

ANNUAL MANAGEMENT REPORT
YUKON AND NORTHERN AREAS
2000



Regional Information Report¹ No. 3A02-29

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

April 2002

¹ The Regional Information Report Series was established in 1987 to provide an information access system for all unpublished divisional reports. These reports frequently serve diverse ad hoc informational purposes or archive basic uninterpreted data. To accommodate timely reporting of recently collected information, reports in this series undergo only limited internal review and may contain preliminary data; this information may be subsequently finalized and published in the formal literature. Consequently, these reports should not be cited without prior approval of the author or the Division of Commercial Fisheries.

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By:

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Sponsorship

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PRESENTATION

This report summarizes the 2000 season and historical information concerning the subsistence, personal use and commercial fisheries in the Yukon Area. Information from selected Yukon Area research and monitoring projects are also summarized in this report. Complete documentation of these projects and results may appear in separate reports. Some of the data presented are preliminary and may be presented with minor differences in future reports.

To assist the reader, the Yukon Area report is organized into the following four sections:

1. *Salmon Fishery*: This section presents a description of the area, fishery resources, and fisheries management practices.
2. *Area Salmon Report*: This section presents a comprehensive report of the 2000 salmon fisheries and makes comparisons with previous years.
3. *Cape Romanzof District Herring Fishery*: This section presents a description of the area, fishery resources, fisheries and management practices, and summary of the 2000 herring fishery.
4. *Other Marine and Freshwater Finfish Fisheries*: This section presents a description of the fishery resources and freshwater finfish fisheries other than salmon and herring.

In order to facilitate use of this report, salmon data has been separated into current year tables and appendices where most of the historical salmon information appears. Current year and historical information for herring and freshwater finfish data are also presented in the appendices.

In the following text and tables, catch-per-unit-effort is obtained by dividing the total fisher hours into the catch for the corresponding period of time. Commercial fishing effort has been computed using the assumption that if a permit holder delivers in a given fishing period, the fisher fished the entire period. Total fisher is the number of fisher who made at least one delivery during the corresponding period of time (e.g. a given fishing period, summer season, fall season or for the entire fishing season). There are fisher who make only one delivery during the entire fishing season. The summer season refers to the fishing associated with the chinook and summer chum salmon migrations. Fall season refers to the fishing associated with the fall chum and coho salmon migrations.

This report also includes a short section on the Northern Area, which includes a description of the area and documentation of the Colville River commercial freshwater finfish fishery.

A select list of acronyms, abbreviations, and symbols, in this report, listed alphabetically, are as follows:

ADA	Americans with Disabilities Act
ADF&G	Alaska Department of Fish and Game
Agreement	Interim Yukon River Salmon Agreement
AYK	Arctic-Yukon-Kuskokwim
BEG	Biological Escapement Goal
BLM	Bureau of Land Management
BOF	Alaska Board of Fisheries
BSFA	Bering Sea Fishermen's Association
CFEC	Commercial Fisheries Entry Commission
CPUE	Catch-Per-Unit-Effort
DCF	Division of Commercial Fisheries
DCR	Delta Clearwater River
DFO	Canadian Department of Fisheries and Oceans
EEZ	U.S. Exclusive Economic Zone
FWP	Division of Fish and Wildlife Protection
JTC	Joint Technical Committee
NMFS	National Marine Fisheries Service
NTC	Nulato Tribal Council
OEO	Office of Equal Opportunity
Panel	U.S./Canada Yukon River Panel
R&E Fund	U.S./Canada Restoration and Enhancement Fund
TCC	Tanana Chiefs Conference, Inc.
TDD	Telecommunication Device for the Deaf
UFA	Comprehensive Land Claim Umbrella Final Agreement
U.S.	United States
USFWS	United States Fish and Wildlife Services
VHF	Very High Frequency
YRDFA	Yukon River Drainage Fisheries Association
YSC	Yukon Salmon Committee
>	Greater Than
%	Percent
\$	U.S. Dollar

YUKON AREA INTRODUCTION

The Division of Commercial Fisheries (DCF) of the Alaska Department of Fish and Game (ADF&G) is responsible for the management of state subsistence, personal use, and commercial fisheries in the Yukon Area. This annual management report details the activities of the DCF in the Yukon Area during 2000.

The Yukon Area includes all waters of the Yukon River drainage in Alaska and all coastal waters of Alaska from Point Romanof southward to Naskonat Peninsula (Figure 1). Important subsistence, personal use, and commercial fisheries include salmon and herring. Other marine and freshwater finfish are harvested primarily for subsistence use. A list of indigenous fishes found in the Yukon Area is provided in Appendix A.1.

SALMON FISHERY

Description of Area and District Boundaries

The Yukon River is the largest river in Alaska and the fifth largest drainage in North America. The river originates in British Columbia, Canada, within 30 miles of the Gulf of Alaska, and flows over 2,300 miles to its mouths at the Bering Sea. It drains an area of approximately 330,000 square miles and approximately 35% of the state. With the possible exception of a few fish taken near the mouth or in the adjacent coastal waters, only salmon of Yukon River origin are harvested in the Yukon Area.

Excluding the greater Fairbanks area (approximately 84,000 residents), there are approximately 21,000 rural residents in the Alaskan portion of the drainage (Williams 2000), the majority of whom reside in 43 small villages scattered along the coast and major river systems. Most of these people are dependent to varying degrees on fish and game resources for their livelihood.

Commercial salmon fishing is allowed along the entire 1,200 mile length of the mainstem Yukon River in Alaska and the lower 225 miles of the Tanana River. The Yukon Area is divided into seven districts and ten subdistricts for management and regulatory purposes (Figure 2). The district boundaries were originally established in 1961 and redefined in 1962, 1974, 1978, 1994 and 1996. The Lower Yukon Area (Districts 1, 2, and 3) includes the coastal waters of the Yukon Area and that portion of the Yukon River drainage from the mouth to Old Paradise Village, river mile 301. The Coastal District was established in 1994, redefined in 1996 and is open only to subsistence fishing. The Upper Yukon Area (Districts 4, 5, and 6) is that portion of the Yukon River drainage upstream of Old Paradise Village to the border with Canada. The districts and subdistricts are further divided into 28 statistical areas for management and reporting purposes (Figures 3-8). Yukon River mileages at specific locations are listed in Appendix A.2.

In addition, Aboriginal, commercial, sport, and domestic salmon fisheries also occur in the Canadian portion of the Yukon River drainage. The Canadian Department of Fisheries and Oceans (DFO) conducts the corresponding fishery management activities.

Fishery Resources

Five species of Pacific salmon are found in the Yukon River drainage: chinook salmon (*Oncorhynchus tshawytscha*), chum salmon (*O. keta*), coho salmon (*O. kisutch*), pink salmon (*O. gorbuscha*), and sockeye salmon (*O. nerka*).

Chinook salmon are the largest salmon found in the Yukon River, ranging from 2 to 90 pounds. In the Lower Yukon Area commercial fishery, chinook salmon typically average between 19 and 25 pounds. Spawning populations of chinook salmon have been documented throughout the Yukon River drainage from the Archuelinguk River, located approximately 80 miles from the mouth, to as far upstream as the headwaters of the drainage in Canada, nearly 2,000 miles from the mouth. Chinook salmon begin entering the mouth of the Yukon River soon after ice breakup, during late May or early June, and continue through mid-July.

The chum salmon return is made up of a genetically distinct early summer chum salmon run and a later fall chum salmon run. Summer chum salmon are characterized by: earlier run timing (early June to mid-July at the mouth), rapid maturation in freshwater, smaller size (average 6 to 7 pounds), and larger population size. Summer chum salmon spawn primarily in run-off streams in the lower 500 miles of the drainage and in the Tanana River drainage. Fall chum salmon are mainly distinguished by: later run timing (mid-July to early September at the mouth), robust body shape, larger size (average 7 to 8 pounds) and smaller population size. Fall chum salmon primarily spawn in the upper portion of the drainage in streams that are spring fed. Major fall chum salmon spawning areas include the Tanana, Porcupine and Chandalar River drainages, as well as various streams in Yukon Territory, Canada, including the mainstem Yukon River.

Coho salmon enter the Yukon River from late July through September and average approximately 7 pounds in weight. Coho salmon spawn discontinuously throughout the Alaskan portion of the drainage, primarily in tributaries in the lower 700 miles of the drainage and in the Tanana River drainage. Major spawning populations of coho salmon have been documented in tributaries of the Tanana River drainage and the Andreafsky and Anvik Rivers.

Pink salmon enter the lower river from late June to late July and average approximately 2 to 3 pounds in weight. Pink salmon primarily spawn in the lower portion of the drainage, downstream of the village of Grayling, river mile 336. However, pink salmon have been caught in the mainstem Yukon River upstream as far as Ruby, river mile 601 (ADF&G 1983). In the past decade, pink salmon have exhibited a high and low abundance two-year-cycle. High abundance has typically occurred during the even numbered years.

Sockeye salmon are uncommon in the Yukon River drainage, and only a few individuals are caught each year. Sockeye salmon have been reported in the mainstem Yukon River upstream of Rampart, river mile 763. Observations of sockeye salmon have occurred in the Innoko (ADF&G 1986), Kantishna (L. Barton, ADF&G, Fairbanks, personal communication 1988), Anvik (M. Erickson, ADF&G, Anchorage, personal communication 1989), Andreafsky (Tobin and Harper 1995) and Gisasa (Wiswar 1999) River drainages.

Management

The policy of ADF&G is to manage the salmon runs to the extent possible for maximum sustained yield, unless otherwise directed by regulation (ADF&G 1992). In the Yukon Area, ADF&G lacks the necessary management program and scientific information to manage for maximum sustained yield. The department has managed the salmon fisheries in the Yukon Area over the past few decades with the dual goal of maintaining important fisheries while at the same time achieving desired escapements. Management of the Yukon River salmon fishery is complex due to the inability to determine stock specific abundance and timing, overlapping multispecies salmon runs, the increasing efficiency of the fishing fleet, allocation issues, and the immense size of the Yukon River drainage. The Alaska State Legislature and the Alaska Board of Fisheries (BOF) have designated subsistence use as the highest priority among beneficial uses of the resource. To maintain the subsistence priority and to provide for spawning escapements to ensure sustainable yields, Yukon River salmon fisheries must be managed conservatively.

Salmon fisheries within the Yukon River drainage may harvest stocks that are up to several weeks and over a thousand miles from their spawning grounds. Since the Yukon River commercial fishery is a mixed stock fishery, some tributary populations may be under or over exploited in relation to their actual abundance. Based on current knowledge, it is not possible to manage for individual stocks in most areas where commercial fishing occurs.

Primary tools used to manage the commercial salmon fisheries are guideline harvest ranges established by the BOF (Table 1) and emergency order authority, which is used to implement time and area openings or closures and mesh size restrictions. Guideline harvest ranges have been established for chinook, summer chum, and fall chum salmon commercial fisheries throughout the Alaskan portion of the drainage. ADF&G attempts to manage the commercial salmon fisheries so the harvest in each district or subdistrict is proportionally similar within their respective guideline harvest ranges.

During the fishing season, management is based on preseason projections and inseason run assessment. Inseason run assessment includes abundance indices from test fisheries, passage estimates from various sonar, mark-recapture projects, and spawning escapement and harvest data. Since 1995 the main river sonar project at Pilot Station has provided inseason estimates of salmon passage for fisheries management. The level of subsistence, personal use, and commercial harvests can be adjusted through the use of emergency orders to control time and area openings and closures. Emergency orders are announced on local radio stations and by VHF radios from ADF&G field offices or camps. Corresponding news releases are transmitted by fax to select villages, processors, buyers and fishers. Additionally, select processors, buyers and fishers are notified of the emergency order by telephone.

The ADF&G, federal agencies, native organizations, and fisher groups operate various projects to obtain biological information necessary for management of the salmon runs. In 2000, the following projects were implemented:

1. *Test Fishing:* The lower Yukon River ADF&G test fishing projects located at South, Middle and North Mouths utilized set gillnets from late May through late August to capture chinook, chum, and coho salmon. Catch rates and species composition provides run timing, age composition, and an index of relative abundance for comparisons between years. Bering Sea Fisherman's Association (BSFA) provided the support necessary to operate a

cooperative ADF&G and Emmonak Tribal Council drift gillnet test fishery in the South Mouth of the Yukon River to provide an index of the summer chum salmon run. A contract fisher operated a Tanana River test fish wheel near the village of Nenana from July through early October to monitor chinook, summer chum, fall chum, and coho salmon passages. To index the fall chum salmon run, the U.S./Canada Restoration and Enhancement Fund (R&E Fund) provided the support needed to operate a test fish wheel on the south (left) bank of the mainstem Yukon River near the village of Tanana. Additionally, the R&E Fund provided the support necessary to operate a drift gillnet test fishery near Marshall to determine feasibility of indexing the chinook salmon run, a drift gillnet fishery near Mountain Village to index the fall chum and coho salmon runs, and a drift gillnet test fishery near the village of Kaltag to index fall chum salmon.

2. *Tributary Sonar Projects:* Hydroacoustic equipment was operated in the Anvik and Sheenjek Rivers to estimate summer and fall chum salmon spawning escapements, respectively. The United States Fish and Wildlife Service (USFWS) operated hydroacoustic equipment in the Chandalar River to estimate fall chum salmon escapement.
3. *Main River Sonar Project:* Hydroacoustic equipment was operated in the mainstem Yukon River near Pilot Station to obtain inseason salmon passage estimates by species.
4. *Stock Separation and Age Composition:* Scale and vertebra samples were collected from salmon harvests and escapements to determine age composition of the 2000 runs. Scale samples of chinook were also utilized to apportion the harvest to region of spawning, using scale pattern analysis techniques. Genetic stock identification techniques using protein analysis were used to determine the degree of overlap between summer and fall chum salmon in Pilot Station Sonar test fish catches during July 2000.
5. *Data Processing of Commercial Fishery Statistics:* Lower Yukon Area commercial harvest and effort data were obtained from fish tickets processed at the ADF&G Emmonak field office. Similarly, Upper Yukon Area commercial harvest and effort data were compiled by the Fairbanks office.
6. *Aerial and Ground Surveys of Salmon Spawning Streams:* Aerial surveys were flown to monitor spawning escapements in major index systems throughout the Yukon River drainage. Fall chum salmon foot surveys were conducted at selected areas in the Tanana River drainage. Additionally, BSFA conducted aerial surveys in the Nenana River drainage to estimate fall chum and coho salmon escapement.
7. *Tagging Projects:* A salmon mark and recapture project was conducted by DFO to estimate the abundance of chinook and fall chum salmon in the Canadian mainstem Yukon River. ADF&G and BSFA conducted a tagging project on the Tanana River to estimate fall chum salmon abundance upriver of the confluence of the Kantishna River. Additionally, a tagging project was operated within the Kantishna River to estimate fall chum salmon abundance in the drainage. USFWS conducted a fall chum salmon mark and recapture project to estimate fall chum salmon passage in the mainstem Yukon River near Rampart. A chinook radio telemetry program was initiated in the Yukon River basin in 2000 by ADF&G and NMFS to provide information on run characteristics including stock composition, run timing, and migration patterns.
8. *Tower Projects:* ADF&G, Division of Sport Fish conducted counting tower projects on the Chena and Chatanika Rivers in 2000. BSFA operated the Salcha River tower in 2000.

Tower projects on the Chena and Salcha Rivers estimated chinook and summer chum salmon escapements to those systems, while the Chatanika River tower project estimated only chinook salmon escapement. Cooperative counting tower projects were operated on the Nulato River (Nulato Tribal Council (NTC), BSFA, and ADF&G), Clear Creek (USFWS and TCC), a tributary of the Hogatza River, and Kaltag Creek (Alaska Cooperative Extension Service (ACES), City of Kaltag, and BSFA) to estimate chinook and summer chum salmon escapements.

9. *Weir Projects:* USFWS operated weirs on the East Fork Andreafsky River, Gisasa River, and Henshaw Creek to estimate salmon escapement. BLM operated a weir on Beaver Creek to estimate chinook and summer chum salmon escapement.
10. *Subsistence and Personal Use Harvest:* In the majority of the Yukon Area, no regulatory requirement exists for fishers to report their subsistence salmon harvest. To estimate the subsistence salmon harvest from villages within this area, ADF&G has implemented a voluntary survey program. In other portions of the Yukon Area, fishers are required to obtain an annual subsistence or personal use household permit prior to fishing.

DCF permanent full time staff assigned to the Yukon Area includes eight positions: two area management biologists (one summer season, one fall season), two assistant area management biologists, three research project biologists, and one field office assistant. In addition, approximately 30 seasonal employees annually assist in conducting various management and research projects. The DCF staff also assists in the enforcement of regulations in cooperation with the Department of Public Safety, Division of Fish and Wildlife Protection (FWP).

State of Alaska funding for the Yukon Area salmon management and research program from July 1, 1999 through June 30, 2000 was approximately \$1.1 million. An additional \$649,100 was received by ADF&G through a federal U.S./Canada grant for Yukon River Salmon Negotiation Studies, including support for participation in negotiation-related meetings.

Alaskan Salmon Fishery Description

Subsistence Fishery

Yukon Area subsistence fishers primarily use drift gillnets, set gillnets, and fish wheels to harvest salmon. Set gillnets are the primary gear type utilized throughout the Yukon Area. It is only legal to use drift gillnets to harvest salmon for subsistence in that portion of the Yukon River drainage below rivermile 514. Although fish wheels are a legal gear type for subsistence fishing throughout the drainage, they are essentially only used in the Upper Yukon Area.

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

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

Many subsistence fishers also participate in the commercial salmon fishery. During the Yukon Area commercial salmon fishing season, additional restrictions on subsistence salmon fishing may be required to assist in the enforcement of commercial fishing regulations. However, during the salmon fishing season, substantially more time is allowed for subsistence salmon fishing than for commercial fishing. Throughout most of the history of the Yukon Area commercial salmon fishery, commercial and subsistence fishing periods coincided. However, the BOF adopted regulations which separated subsistence and commercial salmon fishing times in Districts 1, 2, and 3 in 1993 and in Subdistrict 4-A in 1994. In these areas, subsistence salmon fishing is allowed seven days per week until 24 hours prior to and following the commercial salmon fishing season. By regulation, once the commercial salmon season is open, subsistence salmon fishing is allowed except for 18 hours immediately before, during, and 12 hours after each District 1, 2 or 3 summer season commercial salmon fishing period. During the fall season in Districts 1, 2 and 3, subsistence salmon fishing may not occur 12 hours immediately before, during, and 12 hours after each commercial fishing period. In Subdistrict 4-A, subsistence salmon fishing may not occur 12 hours immediately before, during, and 12 hours after each commercial fishing period throughout the season.

In the upper portion of District 4 (Subdistricts 4-B and 4-C) and in Subdistricts 5-B and 5-C, subsistence salmon fishing is allowed seven days per week until 24 hours prior to and following the commercial salmon fishing season. In these areas, subsistence salmon fishing periods coincide with commercial salmon fishing periods. Additional subsistence-only salmon fishing periods are also allowed during the commercial salmon fishing season. In Subdistrict 5-A, subsistence fishing is allowed seven days a week until 24 hours prior to the commercial salmon fishing season. Since 1994, excluding 1998, the subsistence fishing schedule in Subdistrict 5-A allows subsistence fishing five days a week after closure of the commercial salmon fishing season. In 1998, Subdistrict 5-A returned to subsistence salmon fishing seven days a week based on actions taken by the BOF in December 1997 that relaxed restrictive elements of the 5 AAC 01.248. Toklat River Fall Chum Salmon Rebuilding Management Plan. In Subdistrict 5-D, subsistence salmon fishing is allowed seven days a week throughout the fishing season. Since 1988, subsistence fishing within the lower Tanana River drainage has been allowed for two 42-hour periods per week throughout the fishing season unless altered by emergency order. In the upper Tanana River drainage, subsistence fishing is allowed seven days a week throughout the fishing season.

Yukon Area subsistence salmon fishery and harvest information has been collected by ADF&G since 1961 (Borba and Hamner 2001). Documentation of the subsistence harvest prior to 1961 is limited. However, early exploration reports attest to the importance of subsistence salmon harvests to people living in the Yukon River drainage (Zagoskin [1847] 1967; Allen 1887). Historical accounts

document the use of large salmon harvests to support dogs, which were used as draft animals for transportation and packing (Richardson [1900] 1964; Gilbert and O'Malley 1921). Around 1930, the airplane began replacing the sled dog as a primary mail and supply carrier, which contributed to a gradual reduction in the need for subsistence salmon for dog food. Additionally, the introduction of snow machines during the 1960s accelerated the decline of sled dogs and the associated need for subsistence salmon harvests to feed them.

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

Commercial-Related Harvests

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

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

From 1978 to 1990, subsistence survey questions in most areas were not structured to identify the commercial-related harvests. During these years it is believed that many of the commercial-related salmon harvests were reported as subsistence harvests. In 1984, the Division of Subsistence conducted the first subsistence surveys directed at addressing the amount of the commercial-related harvests in Subdistrict 4-A villages of Kaltag and Nulato. These surveys attempted to exclude the

commercial-related summer chum salmon used for subsistence purposes from the subsistence harvest. As a result, the subsistence summer chum salmon harvest estimates for Kaltag and Nulato in 1984 were below harvest estimates for previous years. From 1986 to 1989 efforts to identify the commercial-related summer chum salmon harvest from the Subdistrict 4-A subsistence harvest estimates were continued. Although, during these years of transition, it is probable that some portion of the commercial-related harvest was still being reported as subsistence harvest. It was not until 1990 that survey questions and fisher reports resulted in satisfactory separation of the subsistence utilization into subsistence and commercial-related harvests.

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

Beginning in 1990, Subdistrict 4-A commercial fishers have been required by regulation to report on fish tickets the number of male and female salmon harvested to produce the roe sold. An additional series of questions to address the usage of commercial-related harvests were added to the survey questionnaire of Subdistrict 4-A commercial fishers during the 1992, 1993, and 1995 surveys. The additional survey questions in Subdistrict 4-A were initiated to investigate discrepancies between the different estimates of salmon harvested. In salmon roe fisheries within Subdistrict 4-A, ADF&G estimates the number of fish harvested based on the pounds of roe produced per female and the sex ratios observed during each commercial fishing period. These estimates were compared to what was reported on commercial fish tickets. The majority of the fishers surveyed agreed that ADF&G's estimate based on sampling was a better representation of the actual kill. The additional survey has since been discontinued however, ADF&G continues to estimate the commercial-related harvests for all individuals that participate in commercial fisheries when selected to be surveyed in a given year. During the survey, ADF&G's estimate is brought to the attention of the fisher for confirmation. Because the additional survey also documented the practice by a number of Subdistrict 4-A fishers of releasing live male chum salmon directly back into the river during commercial roe fisheries, the ADF&G commercial-related harvest estimates may be biased high to some extent.

In 1994, the BOF adopted regulations that allowed a commercial summer chum salmon fishery on the Anvik River (5 ACC 05.368. Anvik River Chum Salmon Fishery Management Plan). A commercial summer chum salmon roe fishery occurred in the Anvik River in the years 1994 through 1997. The Anvik River is within Subdistrict 4-A and has been managed as a terminal harvest commercial fishery. The Anvik River commercial summer chum salmon fishery has only involved the sale of roe to date, which has resulted in additional stripped female summer chum salmon carcasses becoming available to subsistence users. Commercial-related harvests in the Anvik River fishery are based only on the estimated number of female salmon taken to produce the roe sold. The gear types utilized in this fishery generally allow for the release of male chum salmon.

Personal Use Fishery

Personal use fishing is considered a lower priority use of the resource than subsistence fishing. In 1986, subsistence fishing was limited to rural Alaskan residents. The BOF created personal use salmon fisheries in the Yukon Area for non-rural state residents. The regulation directed that fishers residing within non-rural areas be considered personal use fishers regardless of where they fished.

Correspondingly, fishers residing in rural areas were considered subsistence fishers regardless of where they fished. The residents of the greater Fairbanks area were considered non-rural fishers. In 1987, a personal use fishery was implemented in the Yukon Area which initially only affected the fall chum salmon fishery. Beginning in 1988, personal use regulations were in effect for all salmon species in the Yukon Area. Under the statutes and regulations that were in effect from 1988 until July 1, 1990, Alaska residents domiciled in non-rural areas were prohibited from participating in subsistence fisheries. During that time, non-rural residents harvested salmon under personal use fishing regulations wherever they fished.

Effective July 1, 1990, the Alaska Supreme Court struck down the rural residency requirement for subsistence participation (*McDowell vs. State*). In that ruling, the Alaska Constitution prevented the allocation of fish and game to people based on the location of their residence. The result was that every Alaska resident became eligible for subsistence fishing. In effect, this decision made the personal use category obsolete in the Yukon Area. Anyone eligible for a personal use permit could also obtain a less restrictive subsistence fishing permit. For this reason, Yukon Area personal use salmon fishing permits were not issued in 1991 and 1992.

During a special session in 1992, the legislature revised the subsistence law to allow the Joint Boards of Fisheries and Game to divide the state into subsistence and nonsubsistence areas. Inside the non-subsistence areas, personal use fishing could be authorized by BOF, and the regulations, which allowed subsistence fishing, were repealed. The Fairbanks Nonsubsistence Area (Appendix D.8), the only non-subsistence area created in the Yukon Area, consists of the Fairbanks North Star Borough and surrounding areas. The Fairbanks Nonsubsistence Area includes the Tanana River drainage above the confluence of the Wood River upstream to the mouth of the Volkmar River on the north bank of the Tanana River and to the mouth of the Johnson River on the south bank of the Tanana River. During the 1993 fishing season, personal use fishery regulations were implemented in this area. In October 1993, the state superior court ruled in the *Kenaitze* case that the nonsubsistence area provision of the 1992 subsistence law was unconstitutional because it discriminated between different areas of the state. Although the state was initially granted a stay on the effects of that decision pending appeal to the Supreme Court, the stay was vacated on April 11, 1994. With the stay lifted, the state was required to provide subsistence fishing in nonsubsistence areas during the 1994 season. All Alaskan residents were again qualified as subsistence users during the 1994 fishing season and, although available, no personal use permits were issued.

On May 9, 1995, the Alaska Supreme Court reversed the superior court's ruling, upholding the constitutionality of the nonsubsistence areas. Once again, the Joint Boards of Fisheries and Game adopted regulations that reestablished the Fairbanks Nonsubsistence Area. No subsistence fishing is allowed within nonsubsistence areas, however, personal use fishing regulations are applicable. The nonsubsistence area regulations primarily affected salmon fishers within Subdistrict 6-C, which is entirely within the boundaries of the Fairbanks Nonsubsistence Area. By regulation, Subdistrict 6-C personal use salmon fishery has a household permit limit of 10 chinook, 75 summer chum salmon and 75 fall chum and coho salmon combined. Additionally the fishery has a harvest limit of 750 chinook, 5,000 summer chum salmon, and 5,200 fall chum and coho salmon combined.

Commercial Fishery

The first recorded commercial salmon harvest in the Alaskan portion of the Yukon River drainage occurred in 1918. Relatively large harvests of chinook, chum, and coho salmon were taken during 1919 to 1921 (ADF&G 1985). The majority of these harvests were taken outside of the river mouth

because of restrictions imposed within the river. The early commercial fishery was closed from 1925 to 1931 because of concerns for the existing large in-river subsistence fishery. Commercial fishing for chinook salmon was resumed at a reduced level in 1932 and has continued to occur annually since that time. Commercial harvests of chum and/or coho salmon occurred during 1918 to 1921, 1952 to 1954, 1956, and since 1961.

During 1954 to 1960, a 65,000 chinook salmon quota was in effect for the Alaskan portion of the Yukon River. Of this total, not more than 50,000 fish could be taken below the mouth of the Anuk River (rivermile 63), 10,000 fish in the area between the mouths of the Anuk and Anvik Rivers, and 5,000 chinook salmon upstream from the confluence of the Anvik River. The current chinook salmon guideline harvest ranges have been in effect since 1981 (Appendix A.14). Chinook salmon commercial harvests began increasing during the late 1970s (Appendix A.4), because of increased efficiency of the fleet and, in some years, due to above average run strength. Concern for possible over-exploitation resulted in reduced harvests during the late 1980s and into the 1990s.

Summer chum salmon commercial harvests increased greatly during the 1980s as a result of regulation changes (e.g., mesh size specifications and earlier openings), greater availability of processing facilities and tendering, higher exvessel prices, development of Japanese markets, and the occurrence of several very large runs. In February 1990, the BOF established a river-wide guideline harvest range of 400,000 to 1,200,000 summer chum salmon (Appendix A.15). The BOF established guideline harvest ranges for districts and subdistricts based on the 1975 to 1989 average harvest shares. Summer chum salmon commercial harvests declined from 1990 through 1993 because of below average runs. Beginning in 1994, declining salmon flesh markets limited the harvest, particularly in the lower river. In March 1994, the BOF adopted 5 AAC 05.368. Anvik River Chum Salmon Fishery Management Plan, which established regulations allowing for a commercial summer chum salmon roe fishery within the Anvik River. Very low commercial harvests have occurred since 1997 because of low summer chum salmon returns.

The directed commercial fishery for fall chum salmon began in 1961. Fall chum salmon commercial harvests increased beginning in 1979 (Appendix A.6). Low fall chum salmon spawning escapements in the mid-1980s resulted in more conservative management and reduced commercial harvests from 1986 to 1990. Guideline harvest ranges for fall chum salmon were reduced by the BOF in 1986, but the upper end increased to their original levels in 1990 (Appendix A.16). BOF adopted 5 AAC 01.249. Yukon River Drainage Fall Chum Salmon Management Plan in March 1994. The management plan has been reviewed and modified by the BOF several times since 1994. The 1999 management plan identified the need for 400,000 fall chum salmon for escapement and approximately 200,000 fall chum salmon to provide for Alaskan subsistence and Canadian harvests. Under the plan, which was in effect during 1998, 1999, and 2000 commercial fishing in all districts was allowed only when the projected run size inseason was greater than 675,000 fall chum salmon. Additionally, since 1990 there has been an effort to rebuild both Canadian and Toklat River fall chum salmon stocks. Although both the Canadian and Toklat River fall chum salmon stocks had shown improvements, escapement levels observed in these areas have been disappointing since 1997.

Coho salmon returns to the Yukon River are of lesser magnitude than fall chum salmon. Typically, coho salmon were taken incidentally to the fall chum salmon commercial directed fishery. In managing the coho salmon run, the department follows guidelines established by the Board of Fisheries in 5 AAC 05.369. Yukon River Drainage Coho Salmon Management Plan. The Board of Fisheries adopted this plan in November 1998. The coho salmon management plan allows a directed coho salmon commercial fishery only under special and unique situations. It is very unlikely that conditions outlined in the coho salmon management plan would occur in a given

year. In most years, fall chum salmon will continue to be the primary species of management concern during the fall season. Pink salmon commercial harvests to date have been very small due to an extremely limited market for Yukon River pink salmon (Appendix A.21).

The majority of commercial fishers are residents of the Yukon River drainage. The cash income derived from the commercial salmon fishery has assisted many area residents in their subsistence life-style. For example, income earned from commercial fishing is often used to obtain hunting and fishing gear such as nets, boats, and outboard motors, which are utilized in subsistence activities.

Most commercial fishers operate outboard powered skiffs of 18 to 24 feet in length. Very few skiffs utilize gillnet rollers or power reels of any type. The use of larger outboard motors (greater than 100 horsepower), VHF radios, and fish finders has increased the fleet efficiency.

The majority of the salmon harvest is presently processed as a fresh or frozen product in contrast to earlier years when canning and salting were of more importance (Appendix A.10). Currently, most salmon are processed at shore-based or floating operations, or transported by aircraft outside the area for processing. However, limited "value adding" products are now being produced within the Yukon Area. The purchasing of salmon roe directly from permit holders is prevalent primarily in the Upper Yukon Area. Fish ticket reports containing a breakdown of salmon roe by species other than chum salmon have only been available since 1990. Prior to 1990, small amounts of chinook and coho salmon roe were reported as summer chum and fall chum salmon roe, respectively. A few salmon are sold to local markets. Small quantities of chinook, fall chum, and coho salmon are smoke-cured and sold as "strips," a local specialty product. In addition, undocumented quantities of chum and coho salmon are dried and sold or bartered as dog food.

Lower Yukon Area

Since the beginning of the commercial salmon fishery in 1918, the majority of the Yukon River harvest has occurred in Districts 1 and 2. With the advent of the Commercial Fisheries Limited Entry (CFEC) program in 1976, fishing effort in terms of the number of participants has stabilized, but efficiency of the fleet has increased. From 1989 through 1998, an average of 707 Lower Yukon Area CFEC gillnet permits have been issued annually (Appendix A.8). All Lower Yukon Area permits are designated as gillnet, and either set or drift gillnets may be operated. With some restrictions, permit holders may transfer between Districts 1, 2, and 3 during the season. Set gillnets are more commonly used in coastal areas within the Yukon River delta. Drift gillnets are the predominant gear type used within the Yukon River in Districts 1, 2 and 3.

Chinook salmon harvest quotas were eliminated for Districts 1 and 2 in 1960. From 1961 through 1980, the fishery was regulated by scheduled weekly fishing periods, and the season was opened by a published regulatory date. Commercial fishing time during the chinook salmon migration was 4 days a week during 1961 to 1967, but was reduced primarily to 3.5 days a week beginning in 1968, 3 days a week in 1974, and 2.5 days a week in 1977. Fishing periods of 24 hours duration generally occurred twice weekly from 1982 to 1986, and 12-hour periods were introduced during 1987 in Districts 1 and 2. Since 1989, commercial periods have been primarily 6, 9, or 12 hours in duration. Since 1981, a 60,000 to 120,000 chinook salmon guideline harvest range has been in effect for Districts 1 and 2 combined (Appendix A.14). In District 3, a guideline harvest range of 1,800 to 2,200 chinook salmon was established in 1979.

Sale of other species of salmon captured during the chinook salmon directed commercial fishery, excluding the 1920s, has been allowed since 1967. The incidental catch of summer chum salmon was limited during the chinook salmon directed commercial fishery in the late 1960s because fishers could use only gillnets of eight-inch minimum stretched mesh. However, beginning in 1970, each fisher could substitute up to 50 fathoms of gillnet of any mesh size in Districts 1 and 2. In 1973, all mesh size restrictions were lifted during the chinook salmon migration from June 1 through early July.

A regulation was adopted in 1973 specifying that gillnets of six inch mesh size or less could be fished after a specified date in early July in Districts 1 and 2. Prior to the 1976 fishing season, a regulation was adopted which established a flexible range of dates of June 27 to July 5 in Districts 1 and 2, and July 5 to 15 in District 3, after which only gillnets of six inch maximum mesh size could be used. A regulation was adopted prior to the 1985 fishing season that eliminated specific dates and implemented emergency order authority for establishing restricted mesh size periods (six-inch maximum mesh size) in Districts 1, 2, and 3.

Allowable commercial fishing time for the fall season in the Lower Yukon Area has gradually been reduced since the 1970s. Throughout most of the 1970s, biweekly 24 and 36-hour commercial fishing periods were allowed. Throughout the early 1980s, biweekly 24-hour fishing periods were generally allowed. Beginning in 1983, a summer season closure of July 15 was established in the Lower Yukon Area to protect the early portion of the fall chum salmon run and to provide more time to evaluate the fall chum salmon run strength. Since 1990, commercial fishing periods have typically been 12 hours or less in duration in the Set Gillnet Only Area and six or nine hours in the remainder of the Lower Yukon Area. In the coastal area only set gillnets are allowed during commercial fishing periods. More commercial fishing time has been allowed in the coastal Set Gillnet Only Area due to the influence of tides on fishing efficiency.

Upper Yukon Area

Prior to 1974, the Yukon River drainage above the confluence of the Koyukuk River was designated as a single district (District 4). By regulation, commercial fishing was allowed 7 days per week until the quota of 2,000 chinook salmon had been harvested. The fishery was then reopened to allow the harvest of fall chum and coho salmon. When a combined quota of 2,000 fall chum and coho salmon were taken, the fishery was closed for the season. These quotas were established to allow a limited commercial activity in the Upper Yukon Area. Fish wheels and set gillnets are the legal gear types for commercial salmon fishing in the Upper Yukon Area. Although in the Anvik River, a set gillnet or a fish wheel commercial permit holder may use a set gillnet, fish wheel, hand beach seine or a hand purse seine during a commercial period. Fishers may not transfer between districts in the Upper Yukon Area.

In recognition of the developing upriver commercial fishery and the desire for increased participation by fishers, the BOF adopted several major regulation changes prior to the 1974 fishing season. District 4 was reduced in size, and two new districts, Districts 5 and 6, were defined. Additionally, the weekly commercial salmon fishing period was reduced from 7 to 5 days per week. Regulations also provided for increases in upriver commercial harvest quotas.

Since 1974, the BOF has enacted a number of major regulation changes in the Upper Yukon Area. Weekly fishing periods were reduced in all districts (except the upper portion of District 5) from 5 to 4 days per week, and split-period (two 48-hour periods) fishing schedules were established in 1980.

Beginning in 1979, quotas for chinook, and fall chum and coho salmon combined were replaced by a more flexible guideline harvest range, District 4 boundaries were redefined, and new subdistricts were created to allow for more stock-specific management of fall chum and coho salmon. New subdistricts within District 5 were created in 1981. Prior to 1993, the Upper Yukon Area had a fall chum and coho salmon combined guideline harvest range. In 1993, coho salmon were excluded from the guideline harvest range in the Upper Yukon Area. Since 1990, the duration of fishing periods has dramatically decreased, and fishing time has been based increasingly more on inseason run assessment.

In the spring of 1988, the BOF met in special session to take testimony on current and proposed salmon management practices on the Tanana River. This special session was a result of large-scale illegal salmon and salmon roe sales documented in 1987 in portions of Districts 5 and 6. The BOF adopted regulations for District 6 which included: 1) reducing the commercial and subsistence fishing schedule from two 48-hour periods to two 42-hour periods per week, 2) specifying that there would be no more than one 42-hour commercial fishing period per week during the fall season, 3) requiring subsistence salmon fishing permits for the entire Tanana River drainage, and 4) establishing subsistence reporting requirements inseason for a portion of Subdistrict 6-B and all of Subdistrict 6-C.

The BOF further instructed ADF&G to manage District 6 on the basis of existing guideline harvest ranges, specifying that these guidelines could be exceeded only if it was determined that doing so would not jeopardize meeting subsistence and escapement requirements. Based on concerns for fall chum salmon spawning escapements in the Toklat River, the BOF in February 1990 reduced the commercial fishing time allowed for Subdistricts 6-A and 5-A to no more than one 24-hour period per week during the fall fishing season. These restrictions were lifted during the 1998 fishing season, but they were reinstated for the 1999 and 2000 fishing seasons because escapement objectives were not met in 1998.

In most of the Upper Yukon Area, summer chum salmon flesh is difficult to market due to the high cost of transportation and the more advanced state of sexual maturity. However, the summer chum salmon roe quality is judged to be excellent by the industry. This has resulted in increased sales of summer chum salmon roe since 1980. Because of the large summer chum salmon roe fishery in Subdistrict 4-A and difficulty in estimating the associated harvest, the guideline harvest range for Subdistrict 4-A was established in February 1990 as 113,000 to 338,000 summer chum, or the equivalent of 61,000 to 183,000 pounds of roe, or some combination of fish and pounds of roe. In addition, regulations were adopted stipulating that no more than 183,000 pounds of summer chum salmon roe from Subdistrict 4-A harvests could be sold annually. Once the roe cap is reached, fishing effort could continue, but only the sale of chum salmon in the round would be allowed. Besides stating the pounds of roe sold, the BOF also required that all salmon caught by Commercial Fisheries Entry Commission (CFEC) permit holders during commercial fishing periods in Subdistrict 4-A be reported on fish tickets in numbers of fish.

In March 1994, the BOF adopted 5 AAC 05.368. The Anvik River Chum Salmon Fishery Management Plan. Under this plan the Anvik River may be opened to summer chum salmon commercial fishing if a surplus greater than the escapement goal of 500,000 fish is available. The intent is to allow a harvest of Anvik River summer chum salmon that are in excess of the spawning escapement goal and to decrease the harvest pressure on non-Anvik River summer chum salmon stocks in the mainstem Yukon River near the Anvik River. All chinook salmon taken in the Anvik River during commercial fishing periods must be returned to the water alive.

During the November 1994 BOF meeting, the Anvik River Chum Salmon Fishery Management Plan was amended to allow use of the following gear types: hand operated beach and purse seines, fish wheels with live boxes, and a single set gillnet not to exceed 25 fathoms in length and not larger than 5-1/4 inch mesh. However, the gillnet must be continuously attended to release chinook salmon. Beginning in 1994, the lower 12 miles of the Anvik River were opened to commercial fishing (Figure 9). Hand beach seines have been the dominant gear type utilized and only summer chum salmon roe has been sold from the Anvik River fishery. A roe cap of 100,000 pounds of summer chum salmon roe was established by the BOF in March 1996.

Except for Subdistrict 4-A, carcasses resulting from roe extraction for commercial sales appear to be fully utilized for subsistence purposes in most years. A portion of the carcasses resulting from the Subdistrict 4-A summer chum roe fishery are utilized for subsistence purposes (primarily for dog food). However, some wastage is suggested by the large difference between the estimated commercial summer chum salmon harvest and the reported subsistence use in some years. Because only the roe of the fish is sold, ADF&G needs to estimate the number of salmon that were harvested to produce the roe sold. District 4 commercial related harvests of summer chum salmon were estimated from 1980 to 1988 based on the pounds of roe sold as indicated on fish tickets, estimated sex ratio, and an estimated average roe weight of one pound per female chum salmon. The one pound per female average roe weight was based on the subjective judgment of ADF&G. In 1989, a comprehensive study was conducted in District 4 to collect more accurate average roe weight per female and sex ratio data to estimate the total commercial related summer chum harvest (Sandone 1991). The average roe weight per female for the 1989 season was calculated to be 0.9 pounds. A similar average roe weight per female was estimated in samples collected in 1988. Since 1989, ADF&G has sampled commercial catches from fish wheels and gillnets in upper river districts to estimate the mean proportion of females and to estimate average roe weights per female.

The primary type of gear for harvesting summer chum salmon in the Upper Yukon Area are fish wheels which account for roughly 95% of the commercial harvest for this species.

Sport Fishery

In general, sport fish salmon harvests in the Yukon Area are relatively minor compared to commercial and subsistence harvests. The Tanana River drainage is the exception because it supports a popular salmon sport fishery. In 1988, the BOF established a guideline harvest range of 300 to 700 chinook salmon for the Salcha River recreational fishery. In 1990, the BOF established a guideline harvest range of 300 to 600 chinook salmon for the Chena River recreational fishery.

Canadian Harvests of Yukon River Salmon

Annual harvest data from the Canadian portion of the Yukon River drainage have been provided by DFO since 1962. The first recorded commercial salmon harvest in the Canadian portion of the Yukon River drainage occurred in 1903, when 70,000 pounds of chinook and fall chum salmon were taken (ADF&G 1985). Records indicate a Canadian commercial fishery occurred sporadically from 1903 to 1917 and continuously from 1918 to 1947 (Appendix A.3). No harvest records are available from 1948 to 1957. Harvest records document the annual salmon harvest by species since 1958 and also by user group since 1961.

The Canadian portion of the Yukon River drainage maintains Aboriginal, domestic, commercial, and sport fisheries for salmon. The Aboriginal and domestic fisheries are in some ways comparable to subsistence and personal use fisheries in Alaska, although the Aboriginal fishery is only open to native people. All of the commercial salmon harvest in Canada occurs on the mainstem Yukon River. Canadian salmon harvests in the Porcupine River drainage currently consist only of an Aboriginal fishery.

U.S./Canada Yukon River Salmon Panel and Treaty Negotiations

Negotiations were initiated in 1985 between the United States and Canada regarding a Yukon River salmon treaty. The purpose of these negotiations is to develop coordination of management between the U.S. and Canada of salmon stocks that spawn in the Canadian portion of the Yukon River drainage.

In the mid-1990s, the realization was that, while reaching a comprehensive long term agreement remained a formidable challenge given some of the key unresolved issues, there would be benefits that could be realized by more formally implementing the areas of agreement to date. In February 1995, an interim Yukon River Salmon Agreement (Agreement) went into effect. A U.S./Canada Yukon River Panel (Panel) was formed to implement the Agreement. The focus of the Panel was on the salmon stocks that spawn in the Canadian portion of the Yukon River drainage. The Panel made recommendations to the management agencies in Alaska and Canada. The Panel also administered a Yukon River Salmon Restoration and Enhancement Fund (Fund).

A six-year stabilization plan had been completed in 1995 for Canadian Yukon River mainstem chinook salmon. The objective of the six-year stabilization plan was to prevent further declines in spawning escapement through achieving an escapement of at least 18,000 chinook salmon for each year through 1995. In April 1996, the Panel agreed to the first six years of a rebuilding plan for Canadian mainstem chinook salmon stocks. Recognizing the desirability of rebuilding stocks, the Panel agreed to an interim minimum spawning escapement objective for Canadian mainstem Yukon River chinook salmon of 28,000 fish for six years beginning in 1996. The U.S. contribution to this effort was to endeavor to deliver 44,800 to 47,800 chinook salmon to the Canadian mainstem Yukon River. The Canadian contribution to this effort was to endeavor to manage the harvest of chinook salmon in the mainstem Yukon River drainage in Canada by all user groups combined within a guideline harvest range of 16,800 to 19,800 chinook salmon.

For Canadian Yukon River mainstem fall chum salmon, a twelve-year rebuilding plan was agreed upon during the negotiation process beginning with the 1990 season. The objective of this plan was to rebuild the stock by achieving a spawning escapement of more than 80,000 fall chum salmon for all brood years in the four-year cycle by the year 2001. The U.S. contribution to this effort was to endeavor to deliver to the Canadian border on the mainstem Yukon River an agreed to number of fall chum salmon which varies by year based upon the rebuilding schedule. The Canadian contribution to this effort was to endeavor to manage the harvest of fall chum salmon in the mainstem Yukon River drainage in Canada by all user groups combined within a guideline harvest range of 23,600 to 32,600 fall chum salmon.

A key component of the Agreement was administration of the Fund by the Panel to address the restoration and enhancement of Canadian spawned salmon stocks. The U.S. contributes \$400,000 per year into the Fund. At its April 1996, March 1997 and March 1998 meetings, the Panel allocated monies from this special fund to restore and increase salmon production on the river.

Overall, approximately \$1.3 million in U.S. dollars has been granted to applicants of the fund. Applicants have included regional organizations, Native groups, private consultants and others, primarily in Canada.

Initially the Agreement was in place through 1997, with an option to extend if both sides agreed. Negotiations resumed in October 1997 to reach a long-term agreement on the remaining issues and to incorporate the relevant elements of the Agreement. At the October negotiations, the Agreement was extended through March 31, 1998.

Although the U.S. side supported extending the Agreement, the Canadian side allowed it to expire at the March 1998 negotiations meeting. No other bilateral meetings were held through the remainder of 1998. Since March 1998, the department has continued to endeavor to manage the salmon fisheries on the Yukon River consistent with the stock rebuilding and conservation plans for chinook and fall chum salmon that were contained in the interim agreement.

In April 1999, representatives of salmon users from communities of the Yukon River in Alaska and Canada attended a workshop in which a consensus was reached that negotiations should be resumed to achieve a final agreement. It was also concluded that the inter-jurisdictional Yukon River Panel should be re-established, along with its Restoration and Enhancement Fund.

Negotiations resumed in April 2000 and most of the details were worked out on a framework agreement, with the exception of a harvest share proposal that was presented by the Canadian delegation. Given the substantial progress, the Delegations agreed to resume the panel process as soon as possible for organizational and planning purposes.

Marine Harvests of Yukon River Origin Salmon

High Seas Salmon Gillnet Fisheries

Chinook salmon of western Alaska origin were intercepted annually by the Japanese mothership and landbased gillnet fisheries from 1964 through 1991 (Appendix A.26). Current estimates indicate an average of approximately 141,000 western Alaska origin chinook salmon were taken during 1975-1983. Yukon River chinook salmon comprised the majority of western Alaska stocks taken in the Bering Sea mothership harvests. In 1980, a total of 438,000 western Alaska chinook salmon were estimated to have been taken in these fisheries, which exceeded the domestic commercial catch in western Alaska for that year.

Prior to 1988, the Japanese mothership salmon fishery operated in parts of the U.S. Exclusive Economic Zone (EEZ), waters from 3 to 200 miles off the U.S. coast. Beginning in 1988, the mothership fishery occurred outside of the EEZ. In 1990, the Japanese mothership fishery was converted to a "nontraditional land based salmon fishery" which ended in 1991. Estimates of the numbers of western Alaska chinook salmon in this harvest are not available.

Foreign, Joint-Venture, and U.S. Domestic Groundfish Fisheries

Information on incidental chinook salmon catches in offshore fisheries is presented in Appendix A.25. Foreign groundfish fisheries in the EEZ ended in the Gulf of Alaska in 1985 and in the Bering Sea in 1987. The joint-venture groundfish fishery ended in the Gulf of Alaska in 1988 and in the Bering Sea in 1990. U.S. domestic groundfish fisheries replaced these fisheries.

The numbers of salmon taken by the U.S./domestic groundfish fleet were estimated through 1989 due to lack of an observer program. NMFS initiated an observer program beginning in 1990. In 2000, U.S. groundfish trawl fisheries harvested approximately 7,500 chinook salmon in the Bering Sea and Aleutian Islands (BSAI) area and approximately 26,700 chinook salmon in the Gulf of Alaska (GOA) (Appendix A.26). The BSAI chinook bycatch was well below average, while the GOA chinook bycatch was much higher than average. Generally, bycatch chinook salmon are one to two years away from maturity (D. Ackley, ADF&G, Juneau, personal communication 1998). Additionally, approximately 57,600 other salmon were taken in the BSAI area and 11,000 other salmon were taken in the GOA trawl fishery. It is estimated that chum salmon accounted for 95% or more of the other salmon take.

Management measures are taken to reduce salmon bycatch in the groundfish fishery. In February 1999, the North Pacific Fishery Management Council acted upon a proposal by YRDFA to reduce the chinook salmon bycatch limits that trigger a trawl closure in the Chinook Salmon Savings Areas in the Bering Sea. The Council incrementally reduced the chinook bycatch cap in the pollock trawl fisheries as follows: 48,000 in 1999, 41,000 in 2000, 37,000 in 2001, 33,000 in 2002, and 29,000 in 2003. Accounting for this cap is a calendar year. If the cap is triggered in the A season, the chinook savings areas would close immediately. The closure would be removed at the start of the B season, but would be reinitiated September 1. The Council also requested that a sampling regime be developed to accurately estimate bycatch of chinook salmon.

Alaska Peninsula

The majority of chum salmon captured during June in the Unimak and Shumagin Islands area, located on the south side of the Alaska Peninsula, are bound for Bristol Bay, Asia, and the Arctic-Yukon-Kuskokwim (AYK) Region. The chum salmon stocks contributing to the harvest in this fishery have been described by several studies, including a tagging study in 1987. Beginning in 1993, a genetic stock identification study was conducted using samples from South Unimak and Shumagin Islands fishery. Results of this study indicate chum salmon stock contribution was similar to the 1987 tagging study. Sockeye salmon is the target species in the June commercial fishery, but incidental catches of chum salmon are also taken. The sockeye salmon harvest is regulated according to a quota that is adjusted annually and based on the Bristol Bay sockeye salmon forecast.

From 1993 to 1997, a harvest cap of 700,000 chum salmon during the June fishery was in effect. In addition, the board allowed ADF&G to open the fishing season and establish fishing periods based on sockeye to chum salmon ratios in an effort to reduce incidental chum salmon harvests. In January 1998, the BOF changed the fishery management plan for the June False Pass fishery. The most significant change lowered the chum salmon cap from 700,000 fish to a floating cap ranging from 350,000 to 650,000 chum salmon. The floating cap is dependent upon the previous year's harvest of summer chum salmon in AYK. The chum salmon cap for 2000 was 350,000 to

400,000 fish. A total of 1,251,000 sockeye and 239,000 chum salmon were taken in the combined South Unimak and Shumagin Islands June commercial fishery in 2000.

Norton Sound

A commercial harvest of 752 chinook salmon was taken in coastal Norton Sound waters in 2000. The chinook salmon commercial harvest was 89% below the recent 10-year average harvest. Some Yukon River bound chinook, chum and coho salmon are known to be intercepted by this fishery.

Salmon Spawning Escapement

An essential requirement for management of the Yukon River salmon fisheries is documentation of annual salmon spawning escapements. Such documentation provides for:

1. Determination of appropriate escapement levels or goals for selected spawning areas or management units;
2. Evaluation of escapement trends;
3. Evaluation of the effectiveness of the management program, which in turn forms the basis for proposing regulatory changes and management strategies; and
4. Evaluation of stock status for use in projecting subsequent returns.

Escapement Assessment Methods

The Yukon River drainage is too extensive for complete comprehensive escapement coverage of all salmon spawning streams. Consequently, low-level aerial surveys from single-engine, fixed-wing aircraft form an integral component of the escapement assessment program. Nevertheless, comprehensive assessment studies employing such techniques as intensified ground surveys, mark-recapture programs, counting towers, weirs, and hydroacoustics are also conducted. Regardless of the method utilized, the overall objective of escapement assessment in the Yukon Area is to estimate abundance (or often indices of relative abundance), timing, and distribution of spawning salmon populations throughout the drainage.

There are both advantages and disadvantages related to each type of assessment method. The more comprehensive studies tend to provide estimates of total salmon abundance and are often less dependent upon weather and water conditions. However, due to costs associated with staffing and operating the more sophisticated assessment projects, relatively few have been initiated over the years. While most of these are designed to monitor salmon escapements in selected major spawning streams, four projects have been implemented to estimate salmon abundance at various locations in the mainstem Yukon and Tanana Rivers. The ADF&G sonar at Pilot Station, a mark-recapture study in the upper Tanana River, a mark-recapture and radio telemetry study near Rampart on the Yukon

River, and a mark-recapture study by DFO near Dawson, Canada. The ADF&G Pilot Station sonar project estimates total salmon passage by species through the lower Yukon River at river mile 123 near Pilot Station. Hydroacoustic techniques are used to estimate passage of fish and a comprehensive drift gillnet sampling program is conducted to apportion sonar counts to species.

Another project designed to estimate salmon abundance by species in the Yukon River has been operated annually by DFO since 1982 (excluding 1984) near Dawson, Canada. That project consists of a comprehensive mark-recapture study to estimate the abundance of chinook and chum salmon entering the Canadian portion of the mainstem Yukon River. The two most recent large-river salmon monitoring projects involve mark-recapture experiments. One has been conducted annually since 1995 in the upper Tanana River through cooperative agreement with the BSFA, and provided abundance estimates of fall chum salmon bound for the upper river, upstream of the Kantishna River. Since 1999 the mark-recapture abundance estimate project was expanded to include the Kantishna River drainage. The second conducted annually since 1996, consists of a cooperative, multi-year interagency, mark-recapture and radio-tracking (operated until 1998) study near Rampart to evaluate the distribution, abundance, and run characteristics of upper Yukon River fall chum salmon, with USFWS and NMFS as the lead agencies. In 2000, as part of the Western Alaska Disaster federal funding, a chinook salmon radio telemetry project was initiated in the Lower Yukon River.

In contrast to the more comprehensive assessment projects, the greatest advantage of aerial surveys is the cost-effectiveness of obtaining escapement information throughout an extremely vast and remote area. Another advantage to aerial surveillance is that current or potential habitat-related problems arising from natural or man-induced causes can be identified. Among the disadvantages are that results may be highly variable if non-standardized procedures are used.

Variability in aerial survey accuracy is dependent upon a number of factors such as weather and water turbidity, timing of surveys with respect to peak spawning, aircraft type, and survey altitude, experience of both pilot and observer, and species of salmon being assessed. It is recognized that aerial estimates are lower than actual stream abundance due to these factors. Further, peak abundance measured by aerial survey methods is significantly lower than total spawning abundance due to the die-off of early spawners, and arrival of fish after the survey. Aerial estimates in a given stream may demonstrate a wide range in the proportion of fish being estimated from year to year. To the extent that this variability can be controlled, peak aerial counts may serve as indices of relative abundance for examination of annual trends in escapement.

Aerial escapement estimates are obtained from as many spawning streams as possible within the confines of fiscal, personnel, and weather constraints. However, selected spawning streams or "index areas" which represent a larger geographic area have been identified and receive highest priority. Index areas have been designated due to their importance as spawning areas and/or by their geographic location with respect to other unsurveyable salmon spawning streams in the general area.

Escapement Goals

Biological escapement goals (BEGs) have been established for several Yukon River drainage salmon spawning streams or areas (Appendix E.1). The underlying principle in setting the current BEGs was that maintenance of average or better spawning escapements should provide for sustained yield consistent with historic levels. Most of these goals represent the minimum number of desired spawners considered necessary to maintain the historical yield from the stocks and are based upon

historical performance, i.e., they are predicated upon some measure of historic averages. Establishment of escapement goals based upon a rigorous analysis of maximum sustained yield is not possible at this time due to the nature of the Yukon River mixed stock fisheries, lack of stock identification data, and consequential inability to reconstruct total inriver stock-specific returns. Consequently, most escapement goals are based upon aerial survey index estimates that do not represent total escapement but are assumed to reflect relative spawner abundance when using standard survey methods under acceptable survey conditions. However, the goals established for Anvik River summer chum salmon and selected fall chum salmon spawning stocks represent the desired minimum target for total spawning abundance; being based upon a more comprehensive database.

AREA SALMON REPORT 2000

Total Yukon River Drainage Salmon Harvest 2000

The total 2000 estimated harvest, for the Yukon River drainage, including Canada, was 50,187 chinook, 72,358 summer chum, 28,543 fall chum, and 15,308 coho salmon (Table 2). The 2000 estimated total Yukon River drainage harvests compared to the recent 5-year averages (1995-1999) were as follows: chinook, 68% below average (Appendix A.17), summer chum, 84% below average (Appendix A.18), fall chum, 87% below average (Appendix A.19), and coho salmon, 72% below average (Appendix A.20).

Alaskan Subsistence Fishery 2000

The number of salmon harvested in the 2000 Yukon Area subsistence fisheries was estimated from subsistence survey and fishing permit programs. Additionally, the numbers of fish given to the public for subsistence use from test fish projects throughout the drainage were documented. Combining survey, permit, and test fishery information, an estimated total of 36,479 chinook, 78,102 summer chum, 19,396 fall chum, and 14,939 coho salmon were harvested by 1,410 subsistence fishing households in 2000 in the Yukon Area including the coastal communities of Hooper Bay and Scammon Bay (Table 3). Poor salmon runs and subsistence fishing restrictions resulted in lower harvests than normal. Fisheries management actions are described under commercial fishery harvest and management sections of this report. The 2000 estimated subsistence harvests compared to the recent five-year averages (1995-1999) were as follows: chinook 30% below average (Appendix D.1), summer chum, 28% below average (Appendix D.2), fall chum, 81% below average (Appendix D.3), and coho salmon, 39% below average (Appendix D.4).

It must be noted however, that emergency orders restricting the fall season fishery resulted in reduced fishing opportunity in 1998 which is included in the recent five-year average harvests. Additionally, the 1995 and 1996 fall fishery experienced a change in markets that resulted in an increase in the amount of fall chum salmon roe being sold. Typically, fall chum salmon are sold

in the round. In these years, the stripped salmon carcasses (commercial related) that became available as a result of the roe only market, were used to replace a portion of the normal subsistence harvest. Consequently, the 1995 to 1999 average is artificially low. Using the 1990 to 1994 average, which contains only one anomaly in 1993, results in an 84% below average harvest of fall chum salmon for the 2000 season.

Survey Program

The majority of villages within the Yukon Area have no regulatory requirements to report their subsistence salmon harvest. To estimate the salmon harvest from these villages, ADF&G has implemented a voluntary survey program. The 2000 survey program utilized subsistence catch calendars, postseason household interviews, telephone interviews and postcards to collect harvest information. Stratified random sampling techniques were used to select Yukon Area households to be interviewed during the 2000 postseason survey. Based on survey information collected in 2000, an estimated 1,243 households harvested an estimated total of 29,282 chinook, 71,429 summer chum, 14,830 fall chum, and 6,680 coho salmon in the survey portion of the Yukon Area which includes the coastal communities of Hooper Bay and Scammon Bay (Table 3).

Subsistence Permit Program

A portion of the Yukon Area requires subsistence fishers to obtain an annual household permit prior to fishing. In 2000 these areas included the majority of the Tanana River drainage, the Yukon River drainage between Hess Creek and the Dall River, referred to as the Yukon River Bridge area, and the upper portion of District 5 between the upstream mouth of Twenty-Two Mile Slough and the U.S./Canada border. In these areas, fishers are required to document their subsistence harvest on a household fishing permit and return the permit to ADF&G at the end of the fishing season. A total of 357 subsistence permits were issued in 2000 (Table 4). The number of subsistence fishing households and the reported subsistence harvest by household permits does not include Stevens Village. Because of its unique location, fishers in Stevens Village harvested salmon in both the permitted and survey areas. The Stevens Village permit information was used to supplement the postseason survey of the village. A total of 151 subsistence permit holders indicated they fished in 2000. The reported harvest from permits totaled 4,270 chinook, 1,668 summer chum, 351 fall chum, and 5,182 coho salmon (Table 3). Historical subsistence permit harvest information for fisheries currently in regulation are summarized in Appendix D.5 and D.6.

Subsistence Salmon Use from Test Fisheries

The test fishery projects throughout the drainage provided a total of 2,852 chinook, 4,975 summer chum, 4,214 fall chum, and 3,077 coho salmon to households for subsistence use in 2000 (Table 3). Residents of the villages of Alakanuk, Emmonak, Kaltag, Kotlik, Marshall, Mountain Village, Pilot Station, and Russian Mission were the primary recipients of fish given away from the test fisheries. These salmon were assumed to replace fish that would have been obtained through normal fishing activities, therefore salmon given away by the test fisheries were added to those village subsistence harvests.

Subsistence Salmon Use from Commercial Fisheries

A regulation adopted by the BOF in February 1992 required fishers to report on fish tickets the number of salmon caught but not sold during commercial fishing periods. Compliance with this regulation was very poor from 1992 to 1997. During the BOF meeting in December of 1997, the regulation was amended to remove the required reporting on fish tickets of salmon taken but not sold in all districts or subdistricts, with the exception of Subdistrict 6-C. There was no commercial fishery in Subdistrict 6-C in 2000.

Alaskan Personal Use Fishery 2000

Fishers are required to obtain an annual household permit for personal use fishing in portions of the Tanana River drainage within the Fairbanks Nonsubsistence Area (Appendix D.8). Fishers are required to document their personal use harvest on the household permit and return them to ADF&G at the end of the fishing season. A total of 73 personal use permits were issued, and a total of 16 personal use permit holders indicated they fished in 2000 (Table 4). The reported harvest from permits totaled 75 chinook, 30 summer chum, and one fall chum salmon (Table 4). Historical personal use harvests during years the fishery was provided for by regulation are presented in Appendix D.7. Additional information regarding the 2000 subsistence and personal use harvests in the Yukon Area can be found in Borba and Hamner 2001.

During the summer season the personal use fishery was restricted resulting in harvests of chinook and summer chum salmon that were 77% and 94% respectively below the recent five-year averages (1995-1999). During the fall season the fishery was completely closed and only one incidentally caught chum salmon was reported.

Alaskan Commercial Harvest and Fishery Management 2000

In 2000, commercial sales totaled 15,142 salmon from the Alaskan portion of the Yukon River drainage (Table 5). The commercial harvest was composed of 8,518 chinook, and 6,624 summer chum salmon in the round. No roe sales for salmon occurred during the 2000 season. Commercial salmon fishing occurred only in the Lower Yukon Area. No commercial fishing was allowed in the Upper Yukon Area. The 2000 estimated commercial salmon harvests compared to the recent 5-year averages (1995-1999) were as follows: chinook salmon, 91% below average (Appendix A.4), and summer chum salmon, 93% below average (Appendix A.5). The recent 5-year average (1995-1999) commercial harvest of fall chum and coho salmon is 93,449 and 27,983 fish, respectively (Appendix A.6, Appendix A.7).

The 2000 Yukon River salmon runs continued to show a trend of very low productivity, particularly in view of good parent year escapements. The chinook salmon harvest was the lowest commercial harvest since 1937. Changing climate and ocean conditions appear to have impacted salmon survival. During the fishing season, numerous YRDFA sponsored teleconferences were conducted to obtain input from user groups and to exchange salmon run status information.

ADF&G and cooperative test fishing projects sold a total of 275 chinook, 561 summer chum salmon in District 1, and 322 chinook, 87 summer chum salmon in Districts 2 and 3 (Table 6). The fish sold are not included in the commercial totals referenced above. Salmon caught in test fishing projects are typically sold only during commercial openings. Healthy fish (505 chinook and 226 summer chum salmon) were released and mortalities not sold were given away to local residents. There were no test fish sales for the fall season.

The estimated exvessel value of the 2000 Yukon Area salmon fishery to the fishers was approximately \$0.7 million, which was 85% below the recent 5-year average value of \$4.9 million (Appendix A.12). Salmon buyers and processors operating in the Yukon Area during 2000 are listed in Table 7. The majority of the salmon harvest was processed as a fresh or frozen product. Average prices paid to fishers and average salmon weights are presented in Appendices A.11 and A.13, respectively.

In 2000, excluding transfers, a total of 776 CFEC gillnet permits and 161 fish wheel permits were issued (Table 8), with only 562 permit holders participating in the fishery (Table 9). This was 23% below the recent five-year-average of 727 permit holders and the lowest on record since 1971 (Appendix A.8 and A.9). Fishing effort was lower than normal because poor chinook, summer chum and fall chum salmon runs resulted in reduced fishing times, and no commercial fishing periods in the upper river districts. The number of commercial fishing permits (i.e. fishers) that made at least one salmon delivery by district, by area, and by season is shown in Appendix A.9.

An estimated 55% of the chinook salmon harvested in 2000 from all fisheries throughout the Yukon River drainage (Alaska plus Canada) were of Canadian spawned fish. The estimates presented in Appendix A.23 are based on analyses of chinook salmon scale patterns, age composition ratios, and geographic distribution of harvests and escapements (Lingnau and Bromaghin 1999).

The estimated age composition of chinook salmon samples collected from the combined commercial harvest was 0.9% age-4, 28.6% age-5, 62.5% age-6, and 8.0% age-7 fish. The sex composition of the samples was 60.7% females and 39.3% males. Age composition data from the commercial harvest indicated 4-year old fish accounted for approximately 47.5% of the summer chum salmon sampled. Age-5 summer chum salmon accounted for 50.0% of the commercial harvest samples. Historical salmon age composition information of combined commercial and subsistence salmon harvests are shown in Appendix A.22.

Lower Yukon Area Harvest

The 2000 Lower Yukon Area commercial salmon harvest totaled 8,518 chinook, and 6,624 summer chum salmon. No commercial fishing was allowed during the 2000 fall chum season. The chinook salmon harvest for the Lower Yukon Area was 90% below the recent 5-year average (1995-1999) of 83,443 fish (Appendix A.4). The summer chum harvest was 93% below the recent 5-year average (1995-1999) of 97,002 fish (Appendix A.5).

In 2000, a total of 704 CFEC gillnet permits were issued for the Lower Yukon Area, of which 562 permit holders fished at least once (Table 9). Lower Yukon fishers were paid an average price per pound of \$4.57 for chinook, and \$0.17 for summer chum salmon (Appendix A.11). The 2000 prices paid per pound for chinook and summer chum represent an increase over recent years. The average price paid for chinook salmon in the Lower Yukon Area was the highest on record. Prices paid for

summer chum salmon in the round continued to be low as observed since 1995. The estimated exvessel value of the Lower Yukon Area fishery of \$0.7 million was 83% below the recent 5-year-average of \$4.4 million (Appendix A.12). The average income for Lower Yukon Area fishers that participated in the 2000 fishery was \$1,306.

Three buyer-processors operated in the Lower Yukon Area in 2000 (Table 7). All of the commercial salmon harvest was shipped directly to fresh or fresh/frozen markets.

Upper Yukon Area Harvest

No Upper Yukon Area commercial salmon sales were made in 2000. Historical commercial harvest by statistical area is presented in Appendices C.4 -C.19.

The total historical estimated commercial salmon harvests reflect the estimated number of female salmon harvested to produce roe sold in District 6. Appendices C.2 and C.3 present historical commercial salmon sales and estimated harvest by gear type, set gillnet and fish wheel, respectively.

Chinook and Summer Chum Salmon Season

The commercial harvest of chinook salmon was well below the low end of the guideline harvest range (GHR) for all districts and subdistricts. The commercial fishery was managed conservatively by reducing the length of fishing periods. The summer chum harvest was taken incidentally during the chinook salmon directed fishery. No commercial openings were allowed in Districts 3 through 6. A summary of emergency orders issued during the chinook and summer chum salmon fishing season is provided in Appendix A.26.

The 2000 Yukon River chinook and summer chum salmon runs continued to exhibit the decline in productivity observed in recent years. Five and six-year-old chinook salmon abundance was much less than would be expected, based on parent-year escapements. Although parent-year escapements were very good from 1994 through 1996, summer chum salmon abundance has been below average to poor since 1997. An extreme flood event in the Koyukuk River drainage in August 1994 and low snow cover during the winter of 1995-96 may account for some of the decline in chum salmon abundance. However, changing climate and ocean conditions are suspected to have also impacted salmon survival.

The 2000 preseason outlook was for weak to below average chinook and summer chum salmon runs that would only support subsistence needs and a limited commercial harvest of 25,000 to 65,000 chinook (23,000 to 60,000 fish in the Lower Yukon Area and 2,000 to 5,000 fish in the Upper Yukon Area) and 25,000 to 300,000 summer chum salmon in the Alaskan portion of the drainage. These expected harvest ranges were substantially below the GHR. The return of 5-year-old chinook salmon was expected to be near average based on good spawning escapements in 1995 and the number of 4-year-old fish that returned in 1999. The return of 6-year-old chinook salmon was expected to be below average based on the number of 5-year-old fish that returned in 1999.

The ice went out of the Yukon River on May 29, about one week later than is normal in recent years. The first subsistence catch of chinook salmon was reported on June 3 near Emmonak

(Appendix A.25). The department's test fishing projects recorded the first chinook salmon catches on June 4 (Appendix B.12). River conditions throughout the early portion of the season were characterized by unusually high water with accompanying heavy debris loads.

Yukon River chinook salmon abundance in 2000 was assessed as very poor based on the commercial harvest and escapement counts and estimates from selected tributaries. Approximately 50% of the chinook salmon run had entered the lower river by June 25, five days later than average however several days earlier than 1998. The cumulative test fishing catch per unit effort (CPUE) in 2000 was 14.12 compared to the average of 25.14 for the 1989-1999 period (Appendix B.12). Because of operational changes, Pilot Station sonar data in 2000 should only be compared directly with data collected in 1995, 1997, 1998 and 1999. Besides equipment upgrades, operational changes included a different aiming criteria used since 1995 to maximize the ability to detect passing fish. Since 1995 all detected fish are classified as upstream migrants. The 2000 Pilot Station sonar preliminary cumulative passage estimate of 70,000 chinook salmon (approximate 90% confidence interval range: 61,700 – 78,500) was below the passage estimates of 134,000 fish in 1998 and 188,000 fish in 1999. (Appendix E.3).

The summer chum salmon run was assessed as being poor in abundance. According to test fish CPUE data, approximately 50% of the summer chum run entered the lower river by June 25, two days later than average (Appendix B.12). The Pilot Station sonar cumulative passage estimate through July 18 was 410,000 summer chum salmon (approximate 90% confidence interval range: 392,000 – 429,000). Passage estimates for summer chum salmon were 3.4 million in 1995, 1.3 million in 1997, 746,000 in 1998 and 939,000 in 1999 (Appendix E.3). Nearly one million summer chum salmon are needed for spawning escapement throughout the drainage. No directed summer chum commercial harvest was possible in 2000, based on reported subsistence harvests, Pilot Station sonar passage estimates and escapement counts at the East Fork Andreafsky, Anvik, Nulato, Gisasa, Chena and Salcha rivers and Kaltag and Clear creeks.

Districts 1, 2 and 3

Preseason, the anticipated Lower Yukon Area commercial harvest was 23,000 to 60,000 chinook salmon. One management concern is the quality of the escapement, i.e., the number of female salmon in the escapements. Large mesh size gillnets, utilized during unrestricted mesh size openings, target older, larger chinook salmon. These include a larger proportion of females than do smaller mesh gillnets used during restricted mesh size fishing periods. Fishing periods restricted to six-inch or smaller mesh-size gillnets result in higher catches of smaller, predominantly male, chinook salmon. Therefore, the amount of harvest taken with large mesh gear must be carefully considered.

The management strategy is to open the chinook salmon directed commercial fishery in the Lower Yukon Area when increasing subsistence and/or test net catches of chinook salmon have occurred over a seven- to ten-day period. The 2000 commercial fishing season opened on June 24 in District 1 (Table 10), which tied with the latest opening on record. The opening was allowed after approximately nine days of increasing subsistence and test fishery catches. Based on the lower river test fishery, the chinook migration increased rapidly from June 19 through June 22 and remained fairly steady through June 29. After June 29, the abundance of chinook salmon declined.

Management of the commercial fishery was conservative to keep harvests at the low end of the anticipated range of 23,000-60,000 chinook salmon. There were two commercial fishing periods

allowed in District 1 and one period in District 2. Fishing periods in these districts were reduced to 6-hours from the more typical 12-hour periods. Unrestricted mesh size gillnets were allowed during all fishing periods in the Lower Yukon Area to direct the harvest at chinook salmon. Because of the poor run of summer chum salmon, this species was not commercially targeted and no six-inch maximum mesh size fishing periods were allowed.

The combined total harvest of 8,518 chinook salmon for Districts 1 and 2 was 86% below the low end of the District 1 and 2 GHR of 60,000 fish, 91% below the 1990-1999 average harvest of 89,939 fish (Appendix A.17) and 63% below the low end of the preseason harvest expectation of 23,000 fish. The average weight of chinook salmon was 18.7 pounds (Appendix A.13).

The combined commercial summer chum salmon harvest in District 1 and 2 of 6,624 fish was 97% below the District 1 and 2 GHR of 251,000 fish, 96% below the recent 10-year average harvest of 155,022 fish (Appendix A.18) and 74% below the low end of the preseason harvest expectation of 25,000 fish. The average weight of summer chum salmon was 7.7 pounds.

District 3 was not opened for commercial fishing in 2000. There was no commercial harvest of chinook salmon in District 3 from 1995 through 1998 because of a lack of markets. The recent 10-year average harvest is 966 fish.

Based on the low abundance of summer chum and chinook salmon as assessed from middle and upriver escapement monitoring projects and inseason subsistence harvest reports after commercial fishing had occurred, subsistence salmon fishing time was restricted, effective July 19, to one 12- hour period per week in Districts 1, 2, and 3.

District 4 and Anvik River Management Area

Subdistrict 4-A and the Anvik River Management Area (Figure 9) were not opened to commercial fishing for the third consecutive year because of poor runs of summer chum salmon. The Anvik River did not meet its minimum escapement goal of 500,000 summer chum salmon. Commercial fishing for summer chum salmon has been permitted in the lower 12 miles of the Anvik River (Statistical Area 334-47) from 1994 through 1997 (Appendix C.9). The recent 10-year average harvest for Subdistrict 4-A and the Anvik River Management Area was 1,647 summer chum salmon in the round and 99,076 pounds of summer chum roe. From 1991-1999, exvessel value averaged \$353,777. During 1991-1996, when summer chum salmon were more abundant, an average of 60 permit holders fished annually in this subdistrict.

Commercial fishing was not opened in Subdistricts 4-B and 4-C because of poor chinook and summer chum salmon runs. The recent 10-year average harvest was 1,680 chinook and an estimated 25,434 summer chum salmon. Subdistricts 4-B and 4-C were allowed uninterrupted subsistence fishing by emergency order beginning June 15.

Based on the low abundance of summer chum and chinook salmon as assessed from middle and upriver escapement monitoring projects and inseason subsistence harvest reports, subsistence salmon fishing time was restricted, effective July 19, to two 24- hour periods per week in District 4.

District 5

In District 5, chinook salmon is the primary species of commercial value during the early season. Summer chum salmon do not contribute substantially to the commercial harvest because of the timing of the fishery, poor flesh quality, high transportation costs to market and because the district is located above the vast majority of summer chum salmon spawning areas.

Subdistricts 5-B and 5-C were not opened for commercial fishing in 2000. The 1990-1999 average harvest was 2,628 chinook and an estimated 245 summer chum salmon.

Commercial fishing in Subdistrict 5-D was not opened in 2000. The Subdistrict 5-D recent 10-year average harvest was 441 chinook and an estimated 17 summer chum salmon.

Based on the low abundance of chinook salmon as assessed from middle and upriver escapement monitoring projects and inseason subsistence harvest reports, subsistence fishing time was restricted, effective July 19, to one 24-hour and two 12-hour periods per week in District 5.

District 6

District 6, the Tanana River, was not opened for commercial fishing in 2000. The recent 10-year average total estimated commercial harvest is 1,561 chinook and 19,142 summer chum salmon. Management of the fishery is primarily based on tower counts of the Chena and Salcha Rivers.

Based on the low abundance of summer chum and chinook salmon as assessed from middle and upriver escapement monitoring projects and inseason subsistence harvest reports, subsistence salmon fishing time was restricted and personal use salmon fishing was closed in District 6. Personal use salmon fishing was closed in Subdistrict 6-C effective July 14. Additionally, effective July 19, Subdistricts 6-A and 6-B (except the Old Minto Area), and the Upper Tanana River Drainage subsistence salmon fishing was reduced to one 24-hour period per week. The Old Minto Area subsistence salmon fishing schedule was reduced to one 40-hour period per week.

Fall Chum and Coho Salmon Season

The 2000 Yukon River fall chum salmon run was managed by following guidelines provided by the Alaska Board of Fisheries within 5 AAC 01.249. Yukon River Drainage Fall Chum Salmon Management Plan. The management plan provides for escapement needs and establishes a subsistence priority use prior to considering commercial fishing activities. The management plan stipulates that directed fall chum salmon commercial fisheries be allowed only when the run size projection is greater than 675,000 fall chum salmon. At run sizes of less than 600,000 fall chum salmon, the drainage-wide escapement goal drops in increments from 400,000 to 350,000 fish. Provisions in the plan allow for varying levels of subsistence salmon fishing restrictions prior to closure of the fishery when necessary to meet minimum escapement requirements.

Since 1987, the Yukon River preseason fall chum salmon projection was presented as a point estimate. However, because of the unexpected run failures observed in 1997 and 1998, there was a high level of uncertainty associated with the Yukon River fall chum salmon preseason run projection for 2000. Consequently, the 2000 Yukon River preseason projection was presented as a range of 512,000 to 1,137,000 fall chum salmon.

As a result of the wide range in the preseason projection, ADF&G relied more heavily on inseason run assessment tools earlier in the run than usual. ADF&G monitored the 2000 run in the lower Yukon River by using the lower Yukon River set gillnet test fishery, Mountain Village drift gillnet test fishery (operated by Asacarsarmiut Traditional Council), Pilot Station sonar passage estimates and subsistence catch reports. Results from these projects, in combination with the preseason projection, were the basis for initial management decisions concerning the subsistence fishery.

The majority of fall chum salmon enter the Yukon River from mid-July through early September in erratic surges (pulses) usually lasting two to three days. Typically, four or five such pulses occur each season. These pulses are often associated with on-shore wind events and/or high tides. This characteristic entry pattern makes it difficult to accurately assess run strength inseason, particularly early in the season.

