Tatlawiksuk River Weir	mile 2.5 Tatlawiksuk River RM. 383	- estimate daily escapement of chinook, sockeye, chum, pink, and coho salmon into the Tatlawiksuk River. - estimate age, sex and length composition of chinook, chum, and coho salmon escapement. - collect environmental / habitat information	June - Sept	KNA ADFG/CF BSFA NMFS OSM	all aspects all aspects funding
Takotna River Weir	mile 53 Takotna River RM. 507	- estimate daily escapement of chinook, chum, and coho salmon into the Takotna River. - estimate age, sex and length composition of chinook, chum, and coho salmon escapement. - collect environmental / habitat information	June - Sept	TATC ADFG/CF BSFA NMFS OSM	all aspects planning & supplies funding
Kanektok River Weir	mile 13 Kanektok River Kuskokwim Bay	- estimate daily escapement of chinook, sockeye, chum, pink, and coho salmon into the Kanektok River. - estimate age, sex and length composition of chinook and chum salmon escapement.	June - Sept	NVK ADFG/CF OSM BSFA	all aspects planning & supplies funding funding
Middle Fork Goodnews River Weir	mile 5 Middle Fork Goodnews River Kuskokwim Bay	- estimate daily escapement of chinook, sockeye, chum, pink, and coho salmon into the Middle Fork Goodnews River. - estimate age, sex and length composition of chinook, sockeye, chum, and coho salmon escapement	June - Sept	ADFG/CF OSM	all aspects funding for coho extension

ADFG/CF = Division of Commercial Fisheries, Alaska Department of Fish and Game
ADFG/S = Division of Subsistence, Alaska Department of Fish and Game
ADFG/SF = Division of Sport Fish, Alaska Department of Fish and Game
AVCP = Association of Village Council Presidents
BIA = Bureau of Indian Affairs
BSFA = Bering Sea Fishermen's Association
DEC = Department of Environmental Conservation
KNA = Kuskokwim River Native Association
NMFS = National Marine Fisheries Service
NVK = Native Village of Kwinhagak
ONC = Orutsararmuit Native council
OSM = Federal Office of Subsistence Management
OVK = Organized Village of Kwethluk
TATC = Takotna Tribal Council
TUTC = Tuluksak Traditional Council
USFWS = U.S. Fish and Wildlife Service

Table 2. Kuskokwim Area salmon entry permits issued by village, 1999 - 2002[a].

Village	1999	2000	2001	2002
Akiachak	67	67	65	68
Akiak	23	23	22	24
Aniak	10	11	10	11
Atmautluak	26	28	26	27
Bethel	167	162	162	169
Chefornak	3	3	2	2
Chuathbaluk	1	1	2	2
Eek	37	38	36	38
Goodnews Bay	27	26	25	25
Hooper Bay	0	0	0	1
Kalskags	7	5	4	4
Kasigluk	44	44	44	44
Kipnuk	15	15	13	14
Kongiganak	20	18	16	16
Kwethluk	56	57	55	50
Kwigillingok	19	19	16	17
Marshall	0	0	0	1
Napakiak	39	28	37	35
Napaskiak	34	32	33	34
Nunapitchuk	46	47	45	44
Oscarville	1	1	1	1
Platinum	5	5	4	4
Quinhagak	84	84	82	83
Sleetmute	1	1	1	1
Toksook Bay	0	0	0	1
Tuluksak	27	27	26	28
Tuntutuliak	43	42	42	43
Tununak	1	0	0	0
Kuskokwim Area Subtotal	***803***	***784***	***769***	***787***
Anchorage	12	15	14	15
Dillingham	1	1	1	1
Fairbanks	1	1	1	1
Kenai	0	1	2	2
Kodiak	0	1	0	0
Manokotak	1	1	1	1
Noorvik	0	0	1	1
Sitka	0	0	1	1
Sterling	0	1	0	0
Togiak	0	0	0	1
Twin Hills	1	1	1	1
Wasilla	1	1	1	1
Non-Local Alaska Resident Subtotal	***17***	***23***	***23***	***25***
Alpharetta, GA	1	1	1	1
Comstock, TX	1	1	0	0
Florence, OR	0	0	1	1
Honey in the Hills, FL	1	0	1	1
Sumner, WA	1	1	1	1
Valencia, CA	1	1	1	1
Non-Resident Subtotal	***5***	***4***	***5***	***5***
Total Number of Permits	***825***	***811***	***797***	***817***

[a] Number of permits that were renewed.

Table 3. Harvest and ex-vessel value of Kuskokwim Area salmon catch by district, 2002.

	Chinook	Sockeye	Coho	Pink	Chum	Total
Lower Kuskokwim River, District W-1			**2002**			
Fish	72	84	83,463	0	1,900	85,519
Pounds	1,180	595	623,813	0	11,900	637,488
Price	0.18	0.33	0.20		0.10	
Value	$212	$196	$124,763	$0	$1,190	$126,361
			Ave. 1992-2001			
Fish	13,765	39,383	410,978	4,566	169,591	638,284
Value	$101,690	$182,792	$1,206,297	$1,126	$236,342	$1,728,247
Middle Kuskokwim River, District W-2			**2002**			
Fish	0	0	0	0	0	0
Pounds	0	0	0	0	0	0
Price	0.00	0.00	0.00	0.00	0.00	0.00
Value	$0	$0	$0	$0	$0	$0
			Ave. 1992-2001			
Fish	548	522	11,988	5	3,663	16,725
Value	$5,163	$2,628	$37,498	$1	$5,298	$50,588
Quinhagak, District W-4			**2002**			
Fish	11,480	17,802	26,695	0	29,252	85,229
Pounds	160,904	115,215	238,264	0	233,211	747,594
Price	0.35	0.35	0.20		0.10	
Value	$56,316	$40,325	$47,653	$0	$23,321	$167,616
			Ave. 1992-2001			
Fish	20,539	59,466	57,934	11,375	50,949	190,844
Value	$142,139	$227,483	$187,742	$2,626	$64,557	$624,428
Goodnews Bay, District W-5			**2002**			
Fish	979	6,304	3,041	0	3,799	14,123
Pounds	12,125	45,274	28,174	0	29,790	115,363
Price	0.35	0.35	0.20		0.10	
Value	$4,244	$15,846	$5,635	$0	$2,979	$28,703
			Ave. 1992-2001			
Fish	2,608	38,047	20,061	3,626	13,689	77,685
Value	$18,074	$161,395	$74,815	$855	$17,657	$272,797
Kuskokwim Area Tota			**2002**			
Fish	12,531	24,190	113,199	0	34,951	184,871
Pounds	174,209	161,084	890,251	0	274,901	1,500,445
Price	0.35	0.35	0.20		0.10	
Value	$60,773	$56,368	$178,050	$0	$27,490	$322,680
			Ave. 1992-2001			
Fish	37,459	137,418	500,961	19,572	237,891	923,537
Value	$267,065	$574,298	$1,506,352	$4,608	$323,855	$2,676,178
Avg weight	13.9	6.7	7.9	0.0	7.9	

Table 4. Executive Summary of Working Group and ADF&G actions, 2002.

Date	Comment
15 April	Frank Charles and Wayne Morgan were elected co-chairs. Carl Morgan was selected as the alternate for the Western Interior Federal Subsistence Regional Advisory Council ("RAC") position. The ADF&G presented the 2001 Kuskokwim River summary, the 2002 Kuskokwim River outlook, and an outline of new cooperative projects in the drainage in 2002. The Kuskokwim River Salmon Management Working Group ("Working Group") recommended a Sunday, Monday, and Tuesday subsistence salmon closure under the Kuskokwim River Salmon Rebuilding Management Plan ("Rebuilding Plan"), and it also recommended that sport fishing be allowed only when subsistence net fishing is allowed. No action was taken on a Special Action request to limit sport fish opportunity in federal waters or on the issuance of a cooperative appeal to conserve salmon.
18 June	Frank Charles, Kuskokwim Fisherman's Co-op representative, chaired the meeting. Nora Horn, newly hired coordinator for the Working Group, was introduced. The Working Group heard reports on the False Pass Fishery, subsistence fishing, and the ADF&G's in-season indicators. ADF&G RECOMMENDATION: The four-day per week subsistence fishing schedule, as detailed in the Rebuilding Plan, will remain in effect. WORKING GROUP RECOMMENDATION: Accepted the ADF&G recommendation. ACTUAL OUTCOME: Subsistence salmon net and fish wheel fishing remained closed on Sundays, Mondays, and Tuesdays.
27 June	Wayne Morgan, middle river subsistence fisher representative, chaired the meeting. The Working Group heard reports on the False Pass June Fishery, Kuskokwim River subsistence fishing, and the ADF&G in-season indicators. A rather long meeting developed as the Working Group grappled with developing a position in reaction to the Federal Subsistence Board's ("FSB") linkage of sport fishing time to subsistence fishing time in federal waters of the Kuskokwim River. ADF&G RECOMMENDATION: In-season indicators of run strength indicate sufficient harvest abundance to allow a commercial chum salmon fishery in the Kuskokwim River. Therefore, the ADF&G recommendation is that the commercial chum season be opened in the Kuskokwim River and that subsistence salmon fishing be allowed, except for the standard closures around commercial fishing periods, seven days a week in the Kuskokwim River drainage. This recommendation would become effective June 30. ADF&G/FWS will continue to closely evaluate run strength. Should run strength begin to falter, it may be necessary to close the commercial fishing season and go back to a reduced subsistence salmon fishing schedule. FWS agrees with this recommendation.

-Continued-

Table 4. (page 2 of 6)

Date	Comment
	WORKING GROUP RECOMMENDATION: (1) Requested the ADF&G restrict sport fishing in state waters in a manner similar to FSB's restrictions on sport fishing in federal waters. The FSB action tied sport fish openings to subsistence net and fish wheel fishing openings. Prior to this action, sport fishing in federal waters had been open seven days a week while subsistence net and fish wheel fishing in federal waters had been open four days per week. Subsistence rod and reel fishing had remained open seven days per week at all times, however. (2) Requested that ADF&G conduct an environmental impact study on the effects of boat traffic on salmon spawning grounds in state waters of the Kuskokwim River drainage. ACTUAL OUTCOME: On June 28, the ADF&G opened the commercial chum salmon season, but a commercial fishing period was not announced because there was no processor interest. The opening of the commercial fishing season triggered the abandonment of the Rebuilding Plan subsistence schedule, and subsistence salmon fishing reverted to seven days a week in the entire Kuskokwim River drainage.
16 July	Frank Charles chaired the meeting. Working Group members, processors, and ADF&G staff had a lengthy discussion about the approaching coho season and the potential for harvest exceeding processing capacity. New options were considered for fishing time, fishing areas, numbers of periods per week, and subsistence fishing time. Evelyn Thomas replaced Nixie Mellick as the sport fish representative, and Nixie Mellick replaced Andrew Gusty in the upriver subsistence seat. ADF&G RECOMMENDATION: In-season indicators of run strength continue to indicate sufficient harvest abundance to allow a commercial chum salmon fishery in the Kuskokwim River. Therefore, the ADF&G recommendation is that the Kuskokwim River drainage remain open to subsistence fishing seven days per week, except for the standard closures around commercial fishing periods, if there are any. At this time it is very unlikely that there will be any buyers for chum salmon. ADF&G/FWS will continue to closely evaluate run strength. Should run strength begin to falter, it may be necessary to go back to a reduced subsistence salmon fishing schedule. FWS agrees with this recommendation. WORKING GROUP RECOMMENDATION: Accepted the ADF&G recommendation. ACUTUAL OUTCOME: The commercial season remained open, no commercial periods were announced, and subsistence salmon fishing remained open seven days a week.

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Table 4. (page 3 of 6)

Date	Comment
29 July	Wayne Morgan chaired the meeting. The ADF&G recommended, and the Working Group concurred, that Frank Charles remain on the Working Group representing the dissolving Kuskokwim Fishermen's Coop through at least the coho season. He will also retain his position as co-chair through at least the coho season. ADF&G RECOMMENDATION: In the Kuskokwim River, chum salmon abundance is sufficient to provide for escapement and subsistence needs, and coho salmon relative abundance exceeds chum salmon relative abundance. In this situation, the Rebuilding Plan directs the ADF&G to manage the commercial salmon fishery based on strength of the coho salmon run. Coho salmon run strength is assessed using the following in-season indicators: Bethel Test Fishery data, subsistence fishing reports, weir project information, and coho CPUE statistics. At this point in the season, the Bethel Test Fishery is the main in-season indicator, and it is indicating an above average run of cohos and a better coho run than last year. Therefore, with limited processing capacity in mind, the ADF&G recommendation is a two-hour commercial fishing period from 1:00 p.m. to 3:00 p.m. on Friday, August 2 in Subdistrict 1-B. FWS concurs with this recommendation. WORKING GROUP RECOMMENDATION: Accepted the ADF&G recommendation. ACTUAL OUTCOME: A two-hour commercial fishing period from 1:00 p.m. to 3:00 p.m. on Friday, August 2 in Subdistrict 1-B.
4 August	Frank Charles chaired the meeting. There was an abbreviated continuing business session, and then the Working Group considered the ADF&G recommendation. ADF&G RECOMMENDATION: At this point in the season, the Rebuilding Plan directs the ADF&G to manage the commercial salmon fishery based on the strength of the coho salmon run. Coho salmon run strength is assessed using Bethel Test Fishery data, subsistence fishing reports, escapement information, and coho CPUE statistics. These indicators at this time show a commercially harvestable surplus of coho salmon over and above the coho salmon needed for escapement and subsistence. While the ADF&G is concerned about the high catchability of salmon with the very low river level, this concern is offset by the extremely low level of fishing effort seen in the last opening and the good commercial surplus of coho salmon. Therefore, the ADF&G recommendation is a four-hour commercial fishing period from 3:00 p.m. to 7:00 p.m. on Monday, August 5 in District 1. FWS concurs with this recommendation. WORKING GROUP RECOMMENDATION: Accept the ADF&G Recommendation. ACTUAL OUTCOME: A four-hour commercial fishing period from 3:00 p.m. to 7:00 p.m. on Monday, August 5 in District 1.

-Continued-

Table 4. (page 4 of 6)

Date	Comment
7 August	Frank Charles chaired the meeting. The meeting was called to discuss commercial fishing prospects for the rest of the week. After a lively discussion, the Working Group rejected the ADF&G recommendation, and the ADF&G accepted the Working Group recommendation. The ADF&G had recommended a district-wide opening because of tender availability, because of overall efficiency, and because it left the door open for a district-wide opening on Saturday. ADF&G RECOMMENDATION: A six-hour, district-wide fishing period on Thursday, August 8 from 1:00 p.m. to 7:00 p.m. WORKING GROUP RECOMMENDATION: A six-hour fishing period from 1:00 p.m. to 7:00 p.m. on Thursday, August 8 in Subdistrict 1-A and a six-hour fishing period from 1:00 p.m. to 7:00 p.m. on Friday, August 9 in Subdistrict 1-B ACTUAL OUTCOME: The Working Group recommendation was followed.
10 August	Wayne Morgan chaired the meeting. The meeting was held to hear reports and make a determination on future coho fishing periods. The Working Group was unable to reach a consensus after considering the ADF&G recommendation and after considering a Wednesday/Thursday set of openings for Subdistrict 1-A and 1-B. ADF&G RECOMMENDATION: At this time, the ADF&G in-season indicators show a commercially harvestable surplus of coho salmon over and above the coho salmon needed for escapement and subsistence. While the ADF&G is concerned because of the very low river level and because of the potential for a large salmon harvest that could overwhelm processors because we are near the normal peak of the coho run, these concerns are offset by the low level of fishing effort and the low harvest levels seen in the first four openings. With these factors in mind, the ADF&G recommendation is a four-hour commercial fishing period in Subdistirct 1-A from 2:00 p.m. to 6:00 p.m. on Monday, August 12 and a four-hour commercial fishing period in Subdistrict 1-B from 2:00 p.m. to 6:00 p.m. on Tuesday, August 13. WORKING GROUP RECOMMENDATION: None. ACTUAL OUTCOME: A six-hour fishing period from 1:00 p.m. to 7:00 p.m. in Subdistrict 1-A for Monday, August 12 was announced and a six-hour fishing period from 1:00 p.m. to 7:00 p.m. in Subdistrict 1-B for Tuesday, August 13 was announced. Because ADF&G had received word of a substantial increase in processing capacity that would be available on August 12 and 13, the fishing periods were extended from four to six hours.
14 August	Frank Charles chaired the meeting. After the August 12 and 13 commercial fishing periods in Subdistricts 1-A and 1-B, the Working Group met to assess the strength of the coho run and consider options for the next fishing period.

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Table 4. (page 5 of 6)

Date	Comment
	ADF&G RECOMMENDATION: At this time, most of the ADF&G in-season indicators show a commercially harvestable surplus of coho salmon over and above the coho salmon needed for escapement and subsistence. So far this season there has been a low level of fishing effort, harvest levels have been low, and the CPUE has been above or near average. However, a very key in-season indicator, escapement at the six weirs in the Kuskokwim river drainage, is lagging. Therefore, the ADF&G recommendation is to meet again Friday, August 16 at noon to consider a Saturday, August 17 fishing period. WORKING GROUP RECOMMENDATION: Since there would be no processing capacity available Saturday, August 17 or Sunday, August 18; the Working Group recommended a meeting on Sunday, August 18 at noon to consider a Monday commercial fishing period. ACTUAL OUTCOME: The Working Group recommendation was followed.
18 August	Because neither co-chair attended the meeting, the ADF&G announced their recommendation, coho run assessment information was presented, and a general discussion followed. The Working Group took no formal action. ADF&G RECOMMENDATION: In-season coho run abundance indicators show a mixed picture. Bethel Test Fishery data and some subsistence fishing reports show a good coho run abundance. It is possible, however, that the very low river level may be inflating the Bethel Test Fishery numbers. On the other hand, escapement numbers at the six weir sites in the drainage are very low when compared with past years at this date. In the commercial fishery, there have been a low number of fishers participating this season, and a higher CPUE might be expected if this low number of fishers were harvesting an average or above average run. All in all, a below average run appears to be developing. Because of this below average run assessment, and especially because of the very low coho escapement numbers at the weir sites, there does not—at this time—appear to be a surplus of coho salmon over and above escapement needs and the amounts needed for subsistence. Therefore, the ADF&G recommends no commercial fishing at this time, and it recommends another Working Group meeting on Wednesday, August 21 at noon to assess the coho fishery further. The FWS concurs with this recommendation. WORKING GROUP RECOMMENDATION: None. ACTUAL OUTCOME: No further commercial fishing periods were announced.
21 August	Frank Charles chaired the meeting. The Working Group met to assess the coho run for a possible commercial fishing period, but it was unable to reach a consensus after considering a motion to accept the ADF&G recommendation. The Working Group was also unable to reach a consensus after considering a motion to not accept, but not oppose the ADF&G recommendation.

-Continued-

Table 4. (page 6 of 6)

Date	Comment
	ADF&G RECOMMENDATION: Because of the continuing below average run assessment, and especially because of the very low coho escapement numbers at the weir sites, there does not—at this time—appear to be a surplus of coho salmon above escapement needs and the amounts needed for subsistence. Therefore the ADF&G recommends no further commercial fishing at this time. The FWS concurs with this recommendation. WORKING GROUP RECOMMENDATION: None. ACTUAL OUTCOME: No further commercial fishing periods were announced.
5 September	Wayne Morgan chaired the meeting, which was called to assess coho salmon escapement. Coho escapement at the Tuluksak, Tatlawiksuk, and Takotna weirs was above average; but the escapement at the Kwethluk, George, and Kogrukluk weirs was below average. The Working Group decided to continue this discussion on September 30 when all the weir data would be complete. There was also some discussion of the salmon fishing cooperative proposed in Agenda Change Request ("ACR") #28, but Frank Charles (author of the ACR) was absent. The Working Group also discussed members attending other salmon-related meetings, but nothing conclusive was decided.
30 September	Frank Charles chaired the meeting. Doug Molyneaux and Tim Ward provided a season recap during the first part of this four-hour meeting. The 2002 chinook, chum, sockeye, and coho runs were characterized as average, above average, below average, and below average. The Working Group voted to support the FWS proposal, which brings the federal hook-and-line subsistence fishery regulations in line with the state hook-and-line subsistence fishery regulations in District W-2. The Working Group also appointed members to attend the October Western Interior RAC meeting, Y-K Delta RAC meeting, and BOF Work Session. Frank Charles provided a summary of the plan behind ACR #28. The plan would create a fishery characterized by a low volume of higher quality product produced steadily through the summer by a few fishers who would, like all permit holders in the drainage, be members of a fishery cooperative. At the end of each season, all permit holders would receive a dividend from the profits of the cooperative. The Working Group voted unanimously to support the ACR as it went before the BOF Work Session.
9 December	***TENTATIVE.*** Wayne Morgan will chair the first meeting in Aniak in 2002. Frank Charles will bring the Working Group up to date on the proposed salmon fishing cooperative.

Table 5. Kuskokwim Area processors, 2002

SALMON	
INLET FISH PRODUCERS	F 4692
COASTAL VILLAGES SEAFOODS, INC.	F 4240
WOODBINE ALASKA FISH COMPANY	F 1273
HERRING	
ICICLE SEAFOODS, INC.	F 0137
NORQUEST SEAFOODS, INC.	F 1482
SNOPAC PRODUCTS	F 1146
TRIDENT SEAFOODS	F 0944
WOODBINE ALASKA FISH COMPANY	F 1273
YARDARM KNOT	F 3231

Table 6. Kuskokwim River commercial salmon harvest by period, 2002.

					CHINOOK			SOCKEYE			COHO				CHUM		
Period	Date	Permits	Hours	Land.	No. fish	Lbs	Avg. Wt.	No. fish	Lbs	Avg. Wt.	No. fish	Lbs	Avg. Wt.	CPUE	No. fish	Lbs	Avg. Wt.
01	8/02	40	2	40	7	73	10.4	3	22	7.3	2,492	18,479	7.4	31	134	829	6.2
02	8/05	175	4	175	18	297	16.5	41	284	6.9	11,164	78,908	7.1	16	573	3,494	6.1
03	8/08	119	6	133	22	450	20.5	20	159	8.0	22,890	170,933	7.5	32	541	3,604	6.7
04	8/09	132	6	134	8	137	17.1	9	54	6.0	13,749	104,239	7.6	17	254	1,601	6.3
05	8/12	136	6	138	9	107	11.9	8	59	7.4	22,962	173,050	7.5	28	292	1,754	6.0
06	8/13	109	6	109	8	116	14.5	3	17	5.7	10,206	78,204	7.7	16	106	618	5.8
	Total	318	30	729	72	1,180	16.4	84	595	7.1	83,463	623,813	7.5		1,900	11,900	6.3

Table 7. Commercial harvest by subdistrict, Kuskokwim River District W-1, 2002.

				Commercial Harvest (No. of fish)							
		Effort		Chinook		Sockeye		Chum		Coho	
Date	Period	W 1-B	W 1-A	W 1-B	W 1-A	W 1-B	W 1-A	W 1-B	W 1-A	W 1-B	W 1-A
8/02	1	40		7		3		2,492		134	
8/05	2	66	109	4	14	32	9	3,879	7,285	153	420
8/08	3		119		22		20		22,890		541
8/09	4	132		8		9		13,749		154	
8/12	5		136		9		8		22,962		292
8/13	6	109		8		3		10,206		106	
	Totals	**347**	**364**	**27**	**45**	**47**	**37**	**30,326**	**53,137**	**547**	**1,253**

Subdistrict W-1B - Kuskokwim River, District W-1, below Bethel
Subdistrict W-1A - Kuskokwim River, District W-1, above Bethel

Table 8. Peak aerial survey counts of salmon escapements for Kuskokwim Area spawning tributaries in 2002.[a]

Location	Date	Chinook	Sockeye	Coho	Chum
KUSKOKWIM RIVER:					
Fourth of July Creek (Takotna River)	7/21	15	0	0	215
Little Waldron (Takotna River)	7/21	0	0	0	0
Moore Creek (Takotna River)	7/21	0	0	0	0
Big Waldren Creek (Takotna River)[b]	7/21	0	0	0	0
Minnie Creek (Takotna River)	7/21	0	0	0	0
Bonnie Creek (Takotna River)	7/21	0	0	0	0
Lower Big Creek (Takotna River)	7/21	0	0	0	0
Takotna River	7/22	9	0	0	0
Pitka Fork Mainstream	7/22	165	0	0	0
Sheep Creek (Pitka Fork)	7/22	1	0	0	0
Sullivan Creek (Pitka Fork)	7/22	0	0	0	0
Bear Creek (Pitka Fork)	7/22	211	0	0	0
Salmon River (Pitka Fork)	7/22	1,276	0	0	0
Mainstem George River	7/23	469	0	0	320
East Fork George River	7/24	135	0	0	40
Oskawalik River	7/24	235	0	0	440
Cheenectnuk River (Swift River)	7/25	730	0	0	645
Gagaryah River (Swift River)	7/25	452	0	0	5
Tatlawiksuk River	7/25	328	0	0	2,730
Holokuk River	7/26	513	0	0	840
Aniak River	7/26	1,856	0	0	0[c]
Holitna River[b]	7/27	465	0	0	0
Shotgun Creek (Kogrukluk River)	7/27	347	0	0	0
Kogrukluk River (Holitna River)	7/27	1,204	0	0	0[c]
Tuluksak River[b]	7/28	223	0	0	1,452
Kisaralik River	7/29	2,285	0	0	0[c]
Kwethluk River / Canyon Creek	7/29	1,795	0	0	0[c]
Salmon River (Aniak River)	7/30	1,236	0	0	0[c]
Kipchuck River (Aniak River)	7/30	1,615	0	0	0[c]
Holitna River	7/31	1,741	0	0	0[c]
Tuluksak River[b]	7/31	0	0	0	0
Mainstem George River	9/21	0	0	8	0
Tatlawiksuk River	9/21	0	0	12	0
Little Tonzona (South Fork Kusko)	9/21	0	0	64	0
Pitka Fork Mainstem	9/22	0	0	149	0
Salmon River (Pitka Fork)	9/22	0	0	4	0
Sullivan Creek (Pitka Fork)	9/22	0	0	4	0
Bear Creek (Pitka Fork)	9/22	0	0	0	0
Sheep Creek (Pitka Fork)	9/22	0	0	28	0
Unnamed Tributary (Little Tonzona)	9/22	0	0	3	0
South Fork Kuskokwim	9/22	0	0	15	4,150
Unnamed Trib (Middle Fork)	9/22	0	0	27	0
Unnamed Tributary (Windy Fork)	9/22	0	0	318	0
Big Creek (Takotna River)[b]	9/23	0	0	0	0
Big Waldren Creek (Takotna River)[b]	9/23	0	0	0	0
Little Waldren Creek (Takotna River)[b]	9/23	0	0	0	0
Fourth of July Creek (Takotna River)[b]	9/23	0	0	0	0
KUSKOKWIM BAY:					
Middle Fork Goodnews River & Lakes	8/1	1,195	2,626	0	1,208
North Fork Goodnews River & Lake	8/1	1,470	3,475	0	3,075

[a] Peak aerial salmon escapement index count. Aerial index counts do not represent total escapement, but reflect annual spawner abundance trends when using standard survey methods under acceptable conditions.

[b] Survey was incomplete because of poor survey conditions.

[c] Fish were observed and appeared to be abundant, but conditions prevented the surveyor from making a reliable count.

Table 9. Daily and cumulative estimates of fish passage at the Aniak River sonar site, 2002.

Date	Left Bank	Right Bank	Daily Total	Cum. Total	LB % Passage	RB % Passage	Daily Percent Passage	Cum. Percent passage
6/17								
6/18								
6/19								
6/20								
6/21								
6/22								
6/23								
6/24								
6/25								
6/26	407	727	1,134	1,134	36	64	0.3	0
6/27	1,906	3,404	5,310	6,444	36	64	1.5	2
6/28	2,013	3,594	5,607	12,051	36	64	1.5	3
6/29	2,359	4,213	6,572	18,623	36	64	1.8	5
6/30	2,243	4,629	6,872	25,495	33	67	1.9	7
7/1	3,175	5,969	9,144	34,639	35	65	2.5	10
7/2	3,802	6,621	10,423	45,062	36	64	2.9	12
7/3	5,236	9,833	15,069	60,131	35	65	4.2	17
7/4	3,059	4,759	7,818	67,949	39	61	2.2	19
7/5	4,666	4,551	9,217	77,166	51	49	2.5	21
7/6	8,756	9,169	17,925	95,091	49	51	4.9	26
7/7	5,981	9,839	15,820	110,911	38	62	4.4	31
7/8	3,551	3,712	7,263	118,174	49	51	2.0	33
7/9	4,581	6,483	11,064	129,238	41	59	3.0	36
7/10	4,541	5,234	9,775	139,013	46	54	2.7	38
7/11	7,867	11,454	19,321	158,334	41	59	5.3	44
7/12	6,079	9,400	15,479	173,813	39	61	4.3	48
7/13	5,533	10,018	15,551	189,364	36	64	4.3	52
7/14	3,677	5,502	9,179	198,543	40	60	2.5	55
7/15	4,770	4,873	9,643	208,186	49	51	2.7	57
7/16	6,206	8,612	14,818	223,004	42	58	4.1	61
7/17	8,703	9,829	18,532	241,536	47	53	5.1	67
7/18	8,592	6,974	15,566	257,102	55	45	4.3	71
7/19	8,026	7,489	15,515	272,617	52	48	4.3	75
7/20	4,301	4,053	8,354	280,971	51	49	2.3	77
7/21	3,621	3,621	7,242	288,213	50	50	2.0	79
7/22	4,771	4,826	9,597	297,810	50	50	2.6	82
7/23	5,198	4,421	9,619	307,429	54	46	2.7	85
7/24	4,065	3,080	7,145	314,574	57	43	2.0	87
7/25	3,733	2,064	5,797	320,371	64	36	1.6	88
7/26	5,536	3,946	9,482	329,853	58	42	2.6	91
7/27	3,233	2,386	5,619	335,472	58	42	1.5	92
7/28	3,912	2,647	6,559	342,031	60	40	1.8	94

Table 10. Quinhagak, District 4 commercial salmon harvest and effort by period, 2002.

					Chinook				Sockeye				Chum				Coho			
Period	Date	Hours	Del	Permits	Catch	Lbs	CPUE	$/Lbs	Catch	Lbs	CPUE	$/Lbs	Catch	Lbs	CPUE	$/Lbs	Catch	Lbs	CPUE	$/Lbs
1	6/14	12	61	51	1,727	24,405	2.8	0.35	160	1,349	0.3	0.35	1,000	8,765	1.6	0.10	0	0	0.0	
2	6/17	12	65	46	2,070	27,304	3.8	0.35	288	2,324	0.5	0.35	1,047	9,537	1.9	0.10	0	0	0.0	
3	6/20	12	57	53	1,352	20,764	2.1	0.35	477	3,812	0.8	0.35	1,653	14,240	2.6	0.10	0	0	0.0	
4	6/26	12	95	61	1,782	26,871	2.4	0.35	972	7,276	1.3	0.35	2,287	19,108	3.1	0.10	0	0	0.0	
5	7/1	12	79	62	959	13,080	1.3	0.35	2,187	15,242	2.9	0.35	3,824	31,880	5.1	0.10	0	0	0.0	
6	7/3	12	75	51	759	10,660	1.2	0.35	2,177	15,328	3.6	0.35	4,257	34,127	7.0	0.10	0	0	0.0	
7	7/5	12	67	56	596	8,120	0.9	0.35	2,788	17,963	4.1	0.35	3,116	24,991	4.6	0.10	0	0	0.0	
8	7/8	12	77	58	577	7,931	0.8	0.35	2,447	14,788	3.5	0.35	3,645	28,127	5.2	0.10	0	0	0.0	
9	7/10	12	73	52	593	7,747	1.0	0.35	2,164	13,182	3.5	0.35	1,992	15,185	3.2	0.10	0	0	0.0	
10	7/12	12	63	52	429	5,784	0.7	0.35	1,373	8,134	2.2	0.35	2,168	16,312	3.5	0.10	0	0	0.0	
11	7/15	12	46	39	243	3,104	0.5	0.35	753	4,317	1.6	0.35	1,615	11,950	3.5	0.10	0	0	0.0	
12	7/17	12	32	32	161	1,924	0.4	0.35	839	4,968	2.2	0.35	942	7,001	2.5	0.10	0	0	0.0	
13	7/19	12	22	20	78	1,059	0.3	0.35	750	4,134	3.1	0.35	926	6,577	3.9	0.10	0	0	0.0	
14	8/1	12	24	24	32	429	0.1	0.35	114	631	0.4	0.35	162	1,102	0.6	0.10	360	2,905	1.3	0.20
15	8/5	12	28	25	20	334	0.1	0.35	85	413	0.3	0.35	164	1,108	0.5	0.10	1,610	12,889	5.4	0.20
16	8/7	12	53	32	31	380	0.1	0.35	59	290	0.2	0.35	125	794	0.3	0.10	2,653	22,256	6.9	0.20
17	8/9	12	40	33	16	236	0.0	0.35	53	332	0.1	0.35	115	858	0.3	0.10	2,383	20,118	6.0	0.20
18	8/12	12	53	37	15	163	0.0	0.35	35	214	0.1	0.35	58	420	0.1	0.10	3,260	28,926	7.3	0.20
19	8/14	12	43	38	10	146	0.0	0.35	27	172	0.1	0.35	51	346	0.1	0.10	2,649	23,942	5.8	0.20
20	8/16	18	68	49	13	192	0.0	0.35	26	162	0.0	0.35	40	270	0.0	0.10	4,516	41,239	5.1	0.20
21	8/19	12	46	30	3	47	0.0	0.35	8	59	0.0	0.35	25	198	0.1	0.10	3,156	29,299	8.8	0.20
22	8/21	12	46	34	7	127	0.0	0.35	7	38	0.0	0.35	13	96	0.0	0.10	2,490	23,023	6.1	0.20
23	8/23	12	48	29	6	86	0.0	0.35	10	61	0.0	0.35	18	143	0.1	0.10	2,495	22,955	7.2	0.20
24	8/26	12	29	28	1	11	0.0	0.35	3	26	0.0	0.35	9	76	0.0	0.10	1,123	10,712	3.3	0.20
Totals		294		114	11,480	160,904			17,802	115,215			29,252	233,211			26,695	238,264		

Table 11. Goodnews Bay, District 5 commercial salmon harvest and effort by period, 2002.

					Chinook				Sockeye				Chum				Coho			
Period	Date	Hours	Del	Permits	Catch	Lbs	CPUE	$/Lbs	Catch	Lbs	CPUE	$/Lbs	Catch	Lbs	CPUE	$/Lbs	Catch	Lbs	CPUE	$/Lbs
1	6/27	12	25	19	598	6,820	2.6	0.35	892	6,617	3.9	0.35	948	7,850	4.2	0.10	0	0	0.0	0.20
2	7/1	12	18	17	134	1,966	0.7	0.35	902	6,285	4.4	0.35	721	5,710	3.5	0.10	0	0	0.0	0.20
3	7/5	12	17	15	103	1,612	0.6	0.35	1,373	9,282	7.6	0.35	978	7,561	5.4	0.10	0	0	0.0	0.20
4	7/10	12	22	19	71	772	0.3	0.35	1,435	10,716	6.3	0.35	821	6,277	3.6	0.10	0	0	0.0	0.20
5	7/12	12	19	19	57	707	0.3	0.35	891	6,304	3.9	0.35	289	2,107	1.3	0.10	0	0	0.0	0.20
6	8/1	12	7	7	8	144	0.1	0.35	357	2,709	4.3	0.35	17	102	0.2	0.10	41	290	0.5	0.20
7	8/7	12	8	7	3	30	0.0	0.35	135	988	1.6	0.35	13	98	0.2	0.10	451	3,744	5.4	0.20
8	8/10	12	7	6	1	9	0.0	0.35	103	774	1.4	0.35	0	0	0.0	0.10	253	2,152	3.5	0.20
9	8/15	12	7	5	1	20	0.0	0.35	75	560	1.3	0.35	5	30	0.1	0.10	578	5,257	9.6	0.20
10	8/17	12	8	8	1	24	0.0	0.35	44	330	0.5	0.35	2	13	0.0	0.10	404	3,881	4.2	0.20
11	8/20	12	7	6	2	21	0.0	0.35	49	368	0.7	0.35	4	32	0.1	0.10	518	5,073	7.2	0.20
12	8/24	12	10	7	0	0	0.0	0.35	48	341	0.6	0.35	1	10	0.0	0.10	796	7,777	9.5	0.20
Totals				30	979	12,125			6,304	45,274			3,799	29,790			3,041	28,174		

Table 12. Preliminary outlook for the 2003 Kuskokwim Area commercial salmon harvest (X 1,000 fish).

Species	Management District									Kuskokwim		
	Districts 1 and 2[a]			District 4			District 5			Area Total		
Chinook	0	to	1	8	to	20	1	to	3	9	to	24
Sockeye	0	to	15	15	to	60	5	to	30	20	to	105
Coho	50	to	250	15	to	50	2	to	15	67	to	315
Pink[b]	0	to	1	0	to	1	0	to	0	0	to	2
Chum	0	to	150	15	to	40	3	to	15	18	to	205
TOTAL	50	to	417	53	to	171	11	to	63	114	to	651

[a] Kuskokwim River includes Districts 1 and 2.

[b] Outlook is based on historic catches in odd years only.

Table 13. Sampling Summary for the Kuskokwim Area Subsistence Salmon Fishery, 2002.

COMMUNITY	Total HH'S	CALENDARS Mailed	CALENDARS Returned	POSTCARDS Mailed	POSTCARDS Returned	NUMBER OF HOUSEHOLDS Household Surveys	Any Info.*	Harvest Data**	Subsistence Fished
Kipnuk	176	15	1	175	0	0	1	1	1
Kwigillingok	95	3	0	95	0	0	0	0	
Kongiganak	81	62	4	22	0	51	51	50	46
NORTH KUSKOKWIM BAY	352	80	5	292	0	51	52	51	47
Tuntutuliak	76	65	15	15	2	60	64	63	56
Eek	73	49	20	15	4	49	54	54	47
Kasigluk	136	15	5	135	0	0	5	5	5
Nunapitchuk	102	73	20	31	9	70	81	79	69
Atmautluak	56	41	5	15	3	43	46	46	33
Napakiak	90	59	11	23	2	65	66	65	58
Napaskiak	83	63	4	25	1	59	60	60	43
Oscarville	13	11	2	1	0	12	12	12	11
Bethel	1,499	627	87	305	43	1,263	1,320	1,306	579
Kwethluk	156	117	25	42	0	110	113	107	91
Akiachak	131	96	13	40	5	94	101	97	91
Akiak	71	51	6	14	3	52	55	54	47
Tuluksak	80	63	4	23	2	54	55	53	50
LOWER KUSKOKWIM RIVER	2,566	1,330	217	684	74	1,931	2,032	2,001	1,180
Lower Kalskag	69	42	10	10	3	51	56	54	34
Upper Kalskag	59	40	8	19	5	38	44	44	29
Aniak	165	111	21	3	0	162	163	163	120
Chuathbaluk	30	23	5	7	2	20	22	20	17
MIDDLE KUSKOKWIM RIVER	323	216	44	39	10	271	285	281	200
Crooked Creek	34	21	5	3	1	26	28	28	24
Red Devil	14	13	3	3	0	9	10	9	8
Sleetmute	34	27	8	3	0	26	27	27	17
Stony River	15	9	0	2	0	13	13	13	9
Lime Village	17	10	0	0	0	0	0	0	
McGrath	136	61	2	24	10	107	118	117	51
Takotna	20	5	0	0	0	16	16	16	3
Nikolai	36	23	3	4	0	29	30	30	16
Telida	2	0	0	0	0	0	0	0	
UPPER KUSKOKWIM RIVER	308	169	21	39	11	226	242	240	128
Quinhagak	139	91	10	34	3	99	101	101	77
Goodnews Bay	55	41	4	6	2	41	43	43	30
Platinum	16	12	1	3	0	12	12	12	7
SOUTH KUSKOKWIM BAY	210	144	15	43	5	152	156	156	114
Mekoryuk	94	88	0	88	18	0	18	18	15
Newtok	79	79	0	79	5	0	5	4	4
Nightmute	68	66	0	60	3	0	3	3	0
Toksook Bay	136	131	2	130	8	0	8	8	5
Tununak	110	108	0	108	5	0	5	5	3
Chefornak	93	93	0	93	0	0	0	0	
BERING SEA COAST	580	565	2	558	39	0	39	38	27
KUSKOKWIM AREA TOTALS	4,339	2,504	304	1,655	139	2,631	2,806	2,767	1,696

* Includes information from all sources including fishing status derived from survey forms, calendars, postcards or in consultation with community officials.

** Includes information from households that did not harvest salmon and households which did provided harvest numbers.

Table 14. Subsistence Salmon Harvest Summary, Kuskokwim Area, 2002.

COMMUNITY	HOUSEHOLDS Total	HOUSEHOLDS Contacted	CHINOOK Reported Harvest	CHINOOK Estimated Total	CHUM Reported Harvest	CHUM Estimated Total	SOCKEYE Reported Harvest	SOCKEYE Estimated Total	COHO Reported Harvest	COHO Estimated Total
Kipnuk	176	1	1	1	5	5	11	11	69	69
Kwigillingok	95	0	0		0		0		0	
Kongiganak	81	51	772	827	1,883	2,009	739	793	568	610
N. KUSKOKWIM BAY	352	52	773	828	1,888	2,014	750	804	637	679
Tuntutuliak	76	64	3,081	3,704	3,260	3,920	824	991	981	1,178
Eek	73	54	1,959	2,432	1,004	1,259	604	748	704	904
Kasigluk	136	5	381	381	306	306	59	59	142	142
Nunapitchuk	102	81	3,206	4,007	5,703	7,137	1,122	1,422	644	814
Atmautluak	56	46	1,215	1,282	2,125	2,189	987	1,015	536	591
Napakiak	90	66	1,931	1,965	2,391	2,433	1,201	1,221	578	587
Napaskiak	83	60	2,729	3,856	2,632	3,720	908	1,292	503	716
Oscarville	13	12	953	953	1,121	1,121	377	377	119	119
Bethel	1,499	1,312	18,606	21,611	13,867	16,107	6,730	7,804	11,918	13,802
Kwethluk	156	113	4,902	6,884	5,682	7,966	1,501	2,126	1,920	2,694
Akiachak	131	101	5,540	7,138	4,089	5,252	1,996	2,534	1,321	1,685
Akiak	71	55	2,632	3,419	2,008	2,593	942	1,223	881	1,141
Tuluksak	80	55	1,920	2,468	2,470	3,176	822	1,055	963	1,232
LOWER KUSKOKWIM	2,566	2,024	49,055	60,100	46,658	57,179	18,073	21,867	21,210	25,605
Lower Kalskag	69	56	1,088	1,279	1,072	1,257	221	261	221	256
Upper Kalskag	59	44	1,251	1,420	2,153	2,333	433	485	909	1,032
Aniak	165	163	3,836	3,882	3,941	3,988	907	918	2,743	2,776
Chuathbaluk	30	22	493	718	1,156	1,682	250	365	455	651
MIDDLE KUSKOKWIM	323	285	6,668	7,299	8,322	9,260	1,811	2,029	4,328	4,715
Crooked Creek	34	28	713	790	1,212	1,266	401	413	405	420
Red Devil	14	10	180	283	236	371	67	105	300	471
Sleetmute	34	27	426	516	913	1,105	498	603	569	689
Stony River	15	13	262	293	507	560	412	460	466	517
Lime Village	17	0	0		0		0		0	
McGrath	136	118	649	709	634	676	309	329	996	1,083
Takotna	20	16	8	9	1	1	0	0	20	20
Nikolai	36	30	484	507	171	171	0	0	105	105
Telida	2	0	0	—	0	—	0	—	—	—
UPPER KUSKOKWIM	308	242	2,722	3,107	3,674	4,150	1,687	1,910	2,861	3,305
KUSKOKWIM RIVER	3,549	2,603	59,218	71,334	60,542	72,603	22,321	26,610	29,036	34,304
Quinhagak	139	101	1,880	2,475	1,381	1,839	650	855	844	1,099
Goodnews Bay	55	43	561	703	247	312	630	794	162	202
Platinum	16	12	112	154	69	95	187	256	70	95
S. KUSKOKWIM BAY	210	156	2,553	3,332	1,697	2,246	1,467	1,905	1,076	1,396
Mekoryuk	94	18	12	12	1,292	1,292	204	204	114	114
Newtok	79	5	13	13	20	20	85	85	0	0
Nightmute	68	3	0		0		0		0	
Toksook Bay	136	8	54	54	657	657	32	32	74	74
Tununak	110	5	1	1	0	0	8	8	49	49
Chefornak	93	0	0	—	0	—	0	—	0	—
BERING SEA COAST	580	39	80	80	1,969	1,969	329	329	237	237
KUSKOKWIM TOTALS	4,339	2,798	61,851	74,746	64,208	76,818	24,117	28,844	30,349	35,937

NOTE: If fewer than 30 households in a community or less than 50% of households in a community stratum were contacted, then reported harvest is used for estimated harvest. Data includes salmon retained for subsistence use from commercial catch. Blanks indicate that no estimate is available

Table 15. Gear Types Reported Used for Subsistence Salmon Fishing, Kuskokwim Area, 2002.

	Number of Households Reporting Type of Subsistence Fishing Gear Used						
COMMUNITY	Set Gillnet	Drift Gillnet	Fish Wheel	Rod and Reel	Seine	Spear	Unknown
Kipnuk	0	0	0	0	0	0	1
Kongiganak	1	35	0	0	0	0	10
NORTH KUSKOKWIM BAY	1	35	0	0	0	0	11
Tuntutuliak	3	40	0	4	0	0	14
Eek	13	30	0	8	0	0	7
Kasigluk	0	0	0	0	0	0	5
Nunapitchuk	3	56	0	0	0	0	12
Atmautluak	0	23	0	0	0	0	10
Napakiak	15	39	0	1	0	0	14
Napaskiak	13	32	0	4	0	0	10
Oscarville	1	11	0	0	0	0	0
Bethel	61	450	0	121	0	0	38
Kwethluk	31	65	0	32	0	0	14
Akiachak	22	67	0	9	0	0	17
Akiak	20	27	0	3	0	0	13
Tuluksak	18	42	0	17	0	0	5
LOWER KUSKOKWIM RIVER	200	882	0	199	0	0	159
Lower Kalskag	8	23	0	2	0	0	7
Upper Kalskag	7	19	0	6	0	0	6
Aniak	13	62	2	75	0	0	1
Chuathbaluk	7	11	0	3	0	0	3
MIDDLE KUSKOKWIM RIVER	35	115	2	86	0	0	17
Crooked Creek	4	16	0	5	0	0	6
Red Devil	6	1	0	4	0	0	1
Sleetmute	6	12	0	5	0	0	1
Stony River	5	1	0	4	0	0	1
Lime Village	0	0	0	0	0	0	0
McGrath	17	6	0	25	0	0	10
Takotna	0	0	0	3	0	0	0
Nikolai	8	0	0	9	0	0	2
UPPER KUSKOKWIM RIVER	46	36	0	55	0	0	21
KUSKOKWIM RIVER	282	1,068	2	340	0	0	208
Quinhagak	6	43	0	19	0	0	22
Goodnews Bay	6	24	0	4	0	0	4
Platinum	4	6	0	0	0	0	1
SOUTH KUSKOKWIM BAY	16	73	0	23	0	0	27
Mekoryuk	11	2	0	6	3	0	0
Newtok	0	4	0	0	0	0	0
Toksook Bay	2	5	0	0	0	0	0
Tununak	2	1	0	0	0	0	1
BERING SEA COAST	15	12	0	6	3	0	1
KUSKOKWIM AREA TOTALS	313	1,153	2	369	3	0	236

Note: Data on households that subsistence fished is based upon house to house surveys, returned returned postcards or calendars. Households using multiple gear types are listed for each gear type reported. Communities where gear type information was not provided are not listed.

Table 16. Salmon Reported Retained From Commercial Catches for Subsistence Use in the Kuskokwim Area, 2002.

COMMUNITY	Number of Households: Reported Commercial Salmon Fishing	Number of Households: Retained Commercial Caught Salmon For Subsistence	Number of Salmon Retained From Commercial Catch For Subsistence Use: Chinook	Chum	Sockeye	Coho
Kongiganak	8	0	0	0	0	0
N. KUSKOKWIM BAY	8	0	0	0	0	0
Tuntutuliak	22	4	0	0	0	70
Eek	18	2	11	0	8	6
Nunapitchuk	19	0	0	0	0	0
Atmautluak	6	2	0	1	0	1
Napakiak	9	0	0	0	0	0
Napaskiak	12	4	4	0	0	20
Oscarville	3	2	0	0	0	2
Bethel *	4	4	17	0	30	18
Kwethluk	27	1	0	0	0	1
Akiachak	38	4	2	6	1	12
Akiak	9	2	2	1	1	1
Tuluksak	11	2	3	0	0	0
LOWER KUSKOKWIM	178	27	39	8	40	131
Lower Kalskag	0	0	0	0	0	0
Upper Kalskag	1	0	0	0	0	0
Aniak	0	0	0	0	0	0
Chuathbaluk	0	0	0	0	0	0
MIDDLE KUSKOKWIM	1	0	0	0	0	0
Crooked Creek	0	0	0	0	0	0
Red Devil	0	0	0	0	0	0
Sleetmute	0	0	0	0	0	0
Stony River	0	0	0	0	0	0
Lime Village	0	0	0	0	0	0
McGrath	0	0	0	0	0	0
Takotna	0	0	0	0	0	0
Nikolai	0	0	0	0	0	0
UPPER KUSKOKWIM	0	0	0	0	0	0
Quinhagak	37	13	15	7	30	41
Goodnews Bay	14	1	2	0	7	5
Platinum	3	0	0	0	0	0
S. KUSKOKWIM BAY	54	14	17	7	37	46
TOTAL	241	41	56	15	77	177

NOTE: Data are based only upon surveyed households without expansion to the community as a whole. Communities that are not lisited were not surveyed in person.

* Only those Bethel households reporting they retaining fish from commercial fishing activities were identified as commercial fishing.

Table 17. Quality of Subsistence Salmon Fishing, Kuskokwim Area, 2002.

		Percent of Households Reporting Quality of Subsistence Fishing							
		CHINOOK		CHUM		SOCKEYE		COHO	
COMMUNITY	Number of Households Responding	Very Good or Average	Poor	Very Good or Average	Poor	Very Good or Average	Poor	Very Good or Average	Poor
Kongiganak	31	84	16	81	19	73	27	79	21
N. KUSKOKWIM BAY	31	84	16	81	19	73	27	79	21
Tuntutuliak	39	92	8	91	9	55	45	100	0
Eek	32	84	16	71	29	73	27	80	20
Nunapitchuk	56	84	16	93	7	53	47	87	13
Atmautluak	22	77	23	86	14	45	55	73	27
Napakiak	39	85	15	91	9	42	58	76	24
Napaskiak	29	79	21	82	18	35	65	88	12
Oscarville	11	82	18	78	22	22	78	67	33
Bethel	420	85	15	86	14	70	30	90	10
Kwethluk	67	90	10	83	17	56	44	78	22
Akiachak	64	83	17	69	31	60	40	85	15
Akiak	30	87	13	82	18	77	23	94	6
Tuluksak	43	79	21	85	15	74	26	91	9
LOWER KUSKOKWIM	852	85	15	84	16	63	37	88	12
Lower Kalskag	20	75	25	81	19	50	50	90	10
Upper Kalskag	20	80	20	67	33	47	53	73	27
Aniak	86	87	13	93	7	67	33	98	2
Chuathbaluk	12	50	50	100	0	64	36	80	20
MIDDLE KUSKOKWIM	138	81	19	87	13	61	39	93	7
Crooked Creek	17	76	24	82	18	41	59	100	0
Red Devil	5	60	40	100	0	0	100	100	0
Sleetmute	13	77	23	83	17	58	42	100	0
Stony River	8	50	50	88	13	63	38	88	13
McGrath	35	80	20	89	11	64	36	64	36
Takotna	2	50	50		100	100	0		100
Nikolai	13	85	15	100	0	67	33	0	100
UPPER KUSKOKWIM	93	75	25	87	13	53	47	88	12
KUSKOKWIM RIVER	1,114	83	17	85	15	62	38	89	11
Quinhagak	41	93	7	90	10	68	32	93	7
Goodnews Bay	25	80	20	95	5	77	23	73	27
Platinum	6	100	0	100	0	83	17	50	50
S. KUSKOKWIM BAY	72	89	11	93	7	73	27	85	15
Mekoryuk	4	50	50	91	9	50	50	70	30
Newtok	2	50	50	100	0	100	0		100
Toksook Bay	5	20	80	75	25	100	0	80	20
Tununak	1	100	0	100	0	100	0	100	0
BERING SEA COAST	12	42	58	88	12	83	17	78	22
KUSKOKWIM AREA	1,198	83	17	85	15	63	37	88	12

The question asked was "How was subsistence salmon fishing for your household this year?"
Data are reported from households that were surveyed in person or returned postcards surveys. There were no responses to this question on the survey postcards from Kipnuk, Kwigillingok, Nightmute, Chefornak and Kasigluk. Lime Village and Telida were not surveyed.