The 2000 fall chum salmon run showed some strength in the earlier portion of the return but was followed by extremely weak pulses. As detected by the lower Yukon River set gillnet test fishery, salmon were migrating through the area on the date the gillnets were being switched from the summer season five and one half inch mesh to the fall season six inch mesh. The first major pulse of fall chum salmon entered the Yukon River on July 24 and appeared to last six days. However, due to the extreme efficiency of the lower Yukon set gillnets test fishery, similar to the previous season, the strength of the return was suspect at these sites and found to be overestimated relative to other projects. There is some indication that the primary test gillnet sites have drastically changed from previous years and/or the extremes in water levels in recent years is contributing to the effect. Following a lull of eleven days, extremely weak pulses with low numbers of fish passage continued after August 10. On average, approximately 62 percent of fall chum salmon enter the Yukon River by August 10. The first formal inseason projection used to determine if the current level of subsistence salmon fishing restrictions was adequate to provide for subsistence harvests and meet escapement was made August 12. Based on this projection, the subsistence restrictions in place were determined to be inadequate to meet escapement needs. Thus, effective August 12, subsistence salmon fishing was further reduced to 6-hours per week in Districts 1, 2, and 3, 24-hours per week in Districts 4 and 5, 18-hours per week in Subdistricts 6-A and 6-B (24-hours per week in the Old Minto Area of 6-B) and 36-hours in the Upper Tanana River drainage. The personal use fishery within the Fairbanks Nonsubsistence Area had been closed since July 14 due to the poor return of summer season salmon stocks to the Yukon and Tanana Rivers and stayed closed the remainder of the season based on assessment of the fall chum salmon run. Continued assessment based on average run timing information indicated that the 2000 fall chum salmon return was not large enough to support current subsistence activities. Based on a projection of less than 350,000 fall chum salmon, the 2000 fall season subsistence salmon fishery was closed on August 23.

Assessment of the 2000 fall chum salmon return continued utilizing the Upper Yukon Area fall season monitoring projects, most of which operated until late September or early October. Due to closure of the subsistence fishery, the lower Yukon River set gillnet test fishery was discontinued for the season on August 21. The Pilot Station sonar project typically ends in late August, but in 2000 the project remained in operation until September 14. Pilot Station sonar estimated between 237,239 and 269,687 fall chum salmon passed the site, with a midpoint of 253,512 fish.

Pilot Station only provides an estimate of the number of salmon passing the site during its operational period. An estimate of the total Yukon River run size requires an estimate of the subsistence harvests below Pilot Station. Because the 2000 season began with subsistence restrictions in place, the level of harvest was estimated inseason to be less than average. The corresponding total

run size estimate was applied to the fall chum salmon management plan to determine appropriate management actions. Due to the very poor showing of fall chum salmon, the estimate of the subsistence harvest plus the passage estimate generated by Pilot Station sonar would not have reduced the level of restrictive management actions taken.

Assessment of the fall chum salmon run in the upper Yukon River began with the Kaltag drift gillnet test fishery program (operated by the city of Kaltag). The majority of the Upper Yukon Area projects confirmed a very weak and lower than expected return of fall chum salmon. The Rapids test fish wheels located in the canyon were the exception in that they exhibited extreme efficiency in catching fish that was attributed to the effects of high water during the entire fall season. The Rapids/Rampart fall chum salmon tagging study was terminated just after the average quarter point of the return, consequently only one population estimate was generated. End of season projections, based on population estimates for both Rapids/Rampart (expanded) and upper Tanana River tagging projects, suggested poor run sizes that were below the levels observed in 1998. The fall chum salmon abundance appeared better than anticipated at the Department of Fisheries and Oceans border tagging fish wheels. Larger abundance indications from the border tagging wheels were also believed to be due to high catch rates caused by the record high water levels experienced throughout the season.

Inseason, the run size was determined by utilizing the Pilot Station sonar fall chum salmon estimated passage of 253,512 plus the estimated subsistence harvest (6,719) and commercial harvest (0) taken below Pilot Station sonar site. Based on this method of run reconstruction the estimated total run for 2000 was 260,231 fall chum salmon. Utilizing another method based on estimated escapements and population estimates for portions of the Yukon River drainage plus total estimated harvest, results in a run size estimate of approximately 238,000 fall chum salmon. Either method results in the lowest fall chum salmon run on record.

Yukon River coho salmon have a slightly later, but overlapping, run timing with that of the fall chum salmon run. In managing the coho salmon run, the department follows guidelines adopted in November 1998 by the Board of Fisheries in 5 AAC 05.369. Yukon River Drainage Coho Salmon Management Plan. The coho salmon management plan allows a directed coho salmon commercial fishery only under special and unique situations. It is very unlikely that conditions outlined in the coho salmon management plan will occur in a given year. In most years, fall chum salmon are the primary species of management concern during the fall season. In 2000, no directed commercial coho salmon fishing periods were allowed based on the weakness of the fall chum salmon.

Several strong pulses of coho salmon entered the Yukon River beginning August 10, as detected by the lower Yukon River set gillnet test fishery. Pilot Station sonar estimated a midpoint passage of 97,029 coho salmon by August 21, indicating that the 2000 coho salmon run was above average by this date. However, the strength of the run tapered off during the later portion of the return. The final passage estimate at Pilot Station sonar was approximately 183,000 coho salmon, suggesting that the early strength in the coho salmon resulted in an average run size with slightly early run timing.

Based on average to above average coho run assessment, subsistence harvest of coho salmon was allowed in certain portions of the drainage. Effective August 27, subsistence harvest utilizing a line attached to a rod or pole and beach seines in tributaries was allowed in the Yukon Area downstream of the lower mouth of Paimiut Slough. Furthermore, on September 2, fish wheels equipped with a "live chute" were allowed for harvesting coho salmon 12-hours per day seven days a week in District 4 and Subdistrict 5-A. All fall chum salmon caught were to be returned to the water alive. Additionally, on September 16, the use of "live chutes" for subsistence harvest of coho salmon was extended to include Subdistricts 6-A and 6-B. Subdistricts 6-A and 6-B (excluding the Old Minto

Area) were open for two 12-hour and two 9-hour subsistence periods per week. The Old Minto Area was open for 12-hours a day five days per week and the Kantishna River was open 12-hours a day seven days per week.

On September 16, Districts 1, 2, and 3 were reopened to their normal subsistence salmon fishing schedule after the majority of the salmon were anticipated to have passed through these districts. Similarly, District 4 was reopened on September 27, Subdistricts 5-B, 5-C, and 5-D were reopened on October 1 and Subdistrict 5-A, and District 6 were reopened to their normal subsistence fishing schedules on October 9.

There was no commercial harvests of either fall chum or coho salmon in the Yukon Area in 2000. This was the fourth season since 1987 that no commercial sales have taken place during the fall season (1987, 1993, and 1998). The Yukon Area recent commercial 5-year average harvest is 93,449 fall chum salmon and 27,983 coho salmon. The recent 5-year average (1995- 1999) exvessel value of the Yukon Area fall chum and coho salmon is approximately \$172,540 (Appendix A.12).

Canadian Fisheries 2000

Much of this summary of the fisheries in the Canadian portion of the Yukon River drainage was obtained from material provided by DFO (JTC 2000).

A total of 4,879 chinook, 9,236 fall chum, and 37 coho salmon were estimated to have been harvested by Aboriginal, domestic, sport, and commercial fisheries in the Canadian portion of the Yukon River drainage in 2000 (Table 2). The combined harvest in the Canadian mainstem Yukon River fisheries included 4,829 chinook and 4,236 fall chum salmon. The harvest at Old Crow in the Porcupine River drainage was 50 chinook, 5,000 fall chum, and 37 coho salmon.

Commercial Fishery

A total of only 0 chinook salmon, 1,319 chum salmon and 0 coho salmon were harvested in the Canadian Yukon River commercial fishery in 2000 (Table 2). The combined species catch was 95% below the previous five-year average commercial harvest of 27,852 salmon. As in 1998 and 1999, the poor catch was the result of below average run sizes of upper Yukon River chinook and chum salmon. A total of 20 commercial licenses was issued in 2000, the same as in 1999.

Chinook Salmon

The 2000 preseason expectation for Canadian-origin mainstem Yukon River chinook salmon was for a total run of 91,000 to 128,000 fish. A run size in this range would be weak-to-average in magnitude when compared to the previous cycle average of 123,000 fish (1994-1999). The outlook was expressed as a range due to the uncertainty associated with marine survival of the fish that spawned between 1992 to 1997. The potential for reduced marine survival was made apparent by the poor returns of upper Yukon chinook salmon in 1998 and 1999, which were significantly lower than expected.

The elements of the chinook salmon management plan for 2000 included:

- i) a minimum escapement goal of 28,000 chinook salmon. This goal was the same as that agreed to by the Yukon River Panel in the spring of 1996 which was to be in effect through 2001;
- ii) reasonable access to the salmon resources would be allowed within the bounds of conservation and the priority afforded to the aboriginal fishery;
- iii) based on the preseason forecast and accounting for the priorities of conservation and the needs of the aboriginal fishery, it was expected that the commercial harvest would fall within a range of 0 to 8,000 chinook salmon; and
- iv) Subject to there being no conservation concerns, an initial fishery opening of 48 hours was scheduled to occur on the fifth day after the run was deemed to have commenced. The beginning date of the run was to be determined by an increasing trend in the Fisheries and Oceans Canada fish wheel catches. The first fishing period was to be followed with a 4-day closure. Additional openings would occur thereafter on a weekly basis depending upon the status of the run. The '4-2-4' season opening schedule for the commercial fishery, i.e. 4 days closed - 2 days open - 4 days closed, was first adopted in 1998.

Well before chinook salmon had entered the Canadian section of the upper Yukon River, sufficient conservation concerns had already arisen to abandon the opening schedule proposed in the fishing plan. Alaskan test fishing, sonar and catch indices all indicated a run size far below normal and perhaps worse than 1998 and 1999. Run size indices that were lower than these years were particularly troubling since the returns to the Canadian section of the drainage were record low: 22,600 chinook salmon border escapement in 1998; 23,600 chinook salmon in 1999. As a result, through consultation with the Yukon Salmon Committee (YSC), the opening of the Canadian commercial fishery was postponed until sufficient assessment data became available in Canada to justify an opening. This decision was made following precautionary principles and despite the fact that there had already been very limited commercial openings in Alaska.

The postponement of the opening of the commercial fishery created the need to implement a test fishery to provide stock assessment data for inseason run forecasting. The test fishery operated similar to that of 1998 involving both First Nation and commercial fishers working together in teams under the direction of the Tron'dek Hewechin First Nation and the Yukon River Commercial Fishing Association with funding from the Yukon Restoration and Enhancement Fund. The objective of the test fishery was to collect timely catch and tag recovery data that could be used in developing reliable inseason run forecasts. Without the tagging data, there would be little else upon which to rely for inseason run assessment. The option of just using the DFO fish wheel catch was not exercised because of the poor historical relationship between catch and run size. In addition, unusually persistent high water conditions raised doubts regarding the comparability of catches this year with other years. In retrospect, had the fish wheel catches been used as a measure of run abundance, the forecasts would have overestimated the run size.

Although the catches in the DFO fish wheels were well above average throughout the season, the run forecasts indicated poor abundance ranging from a border escapement of 13,300 to 27,200 salmon in the third week of July to 20,400 chinook in the second week of August. In the test fishery, the numbers of tagged fish in the catch were much higher than normal indicating that a

higher proportion of the run was being tagged this year compared to previous years. For example, on average approximately 9% of the fish captured in the test fishery were tagged; whereas in previous years, the proportion tagged in the Dawson area catch is usually less than 4%. It is likely that high water conditions contributed to higher tagging rates observed in 2000.

With the run forecasts being well below what was required for spawning requirements and the needs of the First Nation fishery, the commercial fishery remained closed for the entire chinook season, the first time in history.

Fall Chum Salmon

Similar to the chinook run outlook, there was much uncertainty surrounding the 2000 preseason expectations for Canadian-origin upper Yukon chum salmon. Spawning escapements in 1995 and 1996, the primary brood years contributing to the 2000 run, were 158,100 and 122,400, respectively, the highest on record and well above the rebuilding target of >80,000 chum salmon. However, the run in 1999 which was also the product of excellent spawning escapements, was well below average. Low returns in 1999 and also in 1998 appeared to have been significantly impacted by poor marine survival. It was surmised that this again could result in a depressed run in 2000. To capture this uncertainty, the total run outlook was expressed as a range from 107,000 (below average), to 334,000 (above average) upper Yukon chum salmon.

The Canadian chum salmon management plan for 2000 was developed with the following components:

- i) A spawning escapement goal of >80,000 upper Yukon chum salmon which was consistent with the rebuilding objective adopted by Canada and the U.S. in the course of Yukon River salmon negotiations;
- ii) reasonable access to the salmon resources would be allowed within the bounds of conservation and the priority afforded to the aboriginal fishery, and;
- iii) given the uncertainty regarding the preseason run outlook, and accounting for the priorities of conservation and the needs of the Aboriginal fishery, it was suggested that the allowable catch remaining for commercial fishers would be in the range of 0 to 148,000 fish. However, the plan was explicit in stating that the potential existed for severely restricted fisheries.

Heading into the chum salmon season, most of the run assessments in Alaska, particularly the Pilot Station sonar estimate, had indicated low fall chum salmon abundance. This prompted the decision by Canadian managers to continue the commercial fishery closure until sufficient run assessment data could be compiled in Canada to rationalize opening the fishery. Again, as occurred during the chinook season, the capability to obtain tag recovery data for use in mark-recapture estimates was hampered by the absence of the commercial fishery, which is the source of this data in most years. However, unlike chinook salmon, there has been a statistically significant relationship between the DFO fish wheel catches of chum salmon and border escapement estimates ($r^2 = 0.74$, $n=15$). Because of this, it was decided that the fish wheels would serve as the primary run strength index until tagging data became available.

The combined daily catches in the DFO fish wheels were below average through September 2, however they increased dramatically to above average values after that time. Run forecasts,

based on the projected fish wheel catch for 2000 (current catch expanded by run timing scenarios) and the linear regression of historical catches and corresponding border escapement estimates, showed a steady increase from a range of 87,000 to 107,000 on September 5, to a forecast range of 112,000 to 132,000 on September 10. By September 10, the cumulative fish wheel catch was 54% above the previous 10-year average. It was acknowledged that the high water conditions which had continued to persist into the chum salmon season, would likely increase the efficiency of the fish wheels and therefore cause them to overestimate abundance; however, it was not known by how much. To help quantify this and in light of the forecast range being well above levels that justified a limited fishery, the commercial fishery was opened for one, 24-hour period commencing noon, September 15.

A total of seven fishers participated in the opening, catching a total of 1,319 chum salmon, of which 55 fish were tagged (DFO tags). The CPUE for this opening 188 chum/fisher/day was 8% below the 1990-1999 average for this week. The run forecast, derived from tag recapture data collected during this opening augmented with limited data from the Aboriginal fishery, suggested a run size of 79,500 (border escapement). This estimate was approximately 29% below the September 10 forecast of 112,000 based solely on fish wheel catch data. (Note: both estimates used timing data extracted from the Pilot Station count in 2000; whereas, the upper range of the September 10 projection, i.e. 132,000 was derived from historical average fish wheel timing).

As a result of the decreased run forecast, no further openings in the commercial fishery were scheduled. Forecasts were updated with additional tag recovery data provided from the Aboriginal fishery, however they progressively decreased to the final inseason forecast, produced October 10, of 69,500 chum salmon.

The total commercial chum catch of 1,319 fish was 93% below the previous 10-year average (Table 2). For comparison, the previous 10-year average commercial catch was 19,287 chum (1990 to 1999); during this period the catch ranged from 0 chum in 1998 to 39,012 chum in 1995. Most of the chum salmon caught by commercial fishers in 2000 went towards meeting personal requirements and was not sold. With only one day of fishing, total effort was down significantly in 2000: 7 boat-days of effort compared to the 1990-1999 average of 123 boat-days.

Canadian Aboriginal, Domestic and Sport Fisheries

The fifth year of a multi-year comprehensive survey of the Aboriginal fishery was conducted in 2000 as part of the implementation of the Yukon Comprehensive Land Claim Umbrella Final Agreement. The project entitled: *The Yukon River Drainage Basin Harvest Study*, is being conducted by LGL Ltd. Environmental Research Associates, and primarily involves intensive inseason surveys of catch and effort in the fishery throughout the upper Yukon drainage, excluding the Porcupine drainage. Catch estimates from the Porcupine River in the Old Crow area are determined independently from locally conducted, post season interviews.

The estimate of the 2000 total upper Yukon chinook salmon catch in the Aboriginal fishery is 4,068 fish (SD = 206), 45% below the 1990-1999 10-year average of 7,491 chinook and 56% below the final estimate of 8,804 (SD = 489) chinook in 1999. The final estimate does not include 761 chinook caught in an Aboriginal test fishery. The total fishing effort during the chinook season, i.e. through the end of August, was 18,186 net-hours, 36% below the 1996-1999 average of 28,250 net-hours. The reduction in effort is the result of voluntary cutbacks in fishing

activity undertaken by most Yukon First Nations in 2000. The cutbacks followed an appeal from the YSC on July 14, urging reductions in fishing time to no more than two days per week.

The estimate of the 2000 harvest of upper Yukon chum salmon in the Aboriginal fishery is 2,917 fish (SD = 352). This estimate is 14% above the 1990-1999 average of 2,500 chum salmon. The estimate of total fishing effort during the chum season was 1,786 net-hours, approximately 67% below the 1996-1999 average.

Harvest data for 2000 from the Vuntut Gwitchin First Nation fishery near Old Crow on the Porcupine River was comprised of 50 chinook, 5,000 chum, and 37 coho salmon. The 1990-1999 average catch in this fishery was 297 chinook, 3,721 chum and 296 coho salmon.

The domestic fishery was closed for the entire season due to conservation concerns.

In 1999, a mandatory Yukon Salmon Conservation Catch Card was introduced by the Yukon Salmon Committee in an attempt to improve harvest estimates and to serve as a statistical base to ascertain the importance of salmon to the Yukon sport fishery. Anglers are required to report their catch via mail by the late fall. Information requested includes: the number, sex, size, date and location of salmon caught and released. In 2000, the estimated chinook salmon catch was zero based on the catch card returns. Primarily in response to conservation concerns, effective midnight July 17, the daily catch and possession limit for salmon (i.e. including both chinook and chum salmon) in the upper Yukon River drainage, was reduced to zero. Since the timing of this closure was prior to the time when most sport fishing activity for salmon normally occurs, it is expected the catch was very low.

Escapement 2000

A very comprehensive Yukon River salmon run assessment and escapement monitoring program was again realized in 2000. This was made possible by fiscal and personnel assistance from several agencies and organizations. Comprehensive escapement assessment projects funded and operated by ADF&G in 2000 included monitoring chum salmon escapements to the Anvik and Sheenjek Rivers using hydroacoustic techniques. Intensive ground surveys and stream life data were used to estimate abundance of chum salmon spawners in the Toklat and Delta Rivers, and counting platforms were used by the Division Sport Fish to monitor timing and abundance of both chinook and chum spawners in the Chena and Chatanika Rivers. Division of Sport Fish also conducted a boat survey of the Delta Clearwater River (DCR) during peak coho salmon spawning. The department operated the Yukon River sonar project at Pilot Station to provide daily estimates of salmon passage by species (Appendix E.3), as well as conduct a sixth-year, mark-recapture study in the upper Tanana River through cooperative agreement with BSFA. As a result of the disastrous salmon runs to Western Alaska in 1997 and 1998, the Tanana River tagging study was expanded in 1999 and continued in 2000 with federal disaster-relief funding to include the Kantishna River fall chum salmon run component. The major objective of this study was to estimate total abundance of fall chum salmon bound for the Kantishna and upper Tanana Rivers.

Projects funded and operated by USFWS to monitor salmon escapement in 2000 included weir operations on the East Fork Andreafsky River, Gisasa River, and Henshaw Creek as well as a hydroacoustic project on the Chandalar River. While the East Fork Andreafsky weir was operated to monitor summer chum and chinook salmon escapements, duration of the project was extended a

sixth year with assistance from BSFA to provide information on timing and abundance of coho salmon. Henshaw Creek weir provided escapement estimates for chinook and summer chum salmon. The Gisasa River weir provided comprehensive escapement information on summer chum and chinook salmon, while the 2000 Chandalar River operation consisted of using split-beam sonar techniques to monitor fall chum salmon escapements to that river.

Additional escapement assessment projects in the Alaskan portion of the Yukon River drainage, either jointly or entirely funded and operated by other organizations in 2000, included counting tower operations on the Nulato River, Salcha River, Kaltag Creek, Clear Creek, and a weir operation on Beaver Creek. The Nulato River tower project was cooperatively operated by ADF&G and the Nulato Tribal Council (NTC), with funding provided by BSFA. BSFA, in cooperation with TCC and BLM, also operated a counting tower on Clear Creek, a tributary of the Hogatza River in the Koyukuk River drainage, while TCC attempted a tower operation on Henshaw Creek with funding from USFWS. The Kaltag Creek project was operated by the Alaska Cooperative Extension 4-H program with partial funding from BSFA. BSFA also operated a counting tower on the Salcha River to estimate chinook and summer chum salmon spawning escapements.

Projects conducted by the Canadian DFO in 2000 included a mark-recapture project near Dawson to estimate the total number of mainstem Yukon River chinook and chum salmon passing the US/Canada border into Yukon Territory. Site specific studies included manning an enumeration window and passage gate at Whitehorse to monitor chinook salmon escapement upstream of Whitehorse as well as installing weirs in Wolf Creek (to determine the portion of chinook salmon passing the Whitehorse fishway bound for that stream), Blind Creek (Ross River), and Tatchun Creek. Additionally, DFO operated a weir on the Fishing Branch River to count chum salmon escapement.

In addition to the above projects, the fourth year of a multi-year, interagency chum salmon mark-recapture study was conducted near Rampart to evaluate the distribution, abundance, and run characteristics of upper Yukon River fall chum salmon, with USFWS as the lead agency. Furthermore, in 2000 a chinook salmon radio telemetry program was initiated in the Yukon River basin by ADF&G and NMFS to provide information on run characteristics including stock composition, run timing and migration patterns. The primary objectives during 2000 were to develop effective fish capture techniques and refine radio-tracking methods in the lower Yukon River mainstem. The USFWS, BLM, DFO Canada, and BSFA also provided support for the study.

Remaining escapement information throughout the Yukon River drainage in 2000 was obtained primarily by aerial surveillance, although occasional ground surveys were also conducted. This included aerial and ground surveys funded by BSFA and conducted by TCC in portions of the Nenana River drainage to increase knowledge on chum and coho salmon escapements to that area.

Survey conditions in 2000 were considered poor in the Alaskan portion of the drainage during the chinook and summer chum salmon survey season from mid-July through August. This was due primarily to prevailing rainfall causing high, turbid water conditions. Survey conditions during the fall chum and coho salmon survey period of late September through November were good. Acceptable aerial survey conditions were realized on selected fall chum and coho salmon spawning areas both in the lower Nenana River and the upper Tanana River. In the Canadian portion of the drainage, DFO was successful in surveying most major chinook and fall chum salmon index streams in Yukon Territory.

Escapement estimates obtained in 2000 are shown in Appendix E.2 while Appendix E.10 through E.14 show major Yukon River tributary systems.

Chinook Salmon

Chinook salmon spawning stocks are widely distributed throughout the Yukon River drainage. Appendices E.4 and E.5 present historic chinook salmon escapement data for selected streams during the period 1961-2000. Chinook salmon escapement goals established by ADF&G for eight Alaskan streams, or index areas, are: East (>1,500) and West Fork (>1,400) Andreafsky, Anvik (>1,300 entire drainage or >500 Yellow River to McDonald Creek), North (>800) and South Fork (>500) Nulato, Gisasa (>600), Chena (>1,700), and Salcha (>2,500) Rivers. These escapement goals are based upon aerial survey index counts and do not represent total escapement. It should be understood that caution must be used when comparing aerial survey results between years because of the variability inherent to this methodology. In addition, there is a rebuilding step escapement goal of 28,000 chinook salmon for the Canadian mainstem Yukon River.²

Chinook salmon harvests are apportioned to region of origin using a combination of scale pattern analysis, age class composition similarity and geographic location of the harvest. Stock identification studies indicate that approximately 52% of the Alaskan chinook salmon harvest is spawned in Canada. Efforts to increase escapements to the Canadian mainstem Yukon River have resulted in larger spawning escapements, averaging 25,000 fish from 1982 through 1997. However, during poor runs in recent years, the chinook salmon runs spawning escapements have decreased significantly. The average for the previous 3 years (1998-2000) is 13,500 chinook salmon in the Canadian mainstem Yukon River.

Yukon River chinook salmon abundance in 2000 was assessed as very poor and the weakest run since statehood based on commercial harvest data, escapement counts, and estimates from selected tributaries. Production from the 1994 and 1995 parent year appears to have been especially poor given the unexpectedly weak return of five and six year-old chinook salmon in 2000. Ground-based chinook salmon escapement counts and estimates from five projects in 2000 were 90% below the recent five year average. Successful aerial survey observations were made in five of the eight Yukon River tributaries with established biological escapement goals (BEGs). Minimum aerial survey escapement goals were achieved in two of these surveyed tributaries, the Anvik and Salcha rivers. Minimum aerial survey escapement goals have been established in the East and West Fork Andreafsky, Anvik, North and South Fork Nulato, Gisasa, Chena and Salcha Rivers within the Alaska portion of the Yukon River.

The chinook salmon escapement into the Andreafsky River was well below desired escapement levels. Acceptable surveys were completed on both the East and West Fork Andreafsky Rivers. The aerial survey count on the East Fork Andreafsky was 1,018 chinook salmon. This is two-thirds the aerial survey goal and roughly half the recent ten year average of acceptable surveys. There were 427 chinook salmon counted on the West Fork Andreafsky, roughly one-third the

² Although no escapement goals have been established for individual Canadian streams, an interim escapement goal of 33,000 to 43,000 chinook salmon spawners for the mainstem upper Yukon River drainage (Yukon Territory) was established by the JTC in March 1987. However, the Yukon River Panel established a minimum rebuilding step escapement goal of 28,000 chinook salmon in April 1996. This goal, established for the period 1996 to 2001, replaced the 1990 to 1995 stabilization goal of >18,000 chinook salmon. Although the Panel ceased to exist in March 1998, the rebuilding step escapement goal was maintained for the 1998, 1999, and 2000 seasons.

escapement goal and 70% below the recent 10-year average of acceptable surveys. The USFWS weir count of 1,358 chinook salmon for the East Fork Andreafsky River was 65% below the five year average weir count of 3,868. Age and sex composition samples were collected in 2000 from fish passing through the East Fork Andreafsky River weir. The estimated age composition was 13% age-4, 49% age-5, and 38% age-6 fish. Females dominated the escapement samples, accounting for 54% of the total number sampled.

An aerial survey of the Anvik River conducted under good conditions resulted in a count of 1,394 chinook salmon within the escapement index area. This count nearly tripled the minimum escapement goal of 500. Age and sex composition samples were collected in 2000 by carcass survey. Six-year-old chinook salmon dominated the samples, comprising 53% of the total with four and five year old fish (5% and 42%, respectively) comprising the remainder. Males were more numerous than females, accounting for 59% of the samples collected.

Minimum aerial survey index escapement goals are 800 chinook salmon for the North Fork and 500 for the South Fork Nulato River. No aerial surveys were possible in 2000 because of inclement weather. An estimate of chinook salmon escapement was provided from a salmon counting-tower project operated by the Nulato Tribal Council, Bering Sea Fishermen's Association (BSFA) and ADF&G, located below the forks on the mainstem Nulato River. The preliminary tower count of 908 chinook salmon was 70% below the recent 5-year average of 2,080 fish. Age, sex and length information was not collected in 2000.

The minimum aerial survey escapement goal for the Gisasa River is 600 chinook salmon. No aerial surveys were possible in 2000 because of inclement weather. The USFWS estimated a total of 2,089 chinook salmon migrated through the Gisasa River weir, which was 29% below the 1995-1999 average of 2,945. The weir was operated between June 28 and August 7. High river flow prevented an earlier deployment of the weir. The first chinook salmon was counted on July 6. Between July 14 and 24, 61% of the chinook escapement passed through the weir. Age and sex composition samples were collected in 2000. The estimated age composition was 7% age-4, 51% age-5, and 40% age-6 fish. Males dominated the escapement samples, accounting for 66% of the total sample.

A weir was operated on Henshaw Creek between July 8 and August 13. This was the first of a multi-year monitoring effort using a weir to estimate escapement in this river. Previously, a counting tower, located near the mouth, was used in 1999 and aerial surveys were conducted intermittently since 1960. High river flows prevented earlier deployment of the weir. Also, there were eight days (non-consecutive) when high river flows prevented fish counts. The escapement through the weir was estimated at 194 chinook. The first chinook salmon was counted on July 10 and the last on August 5. Most of the chinook run (82%) was believed to have passed through the weir between July 12 and 22. Although age and sex information was collected, the sample size was small and not representative of the escapement. No aerial survey was completed on Henshaw Creek because of turbid water conditions.

Aerial surveys were flown on selected Koyukuk River tributaries. Aerial surveys flown under fair conditions observed 74 chinook salmon in the South Fork Koyukuk River and 79 chinook salmon in the Jim River.

Since 1993, inseason assessment of chinook salmon escapement to the Tanana River drainage has been primarily based on counts of chinook salmon passing the Chena and Salcha River tower sites. Sport Fish Division of ADF&G operated these projects. In 2000, a private contractor monitored salmon escapement to the Salcha River with funding from BSFA. High, turbid water hampered the operations on the Salcha River for short intervals during the 2000 season. Because

of turbid conditions throughout the season on the Chena River, a mark-recapture study was conducted. The preliminary mark-recapture tagging estimate for the Chena River was 4,707 chinook salmon, which was 43% lower than the recent 5-year escapement average of 8,227 fish. The preliminary tower count estimate for Salcha River was 3,108 chinook salmon, which was 71% below the recent 5-year average of 10,844 fish. The minimum aerial survey escapement goals for the Chena River and Salcha River index areas are 1,700 and 2,500 chinook salmon, respectively. Incomplete aerial survey counts on both rivers resulted in counts of 934 chinook salmon for the Chena River index area and 2,478 chinook salmon for the Salcha River index area. Because the survey on the Salcha River was incomplete and the count very near the goal, the aerial survey escapement goal was most likely met. Age and sex composition samples were collected in 2000 from carcass surveys on the Salcha River and from both electro-fishing and carcass sampling activities on the Chena River. However, there were not enough samples from the Salcha River for a quality age composition estimate. The combined age composition estimated from all samples collected in the Chena River was 20% age-4, 36% age-5, 36% age-6 and 8% age-7 fish. Females accounted for 35% of the samples.

In 2000, the U.S. Department of the Interior, Bureau of Land Management (BLM) operated a weir on Beaver Creek; 114 chinook salmon were counted passing through the weir. This is 46% below the project's average (1996, 1997 and 1999) of 211.

The mark-recapture estimate of the total spawning escapement for the Canadian portion of the upper Yukon drainage is 12,166 chinook salmon, 46% of the 1990-1999 average of 26,453 chinook.

Aerial surveys were conducted by DFO of index areas on the Little Salmon, Big Salmon, Wolf and Nisutlin rivers, one survey per index area. The Tincup Creek survey was not flown, however there is information available from a ground survey. Survey results relative to the previous cycle averages are presented below. Index surveys are rated according to counting conditions. Potential ratings include excellent, good, fair and poor. Surveys with ratings other than poor are considered useful for inter-annual comparisons.

The Little Salmon aerial survey was flown on August 18. The survey was rated as poor-fair. One surveyor participated in the survey and 46 chinook salmon were counted. Due to the low initial count a three-kilometer section of the river above and below the confluence of Bearfeed Creek was resurveyed. The second survey confirmed the low number of spawning fish. This area typically has the highest concentration of spawning chinook salmon. The 2000 count was 7.4% of the recent average (1990-1999) of 621. A total of 19 chinook salmon were counted during the ground surveys of Tincup Creek. This count is 19.6% of the average aerial survey count of 97 for the 1990 to 1999. The Big Salmon, Nisutlin, and Wolf river index areas were flown on August 23. As in 1999, good-excellent viewing conditions were encountered, although water levels were slightly higher than normal. A total of 113 chinook salmon was enumerated in the Big Salmon River index area, 9.5% of the recent average of 1,190. The Nisutlin River index count of 20 chinook salmon was only 5.3% of the recent cycle average of 374. In the Wolf River index area, a high count of 32 chinook salmon was observed; this count was 12.7% of the cycle average of 251. Timing of the aerial surveys of the Big Salmon, Nisutlin and Wolf Rivers appeared to be slightly later than peak spawning. Abandoned redds were observed in all index areas and many unused redds were also observed.

Single aerial surveys do not count the entire escapement since runs are usually protracted with early spawners disappearing before the late ones arrive. Weather and water conditions, spawner density, as well as observer experience and bias also affect accuracy. The low number of

spawners observed in 2000 was alarming to the surveyors. The counts appeared inconsistent with what was expected based on previous surveys and the anticipated escapement based on the mark-recapture estimate. There was an option to conduct a second survey of some or all of the index areas, however this was deemed unnecessary because the trend was the same for all index areas and there was no indication that the fish were late or that spawning in 2000 was atypical.

The Whitehorse Rapids Fishway chinook salmon count of 677 fish, provided by the Yukon Fish and Game Association, was 46% of the recent average (1990-99) of 1,472. The sex composition observed at the fishway was 56% female. The quality of escapement in the current year is a substantive improvement over many recent years, which had a low number of female chinook and a high proportion of small males.

The Ross River Dena Council conducted the Blind Creek weir project but no fish were counted at the weir in 2000 due to operational problems associated with the project. A total of 892 chinook salmon were counted between August 1 and August 22 in 1999. Counts for the two other years of weir operation were 957 and 373 for 1997 and 1998, respectively.

For the fourth consecutive year, Quixote Consulting installed a weir on Tatchun Creek. Enumeration commenced on August 2 and terminated on August 24, when the weir was damaged due to high water conditions. A total of 241 chinook salmon was observed. Previous weir counts were 250 in 1999, 405 in 1998 and 1,198 in 1997.

The Yukon Commercial Fishers Association installed a weir on the Chandindu River for the third year in a row. The weir was operated from August 16 to September 15. The weir was installed later than planned due to extremely high water conditions. A total of 4 chinook salmon and 21 chum salmon were counted. Previous counts were 239 chinook and 92 chum salmon in 1999 and 132 chinook salmon and 23 chum salmon in 1998.

Additional aerial or ground surveys for chinook salmon enumeration were conducted on streams which have not been subject to long term, consistent monitoring. These surveys were conducted by Yukon First Nations through the DFO Aboriginal Fisheries Strategy, consulting firms or by private individuals. Ground surveys included Tincup and Flat creeks. The Teslin Tlingit Council conducted aerial surveys of the Jennings, Gladys, Swift and Morley rivers on August 28; totals of six, four, two and four chinook salmon were counted, respectively. Late survey timing and difficult survey conditions may have contributed to these low counts.

Summer Chum Salmon

Summer chum salmon spawn primarily in tributaries from the mouth of the Yukon River to the Tanana River drainage. Appendix E.6 presents historic summer chum salmon escapement data for selected streams during the period 1973-2000. Escapement goals have been established for the following streams: East (>109,000) and West Fork (>116,000) Andreafsky (>500,000), Anvik (>500,000), North Fork Nulato (>53,000), Hogatza (Clear Creek at >8,000 and Caribou Creek at >9,000) and Salcha (>3,500) Rivers. With the exception of the Anvik River escapement goal, which is a total assessment based on sonar, all other escapement goals are based upon aerial survey indices of abundance during periods of peak spawning.

From 1991 through 1997, escapements in the Anvik River, the largest single producer of summer chum salmon in the Yukon River drainage, were above the escapement goal (Appendix E.6).

However, spawning escapements to other Yukon River tributaries during this same period of time, based on limited aerial survey information, appeared to have been below desired levels in 1993. In general, escapement objectives were met in the majority of the drainage from 1994 through 1996. However, severe flooding in August 1994, particularly in the Koyukuk River drainage, and the lack of snowfall during the winter of 1995-1996 may have affected production from the 1994 and 1995 parent years. Spawning escapement goals were generally not achieved in 2000.

Post-season analysis of escapement data indicates the 2000 summer chum salmon run was very weak. Spawning escapements to selected tributaries were similar to, or below those observed in 1998 and 1999, and well below most other years for each project. No escapements in monitored tributaries met minimum goals or were considered adequate with the possible exception of Salcha River. Most likely, Salcha River's escapement goal was achieved when compared to previous tower and aerial survey escapement estimates. Otherwise, summer chum salmon escapement counts and estimates for 2000 ranged from 44% to 84% below recent 5-year averages. Aerial surveys were hampered by poor weather conditions in most of the drainage.

Minimum aerial survey-based escapement goals for summer chum salmon have been established for the East and West Fork Andreafsky River, North Fork Nulato River, Clear and Caribou creeks of the Hogatza-Koyukuk River drainage, and the Salcha River. Because these minimum escapement goals are based on aerial survey index counts, they do not represent the total escapement to the spawning tributary. The escapement goal for summer chum salmon in the Anvik River is based on a spawner-recruit analysis of total escapement estimates and sonar counts attributed to summer chum salmon escapement.

The preliminary Anvik River sonar-based escapement count of 205,460 summer chum salmon was approximately 59% below the minimum escapement goal of 500,000 and the lowest since sonar project began in 1979. The run was much weaker than expected. The 2000 run were fish produced from parent-year escapements of 1,339,418 in 1995 and 933,240 in 1996. Age and sex composition samples were collected from beach seine catches in 2000. The age composition of those samples was 1% age 3, 74% age-4, 23% age-5, and 2% age-6 fish. Females comprised 63% of the sample.

Weir projects were operated by USFWS on the East Fork Andreafsky and Gisasa Rivers, and Henshaw Creek. A preliminary count of 23,349 summer chum salmon passed through the weir on the East Fork Andreafsky River. This count was 73% below the recent 5-year average of 86,311 fish. The summer chum salmon minimum aerial survey escapement goals for the East and West Fork Andreafsky Rivers are 109,000 and 116,000 fish, respectively. Aerial surveys were conducted on the Andreafsky River for summer chum salmon in 2000. However, because of poor weather conditions, the surveys were not conducted during peak spawning activity for chum salmon. Therefore, these results are not useable. The age composition of samples collected at the East Fork Andreafsky weir was 59% age-4, 38% age-5, and 3% age-6 fish. Females made up 48% of the total number sampled.

A weir was operated on the Gisasa River between June 28 and August 7. High river flows prevented earlier deployment of the weir. The estimated escapement by the weir site was 14,410 chum salmon. The 2000 summer chum salmon run into the Gisasa River was 80% below the 1995-1999 average run of 70,885 fish. Chum salmon were counted the first day the weir was in operation; an unknown portion probably passed the weir site before the weir was operational. During the 16-day period between July 5 and 20, 73% of the run passed through the weir. Age and sex composition samples were collected in 2000. The age composition of those samples was 36% age-4, 61% age-5, and 3% age-6 fish. Females made up 50% of the total number sampled.

A weir was operated on Henshaw Creek between July 8 and August 13. This was the first of a multi-year monitoring effort using a weir to estimate salmon escapement into this river. Previously, a counting tower located near the mouth was used in 1999 and aerial surveys have been conducted intermittently since 1960. High river flows prevented earlier deployment of the weir. Also, there were eight days (non-consecutive) when high river flows prevented fish counts. The escapement through the weir was estimated at 24,406 chum salmon. Chum salmon were counted the first day the weir was in operation; an unknown proportion of the run probably passed the weir site before the weir was operational. During the 10-day period between July 17 and 26, 65% of the run passed through the weir. Age composition of fish sampled at the Henshaw Creek weir was 1% age-3, 58% age-4 and 41% age-5 fish. The sex ratio using weir data was 57% female fish.

Although aerial surveys were conducted throughout the drainage in 2000, chum salmon were typically past peak spawning and any recorded aerial survey counts are not accurate indices of the escapement.

Counting-tower projects were operated on Kaltag Creek, Nulato River, Clear Creek, and Chena and Salcha rivers. The Kaltag Creek tower project was operated by the City of Kaltag and funded by the Alaska Cooperative 4-H Extension Service and BSFA. The Nulato Tribal Council and ADF&G jointly operated the Nulato River tower project, with partial funding provided by BSFA. USFWS and Tanana Chiefs Conference (TCC) operated a counting tower on Clear Creek, a tributary of the Hogatza River within the Koyukuk River drainage. The Salcha River tower project was subcontracted by BSFA, with support from ADF&G.

The estimated summer chum salmon escapement into Kaltag Creek in 2000 was 6,727 fish, which was 82% below the recent 5-year-average escapement of 37,979 fish but 27% more than the 1998 passage of 5,300 fish. While no escapement goal has been established for Kaltag Creek, this escapement was considered very poor.

The estimated summer chum salmon escapement into the Nulato River (both forks combined) was 24,308 fish, which was 80% below the recent 5-year-average of 120,755 fish. Based on this tower count, the aerial escapement goal of 53,000 summer chum salmon was not met. An aerial survey of the Nulato River targeting summer chum salmon was not conducted because of poor weather conditions. Age and sex composition samples were not collected in 2000.

Within the Hogatza River drainage, 18,698 summer chum salmon were counted as they passed the Clear Creek tower project site. This escapement estimate was 75% below the recent 4-year (1995-1999, excluding 1998) average escapement of 76,350 fish but 65% above the previous lowest value of 11,300 fish in 1999. While no tower-based escapement goal has been established for Clear Creek, the aerial escapement goal is a minimum of 8,000 summer chum salmon. Therefore, it is likely that the escapement goal was not met. No aerial surveys were flown because of poor weather conditions. Age and sex composition on Clear Creek was 21% age-4, 77% age-5 and 2% age-6 fish. Females accounted for 44% of the sampled fish.

High, turbid water periodically hampered visibility and hampered tower-counting operations on the Chena and Salcha Rivers during the 2000 season. The Chena River tower count was 3,515 summer chum salmon, which was 57% below the recent 5-year (1995-1999) average count of 8,167 fish. The Salcha River tower count of 20,516 summer chum salmon was 44% below the recent 5-year (1995-1999) average of 36,372 fish. Aerial surveys were attempted but were incomplete because of poor weather conditions. Chum salmon carcasses were unavailable for age and sex composition samples in 2000 from either river because of high water conditions.

In 2000, BLM operated a weir on Beaver Creek. Only 12 chum salmon were counted past the weir. No age and sex samples were collected.

Fall Chum Salmon

Major fall chum salmon spawning areas within the Yukon River drainage are located in the Chandalar, Tanana, and Porcupine River drainages and within the Canadian portion of the mainstem Yukon River drainage. Appendix E.7 presents historic fall chum salmon escapement data for selected streams since the early 1970s. Minimum escapement goals of total spawning abundance have been established for four fall chum salmon streams as follows: 11,000 for the Delta River, 33,000 for the Toklat River, 64,000 for the Sheenjek River, and 50,000 for the Fishing Branch River in Canada. Additionally, annual estimates of border passage and subsequent spawning escapement also exist for Canadian fall chum stocks in the upper mainstem Yukon River. The minimum escapement goal for those stocks is 80,000 fall chum salmon (border passage less harvest).³

In general, the 2000 fall chum salmon run could be characterized as having strong components in the early portions and weakness throughout the remainder of the run. Overall run timing of both fall chum and coho salmon was judged to be approximately six days earlier than average and was largely a function of the strength early in the run. The inseason sonar passage estimate at Pilot Station was $253,512 \pm 16,238$ (90% C.I.) fall chum salmon for the 58-day period of July 19 through 14 September.

In 2000, Pilot Station sonar operated later than in prior years in order to collect a complete season of coho salmon run abundance information as well as monitor the end of the fall chum salmon run. Typically the project ends August 31 however in 2000 it operated through September 14. The estimate of total run size must include an estimate for the number of fish that passed the sonar site in addition to the harvest that occurred below Pilot Station sonar site. The harvest estimate included 6,719 subsistence and zero commercial fall chum salmon, which suggests that the total run size to be on the order of 260,231 chum salmon during the 2000 fall season. This measure of total run size is well below (49%) the low end of the preseason projection of 512,000 fall chum salmon and is 77% below the upper bound (1,137,000). In other words, the 2000 fall chum salmon run materialized at only 23% of what would have normally been expected. By comparison, the 1999 and 1998 fall chum salmon run materialized at 44% and 46% respectively of normal run size expectations.

An estimate of drainage-wide fall chum salmon escapement was taken as the reconstructed run size (260,231) less estimated total US/Canada in-river harvest (18,977). This measure of escapement totaled 241,254 chum salmon and compares to a *minimal* escapement estimate of approximately 225,511 fish as measured by the sum of estimated escapements among the various monitoring projects in place during 2000. Spawning escapements were below average throughout the drainage with serious run failures occurring in the Fishing Branch, Toklat, and Delta Rivers.

All chum salmon entering the Yukon River after July 15 are considered fall run for purposes of in-season management. In 1999, ADF&G genetics began a study to determine the variation in entry

³ The U.S. and Canada negotiated a twelve year rebuilding plan, beginning in 1990 and ending after the 2001 season, for Canadian Yukon River mainstem fall chum salmon. The objective of the plan was to rebuild the stock by achieving a spawning escapement of 80,000 or more fall chum salmon for all (four) brood years by the year 2001.

timing of summer run and fall run chum salmon. Genetic stock identification methods developed by USFWS, BRD, and ADF&G using allozyme loci can accurately and precisely discriminate summer- and fall run chum salmon. Use of genetic markers to estimate timing of entry and run-timing patterns will provide a better understanding of the nature and variability of these stock characteristics. Post-season analysis of GSI sampling results may provide the ability to apportion sonar counts attributed to chum salmon during the transition period from the summer to fall run fish.

In 2000, chum salmon entering the Yukon River were sampled from July 5 to August 1 at the ADF&G sonar site at Pilot Station. Fish were sampled from species apportionment sampling conducted twice daily at the sonar site. Gill nets are drifted in the morning and in the evening off each bank using a variety of mesh sizes. As chum salmon were picked from the gill nets, they were fin clipped to signify where they were caught. After gillnet drifts were completed for a given sampling period (morning or evening), up to 30 chum salmon were randomly sampled from the total number. Muscle, liver, and heart tissues were dissected from each fish, placed in labeled cryovials, frozen in liquid nitrogen, and shipped to the ADF&G-Genetics Laboratory in Anchorage. Date sampled and bank orientation were recorded for each sampled fish.

In 2000, 969 chum salmon were sampled for GSI. Four weekly stock composition estimates (7/5-11, 7/12-18, 7/19-25, 7/26-8/2) were made from samples of approximately 200 fish. If more than 200 fish were collected during a time stratum, 200 fish were subsampled from the total proportional to the passage estimates by day and by bank orientation for that time stratum. Stock contributions of the mixed fishery samples were estimated via maximum likelihood for a summer run and a fall run reporting group using the allozyme baseline for chum salmon in the Yukon River. Symmetric ninety percent confidence intervals were computed from 1000 bootstrap resamples of the baseline and mixture genotypes.

Data indicated fall run chum salmon passed by Pilot Station Sonar earlier in 2000 than in 1999 (Appendix A. 24). Fall run chum salmon were detected in all time strata in gradually increasing numbers in 2000, but were not detected until the July 19-25 time stratum in 1999. Summer run chum salmon were passing by Pilot Station Sonar through the July 19-25 time stratum in both years. In 2000, the estimate of 253,512 fall chum salmon at Pilot Station could be adjusted based on apportionment to summer and fall for run reconstruction purposes. Prior to July 19 it was estimated that 24,799 fall chum had entered the river. However, it was also estimated that 14,294 summer chum salmon had entered after July 19. A net gain of 10,505 fall chums. Making these adjustments would result in a revised estimate at Pilot Station of 264,017 fall chum salmon. Using the same methodology for 1999 data would have resulted in a net loss of 58,659 fall chum salmon.

A review of upper-river test fish data and escapement information indicated that both the upper Yukon River (non-Tanana) and Tanana River components were weak and appeared even lower in size than that observed in 1998. Escapement in the Chandalar River was estimated at 65,900 chum salmon for the 50-day period of August 8 through September 26. This estimate is lower than the 1998 estimate of 76,000 fish passage, and it is well below the 1995-1999 average of 170,700 fish. No fall chum salmon escapement goal has been established for the Chandalar River but escapements have ranged from 76,000 (1998) to 281,000 fish (1995).

Assessment of escapement to the Porcupine River drainage was based upon observations made in the Sheenjok and Fishing Branch Rivers. Sheenjok River sonar project operated from August 8 through September 12 ending earlier than normal due to extremely low water levels. After operating for the 46-day period the cumulative count at termination was approximately 19,000 chum salmon. Estimating on average that 62 percent of the run should be present by September 12 the

preliminary escapement estimate for the Sheenjek River is 30,000 chum salmon. This is the second lowest escapement observed to this river since inception of sonar counting operations in 1981. This is nearly a total run failure given the major parent year escapement levels: 241,900 in 1995 (returning age-5 fish) and 246,900 in 1996 (returning age-4 fish). The 2000 estimated escapement in the Sheenjek River was 53% below the minimum escapement goal of 64,000 fall chum salmon. Similarly, in the Fishing Branch River only 5,000 chum salmon passed the DFO weir during the 47-day period of August 28 through October 13, 2000. This was the lowest escapement on record and 90% below the minimum escapement goal of 50,000 fish and is considered a complete run failure.

The preliminary mark-recapture abundance estimate for fish passing the USFWS tagging site at "Rampart Rapids" for the first three weeks was approximately 45,000 chum salmon for the period July 30 through August 19, 2000. The project was terminated early due to concern for harming fish in a run that was extremely weak. Comparing the estimate to similar weeks during operations from 1996 through 1999 suggested that the return was slightly better than the 1998 return (24,000) at this point in time but substantially worse than the other years estimates which ranged from 90,000 to 264,000 fish. The project terminated just after the average quarter point of the return resulting in an end of the season projection that suggested that the run size was below the level observed in 1998. For comparison, the sum of escapements to the Chandalar, Sheenjek and Fishing Branch Rivers, together with the mainstem Yukon River border passage estimate in 2000 (101,000 fish), was considerably low even when compared to that observed in these areas in 1998 (170,000 fish). The 2000 estimate of spawning escapement for Canadian upper Yukon River fall chum salmon was 55,400 fish.

The Tanana River fall chum salmon run component was also weak in 2000 based upon test fishery results from the south bank Yukon River near Tanana as well as those in the Tanana River. The preliminary mark-recapture estimate for the Kantishna River run component was $21,104 \pm 6,650$ (95% C.I.) fall chum salmon (Cleary 2001 in prep). In the Toklat River the population estimate was only 5,095 chum salmon based upon ground and aerial surveys conducted of the spawning areas at Toklat Springs during mid-October. This estimate was 85% below the minimum escapement goal of 33,000 chum salmon, and compares to the lowest escapement on record of 3,600 and 4,551 chum salmon in 1982 and 1999 respectively. Returning age-4 and age-5 chum salmon to the Toklat River in 2000 included one of the largest parent year escapements in recent years: 55,000 in 1995 and a run slightly more than 50 percent of the target at 18,800 fish in 1996. Like the Fishing Branch River, results suggest a run failure in parent year production (1995 and 1996) for Toklat River chum salmon.

Fall chum salmon run strength to the upper Tanana River (upstream of the Kantishna River) in 2000 was estimated at $47,635 \pm 13,355$ (95% C.I.) fish (Cleary 2001 in prep). This mark-recapture abundance estimate was the lowest estimate since the project began in 1995. Estimates have ranged from a low of 62,000 (1998) and 268,000 (1995) fish.

Total spawning escapement for the Delta River was estimated at 3,777 chum salmon, based upon observations from ten ground surveys conducted of the spawning area during the period October 8 through November 27. This was 66% below the minimum escapement goal of 11,000 chum salmon. In Bluff Cabin Slough, USGS personnel obtained a peak ground survey count of 1,595 chum salmon on November 3. However, the regular stream walks were discontinued and due to the late run timing a portion of the spawners may have been missed. The peak survey count is 76% below the most recent five-year average (1995 to 1999) of 6,743 chum salmon.

Coho Salmon

Coho salmon spawning escapement assessment is very limited in the Yukon River drainage due to funding limitations and often marginal survey conditions that prevail during the periods of peak spawning. Presently, only one escapement goal has been established for coho salmon in the Yukon River drainage. The Delta Clearwater River (DCR) in the Tanana River drainage has a minimum goal of 9,000 coho salmon based upon a boat survey during peak spawning. While most coho salmon escapement information is from the Tanana River drainage (Appendix E.9), cooperative efforts of USFWS and BSFA allowed the East Fork Andreafsky River summer season weir operation to be extended into September for the sixth consecutive year in 2000. This provided additional information on the timing and abundance of coho salmon to a tributary in the lower Yukon River. A total of 8,199 coho salmon was passed through September 23, the last day of weir operations in 2000. This estimate compares to the average passage (1995-1997 and 1999) of approximately 7,800 for the same approximate time period.

In 2000, Pilot Station sonar operated until September 14 providing a more complete estimate of coho salmon run abundance, in the past the project typically ended August 31. The inseason sonar passage estimate at Pilot Station was $183,192 \pm 14,515$ (90% C.I.) coho salmon for the 58-day operating period. On August 31 the passage was 161,000 coho salmon that compares to the four-year average (1995, 1997 to 1999) of 100,000 fish.

In 2000, the Division of Sport Fish conducted a boat survey of the DCR index area on October 24 and estimated 9,225 coho salmon present indicating the escapement goal was achieved. An additional 2,364 coho salmon were estimated in tributaries of the DCR based upon an expansion factor derived from a comparison from the years 1994 to 1999 between the average proportion aerial survey escapement estimates in tributary streams to the mainstem DCR. The coho salmon return was assessed to be average to above average at the majority of the monitoring projects along the salmon migration route. Based on the assessment of relative run size and the observed late run timing into other systems within the Tanana River drainage based on the timing of the DCR survey additional coho salmon were expected to move in later. However, it was not feasible to conduct additional surveys.

Remaining escapement information on coho salmon in 2000 was obtained primarily by aerial surveys flown in portions of the Tanana River drainage, although limited ground surveys were also attempted at a few locations. A portion of this work was conducted by YRDFA, particularly in the Nenana River drainage. Estimated numbers of coho salmon spawners in the Nenana River drainage included 55 in Lost Slough, 879 in Seventeen Mile Slough, and 66 in the mainstem Nenana River upstream of the Teklanika River. In the Toklat River drainage, a mid-October ground survey of Geiger Creek documented 142 coho salmon.

Enforcement 2000

The primary enforcement authority for violations of Fish and Game regulations is the FWP within the Department of Public Safety. For purposes of enforcing subsistence, personal use, and commercial fishing regulations within the Yukon Area, FWP typically has employees permanently stationed in Bethel, McGrath, Aniak, Galena, Coldfoot, and Fairbanks. Additionally, during the fishing season, officers are stationed at other locations along the Yukon and Tanana Rivers.

Lower Yukon Area

FWP conducted intensive patrols in the Lower Yukon Area during June 2000 with five FWP officers utilizing three float planes, one wheel plane, and two skiffs. In general, compliance with fishing regulations was good. Over 300 contacts were made and 10 citations were issued. Citations were issued for bringing unmarked subsistence caught chinook salmon from one district to another, subsistence fishing by a non resident, lack of crew member licenses, unmarked gear, fishing before a commercial opening.

Upper Yukon Area

Aircraft and boat patrols from Fairbanks and Galena were conducted in the Upper Yukon Area during the summer and fall seasons. Compliance during the summer and fall subsistence periods was good, with few complaints and no major problems noted.

Outlook For 2001

Chinook Salmon

Yukon River chinook salmon return primarily as age-5 and age-6 fish, although age-3, age-4, age-7 and age-8 fish also contribute to the run. Spawning ground escapements in 1995, the brood year producing 6-year-old fish returning in 2001, were judged to be above average in magnitude. However, the return of salmon in 1998, 1999 and 2000 appeared to be well below average in strength indicating abnormally poor production from parent year escapements. Additionally, the apparent low marine survival from age-5 fish returning in 1999, and sibling age-6 fish returning in 2000, continued to show recent below-average trends in survival. Based on continued recent below-average trends in survival rates of parent year escapements, and the number of 4- and 5-year-old fish that returned in 2000, the return of 5- and 6-year-old fish in 2001 is expected to be poor.

Overall, the 2001 chinook salmon run is anticipated to be below average to poor in strength for the fourth consecutive year. Given the uncertainties associated with recent declines in productivity, it is unlikely the run will support a commercial harvest and will potentially require reductions in subsistence harvest opportunity. The fisheries are managed based upon inseason assessments of the actual runs. If inseason qualitative indicators of run strength suggest sufficient abundance to have a commercial fishery, the commercial harvest in Alaska would be 0 to 20,000 chinook salmon (0 to 18,000 fish in the Lower Yukon Area and 0 to 2,000 fish in the Upper Yukon Area). This represents a range of catch well below all other years with the exception of 2000 during the previous 30-year period.

Summer Chum Salmon

Based on above average escapements in 1996 and 1997, an above average return of 4- and 5-year-old summer chum salmon would normally be expected. However, it appears that, similar to many chinook and chum salmon stocks in the Bering Sea region, recent declines in the productivity of summer chum salmon are continuing. Specifically, production of Anvik River chum salmon, which represents the largest spawning stock of Yukon River summer chum salmon, has fallen well below one return per spawner in recent brood year returns. Causes for the observed drop in productivity are still largely unknown. There is uncertainty as to how long this situation might continue, and whether productivity could drop even further. While exact reasons for the run failures are unknown, it is widely speculated that poor marine survival related to localized weather and ocean conditions in the Bering Sea are primary factors. Weakness in the salmon runs has been attributed to reduced productivity and not the result of low levels of parent year escapements. Nearly all stocks are continuing to exhibit decreased production levels, in some cases bordering on production failure.

Overall, the 2001 outlook is for a below average to poor summer chum salmon run. Given the uncertainties associated with recent declines in productivity, it is uncertain if the run will support a commercial harvest and could require reductions in subsistence harvest opportunity to provide for escapements. If inseason projections of run strength suggest sufficient abundance to have a commercial fishery, the commercial harvest in Alaska would be 0 to 300,000 summer chum salmon.

Fall Chum Salmon

Yukon River fall chum salmon escapements for the period 1974 through 1993 were estimated and have ranged from approximately 110,000 (1982) to 1,200,000 (1975) by ADF&G, based upon expansion of escapement assessments drainage-wide. These escapements have produced returns that ranged in size from approximately 301,000 (1988 production) to 1,400,000 (1975 production) fish. Corresponding return per spawner rates have ranged from 1.1 to 4.5 with an average of 2.5 for all years combined through 1993. Recent year runs have decreased significantly with production falling below one return per spawner.

Yukon River fall chum salmon return primarily as age-4 or age-5 fish, although age-3 and age-6 fish also contribute to the run. The parent year escapements of 1996 and 1997 will be producing the majority of the fish returning in 2001. Drainage-wide escapements in 1996 were well above average while escapements in 1997 were slightly above average with weaknesses in the Tanana River drainage. Due to staff vacancies and time constraints, a preseason projection of returning fall chum salmon to the Yukon River was not completed for 2001. Very dramatic declines in salmon returns have been occurring in Western Alaska since 1997. While exact reasons for the run failures are unknown, it is widely speculated that poor marine survival related to localized weather and ocean conditions in the Bering Sea are primary factors. Weakness in the salmon runs has been attributed to reduced productivity and not the result of low levels of parent year escapements.

Even though parent year escapements appeared adequate, the 2001 fall chum salmon run is anticipated to be poor to below average in strength for the fifth consecutive year. Given recent trends in low productivity, it is very probable the 2001 fall chum salmon run will be less than 500,000 fish. There will likely be no directed commercial fishery and subsistence restrictions may be necessary in

attempt to meet the optimal escapement goal. Post season analysis resulted in a projected return that ranged from 293,000 to 962,000 fall chum salmon.

Coho Salmon

Although comprehensive escapement information on Yukon River drainage coho salmon is lacking, it is known that coho salmon primarily return as age-4 fish and overlap in run timing with fall chum salmon. An average return of coho salmon would be anticipated in 2001, based upon parental escapement levels observed in several spawning streams in 1997 and assuming average survival. However, should mortality factors that contributed to recent Western Alaska salmon run failures in recent years also affect marine survival of coho salmon from the 1997 brood year, then a below average run of coho salmon could be expected in 2001.

The Alaska Board of Fisheries recently readopted the Yukon River coho salmon management plan that would allow a directed commercial coho salmon fishery, but only under very unique conditions. Directed coho salmon fishing is dependent on the assessed levels of return for both coho and fall chum salmon since they return mixed together. A directed commercial coho salmon fishery is not likely to occur in 2001 because of the poor outlook for the fall chum salmon combined with an average to below average coho salmon run.

CAPE ROMANZOF DISTRICT HERRING FISHERY

Introduction

Pacific herring (*Clupea harengus pallasii*) are present in coastal waters of the Yukon Area during May and June. Spawning populations occur primarily in the Cape Romanzof area in Kokechik Bay and Scammon Bay (Appendix F.1) where spawning habitat consists of rocky beaches and rockweed (*Fucus sp.*). The arrival of herring on the spawning grounds is greatly influenced by ocean water temperature and ice conditions. Typically herring appear immediately after ice breakup. Spawning usually occurs between mid-May and mid-June.

Local residents utilize herring for subsistence purposes. In addition, a commercial herring sac roe fishery has occurred in the Cape Romanzof District since 1980. The Cape Romanzof District consists of all state waters from Dall Point to 62 degrees north latitude (Appendix F.1). In 1982, the BOF reduced the area open to commercial fishing by closing the waters outside of Kokechik Bay. Gillnets are the only legal commercial gear type. The use of mechanical shakers has been prohibited since 1988. Limited entry to the fishery began with a moratorium on new entrants in 1988. The fishery is now limited to 101 permits.

A total of \$34,100 in State funds were allocated to DCF to manage the commercial fishery and conduct herring research studies at Cape Romanzof in May and June of 2000, not including permanent staff salaries.

Commercial Fishery 2000

Commercial harvests increased steadily after inception of the fishery in 1980, reaching a peak harvest of 1,865 tons in 1986. Since 1986, there has been a trend of decreasing harvests.

Forty-six permit holders harvested a total 499.5 tons of Pacific herring in 2000 (Appendix F.2 and F.4). The commercial harvest was 27% below the recent five-year-average (1995 to 1999) of 686 tons. Sac roe comprised 63%, (313 tons) of the harvest. The average sac roe recovery was 9.1%. A total of 187 tons of herring were purchased as bait. The commercial harvest was within the preseason harvest projection of 463 to 563 tons. In 2000 there was a problem of partially spawned out herring in the commercial test sampling and commercial harvests. Partially spawned out herring accounted for 20% to 51% of the test samples taken from June 8 to June 12. The commercial fishery consisted of five fishing periods, which were allowed between May 29 and June 4. Fishing periods ranged from 1.5 hours to 3.5 hours in duration for a total fishing time of 13.0 hours (Appendix F.2 and F.3). Fishing gear was restricted to one 50-fathom gillnet per vessel throughout the commercial season.

The estimated exvessel value of the 2000 harvest was \$77,000 (Appendix F.4). The inseason price for herring sac roe was \$200 per ton at 10% roe recovery. Bait herring consisted of deliveries less than 8% roe and averaged \$71 per ton. Two companies purchased herring. These companies were represented by one processing vessel and six tenders during the fishery (Appendix F.6). Local Alaskan residents (defined as residents of Chevak, Hooper Bay, and Scammon Bay) accounted for 98% (45 permits) of the effort and 98% (490 tons) of the harvest.

As in recent years, the fishery was put on a one half hour advance notice prior to opening the commercial fishery. A countdown was provided fishers prior to the opening and closing of each period on VHF radio. Commercial fishing periods were scheduled prior to high tide. In coordination with ADF&G, commercial fishers provided catch samples for evaluation by industry representatives prior to commercial periods (Appendix F.7). Samples were collected relatively early on the incoming tide to provide time for announcing periods. Typically, the samples indicated a high percentage of ripe females. Additionally, larger mesh sizes usually resulted in higher percentages of ripe females and higher roe recovery, while smaller mesh size catches generally had a lower roe recovery. During the season fifty-nine samples from 3 inch mesh averaged 8.7% roe and had a range from 4.3% to 14.8%, thirty four samples from 3 1/8 inch mesh averaged 9.6% roe and ranged from 5.7% to 14.8%, two samples from 3 1/4 inch mesh averaged 12.3% roe and had a range from 12.0% to 12.5% (Appendix F.7). Several fishing periods were announced several hours in advance based on reports of fair roe quality during the prior fishing period.

The overall exploitation rate of herring was estimated postseason to be approximately 14.3% of the available biomass (Appendix F.4). A total of 575 herring were sampled from the commercial harvest. Samples were collected from 2-7/8 inch, 3 inch, 3-1/8 inch, and 3-1/4 inch mesh size gillnets. The estimated age composition of the commercial samples based on scale analysis was: age-5: 0.2%; age-6: 0.02%; age-7: 20.4% ; age-8: 0.8%; age-9: 22.4%; age-10: 19.3%; age-11: 8.1%; age-12: 20.8%; age-13: 3.5 %; and age-14 and older: 4.2% (Appendix F.11 and F.12).

FWP officers were not present at Cape Romanzof in 2000. However, fishers followed fishing period opening and closure times very well and buyers were timely and accurate with verbal reporting of purchases. It is understood that it can be difficult to pull nets out of the water when a lot of fish hit. Preseason discussion mentioned several ways which fishers can avoid fishing after

a fishing period closure: 1) check the time and pull the nets in early, 2) have a fishing net in two 25-fathom sections and tied together so one section of net can be pulled in and leave the second portion out, 3) tie the net up as they pick through the gear so there will not be as many fish in the net when they finish up, 4) make more than one delivery during a fishing period so that the boat is not over loaded at the end of the period, and 5) smaller boats can ask for assistance from some of the larger boats at the end of a fishing period.

Subsistence Fishery 2000

During 2000, a subsistence harvest of 6.2 tons of herring was estimated to have been taken by 50 fishing families from Hooper Bay, Chevak, and Scammon Bay (Appendix F.8). In addition, 30 families harvested 1,109 pounds of herring spawn-on-kelp (fucus) for subsistence purposes (Appendix F.9). A combination of mail-out questionnaires and personal interviews were used to collect subsistence harvest information. A total of 50 (24%) households responded out of a total of 212 identified households that were mailed questionnaires. Thirty-two of the households which did not return mail-out questionnaires were interviewed as well as 15 others. A total of 97 (43%) households were contacted out of a total of 227 attempted. The subsistence harvest and effort figures represent only the harvest, which was reported. Therefore, the reported harvest is a minimum estimate since not all fishing families were contacted and not all households who received questionnaires returned them. A majority of the fishers that responded to questionnaires reported herring abundance appeared to be the same as or more in 2000 than in 1999.

Stock Status

Due to excessive water turbidity in the Cape Romanzof area, it is usually not possible to estimate herring biomass using aerial survey techniques. Herring biomass has been estimated using a combination of information from aerial surveys, test and commercial catches, spawn deposition, and age composition. Five aerial surveys were flown during the 2000 season from May 22 through June 9 (Appendix F.10). A total of 2.4 hours were spent surveying the district. During a survey flown on June 9, 291 tons of herring were observed in Kokechik Bay and 121 tons of herring in Scammon Bay for a total biomass estimate of 412 tons of herring. However, this was not considered a peak biomass estimate because fairly large areas of the district were not surveyable due to turbid water conditions. Based on inseason spawn deposition study results and herring age composition, the 2000 biomass was estimated postseason to be 3,500 tons. This is a slight decrease from the 1999 biomass estimate of 3,800.

Test fishing with variable mesh gillnets has been conducted since 1978 to determine distribution, timing and relative abundance of spawning herring, and to collect samples for age, sex, size and relative maturity information. ADF&G conducted test fishing from May 21 through June 7, 2000. A total of 2,121 herring were caught of which 738 fish were sampled for biological data. Herring comprised approximately 100 percent of the total catch of schooling species. Other fish captured during test fishing included flounder, saffron cod, sculpin, smelt, and whitefish.

The age composition of the variable mesh test gillnet samples showed a healthy range of ages. Age-5, 6, 7, 8, 9, 10, 11 and 12 herring accounted for 10.1 percent, 2.5 percent, 23.8 percent, 1.9

percent, 13.5 percent, 11.9 percent, 4.4 percent and 12.6 percent of test fishing samples, respectively (Appendix F.13 and F.14). Age-13 and older herring comprised 3.4 percent test fishing samples. Newly recruited age-3 and age-4 herring represented 0.1 percent and 15.7 percent of test fishing samples.

Qualitative spawn deposition surveys have been conducted annually to document herring spawn distribution. Qualitative spawn deposition surveys began on May 17. The first significant spawn deposition was observed and recorded on May 29 in Kokechik Bay.

ADF&G initiated a new quantitative spawn deposition study in 1992 to develop a spawn deposition index. The major difficulty encountered in attempting to estimate biomass utilizing spawn deposition data in the past was the loss of spawn due to storms and desiccation. To address this problem, artificial substrates were located in intertidal spawning areas prior to spawning. The artificial substrate consisted of small steel platforms with 6-inch by 12-inch rectangular pieces of astroturf attached to a steel plate on each platform. Spawn deposited on the astroturf was removed and weighed daily at low tide. Daily removal of spawn allowed measurements of new spawn deposition and decreased the problem of spawn loss due to wave action and desiccation observed in previous studies.

In 2000, artificial substrates were located in the same general spawning locations as in 1992 through 1999. Forty platforms were placed just north of the ADF&G's field camp on May 16 and 17. The largest spawn deposition within the study area occurred on June 5 (Appendix F.15). The daily spawn deposition of 3,256 grams on June 5 was the largest of the season and accounted for 39 percent of the total season deposition. The spawn deposition season total index of 8,455 grams documented in 2000 was the highest since the project began in 1992 and was 88% above the 5-year average, 1993-1996 and 1998-1999 of 4,494 grams (Appendix F.16). However, it is uncertain whether the study area results are indicative of the total spawning biomass within the entire district.

Outlook for 2001

The projected return for 2001, based upon limited information, is expected to be between 2,079 and 3,079 tons. Age-8 herring are expected to dominate the biomass at 26 percent. Age-9 and older herring are expected to comprise approximately 49 percent of the returning biomass. The Bering Sea Herring management strategy is to harvest 0-20 percent of the estimated herring biomass. A 20 percent exploitation rate will be used to manage the fishery in 2001. The 2001 projected harvest is between 466 and 566 tons.

Emergency order authority will be used to adjust the timing and length of fishing periods. It is very likely that gear will be restricted to one 50 fathom gillnet per vessel. A minimum level of biomass cannot be used to determine the opening of commercial fishing periods since turbid water conditions usually preclude aerial biomass assessments. The initial commercial fishing period will be established when it is determined that commercial quantity of marketable sac roe herring is present on the grounds. Test and commercial catch rates, number of fishing vessels, and spawn deposition observations will be used to determine timing and duration of commercial fishing periods. ADF&G anticipate considerable test fishing effort utilizing volunteer commercial fishers to assess roe quality. If sac roe quality is good, individual fishing periods may be extended. Allowing a harvest above or below the preseason projection will depend on assessment

of herring abundance through aerial surveys, cumulative spawn deposition, test and commercial catch rates, and age composition data.

OTHER MARINE AND FRESHWATER FINFISH FISHERIES

Subsistence Fishery

Many subsistence fishers operate gillnets in the main rivers and coastal marine waters to harvest marine and freshwater finfish other than salmon and herring. Beach seines are occasionally used near spawning grounds primarily capturing salmon or other schooling species of fish. Traps and fish weirs of various designs are also used, mainly in the fall and winter months, to capture whitefish (*Coregonus sp. and Prosopium sp.*), blackfish (*Dallia pectoralis*), and burbot (*Lota lota*). Sheefish (*Stenodus leucichthys*), northern pike (*Esox lucius*), char (*Salvelinus sp.*), and "tomcod" (saffron cod) (*Eleginus gracilis*) are frequently taken through the ice using hand lines. Dip nets are used in late May to early June to take smelt in the delta area and in late October to early November to take Arctic lamprey (*Lamperta japonica*) in the main Yukon River downstream of Grayling.

Subsistence fisheries, which target non-salmon species such as pike, sheefish, and whitefish are inadequately documented and their overall significance is not well known. A comprehensive subsistence survey was conducted in the lower Yukon River in 1978-1979 (Crawford 1979). Several studies have been conducted to investigate sheefish migrations and to locate spawning areas in the Koyukuk River drainage (Alt 1968, 1969, 1970, 1974) and in the main Yukon River between Stevens Village and Fort Yukon (Alt 1986). From 1997 through 1999, a sheefish tagging and radio telemetry study was conducted in cooperation by the USFWS, NMFS and ADF&G near Rampart. Fish wheels operated as part of a fall chum salmon mark-recapture study were utilized as part of this project. Adult sheefish captured at the Yukon River tagging site were marked with conventional tags (1,297 in 1997, 800 in 1998, 925 in 1999) and selected individuals were tagged with pulse-coded radio transmitters (25 in 1997, 35 in 1998, 25 in 1999). Movement information collected during aerial radio tracking surveys was compared with data from remote tracking stations. All of the radio-tagged fish that moved past the stations were recorded. During the summers of 1997, 1998, and 1999 many of the radio tags were subsequently relocated upstream between Fort Yukon and the Circle area. Later in the fall of 1997, 1998, and 1999 a number of marked sheefish were recaptured in the Lower Yukon River delta area.

The spring sheefish migration occurs just prior to and during the beginning of the upstream migration of chinook salmon. A limited number of sheefish are harvested during late May and early June in the lower Yukon River as sheefish migrate upriver. Fish wheels take relatively small numbers of whitefish and sheefish in the upper Yukon and Tanana Rivers during the commercial salmon fishery. Since 1993, subsistence salmon surveys included the collection of freshwater finfish harvest data. Estimated and reported subsistence catches of freshwater finfish from subsistence surveys in 2000 are presented in Appendix G.1 and subsistence catches of freshwater finfish taken under authority of a permit in the Upper Yukon Area in 2000 are presented in Appendix G.2.

Commercial Fishery

Regulations adopted by BOF allow ADF&G to issue permits for the commercial harvest of freshwater species of fish such as whitefish, sheefish, char, northern pike, blackfish and Arctic lamprey. Commercial fisheries for species other than salmon have been allowed in widely scattered locations throughout the Yukon and Tanana River drainages. Most of these fisheries are limited or experimental operations and occur only sporadically. In recent years because of poor salmon returns locals have tried to apply for these alternate fisheries. However, due to concern over increased pressure on freshwater species these permits have been denied.

Permits for the taking of non-salmon species have been issued for various locations in the Lower Yukon Area. No permits were issued in 2000. The most recent commercial fisheries for non-salmon species occurred in 1994. The reported historical harvests for those fisheries are presented in Appendix G.3. Set gillnets are primarily used for taking whitefish and sheefish in the Lower Yukon Area. Typically, the catch is marketed in local village stores or in Bethel. In the Upper Yukon Area, commercial freshwater fisheries targeting primarily whitefish have been permitted in recent years, although no permits were issued in 2000 (Appendix G.4). Permit authorization is not required for the sale of these species when taken incidentally during commercial salmon fishing (Appendix G.5).

NORTHERN AREA

Description of Area

The Northern Area includes all waters of Alaska north of the latitude of the western most tip of Point Hope and west of 141 degrees West longitude, including those waters draining into the Arctic Ocean and the Chukchi Sea (Figure 11).

Subsistence and Commercial Fisheries

Subsistence fisheries in the Northern Area are inadequately documented and their overall significance is not well known. Many subsistence fishers operate gillnets in the rivers and coastal marine waters to harvest marine and freshwater finfish. Small numbers of chum, pink, and chinook salmon have been reported by subsistence fishers along the Arctic coast. Traps and fish weirs of various designs are also used, mainly in the fall and winter months, to capture whitefish, blackfish, and burbot. Northern pike, char, and "tomcod" are frequently taken through the ice by hand lines.

In the Northern Area by regulations adopted by BOF allow ADF&G to issue permits for the commercial harvest of freshwater species of fish such as whitefish, sheefish, char, northern pike, blackfish and Arctic lamprey. However, there are no commercial fisheries for salmon species. A commercial fishery for freshwater finfish has existed in the Colville River delta (located approximately 60 miles west of Prudhoe Bay) since 1964 (Appendix H.2). Fishing generally takes

place during late June and July for broad and humpback whitefish, and October through early December for arctic and least cisco. Set gillnets are used as capture gear, and fishing during fall months occurs under the ice. Not all fish reported on permits for this area are sold.

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TABLES AND FIGURES

Table 1. Guideline harvest ranges and mid-points for commercial harvest of chinook, summer chum and fall chum salmon, Yukon Area, Alaska, 2000.

Chinook Salmon						
District or Subdistrict	Guideline Harvest Range					
	Lower		Mid-Point		Upper	
	Numbers	Percent	Numbers	Percent	Numbers	Percent
1 and 2	60,000	89.1	90,000	91.6	120,000	92.9
3	1,800	2.7	2,000	2.0	2,200	1.7
4	2,250	3.3	2,550	2.6	2,850	2.2
5B, C	2,400	3.6	2,600	2.6	2,800	2.2
5D	300	0.4	400	0.4	500	0.4
6	600	0.9	700	0.7	800	0.6
Total	67,350	100.0	98,250	100.0	129,150	100.0

Summer Chum Salmon						
District or Subdistrict	Guideline Harvest Range					
	Lower		Mid-Point		Upper	
	Numbers	Percent	Numbers	Percent	Numbers	Percent
1 and 2	251,000	62.8	503,000	62.9	755,000	62.9
3	6,000	1.5	12,500	1.6	19,000	1.6
4A ^a	113,000	28.3	225,500	28.2	338,000	28.2
4B, C	16,000	4.0	31,500	3.9	47,000	3.9
5B, C, D	1,000	0.3	2,000	0.3	3,000	0.3
6	13,000	3.3	25,500	3.2	38,000	3.2
Total	400,000	100.0	800,000	100.0	1,200,000	100.0

Anvik River Management Area roe cap of 100,000 pounds

Fall Chum Salmon						
District or Subdistrict	Guideline Harvest Range					
	Lower		Mid-Point		Upper	
	Numbers	Percent	Numbers	Percent	Numbers	Percent
1, 2, and 3	60,000	82.5	140,000	71.2	220,000	68.6
4B, C	5,000	6.9	22,500	11.4	40,000	12.5
5B, C	4,000	5.5	20,000	10.2	36,000	11.2
5D	1,000	1.4	2,500	1.3	4,000	1.2
6	2,750	3.8	11,625	5.9	20,500	6.4
Total	72,750	100.0	196,625	100.0	320,500	100.0

Subdistrict 5-A range of 0 to 4,000 pounds of roe b

a Or the equivalent roe poundage of 61,000 to 183,000 pounds or some combination of fish and pounds of roe. Anvik River Management Area has an additional roe cap of 100,000 pounds which is not included in Subdistrict 4-A's guideline harvest range.

b Subdistrict 5-A was removed from the guideline harvest ranges for chinook and summer chum and a separate guideline harvest range of 0 to 4,000 pounds of fall chum salmon roe was established in November 1998.

Table 2. Total utilization in numbers of salmon by district and country, Yukon River drainage, 2000. ^a

District	Fishery	Chinook	Summer Chum	Fall Chum	Coho
1	Commercial	4,735	3,315	0	0
	Subsistence	5,891	24,079	5,294	1,067
	Test Fish Sales	275	561	0	0
	Total	10,901	27,955	5,294	1,067
2	Commercial	3,783	3,309	0	0
	Subsistence	9,935	25,331	1,425	2,351
	Test Fish Sales ^b	322	87	0	0
	Total	14,040	28,727	1,425	2,351
3	Commercial	0	0	0	0
	Commercial Related ^c	0	0	0	0
	Subsistence	3,914	3,687	598	94
	Total	3,914	3,687	598	94
Total Lower Yukon Area	Commercial	8,518	6,624	0	0
	Commercial Related ^c	0	0	0	0
	Subsistence	19,740	53,097	7,317	3,512
	Test Fish Sales	597	648	0	0
Total	28,855	60,369	7,317	3,512	
4	Commercial	0	0	0	0
	Commercial Related ^c	0	0	0	0
	Subsistence	6,264	7,046	1,759	1,068
	Total	6,264	7,046	1,759	1,068
5	Commercial	0	0	0	0
	Commercial Related ^c	0	0	0	0
	Subsistence	8,854	3,641	9,920	4,987
	Total	8,854	3,641	9,920	4,987
6	Commercial	0	0	0	0
	Commercial Related ^c	0	0	0	0
	Subsistence	983	1,111	310	5,150
	Personal use	75	30	1	0
Total	1,058	1,141	311	5,150	
Total Upper Yukon Area	Commercial	0	0	0	0
	Commercial Related ^c	0	0	0	0
	Subsistence	16,101	11,798	11,989	11,205
	Personal use	75	30	1	0
Total	16,176	11,828	11,990	11,205	
Total Yukon Area (Alaska)	Commercial	8,518	6,624	0	0
	Commercial Related ^c	0	0	0	0
	Subsistence	35,841	64,895	19,306	14,717
	Personal use	75	30	1	0
	Sport Fish	277	161	0	554
	Test Fish Sales	597	648	0	0
Total	45,308	72,358	19,307	15,271	
Total Canada	Commercial	0	0	1,319	0
	Aboriginal ^f	4,879	0	7,917	37
	Sport Fish	0	0	0	0
	Total	4,879	0	9,236	37
Grand Total	Commercial	8,518	6,624	1,319	0
	Commercial Related ^c	0	0	0	0
	Subsistence ^g	40,720	64,895	27,223	14,754
	Personal use	75	30	1	0
	Sport Fish	277	161	0	554
	Test Fish Sales	597	648	0	0
Total	50,187	72,358	28,543	15,308	

^a Commercial harvest includes only fish sold in the round. Does not include subsistence harvest from coastal communities of Hooper and Scammon Bays.

^b Includes 308 chinook and 87 summer chum salmon sold by the Marshall cooperative drift project.

^c Commercial related is the estimated harvest of females to produce roe sales.

^d Estimated sport fish harvest for the Alaskan portion of the Yukon River drainage. Assume majority of chum salmon caught during summer season.

^f Combined Aboriginal and domestic fisheries; includes Porcupine River Aboriginal fishery harvest. Includes 761 chinook salmon harvested by Aboriginal test fishery.

^g Includes Canadian Aboriginal and domestic fisheries. No Domestic harvest occurred in 2000.

Table 3. Subsistence and personal use salmon harvest estimates which include test fish harvests given away for subsistence use, and related information, Yukon Area, 2000.

Community a	Survey Date or Permit Village	Fishing Households b	Dogs	Estimated Harvest				Primary Gear Used		
				Chinook	Chum	Fall Chum	Coho	Set Nets	Drift Nets	Fish Wheels
Hooper Bay	9/26-9/27	117	269	114	9,301	78	218	117	0	0
Scammon Bay	09/24-9/25	61	182	449	3,876	11	4	61	0	0
Coastal District Total c		178	451	563	13,177	89	222	178	0	0
Sheldon Point	9/25	27	57	684	3,309	105	5	23	4	0
Alakanuk d	9/22-9/23	81	93	1,109	6,259	505	84	57	24	0
Emmonak f	9/21-9/22, 9/25-9/26	98	207	2,205	8,338	1,165	191	41	57	0
Kotlik g	9/22-9/23	55	195	1,893	6,173	3,519	787	43	12	0
<i>District 1 Subtotal</i>		261	552	5,891	24,079	5,294	1,067	164	97	0
Mountain Village h	09/28-9/30	114	204	1,715	7,074	313	376	12	102	0
Pitkas Point	9/27	16	61	753	1,728	5	139	1	15	0
St. Marys	9/26-9/30	88	170	1,810	8,094	255	117	9	79	0
Pilot Station j	09/30-10/2	57	165	2,378	5,223	852	1,708	11	44	0
Marshall k	10/3-10/4	61	341	3,279	3,212	0	11	6	55	0
<i>District 2 Subtotal</i>		336	941	9,935	25,331	1,425	2,351	39	295	0
Russian Mission m	10/4-10/5	48	190	1,860	1,318	37	24	20	28	0
Holy Cross	09/30-10/1	37	48	1,249	569	523	70	4	33	0
Shageluk	10/3-10/4	16	136	805	1,800	38	0	13	3	0
<i>District 3 Subtotal</i>		101	374	3,914	3,687	598	94	37	64	0
Lower Yukon River Total		698	1,867	19,740	53,097	7,317	3,512	240	456	0
Anvik	10/2	6	101	205	425	175	0	4	2	0
Grayingling	10/3	38	51	839	474	284	372	0	36	2
Kallag n	10/10	33	68	1,074	169	190	110	4	29	0
Nulato	10/11	50	197	1,083	377	0	60	0	50	0
Koyukuk	10/12	18	84	175	204	239	138	9	9	0
Galena	10/10-10/12	49	265	788	820	564	71	23	18	4
Ruby	10/13	15	187	1,577	1,233	64	173	6	0	9
<i>District 4 Yukon River Subtotal</i>		209	953	5,741	3,702	1,516	924	46	144	15
Huslia	10/13-10/14	18	88	424	745	35	132	13	3	0
Hughes	10/13	9	94	50	1,079	157	12	8	1	0
Allakaket	10/17-10/18	10	84	41	1,520	36	0	9	0	0
Alatna	10/18-11/1	2	6	8	0	15	0	2	0	0
Bettles	10/18-10/19	0	93	0	0	0	0	0	0	0
<i>Koyukuk River Subtotal</i>		39	365	523	3,344	243	144	32	4	0
<i>District 4 Subtotal</i>		248	1,318	6,264	7,046	1,759	1,068	78	148	15
Tanana	10/29-10/30	24	359	2,895	2,848	9,384	4,826	10	0	14
Rampart	10/31-11/1	12	20	847	47	0	0	12	0	0
Fairbanks NSB p	permits	30	160	1,342	275	8	2	30	0	0
Stevens Village r	10/24-10/25, permits	8	18	466	50	10	0	4	2	2
Birch Creek	11/2	5	15	72	0	0	0	4	0	1
Beaver	10/24	14	30	196	7	0	0	13	1	0
Fort Yukon	10/26-10/27	45	218	988	0	355	129	24	0	21
Circle	permits	8	93	627	109	0	0	4	0	4
Central	permits	2	30	26	1	0	0	2	0	0
Eagle	permits	32	254	1,087	121	32	0	25	0	7
Other s	permits	5	31	205	51	1	30	5	0	0
<i>District 5 Yukon River Subtotal</i>		185	1,228	8,751	3,509	9,790	4,987	133	3	49

-Continued-

Table 3. (page 2 of 2).

Community a	Survey Date or Permit Village	Fishing Households b	Dogs	Estimated Harvest				Primary Gear Used		
				Chinook	Summer Chum	Fall Chum	Coho	Set Nets	Drift Nets	Fish Wheels
Venetie	10/31	5	100	103	0	130	0	5	0	0
Chalkyitsik	10/25	6	51	0	132	0	0	6	0	0
<i>Chandalar/Black Rivers Subtotal</i>		11	151	103	132	130	0	11	0	0
<i>District 5 Subtotal</i>		196	1,379	8,854	3,641	9,920	4,987	144	3	49
Manley	permits	6	269	58	240	0	2,180	5	0	1
Minto t	permits	18	117	0	3	2	3	18	0	0
Nenana	permits	20	377	541	775	8	1,767	9	0	13
Fairbanks NSB v	permits	25	330	425	120	0	0	21	0	2
Other x	permits	21	247	34	3	301	1,200	16	0	0
<i>District 6 Tanana River Subtotal</i>		90	1,340	1,058	1,141	311	5,150	69	0	16
Upper Yukon River Total		534	4,037	16,176	11,828	11,990	11,205	291	151	80
Survey Village Subtotals		1,243	4,447	29,282	71,429	14,830	6,680	574	607	53
Subsistence Permit Subtotals		151	1,908	4,270	1,668	351	5,182	120	0	27
Subsistence Test Fish Subtotals y		-	-	2,852	4,975	4,214	3,077	-	-	-
<i>Subsistence Harvests Subtotal</i>		1,394	6,355	36,404	78,072	19,395	14,939	694	607	80
Personal Use Permit Subtotals		16	-	75	30	1	0	15	0	0
Alaska, Yukon River Total z		1,232	5,904	35,916	64,925	19,307	14,717	531	607	80
Alaska, Yukon Area Total		1,410	6,355	36,479	78,102	19,396	14,939	709	607	80

- a Data collected by Alaska Department of Fish and Game (ADF&G), Division of Commercial Fisheries. Survey data is expanded for number of fishing households, number of dogs, and harvest. Permit data is unexpanded. The number of dogs is based on information obtained from permits issued, while the number of fishing households and their harvest is based on returned permits. Gear data represents the primary gear types used by fishing households. Of the 428 permits issued, 37 households obtained permits for more than one location.
- b Estimated number of households that fished in surveyed communities or number of permit households who reported fishing in permit required areas.
- c A 1986 Hooper Bay salmon tagging study conducted by the Bering Sea Fishermen's Association (BSFA) suggested that harvests in the Nuok Spit area of Hooper Bay intercepted Yukon River and Norton Sound chum salmon stocks.
- d Includes 13 chinook, 25 summer chum, 29 fall chum, and 9 coho salmon from ADF&G test fish catches.
- f Includes 799 chinook, 1,198 summer chum, 1,157 fall chum, and 173 coho salmon from ADF&G test fish catches.
- g Includes 532 chinook, 1,276 summer chum, 1,735 fall chum, and 767 coho salmon from ADF&G test fish catches.
- h Includes 269 fall chum and 313 coho salmon from BSFA test fish catches.
- j Includes 450 chinook, 2,141 summer chum, 834 fall chum, and 1,705 coho salmon from ADF&G test fish catches.
- k Includes 1,024 chinook and 335 summer chum salmon from ADF&G test fish catches also includes 11 chinook salmon from the radio telemetry project.
- m Includes 23 chinook salmon from ADF&G radio telemetry project.
- n Includes 190 fall chum and 110 coho salmon from City of Kaltag test fish catches.
- p Fairbanks North Star Borough (Fairbanks NSB) households that obtained a permit and indicated they fished in a Yukon River permit required area.
- r Permit harvest information from Stevens Village residents was used to compliment the information obtained by the survey.
- s Other includes residents of Anchorage, Manley, Nenana, Minto and the Upper Tanana River drainage villages of Northway and Tok, who obtained a household permit and fished in a Yukon River permit required area.
- t Number of fishing households includes seven Tolovana River pike permits that were fished.
- v Fairbanks North Star Borough (Fairbanks NSB) households that obtained a permit and indicated they fished in the Tanana River permit required area. The number of fishing households includes one Tolovana River pike permits that were fished.
- x Other includes residents of Denali Park, Gakona, Healy, Juneau, Siana, Tanana, and the Upper Tanana River drainage villages of Delta Junction, Northway, Tanacross, and Tok who fished in the Tanana River.
- y Test fish given away for subsistence use.
- z Yukon River Total does not include Coastal District.

Table 4. Reported subsistence and personal use salmon harvested under the authority of a permit, listed by permit area, Yukon Area, 2000. a

Permit Fishing Area	Permit b		Percent Returned	Number of Permits Returned that Fished	Reported Harvest				
	Type	Issued			Returned	Chinook	Summer Chum	Fall Chum	Coho
Subsistence Use									
Yukon River near Haul Road Bridge	SY	56	52	93%	33	1,607	324	8	32
Yukon River near c Circle and Eagle	SE	121	118	98%	47	1,806	233	33	0
Tanana River Subdistrict 6A	SA	20	20	100%	10	80	240	0	2,180
Tanana River Subdistrict 6B	SB	81	79	98%	33	903	869	208	2,706
Tanana River Upstream of Subdistrict 6C	SU	41	36	88%	16	0	2	100	0
Kantishna River Subdistrict 6A	SK	4	4	100%	2	0	0	0	261
Tolovana River Pike Subdistrict 6B	ST	34	29	85%	13	0	0	2	3
Subsistence Permit Subtotals		357	338	95%	154	4,396	1,668	351	5,182
Personal Use									
Tanana River Subdistrict 6C	PC	70	69	99%	16	75	30	1	0
Tanana River Whitefish Upstream of Subdistrict 6C	PW	3	2	67%	0	0	0	0	0
Personal Use Permit Subtotals		73	71	97%	16	75	30	1	0
Permit Totals		430 d	409	95%	170 e	4,471	1,698	352	5,182

a Includes 2000 permit information received as of May 23, 2001.

b Includes 37 households that were issued permits for more than one area, includes 23 Minto households who were issued Tolovana River drainage (ST) pike permits.

c Includes one household that was issued a subsistence permit for whitefish and sucker in Birch Creek, the permit was returned and was not utilized.

d Includes one household that fished in two different permit areas.

Table 5. Commercial salmon and salmon roe sales by statistical area, Yukon Area, 2000.^a

Statistical Area	Chinook			Summer Chum			Fall Chum			Coho			Total Salmon		
	Numbers	Roe	Estimated Harvest ^b	Numbers	Roe	Estimated Harvest ^b	Numbers	Roe	Estimated Harvest ^b	Numbers	Roe	Estimated Harvest ^b	Numbers	Roe	Estimated Harvest ^b
334-11	78	0	78	146	0	146									
12	1,057	0	1,057	537	0	537									
13	144	0	144	207	0	207									
14	389	0	389	650	0	650									
15	640	0	640	631	0	631									
16	85	0	85	60	0	60									
17	1,259	0	1,259	546	0	546									
18	1,083	0	1,083	538	0	538									
Subtotal District 1	4,735	0	4,735	3,315	0	3,315	0	0	0	0	0	0	8,050	0	8,050
334-21	1,434	0	1,434	1,552	0	1,552									
22	966	0	966	961	0	961									
23	415	0	415	327	0	327									
24	457	0	457	220	0	220									
25	511	0	511	249	0	249									
Subtotal District 2	3,783	0	3,783	3,309	0	3,309	0	0	0	0	0	0	7,092	0	7,092
334-31	-	-	-	0	0	0									
32	-	-	-	0	0	0									
Subtotal District 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Lower Yukon	8,518	0	8,518	6,624	0	6,624	0	0	0	0	0	0	15,142	0	15,142

-Continued-

Table 5. (p. 2 of 2)

Statistical Area	Chinook			Summer Chum			Fall Chum			Coho			Total Salmon		
	Numbers	Roe	Estimated Harvest ^b	Numbers	Roe	Estimated Harvest ^b	Numbers	Roe	Estimated Harvest ^b	Numbers	Roe	Estimated Harvest ^b	Numbers	Roe	Estimated Harvest ^b
334-42															
43															
44															
45															
46															
47															
Subtotal District 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
334-51															
52															
53															
54															
55															
Subtotal District 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
334-61															
62															
63															
Subtotal District 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Upper Yukon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total Yukon Area	8,518	0	8,518	6,624	0	6,624	0	0	0	0	0	0	15,142	0	15,142

^a Sales reported in numbers of fish sold in the round and pounds of unprocessed roe. Does not include ADF&G test fishery sales.

^b Estimated harvest includes the estimated number of females to produce the roe sold.

Table 6. Number of salmon sold from Department of Fish and Game test fishing programs, Yukon Area, 2000.

Districts	Gear Types	Chinook	Summer Chum	Fall Chum	Coho
1	Set Gillnet	275	561	0	0
2	a Drift Gillnet	322	87	0	0
Yukon Area Total		597	648	0	0

a Includes 308 chinook and 87 summer chum salmon sold by the Marshall cooperative drift project.

Table 7. Salmon processors, buyers, catcher-sellers, and associated data, Yukon Area, 2000.

Commercial operation (Processing location/ buying station)	Product	District
Yukon Delta Fish Marketing CO-OP, Inc. P.O. Box 169 Emmonak, AK 99581 (Emmonak)	Frozen Salmon Fresh Salmon Chinook Chum, Coho Salmon Roe	1 and 2
Bering Sea Fisheries, Inc. 4413 83rd Ave. SE Snohomish, WA 98290 (Lamont Slough)	Frozen Salmon Chinook Chum, Coho Salmon Roe	1 and 2
Maserculiq Fish Processors P.O. Box 118535 Marshall, AK 99585 (Marshall)	Fresh Salmon Chinook Chum Salmon Roe	1, 2 and 3
Interior Alaska Fish Processors, Inc. 2400 Davis Road Fairbanks, AK 99701 (Fairbanks, Nenana, North Pole)	Frozen Salmon Chinook, Chum, Coho Salmon Roe	4, 5, and 6
Brian Asplund PO Box 18 Circle, AK 99733 (Nenana)	Frozen Salmon Fresh Salmon Chinook, Chum, Salmon Roe	5
Dominic Hunt (catcher/seller) P.O. Box 147 Emmonak, AK 99581	Salmon	1
Patrick X. Moore (catcher/seller) P.O. Box 61 Tanana, Alaska 99777 (Fairbanks, Tanana)	Fresh Salmon Chinook	5
Charlie Campbell (catcher/seller) MHF Enterprise PO Box 111 Tanana, AK 99777	Fresh Salmon Chinook, Chum	5
Frank W. Carruthers (catcher/seller) P.O. Box 23 Tanana, AK 99777	Fresh Salmon Chinook	5

-Continued-

Table 7. (Page 2 of 2).

Commercial operation (Processing location/ buying station)	Product	District
Linda J. Johnson (catcher/seller) P.O. Box 57 Manley Hot Springs, AK 99756 (Fairbanks)	Fresh Salmon Chinook	5
Steve O'Brien (catcher/seller) PO Box 42 Manley Hot Springs, AK 99756	Fresh Salmon Chinook	5
Renee and Peter Merry (catcher/seller) 1293 Shypoke Drive Fairbanks, AK 99709 (Fairbanks)	Fresh Salmon Chinook, Chum	5
Robert A. Sparks (catcher/seller) P.O. Box 71774 Fairbanks, AK 99707 (Fairbanks)	Fresh Salmon Chinook	5
Alfred F. Wright (catcher/seller) P.O. Box 60531 Fairbanks, AK 99706	Fresh Salmon Chinook	5
Darrell Carroll (catcher/seller) PO Box 217 Fort Yukon, AK 99740 (Fort Yukon)	Fresh Salmon Chinook, Chum	5
Merrill J. Hakala (catcher/seller) 140 Front St. Fairbanks, AK 99701 (Circle, Fairbanks)	Fresh Salmon Chinook, Chum	5
Gary Hinzman (catcher/seller) 1366 Opportunity Way Fairbanks, AK 99709 (Fairbanks)	Fresh Salmon Chinook, Chum	6
John Childs (catcher/seller) 2091 Yellow Snow Rd. Fairbanks, AK 99709 (Fairbanks)	Fresh Salmon Chinook, Chum	6
John Schandelmeier (catcher/seller) H C 72 P.O. Box 7193 Paxson, AK 99737	Fresh Whitefish	6

Table 8. Commercial Fisheries Entry Commission salmon gear permits issued by residence, Yukon Area, 2000. ^a

District	Residence	Gillnet Permits (S04Y)
1, 2, and 3	Alakanuk	76
	Anchorage	27
	Aniak	1
	Bethel	13
	Chevak	2
	Dillingham	2
	Eek	1
	Elim	1
	Emmonak	101
	Fairbanks	12
	Fortuna Ledge	6
	Glennallen	1
	Holy Cross	8
	Hooper Bay	2
	Iliamna	1
	Juneau	2
	Kalskag	1
	Kotlik	75
	Manley Hot Springs	2
	Marshall	33
	Mountain Village	90
	Nenana	1
	Newtok	1
	Nightmute	2
	Nome	2
	Nunam Iqua	5
	Palmer	4
	Pilot Station	55
	Pitkas Point	1
	Russian Mission	12
	Sand Point	2
	Scammon Bay	41
	Shageluk	1
	Shaktolik	1
	Sheldon Point	19
	Silka	2
	St. Marys	65
	St. Michael	1
	Stebbins	10
	Talkeetna	3
	Togiak	1
	Tok	1
	Unalakleet	3
	Wasilla	4
	Willow	2
	Cameron Mills, NY	1
	Fort Lewis, WA	1
Kamath, ID	1	
Rock Hill, SC	1	
Seattle, WA	1	
Snohomish, WA	1	
Stanwood, WA	1	
Twisp, WA	1	
Total Lower Yukon Area		704

-Continued-

Table 8. (p. 2 of 2).

District	Residence	Gillnet Permits (S04P)	Fish Wheel Permits (S08P)	Total
4, 5, and 6	Anchorage	5	2	7
	Anchor Pt.	0	2	2
	Aniak	1	0	1
	Anvik	4	11	15
	Barrow	0	1	1
	Cantwell	1	0	1
	Circle City	0	1	1
	Dot Lake	0	1	1
	Eagle River	0	1	1
	Egegik	0	1	1
	Fairbanks	24	25	49
	Ft. Yukon	0	1	1
	Galena	6	23	29
	Grayling	4	5	9
	Holy Cross	1	0	1
	Huslia	0	2	2
	Kaltag	3	15	18
	Koyukuk	0	2	2
	Manley Hot Springs	2	5	7
	Nenana	9	19	28
	Nulato	0	12	12
	Palmer	1	0	1
	Rampart	3	3	6
	Ruby	1	7	8
	Salcha	1	0	1
	Soldotna	1	0	1
	Stevens Village	0	3	3
	Tanana	3	14	17
	Wasilla	1	2	3
	Anacortes, WA	0	1	1
	Beverly Hills, CA	1	0	1
	Lynwood, WA	0	1	1
Portland, OR	0	1	1	
Total Upper Yukon Area		72	161	233
Grand Total Yukon Area		776	161	937

^a Counts are for initial issues only and do not include transfers. Counts include interim use permits.

Table 9. Commercial salmon sales and estimated harvest by district and country, Yukon River drainage, 2000. ^a

District/ Subdistrict	Number of Fishermen ^b	Chinook			Summer Chum			Fall Chum			Coho		
		Sold in Round	Pounds of Roe	Estimated Harvest ^c	Sold in Round	Pounds of Roe	Estimated Harvest ^c	Sold in Round	Pounds of Roe	Estimated Harvest ^c	Sold in Round	Pounds of Roe	Estimated Harvest ^c
1	350	4,735	0	4,735	3,315	0	3,315				NO COMMERCIAL FISHING		
2	214	3,783	0	3,783	3,309	0	3,309				NO COMMERCIAL FISHING		
Subtotal		8,518	0	8,518	6,624	0	6,624	0	0	0	0	0	0
3		NO COMMERCIAL FISHING											
Total Lower Yukon	562	8,518	0	8,518	6,624	0	6,624	0	0	0	0	0	0
Anvik River	-	-	-	-	-	-	-	-	-	-	-	-	-
4-A	-	-	-	-	-	-	-	-	-	-	-	-	-
4-BC	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal District 4		NO COMMERCIAL FISHING											
5-ABC	-	-	-	-	-	-	-	-	-	-	-	-	-
5-D	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal District 5		NO COMMERCIAL FISHING											
6		NO COMMERCIAL FISHING											
Total Upper Yukon	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Alaska	562	8,518	0	8,518	6,624	0	6,624	0	0	0	0	0	0
Total Canada		-	-	-	-	-	-	1,319	-	1,319	-	-	-
Grand Total	562	8,518	0	8,518	6,624	0	6,624	1,319	0	1,319	0	0	0

^a Does not include ADF&G test fishery sales.

^b Number of unique permits fished by district, subdistrict or area. Totals by area may not add up due to transfers between districts or subdistricts.

^c Unless otherwise noted, estimated harvest is the number of fish sold in the round plus the estimated number of females harvested to produce roe sold (pounds of roe sold divided by weighted average roe weight per female).

Table 10. Chinook and summer chum salmon commercial harvest by district or subdistrict and by period, set and drift gillnets combined for Districts 1, 2, and 3 and set gillnets and fish wheels combined for Districts 4, 5, and 6, Yukon Area, 2000.

District 1													
Period Number	Starting Time	Start Date	Ending Time	End Date	Hours Fished	Number of Fishermen	Chinook Salmon			Summer Chum Salmon			
							Numbers	Pounds	Average Weight	Numbers	Pounds	Average Weight	
1	6:00 PM	24-Jun	12:00 Midnight	24-Jun	6	315	U	2,559	48,254	18.9	1,973	15,211	7.7
2	9:00 PM	29-Jun	3:00 AM	30-Jun	6	275	U	2,176	41,624	19.1	1,342	9,763	7.3
District 1 Subtotal:					12	350		4,735	89,878	19.0	3,315	24,974	7.5

District 2													
Period Number	Starting Time	Start Date	Ending Time	End Date	Hours Fished	Number of Fishermen	Chinook Salmon			Summer Chum Salmon			
							Numbers	Pounds	Average Weight	Numbers	Pounds	Average Weight	
1	6:00 PM	27-Jun	12:00 Midnight	27-Jun	6	214	U	3,783	68,989	18.2	3,309	25,808	7.8
District 2 Subtotal:					6	214		3,783	68,989	18.2	3,309	25,808	7.8

Districts 3-6													
Period Number	Starting Time	Start Date	Ending Time	End Date	Hours Fished	Number of Fishermen	Chinook Salmon			Summer Chum Salmon			
							Numbers	Pounds	Average Weight	Numbers	Pounds	Average Weight	
NO COMMERCIAL FISHING										-	-	-	-
Districts 3-6 Subtotal:					-	-		-	-	-	-	-	-

Lower Yukon Area, Summer Season, Districts 1 and 2 Subtotals:					18	562		8,518	158,867	18.7	6,624	50,782	7.7
Districts 3-6 Subtotal:					-	-		-	-	-	-	-	-
Districts 1-6 Subtotals:					18	562		8,518	158,867	18.7	6,624	50,782	7.7

U=UNRESTRICTED, R=6" MAXIMUM MESH SIZE

Table 11. Fall chum and coho salmon commercial harvest by district or subdistrict and by period, set and drift gillnets combined for Districts 1, 2, and 3 and set gillnets and fish wheels combined for Districts 4, 5, and 6, Yukon Area, 2000.

Districts 1-6														
Period Number	Starting Time	Start Date	Ending Time	End Date	Hours Fished		Number of Fishermen	Fall Chum Salmon			Coho Salmon			Percent Coho
					Drift	Set		Numbers	Pounds	Average Weight	Numbers	Pounds	Average Weight	
NO COMMERCIAL FISHING														
Districts 1-6 Subtotal:					-	-	-	-	-	-	-	-	-	-

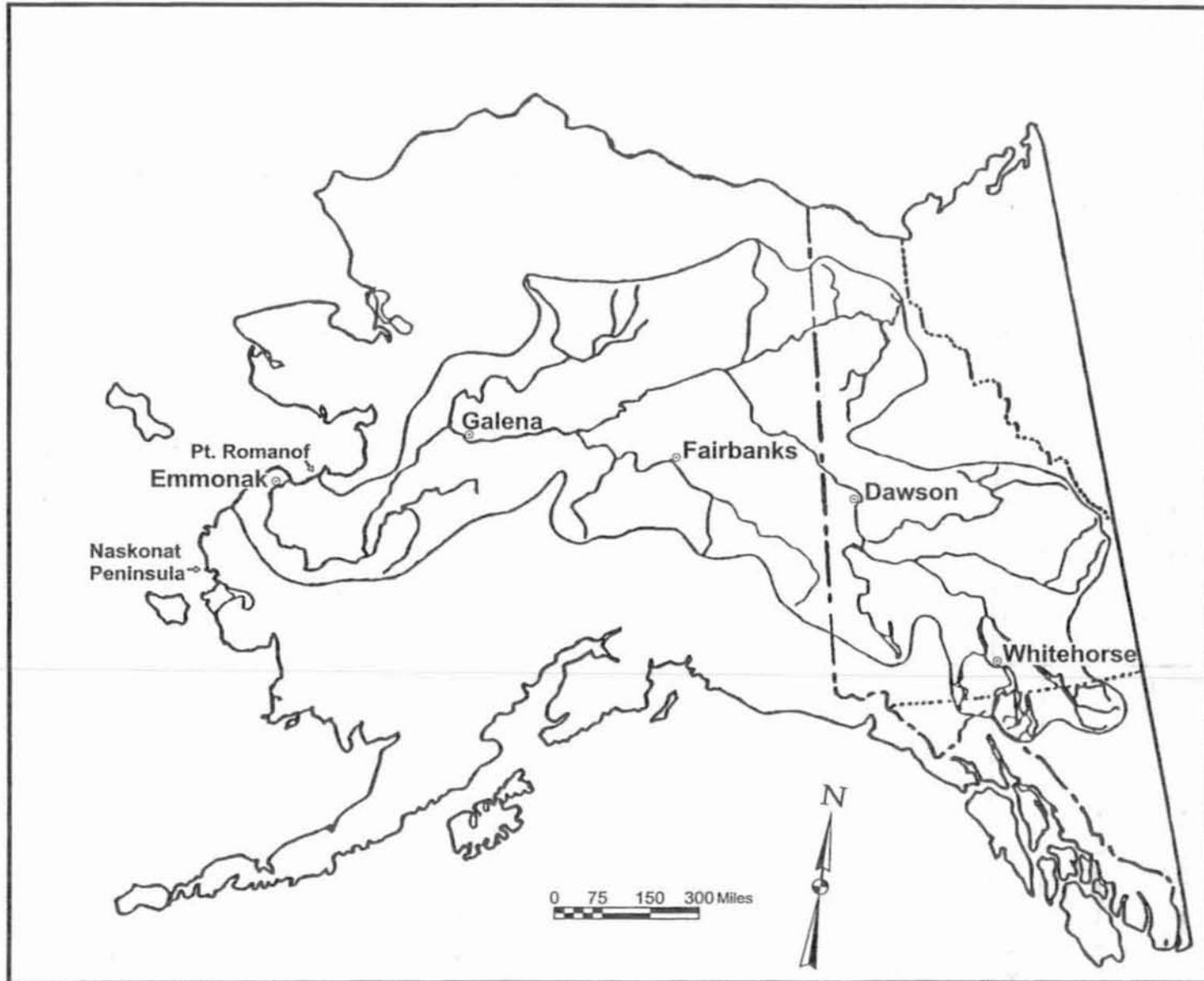


Figure 1. Map of the Yukon River Drainage.

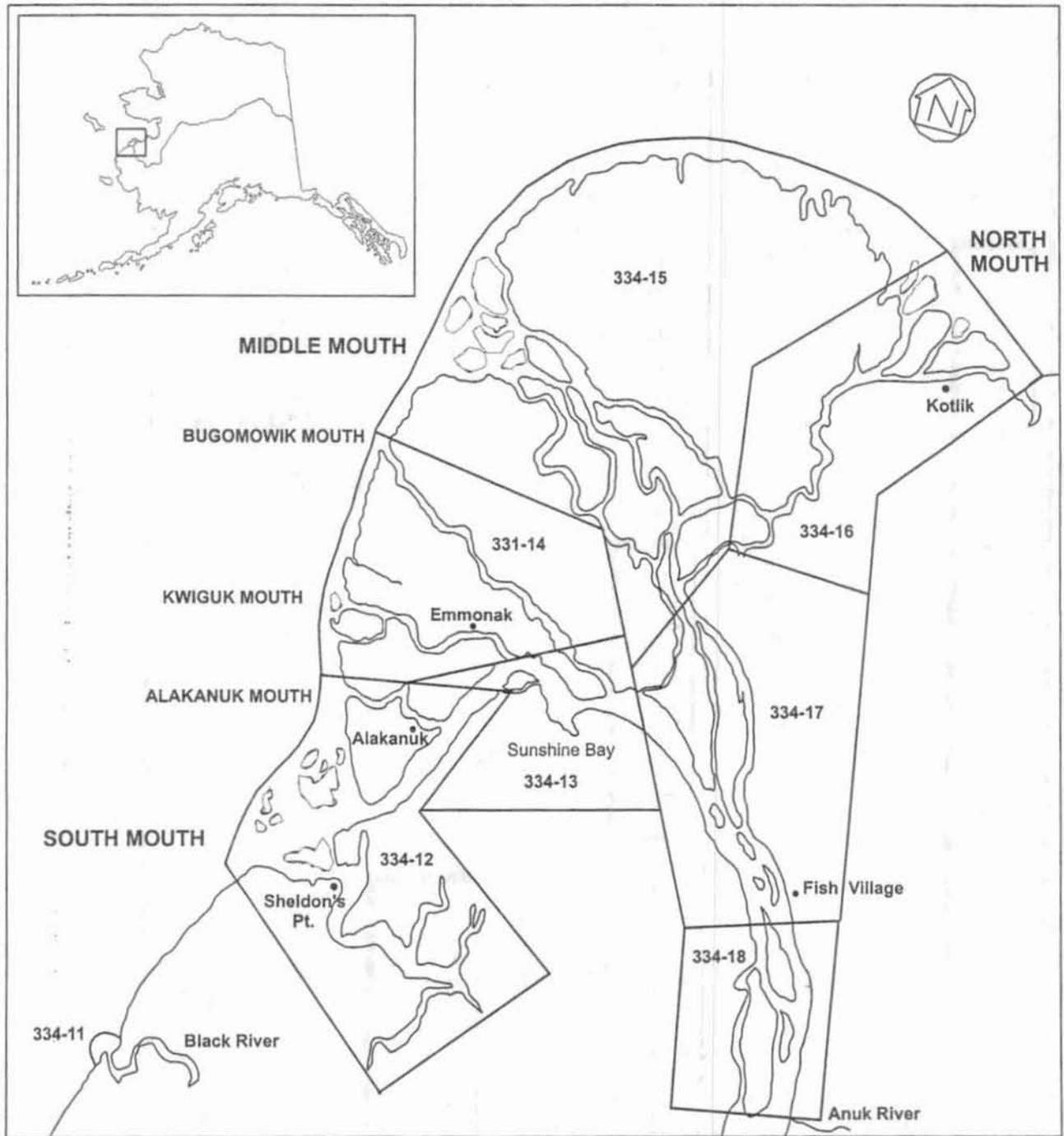


Figure 3. District 1 showing statistical areas, Yukon Area, 2000.

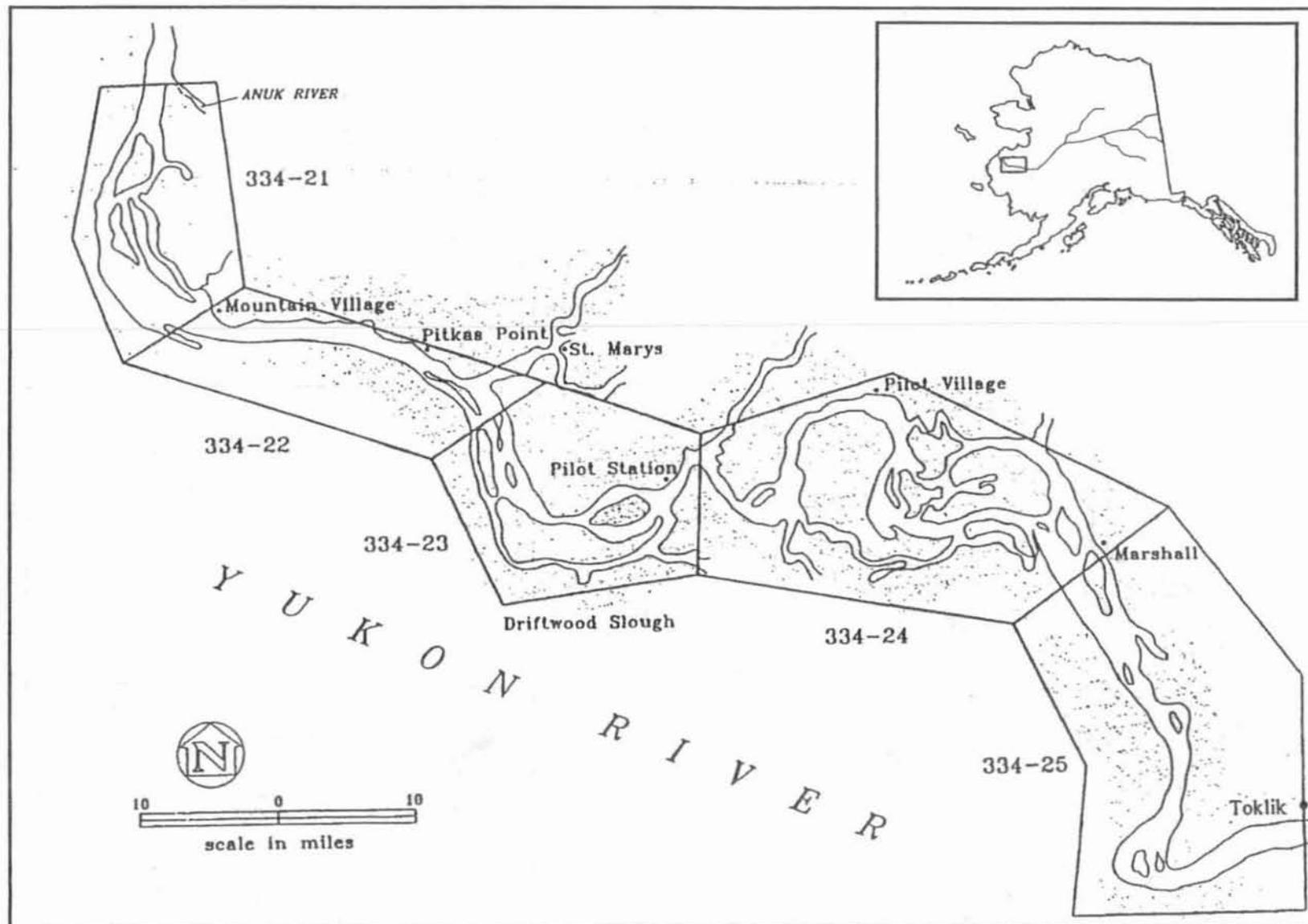


Figure 4. District 2 showing statistical areas, Yukon Area, 2000.

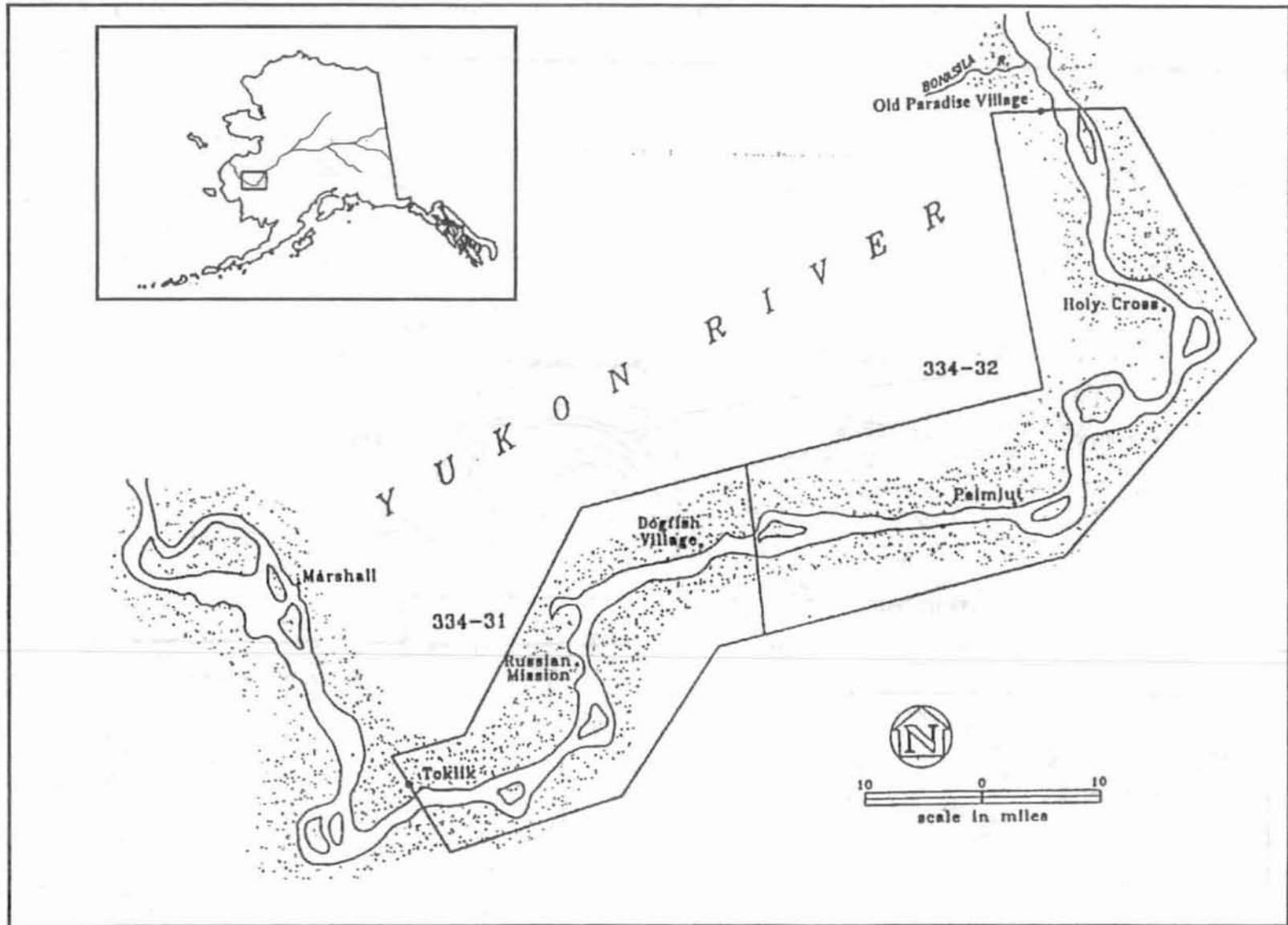


Figure 5. District 3 showing statistical areas, Yukon Area, 2000.

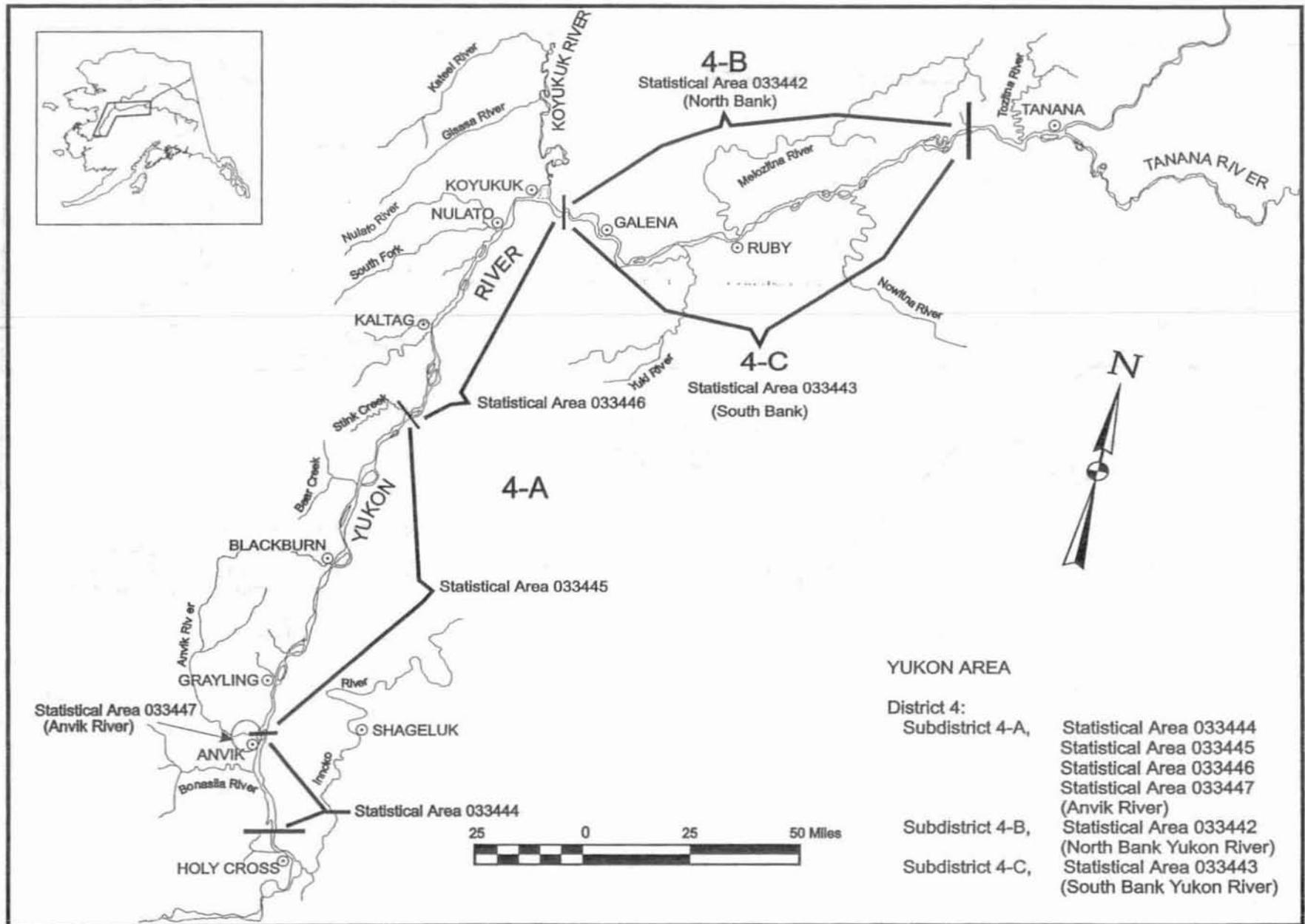


Figure 6. District 4 showing statistical areas, Yukon Area, 2000.

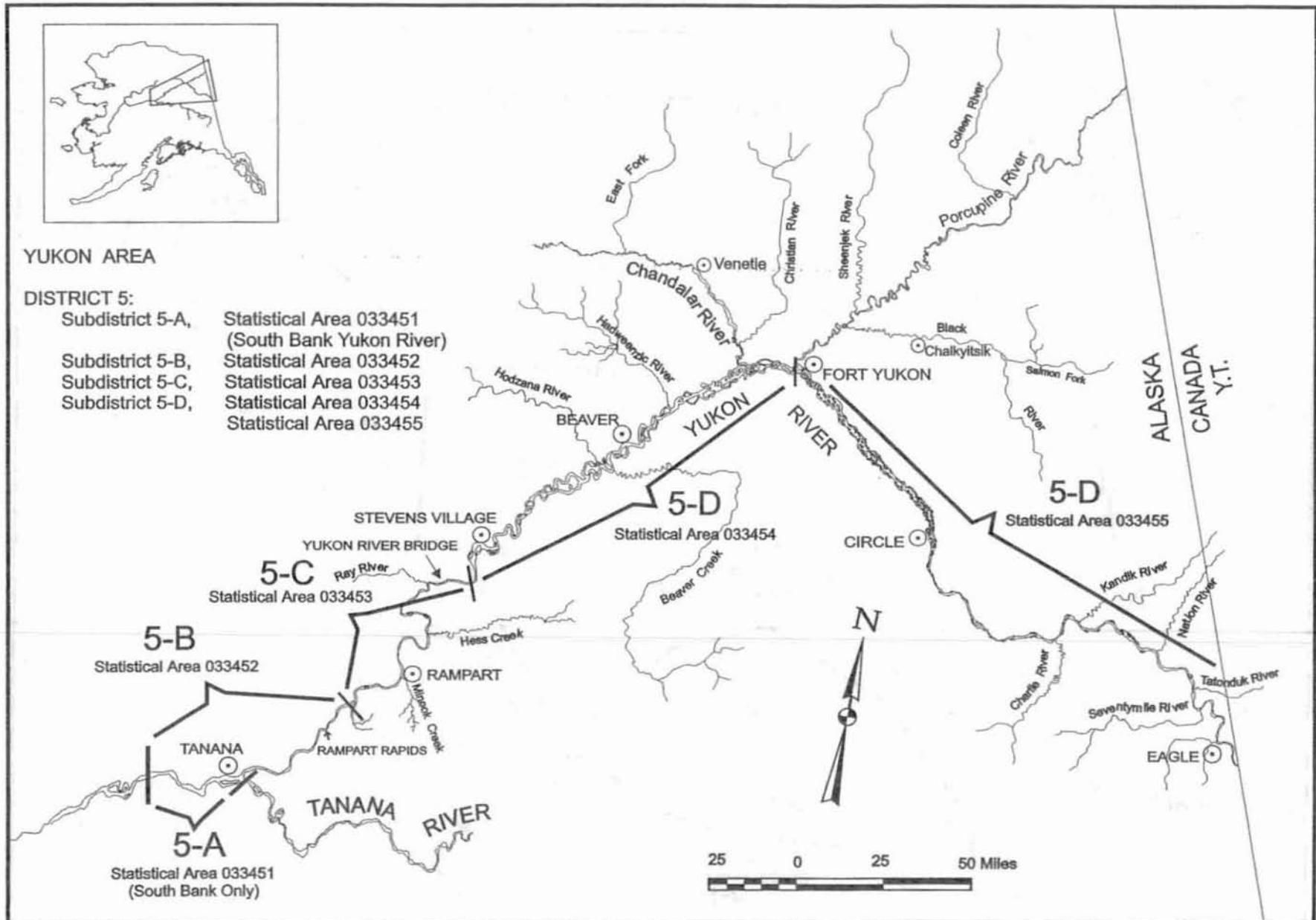


Figure 7. District 5 showing statistical areas, Yukon Area, 2000.

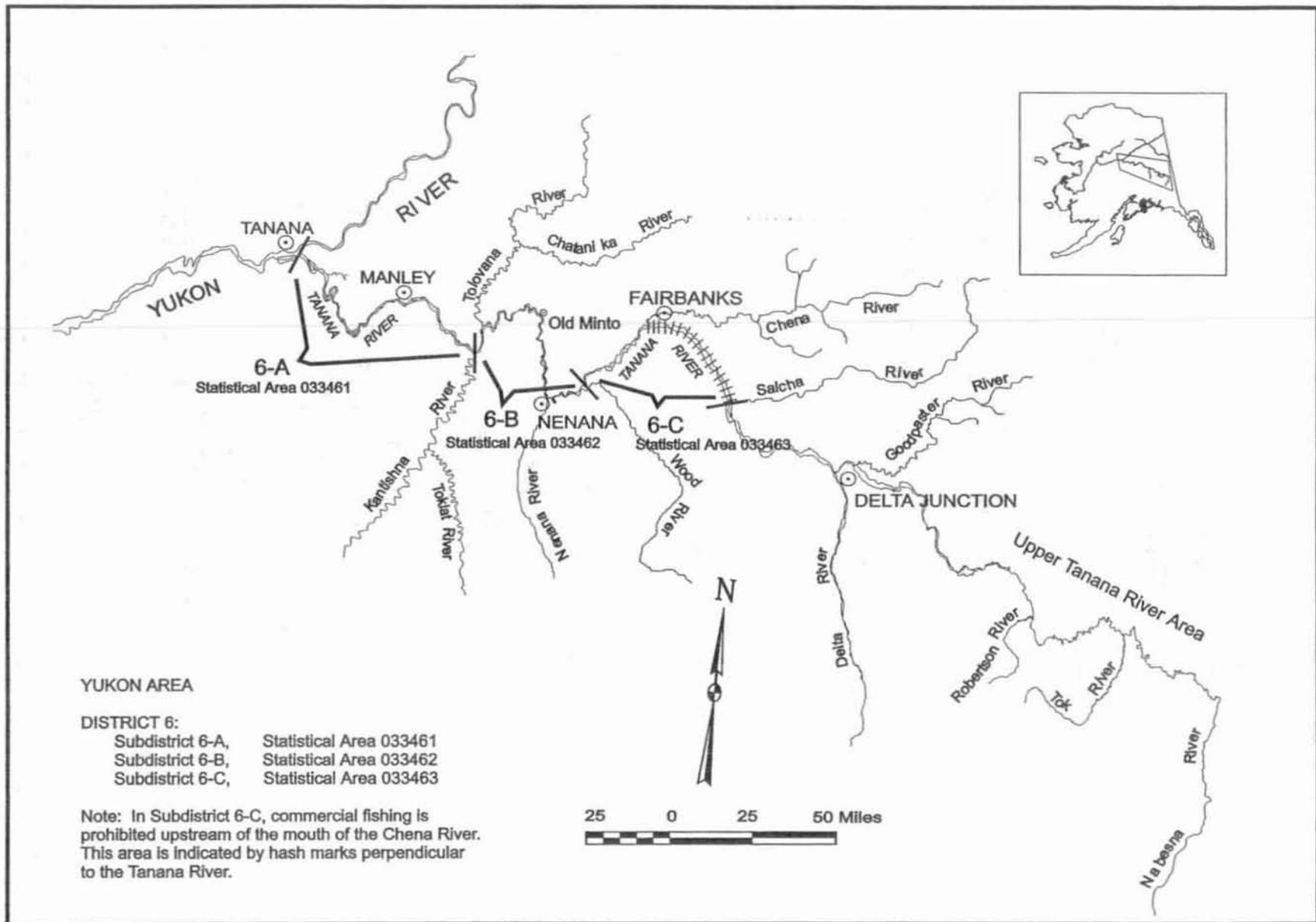


Figure 8. District 6 showing statistical areas, Yukon Area, 2000.

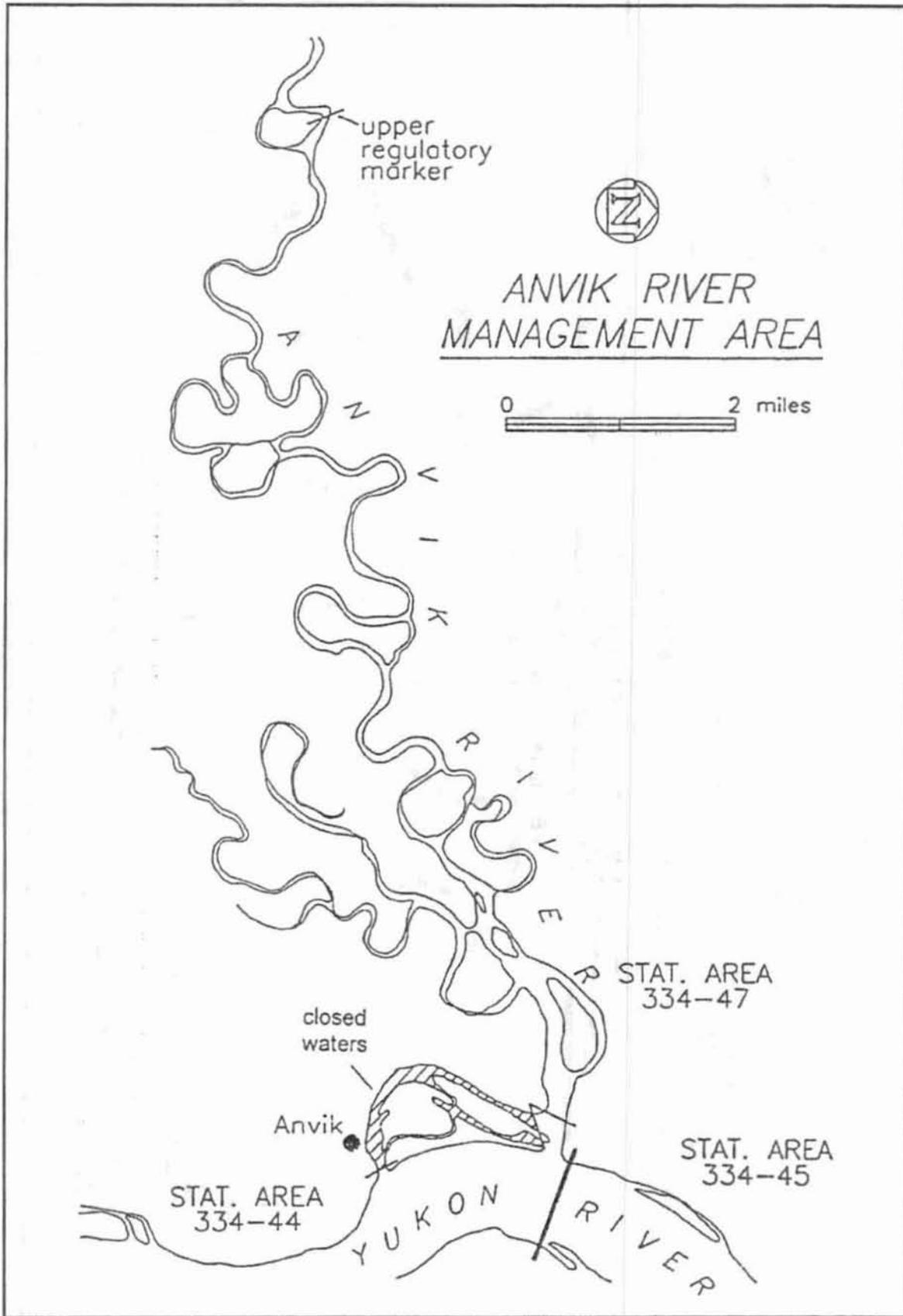


Figure 9. Anvik River Management Area, Yukon Area, 2000.

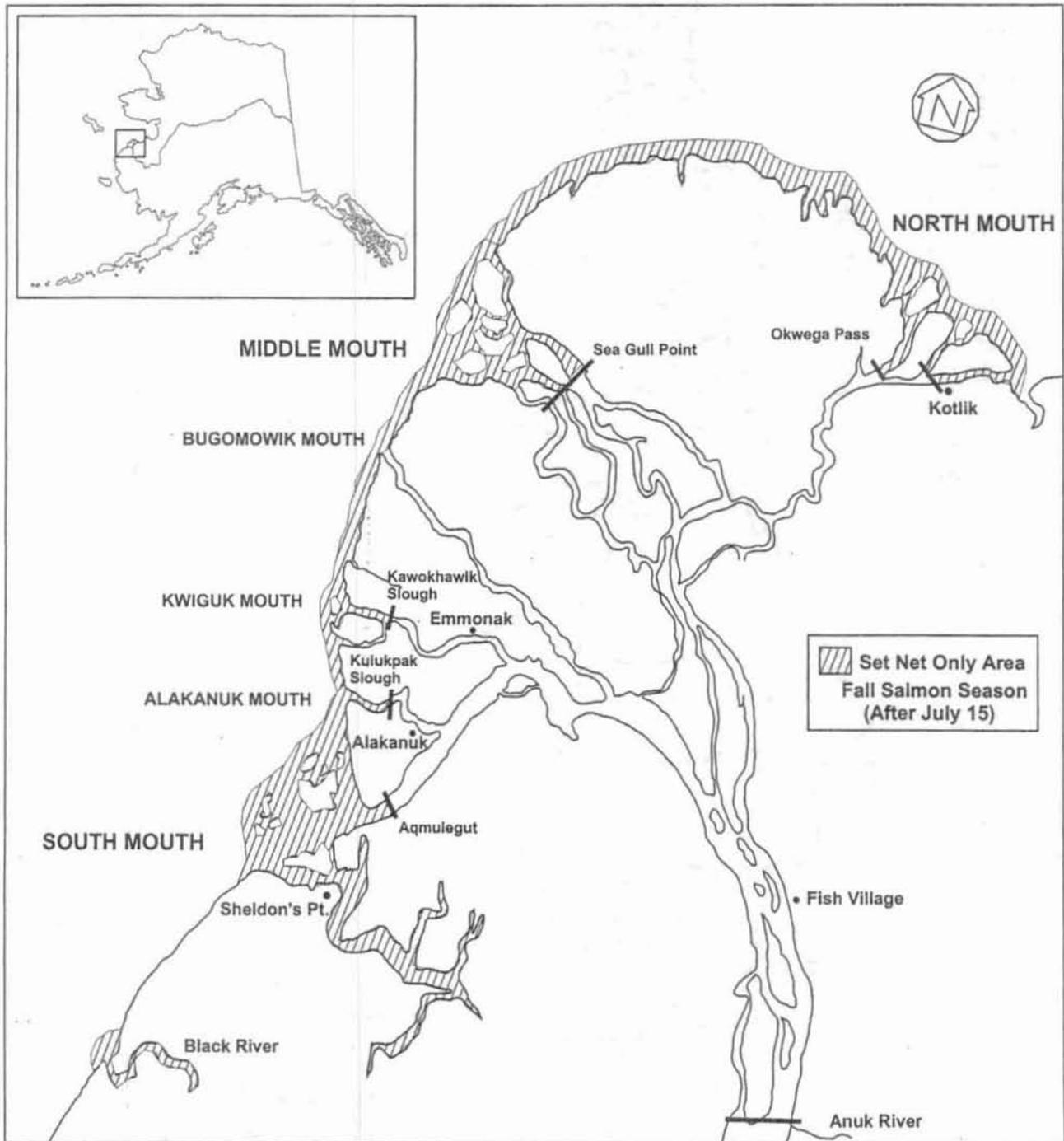


Figure 10. Set Gillnet Only Area of District 1, Lower Yukon Area, 2000.

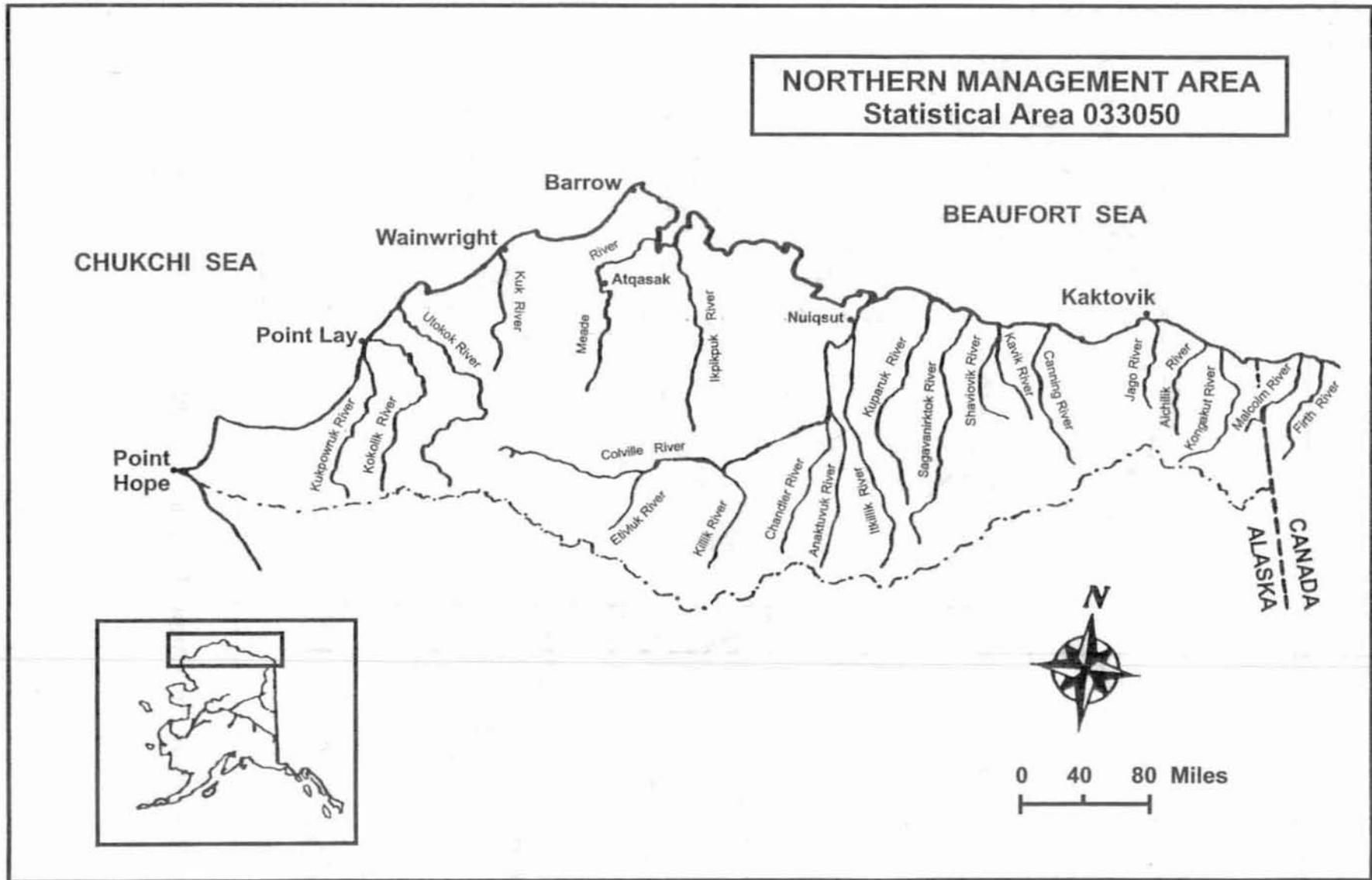


Figure 11. The Northern Management Area, 2000.

APPENDIX A

YUKON RIVER DRAINAGE WIDE SALMON

Appendix A.1. List of indigenous fishes found in the Yukon Area. ^a

Species Code ^b	Scientific Name	Common Name
601	<i>Lampetra japonica</i>	Arctic Lamprey
570	<i>Stenodus leucichthys</i>	Inconnu (Sheefish)
588	<i>Coregonus nasus</i>	Broad Whitefish
589	<i>Coregonus pidschian</i>	Humpback Whitefish
583	<i>Coregonus sardinella</i>	Least Cisco
585	<i>Coregonus laurettae</i>	Bering Cisco
586	<i>Prosopium cylindraceum</i>	Round Whitefish
587	<i>Prosopium coulteri</i>	Pygmy Whitefish
610	<i>Thymallus arcticus</i>	Arctic Grayling
550	<i>Salvelinus namaycush</i>	Lake Trout
520	<i>Salvelinus alpinus</i>	Arctic Char
530	<i>Salvelinus malma</i>	Dolly Varden
410	<i>Oncorhynchus tshawytscha</i>	Chinook Salmon
420	<i>Oncorhynchus nerka</i>	Sockeye Salmon
430	<i>Oncorhynchus kisutch</i>	Coho Salmon
440	<i>Oncorhynchus gorbuscha</i>	Pink Salmon
450	<i>Oncorhynchus keta</i>	Chum Salmon
513	<i>Osmerus mordax</i>	Rainbow Smelt
514	<i>Hypomesus olidus</i>	Pond Smelt
500	<i>Esox lucius</i>	Northern Pike
630	<i>Dallia pectoralis</i>	Alaska Blackfish
650	<i>Couesius plumbeus</i>	Lake Chub
640	<i>Catostomus catostomus</i>	Longnose Sucker
670	<i>Percopsis omiscomaycus</i>	Trout Perch
590	<i>Lota lota</i>	Burbot (lush)
661	<i>Pungitius pungitius</i>	Ninespine Stickleback
162	<i>Cottus cognatus</i>	Slimy Sculpin
ESTUARINE		
113	<i>Eleginus gracilis</i>	Saffron Cod
122	<i>Liopsetta glacialis</i>	Arctic Flounder
127	<i>Limanda aspera</i>	Yellowfin Sole
129	<i>Platichthys stellatus</i>	Starry Flounder
192	<i>Hexagrammos stelleri</i>	Whitespotted Greenling
230	<i>Clupea harengus pallas</i>	Pacific Herring
516	<i>Mallotus villosus</i>	Capelin
NA	<i>Megalocottus platycephalus</i>	Sculpin

^a Includes fishes found in the Yukon River drainage in Canada.

^b The species code is a three-digit number that identifies the type of fish caught on harvest fish tickets.

Appendix A.2. Yukon River drainage mileages.

<u>Location</u>	<u>Mileage from Mouth</u>	<u>Location</u>	<u>Mileage from Mouth</u>
<u>NORTH MOUTH (APOON PASS)</u>		<u>(District 3/4 Boundary)</u>	
Kotlik	6	Mouth, Bonasila River	306
Hamilton	26	Anvik	317
<u>MIDDLE MOUTH (KWIKPAK,KAWANAK PASS)</u>		Mouth, Anvik River	318
Choolunawick	16	Grayling	336
Akers Camp	26	Mouth, Thompson Creek	349
New Hamilton	34	Blackburn	370
<u>SOUTH MOUTH (KWIKLUAK PASS)</u>		Eagle Slide	402
Mouth, Black River	-18	Mouth, Rodo River	447
Flat Island	0	Kaltag	450
Sheldon Point	5	Mouth, Nulato River	483
Tin Can Point	8	Nulato	484
Alakanuk	17	Koyukuk	502
Emmonak-Kwiguk (Kwiguk Pass)	24	Mouth, Koyukuk River	508
Sunshine Bay	24	Mouth, Gisasa River	564
Aproka Pass (upstream mouth)	35	Huslia	711
Kwipak Pass (upstream mouth)	44	Mouth, Dakli River	755
Head of Passes	48	Mouth, Hogatza River	780
Fish Village	52	Hughes	881
Mouth, Anuk River	63	Mouth, Kanuti River	935
<u>(District 1/2 Boundary)</u>		Alatna (Mouth, Alatna R.)	956
Patsys Cabin	71	Allakaket	956
Mountain Village	87	Mouth, South Fork	986
Old Andreafsky	97	Mouth, John River	1,117
Pitkas Point	103	Bettles	1,121
Mouth, Andreafsky River	104	Middle Fork	1,141
St. Marys	107	Cold Foot	1,174
Pilot Station	122	Wiseman	1,186
Mouth, Atcheulinguk (Chulinak) River	126	Bishop Rock	514
Pilot Village	138	Prospect Point	519
Marshall (Fortuna Ledge)	161	Galena	530
Upstream Mouth Owl Slough	163	Whiskey Creek	555
Ingrihak	170	Mouth, Yuki River	562
Ohogamuit	185	Ruby	581
Toklik	191	Mouth, Melozitna River	583
<u>(District 2/3 Boundary)</u>		Horner Hot Springs	605
Kakamut	193	Kokrines	608
Russian Mission	213	Mouth, Nowitna River	612
Dogfish Villaage	227	Birches	647
Paimuit	251	Kallands-Mouth of Illinois Creek	664
Mouth, Innoko River (South Slough)	274	<u>(District 4/5 Boundary)</u>	
Shageluk	328	Mouth, Tozitna River	681
Holikachuk	383	Tanana Village	695
Holy Cross	279	Mouth, Tanana River	695
Mouth, Koserefski River	286	<u>(District 5/6 Boundary)</u>	
Old Paradise Village	301	Manley Hot Springs	765
		Mouth, Kantishna River	793
		Mouth, Toklat River	838
		Mouth, Sushana R.	850
		Mouth, Bearpaw River	887
		Outlet, L. Minchumina	959
		Mint	835
		Nenana	860
		Mouth, Nenana River	860
		Mouth, Wood River	894
		Rosie Creek Bluffs	912
		Mouth, Chena R.(Fairbanks)	920

<u>Location</u>	<u>Mileage from Mouth</u>	<u>Location</u>	<u>Mileage from Mouth</u>
Mouth, Salcha River	965	<u>U.S.-Canadian border</u>	1,224
Benchmark #735 Slough	991	Mouth, Fortymile River	1,269
Mouth, Little Delta R.	1,000	Dawson	1,319
Mouth, Delta Creek	1,014	Mouth, Klondike River	1,320
Mouth, Clear Creek	1,015	Mouth, Sixty Mile River	1,369
(Richardson-Clearwater)		Mouth, Stewart River	1,375
Mouth, Shaw Creek	1,021	McQuesten	1,455
Mouth, Delta River	1,031	Stewart Crossing	1,491
(Big Delta)		Mayo	1,520
Delta Junction	1,041	Mouth, Hess River	1,594
Mouth, Goodpaster River	1,049	Mouth, White River	1,386
Bluff Cabin Slough	1,050	Mouth, Donjek River	1,455
Outlet, Clearwater Lake	1,052	Mouth Kluane River	1,541
Outlet, Clearwater Crk	1,053	Outlet Kluane L.	1,587
(Delta Clearwater)		Burwash Landing	1,595
Mouth, Gerstle River	1,059	Kluane	1,625
Outlet, Healy Lake	1,071	Fort Selkirk	1,477
Outlet, Lake George	1,086	Mouth, Pelly River	1,478
Tanacross	1,128	Pelly Crossing	1,510
Outlet, Tetlin Lake	1,188	Mouth, MacMillan River	1,542
Mouth, Nabesna River	1,210	Ross River	1,602
Northway Junction	1,214	Minto	1,499
Mouth, Chisana River	1,215	Mouth Tatchun Creek	1,530
Mouth, Sheep Creek	1,297	Carmacks	1,547
Rampart Rapids	731	Mouth, Little Salmon River	1,583
Rampart	763	Mouth, Big Salmon River	1,621
Mouth, Hess Creek	789	Mouth, N. Big Salmon R.	1,641
Mouth, Ray River	817	Mouth, S. Big Salmon R.	1,657
Highway Bridge -	820	Outlet, Big Salmon Lake	1,714
Pipeline Crossing		Mouth, Teslin River	1,654
Mouth, Dall River	841	Roaring Bull Rapids	1,707
Stevens Village	847	Johnson's Crossing	
Mouth, Hodzana River	897	(Outlet, Teslin L.)	1,756
Beaver	932	Teslin	1,780
Mouth Hadweenzic River	952	Mouth Nisutlin River	1,788
Mouth, Chandalar River		Mouth, Sidney Creek	1,837
(Venetie Landing)	982	Mouth, Hundred Mi. Creek	1,851
Venetie	1,025	Mouth, NcNeil River	1,887
Fort Yukon	1,002	Outlet, Nisutlin Lake	1,892
Mouth, Porcupine River	1,002	Outlet, Lake Laberge	1,679
Mouth, Black River	1,026	Inlet, Lake Laberge	1,712
Chalkyitsik	1,084	Mouth, Takhini River	1,718
Mouth, Salmon Fork R.	1,142	Whitehorse	1,745
Mouth, Sheenjok River	1,054	Outlet, Marsh Lake	1,764
Mouth, Coleen River	1,157	Mouth, M'Clintock River	1,769
Mouth, Salmon Trout R.	1,193	Outlet, Little Atlin L.	1,788
U.S. - Canadian Border	1,219	Outlet, Atlin Lake	1,812
Old Crow	1,259	Atlin	1,844
Fishing Branch R.	1,600	Tagish	1,786
spawning area		Outlet, Tagish Lake	1,788
Circle	1,061	Carcross	1,810
Woodchopper	1,110	(Outlet L.Bennett)	
Mouth, Charley River	1,124	Bennett	1,835
Mouth, Kandik River	1,135		
Mouth, Nation River	1,166		
Mouth, Tatonduk River	1,186		
Mouth, Seventymile River	1,194		
Eagle	1,213		

Appendix A.3. Alaskan and Canadian total utilization, in numbers, of Yukon River drainage salmon, 1903-2000.

Year	Alaska ^a			Canada ^b			Total		
	Chinook	Other Salmon	Total	Chinook	Other Salmon	Total	Chinook	Other Salmon	Total
1903						4,666			4,666
1904									
1905									
1906									
1907									
1908						7,000			7,000
1909						9,238			9,238
1910									
1911									
1912									
1913						12,133			12,133
1914						12,573			12,573
1915						10,466			10,466
1916						9,566			9,566
1917									
1918	12,239	1,500,065	1,512,304			7,066	12,239	1,500,065	1,519,370
1919	104,822	738,790	843,612			1,800	104,822	738,790	845,412
1920	78,467	1,015,655	1,094,122			12,000	78,467	1,015,655	1,106,122
1921	69,646	112,098	181,744			10,840	69,646	112,098	192,584
1922	31,825	330,000	361,825			2,420	31,825	330,000	364,245
1923	30,893	435,000	465,893			1,833	30,893	435,000	467,726
1924	27,375	1,130,000	1,157,375			4,560	27,375	1,130,000	1,161,935
1925	15,000	259,000	274,000			3,900	15,000	259,000	277,900
1926	20,500	555,000	575,500			4,373	20,500	555,000	579,873
1927		520,000	520,000			5,366		520,000	525,366
1928		670,000	670,000			5,733		670,000	675,733
1929		537,000	537,000			5,226		537,000	542,226
1930		633,000	633,000			3,660		633,000	636,660
1931	26,693	565,000	591,693			3,473	26,693	565,000	595,166
1932	27,899	1,092,000	1,119,899			4,200	27,899	1,092,000	1,124,099
1933	28,779	603,000	631,779			3,333	28,779	603,000	635,112
1934	23,365	474,000	497,365			2,000	23,365	474,000	499,365
1935	27,665	537,000	564,665			3,466	27,665	537,000	568,131
1936	43,713	560,000	603,713			3,400	43,713	560,000	607,113
1937	12,154	346,000	358,154			3,746	12,154	346,000	361,900
1938	32,971	340,450	373,421			860	32,971	340,450	374,281
1939	28,037	327,650	355,687			720	28,037	327,650	356,407
1940	32,453	1,029,000	1,061,453			1,153	32,453	1,029,000	1,062,606
1941	47,608	438,000	485,608			2,806	47,608	438,000	488,414
1942	22,487	197,000	219,487			713	22,487	197,000	220,200
1943	27,650	200,000	227,650			609	27,650	200,000	228,259
1944	14,232		14,232			986	14,232		15,218
1945	19,727		19,727			1,333	19,727		21,060
1946	22,782		22,782			353	22,782		23,135
1947	54,026		54,026			120	54,026		54,146
1948	33,842		33,842				33,842		33,842
1949	36,379		36,379				36,379		36,379
1950	41,808		41,808				41,808		41,808
1951	56,278		56,278				56,278		56,278
1952	38,637	10,868	49,505				38,637	10,868	49,505
1953	58,859	385,977	444,836				58,859	385,977	444,836
1954	64,545	14,375	78,920				64,545	14,375	78,920
1955	55,925		55,925				55,925		55,925
1956	62,208	10,743	72,951				62,208	10,743	72,951
1957	63,623		63,623				63,623		63,623
1958	75,625	337,500	413,125	11,000	1,500	12,500	86,625	339,000	425,625
1959	78,370		78,370	8,434	3,098	11,532	86,804	3,098	89,902
1960	67,597		67,597	9,653	15,608	25,261	77,250	15,608	92,858

-Continued-

Year	Alaska ^a			Canada ^b			Total		
	Chinook	Other Salmon	Total	Chinook	Other Salmon	Total	Chinook	Other Salmon	Total
1961	141,152	461,597	602,749	13,246	9,076	22,322	154,398	470,673	625,071
1962	105,844	434,663	540,507	13,937	9,436	23,373	119,781	444,099	563,880
1963	141,910	429,396	571,306	10,077	27,696	37,773	151,987	457,092	609,079
1964	109,818	504,420	614,238	7,408	12,187	19,595	117,226	516,607	633,833
1965	134,706	484,587	619,293	5,380	11,789	17,169	140,086	496,376	636,462
1966	104,887	309,502	414,389	4,452	13,192	17,644	109,339	322,694	432,033
1967	146,104	352,397	498,501	5,150	16,961	22,111	151,254	369,358	520,612
1968	118,632	270,818	389,450	5,042	11,633	16,675	123,674	282,451	406,125
1969	105,027	424,399	529,426	2,624	7,776	10,400	107,651	432,175	539,826
1970	93,019	585,760	678,779	4,663	3,711	8,374	97,682	589,471	687,153
1971	136,191	547,448	683,639	6,447	16,911	23,358	142,638	564,359	706,997
1972	113,098	461,617	574,715	5,729	7,532	13,261	118,827	469,149	587,976
1973	99,670	779,158	878,828	4,522	10,135	14,657	104,192	789,293	893,485
1974	118,053	1,229,678	1,347,731	5,631	11,646	17,277	123,684	1,241,324	1,365,008
1975	76,883	1,307,037	1,383,920	6,000	20,600	26,600	82,883	1,327,637	1,410,520
1976	105,582	1,026,908	1,132,490	5,025	5,200	10,225	110,607	1,032,108	1,142,715
1977	114,494	1,090,758	1,205,252	7,527	12,479	20,006	122,021	1,103,237	1,225,258
1978	129,988	1,615,312	1,745,300	5,881	9,566	15,447	135,869	1,624,878	1,760,747
1979	159,232	1,596,133	1,755,365	10,375	22,084	32,459	169,607	1,618,217	1,787,824
1980	197,665	1,730,960	1,928,625	22,846	23,718	46,564	220,511	1,754,678	1,975,189
1981	188,477	2,097,871	2,286,348	18,109	22,781	40,890	206,586	2,120,652	2,327,238
1982	152,808	1,265,457	1,418,265	17,208	16,091	33,299	170,016	1,281,548	1,451,564
1983	198,436	1,678,597	1,877,033	18,952	29,490	48,442	217,388	1,708,087	1,925,475
1984	162,683	1,548,101	1,710,784	16,795	29,767	46,562	179,478	1,577,868	1,757,346
1985	187,327	1,657,984	1,845,311	19,301	41,515	60,816	206,628	1,699,499	1,906,127
1986	146,004	1,758,825	1,904,829	20,364	14,843	35,207	166,368	1,773,668	1,940,036
1987	188,386	1,246,176	1,434,562	17,614	44,786	62,400	206,000	1,290,962	1,496,962
1988	148,421	2,311,214	2,459,635	21,427	33,915	55,342	169,848	2,345,129	2,514,977
1989	157,606	2,281,566	2,439,172	17,944	23,490	41,434	175,550	2,305,056	2,480,606
1990	149,433	1,053,351	1,202,784	19,227	34,302	53,529	167,114	1,059,943	1,256,313
1991	154,651	1,335,111	1,489,762	20,607	35,653	56,260	175,258	1,370,764	1,546,022
1992	168,191	863,575	1,031,766	17,903	21,310	39,213	186,094	884,885	1,070,979
1993	163,078	342,197	505,275	16,611	14,150	30,761	179,689	356,347	536,036
1994	172,315	577,233	749,548	21,218	38,342	59,560	193,533	615,575	809,108
1995	177,663	1,437,837	1,615,500	20,887	46,109	66,996	198,550	1,483,946	1,682,496
1996	138,562	1,121,181	1,259,743	19,612	24,395	44,007	158,174	1,145,576	1,303,750
1997	174,625	544,879	719,504	16,528	15,878	32,406	191,153	560,757	751,910
1998	99,369	199,735	299,104	5,937	8,115	14,052	105,306	207,850	313,156
1999	124,315	234,221	358,536	12,569	19,506	32,075	136,884	253,727	390,611
2000	50,187	116,209	166,396	4,879	9,273	14,152	55,066	125,482	180,548

a Catch in number of salmon. Includes estimated number of salmon harvested for the commercial production of roe.

b Aboriginal, Domestic, Commercial, and sport catches combined.