Table 18. Kuskokwim area Pacific herring proportion of biomass by age class, 2002.

	Security Cove		Goodnews Bay		Cape Avinof		Nelson Island		Nunivak Island		Kuskokwim Area	
Age	% by weight	tons	% by weight	tons	% by weight	tons	% by weight	tons	% by weight	tons	% by weight	tons
						Run						
2	0.0	0	0.0	0	0.0	1	0.0	0	0.0	0	0.0	1
3	0.0	0	0.0	0	0.7	23	0.2	10	0.2	10	0.2	43
4	1.4	68	1.6	86	3.8	133	2.1	128	2.5	134	2.2	550
5	40.0	1,897	33.7	1,866	53.8	1,877	28.0	1,716	33.1	1,795	36.1	9,151
6	22.8	1,083	19.9	1,103	20.1	703	16.6	1,018	19.5	1,059	19.6	4,966
7	4.2	197	4.4	245	4.4	154	3.5	216	3.8	206	4.0	1,018
8	2.0	95	2.0	110	3.1	108	5.8	356	5.8	317	3.9	985
9	10.2	483	12.7	700	6.3	222	20.1	1,234	18.1	982	14.3	3,620
10	2.5	117	2.9	159	2.4	83	4.8	296	4.6	247	3.6	903
11	7.7	364	9.9	546	1.5	52	9.3	571	7.6	411	7.7	1,945
12	2.7	127	3.5	195	1.6	56	4.9	299	2.6	142	3.2	819
13+	6.7	316	9.4	519	2.3	79	4.7	286	2.2	118	5.2	1,318
Total	100.0	4,748	100.0	5,529	100.0	3,491	100.0	6,130	100.0	5,422	100.0	25,320
						Commercial Harvest						
2	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
3	0.0	0	0.0	0	0.0	0	0.0	0	0.1	0	0.0	0
4	0.0	0	0.0	0	0.0	0	0.0	0	0.9	2	0.1	2
5	1.1	1	2.7	0	1.9	1	0.1	1	45.2	79	6.3	83
6	9.2	9	11.8	2	8.0	6	0.6	6	23.5	41	4.9	64
7	6.9	7	7.9	1	4.0	3	2.0	19	4.5	8	2.9	38
8	7.2	7	4.7	1	4.6	4	5.7	54	2.3	4	5.3	69
9	28.0	28	38.2	5	32.5	26	31.1	296	12.8	22	28.6	377
10	11.9	12	2.9	0	11.2	9	6.3	60	3.1	5	6.6	87
11	15.8	16	15.1	2	17.6	14	18.8	179	4.8	8	16.6	219
12	9.7	10	4.8	1	11.0	9	17.2	163	1.2	2	14.0	184
13+	10.3	10	11.8	2	9.4	7	18.2	173	1.6	3	14.8	195
Total	100.0	99	100.0	13	100.0	79	100.0	950	100.0	176	100.0	1,317
						Escapement						
2	0.0	0	0.0	0	0.0	1	0.0	0	0.0	0	0.0	1
3	0.0	0	0.0	0	0.7	23	0.2	10	0.2	10	0.2	43
4	1.5	68	1.6	86	3.9	133	2.5	128	2.5	133	2.3	548
5	40.8	1,896	33.8	1,865	55.0	1,876	33.1	1,715	32.7	1,716	37.8	9,068
6	23.1	1,074	20.0	1,101	20.4	697	19.5	1,012	19.4	1,018	20.4	4,902
7	4.1	190	4.4	244	4.4	151	3.8	197	3.8	198	4.1	980
8	1.9	87	2.0	110	3.1	104	5.8	302	6.0	312	3.8	916
9	9.8	455	12.6	695	5.7	196	18.1	938	18.3	960	13.5	3,244
10	2.3	106	2.9	159	2.2	75	4.6	236	4.6	242	3.4	817
11	7.5	348	9.9	544	1.1	38	7.6	393	7.7	403	7.2	1,726
12	2.5	117	3.5	194	1.4	47	2.6	136	2.7	140	2.6	635
13+	6.6	306	9.4	518	2.1	71	2.2	113	2.2	115	4.7	1,123
Total	100.0	4,649	100.0	5,516	100.0	3,412	100.0	5,180	100.0	5,246	100.0	24,003

Table 19. Kuskokwim area Pacific herring age frequency by district, 2002.

District	Age (years) 2	3	4	5	6	7	8	9	10	11	12	13+	Total weight (st)
Commercial catch[a]													
Security Cove				1.1	9.2	6.9	7.2	28.0	11.9	15.8	9.7	10.3	99
Goodnews Bay			1.4	2.7	11.8	7.9	4.7	38.2	2.9	15.1	4.8	11.8	13
Cape Avinof				1.9	8.0	4.0	4.6	32.5	11.2	17.6	11.0	9.4	79
Nelson Island				0.1	0.6	2.0	5.7	31.1	6.3	18.8	17.2	18.2	950
Nunivak Island		0.1	0.9	45.2	23.5	4.5	2.3	12.8	3.1	4.3	1.2	1.6	176
All Districts			0.2	6.2	4.9	2.9	5.3	28.6	6.5	16.6	14.0	14.3	1,317
Total Run[b]													
Security Cove		0.0	2.6	51.1	23.3	3.6	1.5	6.8	1.5	4.6	1.5	3.5	4,748
Goodnews Bay		0.0	2.9	45.8	21.8	4.1	1.6	8.9	1.8	6.0	2.0	5.1	5,529
Cape Avinof		1.5	5.7	61.6	18.0	3.3	2.0	3.9	1.3	0.8	0.8	1.0	3,491
Nelson Island		0.5	3.9	33.0	17.6	3.4	5.0	15.6	3.5	6.4	3.2	2.9	6,130
Nunivak Island		0.5	4.4	42.7	19.7	3.4	4.8	13.3	3.2	5.0	1.6	1.3	5,422
All Districts		0.2	2.2	36.1	19.6	4.0	3.9	14.3	3.6	7.7	3.2	5.2	25,320

a Commercial set gill net

b ADF&G variable mesh gill net

Table 20. Summary of Pacific herring commercial harvest by fishing period for Kuskokwim Area fishing districts, 2002.

District	Period	Date	Time	Total hours	Harvest[1] (st)
Security Cove	1	14-May	23:00-0030	1.5	53.1
	2	15-May	0945-1345	4	23.6
	3	15-May	1900-0200	7	29.5
	4	16-May	0930-1400	4.5	2.9
			Total	17	109.1
Goodnews Bay	1	15-May	0930-1400	4.5	0
	2	15-May	1900-0100	6	3.7
	3	16-May	1000-1600	6	4.2
	4	16-May	2100-0200	5	4.4
	5	17-May	0900-1500	7	0.8
			Total	28.5	13.1
Cape Avinof	1	26-May	0900-1300	4	1.4
	2	26-May	1900-0100	6	9.5
	3	27-May	0930-0130	4	0.7
	4	27-May	2200-0200	4	1
	5	28-May	1100-1700	6	18.7
	6	28-May	2000-0300	7	5.6
	7	29-May	0900-1600	7	9.6
	8	29-May	2100-0500	8	0
	9	30-May	1200-1800	6	7.4
	10	30-May	2200-600	8	0.7
	11	31-May	1100-1900	8	9
	12	31-May	2300-0700	8	3.4
	13	1-Jun	1200-2000	8	6.9
	14	2-Jun	0000-0800	8	0.9
	15	2-Jun	1700-2200	5	4.4
			Total	97	79.2
Nelson Island	1	22-May	0400-0800	4	10.1
	2	22-May	1500-2100	6	44.2
	3	23-May	0530-1030	5	36.5
	4	23-May	1900-2400	5	40.1
	5	24-May	0700-1300	6	0
	6	24-May	1900-0100	6	68.6

-Continued-

Table 20. (page 2 of 2)

District	Period	Date	Time	Total hours	Harvest[1] (st)
Nelson Island	7	25-May	0900-1330	4.5	110.3
(continued)	8	25-May	2100-0130	4.5	127
	9	26-May	1000-1400	4	44.5
	10	26-May	2000-0130	5.5	140.7
	11	27-May	1200-1700	5	78.8
	12	28-May	0001-0400	4	46.6
	13	28-May	1230-1830	6	69.5
	14	29-May	0030-0700	6.5	94.5
	15	29-May	1400-1830	4.5	19.6
	16	30-May	0400-0800	4	19.1
			Total	80.5	950.1
Nunivak Island					
(Purse Seine)	1	17-May	2100-2400	243	175.2
			Total	243	175.2

[1] Report includes estimated hopper weights for actual de-watered weights as reported by processor on fish tickets and in final catch reports. Hopper weight was estimated by adding 10%.

Table 21. Projections of Pacific herring spawning biomass and harvest for commercial fishing districts in the Kuskokwim Area, 2003.

	2003 Preseason Projection[a]			
District	Biomass (st)	Threshold (st)[b]	Harvest (st)	Exploitation Rate (%)
Security Cove	4,590	1,200	918	20
Goodnews Bay	5,186	1,200	1,037	20
Cape Avinof	3,812	500	572	15
Nelson Island	5,120	3,000	824	20 [c]
Nunivak Island	5,182	1,500	1,036	20 [d]
Total	23,890		4,387	

[a] Projection may be adjusted based on inseason biomass estimates.

[b] Threshold biomass needed to allow a commercial fishery from 5 AAC 27.060 Bering Sea Herring Fishery Management Plan.

[c] Nelson Island exploitation rate is 20% of projected biomass minus 200 st for subsistence harvest.

[d] Nunivak Island exploitation rate is 15% of projected biomass when inseason aerial survey estimate isn't available.

FIGURES

Figure 1. Kuskokwim Area map showing salmon management districts and escapement monitoring projects.

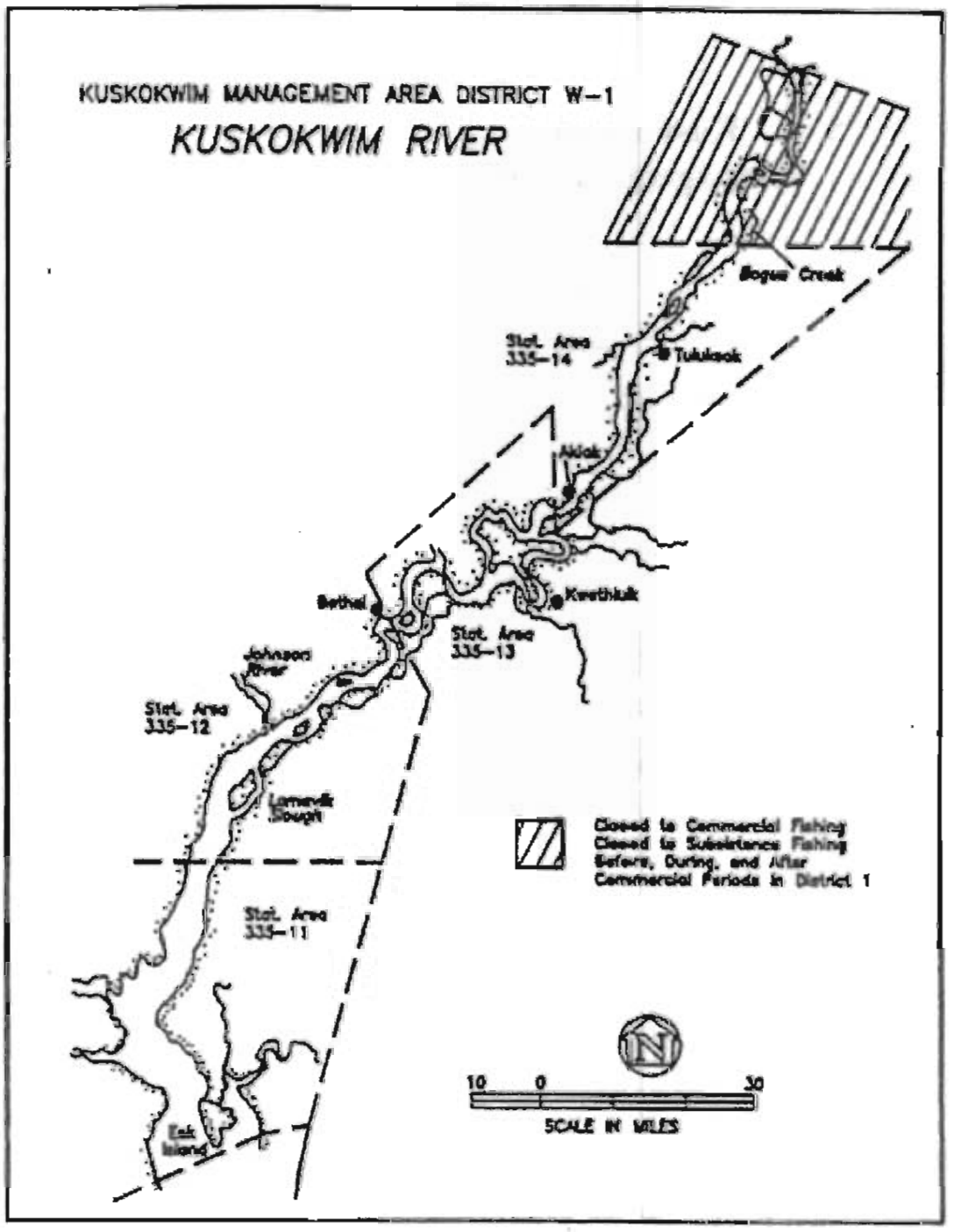


Figure 2. Kuskokwim Management Area, District 1.

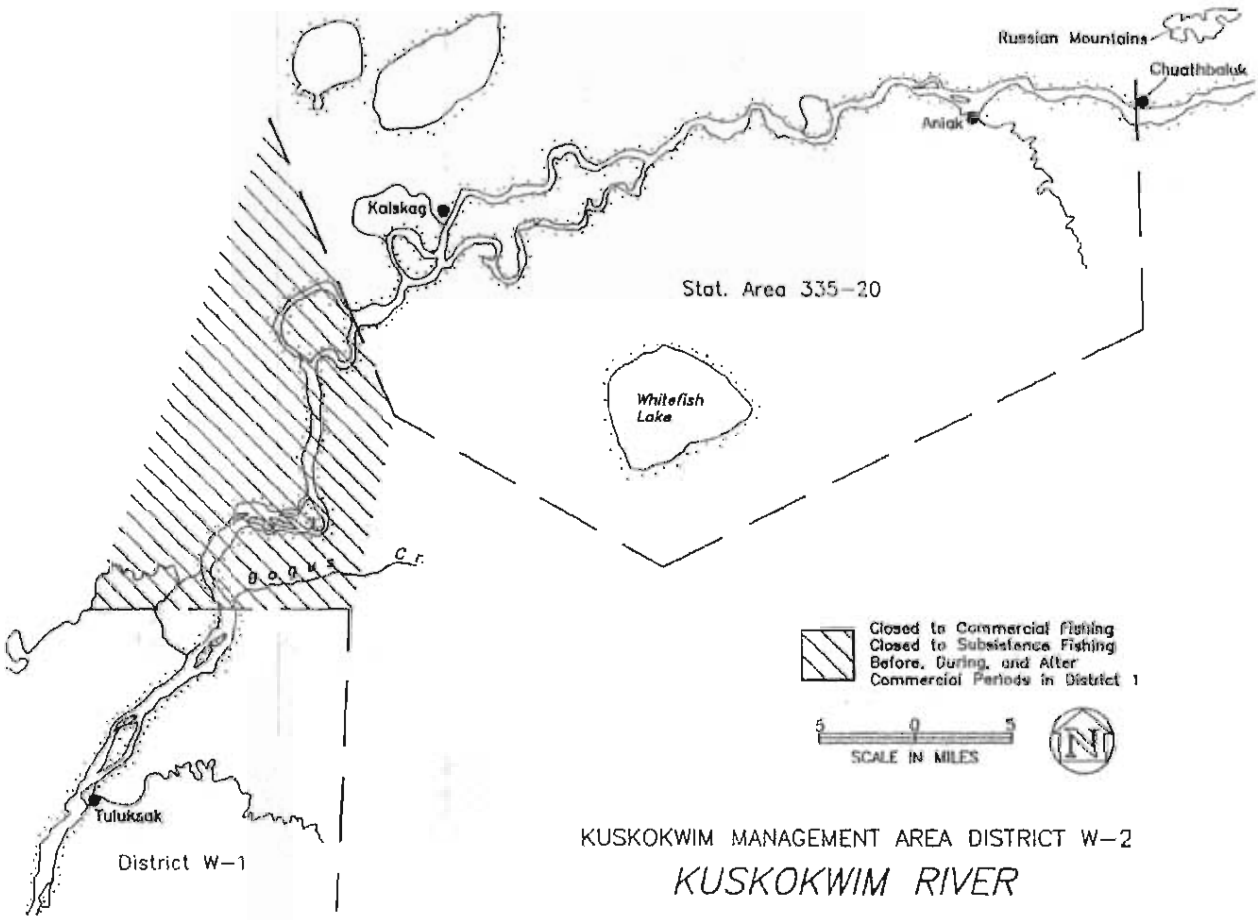


Figure 3. Kuskokwim Management Area, District 2.

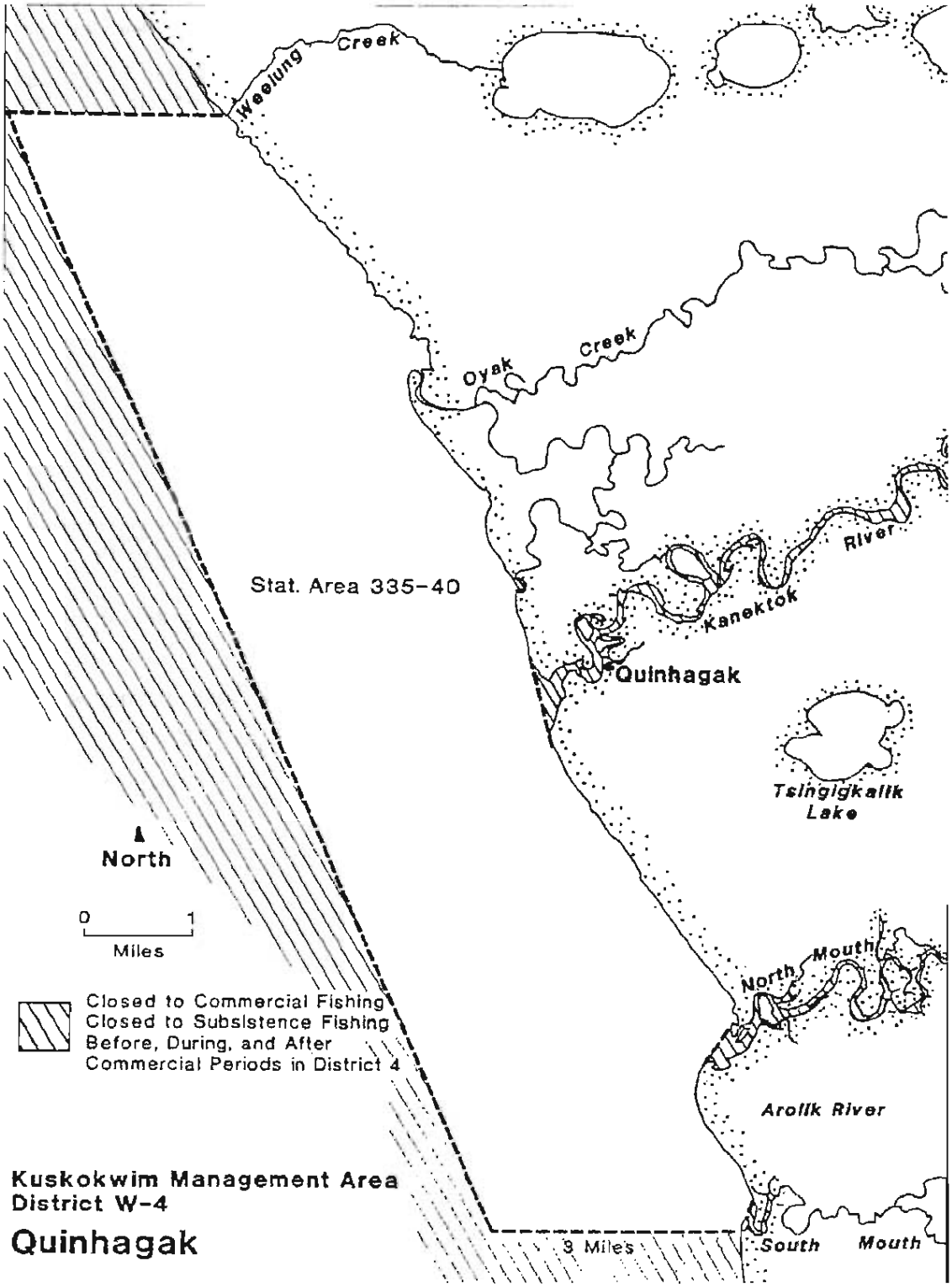


Figure 4. Kuskokwim Management Area, District 4.

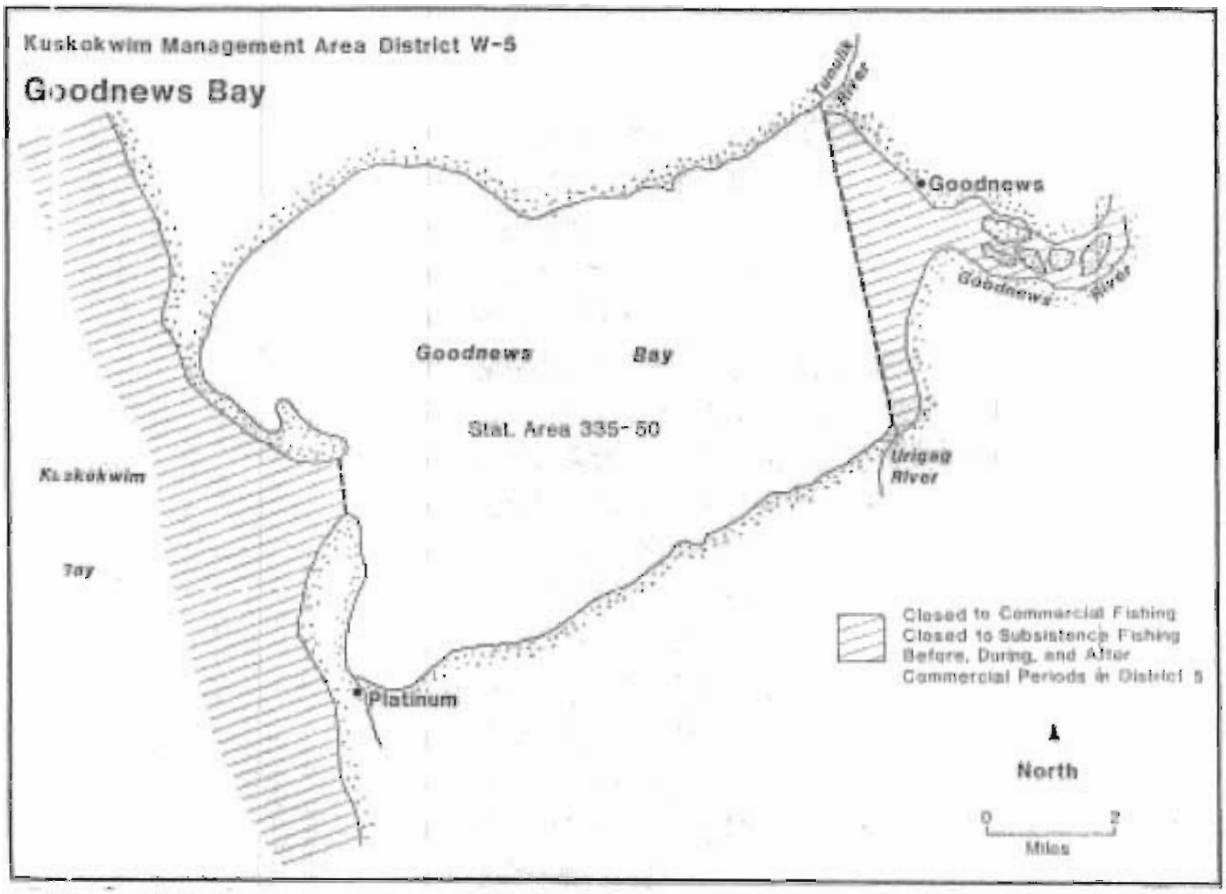


Figure 5. Kuskokwim Management Area, District 5.

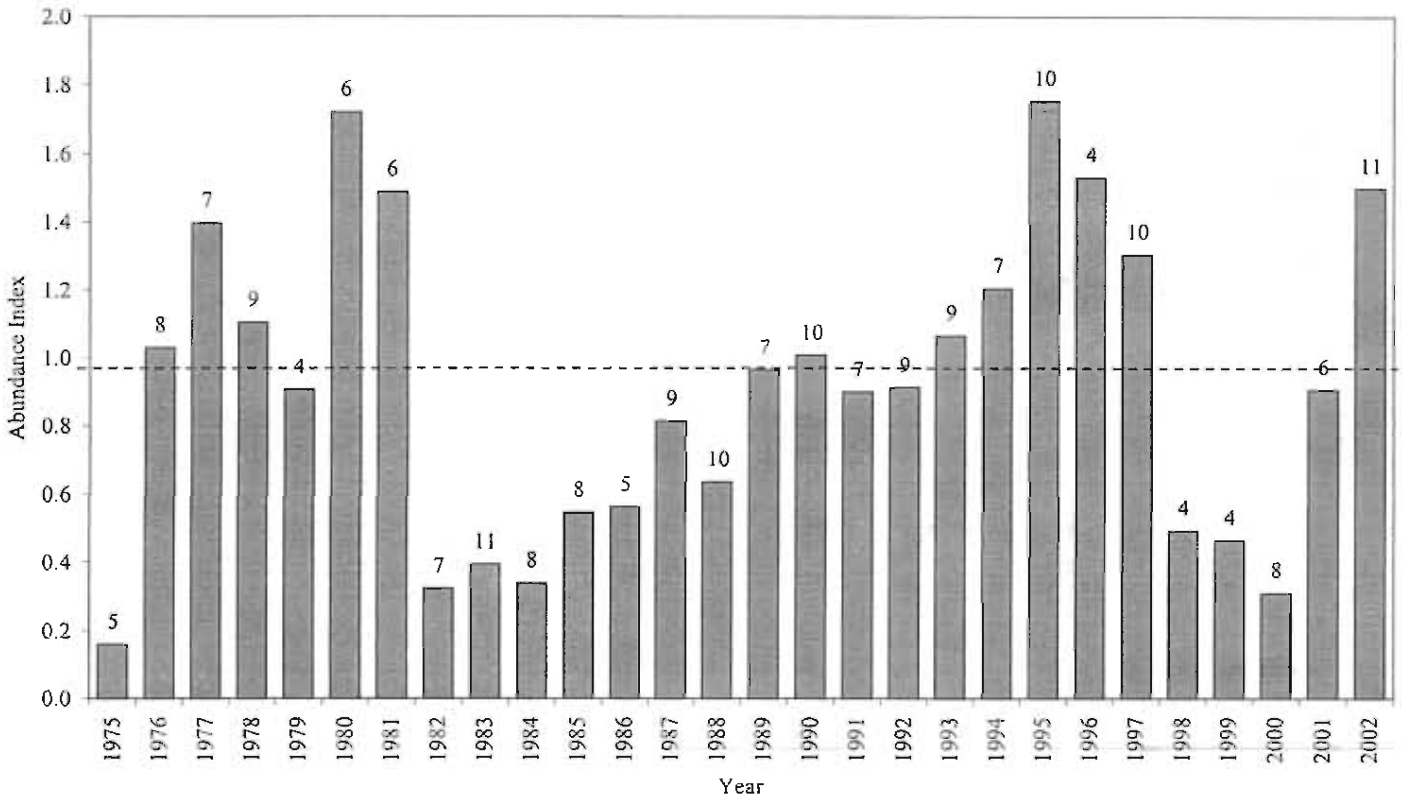


Figure 6. The Kuskokwim River chinook salmon escapement index represents the relative abundance of 13 possible index streams The index scale represents the escapement relative to the proportion of the escapement goal, if a goal has been established, otherwise for which adequate data is available. The numbers on top of each bar indicate the number of index streams represented for that year. The index scale represents the escapement relative to the proportion of the escapement goal, if a goal has been established; otherwise it represents the proportion of the median historical escapement. Generally, an index value greater than or equal to 1.0 means that the escapement goal or historical median escapement was achievedin approximately half or mor of the streams, Index values less than 1.0 mean that the escapement goal or historical median escapement was not achieved in over half the streams.

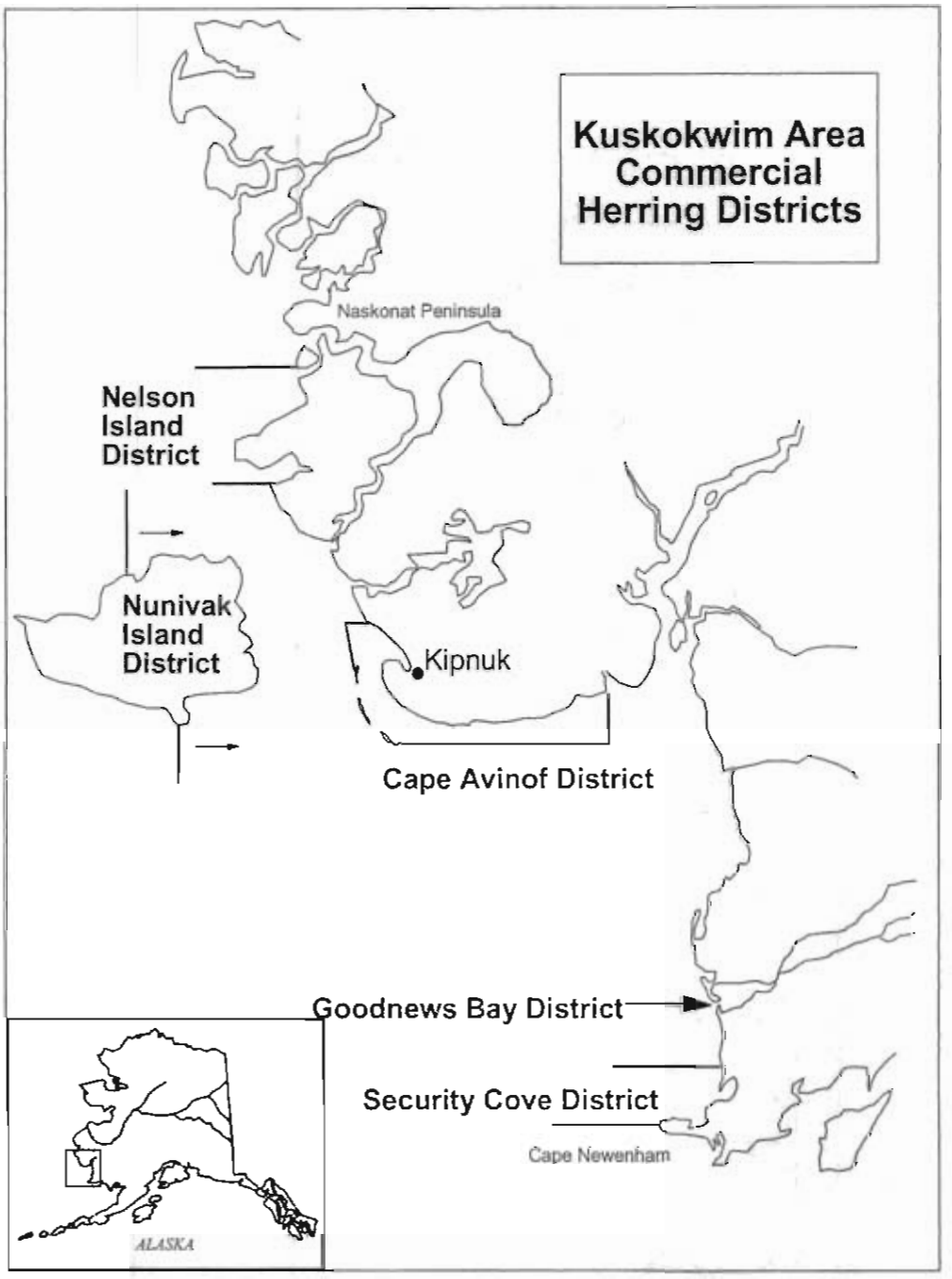
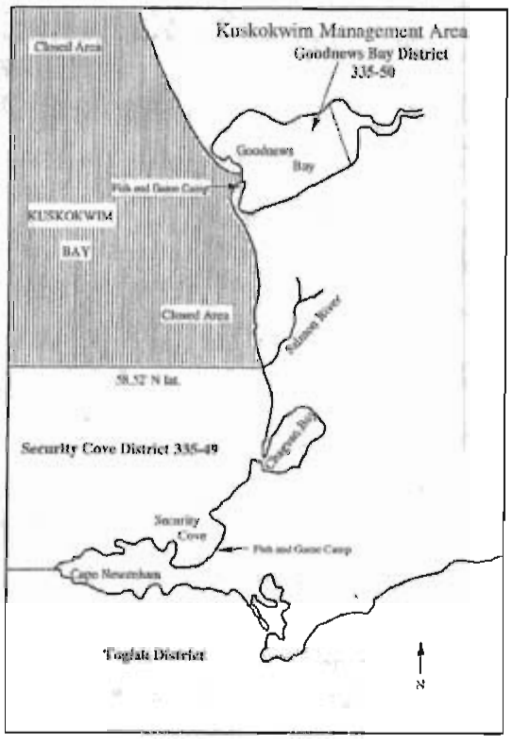


Figure 7. Commercial herring fishing districts in the Kuskokwim Area.



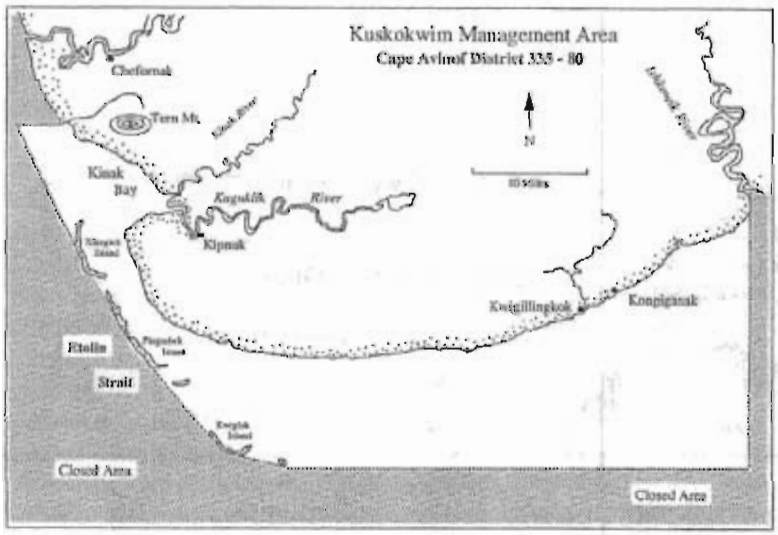


Figure 8. Security Cove, Goodnews Bay, and Cape Avinof commercial herring fishing districts.

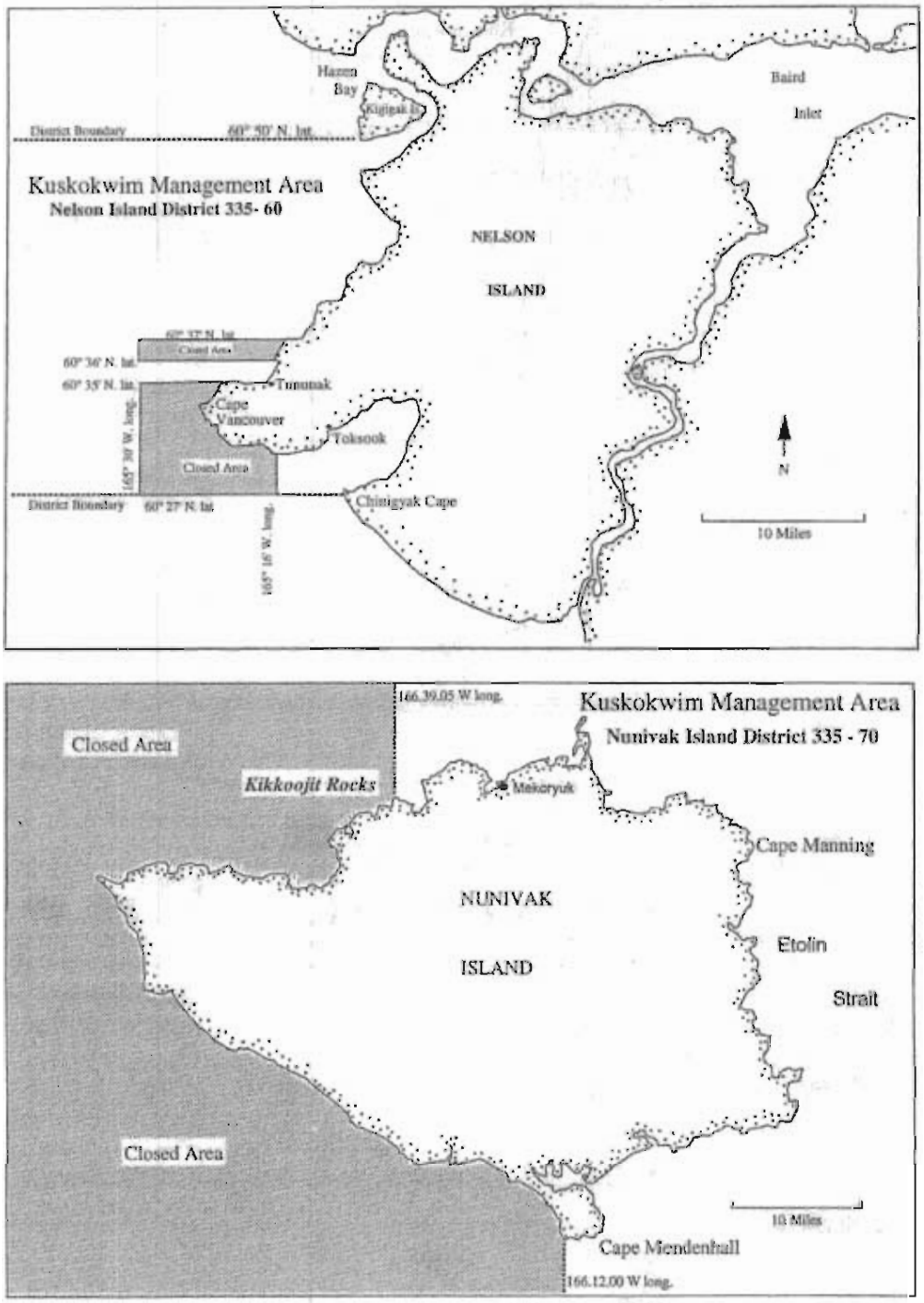


Figure 9. Nelson Island and Nunivak Island commercial herring fishing districts.

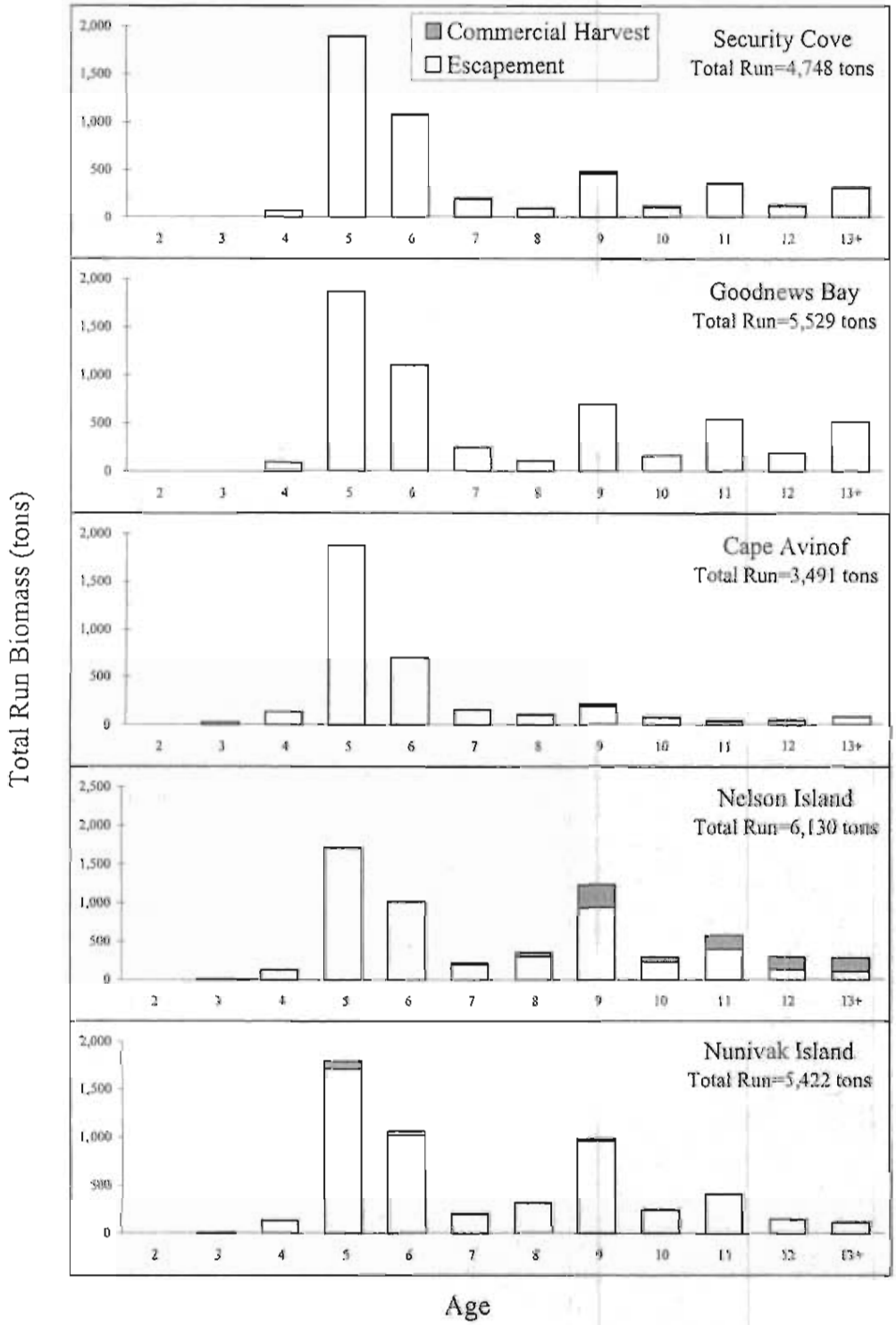


Figure 10. Age composition of Pacific herring in spawning populations and commercial harvest Kuskokwim Area, 2002.

APPENIDCES

APPENDIX A

Appendix A.1. Fish species commonly found in the Kuskokwim Area.

Species Code	Genus and Species[a]	Common Name[a]
110	*Gadus macrocephalus*	Pacific Cod
113	*Eleginus gracilis*	Saffron Cod
129	*Platichthys stellatus*	Starry Flounder
122	*Pleuronectes glacialis*	Arctic Flounder
127	*Pleuronectes aspera*	Yellowfin Sole
128	*Pleuronectes vetulus*	English Sole
162	*Cottus cognatus*	Slimy Sculpin
166	*Oligocottus maculosus*	Tidepool Sculpin
192	*Hexagrammos stelleri*	Whitespotted Greenling
200	*Hippoglossus stenolepis*	Pacific Halibut
230	*Clupea pallasi*	Pacific Herring
410	*Oncorhynchus tshawytscha*	Chinook Salmon
420	*Oncorhynchus nerka*	Sockeye Salmon
430	*Oncorhynchus kisutch*	Coho Salmon
440	*Oncorhynchus gorbuscha*	Pink Salmon
450	*Oncorhynchus keta*	Chum Salmon
500	*Esox lucius*	Northern Pike
513	*Osmerus mordax*	Rainbow Smelt
514	*Hypomesus olidus*	Pond Smelt
516	*Mallotus villosus*	Capelin
520	*Salvelinus alpinus*	Arctic Char
532	*Salvelinus malma*	Dolly Varden
541	*Oncorhynchus mykiss*	Rainbow Trout
550	*Salvelinus namaycush*	Lake Trout
570	*Stenodus leucichthys*	Inconnu
588	*Coregonus nasus*	Broad Whitefish
589	*Coregonus pidschian*	Humpback Whitefish
583	*Coregonus sardinella*	Least Cisco
584	*Coregonus autumnalis*	Arctic Cisco
586	*Prosopium cylindraceum*	Round Whitefish
590	*Lota lota*	Burbot
600	*Lampetra tridentata*	Pacific Lamprey
601	*Lampetra japonica*	Arctic Lamprey
610	*Thymallus arcticus*	Arctic Grayling
630	*Dallia pectoralis*	Alaska Blackfish
640	*Catostomus catostomus*	Longnose Sucker
660	*Gasterosteus aculeatus*	Threespine Stickleback
661	*Pungitius pungitius*	Ninespine Stickleback
670	*Percopsis omiscomaycus*	Trout Perch
NA	*Megalocottus platycephalus*	Belligerent Sculpin
NA	*Myoxocephalus quadricornis*	Fourhorn Sculpin

a Based on American Fisheries Society Special Publication No. 20, Common and Scientific Names of Fishes from the United States and Canada (Fifth Edition). Committee and Names of Fishes, Bethesda, Maryland, 1991.

Appendix A.2. Historical events, which have potential or actual, influence on the commercial salmon fisheries of the Kuskokwim Area.

YEAR	EVENT [a]
1913	• Commercial sale of salmon export first documented in the Kuskokwim Area.
1954	• Commercial chinook salmon quota established.
1959	• First chinook landing since quota established.
1960	• Kanektok Counting Tower (1960-1962) • Quinhagak District (W-4) commercial salmon fishery established. • Kuskokwim Area divided into four subdistricts; Lower Kuskokwim River (Subdistrict 1), Middle Kuskokwim River (Subdistrict 2), Upper Kuskokwim River (Subdistrict 3), Quinhagak (Subdistrict 4). District boundaries are not well recorded; in the Aniak area some commonly used drift sites overlap between District 2 and 3 which confused catch reporting. • Kuskokwim River Drainage Surveys, 1960.
1961	• ADF&G Kuskokwim River tagging study.
1962	• ADF&G Kuskokwim River tagging study. • Boundary between Subdistricts 2 and 3 changed; the new location was not recorded but the most likely location was Kolmakof River. The reason for the change was to move the boundary to a point which was between commonly used gillnet locations and thereby avoid confusion in catch reporting. As a result, there were no landings in Subdistrict 3.
1963	• ADF&G Kuskokwim River tagging study. • Boundaries of subdistrict documented; Subdistrict 1 extended from Kuskokuak to Mishevik Slough, Subdistrict 2 was from Mishevik Slough to Kolmakof River, Subdistrict 3 was upstream of Kolmakof River.
1965	• Kwegooyuk test fishery (1965-1984; no records available for 1965).
1966	• ADF&G Kuskokwim River tagging study. • Subdistrict 3 was deleted from the regulations due to a lack of landings.
1968	• Goodnews Bay District (W-5) commercial salmon fishery established.
1969	• District 4 tagging study (1969-1970) on chinook and chum salmon. • Kogrukluk River (aka. Holitna River, Ignatti) tower/weir (1969-present).
1970	• Effect of explosive detonation in ice on northern pike.
1971	• Commercial fishing time in the Kuskokwim River reduced from two 24-hour periods per week to two 12-hour periods per week. • Chum fishery begins in the Kuskokwim River; season was from 25 June to 31 July, location limited to waters downstream of Napakiak, mesh size restricted to 6 in. or smaller. • Fishing periods established by Emergency Order in August. • Gillnet mesh size in Districts 4 and 5 restricted to 6 inch or smaller.
1974	• Commercial sale of salmon roe from subsistence caught fish (1974-1977)
1976	• Commercial fishing time in the Kuskokwim River was reduced from two 12 hour periods per week to two 6 hour periods per week. • Eek River reconnaissance survey. • Study on genetic variants in chum and chinook salmon.

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Appendix A.2. (2 of 5)

YEAR	EVENT[a]
1977	• Fishing periods to be established by Emergency Order before 26 June and after 31 July. • Limited entry permits issued. • Subsistence fishing closed 24 hours before during and 6 hours after each commercial fishing period. • Hoholitna River reconnaissance survey
1978	• Kasigluk River reconnaissance survey. • Kwethluk River sonar project.
1979	• The portion of District 1 used during the chum salmon season was extended from Napakiak upstream to Bethel. • Kasigluk River sonar project. • High seas salmon fleet moved for west of 160° W. longitude to west of 180° W. longitude.
1980	• Subsistence fishing closed 24 hours before, during and 6 hours after each commercial fishing period. • Aniak River sonar project.
1981	• Pilot test fish and FanScan projects at Bethel. • Inventory of Kisaralik River and Lake. • Goodnews River counting tower (1981-1990). • Salmon River (Pitka Fork drainage) weir project (1981-1984). • Species identification program results in better differentiation of sockeye and chum salmon.
1982	• Kanektok River sonar project (1982-1986).
1983	• Pilot test fish project at Bethel using drift gillnets. • Provisional escapement goals established for many of the major spawning tributaries in the area. • Management strategy shifts from guideline harvest based to obtaining escapement objective.
1984	• Kwegooyuk test fishery replaced by the Bethel drift test fishery.
1985	• Commercial fishing restricted to mesh sizes less than or equal to 6 inches. • Chum season utilizes entire length of District 1.
1986	• *Migratory timing of coho salmon in the Kuskokwim Area, 1979-1984.* • Kuskokwim River salmon abundance estimate based on calibrated test fish CPUE. • Downstream boundary of District 1 extended to a line from Apokak Slough to Popokamiut.
1987	• Discontinued the directed commercial chinook salmon fishery in the Kuskokwim River. • Sale of chinook salmon limited to 14,000 in the Kuskokwim River June commercial fishery. • First fishing period restricted to that portion of District 1, which is downstream of Bethel, due to chinook conservation concerns. • Subsistence fishing in all of District 2 and its tributary streams is closed before, during and after commercial periods. • South peninsula sockeye and chum salmon tagging study.

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Appendix A.2. (3 of 5)

YEAR	EVENT[a]
1988	• Review of the estimation of Kuskokwim River annual salmon passage through expansion of the Bethel test fish CPUE. • Kuskokwim River sonar project (1988-1995). • Kuskokwim River subsistence test fisheries (1988-1990). • District 1 upstream boundary extended to Bogus Creek. • District 2 reduced in size; downstream boundary moved upstream to High Bluffs, the upstream boundary moved downstream to Chuathbaluk. • Portion of Kuskokwim River between Districts 1 and 2 closed to subsistence fishing when District 1 subsistence fishing is closed. • Reorganization of District 1 Statistical Areas. • District 4 Salmon Management Plan adopted. • Establishment of the Kuskokwim River Salmon Management Working Group (1988-present). • Eek Test Fishery (1988-1990, 1992-1995).
1989	• USFWS conducted genetic sampling throughout the Kuskokwim Area. • USFWS conducted chinook tagging study in the lower Kuskokwim River. • Record low temperatures recorded in interior Alaska coupled with shallow snow pack threaten survival of salmon eggs/fry from 1988 spawning.
1990	• ADF&G genetic sampling (1990 - 1996). • Reorganization of District 1 statistical areas. • Upstream boundary of District 1 moved downstream from Bogus Creek to Big (Nelson) Island. • Downstream boundary of District 2 moved upstream to second slough below Kalskag. • District 4 northern boundary is extended north to Weelung Creek.
1991	• USFWS operates Tuluksak River weir (1991-1994). • Weir replaces counting tower on Goodnews River (1991-present).
1992	• Aniak and Chuathbaluk test fisheries (1992-1995). • Eek test fishery is re-established for the coho season. • USFWS operates Kwethluk River weir (1992) • Ban on high-seas drift gillnet fishing imposed. • Unusual proportion of returning 5-year-old chum salmon had reduced growth between the second third annuli. • Failure of age 4 chum salmon in the Kuskokwim River; Aniak drainage especially hard hit; attributed to cold winter of 1988-89.
1993	• Failure of age 4 and 5 chum salmon in the Kuskokwim River, Yukon River, and the Norton Sound/Kotzebue Area; cause unknown; especially hard hit were the Aniak drainage and the Yukon fall chum; commercial fishing severely restricted, chum sport fishery was closed, and the subsistence salmon fishery was restricted and closed for a period of time (first time ever).
1994	• Working Group commissioned and Dr. Mundy started "Recommendations for Strengthening the Cooperative Management Process of the Kuskokwim River Salmon Management Working Group". • Upstream boundary of District 1 moved upstream to Bogus Creek.
1995	• BSFA operates a chum salmon radio telemetry project on the Kuskokwim River. • Takotna Community School and ADF&G operate a salmon counting tower on the Takotna River (1995-1998). • AVCP and BSFA operate the Lower Kuskokwim test fishery in cooperation with ADF&G; the project is a modification of the Eek test fishery.