Appendix A.4. Commercial chinook salmon sales and estimated harvest by area, district, and country, Yukon River drainage, 1961-2000.

Year	Lower Yukon Area ^b				Upper Yukon Area ^a									Total Estimated Harvest ^c	Canada Total	Grand Total				
	District 1	District 2	District 3	Subtotal	District 4			District 5			District 6						Subtotal			
					Number	Roe	Estimated Harvest ^c	Number	Roe	Estimated Harvest ^c	Number	Roe	Estimated Harvest ^c				Number	Roe	Estimated Harvest ^c	
1961	84,466	29,026	4,368	117,860	-	-	-	-	-	-	-	-	-	1,804	-	1,804	119,664	3,446	123,110	
1962	67,099	22,224	4,687	94,010	-	-	-	-	-	-	-	-	-	724	-	724	94,734	4,037	98,771	
1963	85,004	24,221	7,020	116,245	-	-	-	-	-	-	-	-	-	803	-	803	117,048	2,283	119,331	
1964	67,555	20,246	4,705	92,506	-	-	-	-	-	-	-	-	-	1,081	-	1,081	93,587	3,206	96,795	
1965	89,268	23,763	3,204	116,235	-	-	-	-	-	-	-	-	-	1,863	-	1,863	118,098	2,265	120,363	
1966	70,788	16,927	3,612	91,327	-	-	-	-	-	-	-	-	-	1,988	-	1,988	93,315	1,942	95,257	
1967	104,350	20,239	3,618	128,207	-	-	-	-	-	-	-	-	-	1,449	-	1,449	129,656	2,187	131,843	
1968	79,465	21,392	4,543	105,400	-	-	-	-	-	-	-	-	-	1,126	-	1,126	106,526	2,212	108,738	
1969	71,688	14,756	3,595	90,039	-	-	-	-	-	-	-	-	-	988	-	988	91,027	1,640	92,667	
1970	56,648	17,141	3,705	77,494	-	-	-	-	-	-	-	-	-	1,651	-	1,651	79,145	2,611	81,756	
1971	86,042	19,226	3,490	108,758	-	-	-	-	-	-	-	-	-	1,749	-	1,749	110,507	3,178	113,685	
1972	70,052	17,855	3,841	91,748	-	-	-	-	-	-	-	-	-	1,092	-	1,092	92,840	1,769	94,609	
1973	56,961	13,859	3,204	74,044	-	-	-	-	-	-	-	-	-	1,309	-	1,309	75,353	2,199	77,552	
1974 ^d	71,840	17,948	3,480	93,268	685	-	685	2,663	-	2,663	1,473	-	1,473	4,821	-	4,821	98,089	1,808	99,897	
1975	44,585	11,315	4,177	60,077	389	-	389	2,872	-	2,872	500	-	500	3,761	-	3,761	63,838	3,000	66,838	
1976	62,410	16,556	4,148	83,114	409	-	409	3,151	-	3,151	1,102	-	1,102	4,662	-	4,662	87,776	3,500	91,276	
1977	69,915	16,722	3,965	90,602	985	-	985	4,162	-	4,162	1,008	-	1,008	6,155	-	6,155	96,757	4,720	101,477	
1978	59,006	32,924	2,916	94,846	608	-	608	3,079	-	3,079	635	-	635	4,322	-	4,322	99,168	2,975	102,143	
1979	75,007	41,498	5,018	121,523	1,989	-	1,989	3,389	-	3,389	772	-	772	6,150	-	6,150	127,673	6,175	133,848	
1980	90,382	50,004	5,240	145,626	1,521	-	1,521	4,891	-	4,891	1,947	-	1,947	8,359	-	8,359	153,985	9,500	163,485	
1981	99,506	45,781	4,023	149,310	1,347	-	1,347	6,374	-	6,374	987	-	987	8,708	-	8,708	158,018	8,593	166,611	
1982	74,450	39,132	2,609	116,191	1,087	-	1,087	5,365	-	5,365	981	-	981	7,453	-	7,453	123,644	8,640	132,284	
1983	85,457	43,229	4,106	142,792	801	-	801	3,606	-	3,606	911	-	911	5,118	-	5,118	147,910	13,027	160,937	
1984	74,671	36,697	3,039	114,407	961	-	961	3,669	-	3,669	867	-	867	5,497	-	5,497	119,904	9,885	129,789	
1985	90,011	48,365	2,588	140,964	694	-	694	3,418	-	3,418	1,142	-	1,142	5,224	-	5,224	146,188	12,573	158,761	
1986	53,035	41,849	901	95,785	502	-	502	2,733	-	2,733	950	-	950	4,185	-	4,185	99,970	10,797	110,767	
1987 ^f	76,643	47,458	2,039	126,140	1,524	-	1,524	3,758	-	3,758	3,338	-	3,338	8,620	-	8,620	134,760	10,864	145,624	
1988	56,120	35,120	1,767	93,007	3,159	-	3,159	3,436	-	3,436	762	-	762	7,357	-	7,357	100,364	13,217	113,581	
1989	61,570 ^g	33,166	1,645	96,381	2,790	-	2,790	3,286	-	3,286	1,741	-	1,741	7,817	-	7,817	104,198	9,789	113,987	
1990	51,199 ^h	33,061	2,341	86,601	3,536	8	3,538	3,353	47	3,365	1,757	1,676	2,156	8,646	1,731	9,059	95,660	11,324	106,984	
1991 ⁱ	56,332	39,260	2,344	97,936	2,446	2,222	3,582	3,810	62	3,826	886	1,545	1,072	6,942	3,829	8,480	106,416	10,906	117,322	
1992 ^k	74,212	38,139	1,819	114,170	1,651	2,273	2,394	3,852	7	3,855	572	884	753	6,075	3,164	7,002	121,172	10,877	132,049	
1993	49,286	37,293	1,501	88,080	1,349	701	1,577	3,008	0	3,008	1,113	1,313	1,445	5,470	2,014	6,030	94,110	10,350	104,460	
1994	62,241	41,692	1,114	105,047	2,216	564	2,443	3,739	10	3,744	2,135	1,620	2,606	8,090	2,394	8,793	113,840	12,028	125,868	
1995	76,106	41,458	0	117,564	262	626	499	3,242	0	3,242	1,660	4,731	2,747	5,164	5,357	6,488	124,052	11,146	135,198	
1996	56,642	30,209	0	86,851	45	202	137	2,497	518	2,757	278	750	447	2,820	1,470	3,341	90,192	10,164	100,356	
1997	66,384	39,363	0	105,747	1,450	14	1,457	3,678	0	3,678	1,966	3,211	2,728	7,094	3,225	7,863	113,610	5,311	118,921	
1998	25,413	16,806	0	42,219	0	0	0	517	0	517	882	260	963	1,399	260	1,480	43,699	390	44,089	
1999	37,161	27,133	538	64,832	1,437	0	1,437	2,604	0	2,604	402	1,096	690	4,443	1,096	4,731	69,563	3,160	72,723	
2000	4,735	3,783	0	8,518	0	0	0	0	0	0	0	0	0	0	0	0	8,518	0	8,518	
1990-1994																				
Average	58,654	37,889	1,824	98,367	2,240	-	2,707	3,552	-	3,560	1,253	-	1,806	7,045	-	7,873	106,240	11,097	117,337	
1995-1999																				
Average	52,341	30,994	108	83,443	639	168	706	2,508	104	2,560	1,038	2,010	1,515	4,184	2,282	4,781	88,223	6,034	94,257	

a Harvest reported in numbers of fish sold in the round and pounds of roe sold. Since 1990, efforts were made to separate chinook roe from summer chum roe. Does not include department test fish sales.

b All fish sold in the round. Includes department test fish sales prior to 1988.

c The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold.

d In 1974, District 4 was subdivided to include Districts 5 and 6.

f Includes the illegal sales of 653 chinook salmon in District 5, and 2,136 chinook salmon in District 6.

g Includes the illegal sales of 3,211 chinook salmon.

h Includes the illegal sales of 1,101 chinook salmon.

i Includes the illegal sales of 2,711 chinook salmon in District 1, and 284 chinook salmon in District 2.

k Includes the illegal sales of 1,216 chinook salmon in District 1, and 207 chinook salmon in District 2.

Appendix A.5. Commercial summer chum salmon sales and estimated harvest by area and district, Yukon River drainage in Alaska, 1967-2000.

Year	Lower Yukon Area							
	District 1 ^b	District 2 ^b	District 3 ^a			Subtotal		
			Number	Roe	Estimated Harvest ^c	Number	Roe	Estimated Harvest ^c
1967	9,453	1,425	57			10,935	-	10,935
1968	12,995	1,407	68			14,470	-	14,470
1969	56,886	5,080	-			61,966	-	61,966
1970	117,357	19,649	-			137,006	-	137,006
1971	93,928	6,112	50			100,090	-	100,090
1972	114,234	20,907	527			135,668	-	135,668
1973	221,644	63,402	463			285,509	-	285,509
1974 ^d	466,004	74,152	1,721			541,877	-	541,877
1975	418,323	99,139	-			517,462	-	517,462
1976	273,204	99,190	9,802			382,196	-	382,196
1977	250,652	105,679	3,412			359,743	-	359,743
1978	393,785	227,548	27,003			648,336	-	648,336
1979	369,934	172,838	40,015			582,787	-	582,787
1980	391,252	308,704	44,782			744,738	-	744,738
1981	507,158	351,878	54,471			913,507	-	913,507
1982	249,516	182,344	4,086			435,946	-	435,946
1983	451,164	248,092	14,600			713,856	-	713,856
1984	292,676	236,931	1,087			530,694	-	530,694
1985	247,486	188,099	1,792			437,377	-	437,377
1986	381,127	288,427	442			669,996	-	669,996
1987	222,898	174,876	3,501			401,275	-	401,275
1988	645,322	424,461	13,965			1,083,748	-	1,083,748
1989	544,373 ^f	343,032	7,578			894,983	-	894,983
1990	146,725	131,755	643			279,123	-	279,123
1991	140,470 ^h	175,149	8,912			324,531	-	324,531
1992 ⁱ	177,329	147,129	65			324,523	-	324,523
1993	73,659	19,332	463			93,454	-	93,454
1994	42,332	12,869	35			55,236	-	55,236
1995	142,266	83,817	0			226,083	-	226,083
1996	92,506	30,727	0	935	1,534	123,233	935	124,767
1997	59,915	18,242	0	0	0	78,157	0	78,157
1998	21,270	6,848	0	0	0	28,118	0	28,118
1999	16,181	11,702	0	0	0	27,883	0	27,883
2000	3,315	3,309	0	0	0	6,624	0	6,624
1990-1994								
Average	116,103	97,247	2,024	-	-	215,373	-	215,373
1995-1999								
Average	66,428	30,267	0	-	-	96,695	-	97,002

-Continued-

Year	Upper Yukon Area ^a														
	District 4			District 5			District 6			Subtotal			Total		
	Number	Roe	Estimated Harvest ^c	Number	Roe	Estimated Harvest ^c	Number	Roe	Estimated Harvest ^c	Number	Roe	Estimated Harvest ^c	Number	Roe	Estimated Harvest ^c
1967	-	-	-	-	-	-	-	-	-	0	0	0	10,935	0	10,935
1968	-	-	-	-	-	-	-	-	-	0	0	0	14,470	0	14,470
1969	-	-	-	-	-	-	-	-	-	0	0	0	61,966	0	61,966
1970	-	-	-	-	-	-	-	-	-	0	0	0	137,006	0	137,006
1971	-	-	-	-	-	-	-	-	-	0	0	0	100,090	0	100,090
1972	-	-	-	-	-	-	-	-	-	0	0	0	135,668	0	135,668
1973	-	-	-	-	-	-	-	-	-	0	0	0	285,509	0	285,509
1974 ^d	27,866	-	27,866	6,831	-	6,831	13,318	-	13,318	48,015	0	48,015	589,892	0	589,892
1975	165,054	-	165,054	12,997	-	12,997	14,782	-	14,782	192,833	0	192,833	710,295	0	710,295
1976	211,307	-	211,307	774	-	774	6,617	-	6,617	218,698	0	218,698	600,894	0	600,894
1977	169,541	-	169,541	1,274	-	1,274	4,317	-	4,317	175,132	0	175,132	534,875	0	534,875
1978	364,184	16,920	381,104	4,892	605	5,497	34,814	8,236	43,050	403,890	25,761	429,651	1,052,226	25,761	1,077,987
1979	169,430	35,317	204,747	8,608	1,009	9,617	18,491	3,891	22,382	196,529	40,217	236,746	779,316	40,217	819,533
1980	147,560	135,824	283,384	456	-	456	35,855	3,282	39,137	183,871	139,106	322,977	928,609	139,106	1,067,715
1981	59,718	187,032	330,445	1,236	49	1,285	32,477	1,987	34,464	93,431	189,068	366,194	1,006,938	189,068	1,279,701
1982	3,647	151,281	257,719	213	21	234	21,597	1,517	23,114	25,457	152,819	281,067	461,403	152,819	717,013
1983	6,672	148,125	255,388	42	1,856	1,898	24,309	18	24,327	31,023	149,999	281,613	744,879	149,999	995,469
1984	1,009	166,842	278,070	645	47	692	56,249	335	56,584	57,903	167,224	335,346	588,597	167,224	866,040
1985	12,007	247,085	427,483	700	-	700	66,913	1,540	68,453	79,620	248,625	496,636	516,997	248,625	934,013
1986	300	269,545	465,535	690	-	690	50,483	2,146	52,629	51,473	271,691	518,854	721,469	271,691	1,188,850
1987	29,991	121,474	209,800	362	44	406	10,610	450	11,060	40,963	121,968	221,266	442,238	121,968	622,541
1988	24,051	254,526	490,074	722	363	1,085	40,129	1,646	41,775	64,902	256,535	532,934	1,148,650	256,535	1,616,682
1989	18,554	283,305	510,244	154	373	527	42,115	4,871	46,986	60,823	288,549	557,757	955,806	288,549	1,452,740
1990	12,364	105,723	222,550	11	594	671	11,127 ^e	3,059	14,833	23,502	109,376	238,054	302,625	109,376	517,177
1991	6,381	137,232	309,644	4	28	35	18,197	4,716	23,892	24,582	141,976	333,571	349,113	141,976	658,102
1992 ^f	2,659	110,809	211,396	102	295	430	5,029	1,892	7,228	7,790	112,996	219,054	332,313	112,996	543,577
1993	27	22,447	42,957	0	0	0	3,041	515	3,705	3,068	22,962	46,662	96,522	22,962	140,116
1994	3,611	89,717	171,607	229	212	464	21,208	7,828	31,434	25,048	97,757	203,505	80,284	97,757	258,741
1995	8,873	281,074	554,587	107	188	316	24,711	9,475	37,428	33,691	290,737	592,331	259,774	290,737	818,414
1996	0	295,190	510,240	0	302	336	22,360	18,332	46,890	22,360	313,824	557,466	145,593	314,759	682,233
1997	2,062	74,231	124,671	137	0	137	14,886	9,036	25,287	17,085	83,267	150,095	95,242	83,267	228,252
1998	0	0	0	96	13	110	397	140	570	493	153	680	28,611	153	28,798
1999	1,267	0	1,267	115	0	115	124	24	148	1,506	24	1,530	29,389	24	29,413
2000	0	0	0	0	0	0	0	0	0	0	0	0	6,624	0	6,624
1990-1994															
Average	5,008	93,186	191,631	69	226	320	11,720	3,602	16,218	16,798	97,013	208,169	232,171	97,013	423,543
1995-1999															
Average	2,440	130,099	238,153	91	101	203	12,496	7,401	22,065	15,027	137,601	260,420	111,722	137,788	357,422

^a Harvest reported in numbers of fish sold in the round and pounds of roe. Roe sales may include some pink and chinook salmon roe. Does not include department test fish sales.

^b All sales are fish in the round in District 1 and 2. Includes department test fish sales prior to 1988.

^c The estimated harvest is the fish sold in the round plus the estimated number of females caught to produce the roe sold. In addition, the estimated harvest for Districts 3 and 4 includes the estimated number of unsold males harvested.

^d In 1974, District 4 was subdivided to include Districts 5 and 6.

^e Includes the illegal sales of 150 summer chum salmon in District 1.

^f Does not include 1,233 female summer chum salmon sold in Subdistrict 6-C with roe extracted and roe sold separately. These fish are included in estimated harvest to produce roe sold.

^g Includes the illegal sales of 1,023 summer chum salmon.

^h Includes the illegal sales of 31 summer chum salmon in District 1, and 91 summer chum salmon in District 2.

Appendix A.6. Commercial fall chum salmon sales and estimated harvest by area, district, and country, Yukon River drainage, 1961-2000.

Year	Upper Yukon Area ^a																	Canada Total	Grand Total
	Lower Yukon Area ^b				District 4			District 5			District 6			Subtotal			Total		
	District 1	District 2	District 3	Subtotal	Numbers	Roe	Estimated Harvest ^c	Numbers	Roe	Estimated Harvest ^c	Numbers	Roe	Estimated Harvest ^c	Numbers	Roe	Estimated Harvest ^c	Estimated Harvest		
1961	42,461	-	-	42,461	-	-	-	-	-	-	-	-	-	0	0	0	42,461		
1962	53,116	-	-	53,116	-	-	-	-	-	-	-	-	-	0	0	0	53,116		
1963	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0		
1964	8,347	-	-	8,347	-	-	-	-	-	-	-	-	-	0	0	0	8,347		
1965	22,936	-	-	22,936	-	-	-	-	-	-	-	-	-	381	0	381	23,317		
1966	69,836	-	1,209	71,045	-	-	-	-	-	-	-	-	-	0	0	0	71,045		
1967	36,451	-	1,823	38,274	-	-	-	-	-	-	-	-	-	0	0	0	38,274		
1968	49,857	-	3,068	52,925	-	-	-	-	-	-	-	-	-	0	0	0	52,925		
1969	128,866	-	1,722	130,588	-	-	-	-	-	-	-	-	-	722	0	722	131,310		
1970	200,306	4,858	3,285	208,449	-	-	-	-	-	-	-	-	-	1,146	0	1,146	209,595		
1971	188,533	-	-	188,533	-	-	-	-	-	-	-	-	-	1,061	0	1,061	189,594		
1972	136,711	12,898	1,313	150,922	-	-	-	-	-	-	-	-	-	1,254	0	1,254	152,176		
1973	173,783	45,304	-	219,087	-	-	-	-	-	-	-	-	-	13,003	0	13,003	232,090		
1974 ^d	176,036	53,540	552	230,128	9,213	-	9,213	23,551	-	23,551	26,884	-	26,884	59,648	0	59,648	289,776		
1975	158,183	51,666	5,590	215,439	13,666	-	13,666	27,212	-	27,212	18,692	-	18,692	59,570	0	59,570	275,009		
1976	105,851	21,212	4,250	131,313	1,742	-	1,742	5,387	-	5,387	17,948	-	17,948	25,077	0	25,077	156,390		
1977	131,758	51,994	15,851	199,603	13,980	-	13,980	25,730	-	25,730	18,673	-	18,673	58,383	0	58,383	257,986		
1978	127,947	51,646	11,527	191,120	10,988	1,721	12,709	21,016	5,220	26,236	13,259	3,687	16,946	45,263	10,628	55,891	247,011		
1979	109,406	94,042	25,955	229,403	48,899	3,199	52,098	47,459	8,097	55,556	34,185	7,170	41,355	130,543	18,466	149,009	378,412		
1980	106,829	83,881	13,519	204,229	27,978	4,347	32,325	41,771	605	42,376	19,452	68	19,520	89,201	5,020	94,221	298,450		
1981	167,834	154,883	19,043	341,760	12,082	1,311	13,393	86,620	6,955	93,575	25,989	3,019	29,008	124,691	11,285	135,976	477,736		
1982	97,484	96,581	5,815	199,880	3,894	167	4,061	13,593	42	13,635	6,820	596	7,416	24,307	805	25,112	224,992		
1983	124,371	85,645	10,018	220,034	4,482	1,963	6,445	43,993	0	43,993	34,089	3,101	37,190	82,564	5,064	87,628	307,662		
1984	78,751	70,803	6,429	155,983	7,625	2,215	9,840	24,060	57	24,117	20,564	56	20,620	52,249	2,328	54,577	210,560		
1985	129,948	40,490	5,164	175,602	24,452	2,525	26,977	25,338	0	25,338	42,352	0	42,352	92,142	2,525	94,667	270,269		
1986	59,352	51,307	2,793	113,452	2,045	0	2,045	22,053	395	22,448	1,892	182	2,074	25,990	577	26,567	140,019		
1987	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1988	44,890	31,845	2,090	78,825	15,662	1,421	17,083	16,989	0	16,989	21,844	1,806	23,650	54,495	3,227	57,722	136,547		
1989	74,235	97,558	15,332	187,125	11,776	3,407	15,183	18,215	3,989	22,204	49,090	7,353	56,443	79,081	14,749	93,830	280,955		
1990	25,269	37,077	3,715	66,061	4,989	2,351	8,166	7,778	1,058	8,976	43,182 ^f	7,535	50,975	55,949	10,944	68,117	134,178		
1991	59,724	102,628	9,213	171,565	3,737	1,616	6,091	27,355	3,625	32,114	28,195	14,154	44,448	59,287	19,395	82,653	254,218		
1992	0	0	0	0	0	0	0	0	0	0	15,721	2,806	19,022	15,721	2,806	19,022	19,022		
1993	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1994	0	0	0	0	0	0	0	3,630	0	3,630	1	3,276	4,369	3,631	3,276	7,999	7,999		
1995	79,345	90,831	0	170,176	2,924	4,126	8,731	9,778	18,815	30,033	67,855	9,560	74,117	80,557	32,501	112,881	283,057		
1996	33,629	29,651	0	63,280	2,918	0	2,918	11,878	8,498	21,858	10,266	6,173	17,574	25,062	14,671	42,350	105,630		
1997	27,483	24,326	0	51,809	2,458	0	2,458	2,446	1,194	3,920	0	0	0	4,904	1,194	6,378	58,187		
1998	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1999	9,887	9,703	0	19,690	681	0	681	0	0	0	0	0	0	681	0	681	20,371		
2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1990-1994																			
Average	16,999	27,941	2,586	47,525	1,745	793	2,851	7,753	937	8,944	17,420	5,554	23,763	26,918	7,284	35,558	83,083		
1995-1999																			
Average	30,089	30,902	0	60,991	1,796	825	2,958	4,820	5,701	11,162	15,624	3,147	18,338	22,241	9,673	32,458	93,449		

^a Sales reported in numbers of fish sold in the round and pounds of unprocessed roe, which may include small amounts of coho salmon roe. Since 1990, efforts were made to separate coho roe from fall chum roe. Does not include department test fish sales.

^b All fish sold in the round. Includes department test fish sales prior to 1988.

^c The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold.

^d In 1974, District 4 was subdivided to include Districts 5 and 6.

^f Does not include 884 female fall chum salmon sold in Subdistrict 6-C with roe extracted and roe sold separately. Females are accounted for in the estimated harvest to produce roe sold.

Appendix A.7. Commercial coho salmon sales and estimated harvest by area and district, Yukon River drainage in Alaska, 1961-2000.

Year	Lower Yukon Area ^b				Upper Yukon Area ^a									Total Estimated Harvest			
	District 1	District 2	District 3	Subtotal	District 4			District 5			District 6				Subtotal		
					Number	Roe	Estimated Harvest ^c	Number	Roe	Estimated Harvest ^c	Number	Roe	Estimated Harvest ^c		Number	Roe	Estimated Harvest ^c
1961	2,855	-	-	2,855	-	-	-	-	-	-	-	-	-	-	-	-	2,855
1962	22,926	-	-	22,926	-	-	-	-	-	-	-	-	-	-	-	-	22,926
1963	5,572	-	-	5,572	-	-	-	-	-	-	-	-	-	-	-	-	5,572
1964	2,446	-	-	2,446	-	-	-	-	-	-	-	-	-	-	-	-	2,446
1965	350	-	-	350	-	-	-	-	-	-	-	-	-	-	-	-	350
1966	19,254	-	-	19,254	-	-	-	-	-	-	-	-	-	-	-	-	19,254
1967	9,925	-	1,122	11,047	-	-	-	-	-	-	-	-	-	-	-	-	11,047
1968	13,153	-	150	13,303	-	-	-	-	-	-	-	-	-	-	-	-	13,303
1969	13,989	-	1,009	14,998	-	-	-	-	-	-	-	-	-	-	-	95	15,093
1970	12,632	-	-	12,632	-	-	-	-	-	-	-	-	-	-	-	556	13,188
1971	12,165	-	-	12,165	-	-	-	-	-	-	-	-	-	-	-	38	12,203
1972	21,705	506	-	22,211	-	-	-	-	-	-	-	-	-	-	-	22	22,233
1973	34,860	1,781	-	36,641	-	-	-	-	-	-	-	-	-	-	-	0	36,641
1974 ^d	13,713	176	-	13,889	0	-	0	1,409	-	1,409	1,479	-	1,479	2,888	-	2,888	16,777
1975	2,288	200	-	2,488	0	-	0	5	-	5	53	-	53	58	-	58	2,546
1976	4,064	17	-	4,081	0	-	0	0	-	0	1,103	-	1,103	1,103	-	1,103	5,184
1977	31,720	5,319	538	37,577	0	-	0	2	-	2	1,284	-	1,284	1,286	-	1,286	38,863
1978	16,460	5,835	758	23,053	32	-	32	1	-	1	3,066	-	3,066	3,099	-	3,099	26,152
1979	11,369	2,850	-	14,219	155	-	155	0	-	0	2,791	-	2,791	2,946	-	2,946	17,165
1980	4,829	2,660	-	7,489	30	-	30	0	-	0	1,226	-	1,226	1,256	-	1,256	8,745
1981	13,129	7,848	419	21,396	0	-	0	0	-	0	2,284	-	2,284	2,284	-	2,284	23,680
1982	15,115	14,179	87	29,381	15	-	15	0	-	0	7,780	-	7,780	7,795	-	7,795	37,176
1983	4,595	2,557	-	7,152	0	-	0	0	-	0	6,168	-	6,168	6,168	-	6,168	13,320
1984	29,472	43,064	621	73,157	1,095	-	1,095	0	-	0	7,688	-	7,688	8,783	-	8,783	81,940
1985	27,676	17,125	171	44,972	938	-	938	0	-	0	11,762	-	11,762	12,700	-	12,700	57,672
1986	24,824	21,197	793	46,814	0	-	0	0	-	0	441	-	441	441	-	441	47,255
1987	0	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0
1988	36,028	34,758	1,419	72,205	2	-	2	8	-	8	13,972	-	13,972	13,982	-	13,982	86,187
1989	22,987	38,402	3,988	65,377	3	-	3	84	-	84	16,084	-	16,084	16,171	-	16,171	81,548
1990	12,160	16,405	918	29,483	0	-	0	0	-	0	11,549 ^f	4,042	14,804	11,549	4,042	14,804	44,287
1991	54,095	40,898	1,905	96,898	14	0	14	0	0	0	6,268	4,299	9,774	6,282	4,299	9,788	106,686
1992	0	0	0	0	0	0	0	0	0	0	6,556	1,680	7,979	6,556	1,680	7,979	7,979
1993	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0	0	0	120	5,588	4,451	120	5,588	4,451	4,451
1995	21,625	18,488	0	40,113	0	0	0	0	0	0	5,826	2,229	6,900	5,826	2,229	6,900	47,013
1996	27,705	20,974	0	48,679	161	0	161	0	0	0	3,803	4,829	7,142	3,964	4,829	7,303	55,982
1997	21,450	13,056	0	34,506	814	0	814	0	0	0	0	0	0	814	0	814	35,320
1998	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
1999	855	746	0	1,601	0	0	0	0	0	0	0	0	0	0	0	0	1,601
2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1990-1994 Average	13,251	11,461	565	25,276	3	0	3	0	0	0	4,899	3,122	7,402	4,901	3,122	7,404	32,681
1995-1999 Average	14,327	10,653	0	24,980	195	0	195	0	0	0	1,926	1,412	2,808	2,121	1,412	3,003	27,983

a Sales reported in numbers of fish sold in the round and pounds of roe. Since 1990, efforts were made to separate coho and fall chum salmon roe. Does not include department test fish sales.

b All sales are fish in the round. Includes department test fish sales prior to 1988.

c The estimated harvest is the fish sold in the round plus the estimated number of females caught to produce the roe sold.

d In 1974, District 4 was subdivided to include Districts 5 and 6.

f Does not include 438 female coho salmon sold in District 6-C with roe extracted and roe sold separately. These fish are included in estimated harvest to produce roe sold.

Appendix A.8. Commercial Fisheries Entry Commission (CFEC) salmon permits issued by gear type, Yukon Area, 1976-2000. ^a

Year	Lower Yukon Area Set or Drift Gillnet		Upper Yukon Area Set Gillnet		Upper Yukon Area Fishwheel		Total	
	Permits Issued	Permits Fished	Permits Issued	Permits Fished	Permits Issued	Permits Fished	Permits Issued	Permits Fished
1976	678	- ^b	118	- ^b	169	- ^b	- ^b	- ^b
1977	700	609	69	44	160	130	929	783
1978	699	650	71	47	158	137	928	834
1979	708	661	70	50	165	129	943	840
1980	709	654	71	52	163	128	943	834
1981	711	666	80	45	163	125	954	836
1982	710	664	76	45	166	111	952	820
1983	708	655	73	40	164	115	945	810
1984	708	674	73	39	159	99	940	812
1985	708	664	71	40	159	113	938	817
1986	707	670	71	30	162	101	940	801
1987	706	656	71	33	161	108	938	797
1988	707	677	71	43	160	124	938	844
1989	707	682	70	42	160	127	937	851
1990	708	675	71	35	157	116	936	826
1991	708	680	72	36	155	110	935	826
1992	707	678	71	32	179	111	957	821
1993	708	682	72	35	166	88	946	805
1994	707	659	72	30	165	73	944	762
1995	707	663	73	36	166	106	946	805
1996	707	627	72	28	165	107	944	762
1997	705	640	72	22	163	63	940	725
1998	704	643	72	6	162	22	938	671
1999	704	632 ^c	72	13 ^c	162	25 ^c	938	670 ^c
2000	704	632 ^c	72	13 ^c	162	25 ^c	939	670 ^c
1995-1999 Average	705	641	72	21	164	65	941	727

^a Information obtained from CFEC unless otherwise indicated. Includes permanent and interim-use permits.

^b Information unavailable.

^c Data source: ADF&G.

Appendix A.9. Number of commercial salmon fishing gear permit holders by district and season, Yukon Area, 1971-2000. ^a

Chinook and Summer Chum Salmon Season									
Year	Lower Yukon Area				Upper Yukon Area				Yukon Area Total
	District 1	District 2	District 3	Subtotal ^b	District 4	District 5	District 6	Subtotal	
1971	405	154	33	592	-	-	-	-	592
1972	426	153	35	614	-	-	-	-	614
1973	438	167	38	643	-	-	-	-	643
1974	396	154	42	592	27	31	20	78	670
1975	441	149	37	627	93	52	36	181	808
1976	453	189	42	684	80	46	29	155	839
1977	392	188	46	626	87	41	18	146	772
1978	429	204	22	655	80	45	35	160	815
1979	425	210	22	657	87	34	30	151	808
1980	407	229	21	657	79	35	33	147	804
1981	448	225	23	696	80	43	26	149	845
1982	450	225	21	696	74	44	20	138	834
1983	455	225	20	700	77	34	25	136	836
1984	444	217	20	681	54	31	27	112	796
1985	425	223	18	666	74	32	27	133	799
1986	441	239	7	687	75	21	27	123	795
1987	440	239	13	692	87	30	24	141	800
1988	456	250	22	728	95	28	33	156	834
1989	445	243	16	704	98	32	29	159	846
1990	453	242	15	710	92	27	23	142	821
1991	489	253	27	769	85	32	22	139	817
1992	438	263	19	720	90	28	19	137	816
1993	448	238	6	692	75	30	18	123	805
1994	414	250	7	671	55	28	20	103	762
1995	439	233	0	672	87	28	21	136	797
1996	448	189	9	646	87	23	15	125	752
1997	457	188	0	645	39	29	15	83	722
1998	434	231	0	665	0	18	10	28	671
1999	412	217	5	634	5	26	6	37	668
2000	350	214	-	564	-	-	-	-	562
1995-1999 Average	438	212	3	653	44	25	13	82	722

Fall Chum and Coho Salmon Season									
Year	Lower Yukon Area				Upper Yukon Area				Yukon Area Total
	District 1	District 2	District 3	Subtotal ^b	District 4	District 5	District 6	Subtotal	
1971	352	-	-	352	-	-	-	-	352
1972	353	75	3	431	-	-	-	-	431
1973	445	183	-	628	-	-	-	-	628
1974	322	121	6	449	17	23	22	62	511
1975	428	185	12	625	44	33	33	110	735
1976	422	194	28	644	18	36	44	98	742
1977	337	172	37	546	28	34	32	94	640
1978	429	204	28	661	24	43	30	97	758
1979	458	220	32	710	31	44	37	112	822
1980	395	232	23	650	33	43	26	102	752
1981	462	240	21	723	30	50	30	110	833
1982	445	218	15	678	15	24	25	64	742
1983	312	224	18	554	13	29	23	65	619
1984	327	216	12	555	18	39	26	83	619
1985	345	222	13	580	22	39	25	86	645
1986	282	231	14	527	1	21	16	38	548
1987	0	0	0	0	0	0	0	0	0
1988	328	233	13	574	20	20	32	72	635
1989	332	229	22	583	20	24	28	72	622
1990	301	227	19	547	11	11	27	49	578
1991	319	238	19	576	8	21	25	54	594
1992	0	0	0	0	0	0	22	22	22
1993	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	1	11	12	12
1995	189	172	0	361	4	12	20	36	393
1996	158	109	0	267	1	17	17	35	298
1997	176	130	0	306	3	8	0	11	315
1998	0	0	0	0	0	0	0	0	0
1999	146	110	0	256	4	0	0	4	258
2000	-	-	-	-	-	-	-	-	-
1995-1999 Average	105	82	0	187	2	8	10	19	204

-Continued-

COMBINED SEASON									
Year	Lower Yukon Area				Upper Yukon Area				Yukon Area Total
	District 1	District 2	District 3	Subtotal ^b	District 4	District 5	District 6	Subtotal	
1971	473	154	33	660	-	-	-	27	687
1972	476	153	35	664	-	-	-	-	664
1973	529	205	38	772	-	-	-	47	819
1974	485	190	42	717	28	43	27	98	815
1975	491	197	39	727	95	57	46	198	925
1976	482	220	44	746	96	62	56	214	960
1977	402	208	54	609	96	53	39	188	797
1978	472	221	29	650	82	53	38	173	823
1979	461	230	33	661	90	49	40	179	840
1980	432	247	27	654	88	51	38	177	831
1981	507	257	26	666	94	56	31	181	847
1982	455	244	22	664	76	53	27	156	820
1983	458	235	26	655	79	47	31	157	812
1984	453	236	26	676	58	45	33	136	812
1985	434	247	24	666	76	48	33	157	823
1986	444	259	18	672	75	30	27	132	804
1987	440	239	13	659	87	30	24	141	800
1988	460	260	24	683	97	35	38	170	853
1989	452	257	23	687	99	38	32	169	856
1990	459	258	22	679	92	31	30	153	832
1991	497	272	29	680	85	33	28	146	826
1992	438	263	19	679	90	28	25	143	822
1993	448	238	6	682	75	30	18	123	805
1994	414	250	7	659	55	28	20	103	762
1995	446	254	0	664	87	31	24	142	806
1996	455	217	9	628	87	29	19	135	763
1997	463	221	0	640	39	31	15	85	725
1998	434	231	0	643	0	18	10	28	671
1999	422	238	5	632	6	26	6	38	670
2000	350	214	-	562	-	-	-	-	562
<hr/>									
1995-1999									
Average	442	235	3	647	54	27	18	99	745

a Number of permit holders which made at least one delivery.

b Since 1984 the subtotal for the Lower Yukon Area was the unique number of permits fished. Prior to 1984, the subtotals are additive for Districts 1, 2, and 3. Some individual fishers in the Lower Yukon Area may have operated in more than one district during the year.

Appendix A.10. Commercial salmon pack by species and type of processing, Yukon Area, 1960-2000. ^a

Year	Cases (48#)			Fresh-Frozen (round wt. in lbs.)			Cured Chinook		Cured Chum		Salmon Roe (lbs.)
	Chinook	Coho	Chum	Chinook	Coho	Chum	Tierces	Half Tierces	Tierces	Half Tierces	
1960	13,000			- ^b	- ^b	- ^b	250	180			
1961	19,474			- ^b	- ^b	- ^b	504	146			
1962	15,959	512	1,760	- ^b	- ^b	- ^b	464	280			
1963	16,400	1,190		- ^b	- ^b	- ^b	- ^b	- ^b			
1964	12,041			- ^b	17,000	66,770	537	499			
1965	18,149			275,000	2,500	160,500	670	67			
1966	14,026	836	2,812	414,000	61,355	301,240	398	60			
1967	21,503		126	475,900	66,400	366,496	627	96			1,755
1968	19,499		816	561,690	93,154	454,409	351	170			21,000
1969	9,560	1,104	4,499	423,597	26,973 ^c	829,586 ^c	647	95	15		29,000
1970	6,431	1,002	6,413	716,600	12,900	1,725,000	447	191	51		26,300
1971	6,500	502	3,213	1,058,034	45,836	1,432,455	659	229	139		55,177
1972	7,418	1,005	6,249	1,002,395	83,960	1,495,922	497	147			85,278
1973	5,227	1,008	9,902	1,339,317	181,928	2,929,532	61	133		72	137,594
1974	6,660	603	21,074	1,062,666	58,816	3,879,300	381	56	57		208,842
1975	5,297	40	14,226	781,902	13,299	4,751,941	80	53	45	119	201,404
1976	3,921	80	11,375	1,398,779	29,778	4,256,679	93	92	72	10	226,893
1977	4,642	415	9,428	1,513,484	270,241	4,877,918	180	237	26		210,568
1978	5,711	74	9,340	1,473,354	168,241	8,639,156	222	117	7	75	261,422
1979	6,277	22	7,854	2,014,156	108,011	8,098,075	112	91		2	410,540
1980	8,764	130	15,783	3,341,262	56,295	8,781,062	29	18		37	579,927
1981	1,107	378	11,573	3,686,238	130,097	11,398,680	25	13	9	28	507,550
1982		7	751	2,790,456	246,500	4,992,877		19		1	584,053
1983		198	1,181	3,000,843	72,447	10,637,613	5	39		7	426,220
1984		5	1,768	2,426,205	590,526	5,516,532		36		16	468,244
1985				2,953,199	409,725	5,462,462		9		20 ^d	476,024
1986				2,012,324	299,054	5,960,857		15		28 ^f	502,952
1987				2,830,312	0	3,013,889		36			286,099
1988 ^g				1,970,879	624,734	9,111,943		10		22 ^h	577,748
1989 ^g				2,005,949	585,216	8,864,714		6		16	303,298
1990 ^g				1,846,081	283,504	3,166,199		3		1,368 ^k	261,016
1991 ^j				2,047,188	708,902	3,978,482				2,547 ^k	350,174
1992				2,537,833	40,685	2,398,093					260,590
1993				1,905,414	0	634,931					97,630
1994				2,260,301	744	528,666					183,873
1995				2,635,972	317,357	3,524,754					498,925
1996				1,836,242	400,960	1,733,129					443,939
1997				2,324,306	255,228	1,089,678					190,359
1998				779,936	9	191,692					28,919
1999				1,368,658	10,342	352,970					50,696
2000				158,776	0	50,782					6,286

a Pack represents type of processing when fish were shipped out of districts; roe includes unprocessed roe sold by fishermen and estimated production of roe from in the round purchases.

b Information not available.

c Includes approximately 11,600 and 110,500 (round weight) of coho and chum salmon respectively, as salted fish for Japanese market.

d Additionally 13 half tierces of coho salmon were packed.

f Additionally 2 half tierces of coho salmon were packed.

g Does not include District 6 test fish sales.

h Additionally 1 half tierce of coho salmon was packed.

j Beginning in 1991, no ADF&G test fish sales are included.

k Chum salmon are represented in pounds of salted fillets.

Appendix A.11. Estimated average prices per pound paid to fishermen, Yukon Area, 1964-2000.

Year	Lower Yukon Area				Upper Yukon Area							
	Chinook	Summer		Fall	Chinook	Chum	Summer		Fall	Fall	Coho	Coho
		Chum	Chum	Coho			Chinook	Roe	Chum	Roe		
1964	0.17		0.03									
1965	0.20											
1966	0.20											
1967	0.19	0.05	0.05	0.07								
1968	0.18	0.06	0.06									
1969	0.19	0.08	0.08	0.08								
1970	0.22	0.09	0.09	0.12								
1971	0.24	0.10	0.10	0.12								
1972	0.24	0.11	0.11	0.13								
1973	0.30	0.16	0.16	0.18								
1974	0.38	0.21	0.21	0.25	0.50		0.15		0.13		0.15	
1975	0.42	0.20	0.20	0.21	0.92		0.17		0.14		0.17	
1976	0.51	0.24	0.24	0.27	0.74		0.19		0.16		0.19	
1977	0.85	0.40	0.45	0.50	1.37		0.27	2.66	0.22		0.27	
1978	0.90	0.45	0.47	0.60	0.87		0.24	- ^a	0.25		0.24	
1979	1.09	0.52	0.68	0.80	1.00		0.25	3.00	0.29		0.25	
1980	1.04	0.20	0.28	0.36	0.85		0.23	2.50	0.27		0.29	
1981	1.20	0.40	0.55	0.60	1.00		0.20	3.00	0.35		0.35	
1982	1.41	0.40	0.55	0.69	1.02		0.18	2.75	0.28		0.37	
1983	1.40	0.34	0.34	0.35	1.08		0.16	1.66	0.19		0.31	
1984	1.50	0.26	0.32	0.50	0.95		0.23	1.78	0.26		0.24	
1985	1.50	0.35	0.47	0.53	0.86		0.23	1.94	0.25		0.33	
1986	1.63	0.38	0.49	0.71	0.89		0.22	2.08	0.14		0.21	
1987	1.98	0.49	-	-	0.79		0.19	2.22	-		-	
1988	2.97	0.66	1.01	1.38	1.04		0.23	4.33	0.32		0.37	
1989	2.77	0.34	0.50	0.66	0.84		0.24	4.41	0.28		0.35	
1990	2.84	0.24	0.45	0.66	0.72		0.11	4.41	0.29		0.34	
1991	3.70	0.36	0.34	0.44	0.70	2.92	0.18	4.21	0.23	3.56	0.30	2.50
1992	4.12	0.27	-	-	0.91	2.82	0.30	4.53	0.39	4.50	0.39	2.18
1993	2.70	0.38	-	-	1.06	5.52	0.35	8.53	-	-	-	-
1994	2.07	0.21	-	-	0.92	3.11	0.20	3.77	0.16	1.50	0.48	1.50
1995	2.09	0.16	0.15	0.29	0.77	2.64	0.13	3.57	0.13	2.96	0.14	2.51
1996	1.95	0.09	0.10	0.26	0.95	2.57	0.07	3.05	0.13	1.71	0.09	2.16
1997	2.46	0.10	0.22	0.32	0.97	1.62	0.07	1.08	0.17	1.75	0.20	-
1998	2.51	0.14	-	-	0.91	2.00	0.18	1.90	-	-	-	-
1999	3.80	0.10	0.25	0.35	1.10	2.11	0.18	2.25	0.20	-	-	-
2000	4.57	0.17	-	-	-	-	-	-	-	-	-	-
1995-1999												
Average	2.56	0.12	0.14	0.24	0.94	2.19	0.13	2.37	0.13	1.28	0.09	0.93

a Data unavailable.

Appendix A.12. Value of commercial salmon fishery to Yukon Area fishermen, 1977-2000.

Year	Summer Season						Fall Season						Total Season	Total Value	
	Chinook		Subtotal	Summer Chum		Subtotal	Fall Chum		Subtotal	Coho		Subtotal			
	Lower Yukon	Upper Yukon		Lower Yukon	Upper Yukon		Lower Yukon	Upper Yukon		Lower Yukon	Upper Yukon				
	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value					
1977	1,841,033	148,766	1,989,799	1,007,280	306,481	1,313,761	3,303,560	718,571	102,170	820,741	140,914	2,251	143,165	963,906	4,267,466
1978	2,048,674	66,472	2,115,146	2,071,434	655,738	2,727,172	4,842,318	691,854	103,091	794,945	96,823	6,105	102,928	897,873	5,740,191
1979	2,763,433	124,230	2,887,663	2,242,564	444,924	2,687,488	5,575,151	1,158,485	347,814	1,506,299	83,466	6,599	90,065	1,596,364	7,171,515
1980	3,409,105	113,662	3,522,767	1,027,738	627,249	1,654,987	5,177,754	394,162	198,088	592,250	17,374	2,374	19,748	611,998	5,789,752
1981	4,420,669	206,380	4,627,049	2,741,178	699,876	3,441,054	8,068,103	1,503,744	356,805	1,860,549	87,385	4,568	91,953	1,952,502	10,020,605
1982	3,768,107	162,699	3,930,806	1,237,735	452,837	1,690,572	5,621,378	846,492	53,258	899,750	135,828	18,786	154,614	1,054,364	6,675,742
1983	4,093,562	105,584	4,199,146	1,734,270	281,883	2,016,153	6,215,299	591,011	128,950	719,961	17,497	11,472	28,969	748,930	6,964,229
1984	3,510,923	102,354	3,613,277	926,922	382,776	1,309,698	4,922,975	374,359	103,417	477,776	256,050	12,823	268,873	746,649	5,669,624
1985	4,294,432	82,644	4,377,076	1,032,700	593,801	1,626,501	6,003,577	634,616	178,125	812,741	176,254	26,797	203,051	1,015,792	7,019,369
1986	3,165,078	73,363	3,238,441	1,746,455	634,091	2,380,546	5,618,987	399,321	30,309	429,630	211,942	556	212,498	642,128	6,261,115
1987	5,428,933	136,196	5,565,129	1,313,618	323,611	1,637,229	7,202,358	0	0	0	0	0	0	0	7,202,358
1988	5,463,800	142,284	5,606,084	5,001,100	1,213,991	6,215,091	11,821,175	638,700	151,300	790,000	734,400	34,116	768,516	1,558,516	13,379,691
1989	5,181,700	108,178	5,289,878	2,217,700	1,377,117	3,594,817	8,884,695	713,400	223,996	937,396	323,300	33,959	357,259	1,294,655	10,179,350
1990	4,820,859	105,295	4,926,154	497,571	506,611	1,004,182	5,930,336	238,165	174,965	413,130	137,302	37,026	174,328	587,458	6,517,794
1991	7,128,300	97,140	7,225,440	782,300	627,177	1,409,477	8,634,917	438,310	157,831	596,141	300,182	21,556	321,738	917,879	9,552,796
1992	9,957,002	168,999	10,126,001	606,976	525,204	1,132,180	11,258,181	0	54,161	54,161	0	19,529	19,529	73,690	11,331,871
1993	4,884,044	113,217	4,997,261	226,772	203,762	430,534	5,427,795	0	0	0	0	0	0	0	5,427,795
1994	4,169,270	124,270	4,293,540	79,206	396,685	475,891	4,769,431	0	8,517	8,517	0	8,739	8,739	17,256	4,786,687
1995	5,317,508	87,059	5,404,567	241,598	1,060,322	1,301,920	6,706,487	185,036	167,571	352,607	80,019	11,292	91,311	443,918	7,150,405
1996	3,491,582	47,282	3,538,864	89,020	966,277	1,055,297	4,594,161	48,579	45,438	94,017	96,795	13,020	109,815	203,832	4,797,993
1997	5,450,433	110,713	5,561,146	56,535	96,806	153,341	5,714,487	86,526	7,252	93,778	79,973	1,062	81,035	174,813	5,889,300
1998	1,911,370	17,285	1,928,655	26,415	821	27,236	1,955,891	0	0	0	0	0	0	0	1,955,891
1999	4,950,522	74,475	5,024,997	19,687	1,720	21,407	5,046,404	35,639	876	36,515	3,620	0	3,620	40,135	5,086,539
2000	725,606	0	725,606	8,633	0	8,633	734,239	0	0	0	0	0	0	0	734,239
1995-1999															
Average	4,224,283	67,363	4,291,646	86,651	425,189	511,840	4,803,486	71,156	44,227	115,383	52,081	5,075	57,156	172,540	4,976,026

Appendix A.13. Average weight in pounds of the commercial salmon catch, Yukon Area, 1964-2000. ^a

Year	Lower Yukon Area				Upper Yukon Area			
	Chinook	Summer Chum	Fall Chum	Coho	Chinook	Summer Chum	Fall Chum	Coho
1964	22.6							
1965	23.0							
1966	23.0							
1967	24.0			7.3				
1968	26.5							
1969	23.9			6.7				
1970	22.3			7.1				
1971	22.6			6.9				
1972	24.6	6.6	7.6	7.1				
1973	24.5	6.8	7.9	7.1				
1974	23.7	6.5	7.5	7.0	17.3	6.7	7.7	6.7
1975	22.0	6.5	7.5	7.2	17.7	6.6	8.0	6.6
1976	21.9	6.5	7.5	6.6	18.4	6.4	8.0	7.5
1977	23.9	7.0	8.0	7.5	17.6	6.5	8.0	6.5
1978	24.0	7.1	7.7	7.0	20.2	6.8	7.4	6.4
1979	20.9	7.4	7.4	7.3	20.2	6.6	7.7	6.5
1980	22.5	6.9	6.9	6.4	16.0	6.6	7.7	6.5
1981	24.8	7.5	8.0	6.8	23.7	7.1	7.4	5.7
1982	23.0	7.1	7.7	6.7	21.4	7.1	7.5	6.5
1983	20.5	7.2	7.9	7.0	19.1	6.6	7.7	6.0
1984	20.5	6.8	7.5	7.0	19.6	6.4	7.3	6.1
1985	20.3	6.7	7.7	7.4	18.4	6.1	7.5	6.4
1986	20.2	6.9	7.2	6.3	19.7	6.1	8.0	6.0
1987	21.7	6.8	-	-	20.0	6.8	-	-
1988	19.6	7.0	7.9	7.3	18.6	6.9	7.9	6.6
1989	19.9	7.2	7.5	7.3	17.9	6.8	7.4	6.0
1990	19.6	7.3	7.7	6.8	16.8	6.9	7.0	6.2
1991	20.4	6.7	7.4	7.0	17.6	6.5	6.8	5.7
1992	21.5	6.9	-	-	19.9	5.6	6.8	6.2
1993	20.5	6.6	-	-	17.8	7.2	-	-
1994	20.3	6.5	-	-	15.7	5.8	6.2	6.2
1995	21.6	6.7	7.5	6.9	17.8	5.4	7.0	7.0
1996	20.6	7.8	7.7	7.6	16.2	6.0	6.2	7.2
1997	20.9	7.2	7.6	7.3	15.4	5.9	6.4	6.5
1998	18.0	6.7	-	-	13.2	6.1	-	-
1999	20.1	7.1	7.2	6.5	14.8	6.1	6.4	-
2000	18.0	7.7	-	-	-	-	-	-
1995-1999 Average	20.2	7.1	6.0	5.7	15.5	5.9	5.2	4.1

^a Information not available for some years. Data obtained from weight samples or from fish ticket information.

Appendix A.14 Commercial chinook salmon quotas or guideline harvest ranges (GHR), Yukon Area, 1974-2000.

Year	Districts 1 and 2	District 3	District 4	Subdistricts 5-ABC	Subdistricts 5-D	District 6
	GHR	Quota/GHR	Quota/GHR	Quota/GHR	Quota/GHR	Quota/GHR
1974	-	3,000	1,000	3000 ^a		1,000
1975	-	3,000	1,000	3000 ^a		1,000
1976	-	3,000	1,000	3000 ^a		1,000
1977	-	3,000	1,000	3000 ^a		1,000
1978	-	2,000	1,000	3000 ^a		1,000
1979 ^b	-	1,800-2,200	900-1,100	2,700-3,300		900-1,100
1980	-	1,800-2,200	900-1,100	2,700-3,300		900-1,100
1981	60,000-120,000	1,800-2,200	2,250-2,850	2,400-2,800	300-500	600-800
1982	60,000-120,000	1,800-2,200	2,250-2,850	2,400-2,800	300-500	600-800
1983	60,000-120,000	1,800-2,200	2,250-2,850	2,400-2,800	300-500	600-800
1984	60,000-120,000	1,800-2,200	2,250-2,850	2,400-2,800	300-500	600-800
1985	60,000-120,000	1,800-2,200	2,250-2,850	2,400-2,800	300-500	600-800
1986	60,000-120,000	1,800-2,200	2,250-2,850	2,400-2,800	300-500	600-800
1987	60,000-120,000	1,800-2,200	2,250-2,850	2,400-2,800	300-500	600-800
1988	60,000-120,000	1,800-2,200	2,250-2,850	2,400-2,800	300-500	600-800
1989	60,000-120,000	1,800-2,200	2,250-2,850	2,400-2,800	300-500	600-800
1990	60,000-120,000	1,800-2,200	2,250-2,850	2,400-2,800	300-500	600-800
1991	60,000-120,000	1,800-2,200	2,250-2,850	2,400-2,800	300-500	600-800
1992	60,000-120,000	1,800-2,200	2,250-2,850	2,400-2,800	300-500	600-800
1993	60,000-120,000	1,800-2,200	2,250-2,850	2,400-2,800	300-500	600-800
1994	60,000-120,000	1,800-2,200	2,250-2,850	2,400-2,800	300-500	600-800
1995	60,000-120,000	1,800-2,200	2,250-2,850	2,400-2,800	300-500	600-800
1996	60,000-120,000	1,800-2,200	2,250-2,850	2,400-2,800	300-500	600-800
1997	60,000-120,000	1,800-2,200	2,250-2,850	2,400-2,800	300-500	600-800
1998	60,000-120,000	1,800-2,200	2,250-2,850	2,400-2,800	300-500	600-800
1999	60,000-120,000	1,800-2,200	2,250-2,850	2,400-2,800 ^c	300-500	600-800
2000	60,000-120,000	1,800-2,200	2,250-2,850	2,400-2,800 ^c	300-500	600-800

a Quota or guideline harvest range for all of District 5.

b Beginning in 1979, quotas were replaced by guideline harvest ranges.

c Subdistrict 5-A was removed from the guideline harvest ranges for chinook and summer chum salmon and a separate guideline harvest range of 0 to 4,000 pounds of fall chum salmon roe was established in November 1998.

Appendix A.15. Commercial summer chum salmon guideline harvest ranges (GHR), Yukon Area, 1990-2000.

Year	Districts 1 and 2	District 3	Subdistrict 4-A		Anvik River	Subdistrict 4-BC	District 5	District 6
	GHR	GHR	GHR		Roe Cap	GHR	GHR	GHR
			Pounds of Roe a	Numbers of Fish				
1990	251,000-755,000	6,000-19,000	61,000-183,000	113,000-338,000		16,000-47,000	1,000-3,000	13,000-38,000
1991	251,000-755,000	6,000-19,000	61,000-183,000	113,000-338,000		16,000-47,000	1,000-3,000	13,000-38,000
1992	251,000-755,000	6,000-19,000	61,000-183,000	113,000-338,000		16,000-47,000	1,000-3,000	13,000-38,000
1993	251,000-755,000	6,000-19,000	61,000-183,000	113,000-338,000		16,000-47,000	1,000-3,000	13,000-38,000
1994	251,000-755,000	6,000-19,000	61,000-183,000	113,000-338,000	b	16,000-47,000	1,000-3,000	13,000-38,000
1995	251,000-755,000	6,000-19,000	61,000-183,000	113,000-338,000	50,000	16,000-47,000	1,000-3,000	13,000-38,000
1996	251,000-755,000	6,000-19,000	61,000-183,000	113,000-338,000	100,000	16,000-47,000	1,000-3,000	13,000-38,000
1997	251,000-755,000	6,000-19,000	61,000-183,000	113,000-338,000	100,000	16,000-47,000	1,000-3,000	13,000-38,000
1998	251,000-755,000	6,000-19,000	61,000-183,000	113,000-338,000	100,000	16,000-47,000	1,000-3,000	13,000-38,000
1999	251,000-755,000	6,000-19,000	61,000-183,000	113,000-338,000	100,000	16,000-47,000	1,000-3,000 c	13,000-38,000
2000	251,000-755,000	6,000-19,000	61,000-183,000	113,000-338,000	100,000	16,000-47,000	1,000-3,000 c	13,000-38,000

a Summer chum salmon roe cap of 183,000 pounds.

b No summer chum salmon roe cap established for Anvik River Management Area in 1994.

c Subdistrict 5-A was removed from the guideline harvest ranges for chinook and summer chum salmon and a separate guideline harvest range of 0 to 4,000 pounds of fall chum salmon roe was established in November 1998.

Appendix A.16. Commercial fall chum salmon quotas or guideline harvest ranges (GHR), Yukon Area, 1974-2000. a

Year	Districts 1, 2, and 3	District 4	Subdistricts 4-BC	District 5	Subdistricts 5-ABC	Subdistrict 5-D	District 6
	Quota/GHR	Quota	GHR	Quota/GHR	GHR	GHR	Quota/GHR
1974	200,000	10,000	-	25,000	-	-	15,000
1975	200,000	10,000	-	25,000	-	-	15,000
1976	200,000	10,000	-	25,000	-	-	15,000
1977	200,000	10,000	-	25,000	-	-	15,000
1978	200,000	10,000	-	25,000	-	-	15,000
1979 ^b	120,000-220,000	-	10,000-40,000	10,000-40,000	-	-	7,500-22,500
1980	120,000-220,000	-	10,000-40,000	10,000-40,000	-	-	7,500-22,500
1981	120,000-220,000	-	10,000-40,000	-	8,000-36,000	2,000-4,000	5,500-20,500
1982	120,000-220,000	-	10,000-40,000	-	8,000-36,000	2,000-4,000	5,500-20,500
1983	120,000-220,000	-	10,000-40,000	-	8,000-36,000	2,000-4,000	5,500-20,500
1984	120,000-220,000	-	10,000-40,000	-	8,000-36,000	2,000-4,000	5,500-20,500
1985	120,000-220,000	-	10,000-40,000	-	8,000-36,000	2,000-4,000	5,500-20,500
1986	0-110,000	-	0-20,000	-	0-18,000	0-2,000	0-10,250
1987	0-110,000	-	0-20,000	-	0-18,000	0-2,000	0-10,250
1988	0-110,000	-	0-20,000	-	0-18,000	0-2,000	0-10,250
1989	0-110,000	-	0-20,000	-	0-18,000	0-2,000	0-10,250
1990	60,000-220,000	-	5,000-40,000	-	4,000-36,000	1,000-4,000	2,750-20,500
1991	60,000-220,000	-	5,000-40,000	-	4,000-36,000	1,000-4,000	2,750-20,500
1992	60,000-220,000	-	5,000-40,000	-	4,000-36,000	1,000-4,000	2,750-20,500
1993	60,000-220,000	-	5,000-40,000	-	4,000-36,000	1,000-4,000	2,750-20,500
1994	60,000-220,000	-	5,000-40,000	-	4,000-36,000	1,000-4,000	2,750-20,500
1995	60,000-220,000	-	5,000-40,000	-	4,000-36,000	1,000-4,000	2,750-20,500
1996	60,000-220,000	-	5,000-40,000	-	4,000-36,000	1,000-4,000	2,750-20,500
1997	60,000-220,000	-	5,000-40,000	-	4,000-36,000	1,000-4,000	2,750-20,500
1998	60,000-220,000	-	5,000-40,000	-	4,000-36,000	1,000-4,000	2,750-20,500
1999	60,000-220,000	-	5,000-40,000	-	4,000-36,000 ^c	1,000-4,000	2,750-20,500
2000	60,000-220,000	-	5,000-40,000	-	4,000-36,000 ^c	1,000-4,000	2,750-20,500

a Fall chum and coho salmon combined quota or guideline harvest range for Upper Yukon Area (1974-1992). Beginning in 1993, regulations were changed to exclude coho salmon.

b In 1979, quotas were replaced by guideline harvest ranges.

c The GHR 4,000 to 36,000 fall chum salmon applies only to Subdistricts 5-B and 5-C. Subdistrict 5-A was removed from the guideline harvest ranges for chinook and summer chum salmon and a separate guideline harvest range of 0 to 4,000 pounds of fall chum salmon roe was established in November 1998.

Appendix A.17. Chinook salmon total utilization in numbers of fish by district, area, and country, Yukon River drainage, 1961-2000. ^a

Year	District 1					District 2				District 3			Lower Yukon Area Subtotals				
	Subsist	Comm ^{b,c}	Personal	ADF&G	Total	Subsist	Comm ^{b,c}	ADF&G	Total	Subsist	Comm	Total	Subsist	Comm	Personal	ADF&G	Total
			Use	Test Fish				Test Fish							Use	Test Fish	
1961		84,466			84,466		29,026		29,026		4,368	4,368		117,860			117,860
1962		67,099			67,099		22,224		22,224		4,687	4,687		94,010			94,010
1963		85,004			85,004		24,221		24,221		7,020	7,020		116,245			116,245
1964		67,555			67,555		20,246		20,246		4,705	4,705		92,506			92,506
1965		89,268			89,268		23,763		23,763		3,204	3,204		116,235			116,235
1966		70,788			70,788		16,927		16,927		3,612	3,612		91,327			91,327
1967		104,350			104,350		20,239		20,239		3,618	3,618		128,207			128,207
1968		79,465			79,465		21,392		21,392		4,543	4,543		105,400			105,400
1969		71,688			71,688		14,756		14,756		3,595	3,595		90,039			90,039
1970		56,648			56,648		17,141		17,141		3,705	3,705		77,494			77,494
1971		86,042			86,042		19,226		19,226		3,490	3,490		108,758			108,758
1972		70,052			70,052		17,855		17,855		3,841	3,841		91,748			91,748
1973		56,981			56,981		13,859		13,859		3,204	3,204		74,044			74,044
1974		71,840			71,840		17,948		17,948		3,480	3,480		93,268			93,268
1975		44,585			44,585		11,315		11,315		4,177	4,177		60,077			60,077
1976		62,410			62,410		16,556		16,556		4,148	4,148		83,114			83,114
1977		69,915			69,915		16,722		16,722		3,965	3,965		90,602			90,602
1978	5,246	59,006			64,252	3,964	32,924		36,888	3,902	2,916	6,818	13,112	94,846			107,958
1979	2,879	75,007			77,886	4,268	41,498		45,766	3,325	5,018	8,343	10,472	121,523			131,995
1980	3,669	90,382			94,051	3,674	50,004		53,678	4,818	5,240	10,058	12,161	145,626			157,787
1981	2,282	99,506			101,788	3,580	45,781		49,361	4,011	4,023	8,034	9,873	149,310			159,183
1982	2,311	74,450			76,761	2,109	39,132		41,241	3,359	2,609	5,968	7,779	116,191			123,970
1983	6,263	95,457			101,720	9,065	43,229		52,294	4,910	4,106	9,016	20,238	142,792			163,030
1984	4,624	74,671			79,295	7,172	36,697		43,869	4,394	3,039	7,433	16,190	114,407			130,597
1985	3,071	90,011			93,082	3,468	48,365		51,833	3,342	2,588	5,930	9,881	140,964			150,845
1986	5,275	53,035			58,310	6,483	41,849		48,332	4,305	901	5,206	16,063	95,785			111,848
1987	7,278	76,643	0		83,921	9,866	47,458		57,324	4,708	2,039	6,747	21,852	126,140	0		147,992
1988	3,938	56,120	67	989	61,114	3,823	35,120	68	39,011	4,547	1,767	6,314	12,308	93,007	67	1,057	106,439
1989	4,565	61,570	286	794	67,215	7,147	33,166	59	40,372	4,778	1,645	6,423	16,490	96,381	286	853	114,010
1990	6,619	51,199	450	1,063	59,331	9,546	33,061	152	42,759	4,093	2,341	6,434	20,258	86,601	450	1,215	108,524
1991	5,925	56,332		485	62,742	7,617	39,260	113	46,990	3,187	2,344	5,531	16,729	97,936		598	115,263
1992	5,141	74,212		930	80,283	7,074	38,139	0	45,213	4,991	1,819	6,810	17,206	114,170		930	132,306
1993	10,408	49,286		1,408	61,102	11,513	37,293	164	48,970	6,592	1,501	8,093	28,513	88,080		1,572	118,165
1994	6,540	62,241		1,561	70,342	8,956	41,692	70	50,718	6,124	1,114	7,238	21,620	105,047		1,631	128,298
1995	5,960	76,106		2,078	84,144	9,037	41,458	74	50,569	5,419	0	5,419	20,416	117,564		2,152	140,132
1996	3,646	56,642		1,698	61,986	7,780	30,209	0	37,989	6,783	0	6,783	18,209	86,851		1,698	106,758
1997	7,550	66,384		2,791	76,725	9,350	39,363	20	48,733	6,311	0	6,311	23,211	105,747		2,811	131,769
1998	7,242	25,413		878	33,533	9,455	16,806	48	26,309	4,514	0	4,514	21,211	42,219		926	64,356
1999	6,848	37,161		1,049	45,058	10,439	27,133	156	37,728	7,715	538	8,253	25,002	64,832		1,205	91,039
2000	5,891	4,735		275	10,901	9,935	3,783	322	14,040	3,914	0	3,914	19,740	8,518		597	28,855
1995-1999																	
Average	6,249	52,341		1,699	60,289	9,212	30,994	60	40,266	6,148	108	6,256	21,610	83,443		1,758	106,811
1990-1999																	
Average	6,588	55,498	450	1,394	63,525	9,077	34,441	80	43,598	5,573	966	6,539	21,238	90,905		1,474	113,661

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Year	District 4				District 5				District 6					Upper Yukon Area Subtotals								
	Subsist	Comm	Comm-Related ^d	Total	Subsist	Comm ^b	Comm-Related ^d	Personal Use	Total	Subsist	Comm ^b	Comm-Related ^d	Personal Use	ADF&G Test Fish	Total	Subsist	Comm	Comm-Related ^d	Personal Use	ADF&G Test Fish	Total	
1961																1,804	0				1,804	
1962																724	0				724	
1963																803	0				803	
1964																1,081	0				1,081	
1965																1,863	0				1,863	
1966																1,988	0				1,988	
1967																1,449	0				1,449	
1968																1,126	0				1,126	
1969																988	0				988	
1970																1,651	0				1,651	
1971																1,749	0				1,749	
1972																1,092	0				1,092	
1973																1,309	0				1,309	
1974		685	0	685		2,663	0		2,663		1,473	0				4,821	0				4,821	
1975		389	0	389		2,872	0		2,872		500	0				3,761	0				3,761	
1976		409	0	409		3,151	0		3,151		1,102	0				4,662	0				4,662	
1977		985	0	985		4,162	0		4,162		1,008	0				6,155	0				6,155	
1978	5,549	608	0	6,157	10,405	3,079	0		13,484	1,231	635	0		1,866	17,185	4,322	0				21,507	
1979	7,203	1,989	0	9,192	11,997	3,389	0		15,386	1,333	772	0		2,105	20,533	6,150	0				26,683	
1980	11,053	1,521	0	12,574	17,684	4,891	0		22,575	1,826	1,947	0		3,773	30,563	8,359	0				38,922	
1981	4,432	1,347	0	5,779	13,300	6,374	0		19,674	2,085	987	0		3,072	19,817	8,708	0				28,525	
1982	5,077	1,087	0	6,164	12,859	5,385	0		18,244	2,443	981	0		3,424	20,379	7,453	0				27,832	
1983	9,754	601	0	10,355	16,780	3,606	0		20,386	2,706	911	0		3,617	29,240	5,118	0				34,358	
1984	7,650	961	0	8,611	14,989	3,669	0		18,658	3,599	867	0		4,466	26,238	5,497	0				31,735	
1985	7,425	664	0	8,089	15,090	3,418	0		18,508	7,375	1,142	0		8,517	29,890	5,224	0				35,114	
1986	9,530	502	0	10,032	15,944	2,733	0		18,677	3,701	950	0		4,651	29,175	4,185	0		0		33,360	
1987	7,914	1,524	0	9,438	17,556	3,758	0	1,706	23,020	4,096	3,338	0		7,434	29,566	8,620	0	1,706			39,892	
1988	9,515	3,159	0	12,674	17,200	3,436	0	1,435	22,071	4,884	762	0	623	24	6,293	31,599	7,357	0	2,058	24	41,038	
1989	9,074	2,790	0	11,864	20,336	3,286	0	1,877	25,499	2,546	1,741	0	453	440	5,180	31,956	7,817	0	2,330	440	42,543	
1990	11,122	3,536	2	14,660	14,589	3,353	12	1,693	19,647	2,618	1,757	399	451	833	6,058	28,329	8,646	413	2,144	833	40,365	
1991	11,100	2,446	1,136	14,682	16,429	3,810	16		20,255	2,515	686	386	0	91	3,678	30,044	6,942	1,538	0	91	38,615	
1992	8,291	1,651	743	10,685	17,691	3,852	3		21,546	2,438	572	181	0	32	3,223	28,420	6,075	927	0	32	35,454	
1993	10,936	1,349	228	12,513	21,365	3,008	0		24,373	1,672	1,113	332	426	0	3,543	33,973	5,470	560	426	0	40,429	
1994	10,327	2,216	227	12,770	18,760	3,739	5		22,504	2,370	2,135	471	0	0	4,976	31,457	8,090	703	0	0	40,250	
1995	9,474	262	237	9,973	16,866	3,242	0		20,108	1,779	1,660	1,087	399	0	4,925	28,119	5,164	1,324	399	0	35,006	
1996	8,193	45	92	8,330	15,727	2,497	260		18,484	1,177	278	169	215	0	1,839	25,097	2,820	521	215	0	28,653	
1997	12,006	1,450	7	13,463	18,049	3,678	0		21,727	2,712	1,966	762	313	0	5,753	32,767	7,094	769	313	0	40,943	
1998	15,801	0	0	15,801	14,802	517	0		15,319	1,919	882	81	357	0	3,239	32,522	1,399	81	357	0	34,359	
1999	11,238	1,437	0	12,675	14,330	2,604	0		16,934	1,624	402	288	331	0	2,645	27,192	4,443	288	331	0	32,254	
2000	6,264	0	0	6,264	8,854	0	0		8,854	983	0	0	75	0	1,058	16,101	0	0	75	0	16,176	
1995-1999																						
Average	11,342	639	67	12,048	15,955	2,508	52		18,514	1,842	1,038	477	323	0	3,680	29,139	4,184	597	323	0	34,243	
1990-1999																						
Average	10,849	1,439	267	12,555	16,861	3,030	30	1,693	20,090	2,082	1,145	416	249	96	3,988	29,792	5,614	712	419	96	36,633	

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Year	Yukon Area Totals							Canada: Yukon Territories						Total Yukon River Drainage									
	Subsist	Comm	Comm-Related ^d	Personal Use	ADF&G Test Fish	Sport Fish ^f	Total	Mainstem Yukon			Comm	Total	Old Crow		Subsist. ^h	Comm	Comm-Related ^d	Personal Use	ADF&G Test Fish	Sport Fish	Total		
								Non-Commercial					Old Crow										
								Domestic	Aboriginal	Sport ^g			Aboriginal	Total									
1961	21,488	119,664	0				141,152	9,300	3,446	12,746	500	13,246	31,288	123,110						154,398			
1962	11,110	94,734	0				105,844	9,300	4,037	13,337	600	13,937	21,010	98,771						119,781			
1963	24,862	117,048	0				141,910	7,750	2,283	10,033	44	10,077	32,656	119,331						151,987			
1964	16,231	93,587	0				109,818	4,124	3,208	7,332	76	7,408	20,431	96,795						117,226			
1965	16,608	118,098	0				134,706	3,021	2,265	5,286	94	5,380	19,723	120,363						140,086			
1966	11,572	93,315	0				104,887	2,445	1,942	4,387	65	4,452	14,082	95,257						109,339			
1967	16,448	129,656	0				146,104	2,920	2,187	5,107	43	5,150	19,411	131,843						151,254			
1968	12,106	106,526	0				118,632	2,800	2,212	5,012	30	5,042	14,936	108,738						123,674			
1969	14,000	91,027	0				105,027	957	1,640	2,597	27	2,624	14,984	92,667						107,651			
1970	13,874	79,145	0				93,019	2,044	2,611	4,655	8	4,663	15,926	81,756						97,682			
1971	25,684	110,507	0				136,191	3,260	3,178	6,438	9	6,447	28,953	113,685						142,638			
1972	20,258	92,840	0				113,098	3,960	1,769	5,729		5,729	24,218	94,609						118,827			
1973	24,317	75,353	0				99,670	2,319	2,199	4,518	4	4,522	26,640	77,552						104,192			
1974	19,964	98,089	0				118,053	406	3,342	1,808	5,556	75	5,631	23,787	99,897					123,684			
1975	13,045	63,838	0				76,883	400	2,500	3,000	5,900	100	6,000	16,045	66,838					82,883			
1976	17,806	87,776	0				105,582	500	1,000	3,500	5,000	25	5,025	19,331	91,276					110,607			
1977	17,581	96,757	0			156	114,494	531	2,247	4,720	7,498	29	7,527	20,388	101,477				156	122,021			
1978	30,297	99,168	0			523	129,888	421	2,485	2,975	5,881		5,881	33,203	102,143				523	135,869			
1979	31,005	127,673	0			554	159,232	1,200	3,000	6,175	10,375		10,375	35,205	133,848				554	169,607			
1980	42,724	153,985	0			956	197,665	3,500	7,546	300	8,500	20,846	2,000	22,846	55,770	163,485			1,256	220,511			
1981	29,690	158,018	0			769	188,477	237	8,879	300	8,593	18,009	100	18,109	38,906	166,611			1,069	206,586			
1982	28,158	123,644	0			1,006	152,808	435	7,433	300	8,640	16,808	400	17,208	36,426	132,284			1,306	170,016			
1983	49,478	147,910	0			1,048	198,436	400	5,025	300	13,027	18,752	200	18,952	55,103	160,937			1,348	217,388			
1984	42,428	119,904	0			351	162,683	260	5,850	300	9,885	16,295	500	16,795	49,038	129,789			651	179,478			
1985	39,771	146,188	0			1,368	187,327	478	5,800	300	12,573	19,151	150	19,301	46,199	158,761			1,668	206,628			
1986	45,238	99,970	0			796	146,004	342	8,625	300	10,797	20,064	300	20,364	54,505	110,767			1,096	166,368			
1987	51,418	134,780	0	1,706		502	188,386	330	6,069	300	10,864	17,563	51	17,614	57,868	145,624		1,706	802	206,000			
1988	43,907	100,364	0	2,125	1,081	944	148,421	282	7,178	650	13,217	21,327	100	21,427	51,467	113,581		2,125	1,081	1,594	169,848		
1989	46,446	104,198	0	2,616	1,293	1,063	157,616	400	6,930	300	9,789	17,419	525	17,944	56,301	113,987		2,616	1,293	1,363	175,560		
1990	48,587	95,247	413	2,594	2,048	544	149,433	247	7,109	300	11,324	16,980	247	19,227	56,190	106,571		413	2,594	2,048	168,660		
1991	46,773	104,878	1,538	0	689	773	154,651	227	9,011	300	10,906	20,444	163	20,607	56,174	115,784		1,538	0	689	175,258		
1992	45,626	120,245	927	0	962	431	168,191	277	6,349	300	10,877	17,803	100	17,903	52,352	131,122		927	0	962	186,094		
1993	62,486	93,550	560	426	1,572	1,695	160,289	243	5,576	300	10,350	16,469	142	16,611	68,447	103,900		560	426	1,572	176,900		
1994	53,077	113,137	703	0	1,631	2,281	170,829	373	8,089	300	12,028	20,790	428	21,218	61,967	125,165		703	0	1,631	2,581	192,047	
1995	48,535	122,728	1,324	399	2,152	2,525	177,663	300	7,945	700	11,146	20,091	796	20,887	57,576	133,874		1,324	399	2,152	3,225	198,550	
1996	43,306	89,671	521	215	1,698	3,230	138,641	141	8,451	790	10,164	19,546	66	19,612	51,964	99,835		521	215	1,698	4,020	158,253	
1997	55,978	112,841	769	313	2,811	2,174	174,886	288	8,888	1,230	5,311	15,717	811	16,528	65,965	118,152		769	313	2,811	3,404	191,414	
1998	53,733	43,618	81	357	926	654	99,369	24	5,424	0	390	5,838	99	5,937	59,280	44,008		81	357	926	654	105,306	
1999	52,194	69,275	288	331	1,205	1,023	124,316	213	8,804	278	3,160	12,455	114	12,569	61,325	72,435		288	331	1,205	1,301	136,885	
2000	35,841	8,518	0	75	597	277	45,308	0	4,829	0	0	4,829	50	4,879	40,720	8,518		0	75	597	277	50,187	
1995-1999																							
Average	50,749	87,627	597	323	1,758	1,921	142,975	193	7,902	600	6,034	14,729	377	15,107	59,222	83,661		597	323	1,758	2,521	158,082	
1990-1999																							
Average	51,030	96,519	712	464	1,569	1,533	151,827	233	7,565	450	8,566	16,813	297	17,110	59,124	105,085		712	464	1,569	1,983	168,937	

a Subsistence harvest not available by district until 1978. ADF&G test fish is the number of fish sold by test fisheries. Does not include coastal subsistence harvest in Hooper Bay and Scammon Bay.

b Includes estimates of illegal sales (refer to Appendix A.4).

c Includes department test fish sales prior to 1988.

d Commercial related refers to the estimated harvest of female chinook salmon to produce roe sold.

f Estimated sport fish harvest for Alaskan portion of the Yukon River drainage. The majority of sport fish harvest occurs in the Tanana River drainage (District 6).

g Canadian sport fish harvest unknown prior to 1980.

h Includes Alaskan subsistence harvest and Canadian Domestic and Aboriginal harvests.

Appendix A.18. Summer chum salmon total utilization in numbers of fish by district, area, and country, Yukon River drainage, 1961-2000. ^a

Year	District 1					District 2				District 3			Lower Yukon Area Subtotals					
	Subsist	Comm ^b	Personal Use	ADF&G Test Fish	Total	Subsist	Comm ^b	ADF&G Test Fish	Total	Subsist	Comm	Total	Subsist	Comm ^b	Personal Use	ADF&G Test Fish	Total	
1961		0					0				0			0				
1962		0					0				0			0				
1963		0					0				0			0				
1964		0					0				0			0				
1965		0					0				0			0				
1966		0					0				0			0				
1967		9,453			9,453		1,425		1,425		57	57		10,935			10,935	
1968		12,995			12,995		1,407		1,407		68	68		14,470			14,470	
1969		56,886			56,886		5,080		5,080		0	0		61,966			61,966	
1970		117,357			117,357		19,649		19,649		0	0		137,006			137,006	
1971		93,928			93,928		6,112		6,112		50	50		100,090			100,090	
1972		114,234			114,234		20,907		20,907		527	527		135,668			135,668	
1973		221,644			221,644		63,402		63,402		463	463		285,509			285,509	
1974		466,004			466,004		74,152		74,152		1,721	1,721		541,877			541,877	
1975		418,323			418,323		99,139		99,139		0	0		517,462			517,462	
1976		273,204			273,204		99,190		99,190		9,802	9,802		382,196			382,196	
1977		250,652			250,652		105,679		105,679		3,412	3,412		359,743			359,743	
1978	30,897	393,785			424,682	21,684	227,548		249,232	1,706	27,003	28,709	54,287	648,336			702,623	
1979	16,144	369,934			386,078	23,276	172,838		196,114	9,531	40,015	49,546	48,951	582,787			631,738	
1980	15,972	391,252			407,224	13,681	308,704		322,385	5,727	44,782	50,509	35,380	744,738			780,118	
1981	11,310	507,158			518,468	14,218	351,878		366,096	7,430	54,471	61,901	32,958	913,507			946,465	
1982	18,452	249,516			267,968	18,442	182,344		200,786	5,840	4,086	9,926	42,734	435,946			478,680	
1983	24,679	451,164			475,843	27,396	248,092		275,488	4,609	14,600	19,209	56,684	713,856			770,540	
1984	28,459	292,676			321,135	26,996	236,931		263,927	7,351	1,087	8,438	62,806	530,694			593,500	
1985	24,349	247,486			271,835	19,795	188,099		207,894	3,687	1,792	5,479	47,831	437,377			485,208	
1986	38,854	381,127			419,981	41,496	288,427		329,923	12,238	442	12,680	92,568	669,996			762,584	
1987	30,760	222,898	0		253,658	33,134	174,876		208,010	12,176	3,501	15,677	76,070	401,275	0		477,345	
1988	28,934	645,322	416	2,876	677,548	28,787	424,461	711	453,959	14,609	13,965	28,574	72,330	1,083,748	416	3,587	1,160,081	
1989	52,844	544,373	381	3,408	601,006	39,703	343,032	930	383,665	12,824	7,578	20,402	105,371	894,983	381	4,338	1,005,073	
1990	36,999	146,725	256	2,186	186,166	28,453	131,755	752	160,960	9,521	643	10,164	74,973	279,123	256	2,938	357,290	
1991	27,790	140,470			1,373	169,633	20,703	175,149	703	196,555	5,545	8,912	14,457	54,038	324,531		2,076	380,645
1992	33,239	177,329			1,918	212,486	24,731	147,129	0	171,860	9,599	65	9,664	67,569	324,523	1,918		394,010
1993	33,986	73,659			1,379	109,024	25,297	19,332	490	45,119	7,538	463	8,001	66,821	93,454		1,869	162,144
1994	32,145	42,332			2,769	77,246	22,907	12,869	443	36,219	8,492	35	8,527	63,544	55,236		3,212	121,992
1995	34,990	142,266			5,672	182,928	27,190	83,817	401	111,408	12,143	0	12,143	74,323	226,083		6,073	306,479
1996	27,289	92,506			7,309	127,104	28,426	30,727	0	59,153	11,368	1,534	12,902	67,083	124,767		7,309	199,159
1997	27,248	59,915			2,557	89,720	26,971	18,242	33	45,246	10,316	0	10,316	64,535	78,157		2,590	145,282
1998	26,888	21,270			2,935	51,093	26,280	6,848	84	33,212	6,472	0	6,472	59,640	28,118		3,019	90,777
1999	20,169	16,181			799	37,149	24,137	11,702	37	35,876	5,748	0	5,748	50,054	27,883		836	78,773
2000	24,079	3,315			561	27,955	25,331	3,309	87	28,727	3,687	0	3,687	53,097	6,624		648	60,369
1995-1999																		
Average	27,317	66,428			3,854	97,599	26,601	30,267	111	56,979	9,209	307	9,516	63,127	97,002		3,965	164,094
1990-1999																		
Average	30,074	91,265			2,890	124,255	25,510	63,757	294	89,561	8,674	1,165	9,839	64,258	156,188		3,184	223,655

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Year	District 4					District 5					District 6					Upper Yukon Area Subtotals							
	Subsist ^c	Comm	Comm-Related ^d	Anvik River ^e	Total	Subsist ^f	Comm	Comm-Related ^g	Personal Use	Total	Subsist ^f	Comm	Comm-Related ^g	Personal Use	ADF&G Test Fish	Total	Subsist	Comm	Comm-Related	Personal Use	ADF&G Test Fish	Total	
1961		0	0					0	0				0	0				0	0				
1962		0	0					0	0				0	0				0	0				
1963		0	0					0	0				0	0				0	0				
1964		0	0					0	0				0	0				0	0				
1965		0	0					0	0				0	0				0	0				
1966		0	0					0	0				0	0				0	0				
1967		0	0					0	0				0	0				0	0				
1968		0	0					0	0				0	0				0	0				
1969		0	0					0	0				0	0				0	0				
1970		0	0					0	0				0	0				0	0				
1971		0	0					0	0				0	0				0	0				
1972		0	0					0	0				0	0				0	0				0
1973		0	0					0	0				0	0				0	0				0
1974		27,866	0		27,866	8,831	0		6,831		13,318	0			13,318		48,015	0				48,015	
1975		165,054	0		165,054	12,997	0		12,997		14,782	0			14,782		192,833	0				192,833	
1976		211,307	0		211,307	774	0		774		6,617	0			6,617		218,698	0				218,698	
1977		169,541	0		169,541	1,274	0		1,274		4,317	0			4,317		175,132	0				175,132	
1978	93,139	364,184	16,920		474,243	20,423	4,892	605	25,920	3,534	34,814	8,236		46,584	117,096	403,890	25,761					546,747	
1979	81,838	169,430	35,317		286,585	22,869	8,608	1,009	32,486	2,312	18,491	3,891		24,694	107,019	196,529	40,217					343,765	
1980	117,305	147,560	135,824		400,689	8,594	456	0	9,050	6,426	35,855	3,282		45,563	132,325	183,871	139,106					455,302	
1981	48,452	59,718	270,727		378,897	27,259	1,236	49	28,544	8,960	32,477	1,987		43,424	84,671	93,431	272,763					450,865	
1982	57,967	3,647	254,072		315,686	9,770	213	21	10,004	6,942	21,597	1,517		30,056	74,679	25,457	255,610					355,746	
1983	46,713	6,672	248,716		302,101	22,087	42	1,856	23,985	23,696	24,309	18		48,023	92,496	31,023	250,590					374,109	
1984	49,230	1,009	277,061		327,300	31,488	645	47	32,180	23,106	56,249	335		79,690	103,824	57,903	277,443					439,170	
1985	59,839	12,007	415,476		487,322	26,996	700	0	27,696	23,078	66,913	1,540		91,531	109,913	79,620	417,016					606,549	
1986	53,020	300	465,235		518,555	21,833	690	0	22,523	14,896	50,483	2,146		67,525	89,749	51,473	467,381					608,603	
1987	48,911	29,991	179,809		258,711	20,544	362	44	4,262	25,212	25,153	10,610	450	36,213	94,608	40,963	180,303	4,262				320,136	
1988	86,623	24,051	466,023		576,697	28,960	722	363	567	30,612	8,686	40,129	1,646	1,242	0	51,703	124,269	64,902	468,032	1,809		659,012	
1989	40,935	18,554	491,690		551,179	12,981	154	373	295	13,803	7,868	42,115	4,871	1,215	6,267	62,336	61,784	60,823	496,934	1,510	6,267	627,318	
1990	26,534	12,364	210,186		249,084	9,817	11	660	641	11,129	4,285	11,127	3,706	930	5,325	25,373	40,636	23,502	214,552	1,571	5,325	285,586	
1991	35,269	6,381	303,263		344,913	24,164	4	31	24,199	5,069	18,197	5,695	0	1,858	30,819	64,502	24,582	308,989	0	1,858		399,931	
1992	35,812	2,659	208,737		247,208	12,612	102	328	13,042	9,504	5,029	2,199	0	49	16,781	57,928	7,790	211,264	0	49		277,031	
1993	20,076	27	42,930		63,033	11,086	0	0	11,086	6,793	3,041	664	674	0	11,172	37,955	3,068	43,594	674	0		85,291	
1994	27,504	3,611	145,423	22,573	199,111	11,830	229	235	12,294	7,026	21,208	10,226	0	0	38,460	46,360	25,048	178,457	0	0		249,865	
1995	25,084	8,873	490,970	54,744	579,671	7,655	107	209	7,971	11,661	24,711	12,717	780	0	49,869	44,400	33,691	558,640	780	0		637,511	
1996	16,425	0	425,607	84,633	526,665	11,509	0	336	11,845	7,486	22,360	24,530	905	0	55,281	35,420	22,360	535,106	905	0		593,791	
1997	24,230	2,062	109,061	13,548	148,901	4,520	137	0	4,657	3,824	14,886	10,401	391	0	29,502	32,574	17,085	133,010	391	0		183,060	
1998	18,046	0	0	0	18,046	2,314	96	14	2,424	6,004	397	173	84	0	6,658	26,364	493	187	84	0		27,128	
1999	15,339	1,267	0	0	16,606	2,276	115	0	2,391	2,654	124	24	382	0	3,184	20,269	1,506	24	382	0		22,181	
2000	7,046	0	0	0	7,046	3,641	0	0	3,641	1,111	0	0	30	0	1,141	11,798	0	0	30	0		11,828	
1995-1999																							
Average	19,825	2,440	205,128	30,585	257,978	5,655	91	112	5,858	6,326	12,496	9,569	508	0	28,899	31,805	15,027	245,393	508	0		292,734	
1990-1999																							
Average	24,432	3,724	193,618		239,324	9,778	80	181	10,104	6,431	12,108	7,034	415	723	26,710	40,641	15,913	218,382	479	723		276,138	

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Year	Yukon Area Totals						Total
	Subsist	Comm	Comm-Related	Personal Use	ADF&G Test Fish	Sport Fish ^h	
1961	305,317	0	0				305,317
1962	261,856	0	0				261,856
1963	297,094	0	0				297,094
1964	361,080	0	0				361,080
1965	336,848	0	0				336,848
1966	154,508	0	0				154,508
1967	206,233	10,935	0				217,168
1968	133,880	14,470	0				148,350
1969	156,191	61,966	0				218,157
1970	166,504	137,006	0				303,510
1971	171,487	100,090	0				271,577
1972	108,006	135,668	0				243,674
1973	161,012	285,509	0				446,521
1974	227,811	589,892	0				817,703
1975	211,888	710,295	0				922,183
1976	186,872	600,894	0				787,766
1977	159,502	534,875	0			316	694,693
1978	171,383	1,052,226	25,761			451	1,249,821
1979	155,970	779,316	40,217			328	975,831
1980	167,705	928,609	139,106			483	1,235,903
1981	117,629	1,006,938	272,763			612	1,397,942
1982	117,413	461,403	255,610			780	835,206
1983	149,180	744,879	250,590			998	1,145,647
1984	166,630	588,597	277,443			585	1,033,255
1985	157,744	516,997	417,016			1,267	1,093,024
1986	182,337	721,469	467,381	0		895	1,372,082
1987	170,678	442,238	180,303	4,262		846	798,327
1988	196,599	1,148,650	468,032	2,225	3,587	1,037	1,820,130
1989	167,155	955,806	496,934	1,891	10,605	2,131	1,634,522
1990	115,609	302,625	214,552	1,827	8,263	472	643,348
1991	118,540	349,113	308,989	0	3,934	1,037	781,613
1992	125,497	332,313	211,264	0	1,967	1,308	672,349
1993	104,776	96,522	43,594	674	1,869	564	247,999
1994	109,904	80,284	178,457	0	3,212	350	372,207
1995	118,723	259,774	558,640	780	6,073	1,174	945,164
1996	102,503	147,127	535,106	905	7,309	1,854	794,804
1997	97,109	95,242	133,010	391	2,590	662	329,004
1998	86,004	28,611	187	84	3,019	421	118,326
1999	70,323	29,389	24	382	836	555	101,509
2000	64,895	6,624	0	30	648	161	72,358
1995-1999							
Average	94,932	112,029	245,393	508	3,965	933	457,761
1990-1999							
Average	104,899	172,100	218,382	504	3,907	840	500,632

- a Subsistence harvest estimates not available by district until 1978. Harvests prior to 1977 were estimated because catches of salmon other than chinook salmon were not differentiated by species. ADF&G test fish is the number of salmon sold by test fisheries.
- b Includes estimates of illegal sales (refer to Appendix A.4). Includes department test fish sales prior to 1988.
- c In 1978 and 1979, the commercial related harvest was subtracted from the subsistence harvest because it was assumed this harvest was included in the reported subsistence harvest. From 1980 through 1987, the District 4 subsistence harvest was also reduced to account for commercial related harvests being reported in the subsistence harvest. It was calculated that 80.2% of the reported subsistence harvest (excluding Innoko and Koyukuk River catches) was commercial related. Beginning in 1988, subsistence surveys documented subsistence only fishing catches and commercial related use separately.
- d In District 4, excluding the Anvik River, commercial related refers to the estimated number of females and incidental males harvested to produce roe sold.
- e Only roe has been sold in the Anvik River commercial fishery. The commercial related harvest shown is the estimated number of females harvested to produce roe sold.
- f From 1978 through 1988, the commercial related harvest was subtracted from the subsistence harvest in Districts 5 and 6 because it was assumed that this harvest was included in the reported subsistence harvest during that time period.
- g In District 5 and 6, commercial related refers to the number of females harvested to produce roe sold.
- h Estimated sport fish harvest for all chum salmon (assume majority of chums caught during summer season) in Alaskan portion of the drainage. A majority of the sport fish harvest occurs in the Tanana River drainage (District 6).

Appendix A.19. Fall chum salmon total utilization in numbers of fish by district, area, and country, Yukon River drainage, 1961-2000. ^a

Year	District 1					District 2				District 3			Lower Yukon Area Subtotals				
	Subsistence	Commercial ^b	Personal Use	ADF&G Test Fish	Total	Subsistence	Commercial ^b	ADF&G Test Fish	Total	Subsistence	Commercial	Total	Subsistence	Commercial	Personal Use	ADF&G Test Fish	Total
1961		42,461			42,461									42,461			42,461
1962		53,116			53,116									53,116			53,116
1963																	
1964		8,347			8,347									8,347			8,347
1965		22,936			22,936									22,936			22,936
1966		69,836			69,836					1,209	1,209			71,045			71,045
1967		36,451			36,451					1,823	1,823			38,274			38,274
1968		49,857			49,857					3,068	3,068			52,925			52,925
1969		128,866			128,866					1,722	1,722			130,588			130,588
1970		200,306			200,306		4,858		4,858	3,285	3,285			208,449			208,449
1971		188,533			188,533									188,533			188,533
1972		136,711			136,711					1,313	1,313			150,922			150,922
1973		173,783			173,783									219,087			219,087
1974		176,036			176,036					552	552			230,128			230,128
1975		158,183			158,183					5,590	5,590			215,439			215,439
1976		105,851			105,851					4,250	4,250			131,313			131,313
1977		131,758			131,758					51,994	51,994			199,603			199,603
1978	390	127,947			128,337	1,297	51,646		52,943	266	11,527	11,793	1,953	191,120			193,073
1979	15,788	109,406			125,194	14,662	94,042		108,704	2,443	25,955	28,398	32,893	229,403			262,296
1980	7,433	106,829			114,262	12,435	83,881		96,316	2,320	13,519	15,839	22,188	204,229			226,417
1981	15,540	167,834			183,374	11,770	154,883		166,653	3,043	19,043	22,086	30,353	341,760			372,113
1982	10,016	97,484			107,500	9,511	96,581		106,092	1,659	5,815	7,474	21,186	199,880			221,066
1983	8,238	124,371			132,609	10,341	85,645		95,986	2,863	10,018	12,881	21,442	220,034			241,476
1984	8,885	78,751			87,636	11,394	70,803		82,197	2,233	6,429	8,662	22,512	155,983			178,495
1985	13,275	129,948			143,223	11,544	40,490		52,034	2,290	5,164	7,454	27,109	175,602			202,711
1986	9,000	59,352			68,352	13,483	51,307		64,790	2,155	2,793	4,948	24,638	113,452			138,090
1987	18,467	0	0		18,467	13,454	0		13,454	3,287	0	3,287	35,208	0	0	35,208	
1988	5,475	44,890	5	639	51,009	8,600	31,845	16	40,461	1,747	2,090	3,837	15,822	78,825	5	655	95,307
1989	4,914	74,235	18	3,641	82,808	10,015	97,558	348	107,921	1,023	15,332	16,355	15,952	187,125	18	3,989	207,084
1990	5,335	25,269	60	2,068	32,732	6,187	37,077	96	43,360	2,056	3,715	5,771	13,578	66,061	60	2,164	81,863
1991	3,935	59,724	-	2,455	66,114	5,628	102,628	96	108,352	615	9,213	9,828	10,178	171,565	-	2,551	184,294
1992	5,216	0	-	0	5,216	7,382	0	0	7,382	2,358	0	2,358	14,956	0	-	0	14,956
1993	7,770	0	-	0	7,770	3,094	0	0	3,094	1,449	0	1,449	12,313	0	-	0	12,313
1994	4,887	0	-	0	4,887	4,151	0	0	4,151	862	0	862	9,900	0	-	0	9,900
1995	4,698	79,345	-	1,121	85,164	3,317	90,831	0	94,148	1,672	0	1,672	9,687	170,176	-	1,121	180,984
1996	4,147	33,629	-	1,717	39,493	5,287	29,651	0	34,938	2,706	0	2,706	12,140	63,280	-	1,717	77,137
1997	3,132	27,483	-	867	31,482	4,680	24,326	0	29,006	787	0	787	8,599	51,809	-	867	61,275
1998	3,163	0	-	0	3,163	4,482	0	0	4,482	1,561	0	1,561	9,206	0	-	0	9,206
1999	6,502	9,987	-	1,149	17,638	4,594	9,703	22	14,319	415	0	415	11,511	19,690	-	1,171	32,372
2000	5,294	0	-	0	5,294	1,425	0	0	1,425	598	0	598	7,317	0	-	0	7,317
1995-1999																	
Average	4,328	30,089	-	971	35,388	4,472	30,902	4	35,379	1,428	0	1,428	10,229	60,991	-	975	72,195
1990-1999																	
Average	4,879	23,544	-	938	29,366	4,880	29,422	21	34,323	1,448	1,293	2,741	11,207	54,258	-	959	66,430

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Year	District 4				District 5				District 6					Upper Yukon Area Subtotals							
	Subsistence ^c	Commercial	Commercial Related ^d	Total	Subsistence ^c	Commercial	Commercial Related ^d	Personal Use	Total	Subsistence ^c	Commercial	Commercial Related ^d	Personal Use	ADF&G Test Fish	Total	Subsistence	Commercial	Commercial Related	Personal Use	ADF&G Test Fish	Total
1961																0	0				0
1962																0	0				0
1963																0	0				0
1964																0	0				0
1965																381	0				381
1966																0	0				0
1967																0	0				0
1968																0	0				0
1969																722	0				722
1970																1,146	0				1,146
1971																1,061	0				1,061
1972																1,254	0				1,254
1973																13,003	0				13,003
1974		9,213	0	9,213		23,551	0	23,551		26,884	0			26,884		59,648	0				59,648
1975		13,666	0	13,666		27,212	0	27,212		18,692	0			18,692		59,570	0				59,570
1976		1,742	0	1,742		5,387	0	5,387		17,948	0			17,948		25,077	0				25,077
1977		13,980	0	13,980		25,730	0	25,730		18,673	0			18,673		58,383	0				58,383
1978	8,931	10,988	1,721	21,640	46,485	21,016	5,220	72,721	26,870	13,259	3,687			43,816	82,286	45,263	10,628				138,177
1979	34,697	48,899	3,199	86,795	102,695	47,459	8,097	158,251	44,596	34,185	7,170			85,951	181,988	130,543	18,466				330,997
1980	19,328	27,978	4,347	51,653	75,861	41,771	605	118,237	50,260	19,452	68			69,780	145,449	89,201	5,020				239,670
1981	18,662	12,082	1,311	32,055	104,612	86,820	8,955	198,187	23,613	25,989	3,019			52,621	146,887	124,691	11,285				282,863
1982	20,152	3,894	167	24,213	71,786	13,593	42	85,421	18,988	6,820	596			26,384	110,906	24,307	805				136,018
1983	32,246	4,482	1,963	38,691	105,103	43,993	0	149,096	29,073	34,089	3,101			66,263	166,422	82,564	5,064				254,050
1984	28,937	7,625	2,215	38,777	98,376	24,060	57	122,493	22,670	20,564	56			43,290	149,983	52,249	2,328				204,560
1985	22,750	24,452	2,525	49,727	117,125	25,338	0	142,463	36,963	42,352	0			79,315	176,838	92,142	2,525				271,505
1986	26,126	2,045	0	28,171	87,729	22,053	395	110,177	24,973	1,892	182			27,047	138,828	25,990	577				165,395
1987	41,467	0	0	41,467	141,335	0	0	157,085	124,587	0	0	3,316		127,903	307,389	0	0	19,066			326,455
1988	16,958	15,662	1,421	34,041	84,209	16,989	0	102,960	34,597	21,844	1,806	2,114	27,008	87,369	135,764	54,495	3,227	3,876	27,008	224,370	224,370
1989	24,540	11,776	3,407	39,723	112,001	18,215	3,989	137,499	58,654	49,090	7,353	1,770	16,984	133,851	195,195	79,081	14,749	5,064	16,984	311,073	311,073
1990	19,241	4,989	3,177	27,407	90,513	7,778	1,198	103,212	44,568	43,182	7,793	1,393	7,060	103,996	154,322	55,949	12,168	5,116	7,060	234,615	234,615
1991	20,875	3,737	2,354	26,966	74,002	27,355	4,759	106,116	40,469	28,195	16,253	0	1,385	86,302	135,346	59,287	23,366	0	1,385	219,394	219,394
1992	21,232	0	0	21,232	45,701	0	0	45,701	25,713	15,721	3,301	0	1,407	46,142	92,646	15,721	3,301	0	1,407	113,075	113,075
1993	10,832	0	0	10,832	43,764	0	0	43,764	9,853	0	0	163	0	10,016	64,449	0	0	163	0	64,612	64,612
1994	13,325	0	0	13,325	66,396	3,630	0	70,026	33,597	1	4,368	0	0	37,966	113,318	3,631	4,368	0	0	121,317	121,317
1995	14,057	2,924	5,807	22,788	57,594	9,778	20,255	87,627	49,168	67,855	6,262	863	0	124,148	120,819	80,557	32,324	863	0	234,563	234,563
1996	16,786	2,918	0	19,704	63,473	11,878	9,890	85,331	36,467	10,266	7,308	356	0	54,397	116,726	25,062	17,288	356	0	159,432	159,432
1997	11,734	2,458	0	14,192	55,258	2,446	1,474	59,178	19,550	0	0	284	0	19,834	86,542	4,904	1,474	284	0	93,204	93,204
1998	7,898	0	0	7,898	31,393	0	0	31,393	14,370	0	0	2	0	14,372	53,661	0	0	2	0	53,663	53,663
1999	9,174	681	0	9,855	53,580	0	0	53,580	15,471	0	0	261	0	15,732	78,225	681	0	261	0	79,167	79,167
2000	1,759	0	0	1,759	9,920	0	0	9,920	310	0	0	1	0	311	11,989	0	0	1	0	11,990	11,990
1995-1999 Average	11,930	1,796	1,161	14,887	52,260	4,820	6,342	63,422	27,005	15,624	2,714	353	0	45,697	91,195	22,241	10,217	353	0	124,006	124,006
1990-1999 Average	14,515	1,771	1,134	17,420	58,167	6,287	3,767	68,593	28,923	16,522	4,529	332	985	51,291	101,605	24,579	9,429	705	985	137,303	137,303

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Year	Alaska Yukon Area Totals						Canadian Totals					Yukon River Drainage (Alaska/Canada) Totals							
	Subsistence	Commercial	Commercial Related	Personal Use	ADF&G Test Fish	Total	Old Crow Aboriginal	Aboriginal	Mainstem Yukon River Domestic	Commercial	Subtotal	Total	Subsistence ^a	Commercial	Commercial Related	Personal Use	ADF&G Test Fish	Total	
1961	101,772	42,461	0			144,233	2,000	3,800		3,276	7,076	9,076	107,572	45,737	0			153,309	
1962	87,285	53,116	0			140,401	2,000	6,500		936	7,436	9,436	95,785	54,052	0			149,837	
1963	99,031	0	0			99,031	20,000	5,500		2,196	7,696	27,696	124,531	2,196	0			126,727	
1964	120,360	8,347	0			128,707	6,058	4,200		1,929	6,129	12,187	130,618	10,276	0			140,894	
1965	112,283	23,317	0			135,600	7,535	2,183		2,071	4,254	11,789	122,001	25,388	0			147,389	
1966	51,503	71,045	0			122,548	8,605	1,430		3,157	4,587	13,192	81,538	74,202	0			135,740	
1967	68,744	38,274	0			107,018	11,768	1,850		3,343	5,193	16,961	82,362	41,617	0			123,979	
1968	44,627	52,925	0			97,552	10,000	1,180		453	1,633	11,633	55,807	53,378	0			109,185	
1969	52,063	131,310	0			183,373	3,377	2,120		2,279	4,399	7,776	57,560	133,589	0			191,149	
1970	55,501	209,595	0			265,096	620	612		2,479	3,091	3,711	56,733	212,074	0			268,807	
1971	57,162	189,594	0			246,756	15,000	150		1,761	1,911	16,911	72,312	191,355	0			263,667	
1972	36,002	152,176	0			188,178	5,000	0		2,532	2,532	7,532	41,002	154,708	0			195,710	
1973	53,670	232,090	0			285,760	6,200	1,129		2,806	3,935	10,135	60,999	234,896	0			295,895	
1974	93,776	289,776	0			383,552	7,000	1,636	466	2,544	4,646	11,646	102,878	292,320	0			395,198	
1975	86,591	275,009	0			361,600	11,000	2,500	4,800	2,500	9,600	20,600	104,691	277,509	0			382,200	
1976	72,327	156,390	0			228,717	3,100	100	1,000	1,000	2,100	5,200	76,527	157,390	0			233,917	
1977	82,771	257,986	0			340,757	5,560	1,430	1,499	3,990	6,919	12,479	91,260	261,976	0			353,236	
1978	84,239	236,383	10,628			331,250	5,000	482	728	3,356	4,566	9,566	90,449	239,739	10,628			340,816	
1979	214,881	359,946	18,466			593,293		11,000	2,000	9,084	22,084	22,084	227,881	369,030	18,466			615,377	
1980	167,637	293,430	5,020			466,087	6,000	3,218	4,000	9,000	16,218	22,218	180,855	302,430	5,020			488,305	
1981	177,240	466,451	11,285			654,976	3,000	2,410	1,611	15,260	19,281	22,281	184,261	481,711	11,285			677,257	
1982	132,092	224,187	805			357,084	1,000	3,096	683	11,312	15,091	16,091	136,871	235,499	805			373,175	
1983	187,864	302,598	5,064			495,526	2,000	1,200	300	25,990	27,490	29,490	191,364	326,588	5,064			525,016	
1984	172,495	208,232	2,328			383,055	4,000	1,800	535	22,932	25,267	29,267	178,830	231,164	2,328			412,322	
1985	203,947	267,744	2,525			474,216	3,500	1,740	279	35,746	37,765	41,265	209,466	303,490	2,525			515,481	
1986	163,466	139,442	577			303,485	657	2,200	222	11,464	13,886	14,543	166,545	150,906	577			318,028	
1987	342,597	0	0	19,066		361,663	135	3,622	132	40,591	44,345	44,480	346,486	40,591	0	19,066		406,143	
1988	151,586	133,320	3,227	3,881	27,663	319,677	1,071	1,882	349	30,263	32,494	33,565	154,888	163,583	3,227	3,881	27,663	353,242	
1989	211,147	266,206	14,749	5,082	20,973	518,157	2,909	2,462	100	17,549	20,111	23,020	216,618	283,755	14,749	5,082	20,973	541,177	
1990	167,900	122,010	12,168	5,176	9,224	316,478	2,410	3,675	0	27,537	31,212	33,622	173,985	149,547	12,168	5,176	9,224	350,100	
1991	145,524	230,852	23,366	0	3,936	403,678	1,576	2,438	0	31,404	33,842	35,418	149,538	262,256	23,366	0	3,936	439,096	
1992	107,602	15,721	3,301	0	1,407	128,031	1,935	304	0	18,576	18,880	20,815	109,841	34,297	3,301	0	1,407	148,846	
1993	76,762	0	0	163	0	76,925	1,668	4,660	0	7,762	12,422	14,090	83,090	7,762	0	163	0	91,015	
1994	123,218	3,631	4,368	0	0	131,217	2,654	5,319	0	30,035	35,354	38,008	131,191	33,666	4,368	0	0	169,225	
1995	130,506	250,733	32,324	863	1,121	415,547	5,489	1,099	0	39,012	40,111	45,600	137,094	289,745	32,324	863	1,121	461,147	
1996	128,866	88,342	17,288	356	1,717	236,569	3,025	1,260	0	20,069	21,329	24,354	133,151	108,411	17,288	356	1,717	260,923	
1997	95,141	56,713	1,474	284	867	154,479	6,294	1,218	0	8,068	9,286	15,580	102,653	64,781	1,474	284	867	170,059	
1998	62,867	0	0	2	0	62,869	6,159	1,745	0	0	1,745	7,904	70,771	0	0	2	0	70,773	
1999	89,736	20,371	0	261	1,171	111,539	6,000	3,104	0	10,402	13,506	19,506	98,840	30,773	0	261	1,171	131,045	
2000	19,306	0	0	1	0	19,307	5,000	2,917	0	1,319	4,236	9,236	27,223	1,319	0	1	0	28,543	
1995-1999																			
Average	101,423	83,232	10,217	353	975	196,201	5,393	1,685	0	15,510	17,195	22,589	108,502	98,742	10,217	353	975	218,789	
1990-1999																			
Average	112,812	78,837	9,429	711	1,944	203,733	3,721	2,482	0	19,287	21,769	25,490	119,015	98,124	9,429	711	1,944	229,223	

a Subsistence harvest estimates not available by district until 1978. Subsistence harvests prior to 1977 were estimated because catches of salmon other than chinook salmon were not differentiated by species. Minimum estimates of fall chum subsistence catches for 1961-1978 because surveys were conducted prior to the end of the fishing season.

b Includes department test fish sales prior to 1988.

c From 1978 through 1988, the commercial related harvest was subtracted from the subsistence harvest in Districts 4, 5 and 6 because it was assumed that this harvest was included in the reported subsistence harvest during that time period. Beginning in 1989, subsistence surveys attempted to document subsistence only fishing catches and commercial related use separately.

d In Districts 4, 5 and 6, commercial related refers to the estimated number of females harvested to produce roe sold.

f Includes an estimated 95,768 fall chum salmon illegally sold in District 5.

g Includes an estimated 119,168 fall chum salmon illegally sold in District 6.

h Includes Alaskan subsistence harvest and Canadian Domestic and Aboriginal harvests.

Appendix A.20. Coho salmon total utilization in numbers of fish by district, area, and country, Yukon River drainage, 1961-2000. ^a

Year	District 1				District 2				District 3			Lower Yukon Area Subtotals					
	Subsistence	Commercial ^b	Personal Use	ADF&G Test Fish	Total	Subsistence	Commercial ^b	ADF&G Test Fish	Total	Subsistence	Commercial	Total	Subsistence	Commercial	Personal Use	ADF&G Test Fish	Total
1961		2,855			2,855		0		0		0	0		2,855			2,855
1962		22,926			22,926		0		0		0	0		22,926			22,926
1963		5,572			5,572		0		0		0	0		5,572			5,572
1964		2,446			2,446		0		0		0	0		2,446			2,446
1965		350			350		0		0		0	0		350			350
1966		19,254			19,254		0		0		0	0		19,254			19,254
1967		9,925			9,925		0		0	1,122	1,122	1,122		11,047			11,047
1968		13,153			13,153		0		0	150	150	150		13,303			13,303
1969		13,989			13,989		0		0	1,009	1,009	1,009		14,998			14,998
1970		12,632			12,632		0		0	0	0	0		12,632			12,632
1971		12,165			12,165		0		0	0	0	0		12,165			12,165
1972		21,705			21,705		506		506	0	0	0		22,211			22,211
1973		34,860			34,860		1,781		1,781	0	0	0		36,641			36,641
1974		13,713			13,713		176		176	0	0	0		13,889			13,889
1975		2,288			2,288		200		200	0	0	0		2,488			2,488
1976		4,064			4,064		17		17	0	0	0		4,081			4,081
1977		31,720			31,720		5,319		5,319	538	538	538		37,577			37,577
1978	1,142	16,460			17,602	598	5,835		6,433	223	758	981	1,963	23,053			25,016
1979	3,184	11,369			14,553	1,132	2,850		3,982	74	0	74	4,390	14,219			18,609
1980	1,808	4,829			6,637	4,801	2,660		7,461	91	0	91	6,700	7,489			14,189
1981	3,769	13,129			16,898	3,736	7,848		11,584	510	419	929	8,015	21,396			29,411
1982	11,192	15,115			26,307	10,229	14,179		24,408	675	87	762	22,096	29,381			51,477
1983	3,590	4,595			8,185	6,072	2,557		8,629	917	0	917	10,579	7,152			17,731
1984	6,095	29,472			35,567	7,066	43,064		50,130	740	621	1,361	13,901	73,157			87,058
1985	3,246	27,676			30,922	4,834	17,125		21,959	376	171	547	8,456	44,972			53,428
1986	2,725	24,824			27,549	9,140	21,197		30,337	954	793	1,747	12,819	46,814			59,633
1987	6,396	0	0		6,396	6,894	0		6,894	754	0	754	14,044	0	0		14,044
1988	4,389	36,028	0	407	40,824	7,104	34,758	18	41,880	1,667	1,419	3,086	13,160	72,205	0	425	85,790
1989	5,077	22,987	59	1,685	29,808	5,039	38,402	120	43,561	537	3,988	4,525	10,653	65,377	59	1,805	77,894
1990	3,301	12,160	8	1,194	16,663	6,344	16,405	30	22,779	1,026	918	1,944	10,671	29,483	8	1,224	41,386
1991	1,808	54,095	-	2,094	57,997	3,297	40,898	86	44,281	1,340	1,905	3,245	6,445	96,898	-	2,180	105,523
1992	5,426	0	-	0	5,426	6,587	0	0	6,587	1,549	0	1,549	13,562	0	-	0	13,562
1993	2,343	0	-	0	2,343	1,695	0	0	1,695	279	0	279	4,317	0	-	0	4,317
1994	3,272	0	-	0	3,272	3,881	0	0	3,881	363	0	363	7,516	0	-	0	7,516
1995	2,251	21,625	-	193	24,069	2,142	18,488	0	20,630	891	0	891	5,284	40,113	-	193	45,590
1996	2,445	27,705	-	1,728	31,878	3,475	20,974	0	24,449	444	0	444	6,364	48,679	-	1,728	56,771
1997	1,823	21,450	-	498	23,771	2,424	13,056	0	15,480	766	0	766	5,013	34,506	-	498	40,017
1998	2,171	0	-	0	2,171	2,297	1	0	2,298	400	0	400	4,868	1	-	0	4,869
1999	1,730	855	-	236	2,821	2,793	746	0	3,539	610	0	610	5,133	1,601	-	236	6,970
2000	1,067	0	-	0	1,067	2,351	0	0	2,351	94	0	94	3,512	0	-	0	3,512
1995-1999																	
Average	2,064	14,327	-	531	16,942	2,626	10,653	0	13,279	622	0	622	5,332	24,980	-	531	30,843
1990-1999																	
Average	2,657	13,789	-	594	17,041	3,494	11,057	12	14,562	767	282	1,049	6,917	25,128	-	606	32,652

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Year	District 4				District 5				District 6					Upper Yukon Area Subtotals							
	Subsistence	Commercial	Commercial Related ^c	Total	Subsistence	Commercial	Commercial Related ^c	Personal Use	Total	Subsistence	Commercial	Commercial Related ^c	Personal Use	ADF&G Test Fish	Total	Subsistence	Commercial	Commercial Related ^c	Personal Use	ADF&G Test Fish	Total
1961																					
1962																					
1963																					
1964																					
1965																					
1966																					
1967																					
1968																					
1969																					
1970																	95	0			95
1971																	556	0			556
1972																	38	0			38
1973																	22	0			22
1974		0	0			1,409	0	1,409		1,479	0			1,479		2,888	0			2,888	
1975		0	0			5	0	5		53	0			53		58	0			58	
1976		0	0			0	0	0		1,103	0			1,103		1,103	0			1,103	
1977		0	0			2	0	2		1,284	0			1,284		1,284	0			1,284	
1978	145	32	0	177	970	1	0	971	4,709	3,066	0			7,775	5,824	3,099	0			8,923	
1979	197	155	0	352	595	0	0	595	4,612	2,791	0			7,403	5,404	2,946	0			8,350	
1980	7,734	30	0	7,764	561	0	0	561	5,163	1,226	0			6,389	13,456	1,256	0			14,714	
1981	2,239	0	0	2,239	1,713	0	0	1,713	9,261	2,284	0			11,545	13,213	2,284	0			15,497	
1982	2,952	15	0	2,967	3,428	0	0	3,428	7,418	7,780	0			15,198	13,798	7,795	0			21,593	
1983	3,946	0	0	3,946	2,448	0	0	2,448	6,932	6,168	0			13,100	13,326	6,168	0			19,494	
1984	2,867	1,095	0	3,962	17,467	0	0	17,467	14,785	7,688	0			22,473	35,119	8,783	0			43,902	
1985	3,949	938	0	4,887	8,098	0	0	8,098	11,761	11,762	0			23,523	23,808	12,700	0			36,508	
1986	2,458	0	0	2,458	5,870	0	0	5,870	13,321	441	0			13,762	21,649	441	0			22,090	
1987	3,479	0	0	3,479	11,842	0	0	11,900	53,006	0	2,465			55,471	68,327	0	0	2,523		70,850	
1988	4,714	2	0	4,716	19,755	8	103	19,866	30,201	13,972	0	1,147	13,295	58,615	54,670	13,982	0	1,250	13,295	83,197	
1989	4,030	3	0	4,033	7,187	84	82	7,353	16,841	16,084	0	731	2,140	37,796	30,058	16,171	0	813	2,140	49,182	
1990	3,614	0	0	3,614	11,562	0	18	11,580	17,513	11,549	3,255	1,155	1,426	34,998	32,789	11,549	3,255	1,173	1,426	50,192	
1991	4,451	14	0	4,465	4,931	0	-	4,931	21,561	6,268	3,506	0	791	32,126	30,943	6,282	3,506	0	791	41,522	
1992	8,429	0	0	8,429	12,376	0	-	12,376	17,554	6,556	1,423	0	1,629	27,162	38,359	6,556	1,423	0	1,629	47,967	
1993	1,167	0	0	1,167	5,984	0	-	5,984	4,304	0	0	0	0	4,304	11,455	0	0	0	0	11,455	
1994	3,515	0	0	3,515	4,174	0	-	4,174	26,489	120	4,331	0	0	30,940	34,178	120	4,331	0	0	38,629	
1995	1,934	0	0	1,934	2,205	0	-	2,205	18,802	5,826	1,074	417	0	26,119	22,941	5,826	1,074	417	0	30,258	
1996	2,467	161	0	2,628	6,588	0	-	6,588	14,893	3,803	3,339	198	0	22,233	23,948	3,964	3,339	198	0	31,449	
1997	3,754	814	0	4,568	3,583	0	-	3,583	11,595	0	0	350	0	11,945	18,932	814	0	350	0	20,096	
1998	2,593	0	0	2,593	2,839	0	-	2,839	7,472	0	0	9	0	7,481	12,904	0	0	9	0	12,913	
1999	2,049	0	0	2,049	4,241	0	-	4,241	9,394	0	0	153	0	9,547	15,684	0	0	153	0	15,837	
2000	1,068	0	0	1,068	4,987	0	-	4,987	5,150	0	0	0	0	5,150	11,205	0	0	0	0	11,205	
1995-1999																					
Average	2,559	195	0	2,754	3,891	0	-	3,891	12,431	1,926	883	225	0	15,465	18,882	2,121	883	225	0	22,111	
1990-1999																					
Average	3,397	99	0	3,496	5,848	0	-	5,850	14,968	3,412	1,693	228	385	20,686	24,213	3,511	1,693	230	385	30,032	

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Year	Alaska Yukon Area Totals						Canadian Totals					Yukon River Drainage (Alaska/Canada) Totals								
	Subsistence	Commercial	Commercial Related ^c	Personal Use	ADF&G Test Fish	Sport Fish ^g	Total	Old Crow Aboriginal	Mainstem Yukon River Aboriginal	Domestic Commercial	Total	Total	Subsistence ^h	Commercial	Commercial Related ^c	Personal Use	ADF&G Test Fish	Sport Fish	Total	
1961	9,192	2,855	0				12,047						9,192	2,855	0				12,047	
1962	9,480	22,926	0				32,406						9,480	22,926	0				32,406	
1963	27,699	5,572	0				33,271						27,699	5,572	0				33,271	
1964	12,187	2,446	0				14,633						12,187	2,446	0				14,633	
1965	11,789	350	0				12,139						11,789	350	0				12,139	
1966	13,192	19,254	0				32,446						13,192	19,254	0				32,446	
1967	17,164	11,047	0				28,211						17,164	11,047	0				28,211	
1968	11,613	13,303	0				24,916						11,613	13,303	0				24,916	
1969	7,776	15,093	0				22,869						7,776	15,093	0				22,869	
1970	3,966	13,188	0				17,154						3,966	13,188	0				17,154	
1971	16,912	12,203	0				29,115						16,912	12,203	0				29,115	
1972	7,532	22,233	0				29,765						7,532	22,233	0				29,765	
1973	10,236	36,641	0				46,877						10,236	36,641	0				46,877	
1974	11,646	16,777	0				28,423						11,646	16,777	0				28,423	
1975	20,708	2,546	0				23,254						20,708	2,546	0				23,254	
1976	5,241	5,184	0				10,425						5,241	5,184	0				10,425	
1977	16,333	38,863	0			125	55,321						16,333	38,863	0			125	55,321	
1978	7,787	26,152	0			302	34,241						7,787	26,152	0			302	34,241	
1979	9,794	17,165	0			50	27,009						9,794	17,165	0			50	27,009	
1980	20,158	8,745	0			67	28,970	1,500			0	1,500	21,658	8,745	0			67	30,470	
1981	21,228	23,680	0			45	44,953	500			0	500	21,728	23,680	0			45	45,453	
1982	35,894	37,176	0			191	73,261				0	0	35,894	37,176	0			191	73,261	
1983	23,905	13,320	0			199	37,424				0	0	23,905	13,320	0			199	37,424	
1984	49,020	81,940	0			831	131,791	500			0	500	49,520	81,940	0			831	132,291	
1985	32,264	57,672	0			808	90,744	250			0	250	32,514	57,672	0			808	90,994	
1986	34,468	47,255	0			1,535	83,258	300			0	300	34,768	47,255	0			1,535	83,558	
1987	82,371	0	0	2,523		1,292	86,186	306		0	0	306	82,677	0	0	2,523		1,292	86,492	
1988	67,830	86,187	0	1,250	13,720	2,420	171,407	350		0	0	350	68,180	86,187	0	1,250	13,720	2,420	171,757	
1989	40,711	81,548	0	872	3,945	1,811	128,887	470		0	0	470	41,181	81,548	0	872	3,945	1,811	129,357	
1990	43,460	41,032	3,255	1,181	2,650	1,947	93,525	680		0	0	680	44,140	41,032	3,255	1,181	2,650	1,947	94,205	
1991	37,388	103,180	3,506	0	2,971	2,775	149,820	235		0	0	235	37,623	103,180	3,506	0	2,971	2,775	150,055	
1992	51,921	6,556	1,423	0	1,629	1,666	63,195	495		0	0	495	52,416	6,556	1,423	0	1,629	1,666	63,690	
1993	15,772	0	0	0	0	897	16,669	60		0	0	60	15,832	0	0	0	0	897	16,729	
1994	41,694	120	4,331	0	0	1,893	48,038	332		2	2	334	42,026	122	4,331	0	0	1,893	48,372	
1995	28,225	45,939	1,074	417	193	1,278	77,126	509		0	0	509	28,734	45,939	1,074	417	193	1,278	77,635	
1996	30,312	52,643	3,339	198	1,728	1,786	90,006	41		0	0	41	30,353	52,643	3,339	198	1,728	1,786	90,047	
1997	23,945	35,320	0	350	498	1,408	61,521	298		2	2	300	24,243	35,322	0	350	498	1,408	61,821	
1998	17,772	1	0	9	0	758	18,540	214		0	0	214	17,986	1	0	9	0	758	18,754	
1999	20,817	1,601	0	153	236	609	23,416	100		0	0	100	20,917	1,601	0	153	236	609	23,516	
2000	14,717	0	0	0	0	554	15,271	37		0	0	37	14,754	0	0	0	0	554	15,308	
1995-1999																				
Average	24,214	27,101	883	225	531	1,168	54,122	232		0	0	233	24,447	27,101	883	225	531	1,168	54,355	
1990-1999																				
Average	31,131	28,639	1,693	231	991	1,502	64,186	296		0	0	297	31,427	28,640	1,693	231	991	1,502	64,482	

a Subsistence harvest estimates not available by district until 1978. Subsistence harvests prior to 1977 were estimated because catches of salmon other than chinook salmon were not differentiated by species.

Minimum estimates of coho subsistence catches for 1961-1978 because surveys were conducted prior to the end of the fishing season. ADF&G test fish is the number of fish sold by test fisheries.

b Includes department test fish sales prior to 1988.

c In Districts 4, 5 and 6, commercial related refers to the estimated number of females harvested to produce roe sold.

d Includes an estimated 5,015 coho salmon illegally sold in District 5.

f Includes an estimated 31,276 coho salmon illegally sold in District 6.

g Estimated sport fish harvest for Alaskan portion of the Yukon River drainage. A majority of the sport fish harvest occurs in the Tanana River drainage, District 6.

h Includes Alaskan subsistence harvest and Canadian Aboriginal harvest.

Appendix A.21. Yukon Area pink salmon total utilization in numbers of fish, by district and area, 1980-2000. *

Year	Coastal District			District 1			District 2			District 3				Lower Yukon Area Subtotals				
	Subsist	Comm	Total	Subsist	Comm	Total	Subsist	Comm	Total	Subsist	Comm	Related b	Total	Subsist	Comm	Related b	Total	
1980					0	0		0	0		0	0	0	0	0	0	0	
1981					0	0		0	0		0	0	0	0	0	0	0	
1982					0	0		0	0		0	0	0	0	0	0	0	
1983					0	0		0	0		0	0	0	0	0	0	0	
1984					0	0		0	0		0	0	0	0	0	0	0	
1985					0	0		0	0		0	0	0	0	0	0	0	
1986					0	0		0	0		0	0	0	0	0	0	0	
1987					0	0		0	0		0	0	0	0	0	0	0	
1988					1,001	1,001		56	56		0	0	0	0	1,057	0	1,057	
1989					17	17		0	0		0	0	0	0	17	0	17	
1990					418	418		324	324		1	0	1	0	743	0	743	
1991					0	0		0	0		0	0	0	0	0	0	0	
1992				19 d	0	19		0	0		19 d	0	19	38	0	0	38	
1993					0	0	2,731	0	2,731		289	0	289	3,020	0	0	3,020	
1994	2,053	0	2,053	4,233	0	4,233		0	0		0	0	0	4,233	0	0	4,233	
1995	385	0	385	132	0	132	15	0	15		0	0	0	147	0	0	147	
1996	3,517	0	3,517	443	0	443	933	0	933		180	0	100	280	1,556	0	100	1,656
1997	265	0	265	69	0	69	115	0	115		0	0	0	184	0	0	184	
1998	3,732	0	3,732	1,590	0	1,590	1,550	0	1,550		1,617	0	0	1,617	4,757	0	0	4,757
1999	626	0	626	32	0	32	21	0	21		0	0	0	53	0	0	53	
2000	998	0	998	301	0	301	235	0	235		28	0	0	28	564	0	0	564
<hr/>																		
1995-1999																		
Average	1,705	0	1,705	453	0	453	527	0	527		359	0	20	379	1,339	0	20	1,359
1990-1999																		
Average				931	42	694	894	32	569		301	0	10	221	1,399	74	10	1,483

-Continued-

Year	District 4				District 5				District 6				Upper Yukon Area Subtotals				Alaska Yukon Area Totals				
	Subsist	Comm	Related b	Total	Subsist	Comm	Related b	Total	Subsist	Comm	Related b	Total	Subsist	Comm	Related b	Total	Subsist	Comm	Related b	Sport Fish ^g	Total
1980		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	0
1981		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	0
1982		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	0
1983		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	0
1984	500	0	0	500		0	0	0		0	0	0		500	0	0	500	500	0	0	500
1985		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	0
1986		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	0
1987		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	0
1988		0	0	0		0	0	0		0	0	0		0	0	0		0	1,057	0	1,057
1989		0	0	0		0	0	0		0	0	0		0	0	0		0	17	0	17
1990		0	0	0		0	0	0		0	0	0		0	0	0		0	743	0	743
1991		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	0
1992	5 d	0	0	5		0	0	0		0	0	0		5	0	0	5	43	0	0	43
1993		0	0	0		0	0	0		0	0	0		0	0	0		3,020	0	0	3,020
1994	995	0	66	1,061	0	0	0	0	0	0	0	0	995	0	66	1,061	5,228	0	66	5,294	
1995	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	147	0	0	147	
1996	59	0	0	59	0	0	0	0	0	0	0	0	59	0	0	59	1,615	0	100	1,715	
1997	34	0	0	34	0	0	0	0	0	0	0	0	34	0	0	34	218	0	0	218	
1998	700	0	0	700	0	0	0	0	0	0	0	0	700	0	0	700	5,457	0	0	5,457	
1999	2	0	0	2	0	0	0	0	0	0	0	0	2	0	0	2	55	0	0	55	
2000	31	0	0	31	0	0	0	0	0	0	0	0	31	0	0	31	595	0	0	595	
1995-1999 Average	159	0	0	159	0	0	0	0	0	0	0	0	159	0	0	159	1,498	0	20	1,518	
1990-1999 Average	256	0	7	186	0	0	0	0	0	0	0	0	180	0	7	186	1,578	74	17	1,669	

a Subsistence harvest estimates not available until 1995. Subsistence harvests of chum salmon below Kaltag prior to 1995 may include some pink salmon.
 b In Districts 3-6, commercial related refers to the estimated number of females and males harvested to produce roe sold.
 c Estimated sport fish harvest for Alaskan portion of the Yukon River drainage.
 d Reported as caught but not sold on fish tickets.

Appendix A.22. Percent age composition of combined commercial and subsistence salmon harvest by species, Yukon River drainage, 1982-2000. ^a

Species	Year	Sample Size	Age In Years (Percent of Total)						Total ^b
			3	4	5	6	7	8	
Chinook Salmon	1982	3,795	0.2	6.8	18.5	58.3	15.9	0.3	100.0
	1983	3,801	0.0	6.6	21.0	62.9	9.4	0.0	100.0
	1984	3,700	0.0	3.7	27.0	56.0	13.1	0.1	100.0
	1985	4,567	0.1	5.7	13.2	69.4	11.3	0.3	100.0
	1986	5,785	0.3	3.9	27.2	42.8	25.1	0.6	100.0
	1987	5,300	0.0	4.2	8.4	72.5	14.5	0.3	100.0
	1988	5,108	0.1	14.8	22.8	31.5	29.4	1.4	100.0
	1989	3,901	0.5	7.2	30.3	51.1	10.2	0.6	99.9
	1990	3,416	0.0	17.2	26.9	49.4	6.3	0.2	100.0
	1991	3,879	0.0	5.8	45.1	42.6	6.4	0.1	100.0
	1992	3,772	0.1	8.1	20.1	68.6	3.1	0.0	100.0
	1993	4,034	0.2	15.8	25.4	50.5	8.0	0.0	100.0
	1994	3,692	0.3	4.1	47.2	44.5	3.8	0.0	99.9
	1995	5,559	0.0	7.8	13.7	74.7	3.6	0.2	100.0
	1996	5,861	0.0	2.4	44.0	35.6	17.9	0.2	100.1
	1997	5,134	0.0	7.5	17.8	70.5	4.2	0.1	100.1
	1998	3,122	0.7	5.2	55.1	31.4	7.6	0.0	100.0
	1999	4,285	0.1	3.8	17.7	76.7	1.7	0.0	100.0
	2000	1,201	0.0	1.0	29.9	60.5	8.6	0.0	100.0
	5 Year Average 1995 to 1999		4,792	0.2	5.3	29.7	57.8	7.0	0.1
Summer Chum Salmon	1982	3,419	2.0	61.2	34.4	2.4			100.0
	1983	4,110	1.0	53.8	44.4	0.8			100.0
	1984	2,722	2.0	73.7	23.9	0.5			100.0
	1985	2,472	1.4	68.6	29.2	0.8			100.0
	1986	3,473	0.1	29.1	69.8	1.0			100.0
	1987	2,184	0.4	60.8	31.8	6.9			100.0
	1988	5,112	0.0	70.1	29.1	0.8			100.0
	1989	3,778	0.4	38.7	60.5	0.4			100.0
	1990	3,155	0.4	38.3	58.9	2.4			100.0
	1991	5,015	1.3	48.0	49.8	0.9			100.0
	1992	4,303	0.2	31.0	65.0	3.8			100.0
	1993	2,011	0.4	47.5	47.7	4.5			100.1
	1994	3,820	0.1	51.3	46.6	2.0			100.0
	1995	4,740	0.6	51.9	45.3	2.1			99.9
	1996	3,863	0.4	46.2	48.8	4.5	0.1		100.0
	1997	3,195	0.2	29.0	67.2	3.6	0.0		100.0
1998	1,147	0.3	62.8	34.2	2.7			100.0	
1999	1,627	0.2	40.7	58.2	0.9			100.0	
2000	2,055	0.0	44.2	53.4	2.4			100.0	
1995 to 1999 Average		2,914	0.3	46.1	50.7	2.8	0.1		100.0

-Continued-

Species	Year	Sample Size	Age In Years (Percent of Total)					Total ^b
			3	4	5	6	7	
Fall	1982	2,918	6.5	58.6	34.5	0.3		100.0
Chum	1983	1,735	0.7	91.4	8.0	0.0		100.0
Salmon	1984	1,902	6.6	55.6	37.5	0.4		100.0
	1985	2,801	5.2	83.4	11.0	0.4		100.0
	1986	1,715	7.4	89.6	2.5	0.5		100.0
	1987	1,513	5.0	77.1	17.5	0.4		100.0
	1988	4,030	4.1	45.7	46.6	3.5		99.9
	1989	4,939	1.0	87.0	11.8	0.2		100.0
	1990	2,351	2.8	74.9	21.7	0.6		100.0
	1991	5,314	2.7	75.4	21.7	0.2		100.0
	1992	3,069	1.2	45.9	51.8	1.1		100.0
	1993	1,616	0.1	62.8	35.2	1.8		99.9
	1994	1,295	2.4	66.4	31.1	0.1		100.0
	1995	1,731	0.8	59.2	37.4	2.6		100.0
	1996	1,391	0.3	52.3	43.9	3.5		100.0
	1997	1,245	0.3	57.2	41.6	0.9		100.0
	1998 ^c	0	-	-	-	-		-
	1999	371	0.0	79.2	20.5	0.3		100.0
	2000 ^c	0	-	-	-	-		-
1995 to 1999 Average		948	0.4	62.0	35.9	1.8		100.0
Coho	1982	320	4.1	87.3	8.6			100.0
Salmon	1983	121	4.1	91.7	4.1			100.0
	1984	619	12.9	73.7	13.4			100.0
	1985	462	14.1	76.3	9.6			100.0
	1986	491	2.2	88.6	9.2			100.0
	1987	0	-	-	-			-
	1988	1,091	12.2	85.5	2.3			100.0
	1989	749	20.0	74.5	5.5			100.0
	1990	428	28.9	67.1	3.9			99.9
	1991	615	8.3	91.6	0.1			100.0
	1992	920	24.1	74.4	1.6			100.1
	1993	522	15.5	83.5	1.0			100.0
	1994	752	22.9	76.2	0.9			100.0
	1995	664	41.7	58.0	0.3			100.0
	1996	944	10.4	87.2	2.4			100.0
	1997	516	6.1	92.0	2.0			100.1
	1998 ^c	0	-	-	-			-
	1999	40	7.5	85.0	7.5			100.0
	2000 ^c	0	-	-	-			-
1995 to 1999 Average		433	16.4	80.6	3.1			100.0

a Age composition estimated from samples collected from each gear type, by district and fishery, or from samples from adjacent fisheries and/or test fisheries of the same gear type. Fisheries for which no appropriate samples were available were not apportioned to age.

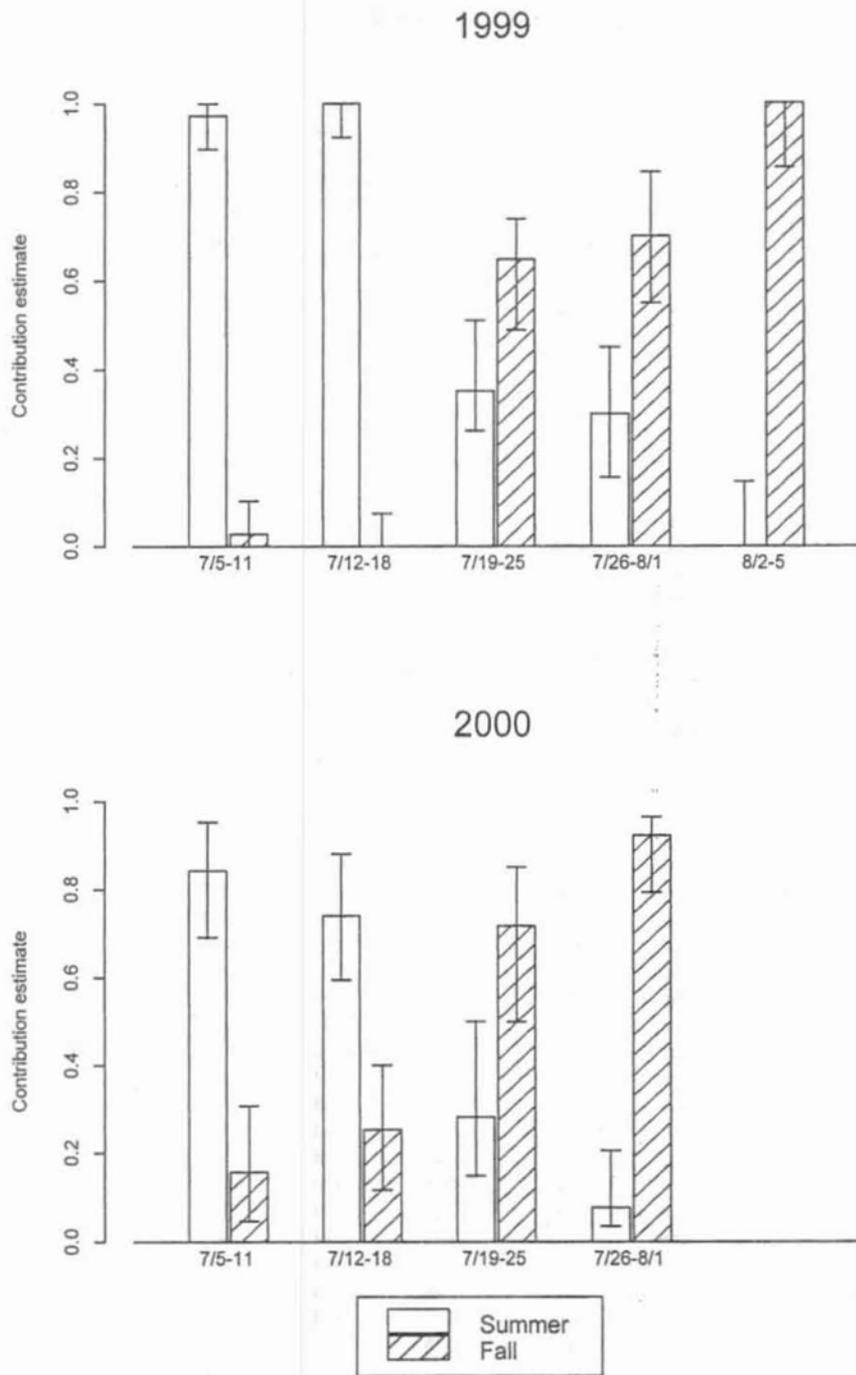
b Total may not be equal to 100% due to rounding errors.

c No commercial fishing occurred and subsistence harvests for fall chum and coho salmon were not sampled in 1998 and 2000, therefore no data is available.

Appendix A.23. Yukon River chinook salmon historical harvest proportions by run of origin for the United States and Canada using Maximum Likelihood estimates, 1981-2000. a

Year	Lower	Middle	Upper		Total	Total
			U.S.	Canada		
1981	0.054	0.545	0.313	0.088	0.401	1.000
1982	0.139	0.247	0.513	0.101	0.614	1.000
1983	0.129	0.337	0.446	0.087	0.533	1.000
1984	0.253	0.402	0.251	0.094	0.345	1.000
1985	0.276	0.223	0.409	0.092	0.501	1.000
1986	0.195	0.096	0.587	0.122	0.709	1.000
1987	0.159	0.196	0.560	0.086	0.645	1.000
1988	0.218	0.158	0.498	0.126	0.625	1.000
1989	0.244	0.159	0.494	0.102	0.597	1.000
1990	0.202	0.252	0.433	0.114	0.547	1.000
1991	0.280	0.253	0.349	0.118	0.467	1.000
1992	0.163	0.218	0.523	0.096	0.619	1.000
1993	0.215	0.254	0.439	0.092	0.531	1.000
1994	0.182	0.214	0.494	0.110	0.604	1.000
1995	0.160	0.236	0.499	0.105	0.604	1.000
1996	0.210	0.104	0.562	0.124	0.686	1.000
1997	0.264	0.168	0.482	0.086	0.569	1.000
1998	0.327	0.174	0.442	0.056	0.498	1.000
1999	0.405	0.068	0.435	0.092	0.527	1.000
2000	0.321	0.126	0.461	0.092	0.553	1.000
Minimum	0.280	0.545	0.587	0.126	0.709	1.000
Maximum	0.054	0.096	0.251	0.086	0.345	1.000
Average	0.210	0.232	0.458	0.100	0.558	1.000

^a Data in this table are preliminary. No peer review of the report the above data was derived from has occurred.



Appendix A. 24. Contribution estimates for summer and fall run chum salmon sampled from species apportionment gillnetting at Pilot Station Sonar 1999-2000. Contributions were estimated using genetic stock identification.

Appendix A.25. Selected environmental and salmon catch information,
Yukon River drainage, 1961-2000.

Year	Average Nome April Air Temp. (° F)	Tanana River Nenana Ice Breakup	Iceout Yukon Delta Area	First Chinook Caught Yukon Delta Area ^a	First Summer Chum Caught Delta Area ^a	First District 1 Commercial period
1961	18	5/05	- ^b	6/05	- ^b	6/05
1962	18	5/12	6/10	6/07 ^c	- ^b	6/11
1963	18	5/05	5/29	- ^b	- ^b	6/03
1964	13	5/20	>6/12	- ^b	- ^b	6/15
1965	20	5/07	6/01	6/06	- ^b	6/07
1966	15	5/08	6/06	6/09	- ^b	6/10
1967	23	5/04	- ^b	5/20	5/30	6/02
1968	14	5/08	- ^b	- ^b	6/05	6/03
1969	22	4/28	5/25	5/26	6/02	6/02
1970	15	5/04	late May	6/06	6/05	6/06
1971	13	5/08	6/05	6/11	6/15	6/11
1972	12	5/10	6/03	6/09	6/11	6/09
1973	18	5/04	6/01	6/01 ^d	5/30 ^d	6/05
1974	21	5/06	late May	5/27	6/01	6/03
1975	13	5/10	6/01	6/01	6/13	6/09
1976	10	5/02	6/01	6/12	6/13	6/14
1977	9	5/06	6/01	6/09	6/11	6/11
1978	25	4/30	5/20	5/26	5/26	6/08
1979	26	4/30	5/20	5/24	5/28	6/04
1980	24	4/29	5/19	5/27 ^f	5/31	6/09
1981	24	4/30	5/18	5/25	5/28	6/05
1982	12	5/10	6/02	6/06	6/06	6/14
1983	25	4/29	5/21	5/25	5/30	6/09
1984	12	5/09	6/01	6/02 ^g	6/08	6/18
1985	1	5/11	6/05	6/14	6/16	6/24
1986	12	5/08	6/01	6/06	6/07	6/14 ^h
1987	19	5/05	5/31	5/31	6/04	6/15
1988	23	4/27	5/20	5/27	5/27	6/09 ^h
1989	25	5/01	5/31	5/29 ^k	6/03	6/13 ^h
1990	26	4/24	5/28	5/29	5/31	6/14
1991	25	5/01	5/24	5/29	5/29	6/13
1992	22 ^j	5/14	5/30 ^m	6/13	6/13	6/20
1993	28	4/23	5/19	5/26	5/28	6/14
1994	20	4/29	5/22	5/24	5/28	6/13
1995	26	4/26	5/18	5/24	5/26	6/12
1996	21	5/05	5/19	5/24	5/24	6/10
1997	27 ⁿ	4/30	5/15	5/22	5/25	6/11
1998	26	4/20	5/22	5/28	5/25	6/15
1999	17	4/29 ^o	5/29	6/06	6/13	6/22
2000	21	5/01	5/29	6/03	6/05	6/24

- a Subsistence or test fishery.
b Information not available.
c Caught 6/09 Mt. Village, back calculated arrival date to mouth.
d Caught 6/03 Pilot Station, back calculated arrival date to mouth.
f Caught 5/23 Marshall, back calculated arrival date to mouth.
g Caught 6/05 Pitkas Point, back calculated arrival date to mouth.
h Special six inch maximum mesh size fishing period.
j Caught 6/01 St. Marys, back calculated arrival date to mouth.
k Average May air temperature was 8.2 degrees fahrenheit below normal.
m The mainstem Yukon River was ice free, but ice remained along the coast until June 10.
n Average April air temperature was 9 degrees fahrenheit above normal.
o The Nenana Ice Classic tripod moved on 4/29, but the ice did not move out for several more days.

Appendix A.26. Total catch and estimated catch of Western Alaska (including Canadian Yukon River) chinook salmon (in thousands of fish) taken in Japanese high seas salmon gillnet fisheries and total catch of chinook salmon taken in foreign, joint-venture, and U.S. domestic trawl fisheries, 1964-2000.

Year	Japanese Mothership Gillnet		Japanese Landbased Driftnet		Japanese Total Gillnet		Bering Sea-Aleutian Area Trawl				Gulf of Alaska Trawl			
	Western Alaska		Western Alaska		Western Alaska		Foreign	Joint Venture		U.S. Domestic	Total	Joint Venture/U.S.		Total
	Origin	Total	Origin	Total	Origin	Total		Groundfish ^a	U.S.			Foreign	Groundfish ^b	
1964	179	410	40	208	219	618								
1965	106	185	20	102	126	287								
1966	108	208	22	118	130	326								
1967	71	128	22	115	93	243								
1968	244	362	18	97	262	459								
1969	367	554	17	88	384	642								
1970	312	437	28	148	340	585								
1971	132	206	27	139	159	345								
1972	189	261	20	107	209	368								
1973	56	119	31	165	87	284								
1974	208	361	36	188	244	549								
1975	108	162	20	137	128	299								
1976	117	285	42	201	159	486								
1977	55	93	31	146	86	239						4.8		4.8
1978	36	105	63	210	99	315	39.1			39.1		16.9	1.0	17.9
1979	69	126	45	162	114	286	100.4			100.4		31.6	0.2	31.8
1980	416	704	22	160	438	864	113.1	1.9		115.0		28.6	0.0	28.6
1981	30	88	55	190	85	278	35.9	0.3		36.2		4.7	1.2	5.9
1982	45	107	41	165	86	272	13.9	1.7		15.6		5.9	3.6	9.5
1983	31	87	44	178	75	265	9.8	0.5		10.3		11.1	63.2	74.3
1984	36	82	21	92	57	174	9.5	1.7		11.2		0.3	13.6	13.9
1985	25	66	22	100	47	167	7.1	2.5	1.5	11.1		0.0	20.8	20.8
1986	24	60	20	76	44	137	1.0	4.8	3.4	9.2			0.8	0.8
1987	20	39	d	74	d	116	1.0	8.4	12.8	22.2			0.1	0.1
1988	23	26	d	47	d	73		5.6	24.7	30.3			6.7	6.7
1989	d	16	d	51	d	67		8.6	31.8	40.4			14.0	14.0
1990	-	-	-	-	d	23 ^f			14.0	14.0			38.9	38.9
1991	-	-	-	-	d	45 ^f			48.9	48.9			20.5	20.5
1992 ^g									42.0	42.0			24.5	24.5
1993									46.0	46.0			14.0	14.0
1994									44.4	44.4			14.6	14.6
1995									23.1	23.1			15.8	15.8
1996									63.2	63.2			15.1	15.1
1997									50.2	50.2			16.9	16.9
1998									55.4	59.0			30.6	31.9
1999									12.9	12.9			26.7	26.7
2000									7.5	7.5				

a Joint-venture harvest reported through 1989 (fishery ended in 1990).

b Joint-venture harvest reported through 1988 when fishery ended. U.S. ground fish fishery harvest reported beginning in 1989.

c Species composition unknown.

d Information not available.

f Japanese mothership fishery converted to "nontraditional landbased salmon fishery".

g U.S. fishery entirely replaced directed foreign and joint-venture groundfish harvests.

Appendix A.27. List of emergency orders pertaining to the Districts 1-6 chinook and summer chum salmon fishery, Yukon Area, 2000.

E.O. NUMBER	EFFECTIVE DATE	ACTION TAKEN	COMMENTS
3-S-LY-01-00	June 22	Opened the commercial salmon fishing season effective 6:00 p.m. Saturday June 24, 2000 in District 1 of the Lower Yukon Area.	The first chinook salmon was caught by a subsistence fisherman on June 3 near Emmonak. The first chinook salmon was caught in a department test gillnet on June 4, 2000. Subsistence and test fishing catches of chinook salmon began increasing moderately on June 15. The cumulative chinook salmon test fishing CPUE is approximately 5.39 through noon on June 21. It is expected that the cumulative CPUE will be approximately 6.5 through June 24, which is approximately the historical average cumulative test fishing CPUE observed on the date of the first commercial opening. Adequate numbers of chinook salmon are present to provide for subsistence and escapement from this portion of the chinook salmon return. Chinook salmon run timing was late, probably due to ice and cold water temperatures along the coast during the first half of June. Summer chum salmon run timing also was later than average. Based upon seven days of increasing test fishing and subsistence catches of chinook salmon, it is warranted to open the commercial fishing season in District 1.
3-S-LY-02-00	June 22	Established a 6-hour fishing period and allowed the taking of salmon for commercial purposes with unrestricted mesh size gillnets from 6:00 p.m. Saturday June 24, 2000 until 12:00 a.m. Sunday June 25, 2000 in District 1 of the Lower Yukon Area.	Adequate numbers of chinook salmon are present to provide for subsistence and escapement from this portion of the chinook salmon return. Chinook salmon run timing is late, probably due to ice and cold water temperatures along the coast during the first half of June. Based upon seven days of increasing test fishing and subsistence catches of chinook salmon, a 6-hour commercial fishing period is warranted in District 1.
3-S-LY-03-00	June 27	Opened the commercial salmon fishing season effective 6:00 p.m. Tuesday June 27, 2000 in District 2 of the Lower Yukon Area.	Subsistence catches of chinook salmon began increasing on June 15. Test fishing catches have been increasing since June 16. The cumulative chinook salmon test fishing CPUE is approximately 7.53 through June 25. Adequate numbers of chinook salmon are present to provide for subsistence and escapement from this portion of the chinook salmon return. Chinook salmon run timing is late, probably due to ice and cold water temperatures along the coast during the first half of June. Summer chum salmon run timing also is later than average. Based upon seven to ten days of increasing test fishing and

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E.O. NUMBER	EFFECTIVE DATE	ACTION TAKEN	COMMENTS
3-S-LY-03-00 (Continued)			subsistence catches of chinook salmon, it is warranted to open the commercial fishing season in District 2.
3-S-LY-04-00	June 27	Established a 6-hour fishing period and allowed the taking of salmon for commercial purposes with unrestricted mesh size gillnets from 6:00 p.m. Tuesday June 27, 2000 until 12:00 a.m. Wednesday June 28, 2000 in District 2 of the Lower Yukon Area.	Adequate numbers of chinook salmon are present to provide for subsistence and escapement from this portion of the chinook salmon return. An estimated 2,600 chinook and 1,600 summer chum salmon were harvested during the first commercial fishing period in District. Based on test fishing and subsistence reports showing an increasing trend in abundance, commercial fishing time is warranted.
3-S-LY-05-99	June 28	Established a 6-hour fishing period and allowed the taking of salmon for commercial purposes with unrestricted mesh size gillnets from 9:00 p.m. Thursday June 29, 2000 until 12:00 a.m. Friday June 30, 2000 in District 1 of the Lower Yukon Area.	Chinook salmon run timing is late, probably due to ice and cold water temperatures along the coast during the first half of June. The cumulative chinook salmon test fishing CPUE is 9.5 through June 27. Based on a similarity to the 1998 run and the results of that run the department believes a surplus of chinook salmon is available. Pilot station numbers are still preliminary at this time, however, they are tracking with the 1998 season.
3-S-LY-06-00	July 18	Reduced the amount of subsistence salmon fishing time allowed in districts 1,2, and 3 of the Lower Yukon Area and establishes a schedule of one 12-hour subsistence salmon fishing per week.	Yukon River chinook and summer chum salmon runs have developed at a much slower and lower rate this year than previously thought. The number of salmon arriving at the spawning grounds this year is unacceptably low through out the drainage. The Department projects that summer chum salmon escapement needs are unlikely to be met based on Pilot Station Sonar estimates, Nulato River Tower counts, Gisasa River Weir counts, Chena River and Salcha River tower counts.
3-S-LY-07-00	July 18	Allows fishing for non-salmon species with mesh smaller than 4-inch, closes fishing with fish wheels , during periods closed to the take of salmon.	Allows the take of non-salmon during periods closed to subsistence salmon fishing. Restricts the use of fish wheels to just the 24 hour subsistence salmon fishing period established above.
3-S-UY-01-00	June 15	Allows uninterrupted subsistence fishing in Subdistricts 4-B and 4-C until 24 hours prior to the opening of a commercial fishing period.	
3-S-UY-02-00	July 14	Closes personal use fishery in the Yukon Area Subdistrict 6-C.	The Chinook and Summer chum salmon runs have not developed as anticipated and based on data from inseason assessment projects the chinook and chum runs are both projected to be very poor. Additional

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E.O. NUMBER	EFFECTIVE DATE	ACTION TAKEN	COMMENTS
3-S-UY-02-00 (Continued)			conservation measures are necessary. The personal use fishery is the first fishery to be closed as a result.
3-S-UY-03-00	July 18	Reduced the amount of subsistence salmon fishing time in district 4 of the Upper Yukon Area and establishes two 24 hour periods per week.	Reduces subsistence salmon fishing time because of lower than projected escapement estimates.
3-S-UY-04-00	July 18	Reduced the amount of subsistence salmon fishing time in district 5 of the Upper Yukon Area and establishes one 24 hour period per week and two 12 hour periods per week.	Reduces subsistence salmon fishing time because of lower than projected escapement estimates.
3-S-UY-05-00	July 18	Reduced the amount of subsistence salmon fishing time in Subdistricts 6-A and 6-B of the Upper Yukon Area and the Upper Tanana River Drainage. Establishes a subsistence salmon fishing schedule of one 24 hour period per week. In the Old Minto Area, a subsistence salmon fishing schedule of one 40 hour period per week is in effect.	Reduces subsistence salmon fishing time because of lower than projected escapement estimates.
3-S-UY-06-00	July 18	This E.O. continues the closure in the personal use fishery in Yukon Area Subdistrict 6-C.	Continues closure of personal use fishery in Subdistrict 6-C.

Appendix A.28. List of Emergency Orders pertaining to the fall chum and coho salmon fishery, Yukon Area, 2000.

E.O. NUMBER	EFFECTIVE DATE	ACTION TAKEN	COMMENTS
3-S-YF-01-00	August 12	<p>Reduced subsistence salmon fishing time in all Yukon River Areas as follows: Districts 1, 2, and 3 from 3:00 pm to 9:00 pm each Saturday. District 4, including Koyukuk River drainage, from 6:00 pm Friday to 6:00 pm Saturday. Subdistricts 5-A, 5-B, and 5-C from 9:00 pm Saturday to 9:00 am Sunday and from 9:00 pm Thursday to 9:00 am Friday. Subdistrict 5-D from 6:00 pm Saturday to 6:00 pm Sunday. Subdistricts 6-A and 6-B, including the Kantishna River drainage, from 6:00 pm Monday to 12 noon Tuesday. Subdistrict 6-B "Old Minto Area" from 6:00 pm Monday to 6:00 pm Tuesday. Upper Tanana River drainage from 6:00 pm Monday to 6:00 am Wednesday.</p>	<p>Based on the poor abundance of chinook and summer chum salmon, it was anticipated that the fall chum salmon return would be below the preseason projection of 512,000-1,137,000. Both the sport and personal use fisheries were closed throughout the Yukon River drainage in mid July due to the poor returns during the summer season, and no commercial fisheries were anticipated for the fall season. As a result, subsistence salmon fishing restrictions imposed during the summer season continued into the fall season for the first time in history. Inseason assessment of Lower Yukon River and Mountain Village test fisheries, Pilot Station sonar project and Kaltag test fishery, along with subsistence catch reports, age composition information and preliminary information from monitoring projects throughout the upper Yukon River drainage confirmed the fall chum salmon return appeared critically low in abundance. By August 10, Pilot Station sonar estimated a passage of 142,000 fall chum salmon which, when applied to average run timing, projected an end of season passage of 270,000 fish. When applied to the management plan the run projection warranted a closure. However further assessment of upriver projects was necessary to substantiate the run projection which was based on primarily lower river indicators. To conserve fall chum salmon, further restrictions were imposed pending an overall assessment of the run.</p>
3-S-YF-02-00	August 23	<p>Closed subsistence salmon fishing in the entire Yukon Area including the Coastal District and tributaries.</p>	<p>Despite sport fish and personal use closures, no occurrence of commercial fishing, and subsistence fishing restrictions to date, the fall chum salmon run could not support subsistence harvests and meet spawning escapement needs established in the Yukon River Drainage Fall Chum Salmon Management Plan. Based on the run assessment to date, the preliminary estimate of the return was 222,000-327,000 fall chum salmon, well below the 600,000 minimum necessary for normal subsistence fishing. By August 20, based on the premise that 77 percent of the run passes through Pilot Station sonar in years with average run timing, the estimated passage of fall chum salmon was 195,000 fish. By August 19, the Rapids/Rampart tagging project estimated a preliminary passage of 47,000 fall chum salmon, and its end of season population estimate of 177,000 was consistent with the lower river run assessment. To conserve fall chum salmon the subsistence salmon fishery was closed in the Alaskan portion of the Yukon River drainage.</p>

E.O. NUMBER	EFFECTIVE DATE	ACTION TAKEN	COMMENTS
3-S-YF-03-00	August 27	Allowed the harvest of coho salmon by opening subsistence salmon fishing seven days per week with the use of a line attached to a rod or pole in the Yukon Area downstream from the lower mouth of Paimiut Slough and with use of beach seines in tributaries of the Yukon Area downstream from the lower mouth of Paimiut Slough.	Despite the poor return of chinook, summer chum and fall chum salmon to the Yukon River, the coho salmon run appeared to be above average based on project information. Pilot Station sonar preliminary cumulative passage estimate was 140,780 coho salmon, which was 43 percent above the average of 80,304 fish as of August 26. Additionally, coho salmon outnumbered fall chum salmon passage rates at several projects, including the lower Yukon River set gillnet test fishery. This adjustment to the subsistence fishing closure by use of restricted gear in the areas specified provided fishermen an opportunity to meet some of their subsistence needs by fishing for coho salmon. Subsistence salmon fishing within the Yukon Area continued to be closed for the taking of chinook and fall chum salmon and it was requested that those fish taken incidentally with these gear types be released.
3-S-YF-04-00	September 1	Allowed continued subsistence fishing for whitefish, suckers, and other non-salmon species in the Yukon Area seven days a week. Allowable gear included gillnets with 4-inch or less stretch mesh and maximum length of 150 feet and other legal gear, but prohibited use of fish wheels.	This action extended the expiration date of EO 3-S-LY-07-00 to provide additional fishing opportunity during the subsistence salmon fishing closure. Subsistence fishermen were allowed to continue fishing for fish other than salmon. However, to protect chum salmon, gillnets were restricted to 4-inches maximum stretch mesh and a maximum length of 150 feet.
3-S-YF-05-00	September 2	Allowed use of fish wheels with a "live chute" to harvest coho salmon in Districts 4 and 5-A of the Yukon River drainage 12 hours a day from 8:00 am to 8:00 pm seven days a week.	To conserve fall chum salmon, subsistence salmon fishing remained closed in the Alaskan portion of the Yukon River drainage. The coho salmon run continued to be above average based on project information. Coho salmon outnumbered fall chum salmon passage rates at several projects including the lower Yukon River set gillnet test fishery beginning the second week of August. Pilot Station sonar preliminary cumulative passage estimate was 163,000 coho salmon compared to the 4-year average estimate of 96,000 fish to date. Based on the continued strength down river, it was anticipated the coho salmon return would also be average to above average to the Tanana River drainage. To provide fishermen the opportunity to meet some of their subsistence needs, this action allowed the use of fish wheels equipped with a "live chute" to subsistence fish for coho salmon. Any chinook and chum salmon taken incidentally were to be released alive.