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Appendix A.2. (4 of 5)

YEAR	EVENT[a]
1996	• ADF&G genetic sampling for late spawning chum salmon and one mixed stock sample from District 1. • Near record low water levels during June and early August coupled with record high water temperatures. • Irregular fishing schedule in District 1 during June and July due to limited market interest for chum salmon. • Record early coho run coupled with record high harvest and escapement at Kogrukluk River. • AVCP and ADF&G operate a salmon counting tower on the Kwethluk River (1996–1999). • KNA and ADF&G operate a salmon weir on the George River (1996-present). • Aniak River sonar is relocated to allow for full channel ensoniffication and configurable sonar technology is employed (1996-present). • Native Village of Kwinhagak (NVK) begins development of a salmon counting tower on the Kanektok River.
1997	• Kuskokwim River declared an economic disaster area due to very low chum and coho salmon returns, harvests and exvessel prices. Northern boundary of District 4 moved 3 miles south from July 14 to July 28. Record low chum salmon escapement at Kogrukluk River weir. • Second summer of record low water levels in the Kuskokwim River basin during the summer and fall coupled with record high water temperatures. • Anomalous Bering Sea conditions: warm water, odd plankton blooms, sea bird die offs, etc. • Aniak chum salmon return vastly exceeded expectations based on 1992-1993 spawning abundance estimates. • Due to an extremely low return of chum salmon, ADF&G, AVCP, KNA, KRSMWG, ONC, TCC and McGrath Native Village Council issue a joint appeal for subsistence users to conserve chum salmon. Record low subsistence harvest of chum salmon in the Kuskokwim Area. • Aniak processor does not operate due to depressed salmon market (1997-present) • Sale of salmon roe is prohibited in Districts 1 and 2 (effective beginning December 1997). • Middle Fork Goodnews River weir converted from fixed-panel to a resistance board "floating weir" and operated through majority of coho run for first time (1997-present). • NVK and ADF&G operate a salmon counting tower on the Kanektok River (1997-1998).
1998	• Kuskokwim River declared an economic disaster area for second straight year due to low chum and coho salmon returns, harvests and exvessel prices. • KNA and ADF&G operate a salmon weir on the Tatlawiksuk River (1998-present). • Second year of anomalous Bering Sea conditions: warm water, odd plankton blooms, sea bird die offs, etc. • High water levels severely restrict operational period of many Kuskokwim Area escapement projects. • Record low average water temperature measured at the Bethel test fish site.
1999	• Kuskokwim River experiences extremely low chinook, chum and coho salmon returns, harvests and exvessel prices for third consecutive year. All species have very late run timing. Kuskokwim Bay coho returns and harvests extremely low. • Federal government assumes control of subsistence fishery management in federal waters on October 1. • KNA-operated salmon weirs on the Tatlawiksuk and George Rivers converted to resistance board (floating) weirs and operations extended through coho run. • Kuskokwim River sonar project begins redevelopment using split-beam sonar and is relocated to a new site one mile above upstream end of Church Slough.

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Appendix A.2. (5 of 5)

YEAR	EVENT[a]
2000	• Kuskokwim River declared an economic disaster area due to extremely low chum salmon return, harvest and exvessel price. Chinook salmon returns are very low for second consecutive year. Many subsistence fishers report that they were unable to meet their chinook and chum salmon harvest goals. • Due to an extremely low return of chinook salmon, ADF&G, AVCP, KNA, KRSMWG, Kwethluk IRA, TCC, McGrath Native Village Council and USF&WS issue a joint appeal for subsistence users to conserve chinook salmon. • ADF&G and Federal Office of Subsistence Management (FOSM) restrict subsistence chinook salmon fishery. • Takotna Community Schools and ADF&G operate a resistance board weir on the Takotna River (2000-present) • Kwethluk IRA and USF&WS operate a resistance board weir on the Kwethluk River (2000-present) • District W-1 divided into Subdistricts W-1A (above Bethel) and W-1B (below Bethel) and fishers are required to register to fish in only one subdistrict. Due to limited processing capacity, only one subdistrict is opened at a time to reduce harvest. • Commercial fishers required to identify vessels with either ADFG or CFEC permit number. • ADF&G Sport Fish Division creates Lower Yukon-Kuskokwim Management Area and stations Area Management Biologist in Bethel. • Line attached to a pole (rod and reel) added to legal gear for subsistence fishing in AVCP area.
2001	• Alaska Board of Fisheries designates Kuskokwim River chinook and chum salmon to be stocks of concern based on the Sustainable Fisheries Policy because of poor runs since 1997. • Subsistence fishing schedule implemented in the Kuskokwim River during June and July to conserve chinook and chum salmon and provide for adequate fishing opportunity throughout the drainage. • Kuskokwim River declared an economic disaster area due to low chum salmon return, harvest and exvessel price. No commercial fishing periods in Kuskokwim River in June and July. Chinook salmon returns are below average in size. • Due to an extremely low return of chinook salmon, ADF&G, AVCP, KNA, KRSMWG, Kwethluk IRA, McGrath Native Village Council, ONC, and USF&WS issue a joint appeal for subsistence users to conserve chinook and chum salmon. • Native Community of Tuluksak and USF&WS operate a resistance board weir on the Tuluksak River. • NVK and ADF&G operate a salmon counting weir on the Kanektok River. ADF&G/CF and KNA operate fish wheels at Kalskag and Birch Tree Crossing to tag salmon and then make salmon population estimate.
2002	• The State of Alaska declared the Kuskokwim region a disaster area for the fifth year in six because of low salmon prices in the bay and river and a complete lack of buyers during the chum season on the river. ADF&G did not join FWS and Native groups in issuing a pre-season appeal for subsistence users to conserve chinook and chum salmon because such a request is allocative in nature and only the BOF makes allocation decisions. In June the Federal Subsistence Board adopted a special regulatory action that tied the time allowed for sport fishing to the time allowed for subsistence net and fish wheel fishing in federal waters in the Kuskokwim River drainage. Upon a request for reconsideration by ADF&G, the Federal Subsistence Board rescinded its decision. The reason for the rescission was that under ANILCA, sport fishing on federal waters is managed by ADF&G unless there are overriding conservation or subsistence concerns. In this instance there were no overriding conservation or subsistence concerns. A subsistence fishing schedule was implemented in the Kuskokwim River during June to conserve chinook and chum salmon and to provide adequate subsistence fishing opportunity throughout the drainage. However, because an average chinook run and an above average chum run developed, the subsistence schedule was lifted on June 28. The Kuskokwim River Fisheries Co-op dissolved. ACR #28 was accepted by BOF so that the formation of a Chignik-style salmon fishing cooperative on the Kuskokwim River could be considered. ADF&G/SF and KNA operated salmon radio telemetry projects on the Kuskokwim main stem and on the Holitna River to estimate salmon abundance.

[a] For additional information on specific topics refer to the Region III Report Catalog or historical Area Management Reports for the Kuskokwim Area.

Appendix A.3. Kuskokwim Area escapement index objectives for chinook, sockeye, coho and chum salmon.

		Escapement Objectives[a]			
		Chinook	Sockeye	Coho	Chum
	KUSKOKWIM RIVER:				
1.	Kwethluk River				
	a. 3-step Mt. to Canyon Cr.	1.0	-	-	-
	b. Canyon Creek	0.2	-	-	-
2.	Kisaralik River				
	a. Airstrip to Kisaralik L.	1.0	-	-	-
3.	Aniak River				
	a. Buckstock R. to Aniak L.	1.5	-	-	10.0
	b. Salmon River	0.6	-	-	-
	c. Aniak Sonar Project[b]	-	-	-	250.0
5.	Holitna River				
	a. Nogamut to Kashegelok	2.0	-	-	12.0
	b. Kogrukluk Weir[c]	10.0	-	25.0	30.0
6.	Salmon River (Pitka Fork)	1.3	-	-	-
	KUSKOKWIM BAY:				
1.	Kanektok River to Kagati Lake	5.8	15.0	25.0	30.5
2.	Goodnews River System				
	a. Main Fork and lakes	1.6	15.0	15.0	17.0
	b. Middle Fork and lakes	0.8	5.0	2.0	4.0
	c. Middle Fork Weir[c]	3.5	25.0	-	15.0

a Escapement objectives in thousands of fish are preliminary and are subject to change as additional data becomes available. Unless otherwise indicated, escapement objectives are based on aerial index counts which do not represent total escapement, but do reflect annual spawner abundance trends when made using standard survey methods under acceptable survey conditions.

b Sonar total escapement estimates.

c Weir total escapement estimates.

Appendix A.4. Kuskokwim Area commercial, subsistence and personal use salmon catches, 1913-2002.

	Commercial Harvest						Subsistence Harvest				Total
Year	Chinook	Sockeye	Chum	Pink	Coho	Subtotal	Chinook	Other[1]	Coho[2]	Subtotal	Harvest
1913	7,800					7,800					7,800
1914		2,667				2,667					2,667
1915											0
1916	949					949					949
1917	7,878					7,878					7,878
1918	3,055					3,055					3,055
1919	4,836					4,836					4,836
1920	34,853					34,853					34,853
1921	9,854					9,854					9,854
1922	8,944	6,120				15,064				180,000	195,064
1923	7,254					7,254					7,254
1924	19,253	900		7,167	7,167	34,487	17,700	203,148		220,848	255,335
1925	1,644	5,800				7,444	10,800	230,850		241,650	249,094
1926										738,576	738,576
1927										286,254	286,254
1928										481,090	481,090
1929										560,196	560,196
1930	7,626	2,448				10,074				538,650	548,724
1931	8,541					8,541				389,367	397,908
1932	9,339					9,339				746,415	755,754
1933							6,290	443,998		450,288	450,288
1934							20,800	597,132		617,932	617,932
1935	6,448				8,296	14,744	22,930	554,040		576,970	591,714
1936	624					624	33,500	549,423		582,923	583,547
1937	480					480		537,111		537,111	537,591
1938	624				828	1,452	10,153	400,242		410,395	411,847
1939	134					134	14,000	125,425		139,425	139,559
1940	247				500	747	8,000	415,523		423,523	424,270
1941	187				674	861	8,000	415,523		423,523	424,384
1942							6,400	325,339		331,739	331,739

- continued -

Appendix A.4. (2 of 3)

	Commercial Harvest						Subsistence Harvest				Total
Year	Chinook	Sockeye	Chum	Pink	Coho	Subtotal	Chinook	Other[a]	Coho[b]	Subtotal	Harvest
1943							6,400	325,339		331,739	331,739
1944											
1945											0
1946	2,288				674	2,962					2,962
1947	5,356					5,356					5,356
1948											0
1949											0
1950											0
1951	4,210					4,210					4,210
1952											0
1953											0
1954	57					57					57
1955											0
1956											0
1957											0
1958											0
1959	3,760					3,760					3,760
1960	5,969	5,649	0	0	5,498	17,116	18,887	301,753		320,640	337,756
1961	23,246	2,308	18,864	90	5,090	49,598	28,934	179,529		208,463	258,061
1962	20,867	10,313	45,707	4,340	12,432	93,659	13,582	175,304	161,849	350,735	444,394
1963	18,571	0	0	0	15,660	34,231	34,482	170,829	137,649	342,960	377,191
1964	21,230	13,422	707	939	28,992	65,290	29,017	219,208	190,191	438,416	503,706
1965	24,965	1,886	4,242	0	12,191	43,284	24,697	250,878		275,575	318,859
1966	25,823	1,030	2,610	268	22,985	52,716	49,325	175,735		225,060	277,776
1967	29,986	652	8,235	0	58,239	97,112	61,262	214,468		275,730	372,842
1968	43,157	5,884	19,684	75,818	154,275	298,818	35,698	278,008		313,706	612,524
1969	64,777	10,362	50,377	1,251	110,473	237,240	40,617	204,105		244,722	481,962
1970	64,722	12,654	60,566	27,422	62,245	227,609	69,612	246,810	11,868	328,290	555,899
1971	44,936	6,054	99,423	13	10,006	160,432	43,013	116,391	6,899	166,303	326,735
1972	55,598	4,312	97,197	1,952	23,880	182,939	38,176	120,316	1,325	159,817	342,756
1973	51,374	5,224	184,207	634	152,408	393,847	38,451	179,259	23,746	241,456	635,303
1974	30,670	29,003	196,127	60,099	179,579	495,478	26,665	277,170	32,780	336,615	832,093

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Appendix A.4. (3 of 3)

Year	Commercial Harvest						Subsistence Harvest						Total
	Chinook	Sockeye	Chum	Pink	Coho	Subtotal	Chinook		Other[a]		Coho[b]	Subtotal	Harvest
1975	28,219	17,686	225,308	910	112,751	384,874	47,569		176,389			223,958	608,832
1976	49,262	14,636	231,877	39,998	112,130	447,903	58,055		223,792		4,312	286,159	734,062
1977	58,256	18,621	298,959	434	263,727	639,997	58,158		203,397		12,193	273,748	913,745
1978	63,194	13,734	282,044	61,968	247,271	668,211	38,145		125,052		12,437	175,634	843,845
1979	53,314	39,463	297,167	574	308,683	699,201	57,053		163,451			220,504	919,705
1980	48,599	42,213	561,483	30,306	327,908	1,010,509	62,047		168,987		47,335	278,369	1,288,878
1981	79,377	105,940	485,653	463	278,541	949,974	64,274		163,554		28,301	256,129	1,206,103
1982	79,816	97,716	326,481	18,259	567,452	1,089,724	61,141		195,691		45,181	302,013	1,391,737
1983	93,676	90,834	306,554	379	248,389	739,832	51,020		149,172		2,834	203,026	942,858
1984	74,016	81,304	488,480	23,902	826,774	1,494,476	60,668		144,651		15,016	220,335	1,714,811
							Chinook	Sockeye	Chum	Pink	Coho		
1985	74,083	121,221	224,680	111	382,096	802,191	45,720	33,632	95,999	1,062	24,524	200,937	1,003,128
1986	44,972	142,029	349,268	16,569	736,910	1,289,748	54,256	20,239	142,930[c]		29,742	247,167	1,536,915
1987	65,558	170,849	603,274	163	478,594	1,318,438	71,804	25,180	70,709	291	18,085	186,069	1,504,507
1988[de]	74,563	149,949	1,443,953	37,592	623,733	2,329,790	75,107	33,102	153,980		43,866	306,055	2,635,845
1989[d]	66,914	82,365	801,355	819	554,411	1,505,864	85,322	37,088	145,106		57,847	325,363	1,831,227
1990	84,451	203,919	521,023	16,050	443,783	1,269,226	92,678	39,662	131,469		50,713	314,522	1,583,748
1991	48,170	202,441	502,187	522	556,818	1,310,138	90,224	56,404	96,308		55,581	298,517	1,608,655
1992	67,597	192,341	436,506	85,978	772,449	1,554,871	68,665	34,159	99,576		44,496	246,896	1,801,767
1993	26,636	167,235	94,937	71	686,570	975,449	91,721	51,363	61,726		35,295	240,105	1,215,554
1994	27,345	191,169	360,893	84,870	856,100	1,520,377	98,378	39,279	76,951		36,504	251,112	1,771,489
1995	72,352	198,045	707,212	318	555,539	1,533,466	100,159	28,622	68,942		39,165	236,888	1,770,354
1996	22,959	122,260	301,975	1,663	1,099,865	1,548,722	81,598	35,036	90,238		34,698	241,570	1,790,292
1997	47,990	123,002	67,200	7	166,648	404,847	85,506	41,270	40,976		30,714	198,466	603,313
1998	44,402	130,074	268,199	2,720	312,517	757,912	86,115	37,578	67,665		27,240	218,598	976,510
1999	25,019	81,201	72,659	2	32,251	211,132	77,659	49,388	47,612		27,754	202,413	413,545
2000	26,115	109,939	49,574	17	307,439	493,084	68,841	44,832	55,371		35,670	204,714	697,798
2001	14,384	59,545	21,893	0	220,804	316,626	77,570	51,965	51,117		31,686	212,338	528,964
2002	12,531	24,190	34,951	0	113,199	184,871							
10-Year Average 1992-2001	37,480	137,481	238,105	17,525[f]	501,018	931,649	83,621	41,349	66,017		34,322	225,309	1,156,958

[a] Primarily chum and coho salmon.
[b] Reported subsistence coho salmon harvest only. Coho salmon subsistence harvest is poorly documented with no Kuskokwim River estimates attempted prior to 1988.
[c] Includes sockeye, pink and chum salmon.
[d] The personal use catch is included with the subsistence catch.
[e] Beginning in 1988, estimates are based on a new formula therefore data since 1988 is not comparable with previous years.
[f] Even years only.

Appendix A.5. Commercial fishing effort in Permit-Hoursa for the Kuskokwim Area, 1960-2002.

Year	District W-1	District W-2	District W-3	District W-4	District W-5	Total
1960	5,136	960	648	4,368	Closed	11,112
1961	16,200	1,512	1,512	4,992	Closed	24,216
1962	14,274		0	8,434	Closed	22,708
1963	5,712	1,722	0	5,520	Closed	12,954
1964	6,468	1,140	0		Closed	7,608
1965	13,500	546	0	3,696	Closed	17,742
1966	18,270		Closed		Closed	18,270
1967	88,248	1,932		3,954	Closed	94,134
1968	77,466	720		7,986	4,704	90,876
1969	67,140	1,488		29,952	14,055	112,635
1970	56,646	3,414		22,080	9,756	91,896
1971	18,060	1,842		24,987	7,476	52,365
1972	47,802	1,722		7,060	1,452	58,036
1973	77,478	3,072		18,372	2,928	101,850
1974	124,569	4,950		18,984	8,148	156,651
1975	181,786	3,648		12,312	5,400	203,146
1976	82,788	3,894		14,784	4,848	106,314
1977	73,944	3,426		17,592	3,780	98,742
1978	71,856	498		14,952	3,672	90,978
1979	49,608	984		27,096	8,220	85,908
1980	35,370	714		21,636	9,504	67,224
1981	45,096	1,248		25,656	11,256	83,256
1982	46,200	1,128		22,632	14,556	84,516
1983	45,102	708		20,478	9,456	75,744
1984	62,643	1,050		31,488	14,004	109,185
1985	37,452	462		22,260	8,544	68,718
1986	46,944	606		25,740	10,572	83,862
1987	60,525	576		21,222	10,332	92,655
1988	81,724	912		27,276	13,764	123,676
1989	66,990	846		25,992	12,552	106,380
1990	51,236	1,051		44,520	10,548	107,355
1991	64,806	1,548		29,160	11,532	107,046
1992	54,488	1,164		35,280	15,180	106,112
1993	39,210	774		36,000	13,116	89,100
1994	53,808	758		26,580	16,188	97,334
1995	42,784	602		34,680	14,844	92,910
1996	37,015	132		18,880	6,518	62,545
1997	13,662	30		28,848	5,832	48,372
1998	28,212	18		23,712	7,896	59,838
1999	4,788	0		16,488	5,424	26,700
2000	13,936	36		21,852	5,808	41,632
2001	10,028	0		10,689	2,700	23,417
2002	3,756	0		12,210	1,632	17,598
Ten Year Average (1992-2001)	29,793	351		25,301	9,351	64,796

a Number of permits that made deliveries times the number of hours in the period.

Appendix A.6. Estimated ex-vessel value of the Kuskokwim Area commercial salmon fishery, 1964-2002.

Year	Gross Value ($) of Catch to Fishermen	Permits Fished[a]	Average Income
1964	83,030		
1965	90,950		
1966	87,466		
1967	138,647		
1968	290,370		
1969	297,233		
1970	362,470		
1971	371,220		
1972	360,727		
1973	827,735		
1974	1,056,042		
1975	899,178		
1976	1,380,229		
1977	3,891,950		
1978	2,337,470		
1979	3,678,000		
1980	2,725,134		
1981	3,766,525		
1982	4,213,954		
1983	2,670,400		
1984	5,809,000	774	7,505
1985	3,248,089	781	4,159
1986	4,746,089	789	6,015
1987	6,392,822	798	8,011
1988	12,514,489	811	15,431
1989	5,171,860	824	6,277
1990	4,894,580	824	5,940
1991	3,971,423	820	4,843
1992	5,295,912	814	6,506
1993	3,962,890	807	4,911
1994	5,201,611	797	6,526
1995	4,209,752	829	5,078
1996	2,900,603	713	4,068
1997	1,058,808	702	1,508
1998	1,634,495	707	2,312
1999	551,725	604	913
2000	1,197,149	623	1,922
2001	749,916	514	1,459
2002	322,679	407	793
Ten year Average (1992-2001)	2,676,286	711	3,520

a Number of permits that made at least one delivery

Appendix A.7. Historical salmon escapement date from selected Kuskokwim Area projects, 1976-2002.

Year	Operating Period [a]	Chinook	Sockeye	Chum	Pink	Coho
Kogrukluk River Tower [b]						
1969	07/01 to 07/31	2,980	269	6,824	9	0 [c]
1970	07/01 to 07/31	3,868	1,695	7,726	7	0 [c]
1971	07/01 to 07/31	[c]	[c]	[c]	[c]	[c]
1972	07/01 to 07/31	1,934	714	8,981	4	0 [c]
1973	07/01 to 07/31	1,725	205	5,318	0	0 [c]
1974	07/01 to 07/31	3,724	290	4,881	5	0 [c]
1975	07/01 to 07/31	1,970	2,305	8,290	3	0 [c]
1976	07/01 to 07/31	3,261	4,433	9,170	4	0 [c]
1977	07/01 to 07/31	1,988	2,140	5,047	10	0 [c]
1978	07/01 to 07/31	6,712	746	16,514	9	0 [c]
Kogrukluk River Weir						
Escapement Goal:		**10,000**		**30,000**		**25,000**
1976	06/29 to 07/31	5,579	2,326	8,117	0 [c]	[c]
1977	07/14 to 07/27	1,385 [e]	1,637 [e]	19,443 [e]	2 [e]	[e]
1978	06/28 to 07/31	13,667	1,670	48,125	2 [e]	[e]
1979	07/01 to 07/24	11,338 [d]	2,628	18,198 [e]	1 [e]	[e]
1980	07/01 to 07/11	6,572 [e]	3,200 [e]	41,777 [e]	1 [e]	[e]
1981	06/27 to 10/05	16,655	18,066	57,365	6 [e]	11,455
1982	07/09 to 09/14	10,993 [e]	17,297 [e]	64,063 [e]	19 [e]	37,796
1983	06/23 to 09/27	3,009 [e]	1,176 [e]	9,407 [e]	0 [e]	8,538
1984	06/19 to 09/15	4,928	4,133	41,484	0 [e]	27,595
1985	07/06 to 09/24	4,619	4,359	15,005	0 [e]	16,441 [d]
1986	06/29 to 09/07	5,038 [e]	4,244 [e]	14,693 [d]	0 [e]	22,506 [e]
1987	07/15 to 09/24	4,063 [e]	973 [e]	17,422 [e]	0 [e]	22,821 [d]
1988	07/05 to 09/17	8,505	4,397	39,540 [e]	0 [e]	13,512 [d]
1989	07/07 to 08/24	11,940 [e]	5,811 [e]	39,549 [e]	0 [e]	1,272 [e]
1990	06/28 to 09/07	10,218	8,406	26,765	1 [e]	6,132 [e]
1991	07/04 to 09/15	7,850 [e]	16,455 [d]	24,188 [d]	4 [e]	9,964 [e]
1992	07/01 to 08/21	6,755	7,540	34,105	11 [e]	26,057 [e]
1993	07/02 to 09/06	12,332 [d]	29,358	31,899 [d]	0 [e]	20,517 [e]
1994	07/02 to 09/14	15,227 [e]	14,192 [e]	46,635 [e]	23 [e]	34,695 [e]
1995	07/02 to 09/06	20,630	10,996	31,265	2 [e]	27,861 [e]
1996	06/29 to 09/15	14,199	15,385	48,495	6 [e]	50,555
1997	06/28 to 09/21	13,286	13,078	7,958	0 [e]	12,237
1998	07/18 to 09/19	12,107 [e]	16,773 [e]	36,442 [e]	1 [e]	24,348
1999	07/06 to 09/18	5,570	5,864	13,820	0 [e]	12,609 [d]
2000	07/02 to 09/20	3,310	2,867	11,491	2 [e]	33,135
2001	06/21 to 09/25	9,298 [e]	8,773 [e]	30,569 [e]	9 [e]	19,387 [e]
2002	06/26 to 09/24	10,104	4,050	51,570	15 [e]	14,516
Aniak River Sonar [f]						
Escapement Goal:				**250,000**		
Non user-configurable, one-bank expanded estimates						
1980	06/22 to 07/30	56,469		1,169,470		
	08/16 to 09/12					81,556
1981	06/16 to 08/06	42,060		589,286		
1982	06/21 to 08/01	33,864		442,461		
1983	06/18 to 07/28	4,911		129,367		

- continued -

Appendix A.7. (2 of 4)

Year	Operating Period [a]	Chinook	Sockeye	Chum	Pink	Coho
1984	06/16 to 07/30			266,976		
1985	06/22 to 07/28			253,051		
1986	06/26 to 07/24			209,080 [c]		
1987	06/22 to 07/31			193,013		
1988	06/22 to 07/31			401,511		
1989	06/21 to 07/24			243,922 [c]		
1990	06/23 to 08/06			232,260		
1991	06/29 to 07/29			314,166 [c]		
1992	06/22 to 07/29			84,269		
1993	06/24 to 07/28			13,870		
1994	06/28 to 07/28			388,163 [c]		
1995	06/23 to 07/23			n.a. [c]		
User-configurable, two-bank estimates						
1996	06/21 to 07/28			302,106		
1997	06/16 to 08/03			262,522		
1998	06/24 to 07/31			279,431		
1999	06/30 to 08/03			178,129 [c]		
2000	06/26 to 07/31			144,157		
2001	07/11 to 07/31			222,231 [c]		
2002	06/26 to 07/31			362,075		
Kwethluk River						
Weir						
1992	06/20 to 09/12	9,675	1,316	30,595	45,952	45,605
Counting Tower						
1996	06/21 to 07/27	7,415	1,801 [c]	26,049 [c]	2,853 [c]	189 [c]
1997	06/20 to 08/12	10,395	1,374	10,659	1,008 [c]	1,110 [c]
1998	07/24 to 08/18	120 [c]	120 [c]	720 [c]	4,398 [c]	2,367 [c]
1999	07/15 to 08/18	873 [c]	234 [c]	702 [c]	678 [c]	693 [c]
Weir						
2000	06/22 to 09/15	3,547	358	11,691	1,407	25,610
2001	08/08 to 09/14	69 [c]	32 [c]	324 [c]	634 [c]	22,904 [c]
2002	06/22 to 09/19	8,502	272	35,854	1,415	23,298
Tuluksak River Weir						
1991	06/12 to 09/18	697	34	7,675	392	4,651
1992	06/24 to 09/10	1,083	129	11,183	2,470	7,501
1993	06/17 to 09/10	2,218	88	13,804	210	8,328
1994	06/29 to 09/11	2,917	82	15,724	3,487	7,952 [c]
2001	06/29 to 09/10	997 [c]	137	19,321	48	23,768 [c]
2002	06/10 to 09/10	1,346	82	9,958	27	11,487
George River Weir						
1996	06/15 to 09/20	7,716 [d]	98 [d]	21,670 [d]	644 [c]	173 [c]
1997	06/15 to 09/20	7,823	445	5,907	17	9,210
1998	06/22 to 08/02	2,505 [c]	9 [c]	6,391 [c]	4 [c]	52 [c]
1999	06/15 to 09/20	3,548 [c]	39 [c]	11,552 [c]	97 [c]	8,914
2000	06/15 to 09/20	2,960	22	3,492	61	11,262
2001	06/15 to 09/20	3,309	24	11,601	83	14,398 [c]
2002	06/15 to 09/20	2,444	17	6,543	630	6,759

- continued -

Appendix A.7. (3 of 4)

Year	Operating Period [a]	Chinook	Sockeye	Chum	Pink	Coho
Holitna River Radiotelmetry Mark-Recapture						
2001	06/16 to 09/10	25,405		n.a.		63,442
2002		n.a.		n.a.		n.a.
Tatlawiksuk River Weir						
1998	06/15 to 07/07	970 [c]	0 [c]	5,726 [c]	0 [c]	0 [c]
1999	06/15 to 09/20	1,490	6	9,599	1	3,455 [d]
2000	06/15 to 09/20	817	0	7,044	0	5,756 [c]
2001	06/15 to 09/20	2,010	3	23,718	3 [c]	10,539 [c]
2002	06/15 to 09/20	2,237	1	24,542	1	11,345
Takotna River						
Counting Tower						
1995	07/07 to 09/01	156 [c]	0 [c]	1,685 [c]	0 [c]	0 [c]
1996	06/24 to 07/25	402 [c]	0 [c]	2,794 [c]	0 [c]	0 [c]
1997	06/24 to 08/04	1,161	0 [c]	1,779	0 [c]	0 [c]
1998	06/28 to 07/05	21 [c]	0 [c]	45 [c]	0 [c]	0 [c]
1999	Not Operational					
Weir						
2000	06/24 to 09/20	345	4	1,254	0	3,957
2001	06/24 to 09/20	721	1	5,479	0	2,606
2002	06/24 to 09/20	316	1	4,366	1	3,984
South Fork Salmon River (Pitka Fork) Weir						
1981	06/24 to 07/31	1,507	0	8 [c]	0	0
1982	07/09 to 07/30	511 [c]	0	39 [c]	0	0
Kuskokwim River Fish Wheel Mark-Recapture (at Kalskag-Birch Tree Crossing)[f]						
2001	07/22 to 09/10					n.a. [c]
2002			n.a.	n.a.		n.a.
Kuskokwim River Radiotelemetry Mark-Recapture (at Kalskag-Birch Tree Crossing)[f]						
2002		n.a.				
Middle Fork Goodnews River						
Escapement Goal:		**3,500**	**25,000**	**15,000**		
Counting Tower						
1981	06/13 to 08/15	3,688	49,108	21,827	1,327 [c]	356 [c]
1982	06/23 to 08/03	1,395	56,255	6,767	13,855 [c]	91 [c]
1983	06/11 to 07/28	6,022	25,813	15,548	34 [c]	0 [c]
1984	06/15 to 07/31	3,260	32,053	19,003	13,744 [c]	249 [c]
1985	06/27 to 07/31	2,831	24,131	10,367	144 [c]	282 [c]
1986	06/16 to 07/24	2,092	51,069	14,764	8,133 [c]	163 [c]
1987	*06/22 to 07/30*	*2,272*	*28,871*	*17,517*	62 [c]	62 [c]
1988	06/23 to 07/30	2,712	15,799	20,799	6,781 [c]	6 [c]
1989	06/29 to 07/31	1,915	21,186	10,380	24b [c]	1,212 [c]
1990	06/19 to 07/24	3,636	31,679	6,410	3,378 [c]	0 [c]

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Appendix A.7. (4 of 4)

Year	Operating Period [a]	Chinook	Sockeye	Chum	Pink	Coho
Weir						
1991	06/29 to 08/24	1,952	47,397	27,525	1,694 [e]	1,978 [e]
1992	06/29 to 08/25	1,903	27,268	22,023	23,030 [e]	150 [e]
1993	06/22 to 08/18	2,317	26,044	14,472	253 [e]	1,374 [e]
1994	06/23 to 08/08	3,856	55,751	34,849	38,705 [e]	309 [e]
1995	06/19 to 08/28	4,836	39,009	33,699	330 [e]	5,415 [e]
1996	06/19 to 08/23	2,930	58,264	40,450	14,509 [e]	9,699 [e]
1997	06/11 to 09/17	2,937	35,530	17,296	940	9,619
1998	07/04 to 09/13	4,584	47,951	28,905	10,367	35,441
1999	06/26 to 09/26	3,221	48,205	19,533	914	11,545
2000	07/02 to 09/22	3,295	42,197	14,720	2,530	19,676
2001	06/26 to 09/30	5,398	22,487	26,829	1,323	19,630
2002	06/25 to 09/18	3,076	22,019	30,233	1,328	27,364
Kanektok River						
Counting Tower						
1996	7/2-7/13; 7/20-7/25	6,827 [e]	71,637 [e]	70,617 [e]		
1997	06/11 to 08/21	16,731	96,348	51,180	7,872 [e]	23,172 [e]
1998	07/23 to 08/17	[c]	[c]	[c]	[c]	[c]
1999	Not Operational					
2000	Not Operational					
Weir						
2001	08/10 to 10/03	132 [c]	733 [c]	1,058 [c]	21 [e]	36,440
2002	07/01 to 09/20	5,343 [c]	58,367 [c]	42,014 [c]	87,036	24,883

a The operational period is inclusive of days when passage was estimated; unless noted otherwise, less than 10 percent of the total annual escapement is estimated.

b The Kogrukluk River tower was located approximately 6 miles upstream of the current Kogrukluk River weir , and upstream of Shotgun Creek.

c Field operations were incomplete and no total annual escapment was estimated.

d Field operations were incomplete; 10 to 20 percent of the total annual escapement is based on daily passage estimates.

e Field operations were incomplete; more than 20 percent of the total annual escapement is based on daily passage estimates.

f Sonar counts for the Aniak River are generally not apportioned to species, but chum salmon dominate throughout most of the project operational period. The minimum target operational period is defined here as June 26 to July 28.

g Reported numbers are for the estimated passage at Kalskag-Birch Tree Crossing and do not account for upstream harvest.

Appendix A.8. Mean salmon weights and prices paid to commercial permit holders in the Kuskokwim Area, 1967-2002.

	Average Weight (lb)					Average Price ($)				
Year	Chinook	Sockeye	Chum	Pink	Coho	Chinook	Sockeye	Chum	Pink	Coho
1967	27.8	7.4	7.0	[a]	5.9	0.13	0.05	0.04	[a]	0.09
1968	23.8	6.2	7.9	4.0	7.2	0.16	0.10	0.04	0.05	0.09
1969	19.6	6.2	5.8	3.6	7.3	0.19	0.15	0.07	0.06	0.10
1970	18.9	5.4	6.1	3.3	7.3	0.20	0.21	0.08	0.08	0.14
1971 [b]	26.2	6.9	6.4	[a]	6.1	0.17	0.10	0.08	[a]	0.13
1972	24.7	[a]	6.5	[a]	6.4	0.20	[a]	0.08	[a]	0.16
1973	26.7	[a]	6.8	[a]	5.8	0.25	[a]	0.19	[a]	0.26
1974	17.1	6.3	6.8	4.1	7.5	0.46	0.34	0.25	0.23	0.27
1975	14.9	[a]	6.4	[a]	8.2	0.54	[a]	0.26	[a]	0.31
1976 [c]	17.0	6.7	7.0	3.5	7.8	0.64	0.43	0.27	0.25	0.40
1977	22.7	8.3	7.3	3.9	7.8	1.15	0.45	0.45	0.25	0.65
1978	24.2	6.5	8.9	3.9	7.1	0.50	0.49	0.32	0.12	0.40
1979	16.6	6.9	7.0	3.9	7.9	0.66	0.53	0.37	0.11	0.75
1980	14.1	6.7	6.4	3.6	6.9	0.47	0.31	0.24	0.12	0.64
1981	17.8	7.2	7.5	3.5	6.4	0.84	0.61	0.23	0.11	0.63
1982	19.3	7.2	7.3	3.6	7.3	0.82	0.41	0.22	0.05	0.53
1983	18.8	6.8	7.4	3.5	6.8	0.54	0.51	0.33	0.05	0.39
1984	16.4	6.6	6.7	3.2	7.7	0.89	0.52	0.28	0.07	0.55
1985	17.0	7.0	7.1	3.6	7.5	0.71	0.59	0.25	0.05	0.51
1986	17.0	7.2	6.8	3.4	6.4	0.80	0.70	0.25	0.05	0.60
1987	15.2	7.5	6.8	3.7	7.2	1.10	1.30	0.27	0.10	0.73
1988	14.1	7.3	6.9	3.4	7.2	1.30	1.42	0.40	0.15	1.25
1989	16.6	7.2	6.8	3.4	7.3	0.75	1.20	0.26	0.05	0.55
1990	15.1	6.7	6.9	3.2	6.5	0.56	1.05	0.26	0.12	0.62
1991	15.3	6.9	6.3	3.4	6.5	0.56	0.67	0.31	0.12	0.45
1992	13.4	7.0	6.8	3.9	7.3	0.66	0.90	0.32	0.06	0.45
1993	14.3	7.1	6.5	3.4	6.6	0.62	0.70	0.40	0.25	0.58
1994	15.6	6.9	6.6	3.6	7.6	0.51	0.53	0.21	0.08	0.57
1995	17.3	6.9	6.9	3.7	7.2	0.60	0.71	0.18	0.12	0.41
1996	15.7	7.2	7.2	3.8	8.0	0.26	0.40	0.11	0.12	0.25
1997	16.2	7.1	7.3	2.7	7.5	0.28	0.42	0.12	0.10	0.33
1998	14.2	6.8	6.9	3.8	7.8	0.27	0.53	0.13	0.10	0.32
1999	15.5	6.5	7.3	3.0	6.6	0.32	0.58	0.10	0.05	0.32
2000	15.6	6.8	7.6	3.2	6.9	0.39	0.55	0.10	0.10	0.28
2001	20.0	7.6	7.5	[a]	7.7	0.36	0.35	0.10	[a]	0.28
2002	13.9	6.7	7.9	[a]	7.9	0.35	0.35	0.10	[a]	0.20
10-Year Average (1992-2001)	15.8	7.0	7.1	3.4	7.3	0.41	0.55	0.17	0.11	0.37

[a] Information unavailable.

[b] Information on price per pound was not available for District 5.

[c] Information was not available for District 4.

Appendix A.9. Maximum, mean, and minimum number of permits used in a single period by district, 1962-2002.

	District 1			District 2			District 4			District 5		
Year	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.
1962	190	121	25				32	19	7		Closed	
1963	103	17	1	17	10	2	30	13	1		Closed	
1964	113	30	1	30	4	1	29	15	1		Closed	
1965	164	43	1	5	3	1	31	13	1		Closed	
1966	172	122	61	1	1	1	12	8	1		Closed	
1967	208	144	10	4	2	1	19	8	1		Closed	
1968	262	164	2				78	38	8	17	13	5
1969	274	161	1	11	2	1	119	51	1	28	21	10
1970	320	198	22	11	6	3	75	48	21	25	16	5
1971	355	117	5	20	14	2	48	36	3	11	9	8
1972	341	149	28	12	10	8				12	9	5
1973	372	234	3	18	11	1	70	42	17	17	10	5
1974	444	272	25							40	23	7
1975	483	280	12				106	47	13	30	20	10
1976	495	357	174	55	33	11	99	44	5	35	13	4
1977	487	380	204	83	54	24	172	70	7	21	15	5
1978	509	390	72	24	12	3	123	38	3	24	15	5
1979	549	456	179	33	27	20	126	63	12	27	19	6
1980	482	421	319	37	23	12	101	56	3	35	22	9
1981	541	442	278	151	42	11	106	69	30	38	24	10
1982	499	414	302	47	7	10	107	67	5	30	25	7
1983	547	442	323	34	24	9	134	70	10	62	30	11
1984	542	411	39	33	17	8	165	82	34	47	38	29
1985	530	446	262	15	11	6	191	84	7	47	34	12
1986	600	489	234	27	9	3	216	86	2	52	31	19
1987	607	513	132	22	16	13	253	105	48	75	41	23
1988	640	583	408	21	17	13	202	73	9	68	39	22
1989	679	509	126	22	17	14	140	77	51	65	39	10
1990	653	614	534	18	16	14	218	106	1	58	27	1
1991	662	589	512	19	17	16	227	81	4	50	28	1
1992	653	577	374	21	15	9	187	86	19	91	34	17
1993	654	556	274	17	16	13	219	94	10	80	40	10
1994	606	501	157	17	13	6	171	69	13	88	34	2
1995	617	469	219	16	7	1	239	87	41	68	32	16
1996	541	351	194	6	3	1	120	65	41	40	28	13
1997	513	455	353	3	3	2	178	78	4	42	21	7
1998	496	392	154	3	2	0	116	64	25	37	23	14
1999	409	398	389	0	0	0	125	72	23	58	23	2
2000[a]	414	315	141	4	3	2	128	67	24	29	21	2
2001[a]	318	180	118	0	0	0	108	47	7	26	15	9
2002[a]	175	118	40	0	0	0	62	41	20	19	11	5

[a] Combined effort from consecutive Subdistricts W-1A and W-1B openings

Appendix A.10. Kuskokwim Area subsistence Chinook salmon harvest by community, 1960 - 2002.

Community	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
Kipnuk	248	11	123	75	a						
Kwigillingok	250	35	43	106	339	a	250	957	70		220
Kongiganak	b	b	b	b						385	891
Tuntutuliak	226	2,226	842	2,853	1,826	1,575	3,097	3,462	2,214	2,195	3,558
Eek				c	c	2,921	4,572	2,566	2,038	2,065	1,882
Kasigluk & Eek					1,857	3,123					
Kasigluk	135	1,215	127	1,302	c	c	1,032	2,766	1,485	2,888	3,931
Nunapitchuk	683	2,042	848	1,874	636	490	2,213	1,926	1,750	2,279	4,680
Atmautluak	b	b	b	b	b	b	b	b	b	b	1,205
Napakiak	1,830	2,573	2,191	3,148	2,677	2,872	3,658	3,895	2,468	3,546	4,960
Napaskiak	536	1,258	759	1,569	2,201	1,071	2,710	2,998	1,663	2,227	3,446
Oscarville	1,968	282	75	309	339	688	322	1,127	393	457	542
Bethel	1,923	4,150	1,378	7,019	4,114	3,371	8,046	13,925	6,205	7,472	17,026
Kwethluk	2,692	3,763	2,329	5,050	3,262	2,887	6,551	6,993	2,848	3,187	7,932
Akiachak	1,626	3,052	1,800	2,533	3,488	3,685	4,904	5,543	3,755	2,602	7,022
Akiak	1,865	3,159	906	2,869	2,495	1,345	3,670	3,660	1,822	1,275	3,290
Tuluksak	737	1,486	493	1,295	572	1,021	1,576	1,709	1,048	1,131	1,995
Lower Kalskag	961	571	c	c	710	c	c	c	1,502	2,102	2,146
Upper Kalskag	667	1,049	c	c	1,143	c	c	c	1,619	1,623	734
Kalskags Comb.			805	2,661		1,395	3,379	3,567			
Aniak	1,057	688	185	602	1,104	c	2,072	1,280	517	1,406	2,136
Aniak[d]					642						
Chuathbaluk	64	54	10	30	74	c	139	217	34	180	219
Napaimute	20	16	44	52	134	a	78	60	94	19	22
Crooked Creek	747	518	561	859	1,358	374	1,446	585	77	541	684
Georgetown							12		0	9	2
Red Devil	c	40	c	c	c	c			111	142	232
Sleetmute	c	222	c	c	c	c	303	343	207	267	161
Sleetmute[e]	465	262	144	228	314	79					
Kashegelok[f]							10				
Stony River	435	25	31		299	79	636	303	176	2,187	105
Lime Village										50	15
Mcgrath							300	25			
Takotna											
Nikolai											
Telida											
Quinhagak								1,349	2,756		
Goodnews Bay											
Platinum											
Total	18,887	28,934	13,582	34,482	29,017	24,697	49,325	61,262	35,698	40,617	69,612

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Appendix A.10. (Page 2 of 4)

Community	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Kipnuk[g]											
Kwigillingok[g]	200	10				75	382	75			
Kongiganak	41					122	361				
Tuntutuliak	1,841	3,214	2,859	1,577	3,492	4,807	2,470	1,656	2,268	2,545	4,446
Eek	1,969		1,981	2,356	2,110	3,232	2,675	1,807	2,003	1,557	1,731
Kasigluk	1,645	1,292	1,864	1,411	1,713	1,613	1,324	608	1,142	1,704	3,377
Nunapitchuk	1,978	2,496	2,663	1,165	2,092	2,578	2,622	2,178	2,109	2,612	2,918
Atmautluak	548	864	1,106	382	1,042	1,159	1,015	966	2,242	1,288	1,247
Napakiak	1,868	2,009	1,763	1,224	2,864	3,330	2,702	2,140	2,191	2,582	3,017
Napaskiak	1,916	1,578	2,048	900	2,303	3,566	1,989	2,122	2,085	3,160	2,911
Oscarville	570	196	586	180	891	623	672	349	629	477	495
Bethel	8,731	8,371	8,898	4,631	11,688	13,215	9,408	6,905	11,564	12,591	15,367
Kwethluk	5,564	5,137	3,444	2,694	3,179	4,193	5,563	3,172	6,919	7,627	6,167
Akiachak	4,818	3,872	2,592	1,726	3,534	4,915	5,407	2,951	4,818	5,405	3,094
Akiak	2,688	1,899	1,895	1,292	2,837	3,076	2,880	1,850	3,567	3,355	2,386
Tuluksak	1,280	1,318	1,322	883	1,338	1,411	2,906	1,906	1,489	2,807	2,446
Lower Kalskag	2,355	2,604	1,309	1,586	2,755	4,536	1,750	1,951	2,821	3,917	3,271
Upper Kalskag	601	401	938	463	1,752	1,413	2,813	1,253	1,590	1,889	1,171
Aniak	1,076	2,105	1,030	1,952	1,391	1,490	4,991	1,331	2,634	2,750	3,102
Chuathbaluk	179	261	942	674	594	657	1,507	1,238	2,189	1,507	841
Napaimute	17	20	13	6	16	420	176	144	149	90	45
Crooked Creek	291	183	269	650	238	264	619	488	728	654	512
Georgetown							66			93	
Red Devil	135	182	138	205	623	195	324	153	488	255	298
Sleetmute	181	69	504	269	256	356	684	300	755	220	728
Kashegelok[f]						156	233	92			
Stony River	402	95	287	439	761	620	33	182	171	332	233
Lime Village	2,119				100	33			38		
McGrath									581		
Takotna									65		
Nikolai									60		500
Telida											
Quinhagak							2,012	2,328	1,420	1,940	2,562
Goodnews Bay							574		228	498	1,309
Platinum									110	192	100
Total	43,013	38176	38,451	26,665	47,569	58,055	58,158	38,145	57,053	62,047	64,274

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Community	1982	1983	1984	1985	1986	1987	1988[1]	1989	1990	1991	1992
Kipnuk[#]	60							54	108	80	
Kwigillingok[#]											9
Kongiganak	52			235			585	1,412	1,442	778	904
Tuntutuliak	1,984	2,523	3,519	2,644	2,452	2,522	2,741	3,781	4,044	4,143	3,524
Eek	2,578	2,040		1,436			2,212	1,580	4,920	2,360	2,232
Kasigluk	3,115			2,054			1,367	2,173	3,167	2,955	94
Nunapitchuk	2,577	2,688		2,019	3,410	3,372	2,297	3,170	3,199	4,106	3,575
Atmautluak	1,752			1,559			1,131	1,227	2,569	1,784	1,422
Napakiak	3,500	2,047		1,805		2,760	3,091	3,710	4,158	2,543	3,328
Napaskiak	2,872			2,155		2,907	3,898	4,699	4,972	3,864	4,133
Oscarville	523			916		745	415	1,591	898	1,422	122
Bethel	13,516	8,492	11,066	6,940	11,984	8,107	15,038	24,655	19,641	28,817	17,196
Kwethluk	5,897		6,732	4,937	5,824	8,779	10,976	7,562	9,218	7,511	6,504
Akiachak	4,468		5,588	3,254		4,871	9,563	5,504	7,168	5,657	4,163
Akiak	2,745		3,413	2,975		3,683	3,706	4,811	5,178	3,247	3,207
Tuluksak	2,220	1,671	2,286	2,749		3,712	3,289	3,791	1,878	3,351	2,382
Lower Kalskag	2,594		3,242	1,707	1,666		3,024	3,337	2,494	3,947	2,269
Upper Kalskag	963		657	605	587		859	1,256	1,558	1,105	1,366
Aniak	2,071	3,174	1,847	1,828	4,624	2,131	4,071	3,406	3,189	3,261	3,955
Chuathbaluk	1,491			1,102			34	403	1,674	791	933
Napaimute	138			53							
Crooked Creek	515			218			618	451	929	947	472
Red Devil	273			176			263	189	273	168	328
Sleetmute	242		154	745			433	420	711	770	801
Stony River	419			167			315	692	498	586	233
Lime Village							341	105	240	60	
McGrath	160	830	730	59			440	418	1,231	880	1,038
Takotna							100	62	62	0	0
Nikolai	778	750	795	615			136	716	560	421	605
Telida								1			0
Quinhagak	2,402	2,542	3,109	2,341	2,682	3,663	3,690	3,542	6,013	3,693	3,447
Goodnews Bay	1,185	1,004	597	399	513	640	289	419	351	894	318
Platinum	51	62	32	27	42	176	21	48	188	23	56
Mekoryuk[#]								0	0	0	0
Newtok[#]							14	5	1	0	
Nightmute[#]							17	0	3	20	
Toksook Bay[#]							81	127	143	25	49
Tununak[#]							52	5	0	15	
Other											21
Total	61,141	51,020[b]	60,668[b]	45,720	54,256[b]	71,804[b]	75,107	85,322	92,678	90,224	68,665

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Appendix A.10. (Page 4 of 4).

Community	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Kipnuk[g]	348	150				119	29	170	1	1
Kwigillingok[g]	80	7		15		100				
Kongiganak	781	1,271	843	830	1,609	1,250	1,320	1,299	1,454	827
Tuntutuliak	3,633	4,679	4,023	4,027	3,730	4,008	3,645	2,939	2,993	3,704
Eek	2,619	2,917	3,535	2,568	2,253	2,131	1,816	2,112	1,728	2,432
Kasigluk	548	694	392	579	880	541	480	731	588	381
Nunapitchuk	3,810	4,746	4,400	3,234	4,086	4,934	4,521	3,354	3,250	4,007
Atmautluak	1,818	1,819	1,918	1,801	1,768	1,452	1,469	1,174	740	1,282
Napakiak	3,972	3,545	3,902	3,784	2,873	3,504	2,380	2,178	2,290	1,965
Napaskiak	5,671	6,356	4,984	4,453	4,887	5,452	3,827	4,309	4,662	3,856
Oscarville	1,475	1,385	1,438	996	512	981	2,289		1,753	953
Bethel	22,083	24,515	29,568	20,783	21,253	23,963	24,996	22,515	27,209	21,611
Kwethluk	9,181	9,262	8,931	9,183	6,872	7,940	6,081	4,925	6,127	6,884
Akiachak	7,231	8,081	6,571	5,209	7,414	6,507	5,373	6,124	6,445	7,138
Akiak	4,280	4,759	4,118	4,569	3,378	3,311	2,356	2,190	3,369	3,419
Tuluksak	3,755	4,534	4,333	3,143	5,627	3,701	2,348	2,432	2,451	2,468
Lower Kalskag	3,930	3,976	5,321	2,870	3,549	2,041	1,787	1,822	2,181	1,279
Upper Kalskag	1,679	1,340	1,396	1,351	1,107	1,244	1,688	1,237	1,014	1,420
Aniak	4,618	3,413	3,422	3,204	3,794	3,508	2,596	3,117	2,524	3,882
Chuathbaluk	1,447	1,043	2,615	880	1,290	810	1,110	303	627	718
Crooked Creek	771	968	934	864	944	772	681	575	508	790
Red Devil	487	379	425	337	452	262	161	94	175	283
Sleetmute	1,767	1,327	885	1,230	1,171	947	447	430	473	516
Stony River	445	359	559	597	863	445	55	21	139	293
Lime Village	41	216	144	48	59	241	155	45	262	
McGrath	567	1,052	800	1,203	974	769	1,295	642	360	709
Takotna	0	0		0		2	0	0	5	9
Nikolai	475	449	979	305	232	330	288	155	282	507
Telida										
Quinhagak	3,368	3,995	2,746	3,075	3,433	4,041	3,167	3,106	2,923	2,475
Goodnews Bay	628	712	858	403	437	713	805	601	859	703
Platinum	80	72	25	12	12	5	66	102	36	154
Mekoryuk[g]	0	6		0		1	15	2		12
Newtok[g]	0	2						19	12	13
Nightmute[g]		8					6	8		
Toksook Bay[g]	128	341	94	45	47	48	407	58	130	54
Tununak[g]	5	0				40	0	52		1
Chefornak[g]						2				
Other										
Total	91,721	98,378	100,159	81,598	85,506	86,115	77,660	68,841	77,570	74,746

Blanks indicate missing data.
a Data collected, combined with unspecified village or villages.
b Village not yet founded.
c Data collected, but reported with another village.
d Aniak, Chuathbaluk and Russian Mission.
e Sleetmute to Red Devil.
f Kashegelok and Holitna.
g Reported catch only.
h Estimate based on a sample of villages surveyed.
1 Beginning in 1988, estimate based on new formula, data not comparable to previous years.

Appendix A.11. Kuskokwim Area subsistence sockeye salmon harvest by community, 1985 – 2002.