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E.O. NUMBER	EFFECTIVE DATE	ACTION TAKEN	COMMENTS
3-S-UY-06-00	August 16	Continued the personal use salmon fishing closure in Subdistrict 6-C of the Yukon Area.	As regulated in the fall chum salmon management plan, the fall chum salmon run projection remained well below the level necessary for reopening sport or personal use fishing or considering commercial fishing. This action extended the expiration date established in EO 3-S-UY-02-00 to continue the personal use salmon fishing closure in Subdistrict 6C for fall chum salmon conservation.
3-S-YF-06-00	September 11	Reopened subsistence salmon fishing within tributaries of the Yukon River drainage in Districts 1, 2, 3 and in Subdistrict 4-A downstream of and excluding the Koyukuk River drainage effective 8:00 am on September 11.	By this date the majority of fall chum salmon straying into these tributaries have continued migrating up the main river, and the majority of summer chum and chinook salmon have spawned. Reopening the subsistence fisheries lifted the gear restrictions in these areas to provide additional opportunity for fishermen to meet some of their subsistence needs by harvesting whitefish, sheefish, pike and other non-salmon species. Coho salmon harvest was also allowed, but fishermen were requested to release alive any chum salmon with undamaged gills due to conservation concerns. The mainstem Yukon River and its sloughs remained closed.
3-S-YF-07-00	September 16	Allowed the use of fish wheels equipped with a "live chute" to harvest coho salmon in the Tanana River drainage: Subdistricts 6-A and 6-B, excluding the Kantishna River and "Old Minto Area," from 8:00 am to 8:00 pm on Saturdays and Tuesdays and 8:00 am to 5:00 pm on Sundays and Wednesdays; "Old Minto Area" from 8:00 am to 8:00 pm each day from Saturday to Wednesday; and Kantishna River 8:00 am to 8:00 pm seven days per week.	The second pulse of coho salmon began migrating into the Tanana River on September 9 as indicated by the test fish wheel located on the south bank of the Yukon River near the village of Tanana. The cumulative coho salmon catch at this site as of September 13 was 2,000 compared to an average of 800 by this date. Due to the relative strength of the coho salmon run and to allow fishermen the opportunity to meet some of their subsistence needs, this action allowed the use of fish wheels equipped with a "live chute" and attendant to harvest coho salmon. All chum salmon were required to be returned to the water alive.
3-S-YF-08-00	September 16	Reopened subsistence salmon fishing in Districts 1, 2 and 3 of the Yukon River drainage to seven days per week effective 12:01 am on September 16.	The majority of salmon were anticipated to have passed through Districts 1, 2 and 3 of the Yukon Area by September 16. This action removed the gear restrictions, including 4-inch or less stretch mesh and 150 ft maximum length, that were imposed during subsistence fishing closures to conserve chum salmon. Reopening this subsistence fishery allowed the opportunity to harvest non-salmon species and minimal numbers of salmon.

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E.O. NUMBER	EFFECTIVE DATE	ACTION TAKEN	COMMENTS
3-S-YF-09-00	September 27	Reopened subsistence salmon fishing in District 4 of the Yukon River drainage to seven days per week effective 12:01 am on September 27.	The majority of salmon were anticipated to have passed through Districts 4 of the Yukon Area by September 27. This action removed all the gear restrictions that were imposed during subsistence fishing closures to conserve chum salmon. Reopening this subsistence fishery allowed the opportunity to harvest non-salmon species and minimal numbers of salmon.
3-S-YF-10-00	October 1	Reopened subsistence salmon fishing in Subdistricts 5-B, 5-C and 5-D of the Yukon River drainage to seven days per week effective 12:01 am on October 1.	The majority of salmon were anticipated to have passed through Subdistricts 5B, 5C and 5D of the Yukon Area by October 1. This action removed all the gear restrictions that were imposed during subsistence fishing closures to conserve chum salmon. Reopening this subsistence fishery allowed the opportunity to harvest non-salmon species and minimal numbers of salmon.
3-S-YF-11-00	October 9	Reopened subsistence salmon fishing to their normal schedules as follows: in Subdistrict 5-A, Kantishna River and Upper Tanana River drainage to seven days per week; in Subdistricts 6-A and 6-B from 6:00 pm Monday to 12:00 noon Wednesday and 6:00 pm Friday to 12:00 noon Sunday; and in the "Old Minto Area" from 6:00 pm Friday to 6:00 pm Wednesday.	The majority of salmon were anticipated to have passed through the Yukon and Tanana River drainages to their respective spawning grounds. This action removed all the gear restrictions that were imposed during subsistence fishing closures to conserve chum salmon. Reopening the subsistence fishery allowed the opportunity to harvest non-salmon species and minimal numbers of salmon.

APPENDIX B

LOWER YUKON AREA SALMON

Appendix B.1. Commercial catches of chinook and summer chum salmon by mesh size, Districts 1 and 2, Lower Yukon Area, 1961-2000.^a

Year	Unrestricted Mesh Size ^b			6 inch Maximum Mesh Size ^c			
	Chinook		Total	Summer Chum Districts 1 and 2	Chinook		Summer Chum Districts 1 and 2
	District 1	District 2			Districts 1 and 2	Districts 1 and 2	
1961	84,466	29,026	113,492	-	-	-	
1962	67,099	22,224	89,323	-	-	-	
1963	85,004	24,221	109,225	-	-	-	
1964	67,555	20,246	87,801	-	-	-	
1965	89,268	23,763	113,031	-	-	-	
1966	70,788	16,927	87,715	-	-	-	
1967	104,350	20,239	124,589	10,919	-	-	
1968	79,465	21,392	100,857	14,402	-	-	
1969	70,588	14,756	85,344	41,418	97	15,437	
1970	56,469	17,141	73,610	104,705	57	16,623	
1971	84,397	19,226	103,623	42,189	1,176	57,851	
1972	68,059	17,317	85,376	78,698	1,991	37,881	
1973 ^d	52,790	12,479	65,269	89,841	5,168	196,540	
1974	69,457	17,464	86,921	349,758	1,631	227,507	
1975	41,550	9,064	50,614	148,919	4,162	345,472	
1976	56,392	15,296	71,688	267,075	7,631	128,431	
1977	65,745	15,328	81,073	157,909	4,720	205,634	
1978	53,198	28,872	82,070	275,512	7,737	354,603	
1979	61,790	33,347	95,137	136,973	22,136	434,188	
1980	78,157	42,755	120,912	95,876	19,474	605,679	
1981	88,038	37,660	125,698	163,979	18,648	758,767	
1982	70,743	35,656	106,399	225,106	6,887	217,563	
1983	76,280	30,798	107,078	121,927	31,002	590,329	
1984	65,101	29,355	94,456	242,076	16,394	287,531	
1985 ^f	76,106	38,194	114,300	170,345	22,445	265,240	
1986	42,922	36,603	79,525	231,372	15,307	438,182	
1987	62,147	40,127	102,274	128,017	21,827	269,757	
1988	32,792	20,009	52,801	225,049	39,469	848,321	
1989 ^g	32,180	21,494	53,674	126,360	38,548	765,233	
1990 ^g	42,092	24,000	66,092	99,588	18,147	281,418	
1991 ^g	52,074	36,290	88,364	108,986	4,145	205,610	
1992 ^g	54,569	28,679	83,248	81,458	27,678	242,878	
1993	47,084	37,293	84,377	47,488	2,202	45,503	
1994 ^h	61,633	41,692	103,325	39,832	608	15,369	
1995	74,827	39,607	114,434	113,860	3,098	112,223	
1996	56,642	30,209	86,851	123,233	0	0	
1997	63,062	39,052	102,114	49,953	3,611	28,204	
1998	24,202	16,806	41,008	20,314	1,211	7,804	
1999	37,145	27,119	64,264	27,883	0	0	
2000	4,735	3,783	8,518	6,624	0	0	
<hr/>							
10 Year Average 1980-1989	62,447	33,265	95,712	173,011	23,000	504,660	
<hr/>							
10 Year Average 1990-1999	51,333	32,075	83,408	71,260	6,070	93,901	

a ADF&G test fishery sales included, 1961-1990. ADF&G test fishery sales not included, 1991-1993.

b Primarily 8 to 8-1/2 inch mesh size used during early June to early July.

c Catch through July 15-20, relatively few chinook and summer chum salmon taken after these dates.

d Six inch maximum mesh size regulation beginning late June to early July became effective in 1973.

f Six inch maximum mesh size regulation by emergency order during commercial fishing season became effective in 1985.

g Only includes information from fish ticket database; does not include salmon purchased illegally.

h 8 inch or greater mesh size restriction was in effect until June 27 and fishers were requested to take chum salmon home for subsistence use until June 22 in order to reduce the harvest of chums.

Appendix B.2. Commercial chinook salmon harvest data by unrestricted mesh size periods, District 1, Lower Yukon Area, 1974-2000.

Date	Period and (Cumulative) Harvest ^a												
	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
06/01													
06/02													
06/03													
06/04													
06/05	3.5 (3.5)					6.1 (6.1)							
06/06													
06/07								11.1 (11.1)					
06/08	7.5 (11.0)					4.9 (11.0)							
06/09					2.5 (2.5)			15.6 (26.7)					
06/10							6.8 (6.8)			22.3 (22.3)			
06/11		0.2 (0.2)											
06/12	14.7 (25.7)					19.5 (30.5)		14.5 (41.2)					
06/13					5.8 (8.3)								
06/14		0.4 (0.6)		0.04 (0.04)			26.1 (32.9)			12.7 (35.0)			
06/15	11.1 (36.8)								5.6 (5.6)				
06/16			0.1 (0.1)			9.3 (39.8)		18.3 (59.5)					
06/17					17.6 (25.9)		14.6 (47.5)			28.6 (63.6)			
06/18		1.1 (1.7)		2.6 (2.6)					12.4 (18.0)				
06/19	18.8 (55.6)		3.2 (3.3)			16.7 (56.5)		28.5 (88.0)			13.7 (13.7)		
06/20					7.5 (33.4)								21.7 (21.7)
06/21		5.7 (7.4)		10.4 (13.0)			26.2 (73.7)			12.7 (76.3)			
06/22	2.9 (58.5)					5.3 (61.8)			20.0 (38.0)		18.8 (32.5)		
06/23			9.6 (12.9)				4.5 (78.2)						
06/24					14.4 (47.8)								10.2 (31.9)
06/25		17.1 (24.5)		26.3 (39.3)					7.1 (45.1)		23.6 (23.6)		
06/26	7.2 (65.7)		15.4 (28.3)							16.1 (48.6)			
06/27		9.8 (34.3)			5.4 (53.2)								
06/28				17.7 (57.0)							33.7 (57.3)		
06/29	3.8 (69.5)								18.1 (63.2)		16.5 (65.1)		
06/30			13.8 (42.1)										5.6 (37.5)
07/01		7.3 (41.6)		8.7 (65.7)									
07/02			14.3 (56.4)						7.5 (70.7)		18.8 (76.1)		
07/03													
07/04													5.4 (42.9)
07/05													
07/06													
07/07													
07/08													

- Continued -

Date	Period and (Cumulative) Harvest ^a													
	1987	1988	1989 ^b	1990 ^c	1991 ^d	1992 ^f	1993	1994	1995	1996	1997	1998	1999	2000
06/01														
06/02														
06/03														
06/04														
06/05														
06/06														
06/07														
06/08														
06/09														
06/10										14.0 (14.0)				
06/11											11.4 (11.4)			
06/12										18 (18.4)				
06/13								14 (13.5)		6.8 (20.8)				
06/14		5.9 (5.9)			17 (17.1)									
06/15				19.0 (19.0)			9 (9.1)		18 (35.9)			1.8 (1.8)		
06/16	13.0 (13.0)		18.9 (18.9)					23 (36.5)			11.2 (22.5)			
06/17		16.0 (21.9)								6.7 (27.5)				
06/18					15 (32.2)		23 (32.1)							
06/19	22.5 (35.5)								7 (42.4)		20.1 (42.7)			
06/20			10.8 (29.7)			12 (11.5)				11.3 (38.8)				
06/21		10.9 (32.8)			4.7 (36.9)		10 (42.5)							
06/22			2.5 (32.2)	15.0 (34.0)		22 (33.6)		14 (50.3)	21 (64.0)				11.2 (11.2)	
06/23	15.0 (50.5)										7.4 (50.1)	11.8 (13.6)		
06/24										10.9 (49.7)				
06/25					9 (46.2)									2.6 (2.6)
06/26	11.6 (62.1)					10 (43.6)			11 (75.0)		13.0 (63.1)		9.8 (21.0)	
06/27								11 (61.5)		6.9 (56.6)		7.2 (20.8)		
06/28							3 (45.4)							
06/29				6.5 (40.4)										
06/30													7.5 (28.5)	2.2 (4.7)
07/01							2 (47.0)							
07/02					6 (52.1)	11 (54.6)								
07/03				1.7 (42.1)									6.3 (34.8)	
07/04														
07/05														
07/06												3.4 (24.2)		
07/07													2.3 (37.1)	
07/08														

a Catch by period in thousands of fish. Cumulative catch during unrestricted mesh size fishing periods, in thousands of fish, are located in the brackets ().

b Does not include 3,211 chinook salmon sold illegally.

c Does not include 1,101 chinook salmon sold illegally.

d Does not include 2,711 chinook salmon sold illegally.

f Does not include 1,218 chinook salmon sold illegally.

Appendix B.3. Commercial chinook salmon harvest data by unrestricted mesh size periods, District 2, Lower Yukon Area, 1978-2000.

Date	Period and (Cumulative) Harvest ^a										
	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
06/01											
06/02											
06/03											
06/04		1.6 (1.6)									
06/05											
06/06											
06/07		1.4 (3.0)									
06/08				7.6 (7.6)							
06/09	4.8 (4.8)		3.9 (3.9)								
06/10											
06/11		5.1 (8.1)		11.4 (19.0)							
06/12	3.2 (8.0)		7.8 (11.7)								
06/13						6.0 (6.0)					
06/14											
06/15		14.2 (22.3)		10.5 (29.5)							
06/16	4.3 (12.3)		10.9 (22.6)			7.3 (13.3)					2.7 (2.7)
06/17					4.0 (4.0)						
06/18		3.9 (26.2)		8.2 (37.7)						9.5 (9.5)	
06/19	7.8 (20.1)										
06/20			8.1 (30.7)			10.6 (23.9)					9.0 (11.7)
06/21		7.2 (33.4)			7.8 (11.8)		5.6 (5.6)				
06/22										12.2 (21.7)	
06/23	4.1 (24.2)		12.0 (42.7)			6.9 (30.8)			14.5 (14.5)		8.3 (20.0)
06/24					11.9 (23.7)						
06/25							14.4 (20.0)			10.9 (32.5)	
06/26	4.7 (28.9)										
06/27								7.0 (7.0)	12.3 (26.8)		
06/28					3.4 (27.1)		9.4 (29.4)				
06/29										7.6 (40.1)	
06/30											
07/01					8.6 (35.7)			18.3 (25.3)			
07/02									7.4 (34.2)		
07/03											
07/04								12.9 (38.2)			
07/05											
07/06											
07/07									2.4 (36.6)		
07/08											

-Continued-

Date	Period and (Cumulative) Harvest ^a											
	1989	1990	1991 ^b	1992 ^c	1993	1994	1995	1996	1997	1998	1999	2000
06/01												
06/02												
06/03												
06/04												
06/05												
06/06												
06/07												
06/08												
06/09												
06/10								7.5 (7.5)				
06/11							1.2 (1.2)					
06/12								10.0 (17.5)				
06/13												
06/14								9.2 (10.4)				
06/15						8.2 (8.2)			7.3 (7.3)			
06/16								4.9 (22.4)				
06/17			11.5 (11.5)		10.6 (10.6)							
06/18		10.3 (10.3)					9.8 (20.2)		9.6 (16.8)			
06/19	11.0 (11.0)							3.3 (25.7)				
06/20			9.6 (21.1)			18.2 (26.4)						
06/21					14.1 (24.7)		8.4 (28.6)					
06/22	7.5 (18.5)			5.5 (5.5)					15.2 (32.1)			
06/23								3.3 (29.0)				
06/24	3.0 (21.5)	7.7 (18.0)	6.7 (27.8)	13.0 (18.5)	6.8 (31.5)	11.2 (37.6)			7.0 (39.1)		8.1 (8.1)	
06/26			4.1 (31.9)							6.6 (6.6)		
06/27					3.2 (33.7)							3.8 (3.8)
06/28				7.4 (25.9)								
06/29											7.8 (15.8)	
06/30					2.6 (36.0)							
07/01								1.2 (30.2)				
07/02		4.5 (22.4)							7.5 (14.1)	7.0 (22.9)		
07/03						4.1 (41.7)						
07/04			4.4 (36.3)								4.3 (27.1)	
07/05		1.6 (24.0)										
07/06												
07/07				2.8 (28.7)						2.8 (16.8)		
07/08												

^a Catch by period in thousands of fish. Cumulative catch during unrestricted mesh size fishing periods in, thousands of fish, are located in the brackets ().

^b Does not include 284 chinook salmon caught illegally.

^c Does not include 207 chinook salmon caught illegally.

Appendix B.4. Commercial chinook salmon harvest by statistical area, Lower Yukon Area, 1974-2000.

Year	District 1								Total
	334-11	334-12	334-13	334-14	334-15	334-16	334-17	334-18	
1974	2,935	30,174	6,984	3,987	12,721	2,048	6,826	6,165	71,840
1975	6,396	15,844	8,763	314	1,720	606	6,879	4,063	44,585
1976	8,333	27,937	7,507	851	5,101	1,415	6,164	5,102	62,410
1977	11,278	16,787	8,866	1,216	15,214	1,550	7,109	7,895	69,915
1978	886	12,237	4,135	4,388	22,019	3,738	7,533	4,070	59,006
1979	1,017	13,152	4,149	5,782	12,839	10,960	18,976	8,202	75,077
1980	464	12,832	3,235	9,224	30,737	12,333	13,654	7,903	90,382
1981	6,639	12,875	2,975	8,976	19,730	15,158	22,251	10,902	99,506
1982	3,439	11,268	2,842	9,038	9,331	7,295	18,185	13,052	74,450
1983	7,919	23,523	8,161	14,961	9,416	5,297	19,172	7,008	95,457
1984	14,385	15,320	2,598	6,297	11,123	1,434	19,089	4,425	74,671
1985	4,233	22,696	12,160	2,492	12,806	3,955	25,144	6,525	90,011
1986	4,187	7,954	3,494	5,430	10,258	1,422	15,948	4,342	53,035
1987	14,656	12,056	8,703	3,533	6,780	3,250	18,573	9,092	76,643
1988	6,780	11,154	6,023	4,274	14,123	618	8,703	5,434	57,109
1989 a	2,213	5,703	4,794	3,999	12,682	7,303	18,037	4,422	59,153
1990 b	1,473	7,315	4,478	4,257	12,486	2,794	14,619	3,739	51,161
1991 c	1,689	4,244	1,624	3,451	12,664	6,251	18,243	5,455	53,621
1992 d	11,302	12,601	9,001	6,313	5,880	2,285	18,233	7,379	72,994
1993	3,642	7,368	4,342	3,324	11,407	2,346	9,380	7,477	49,286
1994	4,176	6,723	5,037	3,888	14,580	1,686	17,575	8,576	62,241
1995	3,719	6,939	6,181	5,430	22,357	3,790	18,980	8,710	76,106
1996	6,079	6,858	3,791	3,297	8,850	4,478	16,789	6,500	56,642
1997	4,570	5,865	2,844	6,648	12,460	4,703	21,443	7,851	66,384
1998	226	1,741	654	1,591	7,264	1,934	7,822	4,181	25,413
1999	1,454	2,604	3,112	3,798	4,057	935	13,130	8,071	37,161
2000	78	1,057	144	389	640	85	1,259	1,083	4,735
1995-1999 Average	3,210	4,801	3,316	4,153	10,998	3,168	15,633	7,063	52,341

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Appendix B.4. (p. 2 of 2).

Year	District 2					Total	District 3		Total
	334-21	334-22	334-23	334-24	334-25		334-31	334-32	
1974	6,344	5,611	2,624	3,369	-	17,948	1,423	2,057	3,480
1975	3,282	3,045	2,785	2,203	-	11,315	2,791	1,386	4,177
1976	5,083	4,490	3,031	3,952	-	16,556	1,827	2,321	4,148
1977	6,577	4,584	2,110	3,451	-	16,722	1,617	2,348	3,965
1978	9,004	7,953	5,248	8,499	2,220	32,924	746	2,170	2,916
1979	10,698	11,214	6,733	7,573	5,280	41,498	2,195	2,823	5,018
1980	11,544	12,903	8,259	9,591	7,707	50,004	2,039	3,201	5,240
1981	12,341	13,275	7,024	5,950	7,191	45,781	1,241	2,782	4,023
1982	10,567	9,236	5,262	8,932	5,135	39,132	896	1,713	2,609
1983	12,433	10,424	7,779	6,260	6,333	43,229	1,335	2,771	4,106
1984	9,179	11,573	4,668	5,752	5,525	36,697	900	2,139	3,039
1985	11,843	18,584	4,877	4,613	8,448	48,365	854	1,734	2,588
1986	11,138	15,326	3,450	4,336	7,599	41,849	606	295	901
1987	14,195	9,672	5,663	6,376	11,552	47,458	1,698	341	2,039
1988	6,191	11,605	4,721	6,784	5,887	35,188	1,387	380	1,767
1989	5,257	12,380	4,647	4,411	6,530	33,225	1,623	22	1,645
1990	5,592	10,675	3,741	8,514	4,691	33,213	2,128	213	2,341
1991 ^f	9,330	10,423	5,332	6,552	7,339	38,976	1,214	1,130	2,344
1992 ^g	9,014	11,647	4,135	11,311	1,825	37,932	1,160	659	1,819
1993	8,641	9,223	6,118	6,085	7,226	37,293	1,478	23	1,501
1994	9,223	14,350	4,514	8,734	4,871	41,692	1,114	0	1,114
1995	7,832	14,041	4,841	5,887	8,857	41,458	0	0	0
1996	8,265	9,134	2,749	3,626	6,435	30,209	0	0	0
1997	13,939	13,344	2,280	6,104	3,696	39,363	0	0	0
1998	2,203	6,081	2,245	4,613	1,664	16,806	0	0	0
1999	4,666	8,565	2,623	6,923	4,356	27,133	0	538	538
2000	1,434	966	415	457	511	3,783	0	0	0
1995-1999 Average	7,381	10,233	2,948	5,431	5,002	30,994	0	108	108

- a Does not include 3,211 chinook and 150 summer chum salmon sold illegally.
- b Does not include 1,101 chinook salmon sold illegally.
- c Does not include 2,711 chinook and 1,023 summer chum salmon sold illegally.
- d Does not include 1,218 chinook and 31 summer chum salmon sold illegally.
- f Does not include 284 chinook salmon sold illegally.
- g Does not include 207 chinook and 91 summer chum salmon sold illegally.

Appendix B.5. Commercial summer chum salmon harvest and effort data, Districts 1 and 2, Lower Yukon Area, 1967-2000.^a

Year	District 1					District 2				
	Duration	Days Fished	Boat Hours	Catch	Catch per Boat Hour	Duration	Days Fished	Boat Hours	Catch	Catch per Boat Hour
1967	6/08-6/27	11.0	77,208	9,494	0.12	-	-	-	-	-
1968	6/06-7/03	14.0	91,380	12,995	0.14	6/13-7/02	10.5	27,600	1,407	0.05
1969	6/02-6/28	12.5	84,864	8,840	0.10	6/15-7/01	8.0	16,620	5,024	0.30
1970	6/11-7/03	10.5	58,056	87,169	1.50	6/14-7/03	9.0	15,756	17,536	1.11
1971	6/14-7/03	10.5	73,032	36,077	0.49	6/20-7/05	8.5	17,832	6,112	0.34
1972	6/08-7/01	12.5	79,236	69,658	0.88	6/15-7/01	8.5	19,296	9,040	0.47
1973 ^b	6/07-7/11	14.5	100,284	191,840	1.91	6/10-7/14	14.5	36,000	56,481	1.57
1974	6/03-7/13	16.5	114,624	461,025	4.02	6/05-7/16	15.5	35,316	72,281	2.05
1975	6/09-7/16	15.0	86,304	394,447	4.57	6/11-7/18	10.5	21,024	99,139	4.72
1976	6/14-7/14	12.0	90,658	272,493	3.01	6/20-7/16	11.0	32,624	99,190	3.04
1977	6/13-7/12	12.0	63,036	232,427	3.69	6/19-7/15	10.0	27,048	102,759	3.80
1978	6/08-7/15	13.5	100,008	393,785	3.94	6/08-7/14	13.5	44,376	218,196	4.92
1979	6/04-7/14	13.5	106,680	369,934	3.47	6/03-7/13	13.5	44,748	172,838	3.86
1980	6/09-7/15	12.8	89,412	391,252	4.38	6/08-7/17	12.5	48,060	308,704	6.42
1981	6/06-7/14	12.0	94,656	507,158	5.36	6/07-7/16	12.0	46,560	351,458	7.55
1982	6/14-7/13	9.5	81,240	248,950	3.06	6/16-7/16	10.0	37,920	180,321	4.76
1983	6/09-7/15	11.0	94,920	451,164	4.75	6/12-7/18	11.0	44,712	248,092	5.55
1984	6/18-7/13	8.0	67,776	292,676	4.32	6/20-7/16	8.0	32,208	234,677	7.29
1985 ^c	6/24-7/15	6.3	52,116	247,486	4.75	6/26-7/18	7.3	27,834	188,099	6.76
1986	6/14-7/15	8.5	66,768	381,127	5.71	6/15-7/14	7.5	33,954	288,427	8.49
1987	6/15-7/10	6.0	53,736	222,898	4.15	6/17-7/09	5.0	26,124	174,876	6.69
1988	6/09-7/15	6.8	55,692	648,198	11.64	6/12-7/14	6.8	33,456	425,172	12.71
1989	6/13-7/14	5.3	65,280	547,781 ^d	8.39	6/15-7/13	4.5	22,314	343,962	15.41
1990	6/14-7/03	2.3	21,267	148,911	7.00	6/18-7/05	2.4	12,333	132,507	10.74
1991	6/13-7/05	3.0	28,224	140,470 ^f	4.98	6/16-7/07	3.0	15,126	175,149	11.58
1992	6/20-7/09	2.9	25,925	177,329 ^g	6.84	6/22-7/08	2.3	11,705	147,129 ^h	12.57
1993	6/14-7/01	2.0	19,176	73,659	3.84	6/16-6/30	1.8	9,264	19,332	2.09
1994	6/13-7/05	1.6	14,073	42,332	3.01	6/15-7/03	1.3	6,807	12,869	1.89
1995	6/12-7/07	2.6	21,619	142,266	6.58	6/11-6/22	1.6	8,436	83,817	9.94
1996	6/10-6/28	2.5	28,812	92,506	3.21	6/09-7/01	2.4	9,339	30,727	3.29
1997	6/11-6/30	2.7	23,505	59,915	2.55	6/15-6/26	1.9	7,394	18,242	2.47
1998	6/15-7/08	1.5	12,207	21,270	1.74	6/26-7/09	1.0	4,914	6,848	1.39
1999	6/22-7/09	1.5	12,852	16,181	1.26	6/25-7/05	1.1	5,496	11,702	2.13
2000	6/25-6/30	0.5	3,540	3,315	0.94	6/27-6/27	0.3	1,284	3,309	2.58

- a Summer chum salmon caught after the specified dates are not included. Includes ADF&G test fish sales through 1990.
b Six inch maximum mesh size regulation during late June to early July became effective in 1973.
c Six inch maximum mesh size regulation by emergency order during commercial fishing season became effective in 1985.
d Includes 150 summer chum salmon sold illegally.
f Includes 1,023 summer chum salmon sold illegally.
g Includes 31 summer chum salmon sold illegally.
h Includes 91 summer chum salmon sold illegally.

Appendix B.6. Commercial summer chum salmon harvest by statistical area, Lower Yukon Area, 1983-2000.

Year	District 1								Total
	334-11	334-12	334-13	334-14	334-15	334-16	334-17	334-18	
1983	42,165	112,074	37,976	64,556	29,841	22,918	96,512	45,122	451,164
1984	42,264	81,295	14,888	38,285	22,485	5,838	64,320	23,301	292,676
1985	13,696	53,540	26,127	10,047	33,133	10,381	73,948	26,614	247,486
1986	39,468	102,887	35,315	52,980	26,732	6,807	85,798	31,140	381,127
1987	34,852	51,350	22,794	15,109	21,646	7,786	45,911	23,450	222,898
1988	72,408	148,578	79,248	60,956	61,752	13,239	129,938	82,070	648,189
1989 a	29,129	89,794	40,036	71,576	118,908	20,468	136,669	41,051	547,631
1990 b	23,453	35,542	15,326	12,369	10,931	1,513	39,575	10,202	148,911
1991 c	13,767	32,621	5,223	11,133	11,560	23,213	34,775	7,155	139,447
1992 d	24,094	39,225	22,293	16,717	12,000	2,500	40,353	20,116	177,298
1993	13,123	17,869	9,745	8,672	2,920	661	9,196	11,473	73,659
1994	11,208	6,340	5,165	2,389	3,602	290	8,693	4,645	42,332
1995	32,084	23,420	15,834	19,154	15,919	3,150	24,349	8,356	142,266
1996	19,432	17,769	6,837	5,611	13,111	2,831	17,864	9,051	92,506
1997	10,764	9,519	6,190	10,374	5,429	1,650	10,719	5,270	59,915
1998	54	2,583	441	2,275	5,115	730	6,601	3,471	21,270
1999	1,128	1,667	1,653	2,979	816	141	3,845	3,952	16,181
2000	146	537	207	650	631	60	546	538	3,315
1995-1999 Average	12,692	10,992	6,191	8,079	8,078	1,700	12,676	6,020	66,428

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Year	District 2						District 3		
	334-21	334-22	334-23	334-24	334-25	Total	334-31		
							Number	Roe	Estimated Harvest ^g
1983	57,740	71,821	56,499	31,027	31,005	248,092	3,106	3,106	
1984	46,261	91,790	43,116	36,076	19,688	236,931	447	447	
1985	32,911	87,687	24,983	18,911	23,607	188,099	872	872	
1986	44,393	129,569	36,304	47,179	30,982	288,427	442	442	
1987	48,734	54,459	19,157	22,988	29,538	174,876	3,418	3,418	
1988	74,252	140,291	56,302	88,393	65,934	425,172	11,463	11,463	
1989	46,224	140,571	48,986	54,542	53,639	343,962	7,548	7,548	
1990 ^b	15,414	37,585	25,132	34,980	19,396	132,507	562	562	
1991	46,378	70,188	32,584	14,915	11,084	175,149	3,347	3,347	
1992 ^f	31,399	59,401	22,107	31,085	3,046	147,038	63	63	
1993	5,444	3,711	4,445	2,920	2,812	19,332	460	460	
1994	4,100	5,314	1,435	1,395	625	12,869	35	35	
1995	23,794	38,808	11,541	7,257	2,417	83,817	0	0	
1996	9,177	13,056	4,965	2,479	1,050	30,727	0	162	465
1997	7,126	7,938	673	1,667	838	18,242	0	0	0
1998	710	2,350	1,079	2,351	358	6,848	0	0	0
1999	1,758	3,269	1,457	3,415	1,803	11,702	0	0	0
2000	1,552	961	327	220	249	3,309	0	0	0
1995-1999									
Average	8,513	13,084	3,943	3,434	1,293	30,267	0	-	93

a Does not include 150 summer chum salmon sold illegally.

b Includes ADF&G test fish sales through 1990.

c Does not include 1,023 summer chum salmon sold illegally.

d Does not include 31 summer chum salmon sold illegally.

f Does not include 91 summer chum salmon sold illegally.

g Estimated harvest includes reported harvest of both males and females harvested to produce roe sold.

Appendix B.7. Commercial fall chum and coho salmon harvest and effort data, District 1, Lower Yukon Area, 1961-2000. ^a

Year	Duration	Days Fished ^b	Boat Hours	Fall Chum		Coho	
				Catch	Catch per Boat Hour	Catch	Catch per Boat Hour
1961	8/01-8/31	16	14,772	42,461	2.87	2,855	0.19
1962	8/01-9/03	21	46,950	53,116	1.13	22,926	0.49
1963	8/09-9/06	18	2,100	no purchases		5,572	2.65
1964	8/03-8/27	17	8,346	8,347	1.00	2,446	0.29
1965	8/02-8/04	- ^c	- ^c	22,936	- ^c	350	- ^c
1966	7/25-9/10	28	41,994	69,836	1.66	19,254	0.46
1967	7/24-8/27	21	19,272	36,451	1.89	9,925	0.51
1968	7/22-8/28	22	47,232	49,857	1.06	13,153	0.28
1969	7/21-8/23	20	39,408	128,866	3.27	13,989	0.35
1970	7/20-8/26	22	56,160	200,306	3.57	12,632	0.22
1971	7/22-8/28	22	85,344	178,744	2.09	12,165	0.14
1972	7/20-8/26	22	81,726	134,752	1.65	21,705	0.27
1973	7/19-8/25	22	107,136	173,783	1.62	34,860	0.33
1974	7/18-8/14	12	41,868	137,235	3.28	13,713	0.33
1975	7/21-8/16	12	52,128	158,183	3.03	2,288	0.04
1976	7/19-8/13	11	55,026	91,091	1.66	4,064	0.07
1977	7/18-8/23	11	50,568	129,486	2.56	31,720	0.63
1978	7/17-8/29	13	56,184	127,947	2.28	16,460	0.29
1979	7/19-8/14	8	47,352	101,400	2.14	11,369	0.24
1980	7/17-8/19	7	24,216	106,829	4.41	4,819	0.20
1981	7/16-8/17	7	35,520	167,834	4.73	13,129	0.37
1982	7/19-8/13	8	40,944	91,271	2.23	15,114	0.37
1983 ^d	7/18-8/12	6	25,848	124,371	4.81	4,560	0.18
1984 ^d	7/16-8/17	6	21,240	78,751	3.71	29,472	1.39
1985 ^d	7/18-8/13	5	20,592	124,801	6.06	27,674	1.34
1986 ^f	8/04-8/22	4	13,662	59,352	4.34	24,824	1.82
1987	No Openings	0					
1988 ^g	8/08-8/30	3	9,408	45,529	4.84	36,435	3.87
1989 ^h	7/27-8/25	5	20,161	77,876	3.86	24,672	1.22
1990 ^{g, j}	7/23-8/20	3	7,392	27,337	3.70	13,354	1.81
1991 ^h	7/29-8/27	3	19,500	59,724	3.67	54,095	3.32
1992	No Openings	0					
1993	No Openings	0					
1994	No Openings	0					
1995 ^k	7/31-8/21	3	5,436	79,345	14.60	21,625	3.98
1996	8/06-8/26	4	7,715	33,629	4.36	27,705	3.59
1997	8/06-8/18	3	7,395	27,483	3.72	21,450	2.90
1998	No Openings	0					
1999	8/01-8/12	3	3,366	9,987	2.97	855	0.25
2000	No Openings	0					

a Prior to 1986, some fall chum and coho salmon may have been caught prior to specified dates. Includes ADF&G test fish sales through 1990.

b One day is equivalent to 24 hours of open fishing.

c Information unavailable.

d District was divided into a Set Net Only (24 hour) area and a Gill Net (12 hour) area.

f District was divided into a Set Net Only (24 or 12 hour) area and a Gill Net (12 or 6 hour) area.

g District was divided into a Set Net Only (12 hour) area and a Gill Net (6 hour) area.

h District was divided into a Set Net Only (16 or 12 hour) area and a Gill Net (9 or 6 hour) area.

j Includes ADF&G test fish sales through 1990.

k District was divided into a Set Gillnet Only Area (12, 9, 6, 4 or 3 hour) and a Gillnet area (9, 6, 4, or 3 hour).

Appendix B.8. Commercial fall chum and coho salmon harvest and effort in the Set Gillnet Only Area and the Gillnet Area, District 1, Lower Yukon Area, 1983-2000.^a

Year	Setnet Area			Gillnet Area			Total		
	Number of Fishermen	Catch	Average Catch per Fisherman	Number of Fishermen	Catch	Average Catch per Fisherman	Number of Fishermen	Catch	Average Catch per Fisherman
Fall Chum Salmon									
1983	137	46,583	340	175	61,649	352	312	108,232	347
1984	137	34,817	254	164	24,307	148	301	59,124	196
1985	159	64,838	408	153	53,694	351	312	118,532	380
1986	122	28,449	233	160	30,903	193	282	59,352	210
1987				NO COMMERCIAL FISHING					
1988	120	21,971	183	208	23,558	113	328	45,529	139
1989	103	26,865	261	219	51,011	233	322	77,876	242
1990	83	7,553	91	218	19,784	91	301	27,337	91
1991	67	19,769	295	252	39,955	159	319	59,724	187
1992				NO COMMERCIAL FISHING					
1993				NO COMMERCIAL FISHING					
1994				NO COMMERCIAL FISHING					
1995	40	13,320	333	149	66,025	443	189	79,345	420
1996 ^b									
1997	15	2,500	167	161	24,983	155	176	27,483	156
1998				NO COMMERCIAL FISHING					
1999	14	954	68	132	9,033	68	146	9,987	68
2000				NO COMMERCIAL FISHING					
Coho Salmon									
1983	137	1,021	7	175	3,536	20	312	4,557	15
1984	137	15,077	110	164	14,390	88	301	29,467	98
1985	159	12,841	81	153	14,832	97	312	27,673	89
1986	122	9,334	77	160	15,490	97	282	24,824	88
1987				NO COMMERCIAL FISHING					
1988	120	13,408	112	208	23,027	111	328	36,435	111
1989	103	6,443	63	219	18,227	83	322	24,670	77
1990	83	2,033	24	218	11,321	52	301	13,354	44
1991	67	19,497	291	252	34,598	137	319	54,095	170
1992				NO COMMERCIAL FISHING					
1993				NO COMMERCIAL FISHING					
1994				NO COMMERCIAL FISHING					
1995	40	2,843	71	149	18,782	126	189	21,625	114
1996 ^b									
1997	15	2,061	137	161	19,369	120	176	21,450	122
1998				NO COMMERCIAL FISHING					
1999	10	186	19	84	669	8	94	855	9
2000				NO COMMERCIAL FISHING					
Combined Fall Chum and Coho Salmon									
1983	137	47,604	347	175	65,185	372	312	112,789	382
1984	137	49,894	364	164	38,697	236	301	88,591	294
1985	159	77,679	489	153	68,526	448	312	146,205	469
1986	122	37,783	310	160	46,393	290	282	84,176	298
1987				NO COMMERCIAL FISHING					
1988	120	35,379	295	208	46,585	224	328	81,964	250
1989	103	33,308	323	219	69,238	316	322	102,546	318
1990	83	9,586	115	218	31,105	143	301	40,691	135
1991	67	39,266	586	252	74,553	296	319	113,819	357
1992				NO COMMERCIAL FISHING					
1993				NO COMMERCIAL FISHING					
1994				NO COMMERCIAL FISHING					
1995	40	16,163	404	149	84,807	569	189	100,970	534
1996 ^b									
1997	15	4,561	304	161	44,372	276	176	48,933	278
1998				NO COMMERCIAL FISHING					
1999	10	1,140	114	84	9,702	116	94	10,842	115
2000				NO COMMERCIAL FISHING					

a Prior to 1986, some harvests of fall chum and coho salmon occurred before setnet only area designation went into effect. Includes ADF&G test fish sales through 1990.

b Data not available.

Appendix B.9. Commercial fall chum salmon harvest by period, District 1, Lower Yukon Area, 1978-2000.

Period and (Cumulative) harvest ^a											
Date	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
07/18	6.3 (6.3)		4.2 (4.2)					6.3 (6.3)			
07/19						16.1 (16.1)					
07/20		6.0 (6.0)			4.3 (4.3)						
07/21	5.1 (11.4)			6.0 (6.0)							
07/22			6.6 (10.8)								
07/23					27.8 (32.1)						
07/24		7.2 (13.2)		1.3 (7.3)							
07/25	52.8 (64.2)		10.4 (21.2)								
07/26											
07/27		14.8 (28.0)			4.0 (36.1)						
07/28	2.8 (67.0)			57.3 (64.6)							
07/29			15.3 (36.5)			3.0 (19.1)					
07/30					11.7 (47.8)						
07/31		9.7 (37.7)	1.4 (37.9)	23.2 (87.8)			18.3 (18.3)				
08/01	14.4 (81.4)										
08/02						18.5 (37.6)		2.2 (8.5)			
08/03		17.5 (55.2)					17.1 (35.4)				
08/04	0.4 (81.8)				7.9 (55.7)						
08/05			6.2 (44.1)			23.7 (61.3)			11.4 (11.4)		
08/06					1.2 (56.9)			15.2 (23.7)			
08/07		37.8 (93.0)	13.5 (57.6)				1.8 (37.2)				
08/08	1.4 (83.2)								7.5 (18.9)		
08/09						44.0 (105.3)		35.8 (59.5)			32.5 (32.5)
08/10		1.3 (94.3)			13.7 (70.6)						
08/11	1.6 (84.8)		5.2 (62.8)								
08/12					20.7 (91.3)	19.1 (124.4)			10.5 (29.4)		
08/13				43.8 (131.6)				65.3 (124.8)			
08/14		7.1 (101.4)	1.8 (64.6)				11.8 (49.0)				
08/15	1.4 (86.2)								16.2 (45.6)		
08/16											
08/17							10.1 (59.1)				
08/18	10.2 (96.4)			3.9 (135.5)							
08/19			42.2 (106.8)						5.8 (51.4)		0.5 (33.0)
08/20											
08/21											
08/22	21.9 (118.3)								8.0 (59.4)		
08/23											6.9 (39.9)
08/24											
08/25	4.4 (122.7)										
08/26											4.1 (44.0)
08/27											
08/28											
08/29	5.2 (127.9)										
08/30											1.5 (45.5)

-Continued-

Period and (Cumulative) harvest ^a											
Date	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
07/18											
07/19											
07/20											
07/21											
07/22											
07/23											
07/24		1.0 (1.0)									
07/25											
07/26											
07/27		1.8 (2.8)									
07/28	4.4 (4.4)										
07/29											
07/30			15.3 (15.3)								
07/31		1.7 (4.5)					0.7 (0.7)				
08/01	0.2 (4.5)										5.6 (5.6)
08/02			3.0 (18.3)				0.4 (1.1)				
08/03		11.2 (15.7)									
08/04	48.8 (53.3)										
08/05							12.7 (13.8)				0.7 (6.3)
08/06			7.4 (25.7)					1.8 (1.8)	2.0 (2.0)		
08/07		7.5 (23.2)					10.4 (24.2)				
08/08	3.8 (57.2)										
08/09			9.2 (34.9)				8.1 (32.3)	4.3 (6.1)			0.2 (6.5)
08/10											
08/11	2.5 (59.7)						4.5 (36.8)		3.9 (5.9)		
08/12								6.2 (12.3)			3.5 (10.0)
08/13			1.4 (36.3)				10.4 (47.2)		6.7 (12.6)		
08/14											
08/15	14.9 (74.7)						14.8 (62.0)	15.1 (27.4)			
08/16			4.1 (40.4)						9.4 (22.0)		
08/17											
08/18							16.7 (78.7)		5.5 (27.5)		
08/19								1.3 (28.8)			
08/20		4.1 (27.3)	2.8 (43.2)								
08/21							0.7 (79.4)				
08/22	2.9 (77.6)							1.3 (30.1)			
08/23			14.7 (57.9)								
08/24											
08/25	0.3 (77.9)										
08/26								3.5 (33.6)			
08/27			1.8 (59.7)								
08/28											
08/29											
08/30											

-Continued-

Period and (Cumulative) harvest ^a

Date	2000
07/18	No Commercial Harvest in 2000
07/19	
07/20	
07/21	
07/22	
07/23	
07/24	
07/25	
07/26	
07/27	
07/28	
07/29	
07/30	
07/31	
08/01	
08/02	
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08/24	
08/25	
08/26	
08/27	
08/28	
08/29	
08/30	

^a Period and cumulative catches in thousands of fish. Some harvests of fall chum salmon may have occurred before 7/18. No commercial periods were allowed in 1987, 1992, 1993, 1994, 1998, and 2000.

Appendix B.10. Commercial fall chum salmon harvest by statistical area, Lower Yukon Area, 1983-2000. ^a

District 1									
Year	334-11	334-12	334-13	334-14	334-15	334-16	334-17	334-18	Total
1983	135	10,300	2,224	10,460	35,824	19,985	24,816	20,627	124,371
1984	315	24,914	2,488	16,234	13,536	6,873	9,390	5,001	78,751
1985	594	34,332	6,035	36,885	43,022	1,485	5,898	1,697	129,948
1986	376	9,891	3,032	2,683	21,058	4,091	12,004	6,217	59,352
1987	0	0	0	0	0	0	0	0	0
1988	10,217	6,953	2,625	206	6,692	3,905	9,526	5,405	45,529
1989	0	2,929	1,420	5,577	26,611	17,477	15,526	8,336	77,876
1990	255	3,690	501	1,167	7,927	5,618	4,695	3,484	27,337
1991	75	11,976	3,036	5,586	9,968	8,040	11,880	9,163	59,724
1992	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0	0
1995	1,674	6,766	6,892	11,909	16,450	1,696	23,722	10,236	79,345
1996	0	2,686	2,333	1,243	4,561	9,976	8,504	4,326	33,629
1997	0	2,870	3,452	3,768	3,943	1,596	6,747	5,107	27,483
1998	0	0	0	0	0	0	0	0	0
1999	4	1,931	474	1,182	1,934	1,439	1,103	1,920	9,987
2000	0	0	0	0	0	0	0	0	0
1995-1999									
Average	336	2,851	2,630	3,620	5,378	2,941	8,015	4,318	25,074

District 2							District 3		
Year	334-21	334-22	334-23	334-24	334-25	Total	334-31	334-32	Total
1983	17,245	4,673	24,132	22,072	17,523	85,645	4,607	5,411	10,018
1984	10,951	22,942	7,622	19,183	10,105	70,803	6,429	0	6,429
1985	9,131	10,607	3,530	5,859	11,363	40,490	4,173	991	5,164
1986	6,472	16,377	5,212	11,352	11,894	51,307	2,793	0	2,793
1987	0	0	0	0	0	0	0	0	0
1988	5,077	13,215	5,385	4,283	3,901	31,861	1,748	342	2,090
1989	12,005	34,268	15,001	19,029	17,603	97,906	15,153	179	15,332
1990	6,311	8,298	5,403	10,147	7,014	37,173	1,863	1,852	3,715
1991	10,584	23,195	14,291	28,306	26,252	102,628	7,209	2,004	9,213
1992	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0	0
1995	147	54,231	20,018	16,435	0	90,831	0	0	0
1996	1,960	14,349	4,184	7,634	1,524	29,651	0	0	0
1997	5,040	9,827	2,316	5,972	1,171	24,326	0	0	0
1998	0	0	0	0	0	0	0	0	0
1999	1,536	2,836	3,254	1,910	167	9,703	0	0	0
2000	0	0	0	0	0	0	0	0	0
1995-1999									
Average	1,737	16,249	5,954	6,390	572	30,902	0	0	0

^a Includes ADF&G test fish sales in Districts 1 and 2 through 1990.

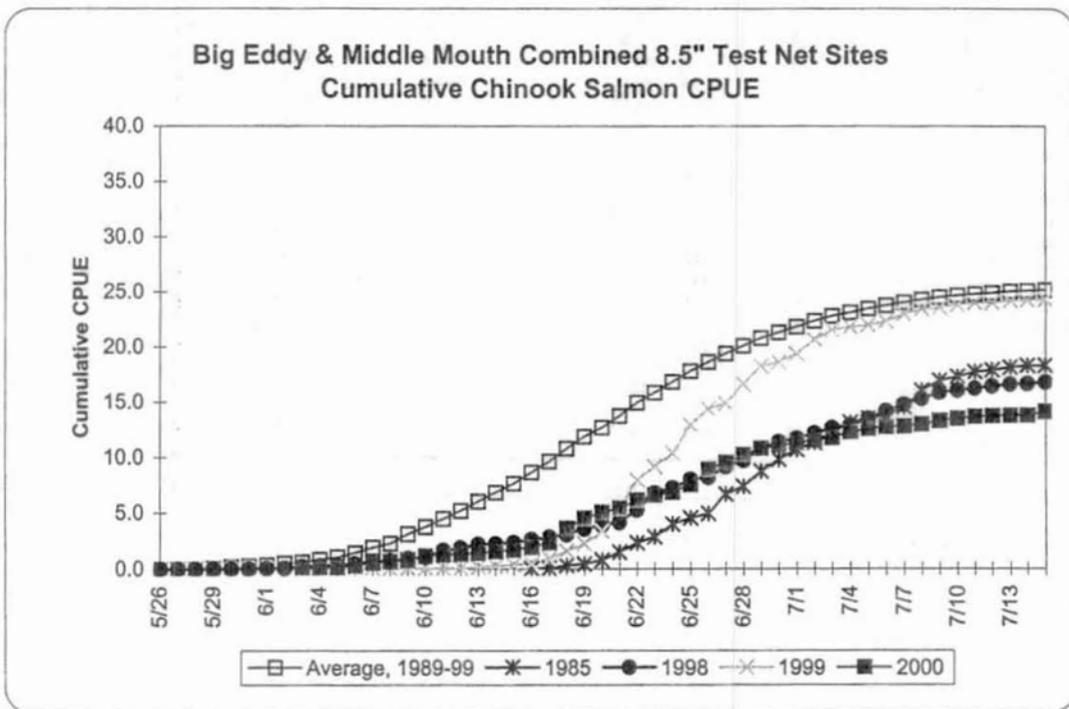
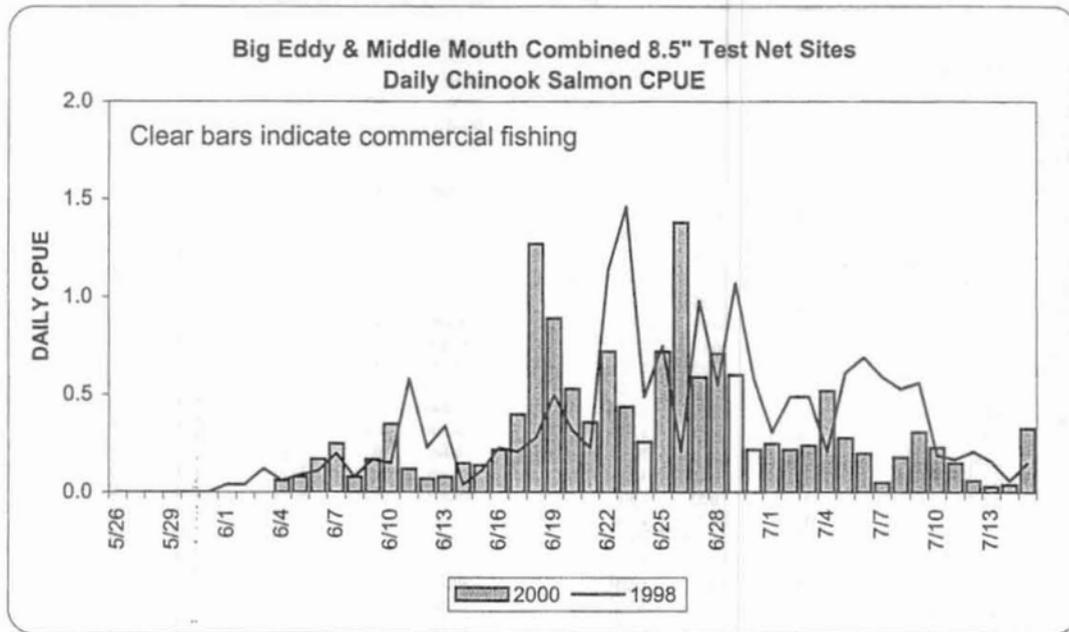
Appendix B.11. Commercial coho salmon harvest by statistical area, Lower Yukon Area, 1983-2000. ^a

District 1									
Year	334-11	334-12	334-13	334-14	334-15	334-16	334-17	334-18	Total
1983	16	567	86	463	1,123	56	1,532	752	4,595
1984	151	6,743	1,233	3,101	5,925	4,151	4,389	3,779	29,472
1985	585	6,187	1,673	8,320	5,304	936	2,153	2,517	27,675
1986	83	1,974	805	383	7,056	6,525	5,722	2,276	24,824
1987	0	0	0	0	0	0	0	0	0
1988	1,652	5,831	1,866	392	9,166	9,848	4,831	2,849	36,435
1989	0	1,822	306	1,115	5,830	4,696	7,680	3,223	24,672
1990	4	736	301	1,684	2,108	2,530	2,429	3,562	13,354
1991	30	4,302	1,072	4,432	8,130	19,630	7,980	8,519	54,095
1992	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0	0
1995	883	2,472	1,833	2,439	2,454	1,006	8,953	1,585	21,625
1996	0	1,555	1,564	854	3,995	9,634	8,068	2,035	27,705
1997	0	1,355	2,322	2,414	2,742	4,153	5,180	3,284	21,450
1998	0	0	0	0	0	0	0	0	0
1999	3	261	36	45	184	176	88	62	855
2000	0	0	0	0	0	0	0	0	0
1995-1999 Average	177	1,129	1,151	1,150	1,875	2,994	4,458	1,393	14,327

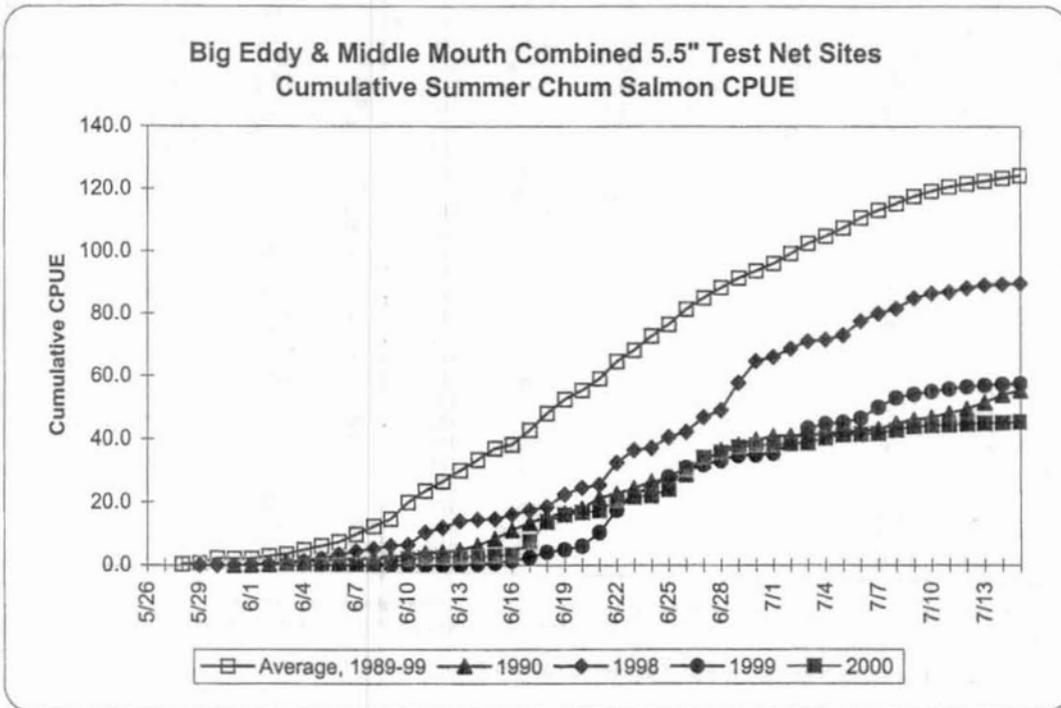
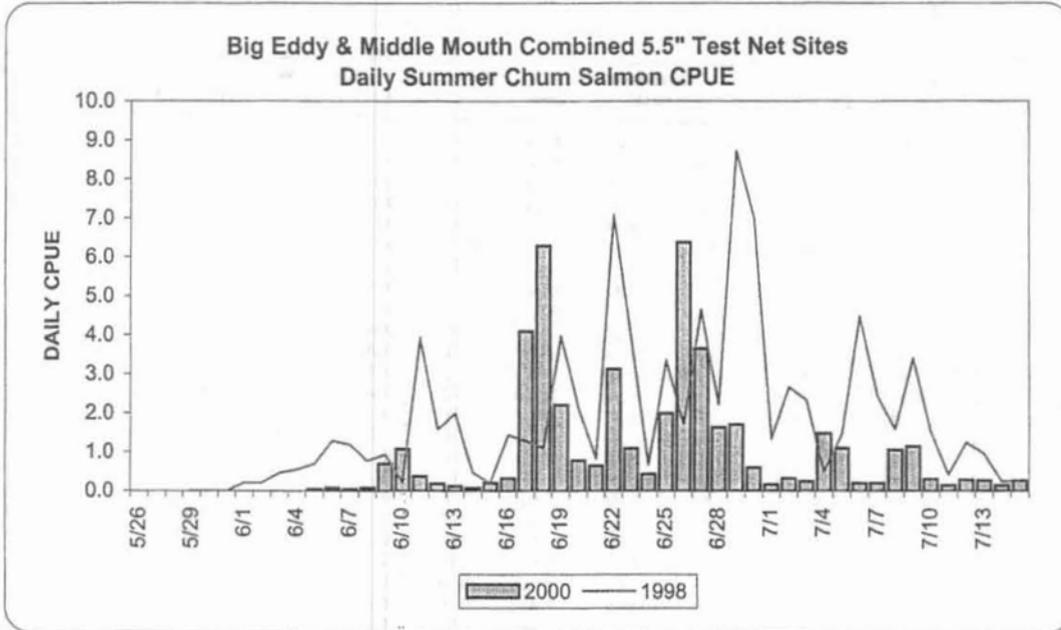
District 2							District 3		
Year	334-21	334-22	334-23	334-24	334-25	Total	334-31	334-32	Total
1983	1,549	140	715	114	39	2,557	0	0	0
1984	4,736	26,506	5,514	4,556	1,752	43,064	621	0	621
1985	3,369	5,052	4,394	1,077	3,233	17,125	171	0	171
1986	3,074	9,317	2,250	4,117	2,439	21,197	793	0	793
1987	0	0	0	0	0	0	0	0	0
1988	3,844	12,503	4,891	7,141	6,397	34,776	1,291	128	1,419
1989	6,199	18,427	3,668	4,262	5,966	38,522	3,978	10	3,988
1990	1,226	11,364	962	2,032	851	16,435	752	166	918
1991	8,746	17,939	3,587	6,094	4,532	40,898	1,427	478	1,905
1992	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0	0
1995	115	12,154	2,951	3,268	0	18,488	0	0	0
1996	761	12,155	2,755	4,409	894	20,974	0	0	0
1997	2,197	6,449	1,238	3,025	147	13,056	0	0	0
1998	0	1	0	0	0	1	0	0	0
1999	147	238	248	65	48	746	0	0	0
2000	0	0	0	0	0	0	0	0	0
1995-1999 Average	644	6,199	1,438	2,153	218	10,653	0	0	0

^a Includes ADF&G test fish sales in Districts 1 and 2 through 1990.

Appendix B.13. Daily test fish CPUE for chinook salmon test fish sites (top). Cumulative test fish CPUE 1985, and 1998 to 2000 for chinook salmon test fish sites compared to the 1989-1999 average CPUE (bottom).



Appendix B.14. Daily test fish CPUE for summer chum salmon test fish sites (top). Cumulative test fish CPUE 1990, and 1998 to 2000 for summer chum salmon test fish sites compared to the 1989-1999 average CPUE (bottom).

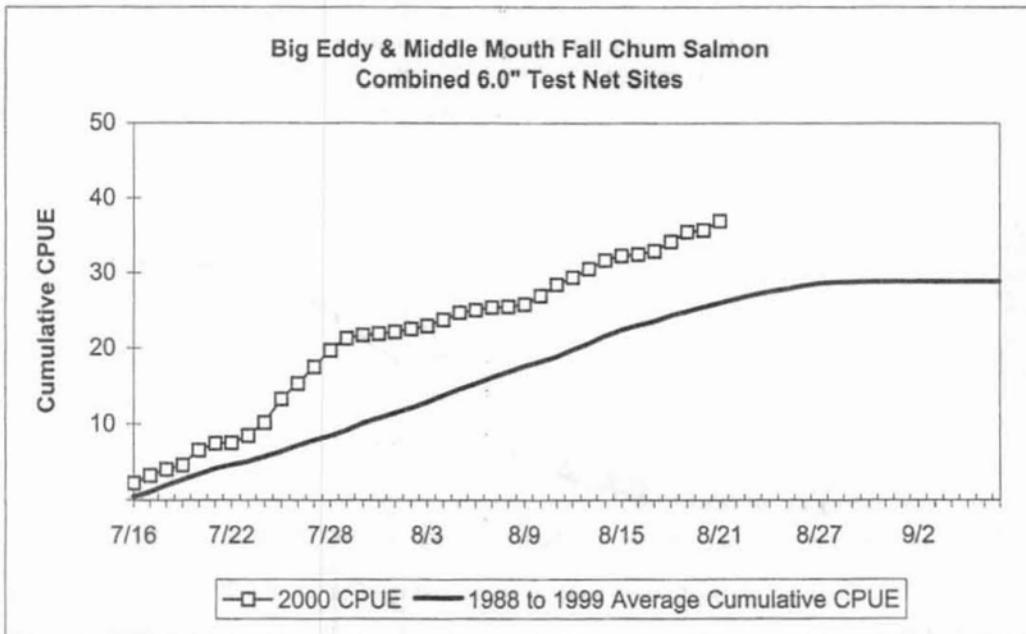
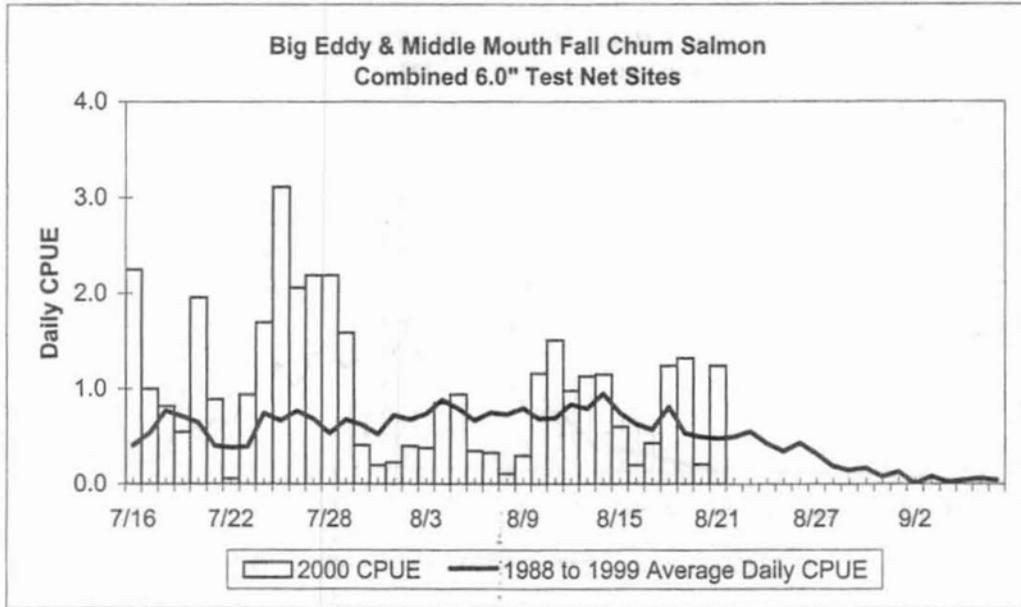


Appendix B.15. Historical daily and CPUE for fall chum and coho salmon, Lower Yukon River set gillnet test fishery, 1988 to 1999 average, compared to 2000.

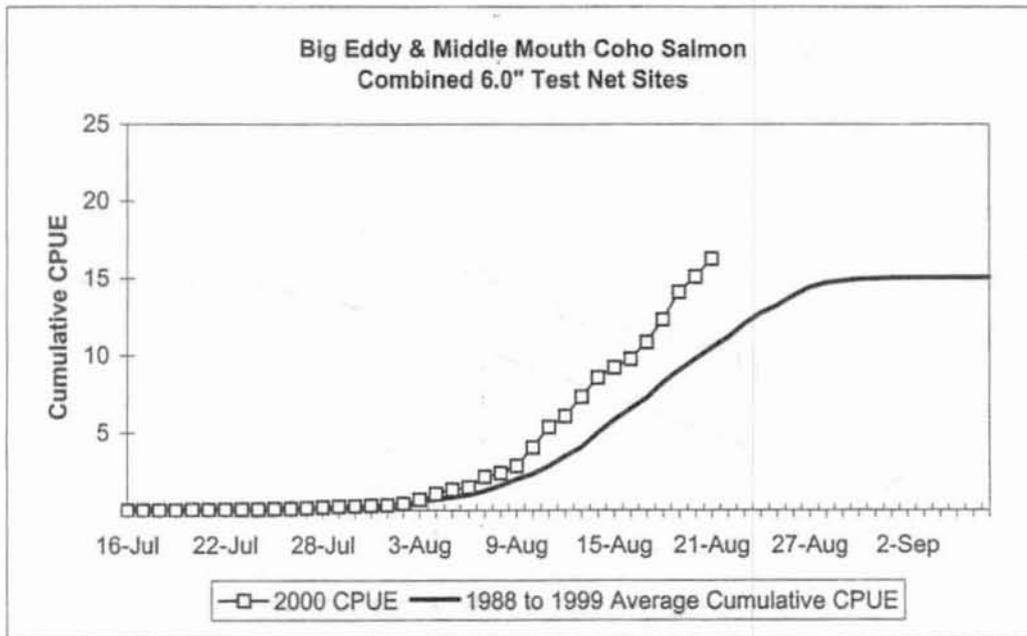
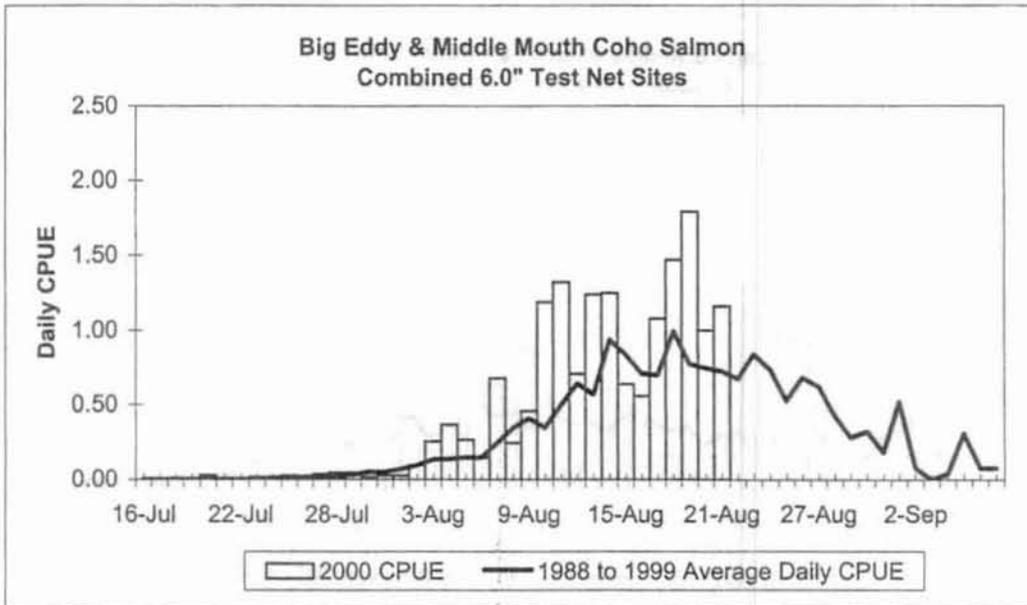
Fall Chum Salmon							Coho Salmon						
Date	1988 to 1999			2000			Date	1988 to 1999			2000		
	Average a			Daily CPUE	Proportion	Cumulative CPUE b		Average a			Daily CPUE	Proportion	Cumulative CPUE
	Daily CPUE	Proportion	Cumulative CPUE b					Daily CPUE	Proportion	Cumulative CPUE b			
16-Jul	0.41	0.02	0.45	2.25	0.06	2.25	16-Jul	0.00	0.00	0.00	0.00	0.00	0.00
17-Jul	0.54	0.04	1.08	1.00	0.09	3.25	17-Jul	0.00	0.00	0.00	0.00	0.00	0.00
18-Jul	0.77	0.07	1.94	0.82	0.11	4.07	18-Jul	0.00	0.00	0.00	0.01	0.00	0.01
19-Jul	0.71	0.09	2.69	0.55	0.12	4.62	19-Jul	0.00	0.00	0.00	0.00	0.00	0.01
20-Jul	0.65	0.11	3.41	1.96	0.18	6.58	20-Jul	0.00	0.00	0.00	0.03	0.00	0.04
21-Jul	0.40	0.13	4.15	0.89	0.20	7.47	21-Jul	0.00	0.00	0.01	0.00	0.00	0.04
22-Jul	0.39	0.16	4.65	0.06	0.20	7.53	22-Jul	0.00	0.00	0.01	0.00	0.00	0.04
23-Jul	0.40	0.17	5.09	0.94	0.23	8.47	23-Jul	0.00	0.00	0.01	0.02	0.00	0.06
24-Jul	0.74	0.19	5.72	1.70	0.28	10.17	24-Jul	0.01	0.00	0.02	0.00	0.00	0.06
25-Jul	0.67	0.22	6.37	3.11	0.36	13.28	25-Jul	0.01	0.00	0.03	0.03	0.01	0.09
26-Jul	0.77	0.24	7.16	2.06	0.41	15.34	26-Jul	0.02	0.00	0.05	0.02	0.01	0.11
27-Jul	0.68	0.27	7.88	2.19	0.47	17.53	27-Jul	0.02	0.00	0.07	0.04	0.01	0.15
28-Jul	0.54	0.29	8.43	2.19	0.53	19.72	28-Jul	0.02	0.00	0.09	0.05	0.01	0.20
29-Jul	0.68	0.31	9.15	1.59	0.58	21.31	29-Jul	0.04	0.01	0.13	0.05	0.02	0.25
30-Jul	0.62	0.34	10.10	0.41	0.59	21.72	30-Jul	0.05	0.01	0.18	0.02	0.02	0.27
31-Jul	0.52	0.36	10.78	0.20	0.59	21.92	31-Jul	0.05	0.01	0.24	0.03	0.02	0.30
1-Aug	0.72	0.39	11.43	0.23	0.60	22.15	1-Aug	0.07	0.02	0.31	0.03	0.02	0.33
2-Aug	0.68	0.41	12.11	0.40	0.61	22.55	2-Aug	0.10	0.02	0.41	0.10	0.03	0.43
3-Aug	0.73	0.43	12.85	0.38	0.62	22.93	3-Aug	0.14	0.03	0.55	0.26	0.04	0.69
4-Aug	0.88	0.46	13.78	0.85	0.64	23.78	4-Aug	0.14	0.04	0.69	0.37	0.07	1.06
5-Aug	0.79	0.49	14.61	0.94	0.67	24.72	5-Aug	0.15	0.05	0.84	0.27	0.08	1.33
6-Aug	0.67	0.52	15.35	0.35	0.68	25.07	6-Aug	0.15	0.06	0.99	0.15	0.09	1.48
7-Aug	0.75	0.54	16.14	0.33	0.69	25.40	7-Aug	0.25	0.07	1.24	0.68	0.13	2.16
8-Aug	0.73	0.57	16.88	0.11	0.69	25.51	8-Aug	0.35	0.09	1.59	0.25	0.15	2.41
9-Aug	0.79	0.60	17.63	0.30	0.70	25.81	9-Aug	0.41	0.12	2.00	0.46	0.18	2.87
10-Aug	0.68	0.62	18.25	1.16	0.73	26.97	10-Aug	0.35	0.14	2.35	1.19	0.25	4.06
11-Aug	0.69	0.65	18.89	1.51	0.77	28.48	11-Aug	0.50	0.17	2.85	1.32	0.33	5.38
12-Aug	0.84	0.67	19.82	0.98	0.80	29.46	12-Aug	0.64	0.21	3.49	0.71	0.37	6.09
13-Aug	0.79	0.70	20.63	1.13	0.83	30.59	13-Aug	0.57	0.25	4.06	1.24	0.45	7.33
14-Aug	0.95	0.74	21.62	1.15	0.86	31.74	14-Aug	0.94	0.31	5.00	1.25	0.53	8.58
15-Aug	0.75	0.77	22.41	0.60	0.87	32.34	15-Aug	0.84	0.37	5.84	0.64	0.57	9.22
16-Aug	0.63	0.79	23.04	0.20	0.88	32.54	16-Aug	0.71	0.42	6.55	0.56	0.60	9.78
17-Aug	0.57	0.81	23.56	0.43	0.89	32.97	17-Aug	0.70	0.46	7.25	1.08	0.67	10.86
18-Aug	0.81	0.84	24.31	1.24	0.93	34.21	18-Aug	0.99	0.52	8.25	1.47	0.76	12.33
19-Aug	0.53	0.86	24.89	1.32	0.96	35.53	19-Aug	0.77	0.57	9.02	1.79	0.87	14.12
20-Aug	0.49	0.88	25.48	0.21	0.97	35.74	20-Aug	0.75	0.63	9.77	1.00	0.93	15.12
21-Aug	0.48	0.90	26.03	1.24	1.00	36.98	21-Aug	0.73	0.68	10.49	1.16	1.00	16.28
22-Aug	0.49	0.92	26.57				22-Aug	0.68	0.72	11.16			
23-Aug	0.55	0.93	27.11				23-Aug	0.84	0.78	12.00			
24-Aug	0.42	0.95	27.54				24-Aug	0.74	0.83	12.74			
25-Aug	0.34	0.96	27.89				25-Aug	0.53	0.86	13.24			
26-Aug	0.43	0.97	28.30				26-Aug	0.68	0.90	13.85			
27-Aug	0.32	0.99	28.63				27-Aug	0.62	0.94	14.41			
28-Aug	0.19	0.99	28.79				28-Aug	0.42	0.97	14.72			
29-Aug	0.15	0.99	28.85				29-Aug	0.28	0.98	14.84			
30-Aug	0.17	1.00	28.91				30-Aug	0.32	0.99	14.96			
31-Aug	0.08	1.00	28.92				31-Aug	0.18	1.00	14.99			
1-Sep	0.13	1.00	28.93				1-Sep	0.52	1.00	15.04			
2-Sep	0.00	1.00	28.93				2-Sep	0.08	1.00	15.05			
3-Sep	0.08	1.00	28.93				3-Sep	0.00	1.00	15.05			
4-Sep	0.02	1.00	28.94				4-Sep	0.04	1.00	15.05			
5-Sep	0.04	1.00	28.94				5-Sep	0.31	1.00	15.07			
6-Sep	0.06	1.00	28.94				6-Sep	0.08	1.00	15.07			
7-Sep	0.04	1.00	28.94				7-Sep	0.08	1.00	15.07			

- a Does not include 1994. Differences in the termination dates of the project confounds computation of the historical daily cumulative percent and average. The historical daily cumulative percent and average was computed by assuming that 100 percent of the run was completed on the date of project termination.
- b The box indicates the first to the third quartile of the cumulative catch-per-unit-effort (CPUE). The median date of the cumulative CPUE is also highlighted.
- c Nets operated from 8:00 a.m. July 31 until 8:00 a.m. August 1, 2000 and adjusted for daily counts.
- d Last day for Lower Yukon test fish project.

Appendix B.16. The 2000 daily and cumulative fall chum salmon CPUE, compared to the 1988 to 1999 average daily and cumulative Lower Yukon River set gillnet test fishery.



Appendix B.17. The 2000 daily and cumulative coho salmon CPUE, compared to the 1988 to 1999 average daily and cumulative Lower Yukon River set gillnet test fishery.



APPENDIX C

UPPER YUKON AREA SALMON

Appendix C.1. Commercial salmon sales and estimated harvest by statistical area, all gears combined, Upper Yukon Area, 2000.

BEACH SEINE, PURSE SEINE, SET GILLNET AND FISH WHEEL COMBINED

Statistical Area	Number of Fishermen	Chinook			Summer Chum			Fall Chum			Coho		
		Number	Roe	Estimated Harvest	Number	Roe	Estimated Harvest	Number	Roe	Estimated Harvest	Number	Roe	Estimated Harvest
334-42	0	-	-	-	-	-	-	-	-	-	-	-	-
334-43	0	-	-	-	-	-	-	-	-	-	-	-	-
334-44	0	-	-	-	-	-	-	-	-	-	-	-	-
334-45	0	-	-	-	-	-	-	-	-	-	-	-	-
334-46	0	-	-	-	-	-	-	-	-	-	-	-	-
334-47	0	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal District 4</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
334-51	0	-	-	-	-	-	-	-	-	-	-	-	-
334-52	0	-	-	-	-	-	-	-	-	-	-	-	-
334-53	0	-	-	-	-	-	-	-	-	-	-	-	-
334-54	0	-	-	-	-	-	-	-	-	-	-	-	-
334-55	0	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal District 5</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
334-61	0	-	-	-	-	-	-	-	-	-	-	-	-
334-62	0	-	-	-	-	-	-	-	-	-	-	-	-
334-63	0	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal District 6</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Upper Yukon Area		NO COMMERCIAL FISHING											

Appendix C.2. Commercial set gillnet salmon sales and estimated harvest by statistical area, Upper Yukon Area, 2000.

SET GILLNET

Statistical Area	Number of Fishermen	Chinook			Summer Chum			Fall Chum			Coho		
		Number	Roe	Estimated Harvest	Number	Roe	Estimated Harvest	Number	Roe	Estimated Harvest	Number	Roe	Estimated Harvest
334-42	0	-	-	-	-	-	-	-	-	-	-	-	-
334-43	0	-	-	-	-	-	-	-	-	-	-	-	-
334-44	0	-	-	-	-	-	-	-	-	-	-	-	-
334-45	0	-	-	-	-	-	-	-	-	-	-	-	-
334-46	0	-	-	-	-	-	-	-	-	-	-	-	-
334-47	0	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal District 4</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
334-51	0	-	-	-	-	-	-	-	-	-	-	-	-
334-52	0	-	-	-	-	-	-	-	-	-	-	-	-
334-53	0	-	-	-	-	-	-	-	-	-	-	-	-
334-54	0	-	-	-	-	-	-	-	-	-	-	-	-
334-55	0	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal District 5</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
334-61	0	-	-	-	-	-	-	-	-	-	-	-	-
334-62	0	-	-	-	-	-	-	-	-	-	-	-	-
334-63	0	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal District 6</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Total Upper Yukon Area		NO COMMERCIAL FISHING											

Appendix C.3. Commercial fish wheel salmon sales and estimated harvest by statistical area, Upper Yukon Area, 2000.

FISH WHEEL

Statistical Area	Number of Fishermen	Chinook			Summer Chum			Fall Chum			Coho		
		Number	Roe	Estimated Harvest	Number	Roe	Estimated Harvest	Number	Roe	Estimated Harvest	Number	Roe	Estimated Harvest
334-42	0	-	-	-	-	-	-	-	-	-	-	-	-
334-43	0	-	-	-	-	-	-	-	-	-	-	-	-
334-44	0	-	-	-	-	-	-	-	-	-	-	-	-
334-45	0	-	-	-	-	-	-	-	-	-	-	-	-
334-46	0	-	-	-	-	-	-	-	-	-	-	-	-
334-47	0	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal District 4</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
334-51	0	-	-	-	-	-	-	-	-	-	-	-	-
334-52	0	-	-	-	-	-	-	-	-	-	-	-	-
334-53	0	-	-	-	-	-	-	-	-	-	-	-	-
334-54	0	-	-	-	-	-	-	-	-	-	-	-	-
334-55	0	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal District 5</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
334-61	0	-	-	-	-	-	-	-	-	-	-	-	-
334-62	0	-	-	-	-	-	-	-	-	-	-	-	-
334-63	0	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal District 6</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Upper Yukon Area		NO COMMERCIAL FISHING											

Appendix C.4. Commercial chinook salmon sales and estimated harvest by statistical area, Subdistrict 4-A, Upper Yukon Area, 1974 to 2000.

Year	334-41			334-44			334-45			334-46			Total		
	Number ^a	Roe ^b	Harvest ^c	Number ^a	Roe ^b	Harvest ^c	Number ^a	Roe ^b	Harvest ^c	Number ^a	Roe ^b	Harvest ^c	Number ^a	Roe ^b	Harvest ^c
1974	0	-	0	-	-	-	-	-	-	-	-	-	0	-	0
1975	15	-	15	-	-	-	-	-	-	-	-	-	15	-	15
1976	44	-	44	-	-	-	-	-	-	-	-	-	44	-	44
1977	317	-	317	-	-	-	-	-	-	-	-	-	317	-	317
1978	183	-	183	-	-	-	-	-	-	-	-	-	183	-	183
1979	785	-	785	-	-	-	-	-	-	-	-	-	785	-	785
1980	352	-	352	-	-	-	-	-	-	-	-	-	352	-	352
1981	106	-	106	-	-	-	-	-	-	-	-	-	106	-	106
1982	78	-	78	-	-	-	-	-	-	-	-	-	78	-	78
1983	0	-	0	-	-	-	-	-	-	-	-	-	0	-	0
1984	2	-	2	-	-	-	-	-	-	-	-	-	2	-	2
1985	0	-	0	-	-	-	-	-	-	-	-	-	0	-	0
1986	11	-	11	-	-	-	-	-	-	-	-	-	11	-	11
1987	91	-	91	-	-	-	-	-	-	-	-	-	91	-	91
1988	19	-	19	-	-	-	-	-	-	-	-	-	19	-	19
1989	59	-	59	-	-	-	-	-	-	-	-	-	59	-	59
1990 ^d	-	-	-	0	8	2	0	0	0	52	0	52	52	8	54
1991	-	-	-	0	67	35	0	7	4	69	88	114	69	162	153
1992	-	-	-	0	0	0	0	15	9	0	71	41	0	86	50
1993	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0
1994	-	-	-	0	0	0	0	0	0	0	14	7	0	14	7
1995	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0
1996	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0
1997	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0
1998	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0
1999	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0
2000	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0
1995-1999 Average	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0

a Harvest reported in numbers of fish sold in the round.

b Pounds of salmon roe sold. Since 1990, efforts were made to separate chinook salmon roe from the summer chum salmon roe sold.

c The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold. Since 1990, the estimated number of females that produce the roe sold is based on a District 4 sampling program that estimated average roe weight per female by statistical area, by period and gear type.

d In 1990, Subdistrict 4-A (Statistical Area 334-41) was subdivided into Statistical Areas 334-44, 334-45 and 334-46.

Appendix C.5. Commercial chinook salmon sales and estimated harvest by statistical area, Subdistricts 4-B and 4-C, Upper Yukon Area, 1974 to 2000.

Year	334-42			334-43			Total		
	Number ^a	Roe ^b	Harvest ^c	Number ^a	Roe ^b	Harvest ^c	Number ^a	Roe ^b	Harvest ^c
1974	685	-	685	-	-	-	685	-	685
1975	374	-	374	-	-	-	374	-	374
1976	365	-	365	-	-	-	365	-	365
1977	668	-	668	-	-	-	668	-	668
1978	425	-	425	-	-	-	425	-	425
1979 ^d	370	-	370	834	-	834	1,204	-	1,204
1980	549	-	549	620	-	620	1,169	-	1,169
1981	867	-	867	374	-	374	1,241	-	1,241
1982	497	-	497	512	-	512	1,009	-	1,009
1983	382	-	382	219	-	219	601	-	601
1984	272	-	272	687	-	687	959	-	959
1985	318	-	318	346	-	346	664	-	664
1986	100	-	100	391	-	391	491	-	491
1987	999	-	999	434	-	434	1,433	-	1,433
1988	1,599	-	1,599	1,541	-	1,541	3,140	-	3,140
1989	696	-	696	2,035	-	2,035	2,731	-	2,731
1990	784	0	784	2,700	0	2,700	3,484	0	3,484
1991	916	386	1,113	1,461	1,674	2,316	2,377	2,060	3,429
1992	623	482	818	1,028	1,705	1,526	1,651	2,187	2,344
1993	190	279	269	1,159	422	1,308	1,349	701	1,577
1994	389	374	539	1,827	176	1,897	2,216	550	2,436
1995	262	30	262	0	596	237	262	626	499
1996	11	202	103	34	0	34	45	202	137
1997	326	14	333	1,124	0	1,124	1,450	14	1,457
1998	0	0	0	0	0	0	0	0	0
1999	233	0	233	1,204	0	1,204	1,437	0	1,437
2000	0	0	0	0	0	0	0	0	0
1995-1999									
Average	166	49	186	472	119	520	639	168	706

^a Harvest reported in numbers of fish sold in the round.

^b Pounds of salmon roe sold. Since 1990, efforts were made to separate chinook salmon roe from the summer chum salmon roe sold.

^c The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold. Since 1990, the estimated number of females that produce the roe sold is based on a District 4 sampling program that estimated average roe weight per female by statistical area, by period and gear type.

^d In 1979, Statistical Area 334-42 was subdivided into Statistical Areas 334-42 and 334-43.

Appendix C.6. Commercial chinook salmon sales and estimated harvest by statistical area, Subdistricts 5-A, 5-B and 5-C, Upper Yukon Area, 1974 to 2000.

Year	334-51			334-52			334-53			Total		
	Number ^a	Roe ^b	Harvest ^c	Number ^a	Roe ^b	Harvest ^c	Number ^a	Roe ^b	Harvest ^c	Number ^a	Roe ^b	Harvest ^c
1974	2,284	-	2,284	379	-	379	-	-	-	2,663	-	2,663
1975	2,602	-	2,602	270	-	270	-	-	-	2,872	-	2,872
1976	2,843	-	2,843	308	-	308	-	-	-	3,151	-	3,151
1977	4,013	-	4,013	149	-	149	-	-	-	4,162	-	4,162
1978	2,838	-	2,838	241	-	241	-	-	-	3,079	-	3,079
1979	3,389	-	3,389	0	-	0	-	-	-	3,389	-	3,389
1980	4,554	-	4,554	337	-	337	-	-	-	4,891	-	4,891
1981 ^d	97	-	97	3,051	-	3,051	2,477	-	2,477	5,625	-	5,625
1982	61	-	61	2,352	-	2,352	2,277	-	2,277	4,690	-	4,690
1983	0	-	0	632	-	632	2,738	-	2,738	3,370	-	3,370
1984	128	-	128	1,589	-	1,589	1,568	-	1,568	3,285	-	3,285
1985	0	-	0	1,142	-	1,142	1,842	-	1,842	2,984	-	2,984
1986	0	-	0	1,552	-	1,552	875	-	875	2,427	-	2,427
1987	0	-	0	1,183	-	1,183	1,356	-	1,356	2,539	-	2,539
1988	0	-	0	1,498	-	1,498	1,477	-	1,477	2,975	-	2,975
1989	31	-	31	1,411	-	1,411	1,459	-	1,459	2,901	-	2,901
1990	0	0	0	1,630	47	1,642	1,180	0	1,180	2,810	47	2,822
1991	56	0	56	1,724	62	1,740	1,476	0	1,476	3,256	62	3,272
1992	0	0	0	1,276	7	1,279	2,119	0	2,119	3,395	7	3,398
1993	0	0	0	1,124	0	1,124	1,484	0	1,484	2,608	0	2,608
1994	0	0	0	1,648	10	1,653	1,641	0	1,641	3,289	10	3,294
1995	0	0	0	1,519	0	1,519	1,234	0	1,234	2,753	0	2,753
1996	0	0	0	898	455	1,216	1,151	63	1,183	2,049	518	2,399
1997	0	0	0	1,314	0	1,314	1,757	0	1,757	3,071	0	3,071
1998	0	0	0	279	0	279	196	0	196	475	0	475
1999	0	0	0	1,468	0	1,468	721	0	721	2,189	0	2,189
2000	0	0	0	0	0	0	0	0	0	0	0	0
1995-1999												
Average	0	0	0	1,096	91	1,159	1,012	13	1,018	2,107	104	2,177

a Harvest reported in numbers of fish sold in the round. Does not include estimates of illegal sales in 1987 of 653 chinook salmon.

b Pounds of salmon roe sold. Since 1990, efforts were made to separate chinook salmon roe from the summer chum salmon roe sold.

c The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold. Since 1990, the estimated number of females that produce the roe sold is based on a District 5 sampling program that estimated average roe weight per female by period.

d In 1981, Subdistrict 5-A (Statistical Area 334-51) and Subdistrict 5-B (Statistical Area 334-52) were subdivided to include two additional subdistricts, Subdistrict 5-C (Statistical Area 334-53) and Subdistrict 5-D (Statistical Area 334-54).

Appendix C.7. Commercial chinook salmon sales and estimated harvest by statistical area, Subdistrict 5-D, Upper Yukon Area, 1974 to 2000.

Year	334-54			334-55			Total		
	Number ^a	Roe ^b	Harvest ^c	Number ^a	Roe ^b	Harvest ^c	Number ^a	Roe ^b	Harvest ^c
1974	-	-	-	-	-	-	-	-	-
1975	-	-	-	-	-	-	-	-	-
1976	-	-	-	-	-	-	-	-	-
1977	-	-	-	-	-	-	-	-	-
1978	-	-	-	-	-	-	-	-	-
1979	-	-	-	-	-	-	-	-	-
1980	-	-	-	-	-	-	-	-	-
1981 ^d	749	-	749	-	-	-	749	-	749
1982	695	-	695	-	-	-	695	-	695
1983	236	-	236	-	-	-	236	-	236
1984	384	-	384	-	-	-	384	-	384
1985	434	-	434	-	-	-	434	-	434
1986	306	-	306	-	-	-	306	-	306
1987	566	-	566	-	-	-	566	-	566
1988	461	-	461	-	-	-	461	-	461
1989	385	-	385	-	-	-	385	-	385
1990 ^f	194	0	194	349	0	349	543	0	543
1991	192	0	192	362	0	362	554	0	554
1992	0	0	0	457	0	457	457	0	457
1993	0	0	0	400	0	400	400	0	400
1994	0	0	0	450	0	450	450	0	450
1995	0	0	0	489	0	489	489	0	489
1996	58	0	58	390	0	390	448	0	448
1997	262	0	262	345	0	345	607	0	607
1998	11	0	11	31	0	31	42	0	42
1999	81	0	81	334	0	334	415	0	415
2000	0	0	0	0	0	0	0	0	0
995-1999									
Average	82	0	82	318	0	318	400	0	400

a Harvest reported in numbers of fish sold in the round.

b Pounds of salmon roe sold. Since 1990, efforts were made to separate chinook salmon roe from the summer chum salmon roe sold.

c The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold. Since 1990, the estimated number of females that produce the roe sold is based on a District 5 sampling program that estimated average roe weight per female by period.

d In 1981, Subdistrict 5-A (Statistical Area 334-51) and Subdistrict 5-B (Statistical Area 334-52) was subdivided to include two additional subdistricts, Subdistrict 5-C (Statistical Area 334-53) and Subdistrict 5-D (Statistical Area 334-54).

f In 1990, Subdistrict 5-D (Statistical Area 334-54) was subdivided into two statistical areas, (Statistical Areas 334-54 and 334-55).

Appendix C.8. Commercial chinook salmon sales and estimated harvest by statistical area, District 6, Upper Yukon Area, 1974 to 2000.

Year	334-61			334-62			334-63			Total		
	Number ^a	Roe ^b	Harvest ^c	Number ^a	Roe ^b	Harvest ^c	Number ^a	Roe ^b	Harvest ^c	Number ^a	Roe ^b	Harvest ^c
1974	111	-	111	1,102	-	1,102	260	-	260	1,473	-	1,473
1975	77	-	77	153	-	153	270	-	270	500	-	500
1976	490	-	490	320	-	320	292	-	292	1,102	-	1,102
1977	405	-	405	365	-	365	238	-	238	1,008	-	1,008
1978	34	-	34	58	-	58	543	-	543	635	-	635
1979	102	-	102	336	-	336	334	-	334	772	-	772
1980	92	-	92	1,588	-	1,588	267	-	267	1,947	-	1,947
1981	438	-	438	366	-	366	183	-	183	987	-	987
1982	414	-	414	309	-	309	258	-	258	981	-	981
1983	249	-	249	364	-	364	298	-	298	911	-	911
1984	0	-	0	375	-	375	492	-	492	867	-	867
1985	15	-	15	560	-	560	567	-	567	1,142	-	1,142
1986	0	-	0	597	-	597	353	-	353	950	-	950
1987	0	-	0	600	-	600	602	-	602	1,202	-	1,202
1988	305	-	305	253	-	253	204	-	204	762	-	762
1989	809	-	809	614	-	614	318	-	318	1,741	-	1,741
1990	326	0	326	1,243	1,354	1,565	188	322	265	1,757	1,676	2,156
1991	117	0	117	450	1,365	791	119	180	164	686	1,545	1,072
1992	39	0	39	371	679	510	162	205	204	572	884	753
1993	57	0	57	810	1,213	1,116	246	100	272	1,113	1,313	1,445
1994	0	0	0	1,941	1,513	2,333	194	307	273	2,135	1,820	2,606
1995	0	110	26	1,418	3,783	2,287	242	838	434	1,660	4,731	2,747
1996	0	0	0	110	645	255	168	105	192	278	750	447
1997	38	0	38	1,662	2,816	2,334	266	395	356	1,966	3,211	2,728
1998	217	0	217	431	208	496	234	52	250	882	260	963
1999	0	0	0	269	734	462	133	362	228	402	1,096	690
2000	0	0	0	0	0	0	0	0	0	0	0	0
1995-1999												
Average	51	22	56	778	1,637	1,167	209	350	292	1,038	2,010	1,515

a Harvest reported in numbers of fish sold in the round. Does not include estimates of illegal sales in 1987 of 2,136 chinook salmon.

b Pounds of salmon roe sold. Since 1990, efforts were made to separate chinook salmon roe from the summer chum salmon roe sold.

c The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold. Since 1990, the estimated number of females that produce the roe sold is based on a District 6 sampling program that estimated average roe weight per female by period.

Appendix C.9. Commercial summer chum salmon sales and estimated harvest by statistical area, Subdistrict 4-A, Upper Yukon Area, 1974 to 2000.

Year	334-41					334-44					334-45				
	Roe Expansion				Estimated Harvest ^f	Roe Expansion				Estimated Harvest ^f	Roe Expansion				Estimated Harvest ^f
	Number ^a	Roe ^b	Males ^c	Females ^d		Number ^a	Roe ^b	Males ^c	Females ^d		Number ^a	Roe ^b	Males ^c	Females ^d	
1974	g	0	0	0	g	-	-	-	-	-	-	-	-	-	
1975	g	0	0	0	g	-	-	-	-	-	-	-	-	-	
1976	g	0	0	0	g	-	-	-	-	-	-	-	-	-	
1977	g	0	0	0	g	-	-	-	-	-	-	-	-	-	
1978	g	16,920	0	16,920	g	-	-	-	-	-	-	-	-	-	
1979	g	35,117	0	35,117	g	-	-	-	-	-	-	-	-	-	
1980	g	119,957	0	119,957	g	-	-	-	-	-	-	-	-	-	
1981	g	160,757	123,266 ^h	160,757	g	-	-	-	-	-	-	-	-	-	
1982	1,032	137,611	95,788	137,611	234,431	-	-	-	-	-	-	-	-	-	
1983	3,407	130,013	90,740	130,013	224,160	-	-	-	-	-	-	-	-	-	
1984	51	148,519	98,962	148,519	247,532	-	-	-	-	-	-	-	-	-	
1985	5,130	222,149	157,062	222,149	384,341	-	-	-	-	-	-	-	-	-	
1986	0	236,856	172,222	236,856	409,078	-	-	-	-	-	-	-	-	-	
1987	29,314	110,977	51,379	110,977	191,670	-	-	-	-	-	-	-	-	-	
1988	19,070	230,276	167,594	256,718 ⁱ	443,382	-	-	-	-	-	-	-	-	-	
1989	14,397	270,039	170,322	301,383 ^k	486,102	-	-	-	-	-	-	-	-	-	
1990 ^m	-	-	-	-	-	0	27,628	24,484	31,409	55,893	427	28,181	24,153	32,166	56,746
1991	-	-	-	-	-	88	39,281	37,164	47,574	84,826	79	43,087	42,445	53,401	95,925
1992	-	-	-	-	-	0	20,444	13,192	22,383	35,575	0	35,312	26,463	40,142	66,605
1993	-	-	-	-	-	0	6,234	4,308	7,334	11,642	0	6,081	4,246	7,230	11,476
1994 ⁿ	-	-	-	-	-	0	18,095	12,937	22,606	35,543	0	15,091	11,031	19,276	30,307
1995	-	-	-	-	-	0	37,595	37,575	46,084	83,659	0	49,577	49,149	56,667	105,816
1996	-	-	-	-	-	0	31,186	26,210	34,592	60,802	0	40,692	30,785	45,483	76,268
1997	-	-	-	-	-	0	14,188	10,905	15,118	26,023	0	526	342	570	912
1998	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0
1999	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0
2000	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0
1995-1999	-	-	-	-	-	0	16,594	14,938	19,159	34,097	0	18,159	16,055	20,544	36,599
Average	-	-	-	-	-	0	16,594	14,938	19,159	34,097	0	18,159	16,055	20,544	36,599

- Continued -

Year	334-46					Subtotal 334-41, 44, 45 and 46					334-47 (Anvik River)				Total (Subdistrict 4-A and Anvik)				
	Roe Expansion				Estimated Harvest ^f	Roe Expansion				Estimated Harvest ^f	Roe Expansion			Estimated Harvest ^f	Roe Expansion				Estimated Harvest ^f
Number ^a	Roe ^b	Males ^c	Females ^d	Number ^a		Roe ^b	Males ^c	Females ^d	Number ^a		Roe ^b	Females ^d	Number ^a		Roe ^b	Males ^c	Females ^d	Number ^a	
1974	-	-	-	-	-	0	0	0	0	-	-	-	-	-	g	0	0	0	g
1975	-	-	-	-	-	0	0	0	0	-	-	-	-	-	g	0	0	0	g
1976	-	-	-	-	-	0	0	0	0	-	-	-	-	-	g	0	0	0	g
1977	-	-	-	-	-	0	0	0	0	-	-	-	-	-	g	0	0	0	g
1978	-	-	-	-	-	0	16,920	0	16,920	-	-	-	-	-	g	16,920	0	16,920	g
1979	-	-	-	-	-	0	35,117	0	35,117	-	-	-	-	-	g	35,117	0	35,117	g
1980	-	-	-	-	-	0	119,957	0	119,957	-	-	-	-	-	g	119,957	0	119,957	g
1981	-	-	-	-	-	0	160,757	123,266	160,757	-	-	-	-	-	g	160,757	123,266 ^h	160,757	g
1982	-	-	-	-	-	1,032	137,611	95,788	137,611	234,431	-	-	-	-	1,032	137,611	95,788	137,611	234,431
1983	-	-	-	-	-	3,407	130,013	90,740	130,013	224,160	-	-	-	-	3,407	130,013	90,740	130,013	224,160
1984	-	-	-	-	-	51	148,519	98,962	148,519	247,532	-	-	-	-	51	148,519	98,962	148,519	247,532
1985	-	-	-	-	-	5,130	222,149	157,062	222,149	384,341	-	-	-	-	5,130	222,149	157,062	222,149	384,341
1986	-	-	-	-	-	0	236,856	172,222	236,856	409,078	-	-	-	-	0	236,856	172,222	236,856	409,078
1987	-	-	-	-	-	29,314	110,977	51,379	110,977	191,670	-	-	-	-	29,314	110,977	51,379	110,977	191,670
1988	-	-	-	-	-	19,070	230,276	167,594	230,276	443,382	-	-	-	-	19,070	230,276	167,594	230,276	443,382
1989	-	-	-	-	-	14,397	270,039	170,322	270,039	486,102	-	-	-	-	14,397	270,039	170,322	270,039	486,102
1990 ^m	10,750	39,732	29,490	44,742	84,982	11,177	95,541	78,127	108,317	197,621	-	-	-	-	11,177	95,541	78,127	108,317	197,621
1991	5,122	45,863	47,563	56,819	109,504	5,289	128,231	127,172	157,794	290,255	-	-	-	-	5,289	128,231	127,172	157,794	290,255
1992	0	43,945	32,502	49,489	81,991	0	99,701	72,158	112,013	184,171	-	-	-	-	0	99,701	72,158	112,013	184,171
1993	0	8,170	5,579	9,499	15,078	0	20,485	14,133	24,063	38,196	-	-	-	-	0	20,485	14,133	24,063	38,196
1994 ⁿ	0	29,615	28,825	37,119	65,944	0	62,801	52,794	79,000	131,794	0	19,532	22,574	22,574	0	82,333	52,794	101,574	154,368
1995	0	102,060	105,663	124,550	230,213	0	189,252	192,387	227,301	419,668	0	48,477	54,744	54,744	0	237,729	192,387	282,045	474,432
1996	0	109,172	98,926	120,942	219,868	0	181,050	155,921	201,017	356,938	0	76,318	84,663	84,663	0	257,368	155,921	285,680	441,601
1997	0	41,587	29,207	44,247	73,454	0	56,301	40,454	59,935	100,389	0	13,067	13,548	13,548	0	69,368	40,454	73,483	113,937
1998	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1995-1999																			
Average	0	50,568	46,759	57,948	104,707	0	85,321	77,752	97,651	175,403	0	27,572	30,591	30,591	0	112,893	77,752	128,242	205,994

a Harvest reported in numbers of fish sold in the round.

b Pounds of salmon roe sold. Prior to 1990, roe production may include small amounts of chinook salmon roe. Since 1990, efforts were made to separate chinook salmon roe from the summer chum salmon roe sold.

c The estimated number of unsold males that were caught and not sold while harvesting the females that produced the roe sold. Prior to 1981, it was assumed that all males were sold in the round. Since 1981, all fish sold in the round are assumed to be males. For the years 1981 through 1985, the estimated percentage of males in the harvest was based on percentage of males observed in the department Stink Creek test fish wheel catches (1981 - 434; 1982 - 413; 1983-420; 1984-400; and 1985 - 422). For the years 1986 through 1988, the estimated number of males in the harvest was based on the average percentage of males observed in the Stink Creek test fishery for the years 1981 through 1985 (average of 421). For the year 1989, the estimated percentage of males in the harvest was .38. Since 1990, the estimated number of unsold males that produce the roe sold is based on a District 4 sampling program that estimated average percent males in the harvest by statistical area, by period and gear type.

d The estimated number of females to produce the roe sold. Unless otherwise noted, prior to 1991, the roe expansion assumes 1.0 pound of roe per female. Since 1991, the estimated number of females that produce the roe sold is based on a District 4 sampling program that estimated average roe weight per female by statistical area, by period and gear type.

f Estimated harvest is the number of fish sold in the round plus the estimated number of females and the estimated number of unsold males harvested to produce the roe sold.

g Information not available.

h Assumes no males were sold in the round.

i Roe expansion assumes .857 pound of roe per female.

k Roe expansion assumes .896 pound of roe per female.

m In 1990, Subdistrict 4-A (Statistical Area 334-41) was subdivided into Statistical Areas 334-44, 334-45 and 334-46.

n In 1994, Statistical Area 334-47 was included in Subdistrict 4-A and R represents the Anvik River Management Area.

Appendix C.10. Commercial summer chum salmon sales and estimated harvest by statistical area, Subdistricts 4-B and 4-C, Upper Yukon Area, 1974 to 2000.

Year	334-42				334-43				Total				
	Roe Expansion			Harvest ^d	Roe Expansion			Harvest ^d	Roe Expansion			Males ^f	Harvest ^d
	Number ^a	Roe ^b	Females ^c		Number ^a	Roe ^b	Females ^c		Number ^a	Roe ^b	Females ^c		
1974	g	0	0	g	-	-	-	-	g	0	0	0	g
1975	g	0	0	g	-	-	-	-	g	0	0	0	g
1976	g	0	0	g	-	-	-	-	g	0	0	0	g
1977	g	0	0	g	-	-	-	-	g	0	0	0	g
1978	g	0	0	g	-	-	-	-	g	0	0	0	g
1979 ^h	g	200	200	g	g	0	0	g	g	200	200	g	g
1980	g	14,385	14,385	g	g	1,482	1,482	g	g	15,867	15,867	g	g
1981	g	23,677	23,677	g	g	2,598	2,598	g	g	26,275	26,275	g	g
1982	1,059	12,550	12,550	13,609	1,556	1,120	1,120	2,676	2,615	13,670	13,670	7,003	23,288
1983	3,265	17,549	17,549	20,814	0	563	563	563	3,265	18,112	18,112	9,851	31,228
1984	659	15,184	15,184	15,843	299	3,139	3,139	3,438	958	18,323	18,323	11,257	30,538
1985	1,785	19,306	19,306	21,091	5,092	5,630	5,630	10,722	6,877	24,936	24,936	11,329	43,142
1986	241	29,169	29,169	29,410	59	3,520	3,520	3,579	300	32,689	32,689	23,468	56,457
1987	593	9,956	9,956	10,549	84	541	541	625	677	10,497	10,497	6,956	18,130
1988	4,592	21,766	24,265 ^j	26,358	389	2,484	2,769 ^j	3,158	4,981	24,250	27,034 ^j	14,677	46,692
1989	2,940	9,915	11,066 ^k	12,855	1,217	3,351	3,740 ^k	4,957	4,157	13,266	14,806 ^k	5,179	24,142
1990	1,091	6,600	7,799	8,890	96	3,582	4,434	4,530	1,187	10,182	12,233	11,509	24,929
1991	1,092	8,282	8,996	10,088	0	719	781	781	1,092	9,001	9,777	8,520	19,389
1992	1,363	9,010	9,616	10,979	1,296	2,098	2,902	4,198	2,659	11,108	12,518	12,048	27,225
1993	0	1,851	2,134	4,445	27	111	140	316	27	1,962	2,274	2,460	4,761
1994	2,844	6,455	g	14,803	767	929	g	2,436	3,611	7,384	g	g	17,239
1995	8,873	39,699	g	73,570	0	3,646	g	6,585	8,873	43,345	g	g	80,155
1996	0	36,927	39,156	67,012	0	895	939	1,627	0	37,822	40,095	28,544	68,639
1997	1,942	4,786	5,199	10,484	120	77	81	250	2,062	4,863	5,280	5,454	10,734
1998	0	0	0	0	0	0	0	0	0	0	0	0	0
1999	153	0	0	153	1,114	0	0	1,114	1,267	0	0	0	1,267
2000	0	0	0	0	0	0	0	0	0	0	0	0	0
1995-1999													
Average	2,194	16,282	8,871	30,244	247	924	204	1,915	2,440	17,206	9,075	6,800	32,159

a Harvest reported in numbers of fish sold in the round.

b Pounds of salmon roe sold. Prior to 1990, roe production may include small amounts of chinook salmon roe. Since 1990, efforts were made to separate chinook salmon roe from the summer chum salmon sold.

c The estimated number of females to produce the roe sold. Unless otherwise noted, prior to 1991, the roe expansion assumed 1.0 pound of roe per female. Since 1990, the estimated number of female that produce the roe sold is based on a District 4 sampling program that estimated average roe weight per female by statistical area, by period and gear type.

d The total estimated harvest is the fish sold in the round plus estimated number of females harvested to produce roe sold plus the estimated number of males caught but not sold.

f Estimated number of males caught but not sold. Total males caught but not sold calculated the same as for District 4-A (using sex ratio and sales in the round assumed to be male chum salmon).

g Information not available by statistical area.

h In 1979, Statistical Area 334-42 was subdivided into Statistical Areas 334-42 and 334-43.

j Roe expansion assumes .897 pound of roe per female.

k Roe expansion assumes .896 pound of roe per female.

Appendix C.11. Commercial summer chum salmon sales and estimated harvest by statistical area, Subdistricts 5-A, 5-B and 5-C, Upper Yukon Area, 1974 to 2000.

Year	334-51			334-52			334-53			Total		
	Number ^a	Roe ^b	Harvest ^c	Number ^a	Roe ^b	Harvest ^c	Number ^a	Roe ^b	Harvest ^c	Number ^a	Roe ^b	Harvest ^c
1974	d	0	d	d	0	d	-	-	-	6,831	0	6,831
1975	d	0	d	d	0	d	-	-	-	12,997	0	12,997
1976	d	0	d	d	0	d	-	-	-	774	0	774
1977	d	0	d	d	0	d	-	-	-	1,274	0	1,274
1978	d	605	d	d	0	d	-	-	-	4,892	605	5,497
1979	d	1,009	d	d	0	d	-	-	-	8,608	1,009	9,617
1980	d	0	d	d	0	d	-	-	-	456	0	456
1981 ^f	d	0	d	d	49	d	d	0	d	1,236	49	1,285
1982	d	21	d	d	0	d	d	0	d	213	21	234
1983	0	242	242	37	269	306	5	1,345	1,350	42	1,856	1,898
1984	50	0	50	578	47	625	12	0	12	640	47	687
1985	0	0	0	700	0	700	0	0	0	700	0	700
1986	0	0	0	682	0	682	8	0	8	690	0	690
1987	0	0	0	362	44	406	0	0	0	362	44	406
1988	0	0	0	717	337	1,054	5	26	31	722	363	1,085
1989	0	0	0	112	204	316	1	169	170	113	373	486
1990	0	0	0	0	225	250	5	350	394	5	575	644
1991	0	0	0	0	28	31	4	0	4	4	28	35
1992	0	0	0	30	295	358	72	0	72	102	295	430
1993	0	0	0	0	0	0	0	0	0	0	0	0
1994	0	0	0	133	212	368	96	0	96	229	212	464
1995	0	0	0	0	188	209	107	0	107	107	188	316
1996	0	0	0	0	0	0	0	188	209	0	188	209
1997	0	0	0	0	0	0	125	0	125	125	0	125
1998	0	0	0	37	13	51	59	0	59	96	13	110
1999	0	0	0	74	0	74	40	0	40	114	0	114
2000	0	0	0	0	0	0	0	0	0	0	0	0
1995-1999 Average	0	0	0	22	40	67	66	38	108	88	78	175

a Harvest reported in numbers of fish sold in the round.

b Pounds of salmon roe sold. Prior to 1990, roe production may include small amounts of chinook roe. Since 1990, efforts were made to separate chinook roe from the summer chum salmon roe sold.

c The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold. Prior to 1990, the roe expansion assumed 1.0 pound of roe per female. Since 1990, the estimated number of females that produced the roe sold is based on a District 5 sampling program that estimated average roe weight per female by period.

d Information not available.

f In 1981, Subdistrict 5-A (Statistical Area 334-51) and Subdistrict 5-B (statistical Area 334-52) were subdivided to include two additional subdistricts, Subdistrict 5-C (Statistical Area 334-53) and Subdistrict 5-D (Statistical Area 334-54). In 1990, Subdistrict 5-D (Statistical Area 333-54) was further subdivided into Statistical Areas 334-54 and 334-55.

Appendix C.12. Commercial summer chum salmon sales and estimated harvest by statistical area, Subdistrict 5-D, Upper Yukon Area, 1974 to 2000.

Year	334-54			334-55			Total		
	Number ^a	Roe ^b	Harvest ^c	Number ^a	Roe ^b	Harvest ^c	Number ^a	Roe ^b	Harvest ^c
1974	-	-	-	-	-	-	-	-	-
1975	-	-	-	-	-	-	-	-	-
1976	-	-	-	-	-	-	-	-	-
1977	-	-	-	-	-	-	-	-	-
1978	-	-	-	-	-	-	-	-	-
1979	-	-	-	-	-	-	-	-	-
1980	-	-	-	-	-	-	-	-	-
1981	f	0	f	-	-	-	f	0	f
1982 ^d	f	0	f	-	-	-	f	0	f
1983	0	0	0	-	-	-	0	0	0
1984	5	0	5	-	-	-	5	0	5
1985	0	0	0	-	-	-	0	0	0
1986	0	0	0	-	-	-	0	0	0
1987	0	0	0	-	-	-	0	0	0
1988	0	0	0	-	-	-	0	0	0
1989	41	0	41	-	-	-	41	0	41
1990 ^g	6	19	27	0	0	0	6	19	27
1991	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0	0
1995	0	0	0	0	0	0	0	0	0
1996	0	114	127	0	0	0	0	114	127
1997	12	0	12	0	0	0	12	0	12
1998	0	0	0	0	0	0	0	0	0
1999	0	0	0	1	0	1	1	0	1
2000	0	0	0	0	0	0	0	0	0
1995-1999									
Average	2	23	28	0	0	0	3	23	28

a Harvest reported in numbers of fish sold in the round.

b Pounds of salmon roe sold. Prior to 1990, roe production may include small amounts of chinook salmon roe. Since 1990, efforts were made to separate chinook salmon roe from the summer chum salmon roe sold.

c The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold. Prior to 1990, the roe expansion assumed 1.0 pound of roe per female. Since 1990, the estimated number of females that produce the roe sold is based on a District 5 sampling program that estimated average roe weight per female by period.

d In 1981, Subdistrict 5-A (Statistical Area 334-51) and Subdistrict 5-B (Statistical Area 334-52) were subdivided to include two additional subdistricts, Subdistrict 5-C (Statistical Area 334-53) and Subdistrict 5-D (Statistical Area 334-54).

f Information not available.

g In 1990, Subdistrict 5-D (Statistical Area 334-54) was subdivided into two statistical areas, (Statistical Areas 334-54 and 334-55).

Appendix C.13. Commercial summer chum salmon sales and estimated harvest by statistical area, District 6, Upper Yukon Area, 1974 to 2000.

Year	334-61			334-62			334-63			Total		
	Number ^a	Roe ^b	Harvest ^c	Number ^a	Roe ^b	Harvest ^c	Number ^a	Roe ^b	Harvest ^c	Number ^a	Roe ^b	Harvest ^c
1974	d	0	d	d	0	d	d	0	d	13,318	0	13,318
1975	d	0	d	d	0	d	d	0	d	14,782	0	14,782
1976	d	0	d	d	0	d	d	0	d	6,617	0	6,617
1977	d	0	d	d	0	d	d	0	d	4,317	0	4,317
1978	d	1,468	d	d	6,116	d	d	652	d	34,814	8,236	43,050
1979	d	d	d	d	d	d	d	d	d	18,491	3,891	22,382
1980	d	0	d	d	2,272	d	d	1,010	d	35,855	3,282	39,137
1981	d	0	d	d	925	d	d	1,062	d	32,477	1,987	34,464
1982	d	0	d	d	1,027	d	d	490	d	21,597	1,517	23,114
1983	1,923	0	1,923	21,646	18	21,664	740	0	740	24,309	18	24,327
1984	3,769	0	3,769	42,231	152	42,383	10,249	183	10,432	56,249	335	56,584
1985	809	0	809	51,132	142	51,274	14,972	1,398	16,370	66,913	1,540	68,453
1986	4,697	0	4,697	31,647	1,711	33,358	14,139	435	14,574	50,483	2,146	52,629
1987	2,167	0	2,167	6,882	349	7,231	1,561	101	1,662	10,610	450	11,060
1988	7,978	71	8,049	24,911	1,165	26,076	7,240	410	7,650	40,129	1,646	41,775
1989	16,483	61	16,544	18,960	4,277	23,237	6,672	533	7,205	42,115	4,871	46,986
1990	2,862	12	2,877	6,028	1,637	8,011	2,237	1,410	3,945	11,127	3,059	14,833
1991	4,742	0	4,742	10,100	2,653	13,304	3,355	2,063	5,846	18,197	4,716	23,892
1992	1,327	0	1,327	3,446	1,684	5,409	256	208	492	5,029	1,892	7,228
1993	1,156	0	1,156	1,603	315	2,009	282	200	540	3,041	515	3,705
1994	5,114	0	5,114	13,805	5,643	21,182	2,289	2,185	5,138	21,208	7,828	31,434
1995	5,894	0	5,894	16,020	6,731	25,112	2,797	2,744	6,422	24,711	9,475	37,428
1996	3,194	0	3,194	12,632	13,139	30,206	6,534	5,193	13,490	22,360	18,332	46,890
1997	3,162	0	3,162	9,168	6,525	16,709	2,556	2,511	5,416	14,886	9,036	25,287
1998	56	0	56	202	109	337	139	31	177	397	140	570
1999	0	0	0	102	0	102	22	24	46	124	24	148
2000	0	0	0	0	0	0	0	0	0	0	0	0
1995-1999												
Average	2,461	0	2,461	7,625	5,301	14,493	2,410	2,101	5,110	12,496	7,401	22,065

a Harvest reported in numbers of fish sold in the round.

b Pounds of salmon roe sold. Prior to 1990, roe production may include small amounts of chinook salmon roe. Since 1990, efforts were made to separate chinook salmon roe from the summer chum salmon roe sold.

c The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold. Prior to 1990, the roe expansion assumed 1.0 pound of roe per female. Since 1990, the estimated number of females that produce the roe sold is based on a District 6 sampling program that estimated average roe weight per female by period.

d Information not available.

f Does not include 1,233 female summer chum salmon sold with roe extracted and roe sold separately. Females are accounted for in the roe expansion.

Appendix C.14. Commercial fall chum salmon sales and estimated harvest by statistical area, District 4, Upper Yukon Area, 1974 to 2000.

Year	334-41			334-42			334-43			Total		
	Number ^a	Roe ^b	Harvest ^c	Number ^a	Roe ^b	Harvest ^c	Number ^a	Roe ^b	Harvest ^c	Number ^a	Roe ^b	Harvest ^c
1974	0	0	0	9,213	0	9,213	-	-	-	9,213	0	9,213
1975	d	0	d	d	0	d	-	-	-	13,666	0	13,666
1976	462	0	462	1,280	0	1,280	-	-	-	1,742	0	1,742
1977 ^f	d	0	d	d	0	d	-	-	-	13,980	0	13,980
1978	-	-	-	d	1,721	d	-	-	-	10,988	1,721	12,709
1979 ^g	-	-	-	d	3,199	d	d	0	d	48,899	3,199	52,098
1980	-	-	-	d	1,789	d	d	2,558	d	27,978	4,347	32,325
1981	-	-	-	d	1,311	d	d	0	d	12,082	1,311	13,393
1982	-	-	-	958	20	978	2,936	147	3,083	3,894	167	4,061
1983	-	-	-	3,681	1,591	5,272	801	372	1,173	4,482	1,963	6,445
1984	-	-	-	2,961	1,222	4,183	4,664	993	5,657	7,625	2,215	9,840
1985	-	-	-	14,468	891	15,359	9,984	1,634	11,618	24,452	2,525	26,977
1986	-	-	-	2,045	0	2,045	0	0	0	2,045	0	2,045
1987	-	-	-	0	0	0	0	0	0	0	0	0
1988	-	-	-	10,157	703	10,860	5,505	718	6,223	15,662	1,421	17,083
1989	-	-	-	9,819	2,023	11,842	1,957	1,384	3,341	11,776	3,407	15,183
1990	-	-	-	3,406	1,680	5,086	1,583	671	2,254	4,989	2,351	7,340
1991	-	-	-	2,998	490	3,488	739	1,126	2,373	3,737	1,616	6,091
1992	-	-	-	0	0	0	0	0	0	0	0	0
1993	-	-	-	0	0	0	0	0	0	0	0	0
1994	-	-	-	0	0	0	0	0	0	0	0	0
1995	-	-	-	2,924	225	3,149	0	3,901	5,482	2,924	4,126	8,731
1996	-	-	-	2,918	0	2,918	0	0	0	2,918	0	2,918
1997	-	-	-	463	0	463	1,995	0	1,995	2,458	0	2,458
1998	-	-	-	0	0	0	0	0	0	0	0	0
1999	-	-	-	104	0	104	577	0	577	681	0	681
2000	-	-	-	0	0	0	0	0	0	0	0	0
1995-1999												
Average	-	-	-	1,282	45	1,347	514	780	1,611	1,796	825	2,958

a Harvest reported in numbers of fish sold in the round.

b Pounds of salmon roe sold. Prior to 1990, roe production may include small amounts of coho salmon roe. Since 1990, efforts were made to separate coho salmon roe from the fall chum salmon roe sold.

c The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold. Prior to 1990, the roe expansion assumed 1.0 pound of roe per female. Since 1990, the estimated number of females that produce the roe sold is based on a District 4 sampling program that estimated average roe weight per female by period, by statistical area and gear type.

d Information not available.

f In 1977, was the last year Subdistrict 4-A (Statistical Area 334-41), by regulation, was allowed a late season.

g In 1979, Statistical Area 334-42 was subdivided into Statistical Areas 334-42 and 334-43.

Appendix C.15. Commercial fall chum salmon sales and estimated harvest by statistical area, Subdistricts 5-A, 5-B and 5-C, Upper Yukon Area, 1974 to 2000.

Year	334-51			334-52			334-53			Unapportioned	Total		
	Number ^a	Roe ^b	Harvest ^c	Number ^a	Roe ^b	Harvest ^c	Number ^a	Roe ^b	Harvest ^c	Number ^{a,g}	Number ^a	Roe ^b	Harvest ^c
1974	23,551	0	23,551	0	0	0	-	-	-	0	23,551	0	23,551
1975	d	0	d	d	0	d	-	-	-	27,212	27,212	0	27,212
1976	5,319	0	5,319	68	0	68	-	-	-	0	5,387	0	5,387
1977	d	0	d	d	0	d	-	-	-	25,730	25,730	0	25,730
1978	d	3,946	d	d	1,274	d	-	-	-	21,016	21,016	5,220	26,236
1979	d	8,097	d	d	0	d	-	-	-	47,459	47,459	8,097	55,556
1980	d	605	d	d	0	d	-	-	-	41,771	41,771	605	42,376
1981 ^f	d	178	d	d	6,760	d	d	17	d	86,620	86,620	6,955	93,575
1982	d	0	d	d	23	d	d	19	d	13,593	13,593	42	13,593
1983	3,143	0	3,143	19,771	0	19,771	17,987	0	17,987	0	40,901	0	40,901
1984	1,415	0	1,415	10,329	0	10,329	9,403	0	9,403	0	21,147	0	21,147
1985	565	0	565	9,263	0	9,263	13,332	0	13,332	0	23,160	0	23,160
1986	1,332	0	1,332	11,907	395	12,302	7,471	0	7,471	0	20,710	395	21,105
1987	0	0	0	0	0	0	0	0	0	0	0	0	0
1988	0	0	0	9,684	0	9,684	4,533	0	4,533	0	14,217	0	14,217
1989	372	60	432	9,937	3,327	13,264	4,987	209	5,196	0	15,296	3,596	18,892
1990	0	0	0	5,169	945	6,243	0	0	0	0	5,169	945	6,243
1991	0	0	0	14,968	3,625	19,727	9,173	0	9,173	0	24,141	3,625	28,900
1992	0	0	0	0	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0	0	0	0	0	0
1995	0	2,513	3,159	1,785	13,091	18,397	4,014	389	4,498	0	5,799	15,993	26,054
1996	0	181	208	5,898	8,317	15,670	1,583	0	1,583	0	7,481	8,498	17,461
1997	0	0	0	1,595	1,194	3,069	0	0	0	0	1,595	1,194	3,069
1998	0	0	0	0	0	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0	0	0	0	0
1995-1999													
Average	0	539	673	1,856	4,520	7,427	1,119	78	1,216	0	2,975	5,137	9,317

a Harvest reported in numbers of fish sold in the round.

b Pounds of salmon roe sold. Prior to 1990, roe production may include small amounts of coho salmon roe. Since 1990, efforts were made to separate coho salmon roe from the fall chum salmon roe sold.

c The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold. Prior to 1990, the roe expansion assumed 1.0 pound of roe per female. Since 1990, the estimated number of females that produce the roe sold is based on a District 5 sampling program that estimated average roe weight per female by period.

d Information not available by statistical area.

f In 1981, Subdistrict 5-A (Statistical Area 334-51) and Subdistrict 5-B (statistical Area 334-52) was subdivided to include two additional subdistricts, Subdistrict 5-C (Statistical Area 334-53) and Subdistrict 5-D (Statistical Area 334-54) and Subdistrict 5-D (Statistical Area 334-54) was further subdivided into Statistical Areas 334-54 and 334-55.

g Includes harvest in Subdistrict 5-D from 1978 through 1982.

Appendix C.16. Commercial fall chum salmon sales and estimated harvest by statistical area, Subdistricts 5-D, Upper Yukon Area, 1974 to 2000.

Year	334-54			334-55			Total		
	Number ^a	Roe ^b	Harvest ^c	Number ^a	Roe ^b	Harvest ^c	Number ^a	Roe ^b	Harvest ^c
1974	-	-	-	-	-	-	-	-	-
1975	-	-	-	-	-	-	-	-	-
1976	-	-	-	-	-	-	-	-	-
1977	-	-	-	-	-	-	-	-	-
1978	-	-	-	-	-	-	-	-	-
1979	-	-	-	-	-	-	-	-	-
1980	-	-	-	-	-	-	-	-	-
1981 ^d	f	0	f	-	-	-	f	0	f
1982	f	0	f	-	-	-	f	0	f
1983	3,092	0	3,092	-	-	-	3,092	0	3,092
1984	2,913	57	2,970	-	-	-	2,913	57	2,970
1985	2,178	0	2,178	-	-	-	2,178	0	2,178
1986	1,343	0	1,343	-	-	-	1,343	0	1,343
1987	0	0	0	-	-	-	0	0	0
1988	2,772	0	2,772	-	-	-	2,772	0	2,772
1989	2,919	393	3,312	-	-	-	2,919	393	3,312
1990 ^g	1,758	113	1,882	851	0	851	2,609	113	2,733
1991	1,846	0	1,846	1,368	0	1,368	3,214	0	3,214
1992	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0
1994	0	0	0	3,630	0	3,630	3,630	0	3,630
1995	0	0	0	3,979	2,823	3,979 ^h	3,979	2,823	3,979
1996	890	0	890	3,507	0	3,507	4,397	0	4,397
1997	40	0	40	811	0	811	851	0	851
1998	0	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0
1995-1999									
Average	186	0	186	1,659	565	1,659	1,845	565	1,845

a Harvest reported in numbers of fish sold in the round.

b Pounds of salmon roe sold. Prior to 1990, roe production may include small amounts of coho salmon roe. Since 1990, efforts were made to separate coho salmon roe from fall chum salmon roe.

c The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold. Prior to 1990, the roe expansion assumed 1.0 pounds of roe per female. Since 1990, the estimated number of females that produce the roe sold is based on a District 5 sampling program that estimated average roe weight per female by period.

d In 1981, Subdistrict 5-A (Statistical Area 334-51) and Subdistrict 5-B (Statistical Area 334-52) was subdivided to include two additional subdistricts, Subdistrict 5-C (Statistical Area 334-53) and Subdistrict 5-D (Statistical Area 334-54).

f Information not available.

g In 1990, Subdistrict 5-D (Statistical Area 334-54) was subdivided into two statistical areas, (Statistical Areas 334-54 and 334-55).

h Estimated harvest equals fish sold in round. The roe came from fish sold in the round, therefore, not included in estimated harvest to avoid duplicate counting.

Appendix C.17. Commercial fall chum salmon sales and estimated harvest by statistical area, District 6, Upper Yukon Area, 1974 to 2000.

Year	334-61			334-62			334-63			Total		
	Number ^a	Roe ^b	Harvest ^c	Number ^a	Roe ^b	Harvest ^c	Number ^a	Roe ^b	Harvest ^c	Number ^a	Roe ^b	Harvest ^c
1974	d	d	d	d	d	d	d	d	d	26,884	0	26,884
1975	d	0	d	d	0	d	d	0	d	18,692	0	18,692
1976	d	0	d	d	0	d	d	0	d	17,948	0	17,948
1977	d	0	d	d	0	d	d	0	d	18,673	0	18,673
1978	4,704	1,826	6,530	8,036	1,680	9,716	519	181	700	13,259	3,687	16,946
1979	d	d	d	d	d	d	d	d	d	34,185	7,170	41,355
1980	d	0	d	d	53	d	d	15	d	19,452	68	19,520
1981	d	0	d	d	2,784	d	d	235	d	25,989	3,019	29,008
1982	706	0	706	4,586	596	5,182	1,528	0	1,528	6,820	596	7,416
1983	3,526	0	3,526	23,096	3,009	26,105	7,467	92	7,559	34,089	3,101	37,190
1984	5,617	0	5,617	11,809	0	11,809	3,138	56	3,194	20,564	56	20,620
1985	1,462	0	1,462	34,663	0	34,663	6,227	0	6,227	42,352	0	42,352
1986	176	0	176	1,345	182	1,527	371	0	371	1,892	182	2,074
1987	0	0	0	0	0	0	0	0	0	0	0	0
1988	4,500	0	4,500	13,617	1,035	14,652	3,727	771	4,498	21,844	1,806	23,650
1989	14,870	173	15,043	25,650	7,050	32,700	8,570	130	8,700	49,090	7,353	56,443
1990	9,254	0	9,254	28,932	6,617	35,776	4,996 ^f	918	5,945	43,182 ^f	7,535	50,975
1991	3,278	0	3,278	21,834	12,253	35,904	3,083	1,901	5,266	28,195	14,154	44,448
1992	0	0	0	13,713	1,816	15,852	2,008	990	3,170	15,721	2,806	19,022
1993	0	0	0	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	3,239	4,319	1	37	50	1	3,276	4,369
1995	6,170	0	6,170	60,466	8,164	65,051	1,219	1,396	2,896	67,855	9,560	74,117
1996	663	236	934	8,491	4,906	14,332	1,112	1,031	2,308	10,266	6,173	17,574
1997	0	0	0	0	0	0	0	0	0	0	0	0
1998	0	0	0	0	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0	0	0	0
1995-1999												
Average	1,367	47	1,421	13,791	2,614	15,877	466	485	1,041	15,624	3,147	18,338

a Harvest reported in numbers of fish sold in the round.

b Pounds of salmon roe sold. Prior to 1990, roe production may include small amounts of coho salmon roe. Since 1990, efforts were made to separate coho salmon roe from the fall chum salmon roe sold.

c The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold. Prior to 1990, the roe expansion assumed 1.0 pounds of roe per female. Since 1990, the estimated number of females that produce the roe sold is based on a District 6 sampling program that estimated average roe weight per female by period.

d Information not available.

f Does not include 884 female fall chum salmon sold with roe extracted and roe sold separately. Females are accounted for in the roe expansion.

Appendix C.18. Commercial coho salmon sales and estimated harvest by statistical area, District 4, Upper Yukon Area, 1974 to 2000.

Year	334-41			334-42			334-43			Total		
	Number ^a	Roe ^b	Harvest ^c	Number ^a	Roe ^b	Harvest ^c	Number ^a	Roe ^b	Harvest ^c	Number ^a	Roe ^b	Harvest ^c
1974	0	-	0	0	-	0	-	-	-	0	-	0
1975	0	-	0	0	-	0	-	-	-	0	-	0
1976	0	-	0	0	-	0	-	-	-	0	-	0
1977 ^d	0	-	0	0	-	0	-	-	-	0	-	0
1978	-	-	-	32	-	32	-	-	-	32	-	32
1979 ^f	-	-	-	155	-	155	0	-	0	155	-	155
1980	-	-	-	-	-	^g	^g	-	^g	30	-	30
1981	-	-	-	0	-	0	0	-	0	0	-	0
1982	-	-	-	0	-	0	15	-	15	15	-	15
1983	-	-	-	0	-	0	0	-	0	0	-	0
1984	-	-	-	412	-	412	683	-	683	1,095	-	1,095
1985	-	-	-	153	-	153	785	-	785	938	-	938
1986	-	-	-	0	-	0	0	-	0	0	-	0
1987	-	-	-	0	-	0	0	-	0	0	-	0
1988	-	-	-	2	-	2	0	-	0	2	-	2
1989	-	-	-	0	-	0	3	-	3	3	-	3
1990	-	-	-	0	0	0	0	0	0	0	0	0
1991	-	-	-	11	0	11	3	0	3	14	0	14
1992	-	-	-	0	0	0	0	0	0	0	0	0
1993	-	-	-	0	0	0	0	0	0	0	0	0
1994	-	-	-	0	0	0	0	0	0	0	0	0
1995	-	-	-	0	0	0	0	0	0	0	0	0
1996	-	-	-	161	0	161	0	0	0	161	0	161
1997	-	-	-	19	0	19	795	0	795	814	0	814
1998	-	-	-	0	0	0	0	0	0	0	0	0
1999	-	-	-	0	0	0	0	0	0	0	0	0
2000	-	-	-	0	0	0	0	0	0	0	0	0
1995-1999												
Average	-	-	-	36	0	36	159	0	159	195	0	195

a Harvest reports in numbers of fish sold in the round.

b Pounds of salmon roe sold. Since 1990, efforts were made to separate coho salmon roe from the fall chum salmon roe sold.

c The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold. Prior to 1990, the roe expansion assumed 1.0 pounds of roe per female. Since 1990, the estimated number of females that produce the roe sold is based on a District 4 sampling program that estimated average roe weight per female by period.

d 1977 was the last year Subdistrict 4-A (Statistical Area 334-41) by regulation was allowed a late season.

f In 1979, Statistical Area 334-42 was subdivided into Statistical Areas 334-42 and 334-43.

g Information not available.

Appendix C.19. Commercial coho salmon sales and estimated harvest by statistical area, District 6, Upper Yukon Area, 1974 to 2000.

Year	334-61			334-62			334-63			Total		
	Number ^a	Roe ^b	Harvest ^c	Number ^a	Roe ^b	Harvest ^c	Number ^a	Roe ^b	Harvest ^c	Number ^a	Roe ^b	Harvest ^c
1974	d	-	d	d	-	d	d	-	d	1,479	-	1,479
1975	0	-	0	0	-	0	53	-	53	53	-	53
1976	d	-	d	d	-	d	d	-	d	1,103	-	1,103
1977	252	-	252	766	-	766	266	-	266	1,284	-	1,284
1978	521	-	521	2,450	-	2,450	95	-	95	3,066	-	3,066
1979	465	-	465	2,059	-	2,059	267	-	267	2,791	-	2,791
1980	423	-	423	632	-	632	171	-	171	1,226	-	1,226
1981	535	-	535	1,335	-	1,335	414	-	414	2,284	-	2,284
1982	1,004	-	1,004	6,449	-	6,449	327	-	327	7,780	-	7,780
1983	745	-	745	5,048	-	5,048	375	-	375	6,168	-	6,168
1984	1,608	-	1,608	5,360	-	5,360	720	-	720	7,688	-	7,688
1985	432	-	432	9,628	-	9,628	1,702	-	1,702	11,762	-	11,762
1986	30	-	30	370	-	370	41	-	41	441	-	441
1987	0	-	0	0	-	0	0	-	0	0	-	0
1988	1,240	-	1,240	10,372	-	10,372	2,360	-	2,360	13,972	-	13,972
1989	2,818	-	2,818	10,181	-	10,181	3,085	-	3,085	16,084	-	16,084
1990	3,173	0	3,173	7,096	3,559	9,951	1,280 ^f	483	1,680	11,549	4,042	14,804
1991	0	0	0	4,572	3,737	7,620	1,696	562	2,154	6,268	4,299	9,774
1992	0	0	0	5,731	1,267	6,800	825	413	1,179	6,556	1,680	7,979
1993	0	0	0	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	5,398	4,184	120	190	267	120	5,588	4,451
1995	1,475	0	1,475	4,209	2,072	5,156	142	157	269	5,826	2,229	6,900
1996	182	0	182	3,403	4,571	6,557	218	258	403	3,803	4,829	7,142
1997	0	0	0	0	0	0	0	0	0	0	0	0
1998	0	0	0	0	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0	0	0	0
1995-1999												
Average	331	0	331	1,522	1,329	2,343	72	83	134	1,926	1,412	2,808

a Harvest reports in numbers of fish sold in the round.

b Pounds of salmon roe sold. Since 1990, efforts were made to separate coho salmon roe from the fall chum salmon roe sold.

c The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold. Prior to 1990, the roe expansion assumed 1.0 pound of roe per female. Since 1990, the estimated number of females that produce the roe sold is based on a District 6 sampling program that estimated average roe weight per female by period.

d Information not available.

f Does not include 438 female coho salmon sold with roe extracted and roe sold separately. Females are accounted for in the roe expansion calculation.

Appendix C.20. Summary of test fish wheel projects conducted in the Upper Yukon Area, 2000.

TEST FISH WHEEL PROJECTS	CONTRACTOR/ Operator	River Mile a	Operational Dates	Total Days of Operation	Estimated Total Salmon Captured b				Historical Data / Comments
					Chinook	Summer Chum	Fall Chum	Coho	
YUKON RIVER									
Tanana Village Test Fish Wheel Left Bank	BSFA B. Filris	690	Aug-15 to Sep-27	44	-	-	2,581	2,858	Ninth year of project. Also operated as Toklat CWT recovery wheel (1996-2000).
Yukon River (Rapids) Tag Deployment Fish Wheels	USFWS								
Right Bank	S. Zuray	731	Jul-31 to Aug-19	20	-	-	1,912	-	Fifth year of the project.
Left Bank	S. Zuray	731	Jul-31 to Aug-19	20	-	-	2,286	-	Fifth year of the project.
Both Banks Combined							4,198 c		
Yukon River (Rampart) Tag Recovery Fish Wheels	USFWS								
Right Bank	P. Evans	763	Jul-26 to Sep-24	30	-	-	4,365	-	Fifth year of the project.
TANANA RIVER									
Lower Tanana Tag Deployment Fish Wheel	ADF&G								
Right Bank	C. Boulding	793	Aug-18 to Sep-29	43	-	-	2,066	1,071	Sixth year of operation as the fall chum salmon tag deployment fish wheel (1995-2000).
Nenana Test and Recovery Fish Wheel	ADF&G								
Right Bank (Test / Recovery)	J. Duyck	859	Jul-4 to Aug-5 Aug-18 to Oct-2	33 46	184 -	446 -	- 1,200 f	- 1,735	Thirteenth year of project. Also operated as a fall chum salmon tag recovery fish wheel (1995-2000).
KANTISHNA / TOKLAT RIVERS									
Lower Kantishna River Tag Deployment Fish Wheel	BSFA/ADF&G								
Left Bank	D. Bowers	802	Aug-16 to Sep-25	41	-	-	1,053	155	Second year of operation.
Upper Kantishna River Tag Recovery Fish Wheel									
Right Bank	M. Turner		Aug-16 to Oct-2	48	-	-	320	619	First year of operation.
Toklat River Tag and Coded Wire Recovery Fish Wheels	ADF&G								
Right Bank	ADF&G Crew	846	Aug-18 to Sep-28	42	-	-	411	36	Fourth year of project (1997-2000).
Left Bank	ADF&G Crew	846	Aug-18 to Sep-28	42	-	-	420	201	Fifth year of project (1997-2000).

a Estimated river miles from the mouth of the Yukon River.

b Unless otherwise noted, fish wheel catch are adjusted to estimate total catch (i.e., less than or greater than 24 hour catches adjusted to reflect a 24 hour catch).

c Actual fall chum and coho salmon catch totals (not adjusted for hours not operated).

d Estimated summer chum salmon totals include all chum salmon caught prior to August 16.

f Estimated fall chum salmon totals include all chum salmon caught after August 15.

APPENDIX D

YUKON RIVER SALMON SUBSISTENCE AND PERSONAL USE

Appendix D.1 Estimated chinook salmon subsistence harvest by fishing district and by community of residence, Yukon Area, 1989-2000. a

Community	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	1990-1994 Average	1995-1999 Average
Hooper Bay	14 b			503	230	157	1,500	1,127	613	13	173	114	297 c	685
Scammon Bay	2 b			948	1,199	668	585	1,238	526	378	938	449	938 c	733
Coastal District Subtotal	16			1,451	1,429	825	2,085	2,365	1,139	391	1,111	563	1,235	1,418
Sheldon Point	165	756	445	388	561	606	459	450	970	527	855	684	551	652
Alakanuk	820	871	1,044	623	2,562	1,045	1,191	662	2,058	1,930	1,236	1,109	1,229	1,415
Emmonak	1,598	1,873	1,311	2,336	4,372	2,384	1,711	702	3,080	2,396	3,337	2,205	2,455	2,245
Kotlik	1,982	3,119	3,125	1,794	2,913	2,505	2,599	1,832	1,442	2,389	1,420	1,893	2,691	1,936
<i>District 1 Subtotal</i>	<i>4,565</i>	<i>6,619</i>	<i>5,925</i>	<i>5,141</i>	<i>10,408</i>	<i>6,540</i>	<i>5,960</i>	<i>3,646</i>	<i>7,550</i>	<i>7,242</i>	<i>6,848</i>	<i>5,891</i>	<i>6,927</i>	<i>6,249</i>
Mountain Village	2,001	1,792	1,171	1,249	3,217	1,511	1,542	1,315	2,081	2,533	2,162	1,715	1,788	1,927
Pitkas Point	592	391	652	851	1,001	469	559	762	793	817	632	753	673	713
St. Marys	1,592	2,085	1,836	1,753	2,042	2,722	2,031	1,766	2,592	2,679	2,150	1,810	2,088	2,244
Pilot Station	1,498	3,786	2,681	1,818	2,661	1,977	1,614	1,811	2,373	1,715	2,715	2,378	2,585	2,046
Marshall	1,464	1,492	1,277	1,403	2,592	2,277	3,291	2,126	1,511	1,711	2,780	3,279	1,808	2,284
<i>District 2 Subtotal</i>	<i>7,147</i>	<i>9,546</i>	<i>7,617</i>	<i>7,074</i>	<i>11,513</i>	<i>8,956</i>	<i>9,037</i>	<i>7,780</i>	<i>9,350</i>	<i>9,455</i>	<i>10,439</i>	<i>9,935</i>	<i>8,941</i>	<i>9,212</i>
Russian Mission	2,367	1,694	1,349	1,282	3,273	1,793	2,450	2,709	1,459	1,314	2,722	1,860	1,878	2,131
Holy Cross	2,379	2,337	1,649	3,491	3,191	4,040	2,808	3,953	3,472	2,648	4,581	1,249	2,942	3,492
Shageluk	32	62	189	218	128	291	161	121	1,380	552	412	805	178	525
<i>District 3 Subtotal</i>	<i>4,778</i>	<i>4,093</i>	<i>3,187</i>	<i>4,991</i>	<i>6,592</i>	<i>6,124</i>	<i>5,419</i>	<i>6,783</i>	<i>6,311</i>	<i>4,514</i>	<i>7,715</i>	<i>3,914</i>	<i>4,997</i>	<i>6,148</i>
Lower Yukon River Total	16,490	20,258	16,729	17,206	28,513	21,620	20,416	18,209	23,211	21,211	25,002	19,740	20,865	21,610
Anvik	418	481	619	389	663	424	450	768	951	1,025	776	205	515	794
Grayling	1,082	144	874	1,074	1,045	1,843	1,340	1,036	2,391	2,177	2,476	839	996	1,884
Kalltag	1,306	2,244	1,866	1,084	1,260	1,653	1,890	994	1,036	1,870	2,051	1,074	1,621	1,568
Nulato	2,079	2,788	2,500	1,596	1,660	1,735	1,533	1,461	1,576	4,147	1,799	1,083	2,056	2,103
Koyukuk	1,003	876	885	510	853	589	146	402	851	800	506	175	743	541
Galena	1,374	3,134	2,574	1,870	1,732	1,834	1,336	2,770	2,350	1,668	2,539	788	2,229	2,133
Ruby/Kokrines	1,016	811	971	498	3,263	1,539	1,435	557	2,260	3,891	777	1,577	1,416	1,784
<i>District 4 Yukon River Subtotal (Excluding the Koyukuk River)</i>	<i>8,278</i>	<i>10,478</i>	<i>10,289</i>	<i>7,021</i>	<i>10,476</i>	<i>9,617</i>	<i>8,130</i>	<i>7,988</i>	<i>11,415</i>	<i>15,578</i>	<i>10,924</i>	<i>5,741</i>	<i>9,576</i>	<i>10,807</i>
Huslia	177	198	198	751	232	239	932	67	57	23	90	424	324	234
Hughes	181	90	146	29	88	107 d	77	54	34	91	105	50	92	72
Allakaket	438 f	284	446	395	135	338 d	321	82	423	85	108	41	320	204
Alatna	- f	72	5	42	4	26 d	10	2	38	4	10	8	30	13
Bettles	0	0	16	53	1	0	4	0	39	20	1	0	14	13
<i>Koyukuk River Subtotal</i>	<i>796</i>	<i>644</i>	<i>811</i>	<i>1,270</i>	<i>460</i>	<i>710</i>	<i>1,344</i>	<i>205</i>	<i>591</i>	<i>223</i>	<i>314</i>	<i>523</i>	<i>779</i>	<i>535</i>
<i>District 4 Subtotal</i>	<i>9,074</i>	<i>11,122</i>	<i>11,100</i>	<i>8,291</i>	<i>10,936</i>	<i>10,327</i>	<i>9,474</i>	<i>8,193</i>	<i>12,006</i>	<i>15,801</i>	<i>11,238</i>	<i>6,264</i>	<i>10,355</i>	<i>11,342</i>

-Continued-

Community	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	1990-1994 Average	1995-1999 Average
Tanana	3,008	2,284	2,483	2,477	3,362	2,999	2,398	2,741	3,596	5,212	3,388	2,895	2,721	3,467
Rampart	3,177	1,481	988	2,802	1,956	1,354	1,461	1,751	2,203	885	2,018	847	1,716	1,684
Fairbanks g h	200	420	982	1,394	1,514	1,920	1,447	1,166	955	1,231	851	1,342	1,246	1,130
Stevens Village	3,101	1,295	2,035	1,887	1,754	2,814	2,674	681	2,070	1,232	1,214	466	1,957	1,574
Birch Creek	0	0	196	44	0	119	93	0	373	48	24	72	72	108
Beaver	1,694	721	713	1,564	1,557	850	1,021	886	1,859	470	473	196	1,081	942
Fort Yukon	4,898	4,051	5,585	4,122	6,361	4,727	3,132	4,957	3,145	1,771	2,539	988	4,969	3,109
Circle h	1,785 j	1,767	1,720	1,585	745	1,377	1,145	1,781	1,091	685	524	627	1,439	1,216
Central h	- j	184	151	167	210	240	171	131	146	170	91	26	190	172
Eagle h	2,385	1,742	1,193	1,040	753	1,234	1,886	1,092	1,534	2,473	2,558	1,087	1,192	1,909
Other h k		615	374	571	437	602	1,004	377	763	446	488	205	520	616
<i>District 5 Yukon River Subtotal (Excluding Chandalar/Black Rivers)</i>	20,248	14,560	16,420	17,653	18,649	18,236	16,432	15,563	17,735	14,623	14,168	8,751	17,104	15,704
Venetie	88	29	9	35	2,716	524	434	134	314	168	127	103	663	235
Chalkyitsik	0	0	0	3	0	0	0	30	0	11	35	0	1	15
<i>Chandalar/Black Rivers Subtotal</i>	88	29	9	38	2,716	524	434	164	314	179	162	103	663	251
<i>District 5 Subtotal</i>	20,336	14,589	16,429	17,691	21,365	18,760	16,866	15,727	18,049	14,802	14,330	8,854	17,767	15,955
Manley h	992	1,169	401	551	238	480	335	134	242	209	136	58	568	211
Minto h	366	100	134	142	468	316	535	523	1,208	275	317	0	232	572
Nenana h	1,188	1,265	1,599	1,267	693	759	607	423	1,082	1,187	975	541	1,117	855
Fairbanks h m	0	84	378	402	273	775	285	97	176	230	195	360	382	197
Other h n	0	0	3	76	0	40	17	0	4	18	1	24	24	8
<i>District 6 Tanana River Subtotal</i>	2,546	2,618	2,515	2,438	1,672	2,370	1,779	1,177	2,712	1,919	1,624	983	2,323	1,842
Upper Yukon River Total	31,956	28,329	30,044	28,420	33,973	31,457	28,119	25,097	32,767	32,522	27,192	16,101	30,445	29,139
Alaska, Yukon River Total p	48,446	48,587	46,773	45,626	62,486	53,077	48,535	43,306	55,978	53,733	52,194	35,841	51,310	50,749
Alaska, Yukon Area Total	48,462	48,587	46,773	47,077	63,915	53,902	50,620	45,671	57,117	54,124	53,305	36,404	52,051	52,167

a Historic estimated subsistence harvests are available in each year's respective Yukon Area Annual Management Report (1961 to 1999). Beginning in 1988 subsistence salmon harvest estimates have been generated from a stratified random sample of village households. Estimates include test fish catches given away. Blanks indicate harvest information was not collected.

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

c Average harvest includes 1992, 1993 and 1994.

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

f Alatna and Allakaket harvests combined in 1989.

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

h In 1988 and 1989, permit and household interview data were expanded for permits not returned. Beginning in 1990, reported harvest is from returned permits only.

j Circle and Central harvests are combined in 1989.

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

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

n Other permit holders who fished in District 6 but did not reside in the communities listed.

p Does not include the Coastal District.

Appendix D.2 Estimated summer chum salmon subsistence harvest by fishing district and by community of residence, Yukon Area, 1989-2000. a

Community	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	1990-1994 Average	1995-1999 Average
Hooper Bay	2,293 b			12,900	16,106	10,556	13,374	15,870	12,310	261	10,146	9,301	13,187 c	10,392
Scammon Bay	48 b			3,795	4,692	4,347	3,986	6,365	3,401	1,101	3,315	3,876	4,278 c	3,634
Coastal District Subtotal	2,341			16,695	20,798	14,903	17,360	22,235	15,711	1,362	13,461	13,177	17,465	14,026
Sheldon Point	4,314	1,458	2,226	1,415	2,362	1,941	2,979	2,634	2,603	1,872	1,343	3,309	1,880	2,286
Alakanuk	12,108	7,265	8,058	9,951	8,935	5,947	10,538	6,171	7,443	5,643	3,808	6,259	8,885	6,721
Emmonak	22,985	15,215	8,401	12,296	15,568	13,060	11,696	6,097	12,399	9,558	10,310	8,338	14,166	10,012
Kotlik	13,437	13,061	9,105	9,577	7,121	11,197	9,777	12,387	4,803	9,815	4,708	6,173	10,188	8,298
District 1 Subtotal	52,844	36,999	27,790	33,239	33,986	32,145	34,990	27,289	27,248	26,888	20,169	24,079	35,118	27,317
Mountain Village	15,869	9,950	4,743	7,864	10,505	3,938	10,554	9,285	11,310	9,596	10,059	7,074	7,400	10,161
Pitkas Point	4,176	1,438	1,452	759	1,481	1,103	1,665	1,619	747	1,302	849	1,728	1,247	1,236
St. Marys	8,948	8,077	7,832	7,796	5,925	10,128	5,950	6,736	8,874	9,047	6,752	8,094	7,952	7,472
Pilot Station	6,783	6,698	4,634	6,236	5,641	5,450	4,427	6,355	4,532	5,042	5,265	5,223	5,732	5,124
Marshall	3,927	2,290	2,042	2,076	1,745	2,288	4,594	4,431	1,508	1,293	1,212	3,212	2,088	2,608
District 2 Subtotal	39,703	28,453	20,703	24,731	25,297	22,907	27,190	28,426	26,971	26,280	24,137	25,331	24,418	26,601
Russian Mission	2,229	2,146	837	3,331	1,838	801	3,653	3,554	585	702	616	1,318	1,791	1,822
Holy Cross	1,753	857	1,028	1,001	1,517	1,479	948	1,700	487	269	264	569	1,176	734
Shageluk	8,842	6,518	3,680	5,267	4,183	6,212	7,542	6,114	9,244	5,501	4,868	1,800	5,172	6,654
District 3 Subtotal	12,824	9,521	5,545	9,599	7,538	8,492	12,143	11,368	10,316	6,472	5,748	3,687	8,139	9,209
Lower Yukon River Total	105,371	74,973	54,038	67,569	66,821	63,544	74,323	67,083	64,535	59,640	50,054	53,097	67,676	63,127
Anvik	410	2,032	876	1,142	1,735	907	9	185	6,306	2,139	848	425	1,338	1,897
Grayling	14,570	1,430	8,094	3,605	1,137	1,418	3,385	587	2,446	4,032	4,126	474	3,137	2,915
Kallag	632	6,956	2,287	1,204	1,116	3,683	139	31	73	175	625	169	3,049	209
Nulato	200	502	159	889	15	975	228	1,003	115	3,518	1,945	377	508	1,362
Koyukuk	381	283	2,326	1,130	230	2,039	315	41	739	1,819	197	204	1,202	622
Galena	6,216	1,760	3,493	3,232	2,477	1,198	1,954	3,902	4,575	2,333	1,688	820	2,432	2,890
Ruby/Kokrines	1,844	351	1,352	2,420	1,459	4,586	4,445	2,016	3,286	2,251	1,697	1,233	2,034	2,739
District 4 Yukon River Subtotal (Excluding the Koyukuk River)	24,253	13,314	18,587	13,622	8,169	14,806	10,475	7,765	17,540	16,267	11,126	3,702	13,700	12,635
Huslia	10,005	7,368	7,857	13,670	8,343	6,014	4,885	2,372	840	449	1,192	745	8,650	1,948
Hughes	3,687	509	1,257	1,625	827	1,581 d	2,448	1,411	1,579	334	577	1,079	1,160	1,270
Allakaket	2,915 f	5,247	6,451	6,368	2,651	4,693 d	6,396	4,668	3,916	901	2,245	1,520	5,082	3,625
Alatna	- f	72	962	490	52	365 d	140	209	145	13	99	0	388	121
Bettles	75	24	155	37	34	45	740	0	210	82	100	0	59	226
Koyukuk River Subtotal	16,682	13,220	16,682	22,190	11,907	12,698	14,609	8,660	6,690	1,779	4,213	3,344	15,339	7,190
District 4 Subtotal	40,935	26,534	35,269	35,812	20,076	27,504	25,084	16,425	24,230	18,046	15,339	7,046	29,039	19,825

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Community	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	1990-1994 Average	1995-1999 Average
Tanana	7,756	5,905	2,779	4,553	4,245	7,022	3,660	5,190	2,526	1,966	1,214	2,848	4,901	2,911
Rampart	28	58	20	4,494	1,489	559	1,168	1,188	738	19	60	47	1,324	635
Fairbanks g h	0	25	1,068	706	465	360	722	2,958	424	57	346	275	525	901
Stevens Village	2,375	1,671	1,385	460	653	459	158	530	191	171	26	50	926	215
Beaver	124	108	2,355	12	134	655	36	572	2	15	91	7	653	143
Fort Yukon j	1,760	145	11,974	1,700	3,830	2,043	998	26	134	30	0	0	3,938	238
Circle h	361 k	1,262	51	265	83	98	70	271	257	1	60	109	352	132
Central h	- k	5	0	91	2	8	2	53	25	1	0	1	21	16
Eagle h	547	361	607	23	32	38	57	105	17	52	271	121	212	100
Other h m		187	32	291	24	21	232	616	130	2	42	51	111	204
<i>District 5 Yukon River Subtotal (Excluding Chandalar/Black Rivers)</i>	12,951	9,727	20,271	12,595	10,957	11,263	7,103	11,509	4,444	2,314	2,110	3,509	12,963	5,496
Venetie	30	0	3,393	0	129	567	552	0	76	0	166	0	818	159
Chalkyitsik	0	90	500	17	0	0	0	0	0	0	0	132	121	0
<i>Chandalar/Black Rivers Subtotal</i>	30	90	3,893	17	129	567	552	0	76	0	166	132	939	159
<i>District 5 Subtotal</i>	12,981	9,817	24,164	12,612	11,086	11,830	7,655	11,509	4,520	2,314	2,276	3,641	13,902	5,655
Manley h	2,457	2,250	1,716	850	1,310	1,405	1,657	1,219	576	211	272	240	1,506	787
Minto h	1,425	500	748	625	367	509	1,320	1,421	1,056	148	173	3	550	824
Nenana h	3,986	1,383	1,499	6,372	5,019	1,352	5,043	4,411	1,899	5,041	1,894	775	3,125	3,658
Fairbanks h n	0	152	1,096	1,342	97	3,693	3,528	392	271	604	315	90	1,276	1,022
Other h p	0	0	10	315	0	67	113	43	22	0	0	3	78	36
<i>District 6 Tanana River Subtotal</i>	7,868	4,285	5,069	9,504	6,793	7,026	11,661	7,486	3,824	6,004	2,654	1,111	6,535	6,326
Upper Yukon River Total	61,784	40,636	64,502	57,928	37,955	46,360	44,400	35,420	32,574	26,364	20,269	11,798	49,476	31,805
Alaska, Yukon River Total r	167,155	115,609	118,540	125,497	104,776	109,904	118,723	102,503	97,109	86,004	70,323	64,895	117,152	94,932
Alaska, Yukon Area Total	169,496	115,609	118,540	142,192	125,574	124,807	136,083	124,738	112,820	87,366	83,784	78,072	134,617	108,958

a Historic estimated subsistence harvests are available in each year's respective Yukon Area Annual Management Report (1961 to 1999). Beginning in 1988 subsistence salmon harvest estimates have been generated from a stratified random sample of village households. Estimates include test fish catches given away. District 4 summer chum salmon subsistence harvest estimates prior to 1988 and Districts 5 and 6 prior to 1989 included commercially caught summer chum salmon carcasses retained for subsistence use. Beginning in 1988 and 1989, efforts were made to exclude commercial carcasses from subsistence harvest estimates. Blanks indicate harvest information was not collected.

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

c Average harvest includes 1992, 1993 and 1994.

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

f Alatna and Allakaket harvests are combined in 1989.

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

h In 1988 and 1989, permit and household interview data were expanded for permits not returned. Beginning in 1990, reported harvest is from returned permits only.

j Includes Birch Creek except in 1990 and 1991. A harvest of one summer chum salmon was estimated in 1997.

k Circle and Central harvests are combined in 1989.

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

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

p Other permit holders who fished in District 6 but did not reside in the communities listed.

r Does not include the Coastal District.