Community	1985	1986	1987	1988[c]	1989	1990	1991	1992	1993	1994	1995
Kipnuk[a]					402	175	136		90	132	
Kwigillingok[a]								0	140	5	
Kongiganak	130			830	658	423	533	905	705	702	530
Tuntutuliak	1,498	288	991	600	1,173	1,954	1,768	1,894	955	3,185	1,134
Eek	241			336	170	1,177	489	671	406	461	283
Kasigluk	1,138			376	235	810	1,421	81	122	275	165
Nunapitchuk	1,447	905	1,187	884	1,026	1,098	2,277	2,273	2,545	1,555	882
Atmautluak	1,308			320	1,143	1,501	881	1,304	1,387	796	1,099
Napakiak	1,242		1,439	1,087	1,752	1,375	1,176	1,315	1,150	1,627	959
Napaskiak	1,181		2,199	1,120	721	1,227	2,673	2,428	3,495	1,933	1,605
Oscarville	942		438	1,752	404	153	711	35	932	324	414
Bethel	3,409	7,730	3,810	5,614	7,316	6,392	17,669	7,173	10,503	8,563	8,190
Kwethluk	5,584	5,423	3,845	5,190	2,414	4,055	3,723	1,829	3,790	3,742	2,504
Akiachak	3,182		3,532	4,890	2,420	3,176	4,123	3,095	4,545	3,323	2,019
Akiak	1,368		1,883	1,378	2,492	1,739	1,708	1,458	3,558	1,786	643
Tuluksak	1,620		1,733	1,493	2,314	1,120	3,595	2,034	2,492	1,393	1,244
Lower Kalskag	948	783		1,581	767	851	1,092	467	2,339	950	681
Upper Kalskag	187	1,182		345	338	287	276	333	349	298	55
Aniak	2,116	2,652	2,101	1,078	959	1,356	2,031	1,180	1,578	571	975
Chuathbaluk	1,797			44	215	1,178	1,246	471	823	995	472
Napaimute	125										
Crooked Creek	1,218			327	436	1,556	998	489	831	512	192
Red Devil	205			437	356	445	426	315	717	311	620
Sleetmute	1,351			898	776	1,060	1,164	855	1,609	1,158	1,083
Stony River	585			195	1,084	835	1,912	1,462	1,488	802	1,342
Lime Village					5,653	2,333	956	0	2,800	1,760	700
McGrath			0	0	0	0	0	0	0	0	0
Takotna			0	0	0	0	0	0	0	0	
Nikolai			0	0	0	0	0	0	0	0	0
Telida				0	0			0			
Quinhagak	106	423	1,067	1,261	633	1,951	1,772	1,264	1,082	1,000	573
Goodnews Bay	562	860	834	898	710	970	1,132	669	784	669	219
Platinum	142	83	121	167	151	153	150	158	51	101	34
Mekoryuk[a]				1	0	50	1	0	1	87	
Newtok[a]					10	3	0		0	20	
Nightmute[a]					0	10	210			15	
Toksook Bay[a]					277	242	105	1	66	228	5
Tununak[a]					83	7	50		30	0	
Other[a]								1	1		
Total	33,632	20,239[b]	25,180[b]	33,102	37,088	39,662	56,404	34,159	51,363	39,279	28,622

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Community	1996	1997	1998	1999	2000	2001	2002
Kipnuk[a]			85	75	223	74	69
Kwigillingok[a]	5		40				
Kongiganak	421	618	275	222	339	925	610
Tuntutuliak	1,339	669	935	331	3,435	337	1,178
Eek	389	80	306	258	488	207	904
Kasigluk[a]	368	518	140	92	1,667	344	142
Nunapitchuk	1,310	872	427	391	366	392	814
Atmautluak	537	531	425	205	224	369	591
Napakiak	600	168	749	487	502	644	587
Napaskiak	398	658	540	355	889	466	716
Oscarville	19	60	2	970		42	119
Bethel	12,929	15,108	11,294	12,414	13,794	14,949	13,802
Kwethluk	3,195	1,193	1,731	2,993	3,271	1,688	2,694
Akiachak	850	441	477	663	2,509	1,633	1,685
Akiak	972	846	674	254	483	564	1,141
Tuluksak	1,116	434	879	307	523	971	1,232
Lower Kalskag	1,022	652	347	302	428	539	256
Upper Kalskag	360	781	812	153	288	416	1,032
Aniak	2,671	1,494	1,308	1,418	1,922	1,906	2,776
Chuathbaluk	395	217	55	137	469	541	651
Crooked Creek	171	261	392	515	132	70	420
Red Devil	1,274	1,391	425	455	158	427	471
Sleetmute	846	419	301	226	552	452	689
Stony River	571	450	429	511	10	347	517
Lime Village	0	277	776	600	362	590	
McGrath	919	753	924	553	700	420	1,083
Takotna	0		3	0	21	26	20
Nikolai	64	141	113	117	31	165	105
Telida							
Quinhagak	1,467	1,264	1,702	2,021	1,088	1,525	1,099
Goodnews Bay	293	343	312	439	414	508	202
Platinum[a]	59	54	19	143	103	108	95
Mekoryuk[a]	3		178	64	78		114
Newtok[a]					64		
Nightmute[a]				0	2		
Toksook Bay[a]	135	21	97	83	112	16	74
Tununak[a]			60	0	23	25	49
Chefornak[a]			7				
Others							
Total	34,698	30,714	27,239	27,754	35,670	31,686	35,937

Blanks indicate missing data.
a Reported harvest only.
b Estimated total based on sampled villages.
c Beginning in 1988, estimate based on new formula, data not comparable to previous years.

Appendix A.12. Kuskokwim Area subsistence coho salmon harvest by community, 1985 - 2002.

Community	1985	1986	1987	1988[c]	1989	1990	1991	1992	1993	1994	1995
Kipnuk[a]					200	460	30		25	185	
Kwigillingok[a]								0	80	0	
Kongiganak	88			1,146	562	413	540	544	502	566	605
Tuntutuliak	371	1,692	760	754	508	1,135	729	761	820	441	365
Eek	406			291	349	1,620	343	531	206	426	347
Kasigluk	1,763			906	772	958	1,769	174	228	387	518
Nunapitchuk	513	1,084	696	898	469	573	1,167	2,226	321	781	641
Atmautluak	326			337	971	350	254	518	426	411	566
Napakiak	836		959	588	1,757	1,700	597	1,237	590	920	390
Napaskiak	415		629	1,503	1,130	922	754	866	783	2,012	580
Oscarville	155		40	50	430	43	136	0		49	
Bethel	6,094	19,351	8,077	8,291	22,390	19,342	28,136	15,902	13,764	12,258	19,906
Kwethluk	3,041	3,545	2,537	5,240	3,736	3,928	2,380	2,325	1,838	1,816	1,304
Akiachak	967		286	7,927	1,890	1,621	2,393	2,108	1,351	1,531	677
Akiak	1,270		1,294	1,577	4,959	1,591	2,231	1,137	1,315	1,110	501
Tuluksak	1,723		337	1,537	1,483	946	1,903	1,544	412	285	531
Lower Kalskag	596	2,211		158	981	375	510	469	778	845	718
Upper Kalskag	105	759		136	688	300	493	931	354	184	167
Aniak	1,552	1,051	2,302	1,903	2,640	1,484	1,143	1,844	1,091	1,682	1,265
Chuathbaluk	393			72	272	813	93	349	366	795	84
Napaimute	211										
Crooked Creek	290			89	530	886	277	413	409	581	381
Red Devil	846			672	1,591	866	1,132	1,160	1,812	994	1,557
Sleetmute	1,330			1,776	1,009	1,023	1,557	1,132	880	649	1,075
Stony River	395			161	611	423	502	744	512	505	1,083
Lime Village				1,055	2,025	538	336	300	618	960	246
McGrath				790	537	2,408	882	2,780	1,989	2,558	2,225
Takotna					40	0	0	0	0	0	
Nikolai	550			530	328	73	83	173	267	119	545
Telida					60			0			
Quinhagak	67	41	125	4,317	3,787	4,174	3,232	2,958	2,152	2,739	2,561
Goodnews Bay	210			1,072	830	1,556	1,789	1,163	1,197	435	296
Platinum	11	8	43	90	77	90	39	190	29	77	9
Mekoryuk[a]					106	52	130	2	53	87	
Newtok[a]					15	4	0		0	0	
Nightmute[a]					70	0	20			0	
Toksook Bay[a]					35	46	1	15	57	116	22
Tununak[a]					9	0	0		70	0	
Other[a]							39				
Total	24,524	29,742[b]	18,085[b]	43,866	57,847	50,713	55,581	44,496	35,295	36,504	39,165

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Appendix A.12. (Page 2 of 2)

Community	1996	1997	1998	1999	2000	2001	2002
Kipnuk[a]			85	75	223	74	69
Kwigillingok[a]	5		40				
Kongiganak	421	618	275	222	339	925	610
Tuntutuliak	1,339	669	935	331	3,435	337	1,178
Eek	389	80	306	258	488	207	904
Kasigluk[a]	368	518	140	92	1,667	344	142
Nunapitchuk	1,310	872	427	391	366	392	814
Atmauthuak	537	531	425	205	224	369	591
Napakiak	600	168	749	487	502	644	587
Napaskiak	398	658	540	355	889	466	716
Oscarville	19	60	2	970		42	119
Bethel	12,929	15,108	11,294	12,414	13,794	14,949	13,802
Kwethluk	3,195	1,193	1,731	2,993	3,271	1,688	2,694
Akiachak	850	441	477	663	2,509	1,633	1,685
Akiak	972	846	674	254	483	564	1,141
Tuluksak	1,116	434	879	307	523	971	1,232
Lower Kalskag	1,022	652	347	302	428	539	256
Upper Kalskag	360	781	812	153	288	416	1,032
Aniak	2,671	1,494	1,308	1,418	1,922	1,906	2,776
Chuathbaluk	395	217	55	137	469	541	651
Crooked Creek	171	261	392	515	132	70	420
Red Devil	1,274	1,391	425	455	158	427	471
Sleetmute	846	419	301	226	552	452	689
Stony River	571	450	429	511	10	347	517
Lime Village	0	277	776	600	362	590	
McGrath	919	753	924	553	700	420	1,083
Takotna	0		3	0	21	26	20
Nikolai	64	141	113	117	31	165	105
Telida							
Quinhagak	1,467	1,264	1,702	2,021	1,088	1,525	1,099
Goodnews Bay	293	343	312	439	414	508	202
Platinum[a]	59	54	19	143	103	108	95
Mekoryuk[a]	3		178	64	78		114
Newtok[a]					64		
Nightmute[a]				0	2		
Toksook Bay[a]	135	21	97	83	112	16	74
Tununak[a]			60	0	23	25	49
Chefornak[a]			7				
Others							
Total	34,698	30,714	27,239	27,754	35,670	31,686	35,937

Blanks indicate missing data.
a Reported harvest only.
b Estimated total based on sampled villages.
c Beginning in 1988, estimate based on new formula, data not comparable to previous years.

Appendix A.13. Kuskokwim Area subsistence chum salmon harvest by community, 1985 - 2002.

Community	1985	1986	1987	1988[c]	1989	1990	1991	1992	1993	1994	1995
Kipnuk[a]					0	540	205		601	214	
Kwigillingok[a]								0	200	5	
Kongiganak	671			1,473	1,967	980	1,036	1,524	811	1,340	1,275
Tuntutuliak	4,346	2,734	5,385	4,700	5,068	6,250	4,755	6,052	2,899	5,232	3,488
Eek	401			1,323	972	3,090	814	1,397	244	624	815
Kasigluk	4,199			3,541	3,007	3,406	3,137	26	374	537	457
Nunapitchuk	4,346	4,676	4,621	7,331	6,923	5,240	6,055	8,229	4,854	4,587	4,297
Atmautluak	4,440			4,695	3,014	4,006	2,394	3,183	1,345	1,455	3,466
Napakiak	3,686		2,784	4,535	7,068	8,389	2,340	4,401	2,281	4,096	3,084
Napaskiak	5,810		6,832	11,623	13,079	8,166	6,582	6,061	3,622	5,605	4,271
Oscarville	1,294		1,135	2,461	1,341	925	1,141	29	566	676	1,018
Bethel	9,260	14,778	7,974	17,442	25,581	18,436	22,770	14,908	9,172	12,341	15,821
Kwethluk	6,866	9,736	7,636	21,352	10,128	11,102	5,497	7,647	3,491	6,102	6,050
Akiachak	5,931		4,355	17,749	7,747	9,133	5,994	5,771	3,492	6,286	4,074
Akiak	6,724		3,837	6,699	13,000	8,235	6,668	5,907	7,549	4,599	1,878
Tuluksak	6,064		3,466	7,046	9,796	5,845	5,695	4,798	3,834	2,476	2,609
Lower Kalskag	4,637	2,538		8,232	4,932	4,212	2,886	2,758	3,062	2,758	1,455
Upper Kalskag	1,855	3,684		3,317	3,427	1,321	2,357	2,843	578	864	1,351
Aniak	8,804	5,905	5,751	11,628	10,404	9,089	3,492	7,870	2,900	2,612	3,566
Chuathbaluk	3,782			450	2,051	4,510	1,912	2,502	2,895	1,615	1,807
Napaimute	414										
Crooked Creek	2,888			768	779	2,884	1,367	904	715	649	358
Red Devil	1,021			3,168	1,376	1,466	1,236	1,523	1,004	1,220	882
Sleetmute	3,689			4,873	1,813	1,874	1,862	3,151	681	1,533	1,758
Stony River	722			3,405	1,352	1,132	602	1,335	775	932	1,375
Lime Village				913	2,100	2,500	715	0	508	2,080	920
McGrath				639	1,276	2,839	1,068	2,854	590	1,294	1,486
Takotna				200	250	56	0	0	0	0	
Nikolai	2,900			2,404	1,221	882	495	818	353	293	301
Telida					15			0			
Quinhagak	901	808	1,084	1,065	1,568	3,234	1,593	1,833	1,008	1,452	686
Goodnews Bay	339	188	371	405	620	193	144	921	188	425	152
Platinum	9	3	207	43	164	139	5	85	0	45	3
Mekoryuk[a]				500	2,915	1,067	1,178	0	808	2,337	
Newtok[a]					20	4	0		0	0	
Nightmute[a]					30	35	60			7	
Toksook Bay[a]					86	224	103	246	296	660	239
Tununak[a]					16	65	150		30	0	
Other[a]							3	1			
Total	95,999	142,930[b]	70,709[b]	153,980	145,106	131,469	96,308	99,576	61,726	76,951	68,942

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Appendix A.13. (Page 2 of 2)

Community	1996	1997	1998	1999	2000	2001	2002
Kipnuk[a]			114	31	269	2	5
Kwigillingok[a]	30		250				
Kongiganak	1,331	902	1,643	1,152	1,850	1,998	2,009
Tuntutuliak	5,852	2,877	3,774	1,862	2,735	2,621	3,920
Eek	923	649	787	508	636	347	1,259
Kasigluk[a]	1,196	1,278	218	350	930	550	306
Nunapitchuk	5,833	2,794	5,389	4,742	4,694	4,749	7,137
Atmautluak	2,672	1,484	1,916	1,667	1,819	1,350	2,189
Napakiak	4,249	1,458	4,556	1,573	2,987	1,723	2,433
Napaskiak	4,983	2,589	4,227	2,687	2,848	2,399	3,720
Oscarville	1,552	35	420	1,906		2,097	1,121
Bethel	16,403	8,790	12,057	11,163	10,616	11,319	16,107
Kwethluk	11,870	3,554	4,786	3,449	5,048	4,365	7,966
Akiachak	4,993	1,768	2,467	2,741	4,589	2,872	5,252
Akiak	4,640	1,725	2,231	1,202	2,456	2,093	2,593
Tuluksak	3,167	2,887	3,224	1,566	2,504	1,862	3,176
Lower Kalskag	3,357	1,487	977	759	1,641	1,316	1,257
Upper Kalskag	1,621	405	487	665	1,558	1,187	2,333
Aniak	8,447	1,747	5,023	1,764	1,943	1,982	3,988
Chuathbaluk	2,089	1,244	1,027	729	704	2,338	1,682
Crooked Creek	347	311	2,561	806	812	943	1,266
Red Devil	787	551	565	193	53	335	371
Sleetmute	1,215	417	981	367	390	328	1,105
Stony River	443	591	897	358	99	143	560
Lime Village	500	251	964	1,012	294	683	
McGrath	206	111	1,462	260	161	199	676
Takotna	10		15	0	0	8	1
Nikolai	249	65	519	89	60	65	171
Telida							
Quinhagak	930	600	1,448	1,810	912	747	1,839
Goodnews Bay	214	133	285	250	280	182	312
Platinum[a]	5	0	31	31	84	44	95
Mekoryuk[a]	0		2,176	1,583	2,120		1,292
Newtok[a]					16	36	20
Nightmute[a]				10	2		
Toksook Bay[a]	124	273	171	326	217	234	657
Tununak[a]				0	44		
Chefornak[a]			17				
Other							
Total	90,238	40,976	67,665	47,612	55,371	51,117	76,818

Blanks indicate missing data.
a Reported harvest only.
b Estimated total based on sampled villages.
C Beginning in 1988, estimate based on new formula, data not comparable to previous years.

APPENDIX B

Appendix B.1. Kuskokwim River distances.[a]

Location	Distance from the Mouth		Distance from Bethel	
	Kilometer	Miles	Kilometer	Miles
Popokamiut				
(Lower boundary District 1)	-3	-2	-129	-80
Kuskokwim River Mouth				
60.80 N, 162.42 W	0	0	-125	-78
Eek Island, Southernmost tip,				
(Lower boundary District 1)	19	12	-106	-66
Apokak Slough				
(Lower boundary District 1)	35	22	-90	-56
Eek River	39	24	-87	-54
Kwegooyuk	42	26	-84	-52
Kinak River	48	30	-78	-48
Tuntutuliak Village	56	35	-87	-54
Kialik River	59	37	-66	-41
Fowler Island	83	52	-42	-26
Johnson River	93	58	-32	-20
Napakiak Village	104	65	-21	-13
Napaskiak Village	115	71	-12	-7
Oscarville Village	115	71	-11	-7
Bethel City	125	78	0	0
Gweek River	145	90	20	12
Kwethluk Village	159	99	34	21
Akiachak Village	169	105	43	27
Kasigluk River	173	108	48	30
Kisaralik River	175	109	50	31
Akiak Village	190	118	64	40
Mishevik Slough,	212	132	87	54
Tuluksak Village	218	136	93	58
Nelson Island	220	137	95	59
(District 1 Boundary), Bogus Creek	234	146	109	68
High Bluffs	264	164	139	86
Boundary of District 2	295	183	170	105
Mud Creek Slough	297	185	172	107
Kalskag Village	309	192	184	114
Aniak Village, Aniak River	362	225	237	147
Chuathbaluk Village	375	233	250	155
(Upper boundary District 2)				
Kolmakof River	395	246	270	168
Napaimiut Village	410	255	285	177

(continued)

Appendix B.1. (2 of 2)

Location	Distance from the Mouth		Distance from Bethel	
	Kilometer	Miles	Kilometer	Miles
Holokuk River	415	258	290	180
Oskawalik River	449	279	324	201
Crooked Creek Village	466	290	341	212
Georgetown Village, George River	497	309	372	231
Red Devil Village	526	327	401	249
Sleetmute village	539	335	414	257
Holitna River	540	336	415	258
Stony River Village	585	364	460	286
Stony River	587	365	462	287
Swift River	611	380	486	302
Tatlawiksuk River	616	383	491	305
Devil's Elbow	645	401	520	323
Vinasale	740	460	615	382
McGrath Village	815	507	690	429
Middle Fork	889	553	764	475
Big River	801	560	776	482
Pitka Fork	920	572	795	494
Medra Village	928	577	803	499
South Fork	931	579	806	501
East Fork	943	586	818	508
North Fork	943	586	818	508
Nikolai Village	999	621	874	543
Swift Fork	1,136	706	1,011	628
Telida Village	1,184	736	1,059	658
Highpower Creek	1,200	746	1,075	668
Fish Creek	1,284	798	1,159	720
North Fork Lake	1,334	829	1,209	751
Top of Kuskokwim Drainage	1,498	931	1,373	853

[a] These distances were taken from the USGS 1:36,300 series of topographic maps. The "mouth" was defined as the point where the "grassland" banks are 24 miles apart. Some locations are not on the mainstem of the Kuskokwim River, as a result their mileages appear to be out of sequence since they are listed in the order of the turn off.

Appendix B.2. Lower Kuskokwim River, District 1 commercial effort, 1970-2002.

Year	Unrestricted Mesh Season	Restricted Mesh Season	Coho Salmon Season	Total
1970	361	a	266	387
1971	418	216	83	422
1972	405	176	245	425
1973	456	341	411	530
1974	606	467	516	666
1975	472	540	533	737
1976	561	517	516	674
1977	563	522	572	653
1978	615	617	597	723
1979	591	617	613	685
1980	553	579	586	663
1981	589	613	586	679
1982	610	576	596	686
1983	544	619	577	679
1984	520	587	619	654
1985	b	598	627	654
1986	b	631	663	688
1987	b	680	694	703
1988	b	c	c	746

	Number of Permits Landing Each Species						
	Chinook	Sockeye	Coho	Pink	Chum	Roe	Total
1989	695	688	732	261	719	22	745
1990	724	722	714	526	736	1	744
1991	687	705	731	159	733	1	749
1992	711	706	706	520	722	0	741
1993	669	654	717	54	715	0	740
1994	651	666	682	664	700	0	706
1995	684	692	680	80	699	0	712
1996	482	514	615	196	593	17	620
1997	445	446	593	2	551	0	604
1998	555	568	580	48	589	0	618
1999	412	425	388	2	442	0	509
2000	210	328	515	5	353	0	532
2001	77	61	413	0	258	0	411
2002	59	31	318	0	270	0	318
Ten Year Average	490	506	589	157	562	2	619

a No commercial salmon season

b No unrestricted mesh season.

c Fishery continued without interruption

Appendix B.3. Utilization of chinook salmon in the Kuskokwim River, 1960-2002.

Year	Commercial Harvest[a]	Subsistence Harvest[b]	Test Fishery Harvest	Sport Fish Harvest	Total Utilization	10-Year Average
1960	5,969	18,887			24,856	
1961	18,918	28,934			47,852	
1962	15,341	13,582			28,923	
1963	12,016	34,482			46,498	
1964	17,149	29,017			46,166	
1965	21,989	24,697			46,686	
1966	25,545	49,325	285		75,155	
1967	29,986	59,913	766		90,665	
1968	34,278	32,942	608		67,828	
1969	43,997	40,617	833		85,447	56,008
1970	39,290	69,612	857		109,759	64,498
1971	40,274	43,242	756		84,272	68,140
1972	39,454	40,396	756		80,606	73,308
1973	32,838	39,093	577		72,508	75,909
1974	18,664	27,139	1,236		47,039	75,997
1975	22,135	48,448	704		71,287	78,457
1976	30,735	58,606	1,206		90,547	79,996
1977	35,830	56,580	1,264	33 [d]	93,707	80,300
1978	45,641	36,270	1,445	116 [d]	83,472	81,864
1979	38,966	56,283	979	74	96,302	82,950
1980	35,881	59,892	1,033	162	96,968	81,671
1981	47,663	61,329	1,218	189	110,399	84,284
1982	48,234	58,018	542	207	107,001	86,923
1983	33,174	47,412	1,139	420	82,145	87,887
1984	31,742	56,930	231	273	89,176	92,100
1985	37,889	43,874	79	85	81,927	93,164
1986	19,414	51,019	130	49	70,612	91,171
1987	36,179	67,325	384	355	104,243	92,225
1988	55,716	70,943 [c]	576	528	127,763	96,654
1989	43,217	81,176	543	1,218	126,154	99,639
1990	53,504	85,979	512	394	140,389	103,981
1991	37,778	85,554	117	401	123,850	105,326
1992	46,872	64,795	1,380	367	113,414	105,967
1993	8,735	87,512	2,483	587	99,317	107,685
1994	16,211	93,242	1,937	1,139	112,529	110,020
1995	30,846	96,436	1,421	541	129,244	114,752
1996	7,419	78,063	247	1,432	87,161	116,406
1997	10,441	81,577	332	1227	93,577	115,340
1998	17,359	81,265	210	1434	100,268	112,590
1999	4,705	73,194	98	252	78,249	107,800
2000	*444*	*64,893*	*874*	*105*	*66,316*	*104,029*
2001	90	73,610	86	290	74,076	98,000
2002	72	74,746	288	319	75,425	93,598
10-Yr. Ave. (1992-2001)	14,312	79,459	907	737	95,415	109,259

[a] Districts 1 and 2; also includes harvests in District 3 from 1960 to 1965.

[b] Estimated subsistence harvest expanded from villages surveyed..

[c] Beginning in 1988, estimates are based on a new formula so data since 1988 is not comparable with previous years.

[d] Estimated by proportion.

Appendix B.4. Peak aerial survey counts of chinook salmon in indexed Kuskokwim River spawning tributaries, 1975 - 2002[a].

	Lower Kuskokwim				Middle Kuskokwim							Upper Kuskokwim	
Year	Eek	Kwethluk Canyon C.	Kisaralik	Tuluksak	Aniak	Kipchuk (Aniak)	Salmon (Aniak)	Holokuk	Oskawalik	Holitna	Kogrukluk Weir	Cheeneetnuk	Salmon (Pitka)
1975			118			94		17	71	1,114			
1976				139		177		126	204	2,571	5,579	1,197	1,146
1977		2,290		291			562	60	276			1,399	1,978
1978	1,613	1,732	2,417	403			289			2,766	13,667	267	1,127
1979		911						113			11,338		699
1980	2,378			725			1,186	250	123				1,177
1981		1,783	672		9,074		894				16,655		1,474
1982	230				2,645		185	42	120	521	10,993		419
1983	188	471	731	129	1,909		231	33	52	1,069		243	586
1984		273	157	93	1,409					299	4,926	1,177	577
1985	1,118	629		135				135	61		4,619	1,002	625
1986					909		336	100		850	5,038	381	
1987	1,739	975		60		193	516	208	193	813		317	
1988	2,255	766	840	188	945		244	57	80		8,506		501
1989	1,042	1,157	152		1,880	994	631				11,940		446
1990	1,983	1,295	631	166	1,255	537	596	143	113		10,218		
1991	1,312	1,002		342	1,564	885	583				7,850		
1992					2,284	670	335	64	91	1,822	6,755	1,050	2,555
1993					2,687	1,248	1,082	114	103	1,573	12,332	678	1,012
1994		848	1,021		1,848	1,520	1,218				15,227	1,206	1,010
1995			1,243		3,174	1,215	1,442	181	289	2,787	20,630	1,565	1,911
1996					3,496		983	85			14,199		
1997			439	173	2,187	855	980	322	1,470	2,093	13,280	345	
1998		27	457		2,239	353							
1999								18	98	741	5,570		
2000					714	182	152	42	62	501	3,181		
2001							598	52	158	4,247	9,298	217	1033
2002		1,795	2,285		1,856	1,615	1,236	513	235	1,741	10,059	730	1,276
BEG	1,460[b]	**1,200[c]**	**1,000[c]**	**400[c]**	**1,500[c]**	670[b]	**600[c]**	107[b]	108[b]	**2,000[c]**	**10,000[c]**	1,002[b]	**1,300[c]**

a Estimates are from "peak" aerial surveys conducted between 20 and 31 July under fair, good, or excellent viewing conditions.

b Median of years 1975 through 1994.

c Formally established BEG (Buklis 1993).

Appendix B.5 Historical commercial salmon harvest in the Kuskokwim River, Districts 1 and 2 combined, 1960-2002a.

Year	Chinook	Sockeye	Chum	Pink	Coho	Total
1960	5,969	0	0	0	2,498	8,467
1961	18,918	0	0	0	5,044	23,962
1962	15,341	0	0	0	12,432	27,773
1963	12,016	0	0	0	15,660	27,676
1964	17,149	0	0	0	28,613	45,762
1965	21,989	0	0	0	12,191	34,180
1966	25,545	0	0	0	22,985	48,530
1967	29,986	0	148	0	56,313	86,447
1968	34,278	0	187	0	127,306	161,771
1969	43,997	322	7,165	0	83,765	135,249
1970	39,290	117	1,664	44	38,601	79,716
1971	40,274	2,606	68,914	0	5,253	117,047
1972	39,454	102	78,619	8	22,579	140,762
1973	32,838	369	148,746	33	130,876	312,862
1974	18,664	136	171,887	84	147,269	338,040
1975	22,135	23	184,171	10	81,945	288,284
1976	30,735	2,971	177,864	133	88,501	300,204
1977	35,830	9,379	248,721	203	241,364	535,497
1978	45,641	733	248,656	5,832	213,393	514,255
1979	38,966	1,054	261,874	78	219,060	521,032
1980	35,881	360	483,211	803	222,012	742,267
1981	47,663	48,375	418,677	292	211,251	726,258
1982	48,234	33,154	278,306	1,748	447,117	808,559
1983	33,174	68,855	276,698	211	196,287	575,225
1984	31,742	48,575	423,718	2,942	623,447	1,130,424
1985	37,889	106,647	199,478	75	335,606	679,695
1986	19,414	95,433	309,213	3,422	659,988	1,087,470
1987	36,179	136,602	574,336	43	399,467	1,146,627
1988	55,716	92,025	1,381,674	10,825	524,296	2,064,536
1989	43,217	42,747	749,182	464	479,856	1,315,466
1990	53,504	84,870	461,624	3,397	410,332	1,013,727
1991	37,778	108,946	431,802	378	500,935	1,079,839
1992	46,872	92,218	344,603	7,451	666,170	1,157,314
1993	8,735	27,008	43,337	64	610,739	689,883
1994	16,211	49,365	271,115	30,949	724,689	1,092,329
1995	30,846	92,500	605,918	93	471,461	1,200,818
1996	7,419	33,878	207,877	1,621	937,299	1,188,094
1997	10,441	21,989	17,026	2	130,803	180,261
1998	17,359	60,906	207,809	92	210,481	496,647
1999	4,705	16,976	23,006	2	23,593	68,282
2000	444	4,130	11,570	7	261,379	277,530
2001	90	84	1,272	0	192,998	194,444
2002	72	84	1,900	0	83,463	85,519
10-Year Average 1992-2001	14,312	39,905	173,353	4,028 [b]	422,961	654,560

a Includes harvests in District 3 from 1960 to 1965.

b Even years only.

Appendix B.6. Utilization of chum salmon in the Kuskokwim River, 1960-2002.

Year	Commercial Harvest[a]	Subsistence Harvest[b]	Test Fishery Harvest	Sport Fish Harvest	Total Utilization	Running 10-Year Average
1960	0	301,753 [c]			301,753	
1961	0	179,529 [c]			179,529	
1962	0	161,849 [c]			161,849	
1963	0	137,649 [c]			137,649	
1964	0	190,191 [c]			190,191	
1965	0	250,878 [c]			250,878	
1966	0	175,735 [c]	502 [d]		176,237	
1967	148	208,445 [c]	338		208,931	
1968	187	275,008 [c]	562		275,757	
1969	7,165	204,105 [c]	384		211,654	209,443
1970	1,664	246,810 [c]	1,139 [d]		249,613	204,229
1971	68,914	116,391 [c]	254		185,559	204,832
1972	78,619	120,316 [c]	486		199,421	208,589
1973	148,746	179,259 [c]	675		328,680	227,692
1974	171,887	277,170 [c]	2,021		451,078	253,781
1975	184,171	176,389 [c]	1,062		361,622	264,855
1976	177,864	223,792 [c]	2,101		403,757	287,607
1977	248,721	198,355 [c]	576	125 [f]	447,777	311,492
1978	248,656	118,809 [c]	2,153	555 [f]	370,173	320,933
1979	261,874	161,239 [c]	412	259 [f]	423,784	342,146
1980	483,751	165,172 [c]	2,058	324 [f]	651,305	382,316
1981	418,677	157,306 [c]	1,793	598 [f]	578,374	421,597
1982	278,306	190,011 [c]	504	1125 [f]	469,946	448,650
1983	276,698	146,876 [c]	1,069	922	425,565	458,338
1984	423,718	142,542 [c]	1,186	520	567,966	470,027
1985	199,478	94,750	616	150	294,994	463,364
1986	309,213	141,931 [c]	1,693	245	453,082	468,297
1987	574,336	70,709	2,302	566	647,913	488,310
1988	1,381,674	151,967 [e]	4,379	764	1,538,784	605,171
1989	749,182	139,687	2,082	2023	892,974	652,090
1990	461,624	126,508	2,107	533	590,772	646,037
1991	431,802	93,075	931	378	526,186	640,818
1992	344,603	96,491	15,330	608	457,032	639,527
1993	43,337	59,396	8,451	359	111,543	608,125
1994	271,115	72,025	11,998	1280	356,418	586,970
1995	605,918	67,862	17,473	226	691,479	626,618
1996	207,877	88,965	2,864	280	299,986	611,309
1997	17,026	39,970	790	86	57,872	552,305
1998	207,809	63,537	1,140	291	272,777	425,704
1999	23,006	43,601	562	180	67,349	343,141
2000	11,570	51,696	1,038	26	64,330	317,795
2001	1,272	49,874	1,743	112	53,001	268,907
2002	1,900	76,818	2,666	53	81,437	228,475
10-Yr. Ave. (1992-2001)	173,353	63,342	6,139	345	243,179	498,040

[a] Districts 1 and 2 only; no chum harvests were reported in District 3.

[b] Estimated subsistence harvest expanded from villages surveyed.

[c] Includes small numbers of small chinook, sockeye and coho salmon.

[d] Includes small numbers of sockeye.

[e] Beginning in 1988, estimates are based on a new formula so data since 1988 is not comparable with previous years.

[f] Estimated based on proportion.

Appendix B.7 Historical commercial salmon catches by fishing period in the Kuskokwim Area, District 1, 1974-2002.

Year	Date	Number of Permits	Hours Fished	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
1974	Jun 10 - 11 [a]	422	12	4,384	0.9	1	0.0	153	0.0	0	0.0
	Jun 13 - 14 [a]	488	12	5,790	1.0	2	0.0	607	0.1	0	0.0
	Jun 17 - 18 [a]	506	12	5,857	1.0	62	0.0	1,394	0.2	0	0.0
	Jun 27 [b]	267	6	558	0.3	0	0.0	27,017	16.9	0	0.0
	Jul 01 - 02 [b]	380	12	561	0.1	26	0.0	55,356	12.1	0	0.0
	Jul 04 - 05 [b]	282	12	196	0.1	0	0.0	27,211	8.0	0	0.0
	Jul 08 - 09 [b]	376	12	286	0.1	1	0.0	50,672	11.2	0	0.0
	Jul 18 [b]	190	6	31	0.0	0	0.0	6,661	5.8	19	0.0
	Aug 01 - 02 [b]	267	12	17	0.0	9	0.0	813	0.3	9,576	3.0
	Aug 05 - 08 [b]	444	72	18	0.0	35	0.0	1,170	0.0	59,090	1.8
	Aug 12 - 15 [b]	396	72	12	0.0	0	0.0	103	0.0	58,066	2.0
	Aug 19 - 22 [b]	263	72	9	0.0	0	0.0	32	0.0	12,301	0.6
	Aug 26 - 29 [b]	107	72	1	0.0	0	0.0	10	0.0	5,360	0.7
	Sept. 02 - 05 [b]	25	72	9	0.0	0	0.0	0	0.0	430	0.2
Total		666	456	17,711		136		171,199		144,842	
1975	Jun 16 [a]	12	6	359	4.99	0	0.0	3	0.0	0	0.0
	Jun 19 - 20 [a]	46	12	1,031	1.87	0	0.0	34	0.1	0	0.0
	Jun 23 - 24 [a]	483	12	17,235	2.97	0	0.0	3,792	0.7	0	0.0
	Jun 30 [b]	276	6	691	0.42	0	0.0	31,216	18.9	0	0.0
	Jul 03 [b]	360	6	636	0.29	0	0.0	35,525	16.4	0	0.0
	Jul 07 [b]	369	6	421	0.19	0	0.0	39,396	17.8	0	0.0
	Jul 10 [b]	304	6	195	0.11	0	0.0	39,910	21.9	0	0.0
	Jul 14 [b]	326	6	179	0.09	0	0.0	21,092	10.8	0	0.0
	Aug 01 [b]	142	6	5	0.01	0	0.0	2,113	2.5	2,357	2.8
	Aug 04 - 06 [b]	292	48	40	0.00	1	0.0	5,639	0.4	12,500	0.9
	Aug 11 - 13 [b]	373	48	8	0.00	0	0.0	2,247	0.1	18,551	1.0
	Aug 18 - 20 [b]	388	48	16	0.00	3	0.0	746	0.0	34,435	1.8
	Aug 25 - 27 [b]	270	48	0	0.00	0	0.0	73	0.0	16,277	1.3
Total		737	258	20,816		4		181,786		84,120	
1976	Jun 17 [a]	459	6	6,962	2.5	1	0.0	532	0.2	0	0.00
	Jun 21 [a]	495	6	13,048	4.4	0	0.0	2,543	0.9	0	0.00
	Jun 28 [b]	348	6	4,143	2.0	508	0.2	42,464	20.3	0	0.00
	Jul 01 [b]	415	6	1,550	0.6	338	0.1	44,024	17.7	0	0.00
	Jul 08 [b]	381	6	894	0.4	1,268	0.6	48,669	21.3	0	0.00
	Jul 12 [b]	344	6	344	0.2	701	0.3	21,153	9.4	0	0.00
	Jul 15 [b]	265	6	236	0.1	151	0.1	14,176	8.9	44	0.03
	Aug 02 - 03 [b]	286	24	83	0.0	0	0.0	2,067	0.3	10,534	1.53
	Aug 09 - 11 [b]	400	48	96	0.0	3	0.0	866	0.0	29,728	1.55
	Aug 16 - 18 [b]	387	48	50	0.0	1	0.0	154	0.0	28,664	1.54
	Aug 23 - 25 [b]	500	48	10	0.0	0	0.0	69	0.0	14,543	1.01
	Aug 30 - 31 [b]	174	42	2	0.0	0	0.00	10	0.0	4,420	0.60
Total		674	252	27,418		2,971		176,727		87,933	
1977	Jun 15 [a]	467	6	12,458	4.45	20	0.0	334	0.12	0	0.00
	Jun 20 [a]	484	6	16,227	5.59	18	0.0	1,715	0.59	0	0.00
	Jun 27 [b]	378	6	1,337	0.59	1,386	0.6	40,321	17.78	0	0.00
	Jun 30 [b]	409	6	504	0.21	3,655	1.5	58,884	24.00	0	0.00
	Jul 04 [b]	331	6	266	0.13	1,952	1.0	37,500	18.88	0	0.00
	Jul 07 [b]	368	6	407	0.18	1,799	0.8	56,943	25.79	0	0.00
	Jul 14 [b]	385	6	153	0.07	77	0.0	24,765	10.72	1	0.00
	Aug 01 - 02 [b]	360	24	91	0.01	392	0.0	7,157	0.83	23,987	2.78
	Aug 08 [b]	487	48	117	0.01	59	0.0	3,306	0.14	91,474	3.91
	Aug 15 - 16 [b]	438	24	57	0.01	4	0.0	1,161	0.11	60,935	5.80
	Aug 18 [b]	378	12	13	0.00	1	0.0	224	0.05	25,589	5.64
	Aug 22 [b]	361	12	12	0.00	6	0.0	202	0.05	16,980	3.92
	Aug 25 [b]	264	12	12	0.00	0	0.0	127	0.04	11,874	3.75
	Aug 29 [b]	204	12	5	0.00	0	0.0	42	0.02	6,819	2.79
Total		653	186	31,659		9,369		232,681		237,659	

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Appendix B.7. (page 2 of 8)

Year	Date	Number of Permits	Hours Fished	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
1978	Jun 09 [a]	509	6	7,590	2.49	10	0.0	734	0.24	0	0.00
	Jun 14 [a]	266	6	6,142	3.85	0	0.0	1,291	0.81	0	0.00
	Jun 16 [a]	396	6	12,341	5.19	22	0.0	5,950	2.50	0	0.00
	Jun 22 [a]	72	4	1,724	5.99	0	0.0	1,629	5.66	0	0.00
	Jun 23 [a]	429	4	8,342	4.86	0	0.0	12,587	7.34	0	0.00
	Jun 26 [b]	499	5	1,964	0.73	1	0.0	44,296	16.44	0	0.00
	Jun 29 [b]	422	6	1,759	0.66	52	0.0	36,793	13.87	0	0.00
	Jul 03 [b]	476	6	894	0.31	93	0.0	26,629	9.32	0	0.00
	Jul 06 [b]	485	12	1,460	0.25	302	0.1	48,031	8.25	0	0.00
	Jul 10 [b]	428	12	694	0.14	216	0.0	48,931	9.53	0	0.00
	Jul 13 [b]	422	6	293	0.12	0	0.0	14,935	5.90	0	0.00
	Aug 01 [b]	297	12	97	0.03	23	0.0	3,298	0.93	6,311	1.77
	Aug 04 [b]	364	12	79	0.02	6	0.0	906	0.21	9,445	2.16
	Aug 08 [b]	433	12	65	0.01	4	0.0	629	0.12	28,501	5.49
	Aug 11 [b]	485	12	39	0.01	2	0.0	280	0.05	42,428	7.29
	Aug 15 [b]	476	12	33	0.01	0	0.0	87	0.02	48,950	8.57
	Aug 18 [b]	434	12	16	0.00	2	0.0	67	0.01	29,485	5.66
	Aug 22 [b]	396	12	8	0.00	0	0.0	53	0.01	22,287	4.69
	Aug 25 [b]	293	12	12	0.00	0	0.0	13	0.00	11,168	3.18
	Aug 29 [b]	250	12	1	0.00	0	0.0	89	0.03	12,215	4.07
Total		723	182	43,553		733		247,219		210,790	
1979	Jun 11 [a]	523	6	12,270	3.91	14	0.00	462	0.15	0	0.00
	Jun 15 [a]	549	6	12,363	3.75	37	0.01	2,055	0.62	0	0.00
	Jun 22 [b]	502	6	5,651	1.88	50	0.02	32,295	10.72	0	0.00
	Jun 26 [b]	531	6	2,277	0.71	23	0.01	53,648	16.84	0	0.00
	Jun 29 [b]	542	6	1,583	0.49	8	0.00	48,643	14.96	0	0.00
	Jul 03 [b]	542	6	1,233	0.38	21	0.01	83,164	25.57	0	0.00
	Jul 10 [b]	520	6	470	0.15	23	0.01	32,434	10.40	0	0.00
	Aug 02 [b]	478	12	67	0.01	186	0.03	3,643	0.64	52,276	9.11
	Aug 06 [b]	480	6	38	0.01	54	0.02	1,148	0.40	53,797	18.68
	Aug 09 [b]	497	6	34	0.01	19	0.01	502	0.17	26,422	8.86
	Aug 13 [b]	463	6	20	0.01	11	0.00	179	0.06	27,915	10.05
	Aug 16 [b]	467	6	16	0.01	4	0.00	129	0.05	21,675	7.74
	Aug 20 [b]	399	6	23	0.01	7	0.00	104	0.04	19,445	8.31
	Aug 23 [b]	328	6	0	0.00	0	0.00	54	0.03	5,376	2.73
	Aug 27 [b]	310	12	6	0.00	2	0.00	40	0.01	6,342	1.79
	Aug 30 [b]	179	12	2	0.00	1	0.00	16	0.01	2,182	1.02
Total		685	114	36,053		460		258,516		215,430	
1980	Jun 12 [a]	469	6	9,891	3.51	2	0.00	711	0.25	0	0.00
	Jun 18 [a]	468	6	16,921	6.03	24	0.01	5,940	2.12	0	0.00
	Jun 23 [b]	426	6	4,777	1.83	0	0.00	105,825	40.45	0	0.00
	Jun 26 [b]	408	6	1,460	0.60	0	0.00	131,945	53.96	0	0.00
	Jul 02 [b]	383	6	498	0.22	23	0.01	122,613	53.36	0	0.00
	Jul 09 [b]	431	6	445	0.17	4	0.00	90,233	34.89	0	0.00
	Aug 04 [b]	375	6	54	0.02	73	0.03	2,697	1.20	9,889	4.40
	Aug 07 [b]	455	6	45	0.02	67	0.02	2,098	0.77	36,126	13.23
	Aug 11 [b]	482	6	33	0.01	64	0.02	4,350	1.50	35,178	12.16
	Aug 14 [b]	439	6	23	0.01	38	0.01	366	0.14	28,211	10.71
	Aug 18 [b]	441	6	12	0.00	25	0.01	179	0.07	43,748	16.53
	Aug 21 [b]	419	6	10	0.00	26	0.01	94	0.04	33,274	13.24
	Aug 25 [b]	370	6	12	0.01	9	0.00	64	0.03	19,264	8.68
	Aug 28 [b]	319	6	3	0.00	5	0.00	19	0.01	13,484	7.04
Total		663	84	34,184		360		467,134		219,174	

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Appendix B.7. (page 3 of 8)

Year	Date		Number of Permits	Hours Fished	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
1981	Jun	10 [a]	489	6	11,897	4.05	48	0.0	2,623	0.89	9	0.00
	Jun	16 [a]	541	6	17,985	5.54	316	0.1	11,501	3.54	0	0.00
	Jun	22 [b]	511	6	3,830	1.25	3,852	1.3	78,168	25.50	0	0.00
	Jun	25 [b]	508	6	2,000	0.66	6,037	2.0	81,431	26.72	0	0.00
	Jun	30 [b]	484	6	2,563	0.88	12,262	4.2	51,942	17.89	0	0.00
	Jul	02 [b]	459	6	1,707	0.62	9,769	3.5	58,594	21.28	0	0.00
	Jul	06 [b]	481	6	1,088	0.39	5,510	2.0	55,799	20.17	0	0.00
	Jul	09 [b]	440	6	941	0.36	7,760	2.9	66,138	25.05	0	0.00
	Aug	03 [b]	430	6	101	0.04	1,057	0.4	1,866	0.72	16,184	6.27
	Aug	06 [b]	441	6	77	0.03	674	0.3	1,046	0.40	13,885	5.25
	Aug	10 [b]	445	6	54	0.02	454	0.2	629	0.24	26,972	10.10
	Aug	13 [b]	473	6	54	0.02	233	0.1	448	0.16	46,252	16.30
	Aug	17 [b]	458	6	38	0.01	146	0.1	164	0.06	34,739	12.64
	Aug	20 [b]	380	6	17	0.01	55	0.0	73	0.03	24,184	10.61
	Aug	24 [b]	372	6	16	0.01	28	0.0	40	0.02	23,771	10.65
	Aug	27 [b]	346	6	16	0.01	25	0.0	59	0.03	13,785	6.64
	Aug	31 [b]	278	6	8	0.00	20	0.0	21	0.01	8,086	4.85
Total			679	102	42,011		45,554		410,542		207,858	
1982	Jun	14 [a]	464	6	4,912	1.76	321	0.12	2,532	0.91	0	0.00
	Jun	17 [a]	496	6	11,285	3.90	1,061	0.37	4,694	1.62	0	0.00
	Jun	21 [a]	499	6	13,343	4.46	2,432	0.81	10,003	3.34	0	0.00
	Jun	24 [a]	459	4	8,548	4.66	3,157	1.72	12,908	7.03	0	0.00
	Jun	28 [b]	352	4	1,943	1.38	9,938	7.06	58,528	41.57	0	0.00
	Jun	30 [b]	483	4	2,064	1.07	5,824	3.01	47,773	24.73	0	0.00
	Jul	02 [b]	434	4	1,095	0.63	3,110	1.79	38,918	22.42	0	0.00
	Jul	05 [b]	372	6	875	0.39	2,769	1.24	29,315	13.13	0	0.00
	Jul	08 [b]	435	6	748	0.29	1,786	0.68	28,942	11.09	2	0.00
	Jul	12 [b]	354	6	307	0.14	638	0.30	20,709	9.75	23	0.01
	Jul	29 [b]	416	6	114	0.05	48	0.02	2,599	1.04	19,561	7.84
	Aug	02 [b]	388	6	67	0.03	69	0.03	949	0.41	31,944	13.72
	Aug	05 [b]	445	6	47	0.02	26	0.01	624	0.23	35,766	13.40
	Aug	09 [b]	442	6	29	0.01	25	0.01	342	0.13	61,231	23.09
	Aug	12 [b]	449	6	26	0.01	6	0.00	189	0.07	80,685	29.95
	Aug	16 [b]	420	6	15	0.01	5	0.00	96	0.04	77,785	30.87
	Aug	19 [b]	403	6	12	0.00	12	0.00	69	0.03	49,566	20.50
	Aug	23 [b]	349	6	3	0.00	5	0.00	28	0.01	25,218	12.04
	Aug	26 [b]	314	6	9	0.00	0	0.00	18	0.01	26,761	14.20
	Aug	30 [b]	302	6	7	0.00	1	0.00	18	0.01	26,815	14.80
Total			686	112	45,120		31,233		259,254		435,357	
1983	Jun	13 [a]	489	6	7,445	2.54	114	0.04	829	0.28	0	0.00
	Jun	16 [a]	450	6	5,961	2.21	156	0.06	976	0.36	0	0.00
	Jun	20 [b]	474	6	4,776	1.68	3,289	1.16	28,915	10.17	0	0.00
	Jun	23 [b]	450	6	3,287	1.22	4,807	1.78	24,625	9.12	0	0.00
	Jun	27 [b]	446	6	2,566	0.96	10,465	3.91	44,802	16.74	0	0.00
	Jun	30 [b]	547	6	2,339	0.72	12,498	3.81	55,209	16.82	0	0.00
	Jul	04 [b]	443	6	1,213	0.46	24,540	9.23	46,176	17.37	0	0.00
	Jul	07 [b]	496	6	1,202	0.40	7,286	2.45	36,965	12.42	0	0.00
	Jul	11 [b]	466	6	633	0.23	3,001	1.07	20,560	7.35	0	0.00
	Aug	01 [b]	377	6	238	0.11	478	0.21	4,041	1.79	9,767	4.32
	Aug	04 [b]	430	6	237	0.09	272	0.11	2,580	1.00	15,389	5.96
	Aug	08 [b]	383	6	130	0.06	444	0.19	1,322	0.58	34,541	15.03
	Aug	11 [b]	485	6	96	0.03	146	0.05	534	0.18	35,268	12.12
	Aug	15 [b]	462	6	64	0.02	71	0.03	148	0.05	24,072	8.68
	Aug	18 [b]	408	6	56	0.02	52	0.02	111	0.05	22,822	9.32
	Aug	*22* [b]	*388*	*6*	*55*	*0.02*	*39*	*0.02*	*88*	*0.04*	*36,918*	*15.00*
	Aug	26 [b]	323	6	27	0.01	31	0.02	55	0.03	19,039	9.82
Total			679	102	29,442		67,681		267,936		195,816	

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Appendix B.7. (page 4 of 8)

Year	Date		Number of Permits	Hours Fished	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
1984	Jun	18 [a]	484	6	10,845	3.73	409	0.14	5,803	2.00	0	0.0
	Jun	21 [a]	443	6	6,336	2.38	2,618	0.98	22,094	8.31	0	0.0
	Jun	25 [b]	466	6	3,018	1.08	10,743	3.84	91,773	32.82	0	0.0
	Jun	28 [b]	470	6	2,625	0.93	10,942	3.88	67,120	23.80	0	0.0
	Jul	02 [b]	483	6	1,988	0.69	8,145	2.81	69,897	24.12	0	0.0
	Jul	05 [b]	426	6	1,218	0.48	6,798	2.66	54,981	21.51	1	0.0
	Jul	09 [b]	496	6	1,211	0.41	2,821	0.95	36,440	12.24	52	0.0
	Jul	12 [b]	436	6	858	0.33	12/27	0.84	24,269	9.28	196	0.1
	Jul	16 [b]	373	6	744	0.33	1,121	0.50	18,613	8.32	619	0.3
	Jul	30 [b]	459	6	351	0.13	281	0.10	2,329	0.85	56,609	20.6
	Aug	02 [b]	401	6	291	0.12	157	0.07	1,184	0.49	79,240	32.9
	Aug	06 [b]	542	9	106	0.02	113	0.02	639	0.13	84,406	17.3
	Aug	09 [b]	523	9	106	0.02	111	0.02	373	0.08	80,990	17.2
	Aug	13 [b]	504	9	81	0.02	67	0.01	235	0.05	80,268	17.7
	Aug	16 [b]	502	9	50	0.01	29	0.01	131	0.03	78,342	17.3
	Aug	20 [b]	491	9	33	0.01	14	0.00	59	0.01	63,829	14.4
	Aug	23 [b]	481	9	21	0.00	11	0.00	63	0.01	49,372	11.4
	Aug	27 [b]	350	9	53	0.02	2	0.00	18	0.01	16,472	5.2
	Aug	30 [b]	210	9	9	0.00	1	0.00	5	0.00	11,222	5.9
	Sept	03 [b]	69	5	2	0.01	0	0.00	5	0.01	1,603	4.5
	Sept	06 [b]	39	6	0	0.00	0	0.00	0	0.00	1,877	8.0
Total			654	149	29,946		46,571		396,031		605,098	
1985	Jun	20	423	6	6,519	2.57	5,246	2.07	19,762	7.79	0	0.00
	Jun	24	488	6	10,413	3.56	25,536	8.72	42,778	14.61	0	0.00
	Jun	27	492	6	8,791	2.98	26,155	8.86	47,443	16.07	0	0.00
	Jul	1	514	6	6,168	2.00	31,082	10.08	47,471	15.39	0	0.00
	Jul	4	460	6	3,774	1.37	16,114	5.84	28,581	10.36	0	0.00
	Aug	01	487	6	204	0.07	174	0.06	2,470	0.85	34,052	11.65
	Aug	05	527	6	121	0.04	33	0.01	1,558	0.49	54,819	17.34
	Aug	08	525	6	58	0.02	3	0.00	472	0.15	78,149	24.81
	Aug	12	530	6	44	0.01	7	0.00	342	0.11	77,809	24.47
	Aug	15	441	6	28	0.01	0	0.00	193	0.07	28,013	10.59
	Aug	19	406	6	13	0.01	2	0.00	32	0.01	19,316	7.93
	Aug	22	390	6	10	0.00	0	0.00	56	0.02	17,534	7.49
	Aug	26	297	6	8	0.00	0	0.00	22	0.01	10,688	6.00
	Aug	29	262	6	8	0.01	1	0.00	28	0.02	9,568	6.09
Total			654	84	36,159		104,353		191,208		329,948	
1986	Jun	26	514	6	7,786	2.52	40,468	13.12	68,947	22.36	1	0.00
	Jun	30	576	6	4,200	1.22	22,633	6.55	60,780	17.59	0	0.00
	Jul	03	556	6	3,224	0.97	15,766	4.73	65,839	19.74	0	0.00
	Jul	07	586	6	1,805	0.51	8,347	2.37	55,983	15.92	0	0.00
	Jul	10	532	6	1,156	0.36	5,488	1.72	48,990	15.35	0	0.00
	Jul	31	352	6	60	0.03	219	0.10	2,239	1.06	27,553	13.05
	Aug	04	530	6	49	0.02	201	0.06	1,345	0.42	96,127	30.23
	Aug	07	600	9	66	0.01	38	0.01	50	0.01	127,024	23.52
	Aug	11	553	6	32	0.01	3	0.00	9	0.00	82,215	24.78
	Aug	13	526	6	32	0.01	2	0.00	3	0.00	92,918	29.44
	Aug	15	519	6	67	0.02	4	0.00	11	0.00	55,633	17.87
	Aug	18	477	6	15	0.01	4	0.00	0	0.00	51,328	17.93
	Aug	21	465	6	8	0.00	2	0.00	2	0.00	50,640	18.15
	Aug	25	458	6	4	0.00	0	0.00	0	0.00	37,365	13.60
	Aug	28	346	6	0	0.00	0	0.00	3	0.00	16,436	7.92
	Sept	01	234	6	6	0.00	0	0.00	0	0.00	5,949	4.24
Total			688	99	18,510		93,175		304,201		643,189	

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Appendix B.7. (page 5 of 8)

Year	Date		Number of Permits	Hours Fished	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
1987	Jun	18	526	9	19,126	4.04	9,508	2.01	14,137	2.99	0	0.00
	Jun	24	607	9	0 *	0.00	24,355	4.46	54,454	9.97	0	0.00
	Jun	30	564	9	0 *	0.00	39,112	7.71	112,963	22.25	0	0.00
	Jul	03	580	6	5,970	1.72	44,030	12.65	66,783	19.19	0	0.00
	Jul	07	578	6	3,636	1.05	9,196	2.65	103,059	29.72	0	0.00
	Jul	11	597	6	1,910	0.53	4,611	1.29	72,118	20.13	1	0.00
	Jul	15	569	6	1,415	0.41	2,301	0.67	71,923	21.07	10	0.00
	Jul	20	551	6	1,343	0.41	826	0.25	65,135	19.70	500	0.15
	Aug	06	590	6	207	0.06	271	0.08	4,074	1.15	49,182	13.89
	Aug	13	604	6	103	0.03	222	0.06	894	0.25	104,968	28.96
	Aug	17	595	6	76	0.02	133	0.04	378	0.11	73,867	20.69
	Aug	19	585	6	36	0.01	25	0.01	156	0.04	45,277	12.90
	Aug	21	540	6	26	0.01	16	0.00	140	0.04	33,601	10.37
	Aug	24	500	6	27	0.01	4	0.00	108	0.04	27,607	9.20
	Aug	27	479	6	13	0.00	9	0.00	70	0.02	21,772	7.58
	Aug	31	364	6	7	0.00	5	0.00	57	0.03	12,873	5.89
	Sept	03	278	6	8	0.00	3	0.00	31	0.02	11,352	6.81
	Sept	07	132	6	4	0.01	4	0.01	19	0.02	4,311	5.44
Total			703	117	33,907		134,631		566,499		385,321	
1988	Jun	16	602	8	12,640	2.62	7,408	1.54	72,219	15.00	0	0.00
	Jun	20	612	6	11,708	3.19	14,502	3.95	113,628	30.94	0	0.00
	Jun	24	644	6	9,710	2.51	19,894	5.15	119,808	31.01	0	0.00
	Jun	28	609	6	5,350	1.46	17,628	4.82	154,027	42.15	0	0.00
	Jul	02	580	6	3,531	1.01	15,102	4.34	187,916	54.00	0	0.00
	Jul	05	579	6	2,340	0.67	7,284	2.10	163,971	47.20	9	0.00
	Jul	08	604	6	1,891	0.52	3,623	1.00	138,772	38.29	1	0.00
	Jul	11	598	6	1,628	0.45	2,467	0.69	137,450	38.31	24	0.01
	Jul	14	597	6	1,751	0.49	822	0.23	116,930	32.64	141	0.04
	Jul	18	567	6	1,107	0.33	396	0.12	57,749	16.98	502	0.15
	Jul	21	539	6	621	0.19	164	0.05	39,643	12.26	1,278	0.40
	Jul	25	494	6	329	0.11	109	0.04	24,893	8.40	6,323	2.13
	Jul	28	552	6	333	0.10	70	0.02	16,028	4.84	20,970	6.33
	Aug	01	594	6	201	0.06	32	0.01	6,967	1.95	33,954	9.53
	Aug	04	639	6	206	0.05	105	0.03	5,152	1.34	76,576	19.97
	Aug	08	640	6	114	0.03	92	0.02	2,890	0.75	76,345	19.88
	Aug	10	596	6	73	0.02	9	0.00	1,376	0.38	53,874	15.07
	Aug	12	624	6	115	0.03	11	0.00	1,422	0.38	84,700	22.62
	Aug	15	613	6	76	0.02	14	0.00	663	0.18	59,724	16.24
	Aug	18	620	6	37	0.01	8	0.00	230	0.06	37,415	10.06
	Aug	20	577	6	29	0.01	5	0.00	121	0.03	24,046	6.95
	Aug	27	532	6	14	0.00	8	0.00	93	0.03	22,683	7.11
	Aug	31	408	6	6	0.00	11	0.00	34	0.01	9,852	4.02
Total			746	140	53,810		89,764		1,361,992		508,417	
1989	Jun	19	374	8	9,204	3.08	5,495	1.84	41,789	13.97	0	0.0
	Jun	23	277	8	6,011	2.71	7,011	3.16	65,650	29.63	0	0.0
	Jun	26	126	8	1,862	1.85	3,746	3.72	32,373	32.12	0	0.0
	Jun	30	642	8	9,232	1.80	10,214	1.99	131,629	25.63	0	0.0
	Jul	03	629	6	4,600	1.22	5,808	1.54	91,345	24.20	0	0.0
	Jul	05	553	6	3,311	1.00	2,917	0.88	85,727	25.84	3	0.0
	Jul	08	621	6	3,136	0.84	3,177	0.85	119,066	31.96	9	0.0
	Jul	11	616	6	1,691	0.46	1,565	0.42	78,053	21.12	126	0.0
	Jul	14	590	6	1,216	0.34	796	0.22	44,401	12.54	230	0.0
	Jul	18	437	6	868	0.33	451	0.17	26,407	10.07	2,216	0.1
	Jul	27	562	6	210	0.06	95	0.03	5,716	1.70	5,651	0.7
	Aug	03	679	6	174	0.04	30	0.01	5,615	0.89	99,022	24.3
	Aug	07	642	6	78	0.02	22	0.01	868	0.23	73,514	19.1
	Aug	09	644	6	40	0.01	7	0.00	432	0.11	103,158	26.7
	Aug	12	650	6	34	0.01	8	0.00	122	0.03	81,970	21.0
	Aug	15	616	6	25	0.01	4	0.00	119	0.03	23,071	6.2
	Aug	18	381	6	7	0.00	5	0.00	16	0.01	5,938	2.6
	Aug	23	528	6	19	0.01	14	0.00	21	0.01	30,940	9.8
	Aug	26	508	6	17	0.01	13	0.00	15	0.00	20,881	6.9
	Aug	29	423	6	7	0.00	9	0.00	21	0.01	11,080	4.4
	Sept	03	194	6	3	0.00	1	0.00	7	0.01	3,225	2.8
Total			745	134	41,745		41,388		727,392		461,034	

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Appendix B.7. (page 6 of 8)

Year	Date		Number of Permits	Hours Fished	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
1990	Jun	20	630	6	16,690	4.42	10,318	16.38	30,308	8.02	0	0.00
	Jun	25	611	6	16,031	4.37	27,024	44.23	58,944	16.08	0	0.00
	Jun	29	645	6	9,428	2.44	18,774	29.11	74,911	19.36	0	0.00
	Jul	05	591	6	4,071	1.15	10,759	18.20	86,835	24.49	0	0.00
	Jul	09	589	6	2,804	0.79	8,757	14.87	91,411	25.87	0	0.00
	Jul	14	625	8	2,127	0.43	5,467	8.75	79,803	15.96	70	0.01
	Aug	01	611	6	252	0.07	533	0.87	9,065	2.47	23,549	6.42
	Aug	06	631	6	306	0.08	133	0.21	4,597	1.21	61,450	16.23
	Aug	10	653	6	94	0.02	66	0.10	1,269	0.32	58,251	14.87
	Aug	13	642	6	38	0.01	48	0.07	509	0.13	115,444	29.97
	Aug	16	650	9	28	0.00	29	0.04	239	0.04	68,605	11.73
	Aug	20	594	6	11	0.00	34	0.06	113	0.03	51,838	14.54
	Aug	27	534	6	3	0.00	16	0.03	25	0.01	16,030	5.00
Total			743	83	51,883		81,958		438,027		395,237	
1991	Jun	20	601	6	13,813	3.83	19,732	5.47	13,266	3.68	0	0.00
	Jun	24	616	6	12,612	3.41	19,262	5.21	30,632	8.29	0	0.00
	Jul	01	629	6	5,966	1.58	24,428	6.47	50,121	13.28	0	0.00
	Jul	06	589	6	2,102	0.59	24,219	6.85	40,060	11.34	0	0.00
	Jul	13	571	6	904	0.26	6,458	1.88	52,552	15.34	16	0.00
	Jul	18	568	6	452	0.13	5,128	1.50	78,797	23.12	977	0.29
	Jul	22	543	6	233	0.07	3,085	0.95	49,788	15.28	2,655	0.81
	Jul	25	533	8	186	0.04	1,526	0.36	30,083	7.06	4,871	1.14
	Jul	29	534	8	134	0.03	732	0.17	24,026	5.62	37,141	8.69
	Aug	01	602	6	125	0.03	624	0.17	13,098	3.63	38,284	10.60
	Aug	05	643	8	56	0.01	96	0.02	6,091	1.18	56,262	10.94
	Aug	08	634	8	33	0.01	40	0.01	3,194	0.63	72,037	14.20
	Aug	12	662	8	42	0.01	31	0.01	1,586	0.30	114,581	21.64
	Aug	14	601	8	18	0.00	23	0.00	634	0.13	58,393	12.14
	Aug	19	590	6	24	0.01	24	0.01	313	0.09	57,364	16.20
	Aug	26	512	8	6	0.00	12	0.00	93	0.02	43,664	10.66
Total			749	110	36,706		105,420		394,334		486,245	
1992	Jun	18	567	8	9,756	2.15	8,508	1.88	32,695	7.21	0	0.00
	Jun	22	619	8	14,578	2.94	25,017	5.05	74,429	15.03	0	0.00
	Jun	25	627	8	8,984	1.79	21,922	4.37	55,114	10.99	0	0.00
	Jun	29	602	6	7,323	2.03	26,082	7.22	80,213	22.21	0	0.00
	Jul	06	587	8	3,250	0.69	7,962	1.70	84,196	17.93	2	0.00
	Aug	03	619	8	306	0.06	137	0.03	4,069	0.82	78,233	15.80
	Aug	06	590	6	116	0.03	98	0.03	1,319	0.37	57,506	16.24
	Aug	11	653	6	157	0.04	76	0.02	604	0.17	181,905	46.43
	Aug	14	632	6	63	0.02	55	0.01	196	0.05	87,959	23.20
	Aug	17	596	6	47	0.01	49	0.01	122	0.03	79,357	22.19
	Aug	20	578	6	36	0.01	17	0.00	53	0.02	73,363	21.15
	Aug	24	550	6	27	0.01	19	0.01	23	0.01	28,069	8.51
	Aug	27	481	6	26	0.01	6	0.00	26	0.01	28,238	9.78
	Aug	31	374	6	8	0.00	8	0.00	17	0.01	16,962	7.56
Total			741	94	44,677		89,956		333,136		631,594	
1993	Jun	25	622	8	8,184	1.64	26,363	5.30	34,123	6.86	0	0.00
	Jul	31	625	6	172	0.05	210	0.06	4,133	1.10	56,107	14.96
	Aug	04	656	6	98	0.02	141	0.04	2,080	0.53	137,649	34.97
	Aug	06	632	8	88	0.02	84	0.02	1,396	0.28	91,400	18.08
	Aug	09	628	6	65	0.02	75	0.02	446	0.12	54,817	14.55
	Aug	14	640	6	46	0.01	39	0.01	287	0.07	80,226	20.89
	Aug	17	620	6	30	0.01	31	0.01	119	0.03	82,696	22.23
	Aug	21	592	6	9	0.00	25	0.01	58	0.02	47,097	13.26
	Aug	25	441	6	6	0.00	13	0.00	28	0.01	10,556	3.99
	Aug	28	387	6	12	0.01	19	0.01	30	0.01	13,592	5.85
	Sept	01	274	6	4	0.00	3	0.00	18	0.01	12,190	7.41
Total			739	70	8,714		27,003		42,718		586,330	

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Appendix B.7. (page 7 of 8)

Year	Date		Number of Permits	Hours Fished	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
1994	Jun	24	576	8	14,221	3.09	38,958	8.45	87,214	18.93	0	0.00
	Jul	14	496	4	578	0.29	3,891	1.96	43,585	21.97	820	0.41
	Jul	19	500	6	441	0.15	4,475	1.49	60,104	20.03	7,027	2.34
	Jul	23	506	6	313	0.10	1,125	0.37	38,149	12.57	24,213	7.98
	Jul	26	552	6	225	0.09	471	0.14	22,460	6.78	39,901	12.05
	Jul	29	577	6	204	0.06	159	0.05	11,252	3.25	52,090	15.05
	Aug	04	606	6	88	0.06	87	0.02	3,983	1.10	75,514	20.77
	Aug	09	530	6	29	0.03	70	0.02	1,153	0.36	129,570	40.75
	Aug	12	606	8	34	0.01	47	0.01	777	0.16	117,753	24.29
	Aug	15	595	8	22	0.01	33	0.01	321	0.07	47,902	10.06
	Aug	18	598	8	20	0.00	16	0.00	212	0.04	82,750	17.30
	Aug	22	554	8	12	0.00	15	0.00	104	0.02	44,054	9.94
	Aug	25	447	8	9	0.00	7	0.00	63	0.02	37,595	10.51
	Aug	27	445	6	3	0.00	4	0.00	30	0.01	20,526	7.69
	Aug	30	263	6	2	0.00	2	0.00	16	0.01	8,192	5.19
	Sept	02	157	6			2	0.00	3	0.00	2,489	2.64
Total			706	106	16,281		49,362		269,426		690,396	
1995	Jun	22	569	4	6,895	3.03	4,420	1.94	49,157	21.60	0	0.00
	Jun	26	568	4	9,452	4.16	19,449	8.56	93,152	41.00	0	0.00
	Jun	29	565	4	4,972	2.20	18,188	8.05	83,580	36.98	0	0.00
	Jul	03	475	4	2,847	1.50	17,078	8.99	89,427	47.07	0	0.00
	Jul	06	481	4	1,521	0.79	14,765	7.67	81,246	42.23	0	0.00
	Jul	10	494	4	906	0.46	7,109	3.59	86,368	43.71	21	0.01
	Jul	14	435	4	546	0.31	4,219	2.42	43,137	24.79	221	0.13
	Jul	18	336	6	366	0.18	2,482	1.23	37,294	18.50	671	0.33
	Jul	21	368	4	202	0.14	940	0.64	21,039	14.29	1,272	0.86
	Aug	04	234	6	64	0.05	123	0.09	1,072	0.76	48,665	34.66
	Aug	08	611	6	95	0.03	363	0.10	1,229	0.34	98,548	26.88
	Aug	12	617	6	50	0.01	359	0.10	899	0.24	102,421	27.67
	Aug	16	593	6	52	0.01	147	0.04	208	0.06	65,713	18.47
	Aug	19	555	6	28	0.01	87	0.03	133	0.04	41,057	12.33
	Aug	22	497	6	16	0.01	113	0.04	157	0.05	43,978	14.75
	Aug	26	477	6	25	0.01	117	0.04	101	0.04	29,129	10.18
	Aug	29	355	6	15	0.01	45	0.02	39	0.02	17,790	8.35
	Sept	01	219	6	2	0.00	31	0.02	12	0.01	5,783	4.40
Total			712	92	28,054		90,026		588,250		455,269	
1996	Jun	17	245	2	2,045	4.17	1,850	3.78	11,566	23.59	0	0.00
	Jun	20	283	2	2,046	3.61	6,423	11.35	27,442	48.48	0	0.00
	Jun	24	240	1.5	666	1.85	4,420	12.28	19,438	53.99	0	0.00
	Jul	02	224	2	545	1.22	3,962	8.84	20,915	46.69	0	0.00
	Jul	05	194	2	316	0.81	3,481	8.97	17,651	45.49	2	0.01
	Jul	08	211	2	178	0.42	6,795	16.10	18,801	44.55	24	0.06
	Jul	12	237	2	230	0.49	3,781	7.98	26,468	55.84	1,608	3.39
	Jul	16	197	2	87	0.22	602	1.53	15,192	38.56	4,675	11.87
	Jul	19	267	3	164	0.20	298	0.37	13,390	16.72	14,746	18.41
	Jul	22	417	6	183	0.07	639	0.26	14,504	5.80	50,443	20.16
	Jul	25	487	8	124	0.03	256	0.07	9,024	2.32	113,637	29.17
	Jul	29	526	6	97	0.03	186	0.06	3,828	1.21	144,773	45.87
	Jul	31	464	6	52	0.02	92	0.03	1,541	0.55	122,946	44.16
	Aug	03	541	6	59	0.02	129	0.04	1,097	0.34	132,540	40.83
	Aug	07	514	6	43	0.01	73	0.02	581	0.19	94,332	30.59
	Aug	10	502	6	45	0.01	60	0.02	797	0.26	83,653	27.77
	Aug	13	471	6	25	0.01	82	0.03	296	0.10	70,053	24.79
	Aug	16	459	6	28	0.01	147	0.05	215	0.08	49,012	17.80
	Aug	20	400	6	19	0.01	83	0.03	51	0.02	25,870	10.78
	Aug	23	293	6	9	0.01	22	0.01	23	0.01	13,133	7.47
	Aug	26	209	6	11	0.01	23	0.02	13	0.01	8,684	6.93
Total			620	92.5	6,972		33,404		202,827		930,131	
1997	Jun	23	353	6	10,023	4.73	21,218	10.02	13,090	6.18	0	0.00
	Jul	31	429	6	141	0.05	352	0.14	2,060	0.80	14,963	5.81
	Aug	6	513	6	145	0.05	229	0.07	1,387	0.45	37,216	12.09
	Aug	12	507	6	61	0.02	122	0.04	408	0.13	56,149	18.46
	Aug	18	475	6	66	0.02	67	0.02	58	0.02	21,273	7.46
Total			604	30	10,436		21,988		17,003		129,601	

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Appendix B.7. (page 8 of 8)

Year	Date		Number of Permits	Hours Fished	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
1998	Jun	24	338	6	6,413	3.16	9,043	4.46	32,467	16.01		
	Jun	29	426	6	6,358	2.49	22,506	8.81	66,789	26.13		
	Jul	03	445	4	2,277	1.28	15,985	8.98	51,471	28.92	1	0.00
	Jul	11	417	4	1,127	0.68	10,172	6.10	29,407	17.63	23	0.01
	Jul	22	346	6	460	0.22	1,538	0.74	15,663	7.54	3,633	1.75
	Jul	27	370	6	356	0.16	932	0.42	7,500	3.38	18,497	8.33
	Aug	01	425	6	156	0.06	235	0.09	2,787	1.09	26,791	10.51
	Aug	06	496	6	88	0.03	295	0.10	1,020	0.34	45,128	15.16
	Aug	11	464	6	67	0.02	95	0.03	388	0.14	58,426	20.99
	Aug	17	439	6	34	0.01	45	0.02	122	0.05	34,640	13.15
	Aug	22	382	6	19	0.01	53	0.02	67	0.03	18,936	8.26
	Aug	29	154	6	1	0.00	7	0.01	17	0.02	4,093	4.43
Total			615	68	17,356		60,906		207,698		210,168	
1999	Jun	30	409	6	4,668	1.90	16,772	6.83	22,700	9.25		
	Aug	7	389	6	37	0.02	204	0.09	306	0.13	23,593	10.1
Total			509	12	4,705		16,976		23,006		23,593	
2000	July	05 [d]	224	4	357	0.40	3,658	4.08	11,026	12.31		
	Aug	01 [d]	248	6	12	0.01	94	0.06	156	0.10	25,642	17.2
	Aug	04 [c]	123	6	7	0.01	7	0.01	53	0.07	50,260	68.1
	Aug	05 [d]	270	6	8	0.00	73	0.05	43	0.03	32,056	19.8
	Aug	08 [c]	186	6	9	0.01	26	0.02	55	0.05	26,771	24.0
	Aug	09 [d]	217	6	13	0.01	57	0.04	128	0.10	20,905	16.1
	Aug	12 [c]	189	6	12	0.01	17	0.01	23	0.02	37,451	33.0
	Aug	14 [d]	224	6	6	0.00	75	0.06	33	0.02	16,766	12.5
	Aug	14 [c]	193	6	5	0.00	23	0.02	15	0.01	17,916	15.5
	Aug	18 [c]	199	6	6	0.01	58	0.05	16	0.01	14,697	12.3
	Aug	21 [c]	158	6	4	0.00	3	0.00	10	0.01	8,577	9.0
	Aug	22 [d]	143	6	1	0.00	32	0.04	4	0.00	4,489	5.2
	Aug	25	106	6	4	0.01	7	0.01	8	0.01	4,191	6.6
Total			532	76	444		4,130		11,570		259,721	
2001	Aug	03 [d]	144	4	9	0.02	22	0.04	347	0.60	17,174	29.8
	Aug	06 [c]	108	4	8	0.02	5	0.01	101	0.23	20,089	46.5
	Aug	08	262	6	23	0.01	11	0.01	356	0.23	46,369	29.5
	Aug	11 [c]	175	6	20	0.02	10	0.01	218	0.21	41,643	39.7
	Aug	13 [d]	143	4	5	0.01	4	0.01	37	0.06	9,647	16.9
	Aug	15	296	6	5	0.00	15	0.01	122	0.07	28,893	16.3
	Aug	17	259	6	12	0.01	9	0.01	65	0.04	11,064	7.1
	Aug	20	149	6	6	0.01	5	0.01	17	0.02	5,440	6.1
	Aug	22	149	6	0	0.00	3	0.00	4	0.00	8,149	9.1
	Aug	25	118	6	2	0.00	0	0.00	5	0.01	4,530	6.4
Total			412	54	90		84		1,272		192,998	
2002	Aug	02 d	40	2	7	0.09	3	0.04	134	1.7	2,492	31.2
	Aug	05	175	4	18	0.03	41	0.06	573	0.8	11,164	16.0
	Aug	08 e	119	6	22	0.03	20	0.03	541	0.8	22,890	32.1
	Aug	09 d	132	6	8	0.01	9	0.01	254	0.3	13,749	17.4
	Aug	12 e	136	6	9	0.01	8	0.01	292	0.4	22,962	28.1
	Aug	13 d	109	6	8	0.01	3	0.00	106	0.2	10,206	15.6
Total			318	30	72		84		1,900		83,463	

[a] Gillnet mesh size unrestricted

[b] Gillnets were restricted to 6 inches or less; after 1985 this restriction was in effect for all period

[c] Sales of chinook salmon were prohibited. Estimated chinook harvest was between 12,119 and 13,615 on 6/24 and between 5,831 and 6,555 on 6/2

[d] Subdistrict W-1B (below Bethel) opening

[e] Subdistrict W-1A (above Bethel) opening

Appendix B.8. Historical commercial salmon catches by fishing period in Kuskokwim Area District 2, 1974-2002.

			Number of	Hours	Chinook		Sockeye		Chum		Coho	
Year	Date		Permits	Fished	Catch	CPUE	Catch	CPUE	Catch	CPUE	Catch	CPUE
1974	Jun	10 - 14 [a]	26	96	549	0.2	0	0.0	16	0.0	0	0.00
	Jun	17 - 19 [a]	29	48	402	0.3	0	0.0	451	0.3	0	0.00
	Aug	5 - 9 [a]	14	96	2	0.0	0	0.0	210	0.2	990	0.7
	Aug	12 - 13 [a]	13	24	0	0.0	0	0.0	11	0.0	1,428	4.6
Total			**37**	**264**	**953**		**0**		**688**		**2,418**	
1975	Jun	23 - 27 [a]	38	96	1,319	0.4	0	0.0	2,385	0.7	0	0.00
Total			**38**	**96**	**1,319**		**0**		**2,385**		**0**	
1976	Jun	21 - 24 [a]	55	66	3,316	0.9	0	0.0	1,136	0.3	0	0.00
	Aug	23 - 25 [a]	11	24	1	0.0	0	0.0	1	0.0	568	2.15
Total			**57**	**90**	**3,317**		**0**		**1,137**		**568**	
1977	Jun	20 - 21 [a]	83	30	3,975	1.6	0	0.0	756	0.3	0	0.00
	Jul	4 [a]	54	12	195	0.3	10	0.0	15,160	23.4	0	0.00
	Aug	8 [a]	24	12	1	0.0	0	0.0	124	0.4	3,705	12.86
Total			**105**	**54**	**4,171**		**10**		**16,040**		**3,705**	
1978	Jun	14 [b]	8	6	359	7.5	0	0.0	59	1.2	0	0.0
	Jun	16 [b]	13	6	424	5.4	0	0.0	189	2.4	0	0.0
	Jun	22 [a]	9	4	411	11.4	0	0.0	377	10.5	0	0.0
	Jun	23 [a]	24	4	893	9.3	0	0.0	804	8.4	0	0.0
	Aug	18 [b]	3	12	0	0.0	0	0.0	0	0.0	257	7.14
	Aug	22 [b]	17	12	1	0.0	0	0.0	8	0.0	2,346	11.50
Total			**43**	**44**	**2,088**		**0**		**1,437**		**2,603**	
1979	Jun	21 [b]	29	12	1,030	3.0	142	0.4	982	2.8	0	0.00
	Jun	25 [b]	33	12	1,883	4.8	452	1.1	1,946	4.9	0	0.00
	Aug	13 [b]	20	12	0	0.0	0	0.0	430	1.8	3,630	15.13
Total			**43**	**36**	**2,913**		**594**		**3,358**		**3,630**	
1980	Jun	23 [a]	37	12	1,482	3.3	0	0.0	4,004	9.0	0	0.00
	Jul	09 [b]	21	6	215	1.7	0	0.0	11,911	94.5	0	0.00
	Aug	14 [b]	12	12	0	0.0	0	0.0	702	4.9	2,868	19.92
Total			**43**	**30**	**1,697**		**0**		**16,617**		**2,868**	
1981	Jun	16 [a]	18	6	933	8.6	4	0.0	810	7.5	0	0.00
	Jun	19 [a]	151	6	3,838	4.2	125	0.1	3,902	4.3	0	0.00
	Jun	25 [b]	11	6	499	7.6	0	0.0	3,329	50.4	0	0.00
	Aug	17 [b]	15	6	0	0.0	0	0.0	62	0.7	1,487	16.52
	Aug	20 [b]	13	6	1	0.0	0	0.0	32	0.4	1,896	24.31
Total			**153**	**30**	**5,271**		**129**		**8,135**		**3,383**	
1982	Jun	17 [a]	10	6	222	3.7	19	0.3	274	4.6	0	0.00
	Jun	21 [a]	23	6	769	5.6	53	0.4	817	5.9	0	0.00
	Jun	24 [a]	35	6	1,122	5.3	434	2.1	1,912	9.1	0	0.00
	Jul	2 [b]	24	6	271	1.9	607	4.2	7,060	49.0	0	0.00
	Jul	5 [b]	47	6	398	1.4	808	2.9	8,811	31.2	0	0.00
	Aug	9 [b]	15	6	2	0.0	0	0.0	144	1.6	1,841	20.46
	Aug	16 [b]	13	6	0	0.0	0	0.0	29	0.4	4,567	58.55
	Aug	19 [b]	21	6	1	0.0	0	0.0	5	0.0	5,352	42.48
Total			**60**	**48**	**2,785**		**1,921**		**19,052**		**11,760**	
1983	Jun	16 [a]	14	6	510	6.1	13	0.2	165	2.0	0	0.00
	Jun	20 [b]	28	6	746	4.4	86	0.5	2,069	12.3	0	0.00
	Jun	23 [b]	34	6	820	4.0	338	1.7	2,154	10.6	0	0.00
	Jun	27 [b]	33	6	755	3.8	736	3.7	4,276	21.6	0	0.00
	Aug	11 [b]	9	6	0	0.0	1	0.0	98	1.8	471	8.72
	Aug	15 [b]	0	6	0	0.0	0	0.0	0	0.0	0	0.00
	Aug	18 [b]	0	6	0	0.0	0	0.0	0	0.0	0	0.00
Total			**43**	**42**	**2,831**		**1,174**		**8,762**		**471**	

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Year	Date		Number of Permits	Hours Fished	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
1984	Jun	21 [a]	15	6	561	6.23	84	0.93	967	10.74	0	0.00
	Jun	25 [b]	25	6	493	3.29	543	3.62	5,705	38.03	0	0.00
	Jun	28 [b]	33	6	524	2.65	395	1.99	13,376	67.56	0	0.00
	Jul	2 [b]	25	6	204	1.36	982	6.55	7,420	49.47	0	0.00
	Aug	06 [b]	16	6	9	0.09	0	0.00	110	1.15	4,339	45.20
	Aug	09 [b]	11	6	1	0.02	0	0.00	69	1.05	4,340	65.76
	Aug	13 [b]	12	6	1	0.01	0	0.00	24	0.33	2,792	38.78
	Aug	16 [b]	17	6	1	0.01	0	0.00	16	0.16	3,652	35.80
	Aug	20 [b]	13	6	1	0.01	0	0.00	0	0.00	2,179	27.94
	Aug	23 [b]	8	6	0	0.00	0	0.00	0	0.00	1,047	21.81
	Aug	27 [b]	0	6	0	0.00	0	0.00	0	0.00	0	0.00
	Aug	30 [b]	0	6	0	0.00	0	0.00	0	0.00	0	0.00
Total			**58**	**72**	**1,795**		**2,004**		**27,687**		**18,349**	
1985	Jun	20	8	6	136	2.83	115	2.40	647	13.48	0	0.00
	Jun	24	11	6	263	3.98	340	5.15	2,411	36.53	0	0.00
	Jun	27	12	6	548	7.61	739	10.26	2,263	31.43	0	0.00
	Jul	1	15	6	779	8.66	1,100	12.22	2,854	31.71	0	0.00
	Jul	4	0	6	0	0.00	0	0.00	0	0.00	0	0.00
	Aug	08	6	6	0	0.00	0	0.00	41	1.14	739	20.53
	Aug	12	14	6	3	0.04	0	0.00	45	0.54	2,914	34.69
	Aug	15	11	6	1	0.02	0	0.00	9	0.14	2,005	30.38
Total			**23**	**48**	**1,730**		**2,294**		**8,270**		**5,658**	
1986	Jun	26	3	6	186	10.33	616	34.22	439	24.39	0	0.00
	Jun	30	13	6	386	4.95	1,171	15.01	1,619	20.76	0	0.00
	Jul	3	8	6	168	3.50	265	5.52	1,249	26.02	0	0.00
	Jul	7	2	6	117	9.75	26	2.17	387	32.25	0	0.00
	Jul	10	6	6	45	1.25	179	4.97	1,282	35.61	0	0.00
	Aug	07	8	6	0	0.00	0	0.00	0	0.00	2,445	50.94
	Aug	11	10	6	0	0.00	0	0.00	23	0.38	2,677	44.62
	Aug	13	10	6	0	0.00	1	0.02	13	0.22	2,787	46.45
	Aug	15	27	6	1	0.01	0	0.00	0	0.00	5,761	35.56
	Aug	18	8	6	1	0.02	0	0.00	0	0.00	1,804	37.58
	Aug	21	6	6	0	0.00	0	0.00	0	0.00	1,325	36.81
Total			**43**	**66**	**904**		**2,258**		**5,012**		**16,799**	
1987	Jul	03	15	6	1,325	14.72	511	5.68	3,200	35.56	0	0.00
	Jul	07	22	6	935	7.08	1,459	11.05	4,152	31.45	0	0.00
	Aug	13	14	6	4	0.05	1	0.01	304	3.62	2,273	27.06
	Aug	17	14	6	6	0.07	0	0.00	102	1.21	3,374	40.17
	Aug	19	13	6	1	0.01	0	0.00	39	0.50	3,928	50.36
	Aug	21	18	6	1	0.01	0	0.00	40	0.37	4,571	42.32
Total			**29**	**36**	**2,272**		**1,971**		**7,837**		**14,146**	
1988	Jun	24	13	6	669	8.58	1,041	13.35	4,232	54.26	0	0.00
	Jun	28	17	6	746	7.31	639	6.26	6,087	59.68	0	0.00
	Jul	2	19	6	468	4.11	579	5.08	8,155	71.54	0	0.00
	Aug	08	14	6	6	0.07	0	0.00	308	3.67	1,465	17.44
	Aug	10	16	6	10	0.10	0	0.00	312	3.25	3,823	39.82
	Aug	12	20	6	3	0.03	2	0.02	244	2.03	5,216	43.47
	Aug	15	21	6	1	0.01	0	0.00	144	1.14	2,317	18.39
	Aug	18	15	6	2	0.02	0	0.00	116	1.29	1,485	16.50
	Aug	20	17	6	1	0.01	0	0.00	94	0.92	1,573	15.42
Total			**29**	**54**	**1,906**		**2,261**		**19,692**		**15,879**	

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Year	Date		Number of Permits	Hours Fished	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
1989	Jun	30	15	8	610	5.08	587	4.89	7,353	61.28	0	0.0
	Jul	03	18	6	371	3.44	238	2.20	5,101	47.23	0	0.0
	Jul	05	14	6	264	3.14	176	2.10	3,542	42.17	0	0.0
	Jul	11	14	6	128	1.52	95	1.13	4,580	54.52	0	0.0
	Aug	07	22	6	3	0.02	0	0.00	238	1.80	6,607	50.1
	Aug	09	18	6	3	0.03	0	0.00	114	1.06	5,714	52.9
	Aug	15	15	6	1	0.01	0	0.00	7	0.08	1,867	20.7
	Aug	18	20	6	3	0.03	0	0.00	11	0.09	2,733	22.8
Total			**30**	**50**	**1,383**		**1,096**		**20,946**		**16,921**	
1990	Jun	29	14	6	641	7.63	735	8.75	3,838	45.69	0	0.0
	Jul	05	15	6	467	5.19	561	6.23	4,397	48.86	0	0.0
	Jul	09	17	6	255	2.50	580	5.69	5,163	50.62	0	0.0
	Jul	14	17	8	209	1.54	567	4.17	6,999	51.46	0	0.00
	Aug	06	15	6	21	0.23	5	0.06	742	8.24	1,111	12.34
	Aug	10	15	6	17	0.19	5	0.06	550	6.11	1,946	21.62
	Aug	13	16	6	4	0.04	1	0.01	276	2.88	4,192	43.67
	Aug	16	17	9	6	0.04	0	0.00	105	0.69	2,239	14.63
	Aug	20	18	6	0	0.00	0	0.00	12	0.11	2,548	23.59
	Aug	27	17	6	1	0.01	3	0.03	3	0.03	1,780	17.45
Total			**22**	**65**	**1,621**		**2,457**		**22,085**		**13,816**	
1991	Jul	01	17	6	483	4.74	1,200	11.76	3,043	29.83	0	0.0
	Jul	06	16	6	341	3.55	613	6.39	2,381	24.80	0	0.0
	Jul	13	18	6	112	1.04	981	9.08	4,384	40.59	0	0.00
	Jul	18	17	6	49	0.48	365	3.58	6,534	64.06	0	0.00
	Jul	22	19	6	28	0.25	117	1.03	7,154	62.75	17	0.15
	Jul	25	17	8	20	0.15	177	1.30	7,686	56.51	115	0.85
	Jul	29	16	8	21	0.16	70	0.55	3,452	26.97	177	1.38
	Aug	05	17	8	6	0.04	0	0.00	1,245	9.15	1,596	11.74
	Aug	08	17	8	4	0.03	3	0.02	835	6.14	2,381	17.51
	Aug	12	16	8	2	0.02	0	0.00	340	2.66	1,829	14.29
	Aug	14	15	8	4	0.03	0	0.00	227	1.89	2,461	20.51
	Aug	19	19	6	2	0.02	0	0.00	138	1.21	1,689	14.82
	Aug	26	16	8	0	0.00	0	0.00	49	0.38	4,425	34.57
Total			**23**	**92**	**1,072**		**3,526**		**37,468**		**14,690**	
1992	Jun	25	16	8	1,021	7.98	930	7.27	3,916	30.59	0	0.00
	Jun	29	15	6	815	9.06	525	5.83	2,439	27.10	0	0.00
	Jul	6	9	8	310	4.31	486	6.75	2,840	39.44	0	0.00
	Aug	03	17	8	27	0.20	317	2.33	1,440	10.59	5,106	37.54
	Aug	06	17	6	11	0.11	1	0.01	536	5.25	3,832	37.57
	Aug	11	19	6	7	0.06	1	0.01	136	1.19	3,837	33.66
	Aug	14	21	6	0	0.00	1	0.01	70	0.56	8,216	65.21
	Aug	17	16	6	0	0.00	0	0.00	24	0.25	5,685	59.22
	Aug	20	14	6	1	0.01	0	0.00	43	0.51	2,682	31.93
	Aug	24	14	6	3	0.04	1	0.01	17	0.20	2,827	33.65
	Aug	27	11	6	0	0.00	0	0.00	5	0.08	1,238	18.76
	Aug	31	11	6	0	0.00	0	0.00	1	0.02	1,153	17.47
Total			**22**	**78**	**2,195**		**2,262**		**11,467**		**34,576**	
1993	Aug	06	15	8	9	0.08	2	0.02	303	2.53	6,828	56.90
	Aug	09	17	6	4	0.04	1	0.01	153	1.50	3,839	37.64
	Aug	14	17	6	3	0.03	1	0.01	70	0.69	2,681	26.28
	Aug	17	16	6	3	0.03	0	0.00	23	0.24	2,349	24.47
	Aug	21	17	6	0	0.00	0	0.00	26	0.25	3,115	30.54
	Aug	25	15	6	0	0.00	1	0.01	24	0.27	3,008	33.42
	Aug	28	14	6	1	0.01	0	0.00	11	0.13	1,798	21.40
	Sept	01	13	6	1	0.01	0	0.00	9	0.12	791	10.14
Total			**20**	**50**	**21**		**5**		**619**		**24,409**	

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Year	Date	Number of Permits	Hours Fished	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
1994	Aug 04	14	6	6	0.07	0	0.00	808	9.62	4,040	48.10
	Aug 09	17	6	3	0.03	0	0.00	350	3.43	5,790	56.76
	Aug 12	17	8	0	0.00	0	0.00	226	1.66	10,539	77.49
	Aug 15	16	8	0	0.00	1	0.01	151	1.18	7,190	56.17
	Aug 18	15	8	1	0.01	0	0.00	106	0.88	2,710	22.58
	Aug 22	12	8	0	0.00	1	0.01	34	0.35	1,855	19.32
	Aug 25	7	8	0	0.00	0	0.00	12	0.21	1,492	26.64
	Aug 27	6	6	0	0.00	1	0.03	2	0.06	677	18.81
Total		**20**	**58**	**10**		**3**		**1,689**		**34,293**	
1995	Jun 26	16	4	1,656	25.88	535	8.36	3,628	56.69	0	0.00
	Jun 29	13	4	707	13.60	620	11.92	3,577	68.79	0	0.00
	Jul 03	9	4	284	7.89	456	12.67	2,200	61.11	0	0.00
	Jul 06	8	4	74	2.31	331	10.34	2,372	74.13	0	0.00
	Jul 10	6	4	32	1.33	293	12.21	1,874	78.08	0	0.00
	Jul 14	2	4	7	0.88	51	6.38	480	60.00	0	0.00
	Jul 18	6	6	9	0.25	44	1.22	1,638	45.50	6	0.17
	Jul 21	5	4	4	0.20	132	6.60	899	44.95	13	0.65
	Aug 04	6	6	10	0.28	4	0.11	484	13.44	1,321	36.69
	Aug 08	9	6	2	0.04	6	0.11	379	7.02	2,816	52.15
	Aug 12	8	6	5	0.10	1	0.02	79	1.65	2,643	55.06
	Aug 16	12	6	1	0.01	0	0.00	41	0.57	4,398	61.08
	Aug 19	5	6	1	0.03	0	0.00	4	0.13	1,679	55.97
	Aug 22	8	6	0	0.00	1	0.02	9	0.19	1,750	36.46
	Aug 26	3	6	0	0.00	0	0.00	0	0.00	712	39.56
	Aug 29	3	6	0	0.00	0	0.00	4	0.22	660	36.67
	Sept 01	1	6	0	0.00	0	0.00	0	0.00	194	32.33
Total		**21**	**88**	**2,792**		**2,474**		**17,668**		**16,192**	
1996	Jun 24	6	2	145	12.08	69	5.75	613	51.08	0	0.00
	Jul 2	4	2	175	21.88	109	13.63	376	47.00	0	0.00
	Jul 5	3	2	8	1.33	38	6.33	606	101.00	0	0.00
	Jul 8	4	4	42	2.63	92	5.75	877	54.81	0	0.00
	Jul 12	4	4	60	3.75	56	3.50	758	47.38	0	0.00
	Jul 16	1	4	5	1.25	33	8.25	336	84.00	3	0.75
	Jul 19	3	4	9	0.75	9	0.75	444	37.00	51	4.25
	Jul 22	2	6	0	0.00	6	0.50	414	34.50	234	19.50
	Jul 25	3	8	2	0.08	5	0.21	367	15.29	700	29.17
	Jul 29	2	6	1	0.08	2	0.17	98	8.17	668	55.67
	Jul 31	1	6	0	0.00	2	0.33	148	24.67	162	27.00
	Aug 10	2	6	0	0.00	0	0.00	0	0.00	787	65.58
	Aug 13	5	6	0	0.00	1	0.03	5	0.17	1,761	58.70
	Aug 16	2	6	0	0.00	0	0.00	8	0.67	590	49.17
	Aug 20	3	6	0	0.00	52	2.89	0	0.00	1,063	59.06
	Aug 23	2	6	0	0.00	0	0.00	0	0.00	620	51.67
	Aug 26	5	6	0	0.00	0	0.00	0	0.00	541	18.03
Total		**8**	**84**	**447**		**474**		**5,050**		**7,180**	
1997	Aug 12	2	6	1	0.08	0	0.00	23	1.92	494	41.17
	Aug 18	3	6	4	0.22	1	0.06	0	0.00	708	39.33
Total		**4**	**12**	**5**		**1**		**23**		**1,202**	
1998	Aug 06	3	6	3	0.17	0	0	111	6.17	313	17.39
	Aug 11	No harvest/ No deliveries									
Total		**3**	**6**	**3**		**0**		**111**		**313**	
1999	**No commercial fishery In W-2**										
2000	Aug 12	4	6							1237	51.54
	Aug 21	2	6							439	36.58
Total		**12**	**12**							**1,676**	
2001	**No commercial fishery In W-2**										
2002	**No commercial fishery In W-2**										

[a] Gillnet mesh size unrestricted.

[b] Gillnets were restricted to 6 inches or less; after 1985 this restriction was in effect for all periods.

Appendix B.9. Historical commercial salmon harvest by statistical area in District 1, 1984-2002.

	Statistical Area 335-11				Statistical Area 335-12				Statistical Area 335-13				Statistical Area 335-14			
Year	Chinook	Sockeye	Chum	Coho	Chinook	Sockeye	Chum	Coho	Chinook	Sockeye	Chum	Coho	Chinook	Sockeye	Chum	Coho
1984 [a,b]	20,229	45,276	385,178	332,679	9,717	1,295	10,853	272,419								
1985 [b]	18,210	53,548	117,152	168,465	17,949	50,805	74,056	161,483								
1986	9,329	46,505	169,958	301,093	9,181	46,670	134,243	342,096								
1987	20,492	82,403	332,002	226,252	13,415	52,228	234,497	159,069								
1988 [d]	40,355	60,168	861,433	290,872	12,540	27,127	453,012	199,036	915	2,469	47,537	18,509				
1989	29,702	28,319	498,490	233,182	10,856	11,499	203,120	192,796	1,187	1,570	25,782	35,056				
1990 [e]	6,195	8,988	54,431	63,804	29,195	38,113	224,148	196,827	11,762	20,508	101,711	93,928	4,731	14,349	57,737	40,678
1991	4,218	16,961	63,636	98,565	23,104	50,760	165,651	217,820	5,840	19,884	92,063	117,335	3,544	17,815	72,984	52,525
1992	7,754	18,253	76,215	124,583	23,177	36,938	178,693	271,900	9,064	22,829	43,979	159,189	4,682	11,936	34,249	75,922
1993	2,198	10,054	12,272	113,956	6,302	16,821	26,712	226,119	148	116	1,912	171,208	66	12	1,822	75,047
1994	1,589	8,071	27,823	87,428	13,678	34,512	163,087	283,129	634	4,863	55,284	226,100	300	1,916	23,232	93,739
1995	4,917	19,129	111,404	63,421	12,966	27,055	257,166	175,531	8,336	29,131	153,619	164,763	1,835	14,711	66,061	51,554
1996	237	1,851	9,651	100,608	4,161	15,969	117,496	393,330	2,064	12,619	57,533	323,751	510	2,965	18,147	112,442
1997	2,257	8,072	5,279	18,232	8,063	13,845	11,010	61,671	95	59	255	26,795	21	12	459	22,903
1998	2,457	13,536	34,648	32,025	9,346	24,882	105,751	69,654	4,713	18,773	48,908	60,664	840	3,715	18,391	47,825
1999	735	6,162	3,632	1,464	3,950	10,697	7,998	19,188	15	106	96	8,944	5	11	90	5,187
2000	91	874	1,960	40,472	313	3,174	9,448	74,614	527	68	109	100,474	165	14	53	44,143
2001	2	8	61	5,163	31	42	540	66,071	50	32	576	106,810	7	2	114	16,484
2002	4	18	135	9,961	23	29	512	20,365	43	31	1,074	43,820	2	6	179	9,317

[a] Prior to June 25, gillnet mesh size was unrestricted in both statistical areas; after June 25, gillnet mesh size was restricted to 6 inches or less. Commerical fishing chum season was allowed only in 335-11, both statistical areas were open during coho season.

[b] Through 1987, statistical area 335-11 was located downstream of Bethel, and 335-12 was located upstream from Bethel to Mishevak Slough.

[c] Since 1985, gillnets have been restricted to 6 inches or less during all commecial periods.

[d] The upstream boundary of District 1 was moved upstream to Bogus Creek; the area from the old boundary to Bogus Creek was designated as stat. area 335-13.

[e] Beginning in 1990, the upstream boundary of District 1 was moved downstream to Nelson Island and the district was split into four statistical areas. Statistical areas 335-11 & -12 are below Bethel, and 335-13 & -14 are above Bethel.

Appendix B 10. Historical commercial salmon harvest and effort by fishing period in Kuskokwim Statistical Area 335-11.

Year	Date		Number of Permits	Hours Fished	Chinook Salmon	Sockeye Salmon	Chum Salmon	Pink Salmon	Coho Salmon
1990	Jun	20	134	6	2,580	2,021	5,353		
	Jun	25	102	6	1,453	2,719	6,986		
	Jun	29	92	6	694	975	5,116		
	Jul	05	66	6	518	1,509	11,354		
	Jul	09	91	6	455	721	12,405	5	
	Jul	14	93	8	254	868	11,053	17	43
	Aug	01	98	6	36	50	1,166	330	3,653
	Aug	06	106	6	170	34	599	193	20,588
	Aug	10	123	6	22	27	244	73	11,089
	Aug	13	95	6	6	27	67	26	16,094
	Aug	16	100	9	6	14	60	28	7,243
	Aug	20	70	6	0	15	27	18	3,259
	Aug	27	35	6	1	8	1	12	1,835
Total			**743**	**83**	**6,195**	**8,988**	**54,431**	**702**	**63,804**
1991	Jun	20	88	6	1,392	2,619	3,340		
	Jun	24	86	6	1,633	4,867	9,865		
	Jul	01	94	6	576	5,572	10,195		
	Jul	06	102	6	264	2,387	6,031		
	Jul	13	84	6	150	894	11,289	12	4
	Jul	18	89	6	66	396	7,990	0	218
	Jul	22	65	6	30	46	3,973	0	310
	Jul	25	69	8	40	51	4,012	66	1,543
	Jul	29	91	8	12	40	4,050	19	7,661
	Aug	01	126	6	12	24	957	16	11,091
	Aug	05	149	8	11	19	927	19	12,868
	Aug	08	147	8	10	13	562	14	24,661
	Aug	12	150	8	7	13	278	34	16,355
	Aug	14	107	8	6	10	139	13	14,426
	Aug	19	82	6	7	4	21	1	6,422
	Aug	26	68	8	2	6	7	0	3,006
Total			**252**	**110**	**4,218**	**16,961**	**63,636**	**194**	**98,565**
1992	Jun	18	130	8	2,449	3,388	9,256		
	Jun	22	146	8	2,389	5,669	17,363		
	Jun	25	135	8	1,109	3,430	11,135	5	
	Jun	29	109	6	981	4,040	16,734	0	
	Jul	06	96	8	640	1,559	20,850	540	
	Aug	03	146	8	81	32	492	2,098	26,666
	Aug	06	124	6	21	30	243	219	20,674
	Aug	11	151	6	26	35	57	15	25,099
	Aug	14	130	6	23	28	48	26	17,348
	Aug	17	116	6	15	19	19	6	10,943
	Aug	20	104	6	6	5	2	0	10,691
	Aug	24	93	6	5	12	6	0	5,147
	Aug	27	66	6	6	3	6	0	6,072
	Aug	31	57	6	3	3	4	0	1,943
Total			**271**	**94**	**7,754**	**18,253**	**76,215**	**2,909**	**124,583**

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Appendix B.10. (page 2 of 4)

Year	Date		Number of Permits	Hours Fished	Chinook Salmon	Sockeye Salmon	Chum Salmon	Pink Salmon	Coho Salmon
1993	Jun	25	183	8	2,073	9,803	10,844		
	Jul	31	150	6	44	78	867		11,538
	Aug	04	163	6	10	32	264		16,044
	Aug	06	119	8	21	43	120		16,922
	Aug	09	112	6	13	32	41		10,192
	Aug	14	163	6	18	22	67	5	27,176
	Aug	17	130	6	9	17	38	0	19,712
	Aug	21	125	6	2	5	6	0	5,531
	Aug	25	83	6	3	9	12	0	2,932
	Aug	28	71	6	5	13	12	2	3,265
	Sept	01	24	6	0	0	1	0	644
Total			**278**	**70**	**2,198**	**10,054**	**12,272**	**7**	**113,956**
1994	Jun	24	116	8	1,306	6,720	13,224		
	Jul	14	67	4	82	493	4,691	581	382
	Jul	19	85	6	64	270	4,428	1,193	1,279
	Jul	23	80	6	38	274	1,927	1,211	3,109
	Jul	26	109	6	31	183	1,994	2,276	5,314
	Jul	29	105	6	24	47	941	1,294	7,498
	Aug	04	120	6	15	27	378	972	10,214
	Aug	09	67	6	6	4	44	166	9,080
	Aug	12	113	8	11	16	74	101	13,019
	Aug	15	109	8	5	18	74	187	12,159
	Aug	18	96	8	1	8	24	55	7,944
	Aug	22	88	8	4	8	13	56	9,971
	Aug	25	54	8	0	2	3	20	2,850
	Aug	27	62	6	1	0	2	6	2,709
	Aug	30	45	6	1	0	6	13	1,422
	Sept	02	20	6	0	1	0	0	478
Total			**231**	**106**	**1,589**	**8,071**	**27,823**	**8,131**	**87,428**
1995	Jun	22	120	4	1,794	1,225	8,912		
	Jun	26	117	4	1,242	4,950	16,819		
	Jun	29	124	4	752	4,383	18,410		
	Jul	03	117	4	453	3,199	17,751		
	Jul	06	103	4	238	1,530	15,670		
	Jul	10	96	4	111	927	14,650	1	
	Jul	14	95	4	153	1,574	7,637	0	62
	Jul	18	83	6	68	455	8,539	0	170
	Jul	21	55	4	33	130	2,642	0	443
	Aug	04	88	6	21	77	82	3	10,613
	Aug	08	120	6	10	87	94	3	10,166
	Aug	12	115	6	7	269	106	2	14,836
	Aug	16	91	6	7	67	16	6	6,867
	Aug	19	100	6	7	55	22	1	6,886
	Aug	22	89	6	7	76	22	1	7,332
	Aug	26	85	6	11	77	19	6	3,905
	Aug	29	43	6	3	26	10	1	1,269
	Sept	01	23	6	0	22	3	0	872
Total			**260**	**92**	**4,917**	**19,129**	**111,404**	**24**	**63,421**

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Appendix B.10. (page 3 of 4)

Year	Date		Number of Permits	Hours Fished	Chinook Salmon	Sockeye Salmon	Chum Salmon	Pink Salmon	Coho Salmon
1996	Jun	17	No Tenders / No Deliveries						
	Jun	20	1	2	4	90	120		0
	Jun	24	No Tenders / No Deliveries						
	Jul	02	10	2	39	160	958		0
	Jul	05	20	2	37	481	1,432		0
	Jul	08	17	2	24	353	932		1
	Jul	12	15	2	12	133	1,937		200
	Jul	16	6	2	4	35	115		142
	Jul	19	27	3	11	39	843		1,959
	Jul	22	71	6	20	185	1,771		12,764
	Jul	25	90	8	22	74	406	118	7,838
	Jul	29	78	6	19	75	900	125	14,135
	Jul	31	35	6	4	9	63	0	5,886
	Aug	03	124	6	10	67	89	1	18,114
	Aug	07	116	6	9	27	38	0	15,346
	Aug	10	64	6	6	7	7	0	6,166
	Aug	13	65	6	2	27	20	0	5,003
	Aug	16	95	6	6	42	8	0	6,261
	Aug	20	77	6	4	41	8	0	3,589
	Aug	23	63	6	3	6	4	0	2,664
	Aug	26	15	6	1	0	0	0	540
Total			**241**	**89**	**237**	**1,851**	**9,651**	**244**	**100,608**
1997	Jun	23	81	6	2,171	7,745	4,540		
	Jul	31	108	6	44	118	559		4,460
	Aug	06	92	6	29	126	120		4,350
	Aug	12	73	6	5	40	36		4,095
	Aug	18	65	6	8	43	24		5,327
Total			**158**	**30**	**2,257**	**8,072**	**5,279**	**0**	**18,232**
1998	Jun	24	85	6	1,168	3,286	6,721		
	Jun	29	88	6	548	6,389	15,518		
	Jul	03	72	4	270	2,194	6,113		
	Jul	11	55	4	211	685	3,542		10
	Jul	22	51	6	117	395	801		561
	Jul	27	97	6	71	425	1,331		4,647
	Aug	01	104	6	37	67	490	6	6,221
	Aug	06	84	6	15	42	56	3	6,970
	Aug	11	86	6	14	32	57	8	8,562
	Aug	17	60	6	0	12	6	8	2,063
	Aug	22	51	6	5	5	7	9	2,256
	Aug	29	22	6	1	4	6	7	735
Total			**215**	**68**	**2,457**	**13,536**	**34,648**	**41**	**32,025**
1999	Jun	30	83	6	733	6,122			
	Aug	07	58	6	2	40	3,623		1,464
Total			**100**	**12**	**735**	**6,162**	**3,623**	**0**	**1,464**

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Appendix B.10. (page 4 of 4)

Year	Date	Number of Permits	Hours Fished	Chinook Salmon	Sockeye Salmon	Chum Salmon	Pink Salmon	Coho Salmon
2000	Jul 07	44	4	77	623	1,800	0	0
	Aug 01	66	4	5	49	31	0	9,523
	Aug 05	75	6	0	56	7	0	8,129
	Aug 09	96	6	3	39	101	0	9,416
	Aug 14	51	6	2	49	14	0	5,577
	Aug 18	97	6	3	32	6	0	5,888
	Aug 22	104	6	1	25	1	6	1,658
	Aug 25	84	6	0	1	0	3	216
Total		**149**	**44**	**91**	**874**	**1,960**	**9**	**40,407**
2001	Aug 03	19	4	2	4	35	0	1,924
	Aug 08	14	6	0	0	10	0	2,757
	Aug 13	12	4	0	4	16	0	402
	Aug 15	0	6	0	0	0	0	0
	Aug 17	2	6	0	0	0	0	62
	Aug 20	0	6	0	0	0	0	0
	Aug 22	0	6	0	0	0	0	0
	Aug 25	1	6	0	0	0	0	18
Total		**29**	**44**	**2**	**8**	**61**	**0**	**5,163**
2002	Aug 2	7	2	1	3	7	0	222
	Aug 5	35	4	0	8	55	0	2,169
	Aug 9	33	6	1	5	51	0	3,997
	Aug 13	38	6	2	2	22	0	3,573
Total		**58**	**18**	**4**	**18**	**135**	**-**	**9,961**

Appendix B.11. Historical commercial salmon harvest and effort by fishing period in Kuskokwim Statistical Area 335-12.

Year	Date	Number of Permits	Hours Fished	Chinook Salmon	Sockeye Salmon	Chum Salmon	Pink Salmon	Coho Salmon
1990	Jun 20	496	6	14,110	8,297	24,953	0	0
	Jun 25	341	6	7,342	13,289	32,077	0	0
	Jun 29	337	6	3,815	7,660	35,828	0	0
	Jul 05	316	6	1,589	3,954	40,720	2	0
	Jul 09	294	6	1,201	3,172	43,347	4	0
	Jul 14	313	8	864	1,471	40,580	10	15
	Aug 01	337	6	129	130	3,663	1,058	14,536
	Aug 06	350	6	71	68	1,979	611	28,431
	Aug 10	301	6	40	32	612	184	17,860
	Aug 13	322	6	16	15	260	68	83,038
	Aug 16	293	9	8	12	77	51	21,734
	Aug 20	284	6	8	11	44	17	25,003
	Aug 27	253	6	2	2	8	5	6,210
Total		**649**	**83**	**29,195**	**38,113**	**224,148**	**2,010**	**196,827**
1991	Jun 20	513	6	12,421	17,113	9,926	0	0
	Jun 24	340	6	6,117	9,162	13,431	0	0
	Jul 01	351	6	2,926	11,040	27,070	0	0
	Jul 06	274	6	745	8,972	17,671	1	0
	Jul 13	291	6	412	2,198	20,744	9	12
	Jul 18	250	6	135	1,612	32,764	9	531
	Jul 22	231	6	57	302	13,985	17	1,065
	Jul 25	241	8	68	166	10,015	18	1,988
	Jul 29	277	8	68	78	10,749	14	22,819
	Aug 01	294	6	93	35	4,874	11	14,836
	Aug 05	277	8	16	32	2,075	6	21,918
	Aug 08	268	8	9	15	1,284	8	25,824
	Aug 12	294	8	16	13	654	4	61,098
	Aug 14	275	8	7	7	260	2	22,589
	Aug 19	272	6	10	10	98	2	25,540
	Aug 26	233	8	4	5	51	2	19,600
Total		**596**	**110**	**23,104**	**50,760**	**165,651**	**103**	**217,820**
1992	Jun 18	437	8	7,307	5,120	23,439	0	0
	Jun 22	313	8	7,160	9,668	42,391	14	0
	Jun 25	288	8	3,537	8,323	26,332	1	0
	Jun 29	291	6	3,645	10,957	45,137	38	0
	Jul 06	294	8	1,192	2,677	38,783	151	1
	Aug 03	292	8	125	75	1,578	2,670	29,341
	Aug 06	271	6	54	23	522	249	24,520
	Aug 11	296	6	64	25	299	0	81,586
	Aug 14	274	6	27	24	98	0	31,051
	Aug 17	280	6	25	29	62	0	42,555
	Aug 20	267	6	14	9	30	0	35,619
	Aug 24	248	6	12	4	6	0	9,522
	Aug 27	223	6	14	2	11	1	13,262
	Aug 31	154	6	1	2	5	0	4,443
Total		**566**	**94**	**23,177**	**36,936**	**178,693**	**3,124**	**271,900**

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Year	Date		Number of Permits	Hours Fished	Chinook Salmon	Sockeye Salmon	Chum Salmon	Pink Salmon	Coho Salmon
1993	Jun	25	441	8	6,111	16,560	23,279	0	0
	Jul	31	286	6	59	60	1,558	11	25,420
	Aug	04	258	6	41	93	929	6	53,888
	Aug	06	279	8	31	28	535	9	37,491
	Aug	09	308	6	30	38	203	2	23,634
	Aug	14	287	6	16	12	115	6	34,600
	Aug	17	242	6	6	7	39	5	25,986
	Aug	21	244	6	3	14	30	1	13,822
	Aug	25	148	6	1	3	4	0	2,420
	Aug	28	128	6	3	5	11	0	3,406
	Sept	01	96	6	1	1	9	3	5,452
Total			**566**	**70**	**6,302**	**16,821**	**26,712**	**43**	**226,119**
1994	Jun	24	449	8	12,915	32,238	73,990	0	0
	Jul	14	270	4	253	1,186	21,138	608	280
	Jul	19	246	6	107	566	30,904	1,398	2,553
	Jul	23	244	6	114	184	21,471	2,828	11,974
	Jul	26	265	6	86	119	8,168	3,449	17,595
	Jul	29	279	6	114	72	4,358	3,681	27,548
	Aug	04	299	6	40	39	1,716	2,148	26,966
	Aug	09	263	6	8	58	627	751	58,112
	Aug	12	264	8	12	20	287	224	44,381
	Aug	15	270	8	9	8	168	183	15,883
	Aug	18	262	8	11	5	122	129	31,199
	Aug	22	256	8	4	6	61	112	15,696
	Aug	25	214	8	4	4	47	65	16,031
	Aug	27	182	6	0	4	17	21	6,130
	Aug	30	218	6	1	2	10	8	6,770
	Sept	02	137	6	0	1	3	7	2,011
Total			**583**	**106**	**13,678**	**34,512**	**163,087**	**15,612**	**283,129**
1995	Jun	22	449	4	5,101	3,195	40,245	0	0
	Jun	26	270	4	4,196	5,882	38,893	0	0
	Jun	29	257	4	1,865	6,668	45,700	0	0
	Jul	03	152	4	637	3,324	30,563	2	0
	Jul	06	196	4	439	4,866	33,073	0	0
	Jul	10	188	4	267	1,447	30,094	1	15
	Jul	14	203	4	195	786	18,045	3	112
	Jul	18	109	6	105	457	11,341	7	236
	Jul	21	171	4	56	173	7,988	5	436
	Aug	04	59	6	14	18	259	0	14,545
	Aug	08	265	6	35	66	473	5	41,623
	Aug	12	280	6	14	58	202	5	48,136
	Aug	16	251	6	14	23	76	5	18,086
	Aug	19	242	6	11	20	61	5	16,437
	Aug	22	213	6	2	21	83	5	17,312
	Aug	26	191	6	9	30	48	4	9,299
	Aug	29	152	6	5	14	15	6	8,186
	Sept	01	79	6	1	7	7	3	1,108
Total			**561**	**92**	**12,966**	**27,055**	**257,166**	**56**	**175,531**

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Appendix B.11. (page 3 of 4)

Year	Date		Number of Permits	Hours Fished	Chinook Salmon	Sockeye Salmon	Chum Salmon	Pink Salmon	Coho Salmon
1996	Jun	17	245	2	2,045	1,850	11,560	0	0
	Jun	20	185	2	1,014	4,205	18,678	0	0
	Jun	24	129	1.5	248	1,762	10,233	0	0
	Jul	02	122	2	259	2,058	9,868	0	0
	Jul	05	86	2	85	882	8,460	0	1
	Jul	08	102	2	63	2,800	11,366	0	14
	Jul	12	127	2	103	1,555	15,561	0	1,018
	Jul	16	122	2	46	248	9,278	0	3,214
	Jul	19	141	3	61	132	6,491	0	7,046
	Jul	22	207	6	56	97	7,807	165	23,722
	Jul	25	254	8	44	76	4,720	140	61,435
	Jul	29	247	6	35	66	1,474	329	68,635
	Jul	31	250	6	24	49	834	212	52,739
	Aug	03	212	6	18	37	336	23	44,710
	Aug	07	195	6	19	27	319	34	36,850
	Aug	10	240	6	16	34	198	32	28,714
	Aug	13	224	6	13	33	144	21	30,841
	Aug	16	196	6	3	24	131	3	20,779
	Aug	20	150	6	7	19	22	2	7,242
	Aug	23	104	6	1	9	9	5	3,960
	Aug	26	72	6	1	6	7	0	2,410
Total			**486**	**93**	**4,161**	**15,969**	**117,496**	**966**	**393,330**
1997	Jun	23	274	6	7,852	13,473	8,550	0	0
	Jul	31	322	6	97	234	1,501	0	10,503
	Aug	06	280	6	62	80	662	2	15,689
	Aug	12	261	6	33	40	269	0	28,857
	Aug	18	234	6	19	18	28	0	6,622
Total			**449**	**30**	**8,063**	**13,845**	**11,010**	**2**	**61,671**
1998	Jun	24	253	6	5,245	5,757	25,746	0	0
	Jun	29	151	6	2,118	6,060	24,617	0	0
	Jul	03	230	4	971	6,958	28,029	0	1
	Jul	11	235	4	549	5,356	16,917	0	8
	Jul	22	165	6	184	355	5,510	0	1,822
	Jul	27	176	6	133	229	3,239	0	9,459
	Aug	01	208	6	80	76	1,172	9	14,304
	Aug	06	212	6	24	31	324	3	11,901
	Aug	11	196	6	28	32	151	6	19,207
	Aug	17	150	6	10	11	26	1	7,056
	Aug	22	123	6	4	16	19	3	5,131
	Aug	29	48	6	0	1	1	0	765
Total			**423**	**68**	**9,346**	**24,882**	**105,751**	**22**	**69,654**
1999	Jun	30	326	6	3,935	10,650	19,088	0	
	Aug	07	177	6	15	47	100	0	7,998
Total			**366**	**12**	**3,950**	**10,697**	**19,188**	**0**	**7,998**

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Appendix B.11. (page 4 of 4)

Year	Date		Number of Permits	Hours Fished	Chinook Salmon	Sockeye Salmon	Chum Salmon	Pink Salmon	Coho Salmon
2000	Jul	07	180	4	280	3,035	9,226	0	
	Aug	01	182	4	7	45	125	4	16,101
	Aug	05	196	6	8	17	36	1	23,864
	Aug	09	122	6	10	18	27	0	11,487
	Aug	14	154	6	4	26	19	1	11,189
	Aug	18	134	6	3	26	10	0	8,809
	Aug	22	92	6	0	7	3	0	2,831
	Aug	25	23	6	1	0	2	0	333
Total			**320**	**44**	**313**	**3,174**	**9,448**	**6**	**74,614**
2001	Aug	03	125	4	7	18	312	0	15,250
	Aug	08	122	6	12	7	114	0	23,477
	Aug	13	131	4	5	0	21	0	9,245
	Aug	15	120	6	1	8	50	0	6,678
	Aug	17	95	6	5	4	31	0	2,805
	Aug	20	43	6	1	4	9	0	2,063
	Aug	22	72	6	0	1	2	0	5,043
	Aug	25	53	6	0	0	1	0	1,510
Total			**257**	**44**	**31**	**42**	**540**	**0**	**66,071**
2002	Aug	2	33	2	6	0	127	0	2,270
	Aug	5	31	4	4	24	98	0	1,710
	Aug	9	99	6	7	4	203	0	9,752
	Aug	13	71	6	6	1	84	0	6,633
Total			**140**	**18**	**23**	**29**	**512**	**0**	**20,365**

Appendix B.12. Historical commercial salmon harvest and effort by fishing period in Kuskokwim Statistical Area 335-13.

Year	Date	Number of Permits	Hours Fished	Chinook Salmon	Sockeye Salmon	Chum Salmon	Pink Salmon	Coho Salmon
1990	Jun 20	No commercial opening						
	Jun 25	126	6	5,152	7,408	10,387		
	Jun 29	153	6	3,477	6,016	20,099		
	Jul 05	153	6	1,305	2,580	23,669	1	
	Jul 09	167	6	903	2,845	24,575	2	
	Jul 14	171	8	769	1,547	19,037	5	12
	Aug 01	119	6	53	77	1,984	182	3,736
	Aug 06	125	6	52	10	1,293	166	8,923
	Aug 10	171	6	26	5	348	74	18,171
	Aug 13	170	6	14	5	173	16	12,956
	Aug 16	201	9	9	2	96	34	27,544
	Aug 20	181	6	2	7	37	2	17,669
	Aug 27	185	6		6	13	4	4,917
Total		**328**	**77**	**11,762**	**20,508**	**101,711**	**486**	**93,928**
1991	Jun 20	No commercial opening						
	Jun 24	123	6	3,101	2,724	3,522		
	Jul 01	124	6	1,535	4,535	6,816		
	Jul 06	141	6	597	7,017	8,479		
	Jul 13	126	6	221	1,604	10,841		
	Jul 18	151	6	177	2,143	24,301		198
	Jul 22	174	6	75	1,391	17,267	2	984
	Jul 25	146	8	43	282	9,149		903
	Jul 29	109	8	37	129	5,042		4,849
	Aug 01	128	6	14	33	3,903	2	8,114
	Aug 05	142	8	15	6	1,369		12,005
	Aug 08	154	8	9	7	780	2	16,259
	Aug 12	158	8	9	1	335	1	26,481
	Aug 14	157	8	4	5	117		14,882
	Aug 19	172	6	3	6	112	1	17,678
	Aug 26	153	8		1	30		14,982
Total		**320**	**104**	**5,840**	**19,884**	**92,063**	**8**	**117,335**
1992	Jun 18	No commercial opening						
	Jun 22	106	8	3,297	5,761	6,634		
	Jun 25	143	8	2,858	6,679	9,439		
	Jun 29	149	6	1,948	8,065	12,160	1	
	Jul 06	141	8	777	2,240	14,408	28	1
	Aug 03	128	8	56	18	676	859	13,315
	Aug 06	138	6	27	38	315	36	8,729
	Aug 11	174	6	58	14	224	3	56,448
	Aug 14	168	6	11	3	46		25,578
	Aug 17	143	6	6	1	31		18,169
	Aug 20	149	6	12	3	20		17,900
	Aug 24	144	6	7	3	9		7,102
	Aug 27	138	6	4	1	9		6,284
	Aug 31	117	6	3	3	8		5,663
Total		**276**	**86**	**9,064**	**22,829**	**43,979**	**927**	**159,189**

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Appendix B.12. (page 2 of 4)

Year	Date	Number of Permits	Hours Fished	Chinook Salmon	Sockeye Salmon	Chum Salmon	Pink Salmon	Coho Salmon
1993	Jun 25	No commercial opening						
	Jul 31	146	6	50	66	950	6	13,815
	Aug 04	186	6	27	13	445	3	51,261
	Aug 06	185	8	27	12	296		27,064
	Aug 09	158	6	18	4	73	1	12,821
	Aug 14	141	6	6	5	69		10,512
	Aug 17	192	6	11	7	38	1	26,249
	Aug 21	150	6	3	5	20		16,709
	Aug 25	146	6	0	1	8		3,237
	Aug 28	148	6	4	1	5		5,061
	Sept 01	116	6	2	2	8		4,479
Total		**306**	**62**	**148**	**116**	**1,912**	**11**	**171,208**
1994	Jun 24	No commercial opening						
	Jul 14	128	4	163	1,454	11,546	88	79
	Jul 19	138	6	153	2,764	18,368	894	2,625
	Jul 23	148	6	127	507	11,053	1,465	7,978
	Jul 26	142	6	91	62	8,268	1,346	13,847
	Jul 29	148	6	41	32	4,337	789	12,660
	Aug 04	147	6	28	20	1,185	543	26,272
	Aug 09	159	6	6	6	208	249	40,824
	Aug 12	187	8	7	6	202	113	40,117
	Aug 15	169	8	5	7	45	32	14,199
	Aug 18	186	8	6	3	37	50	31,410
	Aug 22	163	8	2	1	18	19	10,675
	Aug 25	156	8	3	1	9	24	15,199
	Aug 27	167	6	2	0	8	12	10,215
Total		**327**	**86**	**634**	**4,863**	**55,284**	**5,624**	**226,100**
1995	Jun 22	No commercial opening						
	Jun 26	193	4	3,970	8,526	36,766		
	Jun 29	151	4	1,848	5,351	14,574		
	Jul 03	153	4	1,103	6,341	26,526		
	Jul 06	140	4	596	5,499	21,883		
	Jul 10	163	4	371	1,975	27,758		6
	Jul 14	87	4	126	552	9,049	2	42
	Jul 18	96	6	114	358	8,770	2	206
	Jul 21	100	4	88	217	6,679	1	307
	Aug 04	82	6	26	28	605	2	22,165
	Aug 08	194	6	40	181	393		36,567
	Aug 12	184	6	19	22	451	1	29,290
	Aug 16	199	6	17	50	74	1	29,628
	Aug 19	160	6	5	8	34	2	12,069
	Aug 22	148	6	4	9	35	1	15,120
	Aug 26	149	6	3	9	14		10,316
	Aug 29	120	6	5	3	6	1	6,154
	Sept 01	102	6	1	2	2		2,893
Total		**331**	**88**	**8,336**	**29,131**	**153,619**	**13**	**164,763**

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Appendix B.12. (page 3 of 4)

Year	Date		Number of Permits	Hours Fished	Chinook Salmon	Sockeye Salmon	Chum Salmon	Pink Salmon	Coho Salmon
1996	Jun	17	No commercial opening						
	Jun	20	81	2	856	1,817	7,292		
	Jun	24	97	1.5	330	2,284	7,581		
	Jul	02	75	2	189	1,358	8,239		
	Jul	05	74	2	141	1,642	5,648		1
	Jul	08	75	2	76	3,181	4,362		6
	Jul	12	75	2	83	1,391	6,748		311
	Jul	16	58	2	27	231	3,860		1,031
	Jul	19	78	3	64	64	3,796		4,093
	Jul	22	125	6	94	311	4,246	71	12,283
	Jul	25	135	8	40	73	2,742	99	34,446
	Jul	29	185	6	40	43	925	126	52,950
	Jul	31	139	6	18	30	543	51	43,749
	Aug	03	163	6	28	25	600	19	49,738
	Aug	07	177	6	13	17	185	13	31,440
	Aug	10	168	6	22	14	571	7	37,493
	Aug	13	123	6	8	19	97	6	20,904
	Aug	16	178	6	17	76	65	1	18,405
	Aug	20	112	6	5	19	17	10	8,615
	Aug	23	84	6	4	7	10	5	3,770
	Aug	26	101	6	9	17	6	3	4,516
Total			**309**	**90.5**	**2,064**	**12,619**	**57,533**	**411**	**323,751**
1997	Jun	23	No commercial opening						
	Aug	06	105	6	37	17	201		8,856
	Aug	12	132	6	17	38	49		13,518
	Aug	18	116	6	39	4	5		4,421
Total			**180**	**18**	**93**	**59**	**255**	**0**	**26,795**
1998	Jun	23	No commercial opening						
	Jun	29	181	6	3,288	9,084	23,601		
	Jul	03	117	4	842	5,376	13,388		
	Jul	11	104	4	318	3,443	6,059		4
	Jul	22	72	6	75	521	3,756	4	567
	Jul	27	52	6	84	43	1,186	11	2,805
	Aug	01	69	6	18	35	417	4	2,379
	Aug	06	143	6	43	214	308	4	16,759
	Aug	11	119	6	20	19	93	2	15,426
	Aug	17	160	6	19	14	67	2	15,155
	Aug	22	143	6	6	22	30	2	6,063
	Aug	29	60	6	0	2	3	0	1,506
Total			**316**	**62**	**4,713**	**18,773**	**48,908**	**29**	**60,664**
1999	Jun	30	No commercial opening						
	Aug	07	105	6	15	106	96	2	8,944
Total			**105**	**6**	**15**	**106**	**96**	**2**	**8,944**

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Appendix B.12. (page 4 of 4)

Year	Date		Number of Permits	Hours Fished	Chinook Salmon	Sockeye Salmon	Chum Salmon	Pink Salmon	Coho Salmon
2000	Jul	07	No commercial opening						
	Aug	04	87	6	6	6	36		37,362
	Aug	08	154	6	6	24	40	1	18,656
	Aug	12	144	6	10	16	15		26,362
	Aug	17	133	6	5	17	11		10,207
	Aug	21	110	6	2	3	6		5,681
	Aug	25	74	6	2	2	1		2,206
Total			**201**	**36**	**31**	**68**	**109**	**1**	**100,474**
2001	Aug	06	86	4	6	5	54	0	16,467
	Aug	08	119	6	11	3	212	0	19,204
	Aug	11	143	6	16	9	173	0	32,803
	Aug	15	167	6	4	7	72	0	20,609
	Aug	17	146	6	6	5	32	0	7,009
	Aug	20	106	6	5	1	8	0	3,377
	Aug	22	72	6	0	2	2	0	2,985
	Aug	25	61	6	2	0	4	0	2,826
Total			**257**	**46**	**50**	**32**	**557**	**0**	**105,280**
2002	Aug	5	108	4	14	9	399	0	7,145
	Aug	8	114	6	22	20	494	0	21,796
	Aug	12	98	6	7	2	181	0	14,879
Total			**159**	**16**	**43**	**31**	**1,074**	**0**	**43,820**

Appendix B.13. Historical commercial salmon harvest and effort by fishing period in Kuskokwim Statistical Area 335-14.

Year	Date	Number of Permits	Hours Fished	Chinook Salmon	Sockeye Salmon	Chum Salmon	Pink Salmon	Coho Salmon
1990	Jun 20	No commercial opening						
	Jun 25	54	6	2,084	3,608	9,494		
	Jun 29	69	6	1,442	4,123	13,868		
	Jul 05	59	6	659	2,716	11,092		
	Jul 09	45	6	245	2,019	11,084		
	Jul 14	52	8	240	1,581	9,133		
	Aug 01	29	6	34	276	2,252	16	1,624
	Aug 06	50	6	13	21	726	6	3,508
	Aug 10	61	6	6	2	65	4	11,131
	Aug 13	56	6	2	1	9	1	3,356
	Aug 16	61	9	5	1	6	0	12,084
	Aug 20	61	6	1	1	5	1	5,907
	Aug 27	63	6	0	0	3	0	3,068
Total		**143**	**77**	**4,731**	**14,349**	**57,737**	**28**	**40,678**
1991	Jun 20	No commercial opening						
	Jun 24	71	6	1,761	2,509	3,814		
	Jul 01	63	6	929	3,281	6,040		
	Jul 06	72	6	496	5,843	7,879		
	Jul 13	72	6	121	1,762	9,678		
	Jul 18	78	6	74	977	13,742		30
	Jul 22	74	6	71	1,346	14,563		296
	Jul 25	77	8	35	1,027	6,907	2	437
	Jul 29	59	8	17	485	4,185	16	1,812
	Aug 01	56	6	6	532	3,364	1	4,243
	Aug 05	75	8	14	39	1,720	7	9,471
	Aug 08	65	8	5	5	568	0	5,293
	Aug 12	64	8	10	4	319	1	10,647
	Aug 14	63	8	1	1	118	0	6,496
	Aug 19	64	6	4	4	82	0	7,724
	Aug 26	60	8	0	0	5	0	6,076
Total		**170**	**104**	**3,544**	**17,815**	**72,984**	**27**	**52,525**
1992	Jun 18	No commercial opening						
	Jun 22	58	8	1,732	3,919	8,041		
	Jun 25	72	8	1,480	3,490	8,208		
	Jun 29	59	6	749	3,020	6,182		
	Jul 06	60	8	641	1,486	10,155		
	Aug 03	54	8	44	12	1,323	486	8,911
	Aug 06	57	6	14	7	239	0	3,583
	Aug 11	59	6	9	2	84	0	18,772
	Aug 14	63	6	2	0	4	0	13,982
	Aug 17	57	6	1	0	10	0	7,690
	Aug 20	59	6	4	0	1	0	9,153
	Aug 24	65	6	3	0	2	0	6,298
	Aug 27	54	6	2	0	0	0	2,620
	Aug 31	46	6	1	0	0	0	4,913
Total		**116**	**86**	**4,682**	**11,936**	**34,249**	**486**	**75,922**

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Appendix B.13. (page 2 of 4)

Year	Date	Number of Permits	Hours Fished	Chinook Salmon	Sockeye Salmon	Chum Salmon	Pink Salmon	Coho Salmon
1993	Jun 25	No commercial opening						
	Jul 31	46	6	19	6	758		5,334
	Aug 04	60	6	20	3	442		16,456
	Aug 06	57	8	9	1	445	1	9,923
	Aug 09	50	6	4	1	129	1	8,170
	Aug 14	55	6	6	0	36	0	7,938
	Aug 17	58	6	4	0	4	1	10,749
	Aug 21	74	6	1	1	2	0	11,035
	Aug 25	65	6	2	0	4	0	1,967
	Aug 28	40	6	0	0	2	0	1,860
	Sept 01	38	6	1	0	0	0	1,615
Total		**100**	**62**	**66**	**12**	**1,822**	**3**	**75,047**
1994	Jun 24	No commercial opening						
	Jul 14	53	4	80	758	6,210	154	79
	Jul 19	35	6	117	875	6,404	230	570
	Jul 23	35	6	34	160	3,698	341	1,152
	Jul 26	37	6	17	107	4,030	343	3,145
	Jul 29	45	6	25	8	1,616	146	4,384
	Aug 04	42	6	5	1	704	172	12,062
	Aug 09	68	6	9	2	274	56	21,554
	Aug 12	61	8	4	5	214	59	20,236
	Aug 15	50	8	3	0	34	10	5,661
	Aug 18	59	8	2	0	29	31	12,197
	Aug 22	50	8	2	0	12	14	7,712
	Aug 25	33	8	2	0	4	3	3,515
	Aug 27	35	6	0	0	3	4	1,472
Total		**120**	**86**	**300**	**1,916**	**23,232**	**1,563**	**93,739**
1995	Jun 22	No commercial opening						
	Jun 26	4	4	63	91	674		
	Jun 29	33	4	488	1,786	4,896		
	Jul 03	55	4	654	4,214	14,587		
	Jul 06	45	4	248	2,870	10,620		
	Jul 10	48	4	157	2,751	13,866		
	Jul 14	50	4	72	1,307	8,406		5
	Jul 18	50	6	79	1,212	8,644		59
	Jul 21	42	4	25	420	3,730		86
	Aug 04	6	6	3	0	126		1,342
	Aug 08	36	6	10	29	269		10,192
	Aug 12	43	6	10	10	140		10,159
	Aug 16	52	6	14	7	42		11,132
	Aug 19	55	6	5	4	16		5,665
	Aug 22	47	6	3	7	17		4,214
	Aug 26	52	6	2	1	20		5,609
	Aug 29	40	6	2	2	8		2,181
	Sept 01	15	6	0	0	0		910
Total		**97**	**88**	**1,835**	**14,711**	**66,061**	**0**	**51,554**

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Appendix B.13. (page 3 of 4)

Year	Date		Number of Permits	Hours Fished	Chinook Salmon	Sockeye Salmon	Chum Salmon	Pink Salmon	Coho Salmon
1996	Jun	17	No commercial opening						
	Jun	20	16	2	172	311	1,352		
	Jun	24	14	1.5	88	374	1,624		
	Jul	02	17	2	58	386	1,850		
	Jul	05	14	2	53	476	2,111		
	Jul	08	17	2	15	461	2,141		3
	Jul	12	20	2	32	702	2,222		79
	Jul	16	12	2	10	88	1,939		288
	Jul	19	21	3	28	63	2,260		1,648
	Jul	22	14	6	13	46	680		1,674
	Jul	25	18	8	18	33	1,156		9,918
	Jul	29	23	6	3	2	529		9,053
	Jul	31	51	6	6	4	101		20,572
	Aug	03	52	6	3	0	72		19,978
	Aug	07	31	6	2	2	39		10,696
	Aug	10	31	6	1	5	21		11,280
	Aug	13	59	6	2	3	35		13,305
	Aug	16	23	6	2	5	11		3,567
	Aug	20	62	6	3	4	4		6,424
	Aug	23	42	6	1	0	0		2,739
	Aug	26	21	6	0	0	0		1,218
Total			**117**	**90.5**	**510**	**2,965**	**18,147**	**0**	**112,442**
1997	Jun	23	No commercial opening						
	Jun	31	No commercial opening						
	Aug	06	37	6	17	6	404		8,321
	Aug	12	46	6	4	4	54		9,679
	Aug	18	60	6	0	2	1		4,903
Total			**79**	**18**	**21**	**12**	**459**	**0**	**22,903**
1998	Jun	24	No commercial opening						
	Jun	29	18	6	404	973	3,053		
	Jul	3	27	4	194	1,457	3,941		
	Jul	11	24	4	49	688	2,889		1
	Jul	22	60	6	84	267	5,596		683
	Jul	27	47	6	68	235	1,744		1,586
	Aug	1	44	6	21	57	708		3,887
	Aug	6	57	6	6	8	332		9,498
	Aug	11	64	6	5	12	87		15,231
	Aug	17	70	6	5	8	23		10,366
	Aug	22	65	6	4	10	11		5,486
	Aug	29	24	6	0	0	7		1,087
Total			**336**	**62**	**840**	**3,715**	**18,391**	**0**	**47,825**
1999	Jun	30	No commercial opening						
	Aug	7	49	6	5	11	571		5,187
Total			**49**	**6**	**5**	**11**	**571**	**0**	**5187**

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Appendix B.13. (page 4 of 4)

Year	Date		Number of Permits	Hours Fished	Chinook Salmon	Sockeye Salmon	Chum Salmon	Pink Salmon	Coho Salmon
2000	Jul	7	No commercial opening						
	Aug	4	38	6	1	1	17		12,898
	Aug	8	32	6	3	2	15	1	8,115
	Aug	12	46	6	2	1	8		11,089
	Aug	17	60	6	0	6	4		7,709
	Aug	21	48	6	2	0	4		2,896
	Aug	25	33	6	1	4	5		1,436
Total			**87**	**36**	**9**	**14**	**53**	**1**	**44,143**
2001	Aug	06	22	4	2	0	47	0	3,622
	Aug	08	8	6	0	1	20	0	931
	Aug	11	32	6	4	1	45	0	8,840
	Aug	15	11	6	0	0	0	0	1,606
	Aug	17	16	6	1	0	2	0	1,188
	Aug	20	0	6	0	0	0	0	0
	Aug	22	5	6	0	0	0	0	121
	Aug	25	3	6	0	0	0	0	176
Total			**53**	**46**	**7**	**2**	**114**	**0**	**16,484**
2002	Aug	5	1	4	0	0	21	0	140
	Aug	8	5	6	0	0	47	0	1,094
	Aug	12	38	6	2	6	111	0	8,083
Total			**39**	**16**	**2**	**6**	**179**	**0**	**9,317**

APPENDIX C

Appendix C.1. Quinhagak District commercial salmon harvests, 1960-2002.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1960	0	5,649	3,000	0	0	8,649
1961	4,328	2,308	46	90	18,864	25,636
1962	5,526	10,313	0	4,340	45,707	65,886
1963	6,555	0	0	0	0	6,555
1964	4,081	13,422	379	939	707	19,528
1965	2,976	1,886	0	0	4,242	9,104
1966	278	1,030	0	268	2,610	4,186
1967	0	652	1,926	0	8,087	10,665
1968	8,879	5,884	21,511	75,818	19,497	131,589
1969	16,802	3,784	15,077	953	38,206	74,822
1970	18,269	5,393	16,850	15,195	46,556	102,263
1971	4,185	3,118	2,982	13	30,208	40,506
1972	15,880	3,286	376	1,878	17,247	38,667
1973	14,993	2,783	16,515	277	19,680	54,248
1974	8,704	19,510	10,979	43,642	15,298	98,133
1975	3,928	8,584	10,742	486	35,233	58,973
1976	14,110	6,090	13,777	31,412	43,659	109,048
1977	19,090	5,519	9,028	202	43,707	77,546
1978	12,335	7,589	20,114	47,033	24,798	111,869
1979	11,144	18,828	47,525	295	25,995	103,787
1980	10,387	13,221	62,610	21,671	65,984	173,873
1981	24,524	17,292	47,551	160	53,334	142,861
1982	22,106	25,685	73,652	11,838	34,346	167,627
1983	46,385	10,263	32,442	168	23,090	112,348
1984	33,663	17,255	132,151	16,249	50,422	249,740
1985	30,401	7,876	29,992	28	20,418	88,715
1986	22,835	21,484	57,544	8,700	29,700	140,263
1987	26,022	6,489	50,070	66	8,557	91,204
1988	13,883	21,556	68,605	21,310	29,220	154,574
1989	20,820	20,582	44,607	273	39,395	125,677
1990	27,644	83,681	26,926	12,056	47,717	198,024
1991	9,480	53,657	42,571	115	54,493	160,316
1992	17,197	60,929	86,404	64,217	73,383	302,130
1993	15,784	80,934	55,817	7	40,943	193,485
1994	8,564	72,314	83,912	35,904	61,301	261,995
1995	38,584	68,194	66,203	186	81,462	254,629
1996	14,165	57,665	118,718	20	83,005 [a]	273,573
1997	35,510	69,562	32,862	5	38,445	176,384
1998	23,158	41,382	80,183	2,217	45,095	192,035
1999	*18,426*	*41,315*	*6,184*	*0*	*38,091*	*104,016*
2000	21,229	68,557	30,529	3	30,553	150,871
2001	12,775	33,807	18,531	0	17,209	82,322
2002	11,480	17,802	26,695	0	29,252	85,229
10 Year Average (92-01)	20,539	59,466	57,934	10,256 [b]	50,949	199,144
Historical Average (60-01)	15,848	24,270	34,259	9,953 [b]	33,487	117,817

[a] Estimate of chum roe included

[b] Even years only

Appendix C.2. Historical number of periods, hours, and permits fished, Quinhagak District, 1970-2002.

Year	Number of Periods	Fishing Hours	Permits Fished[a]
1970	14	1,494	88
1971	6	630	61
1972	16	192	107
1973	28	504	109
1974	30	360	196
1975	24	288	127
1976	27	324	181
1977	27	324	258
1978	37	444	200
1979	36	432	206
1980	36	432	169
1981	33	396	186
1982	34	408	177
1983	28	318	226
1984	33	396	263
1985	23	276	300
1986	29	348	324
1987	19	216	310
1988	32	384	288
1989	29	348	227
1990	30	444	390
1991	31	372	346
1992	34	420	349
1993	32	384	409
1994	32	384	308
1995	35	414	382
1996	27	298	218
1997	31	372	289
1998	34	408	203
1999	19	228	218
2000	27	324	230
2001	20	231	159
2002	24	294	144
Ten Year Average (92-01)	29	346	277
Historical Average (70-01)	28	397	232

[a] Permits that made at least one delivery during the year.

Appendix C.3. Exvessel value of the Quinhagak District commercial salmon harvest, 1990-2002.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1990	251,304	544,008	123,815	4,179	90,941	1,014,238
1991	95,800	247,117	144,455	36	107,228	594,636
1992	165,310	368,598	303,371	15,086	137,356	989,721
1993	142,918	402,910	245,982	4	104,347	896,161
1994	66,918	256,091	423,612	10,237	84,351	841,209
1995	417,029	322,113	202,834	83	106,041	1,048,099
1996	61,296	165,318	245,662	6	61,323	533,604
1997	168,933	206,562	92,396	1	30,769	498,661
1998	81,566	150,261	198,041	850	35,254	465,972
1999	93,886	141,492	14,800	0	28,116	278,894
2000	131,001	249,473	61,763	1	23,929	466,167
2001	92,423	11,832	88,957	0	32,577	225,789
2002	56,316	40,325	47,653	0	23,321	167,615
10-year avg (92-01)	$142,128	$227,465	$187,742	$2,627	$64,406	$624,428

Appendix C.4. Aerial survey estimates by species, Kanektok River , 1962-2002[a].

Year	chinook	sockeye	coho	chum
1962	935	43,108		
1963				
1964				
1965				
1966	3,718			28,800
1967				
1968	4,170	8,000		14,000
1969				
1970	3,112	11,375		
1971				
1972				
1973	814			
1974				
1975		6,018		
1976		22,936		8,697
1977	5,787	7,244		32,157
1978 b	19,180	44,215		229,290
1979				
1980				
1981			69,325	
1982	15,900	49,175		71,840
1983	8,142	55,940		
1984	8,890	2,340		9,360
1985	12,182	30,840	46,830	53,060
1986	13,465	16,270		14,385
1987	3,643	14,940		16,790
1988	4,223	51,753	20,056	9,420
1989	11,180	30,440		20,583
1990	7,914	14,735		6,270
1991				2,475
1992 c	2,100	44,436	4,330	19,052
1993	3,856	14,955		25,675
1994	4,670	23,128		1,285
1995	7,386	30,090		10,000
1996				
1997				
1998	6,107	22,020	23,656	7,040
1999			5,192	
2000	1,118	11,670	10,120	10,000
2001	6,483	38,610		11,440
2002				
GOAL	5,800	15,000		30,500

a Aerial surveys are those rated fair or good surveys obtained between 20 July and 5 August for chinook and sockeye salmon, 20-31 July for chum salmon, and 20 August and 5 September for coho salmon. Surveys not meeting these criteria are footnoted.

b Chum salmon count excluded from escapement objective calculation due to exceptional magnitude.

c Some chum may have been sockeye.

Appendix C.5. Daily and cumulative salmon passage through the Kanektok River weir, 2002.

	Chinook		Sockeye		Chum		Pink		Coho	
Date	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
1-Jul	35	35	222	222	162	162	1	1	0	0
2-Jul	47	82	1,128	1,350	759	921	2	3	0	0
3-Jul	25	107	603	1,953	595	1,516	7	10	0	0
4-Jul	90	197	1,457	3,410	682	2,198	20	30	0	0
5-Jul	192	389	3,152	6,562	957	3,155	96	126	0	0
6-Jul	90	479	1,326	7,888	655	3,810	67	193	0	0
7-Jul	113	592	1,928	9,816	1,374	5,184	96	289	0	0
8-Jul	159	751	2,008	11,824	994	6,178	139	428	0	0
9-Jul	60	811	1,605	13,429	845	7,023	135	563	0	0
10-Jul	233	1,044	2,404	15,833	922	7,945	109	672	0	0
11-Jul	223	1,267	2,645	18,478	1,565	9,510	218	890	0	0
12-Jul	162	1,429	1,686	20,164	1,843	11,353	244	1,134	0	0
13-Jul	263	1,692	2,292	22,456	1,531	12,884	376	1,510	0	0
14-Jul	150	1,842	2,303	24,759	1,185	14,069	691	2,201	0	0
15-Jul	276	2,118	2,083	26,842	1,785	15,854	916	3,117	0	0
16-Jul	107	2,225	1,388	28,230	1,693	17,547	713	3,830	0	0
17-Jul	359	2,584	3,186	31,416	2,104	19,651	1,413	5,243	0	0
18-Jul	350	2,934	2,509	33,925	2,600	22,251	2,822	8,065	0	0
19-Jul	206	3,140	1,217	35,142	1,945	24,196	3,059	11,124	0	0
20-Jul	300	3,440	1,678	36,820	1,491	25,687	2,489	13,613	0	0
21-Jul	103	3,543	1,402	38,222	1,294	26,981	1,776	15,389	0	0
22-Jul	280	3,823	2,775	40,997	1,735	28,716	2,615	18,004	0	0
23-Jul	194	4,017	2,184	43,181	2,141	30,857	4,291	22,295	0	0
24-Jul	201	4,218	1,789	44,970	1,372	32,229	8,111	30,406	0	0
25-Jul	80	4,298	1,474	46,444	765	32,994	3,368	33,774	0	0
26-Jul	118	4,416	1,149	47,593	720	33,714	1,893	35,667	0	0
27-Jul	75	4,491	926	48,519	849	34,563	2,793	38,460	1	1
28-Jul	116	4,607	1,407	49,926	952	35,515	3,431	41,891	22	23
29-Jul	91	4,698	1,135	51,061	699	36,214	2,703	44,594	15	38
30-Jul	76	4,774	952	52,013	889	37,103	4,760	49,354	10	48
31-Jul	87	4,861	1,221	53,234	753	37,856	5,781	55,135	49	97
1-Aug	103	4,964	1,131	54,365	727	38,583	6,811	61,946	100	197
2-Aug	30	4,994	446	54,811	479	39,062	3,074	65,020	97	294
3-Aug	72	5,066	700	55,511	567	39,629	4,490	69,510	178	472
4-Aug	58	5,124	557	56,068	569	40,198	3,952	73,462	182	654
5-Aug	28	5,152	470	56,538	396	40,594	3,298	76,760	226	880
6-Aug	25	5,177	208	56,746	228	40,822	1,785	78,545	116	996
7-Aug	18	5,195	199	56,945	170	40,992	1,186	79,731	134	1,130
8-Aug	26	5,221	154	57,099	184	41,176	994	80,725	110	1,240
9-Aug	17	5,238	153	57,252	149	41,325	851	81,576	97	1,337
10-Aug	10	5,248	120	57,372	121	41,446	843	82,419	112	1,449
11-Aug	9	5,257	94	57,466	78	41,524	490	82,909	123	1,572
12-Aug	2	5,259	43	57,509	48	41,572	283	83,192	83	1,655
13-Aug	17	5,276	194	57,703	107	41,679	954	84,146	435	2,090

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	Chinook		Sockeye		Chum		Pink		Coho	
Date	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
14-Aug	7	5,283	66	57,769	32	41,711	345	84,491	123	2,213
15-Aug	4	5,287	93	57,862	78	41,789	571	85,062	378	2,591
16-Aug	8	5,295	77	57,939	41	41,830	343	85,405	493	3,084
17-Aug	11	5,306	52	57,991	46	41,876	394	85,799	918	4,002
18-Aug	6	5,312	28	58,019	21	41,897	219	86,018	466	4,468
19-Aug	6	5,318	30	58,049	21	41,918	236	86,254	765	5,233
20-Aug	7	5,325	28	58,077	24	41,942	154	86,408	1,018	6,251
21-Aug	3	5,328	18	58,095	17	41,959	144	86,552	1,017	7,268
22-Aug	4	5,332	43	58,138	11	41,970	130	86,682	845	8,113
23-Aug	3	5,335	26	58,164	10	41,980	90	86,772	827	8,940
24-Aug	1	5,336	22	58,186	8	41,988	79	86,851	816	9,756
25-Aug	1	5,337	24	58,210	0	41,988	42	86,893	575	10,331
26-Aug	0	5,337	18	58,228	1	41,989	19	86,912	399	10,730
27-Aug	0	5,337	16	58,244	4	41,993	16	86,928	411	11,141
28-Aug	1	5,338	7	58,251	2	41,995	27	86,955	427	11,568
29-Aug	0	5,338	9	58,260	2	41,997	13	86,968	499	12,067
30-Aug	2	5,340	10	58,270	1	41,998	12	86,980	233	12,300
31-Aug	0	5,340	20	58,290	1	41,999	10	86,990	969	13,269
1-Sep	2	5,342	16	58,306	1	42,000	7	86,997	920	14,189
2-Sep	0	5,342	11	58,317	2	42,002	13	87,010	581	14,770
3-Sep	0	5,342	3	58,320	1	42,003	5	87,015	461	15,231
4-Sep	1	5,343	13	58,333	2	42,005	3	87,018	869	16,100
5-Sep	0	5,343	5	58,338	1	42,006	4	87,022	779	16,879
6-Sep	0	5,343	5	58,343	1	42,007	6	87,028	1,151	18,030
7-Sep [a]	0	5,343	0	58,343	0	42,007	0	87,028	1,467	19,497
8-Sep [a]	0	5,343	0	58,343	1	42,008	0	87,028	735	20,232
9-Sep [a]	0	5,343	5	58,348	3	42,011	0	87,028	563	20,795
10-Sep [a]	0	5,343	3	58,351	0	42,011	0	87,028	324	21,119
11-Sep [a]	0	5,343	2	58,353	0	42,011	1	87,029	412	21,531
12-Sep [a]	0	5,343	0	58,353	0	42,011	0	87,029	760	22,291
13-Sep [a]	0	5,343	0	58,353	0	42,011	1	87,030	590	22,881
14-Sep [a]	0	5,343	1	58,354	0	42,011	0	87,030	449	23,330
15-Sep [a]	0	5,343	1	58,355	0	42,011	1	87,031	419	23,749
16-Sep [a]	0	5,343	5	58,360	0	42,011	4	87,035	439	24,188
17-Sep	0	5,343	0	58,360	0	42,011	1	87,036	129	24,317
18-Sep	0	5,343	6	58,366	3	42,014	0	87,036	311	24,628
19-Sep [b]	0	5,343	1	58,367	0	42,014	0	87,036	188	24,816
20-Sep	0	5,343	0	58,367	0	42,014	0	87,036	67	24,883

[a] Partial counts. Boat passage and sections of weir were submerged because of high water level.

[b] Partial counts. A hole in the weir was found at 11:00. Hole was repaired by 14:00.

Appendix C.6. Daily and cumulative passage of Dolly Varden, whitefish, and rainbow trout through the Kanektok River weir, 2002.

	Dolly Varden		Whitefish		Rainbow Trout	
Date	Daily	Cum	Daily	Cum	Daily	Cum
1-Jul	7	7	0	0	6	6
2-Jul	18	25	0	0	17	23
3-Jul	6	31	1	1	4	27
4-Jul	5	36	1	2	6	33
5-Jul	12	48	1	3	16	49
6-Jul	10	58	2	5	2	51
7-Jul	6	64	0	5	4	55
8-Jul	21	85	3	8	8	63
9-Jul	53	138	1	9	7	70
10-Jul	128	266	1	10	10	80
11-Jul	177	443	5	15	11	91
12-Jul	543	986	1	16	1	92
13-Jul	418	1,404	2	18	4	96
14-Jul	551	1,955	1	19	5	101
15-Jul	993	2,948	2	21	12	113
16-Jul	700	3,648	1	22	7	120
17-Jul	1,623	5,271	13	35	15	135
18-Jul	2,245	7,516	20	55	28	163
19-Jul	1,071	8,587	4	59	12	175
20-Jul	893	9,480	3	62	38	213
21-Jul	431	9,911	2	64	7	220
22-Jul	848	10,759	8	72	22	242
23-Jul	771	11,530	11	83	6	248
24-Jul	770	12,300	13	96	21	269
25-Jul	271	12,571	22	118	22	291
26-Jul	178	12,749	5	123	5	296
27-Jul	253	13,002	0	123	5	301
28-Jul	128	13,130	3	126	2	303
29-Jul	94	13,224	6	132	3	306
30-Jul	175	13,399	2	134	1	307
31-Jul	242	13,641	6	140	5	312
1-Aug	154	13,795	3	143	0	312
2-Aug	90	13,885	3	146	0	312
3-Aug	263	14,148	6	152	10	322
4-Aug	109	14,257	5	157	1	323
5-Aug	48	14,305	2	159	3	326
6-Aug	24	14,329	5	164	2	328
7-Aug	10	14,339	7	171	2	330
8-Aug	15	14,354	8	179	4	334
9-Aug	7	14,361	4	183	0	334
10-Aug	1	14,362	2	185	0	334
11-Aug	5	14,367	2	187	0	334
12-Aug	12	14,379	3	190	0	334
13-Aug	26	14,405	3	193	1	335
14-Aug	46	14,451	0	193	0	335

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	Dolly Varden		Whitefish		Rainbow Trout	
Date	Daily	Cum	Daily	Cum	Daily	Cum
15-Aug	76	14,527	0	193	1	336
16-Aug	91	14,618	0	193	0	336
17-Aug	138	14,756	6	199	1	337
18-Aug	157	14,913	0	199	1	338
19-Aug	107	15,020	3	202	0	338
20-Aug	46	15,066	1	203	1	339
21-Aug	24	15,090	1	204	1	340
22-Aug	8	15,098	1	205	0	340
23-Aug	62	15,160	0	205	0	340
24-Aug	32	15,192	2	207	1	341
25-Aug	32	15,224	0	207	0	341
26-Aug	23	15,247	2	209	0	341
27-Aug	51	15,298	0	209	0	341
28-Aug	6	15,304	1	210	0	341
29-Aug	25	15,329	0	210	1	342
30-Aug	2	15,331	0	210	0	342
31-Aug	15	15,346	0	210	1	343
1-Sep	18	15,364	0	210	0	343
2-Sep	27	15,391	1	211	0	343
3-Sep	5	15,396	1	212	0	343
4-Sep	88	15,484	6	218	1	344
5-Sep	13	15,497	1	219	1	345
6-Sep	86	15,583	0	219	0	345
7-Sep [a]	28	15,611	0	219	0	345
8-Sep [a]	12	15,623	0	219	0	345
9-Sep [a]	27	15,650	0	219	0	345
10-Sep [a]	7	15,657	0	219	0	345
11-Sep [a]	2	15,659	0	219	0	345
12-Sep [a]	3	15,662	0	219	0	345
13-Sep [a]	3	15,665	0	219	0	345
14-Sep [a]	0	15,665	0	219	0	345
15-Sep [a]	4	15,669	1	220	1	346
16-Sep [a]	3	15,672	1	221	0	346
17-Sep	1	15,673	0	221	0	346
18-Sep	1	15,674	0	221	0	346
19-Sep [b]	0	15,674	0	221	0	346
20-Sep	0	15,674	0	221	0	346

[a] Partial counts as a result of the boat passage and sections of weir being submerged because of high water level.

[b] Partial counts as a hole in the weir was found at 11:00. Hole was repaired by 14:00.

Appendix C.7. Summary of the Quinhagak District commercial salmon fishery, 2002.

					Chinook			Sockeye			Chum			Coho		
Period #	Date	Hours	Deliveries	Permits	Catch	LBS	CPUE	Catch	LBS	CPUE	Catch	LBS	CPUE	Catch	LBS	CPUE
1	14-Jun	12	61	51	1,727	24,405	2.8	160	1,349	0.3	1,000	8,765	1.6	0	0	0.0
2	17-Jun	12	65	46	2,070	27,304	3.8	288	2,324	0.5	1,047	9,537	1.9	0	0	0.0
3	20-Jun	12	57	53	1,352	20,764	2.1	477	3,812	0.8	1,653	14,240	2.6	0	0	0.0
4	26-Jun	12	95	61	1,782	26,871	2.4	972	7,276	1.3	2,287	19,108	3.1	0	0	0.0
5	1-Jul	12	79	62	959	13,080	1.3	2,187	15,242	2.9	3,824	31,880	5.1	0	0	0.0
6	3-Jul	12	75	51	759	10,660	1.2	2,177	15,328	3.6	4,257	34,127	7.0	0	0	0.0
7	5-Jul	12	67	56	596	8,120	0.9	2,788	17,963	4.1	3,116	24,991	4.6	0	0	0.0
8	8-Jul	12	77	58	577	7,931	0.8	2,447	14,788	3.5	3,645	28,127	5.2	0	0	0.0
9	10-Jul	12	73	52	593	7,747	1.0	2,164	13,182	3.5	1,992	15,185	3.2	0	0	0.0
10	12-Jul	12	63	52	429	5,784	0.7	1,373	8,134	2.2	2,168	16,312	3.5	0	0	0.0
11	15-Jul	12	46	39	243	3,104	0.5	753	4,317	1.6	1,615	11,950	3.5	0	0	0.0
12	17-Jul	12	32	32	161	1,924	0.4	839	4,968	2.2	942	7,001	2.5	0	0	0.0
13	19-Jul	12	22	20	78	1,059	0.3	750	4,134	3.1	926	6,577	3.9	0	0	0.0
14	1-Aug	12	24	24	32	429	0.1	114	631	0.4	162	1,102	0.6	360	2,905	1.3
15	5-Aug	12	28	25	20	334	0.1	85	413	0.3	164	1,108	0.5	1,610	12,889	5.4
16	7-Aug	12	53	32	31	380	0.1	59	290	0.2	125	794	0.3	2,653	22,256	6.9
17	9-Aug	12	40	33	16	236	0.0	53	332	0.1	115	858	0.3	2,383	20,118	6.0
18	12-Aug	12	53	37	15	163	0.0	35	214	0.1	58	420	0.1	3,260	28,926	7.3
19	14-Aug	12	43	38	10	146	0.0	27	172	0.1	51	346	0.1	2,649	23,942	5.8
20	16-Aug	18	68	49	13	192	0.0	26	162	0.0	40	270	0.0	4,516	41,239	5.1
21	19-Aug	12	46	30	3	47	0.0	8	59	0.0	25	198	0.1	3,156	29,299	8.8
22	21-Aug	12	46	34	7	127	0.0	7	38	0.0	13	96	0.0	2,490	23,023	6.1
23	23-Aug	12	48	29	6	86	0.0	10	61	0.0	18	143	0.1	2,495	22,955	7.2
24	26-Aug	12	29	28	1	11	0.0	3	26	0.0	9	76	0.0	1,123	10,712	3.3
Totals		294		114	11,480	160,904		17,802	115,215		29,252	233,211		26,695	238,264	

Appendix C.8. Historical summary of the chinook salmon commercial harvest by date, Quinhagak District, 1981-2002.

Date	No.Yrs w/fishing period on date	Minimum harvest	Maximum harvest	Median harvest	Cum Proportion harvest	Average harvest
12-Jun	1	-	-	-	0.00	-
13-Jun	5	33	7,720	6,669	0.05	4,752
14-Jun	3	-	5,080	1,727	0.06	2,269
15-Jun	6	1,165	3,914	2,982	0.10	2,795
16-Jun	5	-	7,835	1,179	0.13	3,074
17-Jun	3	2,070	8,190	3,527	0.15	4,596
18-Jun	6	1,942	11,997	5,710	0.23	5,981
19-Jun	4	3,525	6,405	5,251	0.27	5,108
20-Jun	6	746	7,341	2,192	0.31	3,315
21-Jun	6	4,024	6,194	4,381	0.37	4,752
22-Jun	5	3,642	10,586	4,752	0.42	5,575
23-Jun	4	2,039	11,652	4,807	0.47	5,826
24-Jun	7	1,403	6,698	3,476	0.53	4,039
25-Jun	7	2,125	4,539	3,151	0.57	3,361
26-Jun	6	1,506	3,578	1,762	0.60	2,243
27-Jun	3	1,849	9,711	3,795	0.63	5,118
28-Jun	6	1,438	5,468	2,887	0.67	3,090
29-Jun	6	-	2,378	1,808	0.69	1,575
30-Jun	5	690	4,496	1,272	0.71	2,037
1-Jul	6	657	3,752	1,902	0.73	1,951
2-Jul	9	934	3,602	1,853	0.77	1,799
3-Jul	8	759	2,771	1,633	0.79	1,703
4-Jul	5	508	4,068	1,381	0.81	1,904
5-Jul	10	596	2,710	940	0.84	1,097
6-Jul	7	273	1,670	692	0.85	833
7-Jul	8	620	1,566	1,135	0.87	1,139
8-Jul	8	465	2,407	706	0.88	1,012
9-Jul	9	432	1,259	722	0.90	722
10-Jul	6	334	956	691	0.90	678
11-Jul	10	331	1,545	537	0.92	755
12-Jul	6	306	687	440	0.92	451
13-Jul	9	205	1,011	419	0.93	519
14-Jul	9	26	1,351	438	0.94	510
15-Jul	9	143	1,306	332	0.95	511
16-Jul	7	196	533	267	0.96	325
17-Jul	9	130	443	216	0.96	238
18-Jul	7	138	845	202	0.97	324
19-Jul	8	78	792	123	0.97	234
20-Jul	6	89	490	265	0.97	278
21-Jul	9	90	248	162	0.98	167
22-Jul	6	35	629	171	0.98	215
23-Jul	8	-	324	98	0.98	133
24-Jul	8	33	254	94	0.98	118
25-Jul	6	-	379	110	0.98	135
26-Jul	6	-	93	39	0.98	45

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Appendix C.8. (page 2 of 2)

Date	No.Yrs w/fishing period on date	Minimum harvest	Maximum harvest	Median harvest	Cum Proportion harvest	Average harvest
27-Jul	10	-	194	91	0.99	95
28-Jul	6	23	63	51	0.99	47
29-Jul	8	21	116	81	0.99	73
30-Jul	6	47	111	76	0.99	77
31-Jul	9	-	63	35	0.99	35
1-Aug	9	28	153	54	0.99	65
2-Aug	8	12	53	33	0.99	32
3-Aug	10	16	160	47	0.99	57
4-Aug	5	-	59	30	0.99	29
5-Aug	12	6	141	30	0.99	43
6-Aug	8	19	78	32	0.99	39
7-Aug	8	10	49	27	1.00	29
8-Aug	8	-	71	19	1.00	26
9-Aug	7	6	36	13	1.00	16
10-Aug	10	-	125	24	1.00	36
11-Aug	6	6	31	16	1.00	17
12-Aug	10	12	74	17	1.00	27
13-Aug	7	-	36	16	1.00	16
14-Aug	10	6	29	11	1.00	14
15-Aug	7	2	43	27	1.00	21
16-Aug	11	1	16	10	1.00	9
17-Aug	8	1	66	13	1.00	18
18-Aug	9	5	13	10	1.00	9
19-Aug	11	-	51	10	1.00	12
20-Aug	7	-	16	7	1.00	8
21-Aug	11	1	13	5	1.00	6
22-Aug	7	3	33	6	1.00	10
23-Aug	9	1	11	5	1.00	4
24-Aug	9	1	14	4	1.00	5
25-Aug	8	-	16	5	1.00	6
26-Aug	10	1	17	5	1.00	6
27-Aug	4	3	4	3	1.00	3
28-Aug	8	2	8	4	1.00	4
29-Aug	7	-	7	2	1.00	3
30-Aug	3	-	9	1	1.00	3
31-Aug	8	-	3	1	1.00	1
1-Sep	6	-	10	1	1.00	2
2-Sep	8	-	4	1	1.00	1
3-Sep	5	-	2	-	1.00	1
4-Sep	6	-	4	2	1.00	2
5-Sep	7	-	2	1	1.00	1
6-Sep	5	-	1	-	1.00	0
7-Sep	8	-	-	-	1.00	-
8-Sep	3	-	-	-	1.00	-
9-Sep	1	-	-	-	1.00	-

Appendix C.9. Historical summary of the sockeye salmon commercial harvest by date, Quinhagak District, 1981-2002.

Date	No.Yrs w/fishing period on date	Minimum harvest	Maximum harvest	Median harvest	Cum Proportion harvest	Average harvest
12-Jun	1	-	-	-	0.00	-
13-Jun	5	4	216	55	0.00	88
14-Jun	3	-	384	160	0.00	181
15-Jun	6	62	440	102	0.00	155
16-Jun	5	-	411	150	0.00	168
17-Jun	3	288	1,119	356	0.00	588
18-Jun	6	117	574	449	0.01	402
19-Jun	4	171	1,678	817	0.01	871
20-Jun	6	111	485	389	0.01	340
21-Jun	6	396	2,322	1,281	0.02	1,410
22-Jun	5	379	1,466	762	0.03	900
23-Jun	4	343	1,741	1,497	0.03	1,270
24-Jun	7	638	3,271	1,643	0.05	1,870
25-Jun	7	732	3,382	1,667	0.06	1,926
26-Jun	6	805	2,777	1,790	0.07	1,739
27-Jun	3	461	4,923	543	0.08	1,976
28-Jun	6	1,908	10,941	2,455	0.10	4,158
29-Jun	6	-	8,067	4,353	0.13	4,293
30-Jun	5	1,360	9,771	2,601	0.16	4,680
1-Jul	6	975	8,625	3,151	0.19	4,100
2-Jul	9	1,242	10,007	3,121	0.22	4,226
3-Jul	8	2,177	7,045	3,580	0.26	3,884
4-Jul	5	627	8,757	5,555	0.28	4,377
5-Jul	10	1,157	15,375	3,650	0.33	4,919
6-Jul	7	1,126	12,133	6,045	0.38	5,969
7-Jul	8	1,211	8,326	3,978	0.42	4,296
8-Jul	8	1,289	9,304	5,005	0.47	5,112
9-Jul	9	1,532	9,824	4,515	0.52	5,151
10-Jul	6	2,164	9,894	3,704	0.55	4,880
11-Jul	10	1,901	8,320	6,018	0.61	5,164
12-Jul	6	1,373	6,827	2,216	0.63	3,466
13-Jul	9	1,842	13,450	5,707	0.69	6,159
14-Jul	9	279	7,490	3,134	0.73	3,311
15-Jul	9	753	6,687	4,214	0.77	3,719
16-Jul	7	564	8,537	3,209	0.80	3,558
17-Jul	9	839	5,203	3,609	0.83	3,206
18-Jul	7	657	5,842	1,321	0.84	1,993
19-Jul	8	750	12,850	2,340	0.87	3,348
20-Jul	6	477	4,611	2,120	0.89	2,238
21-Jul	9	477	3,360	1,331	0.91	1,694
22-Jul	6	799	3,537	1,305	0.92	1,610
23-Jul	8	-	4,361	548	0.93	1,385
24-Jul	8	215	2,610	974	0.94	1,084
25-Jul	6	-	2,681	684	0.95	985
26-Jul	6	-	1,580	714	0.96	801

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Date	No.Yrs w/fishing period on date	Minimum harvest	Maximum harvest	Median harvest	Cum Proportion harvest	Average harvest
27-Jul	10	-	2,096	476	0.56	620
28-Jul	6	102	959	741	0.57	631
29-Jul	8	126	997	438	0.57	487
30-Jul	6	19	1,516	431	0.58	554
31-Jul	9	1	730	225	0.58	301
1-Aug	9	42	757	180	0.58	294
2-Aug	8	38	583	189	0.58	235
3-Aug	10	30	408	132	0.59	164
4-Aug	5	3	442	144	0.59	214
5-Aug	12	6	413	158	0.59	180
6-Aug	8	16	321	103	0.59	128
7-Aug	8	30	481	184	0.59	210
8-Aug	8	-	198	68	0.59	79
9-Aug	7	6	332	82	0.59	134
10-Aug	10	10	238	48	0.59	65
11-Aug	6	6	250	61	0.59	99
12-Aug	10	1	214	84	0.59	94
13-Aug	7	-	205	28	1.00	56
14-Aug	10	1	194	39	1.00	77
15-Aug	7	12	166	31	1.00	47
16-Aug	11	-	162	39	1.00	66
17-Aug	8	1	71	17	1.00	23
18-Aug	9	6	146	34	1.00	45
19-Aug	11	-	59	13	1.00	19
20-Aug	7	2	97	27	1.00	31
21-Aug	11	-	139	23	1.00	36
22-Aug	7	1	75	6	1.00	20
23-Aug	9	1	102	17	1.00	35
24-Aug	9	-	52	2	1.00	11
25-Aug	8	-	114	9	1.00	27
26-Aug	10	-	33	10	1.00	13
27-Aug	4	-	30	5	1.00	10
28-Aug	8	-	68	6	1.00	19
29-Aug	7	-	11	6	1.00	5
30-Aug	3	-	58	-	1.00	19
31-Aug	8	-	20	4	1.00	6
1-Sep	6	-	32	3	1.00	8
2-Sep	8	-	14	5	1.00	5
3-Sep	4	-	8	1	1.00	3
4-Sep	6	-	18	3	1.00	5
5-Sep	7	-	16	-	1.00	2
6-Sep	5	-	1	-	1.00	0
7-Sep	8	-	5	-	1.00	1
8-Sep	3	-	3	-	1.00	1
9-Sep	1	-	-	-	1.00	-

Appendix C.10. Historical summary of the chum salmon commercial harvest by date, Quinhagak District, 1981-2002.

Date	No. Yrs w fishing period on late	Minimum Harvest	Maximum Harvest	Median Harvest	Cum Proportion Harvest	Average Harvest
12-Jun	1	-	-	-	0.00	-
13-Jun	5	14	1,092	84	0.00	289
14-Jun	2	-	2,125	1,000	0.00	1,042
15-Jun	6	189	2,821	697	0.01	963
16-Jun	5	-	847	279	0.01	383
17-Jun	2	1,047	1,916	1,556	0.02	1,506
18-Jun	6	290	2,611	1,623	0.03	1,520
19-Jun	4	788	1,913	1,298	0.03	1,324
20-Jun	6	287	2,760	857	0.04	1,163
21-Jun	6	154	4,471	1,509	0.05	1,781
22-Jun	5	1,051	6,984	1,531	0.06	2,640
23-Jun	4	1,103	3,226	1,452	0.07	1,808
24-Jun	7	732	5,990	1,500	0.09	2,775
25-Jun	7	1,463	6,662	2,305	0.12	3,349
26-Jun	6	1,199	4,329	2,324	0.13	2,426
27-Jun	2	1,855	2,722	1,874	0.14	2,150
28-Jun	6	2,458	5,449	3,880	0.17	3,809
29-Jun	6	-	8,441	4,968	0.20	5,134
30-Jun	2	2,066	4,903	2,501	0.22	3,166
1-Jul	6	1,836	13,544	4,008	0.25	6,041
2-Jul	9	1,972	6,034	3,348	0.29	3,571
3-Jul	11	1,788	10,073	4,000	0.33	4,857
4-Jul	3	2,333	3,155	2,839	0.34	2,812
5-Jul	10	1,820	7,481	3,736	0.39	4,122
6-Jul	11	2,192	8,484	4,321	0.42	4,607
7-Jul	11	2,939	7,138	3,630	0.46	4,079
8-Jul	11	2,845	8,296	3,659	0.49	4,545
9-Jul	9	1,794	8,768	3,846	0.54	4,628
10-Jul	6	1,992	5,667	4,998	0.57	4,539
11-Jul	10	1,914	9,329	3,482	0.62	4,318
12-Jul	6	2,060	9,074	3,477	0.64	4,020
13-Jul	9	2,844	9,794	4,799	0.69	5,230
14-Jul	9	134	6,668	2,084	0.72	2,992
15-Jul	9	1,048	10,756	4,668	0.77	4,989
16-Jul	7	1,767	4,359	2,193	0.79	2,592
17-Jul	9	942	8,308	3,260	0.83	3,678
18-Jul	7	1,310	4,343	2,590	0.85	2,573
19-Jul	8	778	4,960	2,052	0.87	2,449
20-Jul	5	1,590	4,684	2,806	0.89	2,991
21-Jul	9	1,143	2,503	1,780	0.91	1,701
22-Jul	5	990	2,696	1,740	0.92	1,752
23-Jul	8	-	2,210	1,503	0.93	1,408
24-Jul	8	417	2,713	1,343	0.94	1,408
25-Jul	5	-	1,397	1,078	0.95	941
26-Jul	5	-	1,460	941	0.95	853

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Date	No. Yrs w/fishing period on date	Minimum Harvest	Maximum Harvest	Median Harvest	Cum Proportion Harvest	Average Harvest
27-Jul	10	-	1,885	710	0.96	725
28-Jul	6	259	975	571	0.97	600
29-Jul	8	190	1,412	669	0.97	709
30-Jul	6	173	802	551	0.98	504
31-Jul	9	5	715	259	0.98	369
1-Aug	9	162	479	278	0.98	312
2-Aug	8	63	459	267	0.98	267
3-Aug	10	94	580	234	0.99	247
4-Aug	5	4	652	116	0.99	223
5-Aug	12	59	357	169	0.99	191
6-Aug	8	52	381	161	0.99	186
7-Aug	8	43	260	109	0.99	128
8-Aug	8	-	234	119	0.99	99
9-Aug	7	11	858	107	1.00	220
10-Aug	10	9	108	50	1.00	53
11-Aug	6	4	110	44	1.00	56
12-Aug	10	15	109	49	1.00	54
13-Aug	7	2	100	24	1.00	43
14-Aug	10	13	166	31	1.00	55
15-Aug	7	6	106	28	1.00	41
16-Aug	11	2	96	28	1.00	34
17-Aug	8	-	50	15	1.00	19
18-Aug	9	7	49	12	1.00	19
19-Aug	11	-	54	14	1.00	19
20-Aug	7	1	27	11	1.00	12
21-Aug	11	2	26	11	1.00	13
22-Aug	7	1	21	13	1.00	12
23-Aug	9	3	27	14	1.00	15
24-Aug	9	-	8	5	1.00	4
25-Aug	8	-	25	5	1.00	7
26-Aug	10	-	15	7	1.00	7
27-Aug	4	-	6	2	1.00	3
28-Aug	8	2	17	4	1.00	6
29-Aug	7	-	3	-	1.00	1
30-Aug	3	-	18	1	1.00	6
31-Aug	8	-	10	1	1.00	2
1-Sep	6	-	8	1	1.00	2
2-Sep	8	-	7	1	1.00	2
3-Sep	5	-	43	-	1.00	9
4-Sep	6	-	13	-	1.00	2
5-Sep	7	-	5	-	1.00	1
6-Sep	5	-	-	-	1.00	-
7-Sep	8	-	2	-	1.00	0
8-Sep	3	-	-	-	1.00	-
9-Sep	1	-	-	-	1.00	-

Appendix C.11. Historical summary of the coho salmon commercial harvest by date, Quinhagak District, 1981-2002.

Date	No Yrs w/fishing period on date	Minimum Harvest	Maximum Harvest	Median Harvest	Cum Proportion Harvest	Average Harvest
12-Jun	1	-	-	-	0.00	-
13-Jun	5	-	-	-	0.00	-
14-Jun	3	-	-	-	0.00	-
15-Jun	6	-	-	-	0.00	-
16-Jun	5	-	-	-	0.00	-
17-Jun	3	-	-	-	0.00	-
18-Jun	6	-	-	-	0.00	-
19-Jun	4	-	-	-	0.00	-
20-Jun	6	-	-	-	0.00	-
21-Jun	6	-	-	-	0.00	-
22-Jun	5	-	-	-	0.00	-
23-Jun	4	-	-	-	0.00	-
24-Jun	7	-	-	-	0.00	-
25-Jun	7	-	-	-	0.00	-
26-Jun	6	-	-	-	0.00	-
27-Jun	3	-	-	-	0.00	-
28-Jun	6	-	-	-	0.00	-
29-Jun	6	-	-	-	0.00	-
30-Jun	5	-	2	-	0.00	0
1-Jul	6	-	-	-	0.00	-
2-Jul	9	-	1	-	0.00	0
3-Jul	8	-	-	-	0.00	-
4-Jul	5	-	-	-	0.00	-
5-Jul	10	-	-	-	0.00	-
6-Jul	7	-	-	-	0.00	-
7-Jul	8	-	-	-	0.00	-
8-Jul	8	-	-	-	0.00	-
9-Jul	9	-	39	-	0.00	5
10-Jul	6	-	5	-	0.00	1
11-Jul	10	-	9	-	0.00	2
12-Jul	6	-	2	-	0.00	0
13-Jul	9	-	38	4	0.00	8
14-Jul	9	-	2	-	0.00	1
15-Jul	9	-	24	2	0.00	7
16-Jul	7	-	39	1	0.00	8
17-Jul	9	-	251	10	0.00	35
18-Jul	7	-	234	3	0.00	41
19-Jul	8	-	88	12	0.00	27
20-Jul	6	3	787	59	0.00	221
21-Jul	9	-	366	19	0.00	94
22-Jul	6	1	250	27	0.00	74
23-Jul	8	-	1,386	39	0.00	244
24-Jul	8	21	2,295	93	0.01	412
25-Jul	6	-	3,482	309	0.01	783
26-Jul	6	-	704	99	0.01	175

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Date	No. Yrs w/fishing period on date	Minimum Harvest	Maximum Harvest	Median Harvest	Cum Proportion Harvest	Average Harvest
28-Jul	6	29	1,257	342	0.03	543
29-Jul	8	152	7,989	639	0.04	1,538
30-Jul	6	103	3,079	637	0.04	1,226
31-Jul	9	146	5,597	925	0.05	1,407
1-Aug	9	360	5,680	910	0.06	1,466
2-Aug	8	200	12,478	2,167	0.08	3,109
3-Aug	10	592	5,390	1,104	0.10	1,763
4-Aug	5	168	4,293	1,755	0.11	1,670
5-Aug	12	387	19,091	2,611	0.14	3,803
6-Aug	8	1,589	8,436	4,203	0.17	3,957
7-Aug	8	693	8,188	4,231	0.20	4,596
8-Aug	8	-	19,215	2,536	0.24	5,646
9-Aug	7	1,831	11,553	5,295	0.27	5,635
10-Aug	10	1,237	9,428	5,364	0.31	5,438
11-Aug	6	2,458	10,076	6,136	0.35	6,145
12-Aug	10	2,710	10,458	3,628	0.38	5,005
13-Aug	7	1,561	10,961	5,284	0.42	5,442
14-Aug	10	1,671	10,424	3,485	0.45	4,589
15-Aug	7	1,603	15,733	5,095	0.50	7,980
16-Aug	11	1,403	8,299	3,203	0.53	3,905
17-Aug	8	2,008	9,897	5,584	0.57	5,787
18-Aug	9	1,008	9,776	6,197	0.62	5,930
19-Aug	11	-	12,931	4,373	0.66	5,017
20-Aug	7	201	8,728	5,529	0.69	4,969
21-Aug	11	833	9,161	3,315	0.73	4,009
22-Aug	7	955	8,437	4,502	0.75	4,104
23-Aug	9	2,400	11,957	3,964	0.79	5,164
24-Aug	9	432	8,673	3,736	0.82	4,167
25-Aug	8	115	5,308	2,807	0.84	2,627
26-Aug	9	1,419	6,505	4,552	0.87	4,032
27-Aug	5	1,123	5,975	3,637	0.88	3,180
28-Aug	8	1,335	4,684	3,245	0.90	3,083
29-Aug	7	-	3,623	2,701	0.91	2,460
30-Aug	3	1,054	9,431	2,193	0.93	4,226
31-Aug	8	1,427	7,145	2,668	0.95	3,064
1-Sep	6	-	2,565	1,739	0.95	1,620
2-Sep	8	535	5,148	1,454	0.97	2,222
3-Sep	5	-	2,777	600	0.97	1,219
4-Sep	6	-	4,442	1,484	0.98	1,766
5-Sep	7	-	3,799	901	0.99	1,136
6-Sep	5	-	1,769	-	0.99	585
7-Sep	8	-	3,956	305	1.00	960
8-Sep	3	-	1,262	-	1.00	421
9-Sep	1	-	-	-	1.00	-

APPENDIX D

Appendix D.1. Commercial salmon harvests, Goodnews Bay District, 1968-2002.

YEAR	CHINOOK	SOCKEYE	COHO	PINK	CHUM	TOTAL
1968	[a]	[a]	5,458	[a]	[a]	5,458
1969	3,978	6,256	11,631	298	5,006	27,169
1970	7,163	7,144	6,794	12,183	12,346	45,630
1971	477	330	1,771	0	301	2,879
1972	264	924	925	66	1,331	3,510
1973	3,543	2,072	5,017	324	15,781	26,737
1974	3,302	9,357	21,340	16,373	8,942	59,314
1975	2,156	9,098	17,889	419	5,904	35,466
1976	4,417	5,575	9,852	8,453	10,354	38,651
1977	3,336	3,723	13,335	29	6,531	26,954
1978	5,218	5,412	13,764	9,103	8,590	42,087
1979	3,204	19,581	42,098	201	9,298	74,382
1980	2,331	28,632	43,256	7,832	11,748	93,799
1981	7,190	40,273	19,749	11	13,642	80,865
1982	9,476	38,877	46,683	4,673	13,829	113,538
1983	14,117	11,716	19,660	0	6,766	52,259
1984	8,612	15,474	71,176	4,711	14,340	114,313
1985	5,793	6,698	16,498	8	4,784	33,781
1986	2,723	25,112	19,378	4,447	10,355	62,015
1987	3,357	27,758	29,057	54	20,381	80,607
1988	4,964	36,368	30,832	5,509	33,059	110,732
1989	2,966	19,299	31,849	82	13,622	67,818
1990	3,303	35,823	7,804	629	13,194	60,753
1991	912	39,838	13,312	29	16,892	69,983
1992	3,528	39,194	19,875	14,310	18,520	95,427
1993	2,117	59,293	20,014	0	10,657	92,081
1994	2,570	69,490	47,499	18,017	28,477	166,053
1995	2,922	37,351	17,875	39	19,832	78,019
1996	1,375	30,717	43,836	22	11,093	87,043
1997	2,039	31,451	2,983	0	11,729	48,202
1998	3,675	27,161	21,246	411	14,155	66,648
1999	1,888	22,910	2,474	0	11,562	38,834
2000	4,442	37,252	15,531	7	7,450	64,682
2001	1,519	25,654	9,275	0	3,412	39,860
2002	979	6,304	3,041	0	3,799	14,123
10-year avg (92-01)	2,608	38,047	20,061	6,553 [b]	11,689	77,685
Historical avg (68-01)	3,905	23,509	20,580	6,672 [b]	11,906	61,928

[a] No harvest information available.

[b] Average of even years only.

Appendix D.2. Number of permits fished, fishing time, and periods, Goodnews Bay District, 1970-2002.

Year	Number of Periods	Hours Fished	Permits Fished [#]
1970	28	624	35
1971	3	156	16
1972	8	186	14
1973	24	288	21
1974	30	360	49
1975	24	288	50
1976	32	384	40
1977	24	288	34
1978	36	432	35
1979	36	432	30
1980	38	456	48
1981	34	492	48
1982	34	540	48
1983	28	336	79
1984	31	372	77
1985	22	264	69
1986	30	360	86
1987	21	252	69
1988	30	360	125
1989	28	336	88
1990	28	396	82
1991	27	432	72
1992	26	396	111
1993	28	336	114
1994	32	432	116
1995	25	396	118
1996	21	247	53
1997	23	276	54
1998	29	348	50
1999	20	240	73
2000	25	300	46
2001	16	183	32
2002	12	144	30
10-year avg (92-01)	25	315	77
Historical avg (70-01)	26	350	62

[#] Permits that made at least one delivery during the year.

Appendix D.3. Exvessel value of the Goodnews Bay District commercial salmon fishery, 1990-2002.

YEAR	CHINOOK	SOCKEYE	COHO	PINK	CHUM	TOTAL
1990	32,135	263,598	38,910	254	25,767	360,664
1991	8,370	187,622	47,519	14	31,394	274,919
1992	30,688	257,457	75,278	2,913	39,111	405,447
1993	21,351	296,437	95,043	0	28,304	441,135
1994	21,732	309,577	271,687	5,442	41,309	649,747
1995	31,339	175,552	58,061	19	21,427	286,398
1996	5,952	87,427	120,191	4	9,015	222,589
1997	10,867	93,146	9,497	0	9,358	122,868
1998	13,685	100,171	59,102	174	11,133	184,265
1999	9,020	78,800	7,515	0	8,327	103,662
2000	25,614	146,708	34,689	2	6,001	213,014
2001	10,496	68,678	17,089	0	2,586	98,849
2002	343	15,846	5,634	0	2,979	24,802
10-year avg (92-01)	$18,074	$161,395	$74,815	$1,707 [a]	$17,657	$272,797

[a] Even years only.

Appendix D.4 Chinook, sockeye, and chum salmon run size and exploitation rate, Goodnews River drainage, 1981-2002.

Year	Species	MFGR Tower/weir estimate[a]	Goodnews River Escapement	Subsistence Harvest	Commercial Harvest	Sport harvest[b]	Total Run Size	Exploitation[c] (%)
1981	Chinook	3,688	7,766 [d]	1,409	7,190		20,053	43
	Sockeye	49,108	100,029 [d]	3,511 [d]	40,273		192,921	23
	Chum	21,827	53,799 [d]	-	13,642		89,268	15
1982	Chinook	1,395	2,937 [d]	1,236	9,476		15,044	71
	Sockeye	56,255	114,587 [d]	2,754	38,877		212,473	20
	Chum	6,767	16,679 [d]	-	13,829		37,275	37
1983	Chinook	6,022	14,398	1,066	14,117	31	35,634	43
	Sockeye	25,813	69,955	1,518 [e]	11,716	14	109,016	12
	Chum	15,548	38,323 [d]	-	6,766	10	60,647	11
1984	Chinook	3,260	8,743	629	8,612		21,244	43
	Sockeye	32,053	67,213	964	15,474		115,704	14
	Chum	19,003	117,739	189	14,340		151,271	10
1985	Chinook	2,831	7,979	426	5,793	323	17,352	38
	Sockeye	24,131	50,481	704	6,698	75	82,089	9
	Chum	10,367	25,025	348	4,784	124	40,648	13
1986	Chinook	2,092	4,094	555	2,723		9,464	35
	Sockeye	51,069	93,228	942	25,112	122	170,473	15
	Chum	14,764	51,910	191	10,355		77,220	14
1987	Chinook	2,272	4,490	816	3,357		10,935	38
	Sockeye	28,871	51,989	955	27,758	266	109,839	26
	Chum	17,517	37,802	578	20,381		76,278	27
1988	Chinook	2,712	5,419	310	4,964		13,405	39
	Sockeye	15,799	38,319	1065	36,368		91,551	41
	Chum	20,799	39,501	448	33,059		93,807	36
1989	Chinook	1,915	2,891	467	2,966	68	8,307	42
	Sockeye	21,186	35,476	869	19,299	146	76,976	26
	Chum	10,380	15,495	760	13,622	0	40,257	36
1990	Chinook	3,636	7,656 [d]	682	3,303		15,277	26
	Sockeye	31,679	64,528 [d]	905	35,823		132,935	28
	Chum	6,410	15,799 [d]	342	13,194		35,745	38
1991	Chinook	1,952	4,521 [d]	682	912	29	8,096	20
	Sockeye	47,397	96,544 [d]	900	39,838	163	184,842	22
	Chum	27,525	67,844 [d]	106	15,892	215	111,582	14
1992	Chinook	1,903	1,854	252	3,528		7,537	50
	Sockeye	27,268	52,501	905	39,194		119,868	33
	Chum	22,023	16,084	662	18,520		57,289	33

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Appendix D.4 (page 2 of 2)

Year	Species	MFGR Tower/weir estimate[a]	Goodnews River Escapement	Subsistence Harvest	Commercial Harvest	Sport harvest[b]	Total Run Size	Exploitation[c] (%)
1993	Chinook	2,349	4,727 [d]	488	2,117	104	9,785	28
	Sockeye	26,452	54,325 [d]	572	59,293	69	140,711	43
	Chum	14,952	38,061 [d]	133	10,657	202	64,011	17
1994	Chinook	3,856	7,866 [d]	657	2,570	175	5,124	22
	Sockeye	55,751	115,405 [d]	652	69,490	80	241,378	29
	Chum	34,849	91,653 [d]	402	28,477	34	155,415	19
1995	Chinook	4,836	9,865 [d]	552	2,922	55	8,230	19
	Sockeye	39,009	80,749 [d]	787	37,351	53	157,949	24
	Chum	33,699	88,628 [d]	329	19,832	16	142,504	14
1996	Chinook	2,930	5,977 [d]	526	1,375	213	1,021	19
	Sockeye	58,264	120,606 [d]	763	30,717	143	210493	15
	Chum	40,450	106,384 [d]	326	11,093	18	168,271	7
1997	Chinook	2,937	7,216	449	2,039	164	2,641	20
	Sockeye	35,530	23,462	609	31,451	142	91,052	35
	Chum	17,296	45,488 [d]	133	11,729	80	74,646	16
1998	Chinook	4,584	3,797	718	3,675	590	3,364	37
	Sockeye	47,951	14,693	508	27,161	672	90,985	31
	Chum	28,905	24,940	316	14,155	198	68,514	21
1999	Chinook	3,221	6,565 [d]	871	1,888	414	2,959	24
	Sockeye	48,205	99,727 [d]	872	22,910	661	172,375	14
	Chum	19,533	51,361 [d]	281	11,562	425	83,162	15
2000	Chinook	3,295	6,458 [d]	601	4,442	319	5,115	35
	Sockeye	42,197	73,845 [d]	1,028	37,252	132	154,454	25
	Chum	14,720	35,475 [d]	280	7,450	224	58,149	14
2001	Chinook	5,404	8,128	853	1,519	285	6,189	16
	Sockeye	22,495	137,364	914	25,654	164	136,591	14
	Chum	26,829	33,902	181	3,412	130	64,454	6
2002	Chinook	3,076	4,096		979			
	Sockeye	21,127	31,476		6,304			
	Chum	29,905	110,215		3,799			

[a] Goodnews Tower Project changed to weir project in 1991.

[b] Sport fish harvest is the number of fish harvested plus 5% of the total fish caught, to account for a 5% delayed mortality.

[c] Commercial, subsistence, and sport harvest exploitation.

[d] Average Middle Fork/Goodnews River escapement estimate ratio for 1983-1989 used to estimate Goodnews River escapement in years when no aerial survey of the Goodnews River was flown.

[e] Subsistence caught chum salmon is included in subsistence sockeye salmon harvest

Appendix D.5. Aerial survey results, Middle Fork and Goodnews Rivers and Lakes, 1980- 2002.

	Goodnews River and Lakes				Middle Fork Goodnews River and Lake			
Year	Chinook	Sockeye	Chum	Coho	Chinook	Sockeye	Chum	Coho
1980	1,223	75,639	1,975	a	1,164	18,926	3,782	a
1981	a	a	a	a	a	a	a	a
1982	1,990	19,160	9,700	a	1,546	2,327	6,300	a
1983	2,600	9,650	a	a	2,500	5,900	a	a
1984	3,243	9,240	17,250	43,925	1,930	12,897	9,172	a
1985	3,533	2,843	4,415	a	2,050	5,470	3,593	a
1986	1,063	8,960	11,850	a	1,249	16,990	7,645	a
1987	2,234	19,786	12,103	11,122	2,222	34,585	9,696	a
1988	637	5,820	3,846	a	1,024	5,831	5,814	a
1989	651	3,605	a	a	1,277	8,044	2,922	a
1990	625	27,689	a	a	a	a	a	a
1991	a	a	a	a	a	a	a	a
1992	875	10,397	1,950	a	1,012	7,200	3,270	a
1993	a	a	a	a	a	a	a	a
1994	a	a	a	a	a	a	a	a
1995	3,314	a	a	a	a	a	a	a
1996	a	a	a	a	a	a	a	a
1997	3,611	12,610	a	a	1,447	19,843	a	a
1998	573	3,497	2,743	a	731	11,632	3,619	a
1999	a	a	a	a	a	a	a	a
2000	a	a	a	a	a	a	a	a
2001	2,799	12,383	6,945	a	3,561	29,340	7,330	a
2002	1,195	2,626	1,208		1,470	3,475	3,075	
Goal	**1,600**	**15,000**	**17,000**	**15,000**	**800**	**5,000**	**4,000**	**2,000**

a Information not ava lable.

Appendix D.6. Daily salmon passage counts at the Middle Fork Goodnews River weir, 2002.

	Chinook		Sockeye		Coho		Pink		Chum	
Date	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
25-Jun	9	9	82	82	0	0	0	0	68	68
26-Jun	36	45	609	691	0	0	0	0	212	280
27-Jun	35	80	431	1,122	0	0	3	3	90	370
28-Jun	68	148	681	1,803	0	0	4	7	168	538
29-Jun	102	250	745	2,548	0	0	13	20	639	1,177
30-Jun	254	504	1020	3,568	0	0	26	46	1040	2,217
1-Jul	97	601	960	4,528	0	0	63	109	1262	3,479
2-Jul	58	659	693	5,221	0	0	8	117	560	4,039
3-Jul	215	874	1397	6,618	0	0	34	151	1337	5,376
4-Jul	73	947	1305	7,923	0	0	20	171	945	6,321
5-Jul	37	984	669	8,592	0	0	10	181	517	6,838
6-Jul	76	1,060	1579	10,171	0	0	8	189	784	7,622
7-Jul	24	1,084	1202	11,373	0	0	22	211	1271	8,893
8-Jul	91	1,175	802	12,175	0	0	24	235	256	9,149
9-Jul	194	1,369	1103	13,278	0	0	30	265	591	9,740
10-Jul	133	1,502	919	14,197	0	0	24	289	1241	10,981
11-Jul	129	1,631	575	14,772	0	0	36	325	1713	12,694
12-Jul	50	1,681	358	15,130	0	0	11	336	713	13,407
13-Jul	23	1,704	440	15,570	0	0	17	353	421	13,828
14-Jul	228	1,932	891	16,461	0	0	29	382	876	14,704
15-Jul	93	2,025	511	16,972	0	0	19	401	1490	16,194
16-Jul	149	2,174	496	17,468	0	0	17	418	1292	17,486
17-Jul	105	2,279	462	17,930	0	0	28	446	1244	18,730
18-Jul	134	2,413	352	18,282	0	0	69	515	2444	21,174
19-Jul	70	2,483	139	18,421	0	0	41	556	1067	22,241
20-Jul	16	2,499	334	18,755	0	0	34	590	255	22,496
21-Jul	78	2,577	392	19,147	0	0	26	616	303	22,799
22-Jul	86	2,663	274	19,421	0	0	29	645	1024	23,823
23-Jul	48	2,711	240	19,661	0	0	52	697	995	24,818
24-Jul	39	2,750	179	19,840	0	0	64	761	530	25,348
25-Jul	21	2,771	208	20,048	0	0	41	802	329	25,677
26-Jul	51	2,822	187	20,235	0	0	88	890	657	26,334
27-Jul	6	2,828	55	20,290	7	7	38	928	392	26,726
28-Jul	24	2,852	137	20,427	6	13	66	994	508	27,234
29-Jul	19	2,871	83	20,510	4	17	59	1053	374	27,608
30-Jul	8	2,879	133	20,643	8	25	48	1101	251	27,859
31-Jul	29	2,908	93	20,736	12	37	121	1222	466	28,325
1-Aug	0	2,908	0	20,736	1	38	0	1222	76	28,401
2-Aug	13	2,921	62	20,798	41	79	180	1402	350	28,751
3-Aug	5	2,926	28	20,826	32	111	140	1542	204	28,955
4-Aug	6	2,932	20	20,846	9	120	124	1666	169	29,124
5-Aug	6	2,938	32	20,878	16	136	74	1740	90	29,214
6-Aug	2	2,940	12	20,890	4	140	12	1752	68	29,282
7-Aug	5	2,945	44	20,934	35	175	24	1776	113	29,395
8-Aug	2	2,947	23	20,957	26	201	31	1807	117	29,512
9-Aug	2	2,949	11	20,968	63	264	54	1861	52	29,564
10-Aug	0	2,949	2	20,970	2	266	10	1871	31	29,595
11-Aug	5	2,954	7	20,977	52	318	51	1922	49	29,644
12-Aug	4	2,958	7	20,984	135	453	71	1993	37	29,681

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	Chinook		Sockeye		Coho		Pink		Chum	
Date	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
13-Aug	5	2,963	14	20,998	170	623	68	2,061	29	29,710
14-Aug	2	2,965	3	21,001	20	643	10	2,071	6	29,716
15-Aug	1	2,966	15	21,016	133	776	72	2,081	18	29,734
16-Aug	6	2,972	8	21,024	157	933	96	2,091	36	29,770
17-Aug	0	2,972	0	21,024	30	963	13	2,101	7	29,777
18-Aug	6	2,978	3	21,027	411	1,374	100	2,111	27	29,804
19-Aug	2	2,980	0	21,027	911	2,285	47	2,121	5	29,809
20-Aug	0	2,980	6	21,033	37	2,322	6	2,131	18	29,827
21-Aug	7	2,987	9	21,042	676	2,998	79	2,141	21	29,848
22-Aug	5	2,992	5	21,047	399	3,397	97	2,151	11	29,859
23-Aug	0	2,992	1	21,048	61	3,458	21	2,161	4	29,863
24-Aug	1	2,993	3	21,051	87	3,545	16	2,171	2	29,865
25-Aug	0	2,993	2	21,053	525	4,070	54	2,181	6	29,871
26-Aug	0	2,993	2	21,055	516	4,586	20	2,191	0	29,871
27-Aug	1	2,994	3	21,058	2,810	7,396	77	2,201	2	29,873
28-Aug	2	2,996	0	21,058	1,771	9,167	34	2,211	4	29,877
29-Aug	1	2,997	2	21,060	78	9,245	7	2,221	0	29,877
30-Aug	1	2,998	0	21,060	161	9,406	11	2,231	3	29,880
31-Aug	1	2,999	3	21,063	1,177	10,583	25	2,241	2	29,882
1-Sep	0	2,999	3	21,066	1,001	11,584	20	2,251	0	29,882
2-Sep	0	2,999	4	21,070	653	12,237	15	2,261	3	29,885
3-Sep	0	2,999	3	21,073	2,563	14,800	33	2,271	4	29,889
4-Sep	0	2,999	2	21,075	786	15,586	26	2,281	1	29,890
5-Sep	0	2,999	6	21,081	2,025	17,611	33	2,291	0	29,890
6-Sep	0	2,999	4	21,085	2,540	20,151	5	2,301	1	29,891
7-Sep	1	3,000	8	21,093	2,334	22,485	1	2,311	0	29,891
8-Sep	0	3,000	7	21,100	615	23,100	10	2,321	0	29,891
9-Sep	0	3,000	2	21,102	53	23,153	1	2,331	1	29,892
10-Sep	0	3,000	2	21,104	117	23,270	2	2,341	0	29,892
11-Sep	0	3,000	5	21,109	190	23,460	3	2,351	1	29,893
12-Sep	1	3,001	7	21,116	2,555	26,015	26	2,361	7	29,900
13-Sep	0	3,001	7	21,123	695	26,710	5	2,371	3	29,903
14-Sep	0	3,001	2	21,125	275	26,985	3	2,381	0	29,903
15-Sep	0	3,001	2	21,127	181	27,166	3	2,391	2	29,905
16-Sep	0	3,001	2	21,129	124	27,290	2	2,401	0	29,905
17-Sep	0	3,001	0	21,129	47	27,337	0	2,411	0	29,905
18-Sep	0	3,001	0	21,129	27	27,364	0	2,421	0	29,905

Appendix D.7. Daily and cumulative passage of Dolly Varden, whitefish and rainbow trout through the Middle Fork Goodnews River weir, 2002

	Dolly Varden		Whitefish		Rainbow Trout	
Date	Daily	Cum	Daily	Cum	Daily	Cum
25-Jun	4	4	4	4	0	0
26-Jun	2	6	18	22	0	0
27-Jun	1	7	9	31	0	0
28-Jun	2	9	6	37	0	0
29-Jun	1	10	18	55	0	0
30-Jun	1	11	41	96	0	0
1-Jul	2	13	24	120	0	0
2-Jul	7	20	14	134	0	0
3-Jul	7	27	7	141	0	0
4-Jul	0	27	11	152	0	0
5-Jul	0	27	5	157	0	0
6-Jul	8	35	7	164	0	0
7-Jul	25	60	5	169	0	0
8-Jul	26	86	3	172	0	0
9-Jul	63	149	6	178	0	0
10-Jul	100	249	2	180	0	0
11-Jul	239	488	7	187	0	0
12-Jul	112	600	8	195	0	0
13-Jul	278	878	8	203	0	0
14-Jul	61	939	16	219	0	0
15-Jul	74	1,013	5	224	0	0
16-Jul	125	1,138	12	236	0	0
17-Jul	132	1,270	13	249	0	0
18-Jul	102	1,372	13	262	0	0
19-Jul	24	1,396	2	264	0	0
20-Jul	25	1,421	4	268	0	0
21-Jul	22	1,443	7	275	0	0
22-Jul	28	1,471	6	281	0	0
23-Jul	12	1,483	8	289	0	0
24-Jul	8	1,491	8	297	0	0
25-Jul	3	1,494	3	300	0	0
26-Jul	4	1,498	8	308	0	0
27-Jul	0	1,498	0	308	0	0
28-Jul	2	1,500	0	308	0	0
29-Jul	5	1,505	14	322	0	0
30-Jul	1	1,506	6	328	0	0
31-Jul	9	1,515	12	340	0	0
1-Aug	0	1,515	4	344	0	0
2-Aug	5	1,520	9	353	0	0
3-Aug	9	1,529	17	370	0	0
4-Aug	2	1,531	2	372	0	0
5-Aug	2	1,533	5	377	0	0
6-Aug	0	1,533	3	380	0	0
7-Aug	0	1,533	7	387	0	0
8-Aug	0	1,533	1	388	0	0
9-Aug	2	1,535	4	392	0	0
10-Aug	1	1,536	1	393	0	0
11-Aug	0	1,536	2	395	0	0
12-Aug	1	1,537	5	400	0	0

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Date	Dolly Varden		Whitefish		Rainbow Trout	
	Daily	Cum	Daily	Cum	Daily	Cum
13-Aug	0	1,537	1	401	0	0
14-Aug	1	1,538	1	402	0	0
15-Aug	1	1,539	1	403	0	0
16-Aug	0	1,540	3	404	0	0
17-Aug	0	1,541	0	405	0	0
18-Aug	3	1,542	4	406	0	0
19-Aug	0	1,543	0	407	0	0
20-Aug	0	1,544	0	408	0	0
21-Aug	0	1,545	1	409	0	0
22-Aug	1	1,546	4	410	0	0
23-Aug	1	1,547	0	411	0	0
24-Aug	0	1,548	1	412	0	0
25-Aug	1	1,549	16	413	0	0
26-Aug	1	1,550	1	414	0	0
27-Aug	0	1,551	5	415	0	0
28-Aug	0	1,552	7	416	0	0
29-Aug	0	1,553	4	417	0	0
30-Aug	0	1,554	1	418	0	0
31-Aug	0	1,555	4	419	0	0
1-Sep	0	1,556	5	420	0	0
2-Sep	1	1,557	4	421	0	0
3-Sep	0	1,558	2	422	0	0
4-Sep	1	1,559	4	423	0	0
5-Sep	1	1,560	3	424	0	0
6-Sep	5	1,561	5	425	0	0
7-Sep	3	1,562	4	426	0	0
8-Sep	6	1,563	3	427	0	0
9-Sep	0	1,564	2	428	0	0
10-Sep	1	1,565	1	429	0	0
11-Sep	0	1,566	0	430	0	0
12-Sep	2	1,567	0	431	0	0
13-Sep	0	1,568	0	432	0	0
14-Sep	0	1,569	0	433	0	0
15-Sep	0	1,570	0	434	0	0
16-Sep	0	1,571	0	435	0	0
17-Sep	0	1,572	0	436	0	0
18-Sep	0	1,573	1	437	0	0

Appendix D.8. Summary of the Goodnews Bay District commercial salmon fishery, 2002.

					Chinook			Sockeye			Chum			Coho		
Period #	Date	Hours	Deliveries	Permits	Catch	LBS	CPUE	Catch	LBS	CPUE	Catch	LBS	CPUE	Catch	LBS	CPUE
1	27-Jun	12	24	19	584	6,575	2.6	836	6,229	3.7	853	7,067	3.7	0	0	0.0
2	1-Jul	12	19	18	148	2,211	0.7	958	6,673	4.4	816	6,493	3.8	0	0	0.0
3	5-Jul	12	17	15	103	1,612	0.6	1,373	9,282	7.6	978	7,561	5.4	0	0	0.0
4	10-Jul	12	22	19	71	772	0.3	1,435	10,716	6.3	821	6,277	3.6	0	0	0.0
5	12-Jul	12	19	19	57	707	0.3	891	6,304	3.9	289	2,107	1.3	0	0	0.0
6	1-Aug	12	7	7	8	144	0.1	357	2,709	4.3	17	102	0.2	41	290	0.5
7	7-Aug	12	8	7	3	30	0.0	135	988	1.6	13	98	0.2	451	3,744	5.4
8	10-Aug	12	7	6	1	9	0.0	103	774	1.4	0	0	0.0	253	2,152	3.5
9	15-Aug	12	7	5	1	20	0.0	75	560	1.3	5	30	0.1	578	5,257	9.6
10	17-Aug	12	8	8	1	24	0.0	44	330	0.5	2	13	0.0	404	3,881	4.2
11	20-Aug	12	7	6	2	21	0.0	49	368	0.7	4	32	0.1	518	5,073	7.2
12	24-Aug	12	10	7	0	0	0.0	48	341	0.6	1	10	0.0	796	7,777	9.5
Total		144			979	12,125		6,304	45,274		3,799	29,790		3,041	28,174	

Appendix D.9. Historical summary of the chinook salmon commercial harvest by date, Goodnews Bay District, 1981-2002.

Date	No. Yrs w/fishing period on date	Minimum Harvest	Maximum Harvest	Median Harvest	Cum Proportion Harvest	Average Harvest
12-Jun	0	-	-	-	0.00	
13-Jun	1	1,252	1,252	1,252	0.01	1,252
14-Jun	0	-	-	-	0.01	-
15-Jun	1	197	197	197	0.02	197
16-Jun	2	251	1,096	674	0.03	674
17-Jun	1	362	362	362	0.04	362
18-Jun	3	387	1,706	1,158	0.07	1,084
19-Jun	2	296	390	343	0.08	343
20-Jun	5	139	2,642	404	0.13	838
21-Jun	2	1,298	1,535	1,417	0.16	1,417
22-Jun	2	792	1,591	1,192	0.18	1,192
23-Jun	3	583	1,639	788	0.22	1,003
24-Jun	3	476	988	620	0.24	695
25-Jun	4	340	1,896	1,154	0.29	1,136
26-Jun	4	-	1,247	384	0.31	504
27-Jun	6	173	3,944	493	0.39	1,182
28-Jun	5	307	1,307	807	0.43	789
29-Jun	6	330	1,857	918	0.49	917
30-Jun	7	242	1,551	460	0.55	679
1-Jul	3	77	1,156	134	0.56	456
2-Jul	9	166	710	318	0.60	391
3-Jul	5	156	1,065	391	0.63	470
4-Jul	3	177	2,301	637	0.66	1,038
5-Jul	9	95	1,809	229	0.70	433
6-Jul	7	100	496	235	0.72	230
7-Jul	10	132	1,119	334	0.77	475
8-Jul	9	93	495	190	0.80	232
9-Jul	7	99	351	143	0.81	207
10-Jul	7	71	326	199	0.83	189
11-Jul	9	53	408	162	0.84	178
12-Jul	6	57	737	229	0.86	281
13-Jul	8	60	182	100	0.87	106
14-Jul	8	54	514	154	0.89	199
15-Jul	8	-	354	84	0.90	114
16-Jul	8	54	294	85	0.91	113
17-Jul	5	41	210	76	0.92	110
18-Jul	7	-	217	71	0.92	79
19-Jul	6	-	71	47	0.93	44
20-Jul	8	38	192	83	0.93	98
21-Jul	8	24	68	51	0.94	50
22-Jul	4	19	228	66	0.94	95
23-Jul	10	17	97	37	0.95	42
24-Jul	6	20	77	40	0.95	42
25-Jul	8	-	82	27	0.95	34

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Date	No. Yrs w/fishing period on date	Minimum Harvest	Maximum Harvest	Median Harvest	Cum Proportion Harvest	Average Harvest
26-Jul	6	-	41	21	0.96	21
27-Jul	9	19	122	32	0.96	53
28-Jul	7	5	22	14	0.96	14
29-Jul	6	15	157	29	0.96	47
30-Jul	8	16	73	19	0.97	28
31-Jul	6	7	34	20	0.97	20
1-Aug	10	-	78	18	0.97	27
2-Aug	8	-	27	17	0.97	16
3-Aug	9	9	102	24	0.98	39
4-Aug	6	3	23	10	0.98	12
5-Aug	9	4	54	17	0.98	19
6-Aug	8	4	79	10	0.98	17
7-Aug	6	3	43	12	0.98	16
8-Aug	10	-	60	11	0.98	15
9-Aug	5	7	21	11	0.98	13
10-Aug	13	1	78	10	0.99	18
11-Aug	6	5	20	8	0.99	10
12-Aug	8	4	47	15	0.99	19
13-Aug	6	-	36	5	0.99	11
14-Aug	9	2	41	8	0.99	11
15-Aug	8	1	26	7	0.99	11
16-Aug	10	-	17	6	0.99	7
17-Aug	8	1	22	7	0.99	9
18-Aug	10	-	10	5	0.99	5
19-Aug	7	3	14	8	1.00	8
20-Aug	7	1	12	6	1.00	6
21-Aug	10	-	11	5	1.00	5
22-Aug	7	3	17	7	1.00	8
23-Aug	5	-	9	6	1.00	5
24-Aug	10	-	17	2	1.00	4
25-Aug	7	-	13	4	1.00	5
26-Aug	10	-	8	4	1.00	3
27-Aug	5	-	13	3	1.00	4
28-Aug	9	-	11	3	1.00	3
29-Aug	6	2	9	4	1.00	4
30-Aug	4	1	4	2	1.00	2
31-Aug	8	-	6	1	1.00	2
1-Sep	6	-	7	1	1.00	2
2-Sep	7	-	5	2	1.00	2
3-Sep	5	-	3	2	1.00	1
4-Sep	5	-	6	1	1.00	2
5-Sep	6	-	5	1	1.00	2
6-Sep	3	-	-	-	1.00	-
7-Sep	8	-	1	-	1.00	0
8-Sep	4	-	2	-	1.00	1
9-Sep	1	-	-	-	1.00	-

Appendix D.10. Historical summary of the sockeye salmon commercial harvest by date, Goodnews Bay District, 1981-2002.

Date	No. Yrs w/fishing period on date	Minimum Harvest	Maximum Harvest	Median Harvest	Cum Proportion Harvest	Average Harvest
12-Jun	0	-	-	-	0.00	
13-Jun	1	27	27	27	0.00	27
14-Jun	0	-	-	-	0.00	-
15-Jun	1	70	70	70	0.00	70
16-Jun	2	125	696	411	0.00	411
17-Jun	1	744	744	744	0.00	744
18-Jun	3	281	596	348	0.00	408
19-Jun	2	478	551	515	0.01	515
20-Jun	5	102	1,989	523	0.01	706
21-Jun	2	967	1,280	1,124	0.01	1,124
22-Jun	2	569	1,074	822	0.02	822
23-Jun	3	1,029	2,701	1,466	0.02	1,732
24-Jun	3	596	2,120	1,892	0.03	1,536
25-Jun	4	852	2,087	1,348	0.04	1,409
26-Jun	4	-	1,984	1,814	0.05	1,403
27-Jun	6	685	3,040	1,308	0.06	1,671
28-Jun	5	2,008	4,163	2,932	0.08	2,914
29-Jun	6	1,412	4,286	2,714	0.11	2,683
30-Jun	7	2,037	8,143	4,651	0.15	4,637
1-Jul	3	902	3,376	1,143	0.16	1,807
2-Jul	9	1,818	8,198	3,021	0.21	3,735
3-Jul	5	1,427	5,510	2,589	0.24	3,356
4-Jul	3	1,598	7,674	2,154	0.25	3,809
5-Jul	9	1,254	5,195	2,380	0.29	2,973
6-Jul	7	2,346	7,886	3,430	0.34	4,693
7-Jul	10	2,057	6,283	3,654	0.39	3,690
8-Jul	9	1,231	6,261	4,362	0.44	3,908
9-Jul	7	2,167	4,518	3,566	0.48	3,493
10-Jul	7	1,435	8,140	3,217	0.52	3,743
11-Jul	9	1,397	3,898	3,247	0.56	2,960
12-Jul	6	891	16,753	2,540	0.60	4,863
13-Jul	8	1,954	5,275	3,538	0.64	3,646
14-Jul	8	1,039	4,876	2,891	0.67	2,755
15-Jul	8	-	8,860	2,791	0.71	2,951
16-Jul	8	902	4,969	1,940	0.74	2,349
17-Jul	5	1,598	3,936	2,978	0.76	2,786
18-Jul	7	-	3,049	1,673	0.77	1,476
19-Jul	6	-	2,830	1,917	0.79	1,708
20-Jul	8	395	3,852	1,557	0.81	1,871
21-Jul	8	507	2,559	1,309	0.83	1,483
22-Jul	4	614	2,207	1,830	0.84	1,620
23-Jul	10	162	3,966	1,074	0.86	1,309
24-Jul	6	588	2,458	1,304	0.87	1,437
25-Jul	8	-	1,678	472	0.88	736

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Date	No. Yrs w/fishing period on date	Minimum Harvest	Maximum Harvest	Median Harvest	Cum Proportion Harvest	Average Harvest
26-Jul	6	-	1,804	908	0.89	950
27-Jul	9	166	2,903	534	0.90	939
28-Jul	7	254	1,743	555	0.91	663
29-Jul	6	342	1,312	720	0.91	815
30-Jul	8	84	1,982	384	0.92	687
31-Jul	6	300	1,180	524	0.93	612
1-Aug	10	-	859	314	0.93	359
2-Aug	8	-	969	296	0.94	437
3-Aug	9	36	975	578	0.94	549
4-Aug	6	59	739	189	0.95	254
5-Aug	9	94	932	308	0.95	429
6-Aug	8	34	518	282	0.95	290
7-Aug	6	135	692	280	0.95	369
8-Aug	10	-	926	284	0.95	319
9-Aug	5	46	485	135	0.95	197
10-Aug	13	18	659	286	0.97	312
11-Aug	6	-	174	90	0.97	94
12-Aug	8	17	564	263	0.97	274
13-Aug	6	-	347	158	0.98	146
14-Aug	9	4	409	234	0.98	228
15-Aug	8	5	422	160	0.98	185
16-Aug	10	-	395	110	0.98	158
17-Aug	8	4	498	144	0.98	162
18-Aug	10	-	318	99	0.99	111
19-Aug	7	5	360	117	0.99	140
20-Aug	7	-	214	98	0.99	92
21-Aug	10	1	373	93	0.99	132
22-Aug	7	7	353	104	0.99	119
23-Aug	5	-	193	88	0.99	84
24-Aug	10	1	298	52	0.99	102
25-Aug	7	-	353	89	1.00	106
26-Aug	9	-	204	66	1.00	58
27-Aug	5	-	148	28	1.00	59
28-Aug	9	1	186	51	1.00	62
29-Aug	6	1	155	54	1.00	60
30-Aug	4	-	171	36	1.00	61
31-Aug	8	-	88	51	1.00	45
1-Sep	6	-	158	47	1.00	52
2-Sep	7	2	69	36	1.00	34
3-Sep	5	-	72	21	1.00	28
4-Sep	5	-	61	19	1.00	27
5-Sep	6	-	61	-	1.00	16
6-Sep	3	-	-	-	1.00	-
7-Sep	8	-	63	3	1.00	14
8-Sep	4	-	-	-	1.00	-
9-Sep	1	-	-	-	1.00	-

Appendix D.11. Historical summary of the chum salmon commercial harvest by date, Goodnews Bay District, 1981-2002.

Date	No. Yrs w/fishing period on date	Minimum Harvest	Maximum Harvest	Median Harvest	Cum Proportion Harvest	Average Harvest
12-Jun	0	-	-	-	0.00	
13-Jun	1	10	10	10	0.00	10
14-Jun	0	-	-	-	0.00	-
15-Jun	1	102	102	102	0.00	102
16-Jun	2	89	1,091	590	0.00	590
17-Jun	1	167	167	167	0.00	167
18-Jun	3	194	501	254	0.01	316
19-Jun	2	249	557	403	0.01	403
20-Jun	5	137	3,501	341	0.03	915
21-Jun	2	591	698	645	0.03	645
22-Jun	2	708	2,124	1,416	0.04	1,416
23-Jun	3	886	7,833	886	0.07	3,202
24-Jun	3	594	1,188	821	0.08	868
25-Jun	4	724	2,351	1,580	0.10	1,559
26-Jun	4	-	1,241	1,020	0.11	820
27-Jun	6	540	2,364	743	0.13	1,005
28-Jun	5	526	8,369	1,605	0.17	2,626
29-Jun	6	425	2,983	1,239	0.20	1,321
30-Jun	7	997	2,907	1,627	0.24	1,666
1-Jul	3	710	850	721	0.25	760
2-Jul	9	565	3,434	2,208	0.30	1,881
3-Jul	5	1,222	3,074	2,485	0.34	2,126
4-Jul	3	798	4,075	1,626	0.36	2,166
5-Jul	9	927	3,193	1,324	0.40	1,537
6-Jul	7	634	4,076	1,162	0.44	1,664
7-Jul	10	1,036	4,478	1,850	0.51	1,981
8-Jul	9	949	2,669	1,837	0.56	1,756
9-Jul	7	1,024	2,503	1,356	0.60	1,464
10-Jul	7	300	4,835	1,601	0.64	1,864
11-Jul	9	444	5,830	1,009	0.69	1,542
12-Jul	6	289	5,498	1,443	0.72	1,922
13-Jul	8	483	2,288	1,252	0.76	1,267
14-Jul	8	601	2,123	1,154	0.79	1,298
15-Jul	8	-	3,296	1,184	0.83	1,359
16-Jul	8	476	1,360	1,099	0.85	945
17-Jul	5	201	2,115	1,532	0.88	1,309
18-Jul	7	-	1,191	649	0.89	631
19-Jul	5	270	1,470	506	0.91	834
20-Jul	8	337	1,265	622	0.93	744
21-Jul	8	225	820	409	0.94	434
22-Jul	4	307	1,177	335	0.94	539
23-Jul	10	35	591	321	0.96	343
24-Jul	6	133	874	280	0.96	348
25-Jul	8	-	281	217	0.97	188

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Date	No. Yrs w/fishing period on date	Minimum Harvest	Maximum Harvest	Median Harvest	Cum Proportion Harvest	Average Harvest
26-Jul	6	-	608	151	0.97	200
27-Jul	9	58	177	138	0.98	139
28-Jul	7	41	94	89	0.98	81
29-Jul	6	32	223	119	0.98	119
30-Jul	8	42	124	96	0.98	89
31-Jul	6	8	121	66	0.98	67
1-Aug	10	-	108	58	0.99	58
2-Aug	8	-	153	76	0.99	75
3-Aug	9	22	105	52	0.99	57
4-Aug	6	10	60	33	0.99	33
5-Aug	9	21	165	36	0.99	54
6-Aug	8	18	47	27	0.99	29
7-Aug	6	13	98	19	0.99	38
8-Aug	10	-	60	19	0.99	22
9-Aug	5	13	63	39	0.99	36
10-Aug	13	-	44	15	1.00	17
11-Aug	6	10	25	14	1.00	15
12-Aug	8	-	174	15	1.00	38
13-Aug	6	2	22	7	1.00	10
14-Aug	9	3	90	15	1.00	29
15-Aug	8	-	23	9	1.00	10
16-Aug	10	-	16	9	1.00	8
17-Aug	8	-	22	7	1.00	8
18-Aug	10	-	11	3	1.00	4
19-Aug	7	2	16	5	1.00	7
20-Aug	7	-	11	4	1.00	5
21-Aug	10	-	127	2	1.00	15
22-Aug	7	1	6	4	1.00	4
23-Aug	5	-	8	4	1.00	4
24-Aug	10	-	8	1	1.00	2
25-Aug	7	-	8	4	1.00	4
26-Aug	9	-	42	-	1.00	6
27-Aug	5	-	5	2	1.00	2
28-Aug	9	-	11	1	1.00	2
29-Aug	6	-	6	4	1.00	4
30-Aug	4	-	2	1	1.00	1
31-Aug	8	-	9	3	1.00	3
1-Sep	6	-	2	1	1.00	1
2-Sep	7	-	10	2	1.00	3
3-Sep	5	-	4	-	1.00	1
4-Sep	5	-	9	2	1.00	3
5-Sep	6	-	4	1	1.00	2
6-Sep	3	-	-	-	1.00	-
7-Sep	8	-	2	-	1.00	1
8-Sep	4	-	-	-	1.00	-
9-Sep	1	-	-	-	1.00	-

APPENDIX F

Appendix F.1. Commercial freshwater finfish fishery catch data, Kuskokwim Area, 1977-2002.

	Number of	Number Caught[a]		Total Weight (lbs)		Total Value ($)		
Year	Fishermen[b]	Whitefish[c]	Burbot	Whitefish	Burbot	Whitefish	Burbot	Total
1977	3	718	0	d	0	952	0	952
1978	b	1,735	0	6,017	0	d	0	d
1979	b	3,219	0	11,211	0	d	0	d
1980	4	603	0	2,173	0	830	0	830
1981	4	1,197	0	4,620	0	2,310	0	2,310
1982	5	1,512	0	6,219	0	2,856	0	2,856
1983	0	0	0	0	0	0	0	0
1984	2	0	651	0	d	0	d	d
1985	5	555	1,829	2,275	2,016	1,137	455	1,592
1986	3	0	0	0	3,428	0	857	857
1987	4	417	0	1,260	0	1,008	0	1,008
1988	3	d	d	2,588	7	1,991	3	1,994
1989	7	178	282	583	270	501	597	1,098
1990	11	1,664	d	5,502	10	5,166	5	5,171
1991	5	1,413	41	2,442	256	2,412	197	2,609
1992	6	2,124	18	6,309	86	6,283	43	6,328
1993	5	2,509	0	5,208	0	4,898	0	4,898
1994	3	2,393	0	4,905	0	4,345	0	4,345
1995	1	d	0	2,363	0	2,507	0	2,507
1996	2	3,139	0	4,915	0	4,776	0	4,776
1997	14	4,447	0	5,770	0	4,832	0	4,832
1998	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0
2001	0	0	0	0	0	0	0	0
2002	1	193	0	339	0	339	0	339

[a] Does not include catches incidental to the commercial salmon fishery.

[b] Does not include fishers who delivered catches incidental to the commercial salmon fishery.

[c] Includes cisco, pike, and blackfish.

[d] Data not available.

APPENDIX G

Appendix G.1. Commercial miscellaneous saltwater finfish fishery catch data, Kuskokwim Area, 1988-2001.

Year	Number of Fishermen	Species	Number Caught	Total weight (lbs)	Total value ($)
1988	4	Tom Cod[a]	[b]	439	878
1989	2	Tom Cod[a]	[b]	591	1,180
1990	1	Tom Cod[a]	300	221	442
1991	2	Tom Cod[a]	[b]	1,356	2,690
1992	1	Tom Cod[a]	[b]	303	303
1993	0	-- --	0	0	0
1994	1	Tom Cod[a]	[b]	100	160
1995	0	-- --	0	0	0
1996	1	Tom Cod[a]	[b]	713	1,426
1997	1	Tom Cod[a]	[b]	250	500
1998	0	-- --	0	0	0
1999	0	-- --	0	0	0
2000	0	-- --	0	0	0
2001	0	-- --	0	0	0

a Tom Cod is the local name for Saffron Cod (Eleginus gracilis).
b Data not available.

APPENDIX H

Appendix H.1. Estimated biomass and commercial harvest of Pacific herring in the Kuskokwim Area fishing district, Alaska, 1981-2002.

District	Estimated Biomass (st)	Harvest Sac-roe	Harvest Bait	Harvest Waste	Harvest Total	Roe%	Estimated Value ($1000's)	Exploitation Rate (%)
2002								
Security Cove	4,748	106	3	0	109	10.1	10	2.3
Goodnews Bay	5,529	13	0	0	13	9.7	1	0.2
Cape Avinof	3,491	79	0	0	79	9.6	8	2.3
Nelson Is.	6,130	950	0	0	950	10.4	101	15.5
Nunivak Is.	5,422	176	0	0	175	7.5	19	3.2
Total	25,320	1,324	3	0	1,326	10.0	139	5.2
2001								
Security Cove	5,206	1,024	0	0	1,024	10.7	110	19.7
Goodnews Bay	5,755	45	0	0	45	11.3	6	0.8
Cape Avinof	3,486	231	0	0	231	9.8	23	6.6
Nelson Is.	6,057	678	0	0	678	10.4	71	11.2
Nunivak Is.	5,657	-	-	-	-	-	-	-
Total	26,161	1,978	0	0	1,978	10.5	209	7.6
2000								
Security Cove	5,237	284	15	0	299	10.7	62	5.7
Goodnews Bay	6,348	19	1	1	20	9.2	3	0.3
Cape Avinof	3,210	370	7	0	377	9.6	71	11.8
Nelson Is.	4,672	754	52	1	807	9.8	150	17.3
Nunivak Is.	3,487	41	0	0	41	9.9	12	1.2
Total	22,954	1,468	75	2	1,544	9.9	299	6.7
1999								
Security Cove	5,261	1,016	56	1	1,072	11.0	338	20.4
Goodnews Bay	6,896	1,332	33	0	1,366	11.3	301	19.8
Cape Avinof	3,555	516	18	0	533	11.0	185	15.0
Nelson Is.	6,655	1,267	97	2	1,366	11.2	430	20.5
Nunivak Is.	3,319	-	-	-	-	-	-	-
Total	25,686	4,131	204	3	4,337	11.1	1,254	16.9
1998								
Security Cove	4,017	1,012	0	0	1,012	11.5	232	25.2
Goodnews Bay	4,064	831	0	0	831	11.3	188	20.5
Cape Avinof	4,287	656	0	0	656	11.6	152	15.3
Nelson Is.	7,136	1,250	0	0	1,250	11.8	296	17.5
Nunivak Is.	3,778	2	0	0	2	9.8	0	0.1
Total	23,282	3,751	0	0	3,751	11.6	868	16.1
1997								
Security Cove	4,640	884	3	5	892	12.5	221	19.2
Goodnews Bay	4,752	805	0	0	805	14.2	228	16.9
Cape Avinof	4,616	687	0	0	687	11.5	157	14.9
Nelson Is.	7,909	778	0	0	778	12.7	198	9.8
Nunivak Is.	3,801	-	-	-	-	-	-	-
Total	25,718	3,154	3	5	3,163	12.7	804	12.3
1996								
Security Cove	6,867	1,795	59	5	1,859	11.6	1,251	27.1
Goodnews Bay	6,315	1,191	13	0	1,204	12.5	895	19.1
Cape Avinof	4,500	820	0	0	820	13.4	659	18.2
Nelson Is.	6,638	986	44	0	1,030	11.4	679	15.5
Nunivak Is.	4,197	61	40	0	101	9.9	39	2.4
Total	28,517	4,854	156	5	5,014	12.1	3,523	17.6
1995								
Security Cove	6,702	1,292	0	0	1,292	12.3	956	19.3
Goodnews Bay	4,224	1,051	0	3	1,054	13.5	848	25.0
Cape Avinof	3,627	485	0	0	485	12.5	363	13.4
Nelson Is.	7,754	1,113	0	0	1,113	10.6	711	14.4
Nunivak Is.	4,579	33	7	0	41	11.0	22	0.9
Total	26,886	3,975	7	3	3,985	12.2	2,900	14.8
1994								
Security Cove	7,638	-	-	-	-	-	-	-
Goodnews Bay	5,679	1,061	0	1	1,062	12.3	391	18.7
Cape Avinof	2,827	427	0	0	427	12.2	156	15.1
Nelson Is.	5,564	713	4	0	717	11.0	235	12.9
Nunivak Is.	4,921	14	0	0	14	8.6	4	0.3
Total	26,629	2,215	4	1	2,220	11.8	787	8.3

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Appendix H.1. (page 2 of 3)

District	Estimated Biomass (st)	Harvest Sac-roe	Harvest Bait	Harvest Waste	Harvest Total	Roe%	Estimated Value ($1000's)	Exploitation Rate (%)
1993								
Security Cove	6,995	5	0	0	5	12.8	2	0.1
Goodnews Bay	6,211	945	9	0	954	10.3	293	15.4
Cape Avinof	2,837	206	9	0	215	12.0	75	7.6
Nelson Is.	4,944	613	52	74	739	10.6	198	14.9
Nunivak Is.	5,176	-	-	-	-	-	-	-
Total	26,163	1,769	70	74	1,913	10.6	568	7.3
1992								
Security Cove	7,773	697	127	10	834	9.2	285	10.7
Goodnews Bay	5,572	711	29	0	740	9.5	286	13.3
Cape Avinof	3,446	443	9	0	452	9.9	178	13.1
Nelson Is.	5,275	188	52	6	246	8.3	78	4.7
Nunivak Is.	5,703	7	20	0	27	8.5	4	0.5
Total	27,769	2,046	237	16	2,299	9.4	830	8.3
1991								
Security Cove	4,434	561	9	0	570	9.3	208	12.9
Goodnews Bay	4,387	259	4	0	263	8.9	93	6.0
Cape Avinof	2,083	240	27	0	267	9.5	94	12.8
Nelson Is.	2,385	-	-	-	-	-	-	-
Nunivak Is.	3,903	17	42	0	59	7.5	9	-
Total	17,192	1,077	82	0	1,159	9.2	404	6.7
1990								
Security Cove	2,650	174	60	0	234	8.7	94	8.8
Goodnews Bay	2,577	427	28	0	455	12.2	314	17.7
Cape Avinof	2,020	49	1	0	50	12.0	35	2.5
Nelson Is.	2,705	-	-	-	-	-	-	-
Nunivak Is.	422	-	-	-	-	-	-	-
Total	10,374	650	89	0	739	11.2	443	7.1
1989								
Security Cove	2,830	544	10	0	554	9.4	256	19.6
Goodnews Bay	4,044	453	162	0	616	8.4	335	15.2
Cape Avinof	2,777	90	39	0	129	8.0	54	4.6
Nelson Is.	3,316	122	100	11	233	8.5	57	7.0
Nunivak Is.	617	79	37	0	116	9.4	42	18.8
Total	13,584	1,289	347	11	1,647	8.9	744	12.1
1988								
Security Cove	4,906	324	0	0	324	9.3	362	6.6
Goodnews Bay	4,479	473	10	0	483	8.0	463	10.8
Cape Avinof	4,108	348	0	0	348	8.6	264	8.5
Nelson Is.	7,152	760	15	0	775	9.2	713	10.8
Nunivak Is.	2,800	-	-	-	-	-	-	-
Total	23,445	1,905	25	0	1,930	8.8	1,802	8.2
1987								
Security Cove	2,300	312	1	0	313	9.7	242	13.6
Goodnews Bay	2,000	179	142	0	321	7.3	133	16.1
Nelson Is.	8,100	915	8	0	923	9.2	661	11.4
Nunivak Is.	4,400	254	160	0	414	7.8	231	9.4
Total	16,800	1,660	311	0	1,971	8.9	1,267	11.7
1986								
Security Cove	3,700	747	4	0	751	11.2	535	20.3
Goodnews Bay	3,000	554	3	0	557	10.4	325	18.6
Nelson Is.	7,300	852	34	0	886	10.3	428	12.1
Nunivak Is.	6,000	469	42	0	511	10.1	213	8.5
Total	20,000	2,622	83	0	2,705	10.5	1,501	13.5
1985								
Security Cove	4,900	703	0	30	733	10.1	355	15.0
Goodnews Bay	4,300	711	0	13	724	8.7	309	16.8
Nelson Is.	9,500	967	10	0	977	10.6	527	10.3
Nunivak Is.	5,700	349	9	0	358	8.9	146	6.3
Total	24,400	2,730	19	43	2,792	9.8	1,337	11.4

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Appendix H.1. (page 3 of 3)

District	Estimated Biomass (st)	Harvest Sac-roe	Bait	Waste	Total	Roe%	Estimated Value ($1000's)	Exploitation Rate (%)
1984								
Security Cove	5,100	325	0	10	335	11.8	110	6.6
Goodnews Bay	4,100	667	0	50	717	10.1	168	17.5
Total	9,200	992	0	60	1,052	10.7	278	11.4
1983								
Security Cove	6,400	966	107	0	1,073	9.4	443	16.8
Goodnews Bay	3,200	426	9	0	435	9.4	185	13.6
Total	9,600	1,392	116	0	1,508	9.4	628	15.7
1982								
Security Cove	5,100	707	106	0	813	9.3	271	15.9
Goodnews Bay	2,600	437	49	0	486	9.5	188	18.7
Total	7,700	1,144	155	0	1,299	9.4	459	16.9
1981								
Security Cove	8,300	1,150	23	0	1,173	8.1	347	14.1
Goodnews Bay	4,300	558	99	0	657	7.7	196	15.3
Total	12,600	1,708	122	0	1,830	8.0	543	14.5

Appendix H.2. Number of buyers and fishers participating in Kuskokwim Area Pacific herring fisheries, Alaska, 1981-2002.

Year	District	Number of Buyers	Number of Fishers	Number of Deliveries
2002	Security Cove	5	25	54
	Goodnews Bay	1	5	13
	Cape Avinof	1	37	160
	Nelson Island	1	54	447
	Nunivak Island	1	29	5
2001	Security Cove	6	56	209
	Goodnews Bay	1	23	51
	Cape Avinof	1	45	208
	Nelson Island	1	49	236
	Nunivak Island		No commercial opening	
2000	Security Cove	11	79	162
	Goodnews Bay	2	57	87
	Cape Avinof	1	86	399
	Nelson Island	4	86	354
	Nunivak Island	1	35[a]	3
1999	Security Cove	7	87	242
	Goodnews Bay	5	94	679
	Cape Avinof	3	117	656
	Nelson Island	4	94	483
	Nunivak Island		No commercial opening	
1998	Security Cove	9	78	255
	Goodnews Bay	2	84	580
	Cape Avinof	2	109	561
	Nelson Island	3	86	829
	Nunivak Island	1	7	7
1997	Security Cove	14	222	528
	Goodnews Bay	3	139	933
	Cape Avinof	2	145	560
	Nelson Island	3	105	348
	Nunivak Island	1	12[b]	0
1996	Security Cove	14	326	601
	Goodnews Bay	5	182	1,186
	Cape Avinof	2	161	833
	Nelson Island	3	109	515
	Nunivak Island	2	24	85
1995	Security Cove	12	106	257
	Goodnews Bay	4	127	878
	Cape Avinof	2	93	537
	Nelson Island	4	100	575
	Nunivak Island	2	13	46

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Appendix H.2 (page 2 of 3)

Year	District	Number of Buyers	Number of Fishers	Number of Deliveries
1994	Security Cove		No commercial opening	
	Goodnews Bay	2	103	683
	Cape Avinof	1	85	502
	Nelson Island	3	104	409
	Nunivak Island	1	12	14
1993	Security Cove	1	9	9
	Goodnews Bay	3	63	705
	Cape Avinof	1	97	478
	Nelson Island	1	73	487
	Nunivak Island		No commercial opening	
1992	Security Cove	6	58	178
	Goodnews Bay	3	78	375
	Cape Avinof	2	121	335
	Nelson Island	3	85	222
	Nunivak Island	1	14	23
1991	Security Cove	6	52	100
	Goodnews Bay	2	103	137
	Cape Avinof	1	137	463
	Nelson Island		No commercial opening	
	Nunivak Island	2	17	31
1990	Security Cove	9	52	77
	Goodnews Bay	3	126	530
	Cape Avinof	1	101	109
	Nelson Island		No commercial opening	
	Nunivak Island		No commercial opening	
1989	Security Cove	8	104	108
	Goodnews Bay	6	138	533
	Cape Avinof	3	147	335
	Nelson Island	4	162	438
	Nunivak Island	3	45	210
1988	Security Cove	4	31	51
	Goodnews Bay	6	60	309
	Cape Avinof	1	98	485
	Nelson Island	7	174	547
	Nunivak Island		No commercial opening	
1987	Security Cove	8	65	67
	Goodnews Bay	4	117	191
	Nelson Island	9	235	633
	Nunivak Island	4	61	341

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Appendix H.2 (page 3 of 3)

Year	District	Number of Buyers	Number of Fishers	Number of Deliveries
1986	Security Cove	11	88	199
	Goodnews Bay	5	104	319
	Nelson Island	4	163	1,099
	Nunivak Island	5	36	284
1985	Security Cove	6	107	268
	Goodnews Bay	5	83	420
	Nelson Island	6	143	776
	Nunivak Island	5	37	273
1984	Security Cove	4	38	86
	Goodnews Bay	4	130	390
1983	Security Cove	6	94	312
	Goodnews Bay	4	84	225
1982	Security Cove	3	107	250
	Goodnews Bay	3	84	297
1981	Security Cove	7	113	311
	Goodnews Bay	5	175	479

a Number of permit holders in cooperative

b Estimated number of permit holders

Appendix H.3. Commercial harvest, effort and value of Pacific herring in Kuskokwim Area fishing districts, Alaska, 1981-2002.

Year	District	Estimated Harvest (st)	Number of permits	Hours fished	CPUE* (st)	Estimated Value	Income per permit
2002	Security Cove	109	25	17.0	0.27	$10,000	$400
	Goodnews Bay	13	5	28.5	0.09	$1,000	$200
	Cape Avinof	79	37	97.0	0.02	$8,000	$216
	Nelson Is.	950	54	80.5	0.22	$101,000	$1,870
	Nunivak Is.	175	29	243.0	0.02	$19,000	$655
2001	Security Cove	1024	56	17.5	1.04	$110,000	$1,964
	Goodnews Bay	45	23	16.0	0.12	$6,000	$261
	Cape Avinof	231	45	63.0	0.08	$23,000	$511
	Nelson Is.	678	49	25.5	0.54	$66,000	$1,347
	Nunivak Is.			No Commercial Opening			
2000	Security Cove	284	79	16.0	0.22	$54,386	$688
	Goodnews Bay	20	57	27.0	0.01	$3,318	$58
	Cape Avinof	366	86	59.0	0.07	$68,532	$797
	Nelson Is.	813	86	20.0	0.47	$154,280	$1,794
	Nunivak Is.	40	34	93.0	0.01	$11,880	$349
1999	Security Cove	1072	97	9.0	1.23	$338,000	$3,485
	Goodnews Bay	1366	94	49.0	0.30	$301,000	$3,202
	Cape Avinof	533	117	51.0	0.09	$185,000	$1,581
	Nelson Is.	1366	94	22.0	0.66	$430,000	$4,574
	Nunivak Is.			No Commercial Opening			
1998	Security Cove	1012	78	28.5	0.46	$202,340	$2,594
	Goodnews Bay	831	84	79.0	0.13	$166,220	$1,979
	Cape Avinof	656	109	44.0	0.14	$131,120	$1,203
	Nelson Is.	1250	86	76.0	0.19	$235,900	$2,743
	Nunivak Is.	202	7	6.0	4.81	$440	$63
1997	Security Cove	892	222	10.5	0.38	$221,000	$995
	Goodnews Bay	805	139	65.0	0.09	$228,000	$1,640
	Cape Avinof	687	145	26.0	0.18	$157,000	$1,083
	Nelson Is.	778	105	10.0	0.74	$198,000	$1,886
	Nunivak Is.	0	12	70.0	0.00	$0	$0
1996	Security Cove	1859	326	5.5	1.04	$1,252,270	$3,841
	Goodnews Bay	1204	182	45.0	0.15	$893,900	$4,912
	Cape Avinof	820	161	57.0	0.09	$659,280	$4,095
	Nelson Is.	1031	109	25.0	0.38	$676,624	$6,208
	Nunivak Is.	101	24	256.0	0.02	$38,234	$1,593
1995	Security Cove	1292	106	12.0	1.02	$956,000	$9,019
	Goodnews Bay	1054	127	56.0	0.15	$848,000	$6,677
	Cape Avinof	485	93	48.0	0.11	$363,000	$3,903
	Nelson Is.	1113	100	28.0	0.40	$710,000	$7,100
	Nunivak Is.	41	13	387.0	0.01	$22,000	$1,692
1994	Security Cove			No Commercial Opening			
	Goodnews Bay	1062	103	38.0	0.27	$391,000	$3,796
	Cape Avinof	427	85	62.0	0.08	$156,000	$1,835
	Nelson Is.	717	104	26.0	0.27	$235,000	$2,260
	Nunivak Is.	14	12	6.0	0.19	$4,000	$333
1993	Security Cove	5	9	24.5	0.02	$2,000	$222
	Goodnews Bay	954	63	123.0	0.12	$293,000	$4,651
	Cape Avinof	215	97	106.0	0.02	$75,000	$773
	Nelson Is.	739	73	63.5	0.16	$198,000	$2,712
	Nunivak Is.			No Commercial Opening			

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Year	District	Estimated Harvest (st)	Number of permits	Hours fished	CPUE[a] (st)	Estimated Value	Income per permit
1992	Security Cove	834	58	34.0	0.42	$285,000	$4,914
	Goodnews Bay	740	78	29.0	0.33	$286,000	$3,667
	Cape Avinof	452	121	12.0	0.31	$178,000	$1,471
	Nelson Is.	246	85	10.0	0.29	$78,000	$918
	Nunivak Is.	27	14	6.0	0.32	$4,000	$286
1991	Security Cove	570	52	12.0	0.91	$208,000	$4,000
	Goodnews Bay	263	103	4.0	0.64	$93,000	$903
	Cape Avinof	267	137	28.0	0.07	$94,000	$686
	Nelson Is.			No Commercial Opening			
	Nunivak Is.	59	17	12.0	0.29	$9,000	$529
1990	Security Cove	234	52	7.0	0.64	$94,000	$1,808
	Goodnews Bay	455	126	32.0	0.11	$314,000	$2,492
	Cape Avinof	50	101	3.0	0.17	$35,000	$347
	Nelson Is.			No Commercial Opening			
	Nunivak Is.			No Commercial Opening			
1989	Security Cove	554	104	4.0	1.33	$256,000	$2,462
	Goodnews Bay	616	138	50.0	0.09	$335,000	$2,428
	Cape Avinof	129	147	194.0	0.00	$54,000	$367
	Nelson Is.	233	162	15.0	0.10	$57,000	$352
	Nunivak Is.	116	45	186.0	0.01	$42,000	$933
1988	Security Cove	324	31	23.5	0.44	$362,000	$11,677
	Goodnews Bay	483	60	40.0	0.20	$463,000	$7,717
	Cape Avinof	348	98	88.5	0.04	$264,000	$2,694
	Nelson Is.	775	174	7.5	0.59	$713,000	$4,098
	Nunivak Is.			No Commercial Opening			
1987	Security Cove	313	65	13.0	0.37	$242,000	$3,723
	Goodnews Bay	321	117	11.0	0.25	$133,000	$1,137
	Nelson Is.	923	235	6.0	0.65	$661,000	$2,813
	Nunivak Is.	414	61	39.0	0.17	$231,000	$3,787
1986	Security Cove	751	88	73.0	0.12	$535,000	$6,080
	Goodnews Bay	557	104	53.0	0.10	$325,000	$3,125
	Nelson Is.	886	163	40.0	0.14	$428,000	$2,626
	Nunivak Is.	511	36	156.0	0.09	$213,000	$5,917
1985	Security Cove	733	107	125.0	0.05	$335,000	$3,131
	Goodnews Bay	724	83	130.0	0.07	$309,000	$3,723
	Nelson Is.	977	143	44.0	0.16	$527,000	$3,685
	Nunivak Is.	358	37	228.0	0.04	$146,000	$3,946
1984	Security Cove	335	38	345.0	0.03	$110,000	$2,895
	Goodnews Bay	717	130	139.0	0.04	$168,000	$1,292
1983	Security Cove	1073	94	87.0	0.13	$443,000	$4,713
	Goodnews Bay	*435*	*84*	*278.0*	*0.02*	*$185,000*	*$2,202*
1982	Security Cove	813	107	302.0	0.03	$271,000	$2,533
	Goodnews Bay	486	84	314.0	0.02	$188,000	$2,238
1981	Security Cove	1173	113	90.0	0.12	$347,000	$3,071
	Goodnews Bay	657	175	133.0	0.03	$196,000	$1,120

a CPUE = catch per permit per hour fished

APPENDIX S

Appendix S. 1. 2002 Kuskokwim Area Subsistence Salmon Harvest Calendar.

Subsistence Division, ADFG
PO Box 1789
Bethel, AK 99559-1789

May 2002
Dear Subsistence Fishers:

Please write in the number of salmon that people in your household caught for subsistence. Include all subsistence salmon that were caught, including those you gave to others and those you may have caught for dog food. DO NOT include salmon that you sold when commercial fishing.

Our address is on the back of this calendar. When finished fishing, you can fold the calendar so that our return address is visible. DO NOT PUT POSTAGE ON THE CALENDAR WHEN YOU RETURN IT TO US. We have paid the postage. (fk)

Presorted Standard
U.S. Postage Paid
Fairbanks, AK
Permit No. 88

MAY 2002 — **SUBSISTENCE SALMON CALENDAR**

	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	12	13	14	15	16	17	18
TARYAQUAK =	King _____	King _____	King _____	King _____	King _____	King _____	King _____
IQALLUK =	Chum _____	Chum _____	Chum _____	Chum _____	Chum _____	Chum _____	Chum _____
SAYAK =	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____
	19	20	21	22	23	24	25
CHINOOK =	King _____	King _____	King _____	King _____	King _____	King _____	King _____
	Chum _____	Chum _____	Chum _____	Chum _____	Chum _____	Chum _____	Chum _____
"RED SALMON" =	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____
	26	27	28	29	30	31	
	King _____	King _____	King _____	King _____	King _____	King _____	
	Chum _____	Chum _____	Chum _____	Chum _____	Chum _____	Chum _____	
	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	

JUNE 2002 — **SUBSISTENCE SALMON CALENDAR**

	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	This is the second year of the subsistence salmon fishing schedule in the Kuskokwim River and salmon tributaries. The purpose of the schedule during June and July is to allow for pulses of salmon to pass upstream to spawning areas and to spread subsistence harvest opportunity throughout the drainage. The schedule is required by the Kuskokwim River Salmon Rebuilding Management Plan, adopted by the Alaska Board of Fisheries. The days of the week open and closed to salmon fishing were determined after consultation with communities along the Kuskokwim River drainage.						1 King _____ Chum _____ Sockeye_____
	2	3	4	5	6	7	8
TARYAQUAK =	King _____	King _____	King _____	King _____	King _____	King _____	King _____
IQALLUK =	Chum _____	Chum _____	Chum _____	Chum _____	Chum _____	Chum _____	Chum _____
SAYAK =	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____
	9	10	11	12	13	14	15
CHINOOK =	King _____	King _____	King _____	King _____	King _____	King _____	King _____
	Chum _____	Chum _____	Chum _____	Chum _____	Chum _____	Chum _____	Chum _____
"RED SALMON" =	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____
	16	17	18	19	20	21	22
	King _____	King _____	King _____	King _____	King _____	King _____	King _____
	Chum _____	Chum _____	Chum _____	Chum _____	Chum _____	Chum _____	Chum _____
	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____
	23	24	25	26	27	28	29
	King _____	King _____	King _____	King _____	King _____	King _____	King _____
	Chum _____	Chum _____	Chum _____	Chum _____	Chum _____	Chum _____	Chum _____
	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____
	30 King _____ Chum _____ Sockeye_____	Way back when..... * Fishing on the Kuskokwim River is carried on by fishwheels and set nets. Set net operators can utilize nets from 25 to 30 fathoms on all the downriver area where the tide ebbs and flows. Further upriver, fishwheels are placed on exposed points where the salmon crowd the meandering line of the stream. U.S. Bureau of Fisheries, 1922.					

Appendix S. 1. Continued.

Thank you for helping to document subsistence harvests. If you have any questions, please call (907) 543-3100. Please return the calendar when you are finished subsistence salmon fishing for 2002. (IK)

JULY 2002 — SUBSISTENCE SALMON CALENDAR

	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
		1	2	3	4	5	6
TARYAQVAK =		King ____	King ____	King ____	King ____	King ____	King ____
IQALLUK =		Chum ____	Chum ____	Chum ____	Chum ____	Chum ____	Chum ____
SAYAK =		Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____
	7	8	9	10	11	12	13
CHINOOK =	King ____	King ____	King ____	King ____	King ____	King ____	King ____
	Chum ____	Chum ____	Chum ____	Chum ____	Chum ____	Chum ____	Chum ____
"RED SALMON" =	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____
	14	15	16	17	18	19	20
	King ____	King ____	King ____	King ____	King ____	King ____	King ____
	Chum ____	Chum ____	Chum ____	Chum ____	Chum ____	Chum ____	Chum ____
	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____
	21	22	23	24	25	26	27
	King ____	King ____	King ____	King ____	King ____	King ____	King ____
	Chum ____	Chum ____	Chum ____	Chum ____	Chum ____	Chum ____	Chum ____
	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____
QANIYAK =	Coho ____	Coho ____	Coho ____	Coho ____	Coho ____	Coho ____	Coho ____
	28	29	30	31			
	King ____	King ____	King ____	King ____			
	Chum ____	Chum ____	Chum ____	Chum ____			
	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____			
"SILVER SALMON" =	Coho ____	Coho ____	Coho ____	Coho ____			

AUGUST 2002 — SUBSISTENCE SALMON CALENDAR

	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
					1	2	3
					King ____	King ____	King ____
					Chum ____	Chum ____	Chum ____
					Sockeye ____	Sockeye ____	Sockeye ____
					Coho ____	Coho ____	Coho ____
	4	5	6	7	8	9	10
TARYAQVAK =	King ____	King ____	King ____	King ____	King ____	King ____	King ____
IQALLUK	Chum ____	Chum ____	Chum ____	Chum ____	Chum ____	Chum ____	Chum ____
SAYAK =	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____
QANIYAK =	Coho ____	Coho ____	Coho ____	Coho ____	Coho ____	Coho ____	Coho ____
	11	12	13	14	15	16	17
CHINOOK =	Chum ____	Chum ____	Chum ____	Chum ____	Chum ____	Chum ____	Chum ____
"RED SALMON" =	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____
"SILVER SALMON" =	Coho ____	Coho ____	Coho ____	Coho ____	Coho ____	Coho ____	Coho ____
	18	19	20	21	22	23	24
	Chum ____	Chum ____	Chum ____	Chum ____	Chum ____	Chum ____	Chum ____
	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____
	Coho ____	Coho ____	Coho ____	Coho ____	Coho ____	Coho ____	Coho ____
	25	26	27	28	29	30	31
	Chum ____	Chum ____	Chum ____	Chum ____	Chum ____	Chum ____	Chum ____
	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____
	Coho ____	Coho ____	Coho ____	Coho ____	Coho ____	Coho ____	Coho ____

SEPTEMBER 2002 — SUBSISTENCE SALMON CALENDAR

	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	1	2	3	4	5	6	7
IQALLUK =	Chum ____	Chum ____	Chum ____	Chum ____	Chum ____	Chum ____	Chum ____
SOCKEYE =	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____
QANIYAK =	Coho ____	Coho ____	Coho ____	Coho ____	Coho ____	Coho ____	Coho ____
	8	9	10	11	12	13	14
	Chum ____	Chum ____	Chum ____	Chum ____	Chum ____	Chum ____	Chum ____
"RED SALMON" =	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____
"SILVER SALMON" =	Coho ____	Coho ____	Coho ____	Coho ____	Coho ____	Coho ____	Coho ____
	15	16	17	18	19	20	21
	Chum ____	Chum ____	Chum ____	Chum ____	Chum ____	Chum ____	Chum ____
	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____
	Coho ____	Coho ____	Coho ____	Coho ____	Coho ____	Coho ____	Coho ____
	22	23	24	25	26	27	28
	Chum ____	Chum ____	Chum ____	Chum ____	Chum ____	Chum ____	Chum ____
	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____	Sockeye ____
	Coho ____	Coho ____	Coho ____	Coho ____	Coho ____	Coho ____	Coho ____
	29	30	THANK YOU				
	Chum ____	Chum ____	Please mail in your subsistence salmon fishing calendar after you are all done salmon fishing. If you are going to catch coho salmon, please keep the calendar until you are all done salmon fishing for the year. During October and November, we will plan on going to most communities to do a short survey with you and can collect your salmon harvest calendar at that time.				
	Sockeye ____	Sockeye ____					
	Coho ____	Coho ____					

Appendix S. 2. 2002 Kuskokwim Area Subsistence Salmon Harvest Survey Form.

Division of Subsistence, Bethel

COMM. ID# _____

Chinook= *"taryaqvak,"* Chum= *"iqaluk,"* Sockeye= *"sayak,"* Coho= *"qakliyaq"*

HHID# _____

KUSKOKWIM AREA 2002

POST-SEASON SUBSISTENCE SALMON HOUSEHOLD HARVEST SURVEY

* (Questions marked with an asterisk are asked of all households interviewed) lk

Community: _____ Household Head Name: _____

Survey Date: 10 11 _____, 2002 Name of Person Interviewed: HH, _____

Interviewer: SM CB _____ Household P.O. Box: _____

Was this household in community last year?: No ___ Yes ___

***1. Did this household catch salmon for subsistence use this year?** No____ (go to # 3) Yes____

2. May I have your salmon calendar? (If household fished without using calendar, go to # 7)

Picked up by interviewer ____ (go to # 10) Mailed it to ADFG ____ Didn't get one _____

Didn't use ____ Lost or unavailable _____

***3. Does this household usually subsistence fish for salmon?** No____ Yes____

HOUSEHOLD DIDN'T FISH (Household was not involved in harvesting/catching salmon)

4. Did this household help another household process ("put up") salmon?

No ____ (go to # 17) Yes ____: (Names, HHIDs) _____

5. Please estimate how many salmon all of you processed ("put up").

CHINOOK_____ ("kings") CHUM_____ ("dogs") SOCKEYE_____ ("reds") COHO_____ ("silvers") Could not estimate_____

6. Please estimate how many salmon were for your household only.

CHINOOK_____ ("kings") CHUM_____ ("dogs") SOCKEYE_____ ("reds") COHO_____ ("silvers")

(Go to Question 17)..... .....

HOUSEHOLD FISHED, ADF&G *DOES NOT HAVE* CALENDAR

7. Did other households fish with you? No ____ Yes ____: (Names, HHIDs) _____

8. Please estimate how many salmon your household (or all households together) caught.

(Ask about Coho salmon and also salmon already eaten, frozen, given to other households, sent to friends, and dog food)

CHINOOK_____ ("kings") CHUM_____ ("dogs") SOCKEYE_____ ("reds") COHO_____ ("silvers") Salmon are included with Households.... _____

9. Please estimate how many salmon were for your household only.

CHINOOK_____ ("kings") CHUM_____ ("dogs") SOCKEYE_____ ("reds") COHO_____ ("silvers") ALL_____ PERCENT _____

(Go to Question 15) .....

HOUSEHOLD FISHED, ADF&G *DOES HAVE* CALENDAR

10. Are all of the salmon this household caught written on the calendar? No_____ Yes ____

(Ask about Coho salmon and also salmon already eaten, frozen, given to other households, sent to friends, and dog food)

11. How many additional salmon, not written on the calendar, were caught?

CHINOOK_____ ("kings") CHUM_____ ("dogs") SOCKEYE_____ ("reds") COHO_____ ("silvers")

12. Did other households fish with you? No ____ (go to # 15) Yes ____: (Names, HHIDs)

(This Block is continued on back side)

COFFING, ADFG Sep. 2002

Appendix S. 2. Continued (page 2 of 2).

LK 2002

13. **Are the salmon they caught written on your calendar?** No ____ Yes ____

14. **Please estimate how many salmon were for your household only.** All_____ Percent _____
CHINOOK_____ CHUM_____ SOCKEYE_____ COHO_____
(Go to Question 15) .....

FISHING GEAR (For subsistence fishing households only)

15A. **What type(s) of fishing gear was used for catching subsistence salmon this year?**
Drift net ____, Set Net ____, Rod and Reel _____, Fishwheel ____, Spear ____, Se n _____

15B. **What mesh size (gill net) was used for catching King Salmon this year?** _____(in hes)

16. **How many salmon did your household catch and keep with Rod and Reel this year?**
CHINOOK_____ CHUM_____ SOCKEYE_____ COHO_____

COMMERCIAL FISHING

*17. **Does this household commercial fish?** No ____ (go to # 21), Yes ____
If yes, where ? ____Kuskokwim River or Bay ____Yukon Area ____Bristol Bay

18. **Were all of the salmon caught when commercial fishing sold or were some brought home to eat or processed for subsistence?** All were sold _____ Some were used for subsistence ____

19. **How many commercially caught salmon were used for subsistence?**
CHINOOK_____ CHUM_____ SOCKEYE_____ COHO_____

20. **Are those salmon listed on the calendar or included in the catch numbers you gave me?**
Yes____, No ____

HOUSEHOLD SIZE

*21. **How many people live in this household now ?** _____

DOG FOOD (For subsistence fishing households only)

22. **Did this household catch salmon for dogfood?**
Yes ____ No ____ (go to # 25) Only backbones/heads/guts/scraps _____ (go to # 25)

23. **How many salmon?** CHUM_____ ("dogs") SOCKEYE_____ ("reds") COHO_____ ("silvers")

24. **Are the salmon caught for dogfood included on your calendar or in the estimates you gave me ?**
Yes _____, No _____

25. **What do you think about the subsistence fishing schedule this past summer?** (4 days open, 3 closed

_____
_____
_____
_____
_____

26. (For subsistence fishing households only)
How was subsistence salmon fishing for your household this year?

Kings:	__ Very Good	__ Average	__ Poor	If Poor, why? _____
Chums:	__ Very Good	__ Average	__ Poor	If Poor, why? _____
Sockeye:	__ Very Good	__ Average	__ Poor	If Poor, why? _____
Coho:	__ Very Good	__ Average	__ Poor	If Poor, why? _____

A summary of this survey will be sent to you next spring (May).

Appendix S. 3. 2002 Kuskokwim Area Subsistence Salmon Harvest Survey Postcard.

Dear Kuskokwim Area Resident,

Please take a moment to answer the questions on the back side of this card and drop it in the mail to us. No stamp is necessary, postage is already paid. We will mail you a subsistence salmon harvest summary in Spring after the survey data is compiled.

We appreciate your help to document subsistence salmon harvests. We use this information to help the Board of Fisheries and the Department of Fish and Game make informed management decisions affecting the Kuskokwim Area. Your household harvest information remains confidential. Please call if you have any questions.

Thank you,

Subsistence Division
Room 214, BNC Complex
Bethel (543-3100)

(correct your address if necessary)
NAME:_____
P.O. BOX:_____
CITY, STATE:_____
ZIPCODE:_____

Did your household harvest salmon for subsistence use this year?
(include any salmon kept for subsistence when commercial fishing) Yes___ No___

How many subsistence salmon did your household harvest?
(include salmon eaten, given away, frozen, dried, smoked, canned, or for dogfood)

Chinook_____ (King salmon) Chum_____ (Dog salmon) Sockeye_____ (Red salmon) Coho_____ (Silver salmon)

What type(s) of gear did your household use to catch subsistence salmon ?
Set net_____ Drift net_____ Fishwheel_____ Rod and reel_____

How was subsistence salmon fishing for your household this year?

King:	Very good	Average	Poor, If Poor, why_____
Sockeye:	Very good	Average	Poor, If Poor, why_____
Chum:	Very good	Average	Poor, If Poor, why_____
Coho:	Very good	Average	Poor, If Poor, why_____