Appendix D.3 Estimated fall chum salmon subsistence harvest by fishing district and by community of residence, Yukon Area, 1989-2000. a

Community	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	1990-1994 Average	1995-1999 Average
Hooper Bay	146 b			127	113	284	207	392	0	0	0	78	175 c	120
Scammon Bay	10 b			79	7	63	147	0	0	34	204	11	50 c	49
Coastal District Subtotal	156			206	120	347	354	392	0	34	204	89	224	169
Sheldon Point	586	102	84	490	158	25	256	21	337	266	115	105	172	199
Alakanuk	430	267	193	401	182	73	631	100	900	665	558	505	223	571
Emmonak	840	2,353	2,027	1,628	1,507	3,441	1,614	1,501	1,039	867	1,849	1,165	2,191	1,374
Kotlik	3,058	2,613	1,631	2,697	5,923	1,348	2,197	2,525	856	1,365	3,980	3,519	2,842	2,185
District 1 Subtotal	4,914	5,335	3,935	5,216	7,770	4,887	4,698	4,147	3,132	3,163	6,502	5,294	5,429	4,328
Mountain Village	4,641	1,566	1,473	1,052	1,113	797	1,347	1,366	2,698	2,031	1,968	313	1,200	1,882
Pitkas Point	275	150	610	77	268	294	99	603	178	233	53	5	280	233
St. Marys	1,695	806	1,592	2,356	440	1,062	542	658	310	416	722	255	1,251	530
Pilot Station	1,872	1,941	1,062	1,170	1,017	1,527	575	448	1,106	1,162	1,155	852	1,343	889
Marshall	1,532	1,724	891	2,727	256	471	754	2,212	388	640	696	0	1,214	938
District 2 Subtotal	10,015	6,187	5,628	7,382	3,094	4,151	3,317	5,287	4,680	4,482	4,594	1,425	5,288	4,472
Russian Mission	308	878	425	648	172	11	865	587	0	137	100	37	427	338
Holy Cross	711	1,178	190	845	1,066	665	681	1,814	420	1,095	239	523	789	850
Shageluk	4	0	0	865	211	186	126	305	367	329	76	38	252	241
District 3 Subtotal	1,023	2,056	615	2,358	1,449	862	1,672	2,706	787	1,561	415	598	1,468	1,428
Lower Yukon River Total	15,952	13,578	10,178	14,956	12,313	9,900	9,687	12,140	8,599	9,206	11,511	7,317	12,185	10,229
Anvik	168	583	452	894	420	155	269	457	514	388	126	175	501	351
Grayling	830	1,405	3,616	2,993	2,083	811	1,155	1,759	1,531	648	1,370	284	2,182	1,293
Kaltag	1,654	2,327	2,834	2,522	704	630	644	1,049	1,142	499	764	190	1,803	820
Nulato	2,436	3,546	1,637	1,910	571	1,109	1,137	2,299	697	367	2,338	0	1,755	1,368
Koyukuk	2,460	860	2,761	2,817	2,052	1,049	814	2,458	1,954	1,583	1,544	239	1,908	1,671
Galena	6,436	3,202	5,525	2,393	3,255	3,963	3,202	6,620	3,370	1,915	1,932	564	3,668	3,408
Ruby/Kokrines	6,599	3,352	2,856	4,499	1,085	5,553	4,695	561	2,195	2,427	907	64	3,469	2,157
District 4 Yukon River Subtotal (Excluding the Koyukuk River)	20,583	15,275	19,681	18,028	10,170	13,270	11,916	15,203	11,403	7,827	8,981	1,516	15,285	11,066
Huslia	1,728	846	411	1,286	258	55	1,035	298	10	0	89	35	571	286
Hughes	260	70	270	325	169	0 d	263	274	51	60	84	157	167	146
Allakaket	1,969 f	2,470	475	1,452	233	0 d	260	961	270	11	20	36	926	304
Alatna	- f	580	38	127	2	0 d	0	0	0	0	0	15	149	0
Bettles	0	0	0	14	0	0	583	50	0	0	0	0	3	127
Koyukuk River Subtotal	3,957	3,966	1,194	3,204	662	55	2,141	1,583	331	71	193	243	1,816	864
District 4 Subtotal	24,540	19,241	20,875	21,232	10,832	13,325	14,057	16,786	11,734	7,898	9,174	1,759	17,101	11,930

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Community	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	1990-1994 Average	1995-1999 Average
Tanana	40,845	41,145	40,868	19,365	23,103	34,681	14,409	21,420	25,058	24,956	22,305	9,384	31,832	21,630
Rampart	2,472	10,818	5,801	5,701	3,272	1,007	1,403	896	646	100	4,324	0	5,320	1,474
Fairbanks g h	7	82	2,022	2,491	930	2,870	2,184	2,727	491	96	681	8	1,679	1,236
Stevens Village	6,633	3,857	2,481	150	862	45	3,194	991	1,585	1,076	20	10	1,479	1,373
Beaver	7,242	757	7	361	692	2,069	1,231	9	243	409	16	0	777	382
Ft. Yukon j	27,790	11,627	7,467	2,284	2,380	6,827	9,196	8,144	6,119	3,035	9,702	355	6,117	7,239
Circle h	4,478 k	6,639	6,340	6,279	349	4,581	5,102	5,308	3,707	37	2,722	0	4,838	3,375
Central h	- k	165	73	100	0	0	0	132	0	0	0	0	68	26
Eagle h	11,557	8,027	7,985	5,630	2,070	8,263	13,115	14,916	14,488	543	11,292	32	6,395	10,871
Other h m		529	100	0	1,750	0	830	505	421	50	65	1	476	374
<i>District 5 Yukon River Subtotal (Excluding Chandalar/Black Rivers)</i>	101,024	83,646	73,144	42,361	35,408	60,343	50,664	55,048	52,758	30,302	51,127	9,790	58,980	47,980
Venetie	7,977	5,377	758	3,066	7,881	4,302	6,085	7,195	1,564	658	2,011	130	4,277	3,503
Chalkyitsik	3,000	1,490	100	274	475	1,751	845	1,230	936	433	442	0	818	777
<i>Chandalar/Black Rivers Subtotal</i>	10,977	6,867	858	3,340	8,356	6,053	6,930	8,425	2,500	1,091	2,453	130	5,095	4,280
<i>District 5 Subtotal</i>	112,001	90,513	74,002	45,701	43,764	66,396	57,594	63,473	55,258	31,393	53,580	9,920	64,075	52,260
Manley h	21,087	25,860	13,243	7,010	3,215	13,722	20,272	10,662	5,887	4,411	5,172	0	12,610	9,281
Minto h	2,005	3,652	5,276	3,017	301	1,419	4,782	4,381	2,361	505	781	2	2,733	2,562
Nenana h	25,340	12,464	17,932	13,253	5,929	11,201	15,500	14,207	3,799	6,781	5,619	8	12,156	9,181
Fairbanks h n	0	309	1,671	1,394	56	5,006	6,384	5,736	4,031	960	1,630	0	1,687	3,748
Other h p	10,222	2,283	2,347	1,039	352	2,249	2,230	1,481	3,472	1,713	2,269	300	1,654	2,233
<i>District 6 Tanana River Subtotal</i>	58,654	44,568	40,469	25,713	9,853	33,597	49,168	36,467	19,550	14,370	15,471	310	30,840	27,005
Upper Yukon River Total	195,195	154,322	135,346	92,646	64,449	113,318	120,819	116,726	86,542	53,661	78,225	11,989	112,016	91,195
Alaska, Yukon River Total q	211,147	167,900	145,524	107,602	76,762	123,218	130,506	128,866	95,141	62,867	89,736	19,306	124,201	101,423
Alaska, Yukon Area Total	211,303	167,900	145,524	107,808	76,882	123,565	130,860	129,258	95,141	62,901	89,940	19,395	124,426	101,592

a Historic estimated subsistence harvests are available in each year's respective Yukon Area Annual Management Report (1961 to 1999). Beginning in 1988 subsistence salmon harvest estimates have been generated from a stratified random sample of village households. Estimates include test fish catches given away. Blanks indicate harvest information was not collected.

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

c Average harvest includes 1992, 1993 and 1994.

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

f Alatna and Allakaket harvests are combined in 1989.

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

h In 1988 and 1989, permit and household interview data were expanded for permits not returned. Beginning in 1990, reported harvest is from returned permits only.

j Includes Birch Creek except in 1990 and 1991. A harvest of zero fall chum salmon has been estimated in all years surveyed.

k Circle and Central harvests are combined in 1989.

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

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

p Other permit holders who fished in District 6 but did not reside in the communities listed.

q Does not include the Coastal District.

Appendix D.4 Estimated coho salmon subsistence harvest by fishing district and by community of residence, Yukon Area, 1989-2000. a

Community	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	1990-1994 Average	1995-1999 Average
Hooper Bay	211 b			28	0	1	48	92	0	145	68	218	10 c	71
Scammon Bay	2 b			31	40	80	104	0	0	204	0	4	50 c	62
Coastal District Subtotal	213			59	40	81	152	92	0	349	68	222	60	132
Sheldon Point	487	78	35	441	78	52	419	138	51	229	51	5	137	178
Alakanuk	334	156	391	966	138	94	658	103	882	292	108	84	349	409
Emmonak	1,259	1,283	801	666	196	959	485	594	356	696	525	191	781	531
Kotlik	2,997	1,784	581	3,353	1,931	2,167	689	1,610	534	954	1,046	787	1,963	967
District 1 Subtotal	5,077	3,301	1,808	5,426	2,343	3,272	2,251	2,445	1,823	2,171	1,730	1,067	3,230	2,084
Mountain Village	2,385	1,754	868	1,971	447	968	921	276	1,089	954	665	376	1,202	781
Pitkas Point	601	52	347	641	349	364	554	691	427	305	302	139	351	456
St. Marys	370	463	1,270	2,130	102	614	154	292	329	290	536	117	916	320
Pilot Station	379	1,968	553	300	477	811	241	1,258	323	413	249	1,708	822	497
Marshall	1,304	2,107	259	1,545	320	1,124	272	958	256	335	1,041	11	1,071	572
District 2 Subtotal	5,039	6,344	3,297	6,587	1,695	3,881	2,142	3,475	2,424	2,297	2,793	2,351	4,361	2,626
Russian Mission	20	688	396	1,148	152	55	891	255	10	233	542	24	488	386
Holy Cross	517	338	944	105	88	171	0	0	20	100	62	70	329	36
Shageluk	0	0	0	296	39	137	0	189	736	67	6	0	94	200
District 3 Subtotal	537	1,026	1,340	1,549	279	363	891	444	766	400	610	94	911	622
Lower Yukon River Total	10,653	10,671	6,445	13,562	4,317	7,516	5,284	6,364	5,013	4,868	5,133	3,512	8,502	5,332
Anvik	40	236	347	202	115	95	10	44	24	20	282	0	199	76
Grayling	969	10	1,363	859	164	36	97	236	1,055	133	201	372	486	344
Kaltag	792	501	1,260	2,105	334	245	426	298	60	71	333	110	889	238
Nulato	276	845	75	435	37	27	25	149	444	34	170	60	284	164
Koyukuk	110	162	307	1,877	70	305	33	476	345	421	295	138	544	314
Galena	415	572	422	1,398	124	803	275	780	1,002	322	123	71	664	500
Ruby/Kokrines	1,069	974	410	1,299	308	1,957	607	376	474	1,459	620	173	990	707
District 4 Yukon River Subtotal (Excluding the Koyukuk River)	3,671	3,300	4,184	8,175	1,152	3,468	1,473	2,359	3,404	2,460	2,024	924	4,056	2,344
Huslia	150	235	150	233	9	47	307	18	50	128	15	132	135	104
Hughes	91	43	9	21	3	0 d	153	51	250	5	10	12	15	94
Allakaket	118	31	25	0	3	0 d	0	39	50	0	0	0	12	18
Alatna	0	5	83	0	0	0 d	0	0	0	0	0	0	18	0
Bettles	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Koyukuk River Subtotal	359	314	267	254	15	47	461	108	350	133	25	144	179	215
District 4 Subtotal	4,030	3,614	4,451	8,429	1,167	3,515	1,934	2,467	3,754	2,593	2,049	1,068	4,235	2,559

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Community	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	1990-1994 Average	1995-1999 Average
Tanana	5,518	8,580	4,448	11,406	5,576	2,587	2,154	6,110	3,045	2,572	3,989	4,826	6,519	3,574
Rampart	87	591	58	75	38	99	0	5	34	20	126	0	172	37
Fairbanks f g	0	5	8	34	0	25	18	42	26	11	0	2	14	19
Stevens Village	208	479	0	20	0	0	1	2	1	63	0	0	100	13
Beaver	774	172	1	398	135	10	20	7	0	0	0	0	143	5
Fort Yukon h	406	727	380	341	5	963	4	157	251 j	39	124	129	483	115
Circle g	1	201	5	54	10	30	0	0	210	0	0	0	60	42
Central g	0	5	0	0	0	0	0	0	0	0	0	0	1	0
Eagle g	0	0	0	3	85	0	1	1	2	132	0	0	18	27
Other g j	165	450	12	0	0	0	7	0	0	2	2	30	92	2
District 5 Yukon River Subtotal (Excluding Chandalar/Black Rivers)	7,159	11,210	4,912	12,331	5,849	3,714	2,205	6,324	3,569	2,839	4,241	4,987	7,603	3,836
Venetie	2	348	12	45	135	4	0	264	7	0	0	0	109	54
Chalkyitsik	26	4	7	0	0	456	0	0	7	0	0	0	93	1
Chandalar/Black River Subtotal	28	352	19	45	135	460	0	264	14	0	0	0	202	56
District 5 Subtotal	7,187	11,562	4,931	12,376	5,984	4,174	2,205	6,588	3,583	2,839	4,241	4,987	7,805	3,891
Manley g	5,310	7,574	6,361	4,725	1,535	10,410	7,395	2,462	3,236	2,362	3,244	2,180	6,121	3,740
Minto g	1,179	818	526	614	300	2,616	338	1,223	364	31	0	3	975	391
Nenana g	7,593	7,381	10,171	8,895	1,314	9,387	7,142	7,883	5,147	3,519	4,023	1,767	7,430	5,543
Fairbanks g k	0	66	2,501	2,281	0	2,103	3,076	2,314	1,230	786	868	0	1,390	1,655
Other g m	4,759	1,774	2,002	1,039	1,155	1,973	851	1,011	1,618	774	1,259	1,200	1,589	1,103
District 6 Tanana River Subtotal	18,841	17,613	21,561	17,554	4,304	26,489	18,802	14,893	11,595	7,472	9,394	5,150	17,504	12,431
Upper Yukon Area Total	30,058	32,789	30,943	38,359	11,455	34,178	22,941	23,948	18,932	12,904	15,684	11,205	29,545	18,882
Alaska, Yukon River Total n	40,711	43,460	37,388	51,921	15,772	41,694	28,225	30,312	23,945	17,772	20,817	14,717	38,047	24,214
Alaska, Yukon Area Total	40,924	43,460	37,388	51,980	15,812	41,775	28,377	30,404	23,945	18,121	20,885	14,939	38,107	24,346

a Historic estimated subsistence harvests are available in each year's respective Yukon Area Annual Management Report (1961 to 1999). Beginning in 1988 subsistence salmon harvest estimates have been generated from a stratified random sample of village households. Estimates include test fish catches given away. Blanks indicate harvest information was not collected.

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

c Average harvest includes 1992 and 1993, 1994.

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

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

g In 1989, permit and household interview data were expanded for permits not returned. Beginning in 1990, reported harvest is from returned permits only.

h Includes Birch Creek except in 1990 and 1991. A harvest of three coho salmon was estimated in 1997.

j Other permit holders who fished in District 5 but did not reside in the communities listed.

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

m Other permits holders who fished in District 6 but did not reside in the communities listed.

n Does not include the Coastal District.

Appendix D.5. Subsistence salmon harvests taken under authority of a permit in portions of District 5, Yukon Area, 1974-2000. a

Yukon River "Bridge" Area Subsistence Salmon Fishery b							
Year	Number of Permits Issued	Number of Permits Returned	Number Reporting Harvest	Reported Harvest			Coho
				Chinook	Summer Chum c	Fall Chum c	
1974	29	-	-	591	-	1,857	1,271
1975	19	-	-	727	-	778	70
1976	28	-	18	531	-	974	-
1977	38	-	-	467	-	2,567	-
1978	57	-	-	1,333	-	9,735	-
1979	55	-	41	2,194	-	12,374	-
1980	70	-	67	1,350	-	6,488	36
1981	57	-	24	1,095	-	12,034	-
1982	64	-	44	1,935	-	11,328	20
1983	68	-	46	2,672	-	15,059	-
1984	67	-	54	4,676	-	27,869	399
1985	55	-	42	2,618	-	21,832	33
1986	76	-	58	3,827	-	18,690	759
1987	16	-	14	1,818	2,091	7,631	6
1988	24	21	18	1,747	2,097	3,183	606
1989	26	20	13	2,483	574	1,157	309
1990	26	25	16	2,033	3,493	1,109	455
1991	52	46	34	2,529	1,295	3,953	20
1992	45	42	33	2,241	975	2,491	34
1993	49	47	36	3,767	492	2,915	16
1994	50	49	36	3,073	384	2,911	25
1995	59	59	39	3,253	954	2,244	59
1996	47	45	31	1,157	3,475	2,727	42
1997	44	42	28	1,588	683	491	26
1998	48	47	31	1,685	103	156	15
1999	66	64	47	1,653	356	701	2
2000	56	52	33	1,607	324	8	32
1995-1999 Average							
	53	51	35	1,867	1,114	1,264	29
1990-1999 Average							
	49	47	33	2,298	1,221	1,970	69

Upper Yukon River Subsistence Salmon Fishery d							
Year	Number of Permits Issued	Number of Permits Returned	Number Reporting Harvest	Reported Harvest			Coho
				Chinook	Summer Chum c	Fall Chum c	
1979	75	-	6	4,063	-	30,475	114
1980	48	-	39	3,649	-	18,477	6
1981	71	-	51	4,510	-	38,333	-
1982	60	-	61	3,833	-	15,432	-
1983	53	-	52	2,831	-	23,708	-
1984	58	-	54	2,543	-	21,675	17
1985	59	-	36	2,419	-	19,059	2
1986	40	-	52	4,148	-	20,701	43
1987	51	51	58 f	3,602	2,495	27,369	0
1988	58	57	50	2,783	2,134	9,078	101
1989	59	56	42	1,186	68	7,515	1
1990	81	75	54	3,746	1,629	14,992	206
1991	70	69	48	3,219	658	14,898	5
1992	85	79	54	2,984	409	12,009	57
1993	79	79	49	1,910	118	2,419	95
1994	79	76	51	3,093	145	12,844	30
1995	87	87	53	3,628	129	19,047	1
1996	86	84	51	3,458	528	20,861	1
1997	98	93	60	3,148	393	18,616	212
1998	101	95	54	3,562	55	630	132
1999	119	116	71	3,404	364	14,079	0
2000	121	118	47	1,806	233	33	0
1995-1999 Average							
	98	95	58	3,440	294	14,647	69
1990-1999 Average							
	89	85	55	3,215	443	13,040	74

a Prior to 1988 the reported harvest was expanded for permits not returned. Beginning in 1988, reported harvest was not expanded. Dashes in the table indicate the information is not available.

b That portion of the Yukon River drainage from Hess Creek to Dall River.

c Summer chum and fall chum salmon undifferentiated from 1974-1986.

d That portion of the Yukon River drainage from Twenty-Two Mile Slough, above the village of Fort Yukon, to the United States/Canadian border.

f Some fishers reporting harvests did not have permits.

Appendix D.6. Subsistence salmon harvests taken under authority of a permit, Tanana River drainage, 1973-2000. a

Subdistrict 6-A Subsistence Salmon Fishery							
Year	Number of Permits Issued	Number of Permits Returned	Number Reporting Harvest	Reported Harvest			Coho
				Chinook	Summer Chum	Fall Chum	
1988 b	28	24	18	845	1,389	9,165	3,455
1989 b, c	29	28	24 d	651	1,918	25,266	5,292
1990 c	42	36	26	1,369	2,250	27,957	8,408
1991	45	41	31	420	1,716	17,472	8,486
1992	38	35	26	508	450	5,999	5,028
1993 c	42	41	22	331	784	2,617	1,317
1994 f	37	37	30	576	3,793	18,076	12,449
1995	41	38	29	456	4,898	23,522	11,344
1996	31	29	23	209	1,338	18,931	5,959
1997	33	32	21	887	542	10,621	3,703
1998	31	31	19	512	519	4,726	1,526
1999	24	24	14	137	525	5,712	3,464
2000	24	24	12	80	240	0	2,441
1995-1999 Average	32	31	21	440	1,564	12,702	5,199

Subdistrict 6-B Subsistence Salmon Fishery							
Year	Number of Permits Issued	Number of Permits Returned	Number Reporting Harvest	Reported Harvest g			Coho
				Chinook	Summer Chum	Fall Chum	
1988	75	66	52	3,721	3,167	18,902	18,906
1989 h	60	51	37 d	455	363	18,506	8,453
1990 h	70	58	38	1,234	1,966	16,332	9,155
1991 h	87	78	51	1,796	2,373	21,629	11,971
1992 h	98	89	57	1,587	7,820	18,782	11,409
1993	99	89	38	1,341	5,976	7,166	2,987
1994	102	94	49	1,337	2,035	13,726	12,480
1995	98	98	59	1,322	6,712	25,364	7,458
1996	105	96	59	968	6,138	17,439	8,934
1997	103	95	55	1,825	3,282	8,729	7,892
1998	94	84	46	1,407	5,485	9,573	5,937
1999	83	79	47	1,487	2,129	9,757	5,930
2000	81	79	33	903	869	210	2,709
1995-1999 Average	97	90	53	1,402	4,749	14,172	7,230

-Continued-

Upper Tanana River Drainage Subsistence Salmon Fishery

Year	Number of Permits Issued	Number of Permits Returned	Number Reporting Harvest	Reported Harvest			
				Chinook	Summer Chum	Fall Chum	Coho
1988	0	0	0	0	0	0	0
1989	2	2	2	5	0	39	0
1990	1	1	0	0	0	0	0
1991	8	7	6	0	0	288	14
1992	11	11	4	0	0	36	1
1993	10	10	8	0	0	5	0
1994	7	7	3	0	0	202	15
1995	50	46	12	0	0	88	0
1996	42	39	15	0	10	97	0
1997	61	58	26	0	0	200	0
1998	46	46	17	0	0	71	9
1999	29	29	13	0	0	2	0
2000	41	36	16	0	2	100	0
1995-1999							
Average	46	44	17	0	2	92	2

- a Prior to 1988, salmon harvests were expanded for permits not returned. Beginning in 1988, the reported harvests were not expanded. Dashes in the table indicate the information is not available.
- b Many Subdistrict 6-A fishers did not obtain a permit in 1988 and 1989.
- c Includes salmon given away as part of the department's test fishing project in Manley.
- d Includes harvests reported by fishers who did not have permits.
- f Beginning in 1994, a separate Kantishna River drainage permit was required. The Subdistrict 6-A harvest totals include those from the Kantishna River drainage.
- g Includes small numbers of salmon harvested and reported on the Tolovana River drainage (Subdistrict 6-B) subsistence pike permit, established in 1993.
- h Includes salmon given away as part of the department's test fish project in Nenana.

Subdistrict 6-C Personal Use Salmon Fishery

Year	Number of Permits Issued	Number of Permits Returned	Number Reporting Harvest	Reported Harvest			
				Chinook	Summer Chum	Fall Chum	Coho
1987	132 b	-	60 c			3,316	2,465
1988	208	162	120	317	1,182	2,074	1,125
1989	175	160	112	397	991	1,770	731
1990	152	144	102	442	918	1,353	1,120
1991 d	0	0	0	0	0	0	0
1992 d	0	0	0	0	0	0	0
1993	133	131	79	426	674	163	0
1994 d	0	0	0	0	0	0	0
1995	139	138	91	399	780	863	417
1996	129	125	73	215	905	356	198
1997	112	109	61	313	391	284	350
1998	103	101	52	357	84	2	9
1999 f	103	103	67	331	382	261	147
2000	70	69	16	75	30	1	0
1995-1999 Average	117	115	69	323	508	353	224

a Personal use fishery during 1987 applied to nonrural residents harvesting only fall chum salmon. Beginning in 1988, nonrural personal use fishing applied to all salmon species and reported harvest is from returned permits only. Effective July 1, 1990 all Alaskan residents became eligible for subsistence fishing permits. In 1993 the Board established the Fairbanks Nonsubsistence Area (FNA), this designated fishermen residing in the area as personal use harvesters. In 1994 a Superior Court decision invalidated the FNA and subsistence regulations applied. In 1995 the Board amended the FNA to apply personal use regulations to all fishers fishing in the area. Dashes in the table indicate the information is not available.

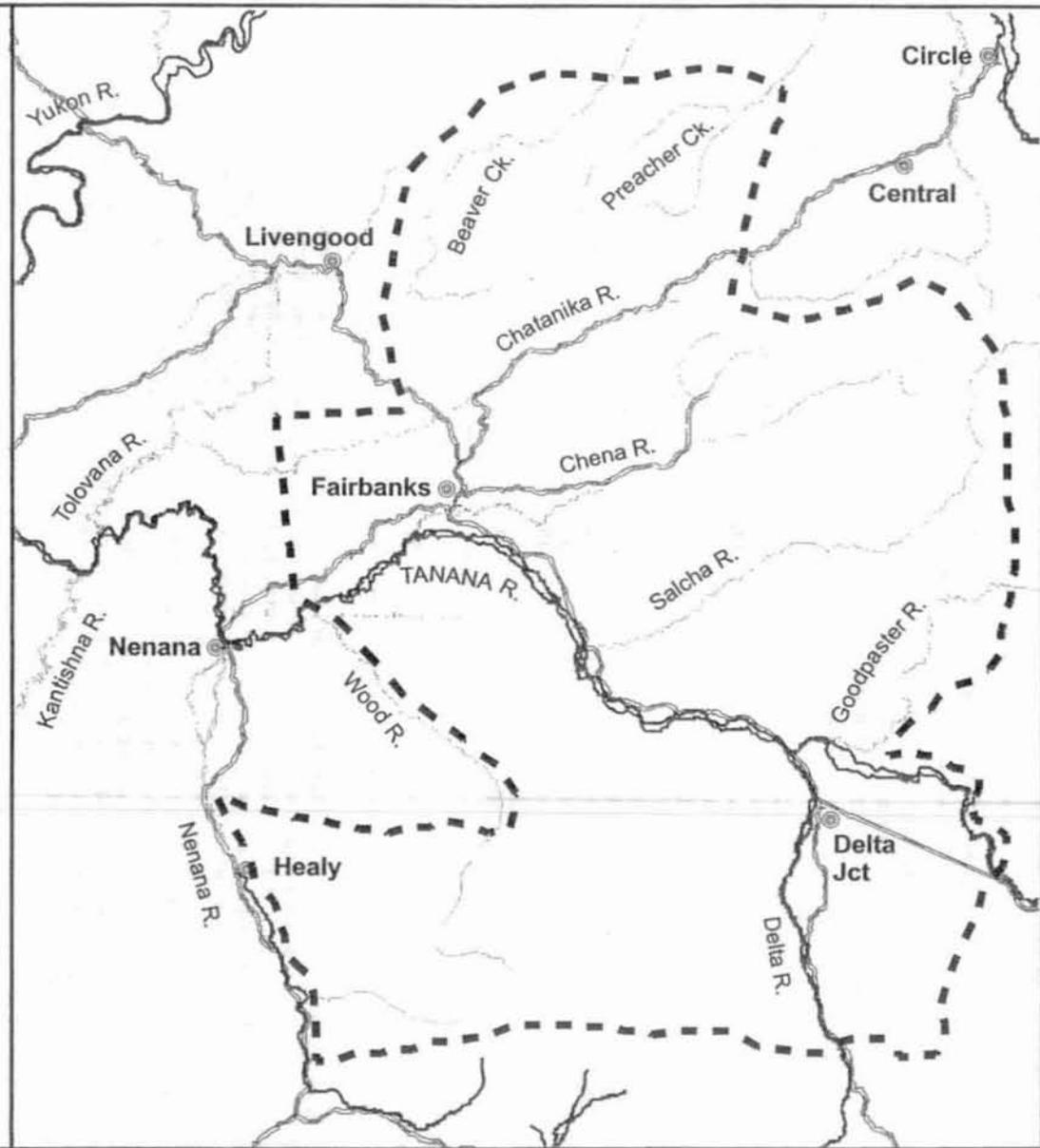
b Includes 60 former subsistence fishers who were reissued personal use permits to fish for fall chum salmon

c Some fishing families used both subsistence and personal use permits.

d From July 1, 1990 through 1992, and in 1994, the regulations did not provide for a personal use fishery in this area.

f Does not include four whitefish and sucker fishery permit holders, two of which fished, that reported a total harvest of one fall chum and six coho salmon in 1999.

5 AAC 99.015 JOINT BOARD
 NONSUBSISTENCE AREAS. (4) The
 Fairbanks Nonsubsistence Area
 is comprised of the following:
 within Unit 20(A) as defined by
 5 AAC 92.450(20)(A) east of
 the Wood River drainage and
 south of the Rex Trail but
 including the upper Wood River
 drainage south of its confluence
 with Chicken Creek, within
 Unit 20(B) as defined by 5 AAC
 92.450(20)(B) the North Star
 Borough and that portion of
 the Washington Creek drainage
 east of the Elliot Highway,
 within Unit 20(D) as defined by
 5 AAC 92.450(20)(D) west of
 the Tanana River between its
 confluence's with the Johnson
 and Delta Rivers, west of the
 west bank of the Johnson River,
 and north and west of the
 Volkmar drainage, including
 the Goodpaster River drainage,
 and within Unit 25(C) as defined
 by 5 AAC 92.450(25)(C) the
 Preacher and Beaver Creek
 drainages.



Appendix D.8. Map of the Fairbanks Nonsubsistence Area, 2000.

APPENDIX E

YUKON RIVER SALMON ESCAPEMENT

Appendix E.1. Yukon River drainage salmon spawning biological escapement goals (BEG) for selected species and streams, 2000.

Escapement Goals ^a				
Stream	Chinook	Summer Chum	Fall Chum	Coho
Andreafsky River				
East Fork	> 1,500	> 109,000		
West Fork	> 1,400	> 116,000		
Anvik River				
Aerial				
Mainstem (entire drainage)	> 1,300			
Yellow River to McDonald Creek	> 500			
Sonar		> 500,000 ^b		
Nulato River				
North Fork	> 800	> 53,000		
South Fork	> 500			
Hogatza River				
Clear Creek		> 8,000		
Caribou Creek		> 9,000		
Gisasa River	> 600			
Chena River				
Mainstem from Flood Control Dam to Middle Fork	> 1,700			
Salcha River				
TAPS to Caribou Creek	> 2,500	> 3,500		
Sheenjek River			> 64,000 ^c	
Fishing Branch River (YT, Canada)			50,000-120,000 ^d	
Toklat River			> 33,000 ^c	
Delta River Index Areas			> 11,000 ^c	>9,000 ^j
Mainstem Yukon River in Y.T., Canada ^b	33,000-43,000 ^{f,g}		> 80,000 ^{g,h}	

a Index streams have been designated because of their importance as spawning areas and/or by their geographic location with respect to other unsurveyable salmon spawning streams in the general area. Escapement goals represent the approximate number of desired spawners considered necessary to maintain the historical yield from the stocks and are based upon historical performance, i.e., they are predicated upon some measure of historic average. Unless otherwise indicated, escapement goals are based upon aerial survey index estimates which do not represent total escapement but do reflect annual spawner abundance when using standard survey methods under acceptable survey conditions. These survey goals represent the latest review and revision by ADF&G (March 1992), unless otherwise noted.

b Escapement goals of total spawning abundance based upon sonar, weir, mark-and-recapture, or expansions from inseason point estimates.

c Escapement goals developed by ADF&G for November 1990 U.S./Canada JTC meeting.

d Escapement goals developed by JTC in October 1987.

f Escapement goals developed by JTC in March 1987. Additionally, a rebuilding step escapement goal for years 1996-2001 of 28,000 chinook salmon has been agreed to by the U.S. and Canada.

g Estimated total spawning escapement excluding the Porcupine River (estimated mainstem Yukon River border passage minus Canadian harvests).

h Escapement goals developed by JTC in November 1990.

j Escapement goals established by ADF&G in March 1993.

Appendix E.2. Detailed salmon spawning escapement estimates for the Yukon River drainage, 2000. *

Stream (drainage)	Date	Survey Rating	Chinook	Summer Chum	Fall Chum	Coho
Andreafsky River						
East Fork (weir count) ^a	6/30-7/31		1,358	23,349	--	8,199
East Fork (aerial)		--	(1,018)	--	--	--
West Fork (aerial)		--	427	--	--	--
			Andreafsky Subtotal	23,349	--	8,199
Yukon River (Pilot Station)						
Main River (Biosonics Sonar)	6/9-9/15		(70,112)	(410,528)	(253,512)	(183,192)
Anvik River						
Yellow R. to McDonald Cr. (index)		Good	1,394	--	--	--
Bendix Sonar Estimate	8/21-7/28		--	205,460	--	--
			Anvik Subtotal	205,460	--	--
Kaltaq River, counting tower ^c	8/22-7/26		--	6,727	--	--
Nulato River						
Tower count (both forks total) ^k	8/24-7/28		908	24,308	--	--
Tozitna River						
	7/22	--	--	480	--	--
Total Lower Yukon River (downstream of Koyukuk River)			4,087	259,844	0	8,199

Koyukuk River Drainage						
Gisasa River (weir count) ^a	6/28-8/7	--	2,089	14,410	--	--
Hoqatza River drainage						
Clear Creek (Tower) ^v	8/22-7/25	--	--	18,698	--	--
Henshaw Creek (Weir) ^u	7/8-8/13	--	194	24,406	--	--
South Fork Koyukuk River						
Aerial	7/31	--	74	--	--	--
Jim River (aerial)	7/31	--	79	--	--	--
			SF Koyukuk Subtotal	0	0	0
Total Koyukuk River			2,242	33,108	0	0
Total Yukon River (downstream of Tanana River)			6,329	292,952	0	8,199

Tanana River Drainage						
Kantishna River Drainage						
Kantishna River Tagging Estimate	8/18-9/29	--	--	--	21,104	--
Barton Creek	7/25	Incomplete	77	--	--	--
Toklat Springs						
Main Channel ^b	10/11, 10/15	Poor	--	--	(773)	5
Floodplain Sloughs ^b	10/12-10/15	Good	--	--	(931)	97
Geiqer Creek ^b	10/13	Good	--	--	(129)	142
Sushana River ^b	10/14	Good	--	--	(643)	18
Aerial Survey	10/23	Fair	--	--	5,095	(86)
			Toklat Subtotal	0	5,095	262
Total Kantishna River			0	0	5,095	262
Tanana River Tagging (upstr Kantishna River) ^p						
	8/18-10/2	--	--	--	47,635	--
Chatanika River (tower estimate) ^q						
	6/23-8/8	Incomplete	398	944	--	--
Nenana River Drainage						
Nenana mainstem immediately upstr Teklanika R. ^w	10/17	Good	--	--	--	68
Seventeen Mile Slough	7/25	Fair	52	--	--	--
Seventeen Mile Slough ^v	10/2	Good	--	--	29	879
Julius Creek ^v	10/2	Poor	--	--	--	370
Wood Creek ^v	10/2	Poor	--	--	--	0
Clear Creek	7/25	Fair	20	--	--	--
Clear Creek ^v	10/2	Poor	--	--	--	385
Glacier Creek ^v	10/2	Poor	--	--	--	100

-Continued-

Stream (drainage)	Date	Survey Rating	Chinook	Summer Chum	Fall Chum	Coho
Lost Slough (western floodplain) ^a	10/17	Poor	--	--	0	55
June Creek ^b	10/2	Good	--	--	--	120
Lignite Spring ^c	10/2	Good	--	--	--	95
	Nenana Subtotal		20	0	29	2,072
Chena River						
Mainstem River (aerial)	7/29	Incomplete	(954)	(105)	--	--
MCD to Middle Fk (aerial/index area)	7/29	Incomplete	(906)	(105)	--	--
Counting Tower Estimate ^d	7/5-8/12	--	(1,903)	3,515	--	--
Mark-recapture Tagging Estimate		--	4,707	--	--	--
	Chena Subtotal		4,707	3,515	--	--
McDonald Creek	7/29	Incomplete	7	--	--	--
Salcha River						
Mainstem River (aerial)	7/29	Incomplete	(2,562)	(228)	--	--
TAPS to Caribou Cr (aerial/index area)	7/29	Incomplete	(1,834)	(222)	--	--
Counting Tower Estimate ^d	7/4-8/13	--	3,108	20,516	--	--
	Salcha Subtotal		3,108	20,516	--	--
Richardson Clearwater River ^e	10/26	Good	--	--	--	2,175
Clear Creek (Providence Cr.) ^e	10/26	--	--	--	--	100
Goodpaster River						
(2 miles below South Frk. to Eisenmenger Frk.) ^f	7/31	Good	2,154	--	--	--
(Mouth to Pogo airstrip)	8/1	Good	(674)	27	--	--
Delta River						
Foot Survey (peak count)	11/14	Good	--	--	(2,095)	96
Population Estimate ¹		--	--	--	3,777	--
Bluff Cabin Slough (BCS) ^{2,3}	11/3	Good	--	--	1,595	--
Delta Clearwater River Index Area ^{3a}	10/24	Fair	--	--	225	9,225
Tributaries ²	--	--	--	--	--	2,364
Clearwater Lake Outlet ^{3a}	10/24	Fair	--	--	--	1,025
	Total Tanana River		10,387	25,002	10,721	14,021
"Rampart-Raspids" tagging estimate ^{3a}	7/31-8/20	--	--	--	45,021	--
Beaver Creek (weir) ^f	7/10-8/13	--	114	12	--	--
Chandalar River splitbeam sonar ^g	8/8-9/26	--	--	--	65,894	--
Porcupine River Drainage						
Sheeniek River						
Bendix Sonar Estimate	8/8-9/12	--	--	--	30,084	--
Fishing Branch River						
Weir Passage ^m	8/27-10/13	--	--	--	5,053	--
	Total Porcupine River		--	--	35,137	--
	Total Alaskan Portion of Drainage ⁿ		16,830	317,966	106,699	22,220
Yukon Territory Streams ^m						
Chandindu River (12-mile R.) (weir)	8/16-9/15	--	4	--	21	--
White River						
Kluane River	10/24	--	--	--	1,442	--
Tincup Creek ³		--	19	--	--	--
	White Subtotal		19	--	1,442	--
Tatchun Creek (weir)	8/2-8/24	--	241	--	--	--
Little Salmon River	8/18	poor-fair	46	--	--	--
Big Salmon River	8/23	good-excellent	113	--	--	--
Teslin River Drainage						
Mainstem (Index Area)	11/10	--	--	--	204	--
Morley River	8/28	--	4	--	--	--
Gladys River	8/28	--	4	--	--	--
Swift River	8/28	--	2	--	--	--
Jennings River	8/28	--	6	--	--	--
	Teslin Subtotal		16	--	204	--

-Continued-

Appendix E.2. (page 3 of 3)

Stream (drainage)	Date	Survey Rating	Chinook	Summer Chum	Fall Chum	Coho
Nisutlin River	8/23	good-excellent	20	--	--	--
Wolf River	8/23	good-excellent	32	--	--	--
Nisutlin Subtotal			52			
Whitehorse Fishway	7/25-9/6	--	877	--	--	--
Canadian Mainstem Yukon River	10/17	Poor	--	--	933	--
Border Passage Estimate ^{a,h}			16,995	--	59,598	--
Total Yukon Territory (observed)			855	0	6,720	0
Total Yukon Territory (estimated from tagging) ¹			12,166	--	55,362	--
Yukon River Drainage Totals			17,685	317,966	113,419	22,220

a -Estimates are from aerial surveys (peak count) unless otherwise indicated; carcass counts included. Data in parentheses not included in totals or subtotals.

b -Foot survey.

c -Cooperative program with BSFA and 4-H Youth.

f -Population estimate based upon timing of ground surveys at Toklat Springs and streamlife data.

g -Estimate made by Division of Sport Fish.

h -Boat survey.

i -Population estimate based upon expanded counting tower observations.

j -Population estimate based upon replicate foot surveys and salmon streamlife data.

k -Cooperative program with BSFA and Nulato Tribal Council.

m -Estimate made by Canadian Department of Fisheries and Oceans.

n -Total for Alaskan portion of drainage does not include Fishing Branch River. Total for Yukon Territory includes Fishing Branch River.

p -Population estimate based upon mark and recapture.

q -Estimate made by USFWS.

r -Estimate made by BLM.

s -Canadian "border passage" estimate for Yukon Territory streams (excluding the Fishing Branch River). Canadian harvest has not been removed.

t -Canadian "spawning escapement" estimate for Yukon Territory streams (excluding the Fishing Branch River); from DFO tagging study (border passage estimate minus Canadian harvest).

u -Estimate made by Bering Seas Fishermans Association (or YRDFA).

x -Estimate made by USGS, Biological Resource Division.

y -Helicopter survey flown by Northern Ecological Services, Anchorage.

z -Estimated tributary escapement based on expansion factor derived from the last 5 years of aerial surveys of tributaries. Average tributary proportion estimated to be 20.4% of the total run for the last 5 years.

Appendix E.3. Pilot Station sonar project estimates, Yukon River drainage, 1995, and 1997 to 2000.

Species	2000 Estimated Passage	1999 Estimated Passage	1998 Estimated Passage	1997 ^a Estimated Passage	1995 Estimated Passage
Large Chinook Salmon ^b	61,055	159,176	109,101	119,128	199,078
Small Chinook Salmon	9,057	28,347	25,142	80,992	55,064
Total Chinook Salmon	70,112	187,523	134,243	200,120	254,142
Summer Chum Salmon	410,528	939,348	745,919	1,342,650	3,438,655
Fall Chum Salmon	253,512	405,230	353,371	521,531	1,070,968
Total Chum Salmon	664,040	1,344,578	1,099,290	1,864,181	4,509,623
Coho Salmon ^c	183,192	76,481	134,408	120,564	120,366
Other Species ^d	387,339	415,789	400,309	500,484	926,504
TOTAL	1,304,683	2,024,371	1,768,250	2,685,349	5,810,635

a The Yukon River sonar project did not operate at full capacity in 1996 and therefore there are no passage estimates for that year.

b Chinook Salmon >655 mm for 1999- 2001, >700mm for 1995-1998.

c This estimate may not include the entire run.

d Includes pink salmon, cisco, whitefish, sheefish, burbot, suckers, dolly varden, sockeye salmon, and northern pike.

Appendix E.4. Chinook salmon escapements for selected spawning areas in the Alaskan portion of the Yukon River drainage, 1961-2000. ^a

Year	Andreafsky River			Anvik River			Nulato River			Gisasa River		Chena River			Salcha River	
	East Fork		West Fork	River	Index Area	North Fork	South Fork	Mainstem	Aerial	Weir	Population Estimate	River		Index Area	River	Index Area
	Aerial	Tower or Weir	Aerial	Aerial ^b	Aerial ^b	Aerial ^c	Aerial	Tower				Aerial	Aerial	Aerial ^d	Population Estimate	Aerial
1961	1,003			1,226		376 ^g	167		266 ^g						2,878	
1962	675 ^g		762 ^g										61 ^{g,h}		937	
1963												137 ^g				
1964	867		705												450	
1965			344 ^g	650 ^g											408	
1966	361		303	638											800	
1967			276 ^g	336 ^g												
1968	380		383	310 ^g											739	
1969	274 ^g		231 ^g	296 ^g											461 ^g	
1970	665		574 ^g	368												
1971	1,904		1,682										6 ^g		1,882	
1972	798		582 ^g	1,198									193 ^{g,h}		158 ^g	
1973	825		788	613									138 ^{g,h}		1,193	1,034
1974			285	471 ^g		55 ^g	23 ^g						21 ^g		391	352
1975	993		301	730		123	81		161			1,016 ^h	959 ^h		1,857	1,620
1976	818		643	1,053		471	177		385			316 ^h	262 ^h		1,055	950
1977	2,008		1,499	1,371		286	201		332			531	496		1,641	1,473
1978	2,487		1,062	1,324		498	422		255			563			1,202	1,052
1979	1,180		1,134	1,484		1,093	414		45 ^g			1,726			3,499	3,258
1980	958 ^g		1,500	1,330	1,192	954 ^g	369 ^g		484			1,159 ^g			4,789	4,310
1981	2,146 ^g		231 ^g	807 ^g	577 ^g		791		951			2,541			6,757	6,126
1982	1,274		851									600 ^g			1,237	1,121
1983				653 ^g	376 ^g	526	480		421			2,073			2,534	2,346
1984	1,573 ^g		1,993	641 ^g	574 ^g				572			2,553	2,336		1,961	1,803
1985	1,617		2,248	1,051	720	1,600	1,180					501	494		1,031	906
1986	1,954	1,530 ^k	3,158	1,118	918	1,452	1,522		735			2,553	2,262		2,035	1,860
1987	1,608	2,011 ^k	3,281	1,174	879	1,145	493		1,346		9,065	2,031	1,935		3,368	3,031
1988	1,020	1,339 ^k	1,448	1,805	1,449	1,061	714		731		6,404	1,312	1,209	4,771	1,898	1,671
1989	1,399		1,089	442 ^g	212 ^g				797		3,346	1,966	1,760	4,562	2,761	2,553
1990	2,503		1,545	2,347	1,595	568 ^g	430 ^{g,n}				2,666	1,280	1,185	3,294	2,333	2,136
1991	1,938		2,544	875 ^g	625 ^g	767	1,253		884 ^g		5,603	1,436	1,402	10,728	3,744	3,429
1992	1,030 ^g		2,002 ^g	1,536	931	348	231		1,690		3,025	1,277 ^g	1,277 ^g	5,608	2,212 ^g	1,925
1993	5,855		2,765	1,720	1,526	1,844	1,181		910		5,230	825 ^g	799 ^g	7,862	1,484 ^g	1,436
1994	300 ^g	7,801 ^{p,r}	213 ^g	913 ^g	843	952	1,795 ^r		1,573		12,241 ^k	2,943	2,660	10,007 ^k	3,636	3,562
1995	1,635	5,841 ^p	1,108	1,996	1,147	968	681	1,412	2,775	2,888 ^r	11,877 ^k	1,570	1,570	18,399 ^k	11,823	11,189
1996		2,955 ^p	624	839	709		100 ⁿ		410	4,023	9,680	3,575	3,039	13,643 ^k	3,978	3,734
1997	1,140	3,186 ^p	1,510	3,979	2,690			756		1,952	6,833	2,233	2,112	7,958	4,866	4,800
1998	1,027	4,011 ^p	1,249 ^g	709 ^g	648 ^g	507	546	1,536	4,766	144 ^g	3,764	13,390 ^k	3,495	3,303	18,396 ^k	3,457 ^g
1999		3,347 ^p	870 ^g	950 ^g				1,932	889 ^g	2,356	4,745 ^k	440 ^g	386 ^g	5,027 ^k	2,055 ^g	1,923 ^g
2000	1,018	1,358 ^p	427	1,721	1,394			908	2,089	2,631	6,485 ^k	2,412	2,137	9,198	3,608	3,570
Escapement Objective	>1,500		>1,400	>1,300 ^u	>500 ^u	>800	>500		>600					>1,700		>2,500

- continued -

- a Aerial survey counts are peak counts only. Survey rating was fair or good unless otherwise noted.
- b From 1961-1970, river count data are from aerial surveys of various segments of the mainstem Anvik River. From 1972-1979, counting tower operated; mainstem aerial survey counts below the tower were added to lower counts. From 1980-present, aerial survey counts for the river are best available minimal estimates for the entire Anvik River drainage. Index area counts are from the mainstem Anvik River between the Yellow River and McDonald Creek.
- c Includes mainstem counts below the confluence of the North and South Forks, unless otherwise noted.
- d Chena River index area for assessing the escapement objective is from Moose Creek Dam to Middle Fork River.
- f Salcha River index area for assessing the escapement objective is from the TAPS crossing to Caribou Creek.
- g Incomplete and/or poor survey conditions resulting in minimal or inaccurate counts.
- h Boat survey.
- j Data unavailable for index area. Calculated from historic (1972-91) average ration of index area counts to total river counts (0.90:1.0).
- k Tower counts.
- m Mark-recapture population estimate.
- n Mainstem counts below the confluence of the North and South Forks Nulato River included in the South Fork counts.
- p Weir counts.
- r Incomplete count because of late installation and/or early removal of project.
- s Data are preliminary.
- t Interim escapement goals. Established March, 1992.
- u Interim escapement goal for the entire Anvik River drainage is 1,300 salmon. Interim escapement objective for mainstem Anvik River between the Yellow River and McDonald Creek is 500 salmon.

Appendix E.5. Chinook salmon escapements for selected spawning areas in the Canadian portion of the Yukon River drainage, 1961-2000.

Year	Tincup Creek ^a	Tatchun Creek ^b	Little Salmon River ^a	Big Salmon River ^{a,c}	Nisutlin River ^{a,d}	Ross River ^{a,f}	Wolf River ^{a,g}	Whitehorse Fishway		Canadian Mainstem			
								Count	Percent Hatchery Contribution	Border Passage Estimate	Spawning Harvest Estimate	Escapement Estimate	
1961								1,068	0				
1962								1,500	0				
1963								483	0				
1964								595	0				
1965								903	0				
1966		7 ^k						563	0				
1967								533	0				
1968			173 ^k	857 ^k	407 ^k	104 ^k		414	0				
1969			120	286	105			334	0				
1970		100		670	615		71 ^k	625	0				
1971		130	275	275	650		750	856	0				
1972		80	126	415	237		13	391	0				
1973		99	27 ^k	75 ^k	36 ^k			224	0				
1974		192		70 ^k	48 ^k			273	0				
1975		175		153 ^k	249		40 ^k	313	0				
1976		52		86 ^k	102			121	0				
1977		150	408	316 ^k	77			277	0				
1978		200	330	524	375			725	0				
1979		150	489 ^k	632	713		183 ^k	1,184	0				
1980		222	286 ^k	1,436	975		377	1,383	0				
1981		133	670	2,411	1,626	949	395	1,555	0				
1982		73	403	758	578	155	104	473	0	36,598	16,808	19,790	
1983	100	264	101 ^k	540	701	43 ^{k,n}	95	905	0	47,741	18,752	28,989	
1984	150	153	434	1,044	832	151 ^k	124	1,042	0	43,911	16,295	27,616	
1985	210	190	255	801	409	23 ^k	110	508	0	29,881	19,151	10,730	
1986	228	155	54 ^k	745	459 ^k	72 ⁿ	109	557	0	36,479	20,064	16,415	
1987	100	159	468	891	183	180 ^k	35	327	0	30,823	17,563	13,260	
1988	204	152	368	765	267	242	66	405	16	44,445	21,327	23,118	
1989	88	100	862	1,662	695	433 ^p	146	549	19	42,620	17,419	25,201	
1990	83	643	665	1,806	652	457 ^k	188	1,407	24	56,679	18,980	37,699	
1991			326	1,040		250	201 ^r	1,266 ^h	51 ^h	41,187	20,444	20,743	
1992	73	106	494	617	241	423	110 ^r	758 ^h	84 ^h	43,185	17,803	25,382	
1993		183	184	572	339	400	168 ^r	668 ^h	73 ^h	45,027	16,469	28,558	
1994	101 ^k	477	726	1,764	389	506	393 ^r	1,577 ^h	54 ^h	46,680	20,790	25,890	
1995	121	397	781	1,314	274	253 ^k	229 ^r	2,103	57	52,353	20,091	32,262	
1996	150	423	1,150	2,565	719	102 ^k	705 ^r	2,958	35 ^s	47,955	19,546	28,409	
1997	193	266 ^k	1,025	1,345	277		322 ^r	2,084	24	53,400	15,717	37,683	
1998	53	189	361	523	146		66	777	95 ^s	22,588	5,838	16,750	
1999	2 ^k	250	495	372	337		146	1,118	74	23,608	12,455	11,153	
2000	19	241	46	113	20		32	677	69	16,995	4,829	12,166	
Escapement Objective													28,000

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- a Data obtained by aerial survey unless otherwise noted. Only peak counts are listed. Survey rating is fair to good, unless otherwise noted.
- b All foot surveys except 1978 (boat survey) and 1986 (aerial survey).
- c For 1968, 1970, and 1971 counts are from mainstem Big Salmon River. For all other years counts are from the mainstem Big Salmon River between Big Salmon Lake and the vicinity of Souch Creek.
- d One Hundred Mile Creek to Sidney Creek.
- f Big Timber Creek to Lewis Lake.
- g Wolf Lake to Red River.
- h Counts and estimated percentages may be slightly exaggerated. In some or all of these years a number of adipose-clipped fish ascended the fishway, and were counted, more than once. These fish would have been released into the fishway as fry between 1989 and 1994, inclusive.
- j Estimated total spawning escapement excluding Porcupine River (estimated border escapement minus the Canadian catch).
- k Incomplete and/or poor survey conditions resulting in minimal or inaccurate counts.
- m Estimate derived by dividing the annual 5-area (Whitehorse Fishway, Big Salmon, Nisutlin, Wolf, Tatchun) count by the average proportion of the annual 5-area index count estimated spawning escapement from the DFO tagging study for years 1983, and 1985-1989.
- n Information on area surveyed is unavailable.
- p Counts are for Big Timber Creek to Sheldon Lake.
- q Interim escapement objective. Stabilization escapement objective for years 1990-1995 is 18,000 salmon. Rebuilding step escapement objective for years 1996-2001 is 2
- r Counts are for Wolf Lake to Fish Lake outlet.

- a Aerial survey counts are peak counts only, survey rating is fair or good unless otherwise noted.
- b From 1972-1979 counting tower operated; escapement estimate listed is the tower counts plus expanded aerial survey counts below the tower (see Buklis 1982).
- c Includes mainstem counts below the confluence of the North and South Forks, unless otherwise noted.
- d Incomplete survey and/or poor survey timing or conditions resulted in minimal or inaccurate count.
- f Sonar count.
- g Tower count.
- h Mainstem counts below the confluence of the North and South Forks of the Nulato River included in the South Fork counts.
- j Weir count.
- k Incomplete count due to late installation and/or early removal of project or high water events.
- m BLM helicopter survey.
- n Interim escapement objective.
- o Interim escapement objective for North Fork Nulato River only.
- p Consists of Clear and Caribou Creeks interim escapement objectives of 9,000 and 8,000, respectively.
- q Data are preliminary.
- r Consists of Clear Creek only.

Appendix E.7. Fall chum salmon escapements for selected spawning areas in Alaskan and Canadian portions of the Yukon River drainage, 1971-2000.

Year	Alaska				Canada						Canadian Mainstem		
	Toklat River ^a	Delta River ^b	Chandalar River ^c	Sheenjek River ^c	Fishing Branch River ^{d,f}	Mainstem Yukon River Index ^{f,g}	Koidern River ^f	Kluane River ^{f,h}	Teslin River ^h	Border Passage Estimate	Harvest	Spawning Escapement Estimate	
	1971					312,800							
1972		5,384			35,125 ^m			198 ^{n,p}					
1973		10,469			15,989 ^r	383		2,500					
1974	41,798	5,915		89,966 ^s	32,525 ^r			400					
1975	92,265	3,734 ^t		173,371 ^s	353,282 ^r	7,671		362 ^p					
1976	52,891	6,312 ^t		26,354 ^s	36,584			20					
1977	34,887	16,876 ^t		45,544 ^s	88,400			3,555					
1978	37,001	11,136		32,449 ^s	40,800			0 ^p					
1979	158,336	8,355		91,372 ^s	119,898			4,640 ^p					
1980 ^{qg}	26,346	5,137		28,933 ^s	55,268			3,150		39,130	16,218	22,912	
1981	15,623	23,508		74,560	57,386 ^v			25,806		66,347	19,281	47,066	
1982	3,624	4,235		31,421	15,901	1,020 ^w		5,378		47,049	15,091	31,958	
1983	21,869	7,705		49,392	27,200	7,560		8,578 ^p		118,365	27,490	90,875	
1984	16,758	12,411		27,130	15,150	2,800 ^x	1,300	7,200	200	81,900	25,267	56,633	
1985	22,750	17,276 ^t		152,768	56,016 ^r	10,760	1,195	7,538	356	99,775	37,765	62,010	
1986	17,976	6,703 ^t	59,313	84,207 ^z	31,723 ^r	825	14	16,686	213	101,826	13,886	87,940	
1987	22,117	21,180	52,416	153,267 ^z	48,956 ^r	6,115	50	12,000		125,121	44,345	80,776	
1988	13,436	18,024	33,619	45,206 ^z	23,597 ^r	1,550	0	6,950	140	69,280	32,494	36,786	
1989	30,421	21,342 ^t	69,161	99,116 ^z	43,834 ^r	5,320	40	3,050	210 ⁿ	55,861	20,111	35,750	
1990	34,739	8,992 ^t	78,631	77,750 ^z	35,000 ^{aa}	3,651	1	4,683	739	82,947	31,212	51,735	
1991	13,347	32,905 ^t		86,496 ^{ab}	37,733 ^r	2,426	53	11,675	468	112,303	33,842	78,461	
1992	14,070	8,893 ^t		78,808 ^{ab}	22,517 ^r	4,438	4	3,339	450	67,962	18,880	49,082	
1993	27,838	19,857		42,922 ^{ab}	28,707 ^r	2,620	0	4,610	555	42,165	12,422	29,743	
1994	76,057	23,777 ^t		150,565 ^{ab}	65,247 ^r	1,429 ⁿ	20 ⁿ	10,734	209 ⁿ	133,712	35,354	98,358	
1995	54,513 ^{qg}	20,587	280,999	241,855 ^{ab}	51,971 ^{r,ah}	4,701	0	16,456	633	198,203	40,111	158,092	
1996	18,264	19,758	208,170	247,965 ^{ab}	77,278 ^r	4,977		14,431	315	143,758	21,329	122,429	
1997	14,511	7,705	199,874	80,423	26,959	2,189		3,350	207	94,725	9,286	85,439	
1998	15,605	7,804	75,811	33,000	13,564	7,292		7,337	236	48,047	1,742	46,305	
1999	4,551	16,534	88,662	14,229	12,094			5,136	19 ⁿ	75,541	13,506	62,035	
2000	5,095 ^f	3,777	65,894	30,022	5,053	933		1,442	204	59,598	4,236	55,362	
Escapement Objective	>33,000	>11,000		>64,000	50,000-120,000							>80,000	

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- a Expanded total abundance estimates for upper Toklat River index area using stream life curve (SLC) developed with 1987-1993 data. Index area includes Geiger Creek, Sushana River, and mainstem floodplain sloughs from approximately 0.25 mile upstream of roadhouse to approximately 1.25 miles downstream of roadhouse.
- b Estimates are a total spawner abundance, generally from using spawner abundance curves and streamlife data.
- c Side-scan sonar estimate 1986-1990, split beam sonar estimate 1995-1996.
- d Located within the Canadian portion of the Porcupine River drainage. Total escapement estimated using weir to aerial survey expansion factor of 2.72, unless otherwise indicated.
- f Aerial survey count unless otherwise indicated.
- g Tatchun Creek to Fort Selkirk.
- h Duke River to end of spawning sloughs below Swede Johnston Creek.
- j Boswell Creek area (5 km below to 5 km above confluence).
- k Excludes Fishing Branch River escapement (estimated border passage minus Canadian removal).
- m Weir installed on September 22. Estimate consists of a weir count of 17,190 after September 22, and a tagging passage estimate of 17,935 prior to weir installation.
- n Incomplete and/or poor survey conditions resulting in minimal or inaccurate counts.
- p Foot survey.
- r Weir count.
- s Total escapement estimate using sonar to aerial survey expansion factor of 2.22.
- t Population estimate from replicate foot surveys and stream life data.
- v Initial aerial survey count was doubled before applying the weir/aerial expansion factor of 2.72 since only half of the spawning area was surveyed.
- w Boat survey.
- x Total index area not surveyed. Survey included the mainstem Yukon River between Yukon Crossing to 30 km below Fort Selkirk.
- y Escapement estimate based on mark-recapture program unavailable. Estimate based on assumed average exploitation rate.
- z Expanded estimates for period approximating second week August through middle fourth week September, using Chandalar River run timing data.
- aa Weir was not operated. Although only 7,541 chum salmon were counted on a single survey flown October 26, a population estimate of approximately 27,000 fish was made through date of survey, based upon historic average aerial-to-weir expansion of 28%. Actual population of spawners was reported by DFO as between 30,000-40,000 fish considering aerial survey timing.
- ab Total abundance estimate are for the period approximating second week August through middle fourth week of September. Comparative escapement estimates prior to 1986 are considered more conservative; approximating the period of end of August through middle week of September.
- ac Data are preliminary.
- ad Interim escapement objective.
- af Based on escapement estimates for years 1974-1990.
- ag Minimal estimate because of late timing of ground surveys with respect to peak of spawning.
- ah Incomplete count due to late installation and/or early removal of project or high water events.

Appendix E.8. Yukon River fall chum salmon estimated brood year production and return per spawner estimates 1974-2000.

Year	(P)			Estimated Brood Year Return								(R)	(R/P)
	Estimated Annual Totals			Number of Salmon ^a				Percent				Total Brood Year Return ^a	Return/Spawner
	Escapement	Catch	Return	Age 3	Age 4	Age 5	Age 6	Age 3	Age 4	Age 5	Age 6		
1974	340,408	395,198	735,606	69,059	384,993	67,468	0	0.132	0.738	0.129	0.000	521,520	1.53
1975	1,245,304	382,200	1,627,504	116,367	1,203,589	58,797	0	0.084	0.873	0.043	0.000	1,378,754	1.11
1976	244,282	233,917	478,199	100,242	562,568	113,155	3,820	0.129	0.721	0.145	0.005	779,785	3.19
1977	371,414	353,236	724,650	98,307	887,805	153,523	3,539	0.086	0.777	0.134	0.003	1,143,175	3.08
1978	242,772	340,816	583,588	18,349	290,316	76,537	0	0.048	0.754	0.199	0.000	385,202	1.59
1979	755,922	615,377	1,371,299	35,927	650,193	223,198	3,343	0.039	0.712	0.245	0.004	912,662	1.21
1980	231,368	488,305	719,673	7,079	294,711	179,420	2,037	0.015	0.610	0.371	0.004	483,247	2.09
1981	342,154	677,257	1,019,411	37,311	820,612	240,238	8,615	0.034	0.741	0.217	0.008	1,106,775	3.23
1982	110,362	373,175	483,537	9,726	345,465	141,431	1,384	0.020	0.694	0.284	0.003	498,007	4.51
1983	212,332	525,016	737,348	10,846	742,423	182,300	1,954	0.012	0.792	0.194	0.002	937,524	4.42
1984	142,898	412,322	555,220	6,013	332,870	154,201	7,957	0.012	0.664	0.308	0.016	501,040	3.51
1985	497,620	515,481	1,013,101	38,044	774,355	248,980	2,731	0.036	0.728	0.234	0.003	1,064,110	2.14
1986	281,218	318,028	599,246	0	394,853	279,127	4,093	0.000	0.582	0.412	0.006	678,074	2.41
1987	491,040	406,365	897,405	11,405	467,735	244,256	5,868	0.016	0.641	0.335	0.008	729,263	1.49
1988	200,526	353,242	553,768	31,057	147,205	113,206	9,342 b	0.103	0.489	0.376	0.031	300,811	1.50
1989	389,426	541,177	930,603	2,305	210,193	295,980 b	16,238	0.004	0.401	0.564	0.031	524,716	1.35
1990	312,962	350,100	663,062	527	496,924 b	337,333	28,836	0.001	0.575	0.391	0.033	863,620	2.76
1991	341,242	439,096	780,338	3,141 b	826,146	333,487	12,367	0.003	0.703	0.284	0.011	1,175,141	3.44
1992	248,576	148,846	397,422	5,452	617,202	203,551	4,905	0.007	0.743	0.245	0.006	831,111	3.34
1993	238,648	91,015	329,663	7,900	455,489	123,769	9,071	0.013	0.764	0.208	0.015	596,229	2.50
1994	636,162	169,225	805,387	4,393	273,402	202,698	1,808 b	0.009	0.567	0.420	0.004	482,300	0.76
1995	724,142	461,147	1,185,289	2,878	311,492	77,702 b		0.007	0.794	0.198		392,072 d	>0.54
1996	726,600	260,923	987,523	996	186,807 b							187,804 g	>0.26
1997	505,741	170,059	675,800	3,480 b									
1998	334,630	70,770	405,400										
1999	403,434	120,875	524,309										
2000	241,254	28,543	269,797										
Average	400,461	342,286	742,746										
	375,078	All Brood Years (1974-94)		29,212	532,336	189,174	6,091	0.0381	0.6795	0.2732	0.0091	756,813	2.44
	271,958	Even Brood Years (1974-1994)		22,900	376,410	169,830	5,835	0.0431	0.6489	0.2982	0.0098	574,974	2.47
	488,510	Odd Brood Years (1974-94)		36,155	703,854	210,453	6,373	0.0327	0.7132	0.2457	0.0084	956,835	2.40

a The estimated number of salmon which returned are based upon annual age composition observed in lower Yukon test nets each year, weighted by test fish CPUE.

b Based upon expanded test fish age composition estimates for years in which the test fishery terminated early both in 1994 and 2000.

d Brood year return includes only 3, 4, and 5 year fish, indicating that production (R/P) from brood year 1995 was at least 0.54.

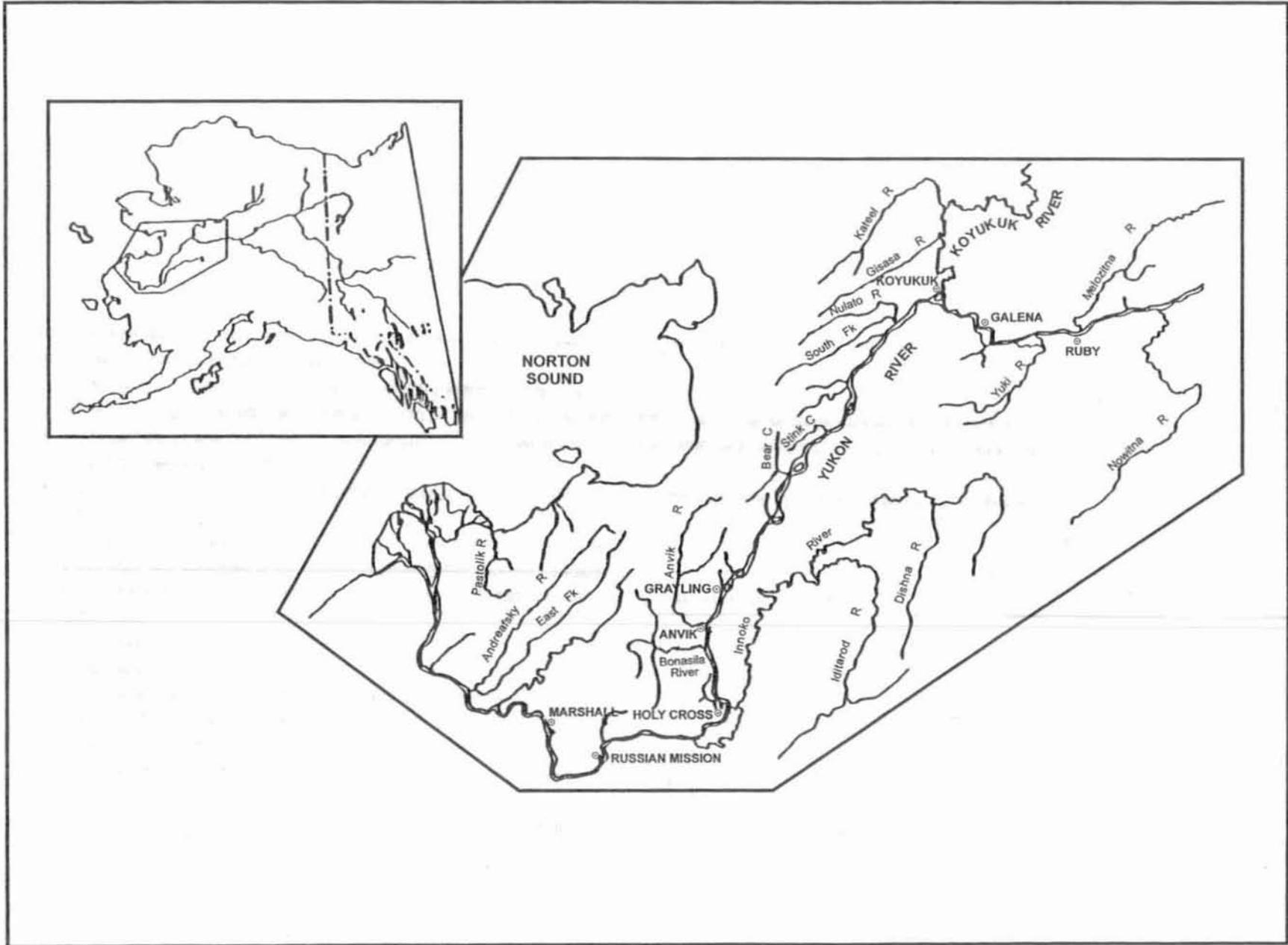
g Brood year return includes only 3 and 4 year fish, indicating that production (R/P) from brood year 1996 was at least 0.26.

Appendix E.9. Coho salmon escapements for selected spawning areas in the Alaskan portion of the Yukon River drainage, 1972-2000. ^a

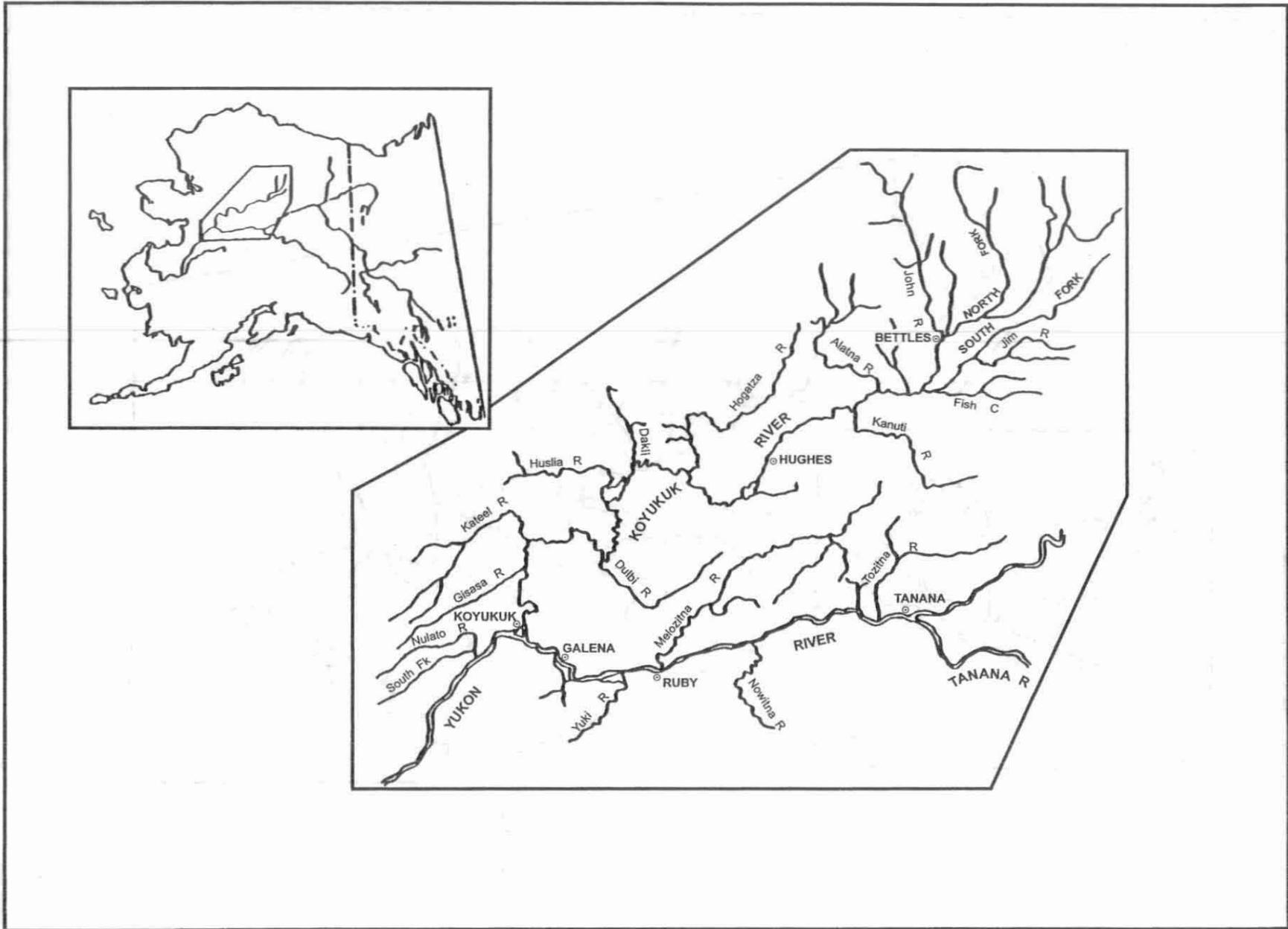
Year	Andreafsky River			Kantishna River		Nenana River				Delta Clearwater River ^{f,g}	Clearwater Lake and Outlet	Richardson Clearwater River
	East Fork	West Fork	Anvik River	Geiger Creek ^b	Barton Creek	Lost Slough	Nenana Mainstem ^c	Wood Creek	Seventeen Slough			
1972										630	417	454 ^k
1973										3,322	551 ^f	375 ^f
1974						1,388			27	3,954 ^j	560	652 ^f
1975						943			956	5,100	1,575 ^{f,h}	4 ^k
1976			467 ^k	25		118			281	1,920	1,500 ^{f,h}	80 ^k
1977			81 ^k	60		524 ^k		310 ^b	1,167	4,793	730 ^{f,h}	327
1978						350		300 ^b	466	4,798	570 ^{f,h}	
1979						227			1,987	8,970	1,015 ^{f,h}	372
1980				3		499 ^k		1,603 ^b	592	3,946	1,545 ^{f,h}	611
1981	1,657 ^k					274		849 ^{n,r}	1,005	8,563 ^p	459 ^k	550
1982				81				1,436 ^{n,r}		8,365 ^p		
1983				42		766		1,042 ⁿ	103	8,019 ^p	253	88
1984				20		2,677		8,826 ⁿ		11,061	1,368	428
1985				42		1,584		4,470 ⁿ	2,081	5,358	750	
1986				5	496	794		1,664 ⁿ	218 ^{d,h}	10,857	3,577	146 ^k
1987				1,175		2,511		2,387 ⁿ	3,802	22,300	4,225 ^{f,h}	
1988	1,913	830	1,203	159	437	348		2,046 ⁿ		21,600	825 ^{f,h}	
1989				155	12 ^k			412 ⁿ	824 ^k	11,000	1,600 ^{f,h}	483
1990				211		688	1,308		15 ^k	8,325	2,375 ^{f,h}	
1991				427	467 ^k	564	447		52	23,900	3,150 ^{f,h}	
1992				77	55 ^k	372			490	3,963	229 ^{f,h}	500 ^f
1993				138	141	484	419	666 ^{n,s}	581	10,875	3,525 ^{f,h}	
1994				410	2,000 ^{n,s}	944	1,648	1,317 ^{n,s}	2,909	62,675 ^w	3,425 ^{f,h}	5,800 ^f
1995	10,901 ⁿ			142	192 ^{n,s}	4,169	2,218	500 ⁿ	2,972 ^k	20,100	3,625 ^{f,h}	
1996	8,037 ⁿ			233	0 ⁿ	2,040	2,171	201	3,668 ^{d,h}	14,075 ^x	1,125 ^{f,y}	
1997	9,462 ⁿ			274		1,524 ^{aa}	1,446	0 ^{ab}	1,996 ^{d,h}	11,525	2,775 ^{f,h}	
1998	5,417 ⁿ			157		1,360	2,771	0	1,413 ^{b,h}	11,100	2,775 ^{f,h}	
1999	2,963 ⁿ			29		1,002	745	0	662	10,975		
2000	8,199 ⁿ			142		55 ^k	66 ^k	0	879	9,225	1,025	2,175
Escapement Objective										>9,000 ^u		

- continued -

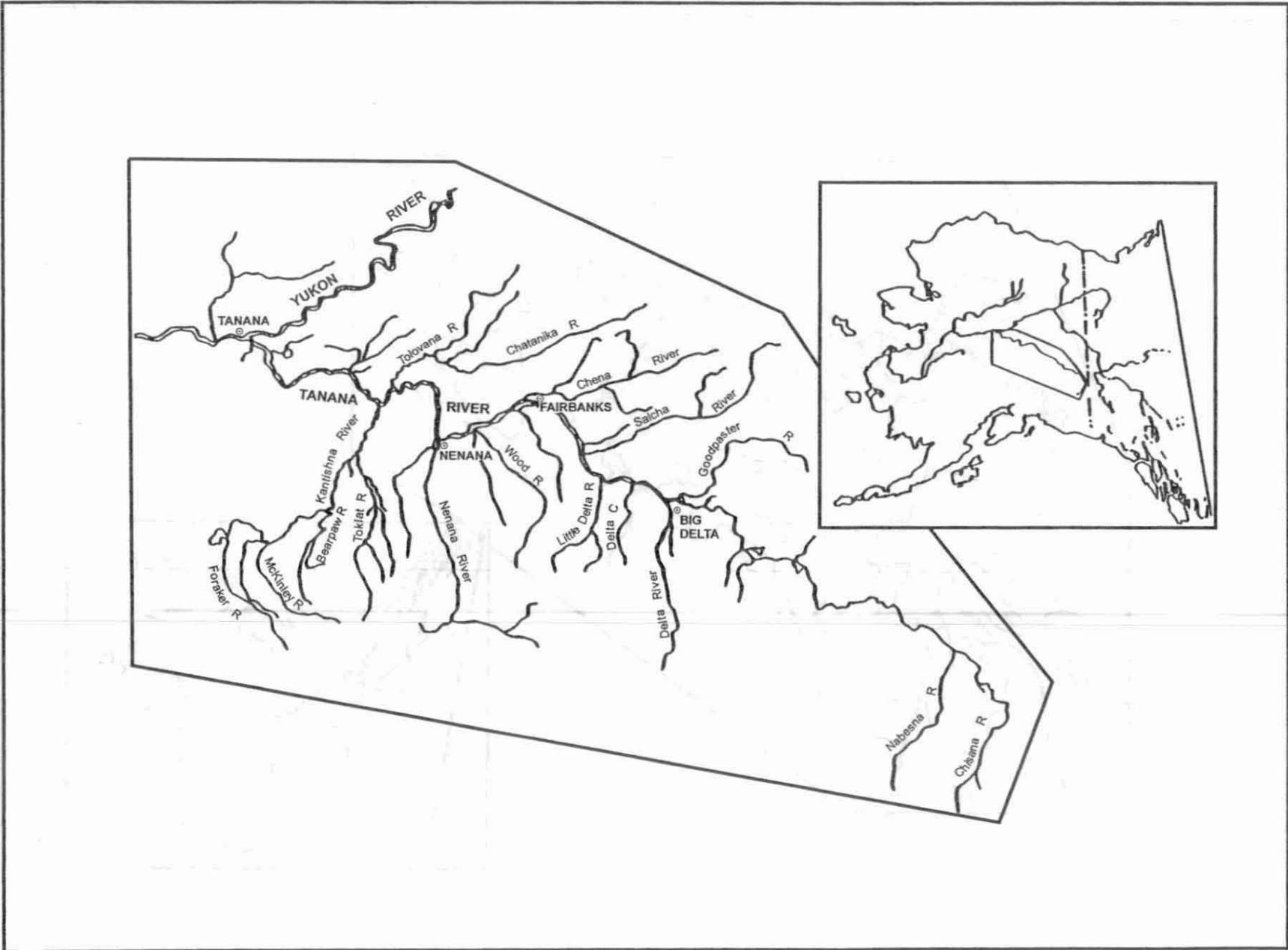
- a Aerial surveys unless otherwise noted. Only peak counts presented. Survey rating is fair to good, unless otherwise noted.
- b Foot survey.
- c Mainstem Nenana River between confluences of Lost Slough and Teklanika River.
- d Surveyed by F.R.E.D.
- f Surveyed by Sport Fish division.
- g Boat survey counts in the lower 17.5 river miles, unless otherwise indicated.
- h Boat survey.
- k Poor survey.
- n Weir count.
- p Expanded estimate based on partial survey counts and historic distribution of spawners from 1977-1980.
- r Coho weir was operated at the mough of Clear Creek (Shores Landing).
- s Incomplete count because of late installation and/or early removal of project.
- t Data are preliminary.
- u Interim escapement objective established March, 1993, based on boat survey counts of coho salmon in the lower 17.5 river miles during the period October 21-27.
- w An additional 17,565 coho salmon were counted by helicopter in the Delta Clearwater outside of the normal mainstem index area.
- x An additional 3,300 coho salmon were counted by helicopter in the Delta Clearwater outside of the normal mainstem index area.
- y An additional 350 coho salmon were counted in Clearwater Lake Inlet.
- aa Survey of western floodplain sloughs only.
- ab Beginning at confluence of Clear Creek, the survey includes counts of Glacier and Wood Creeks up to their headwaters.



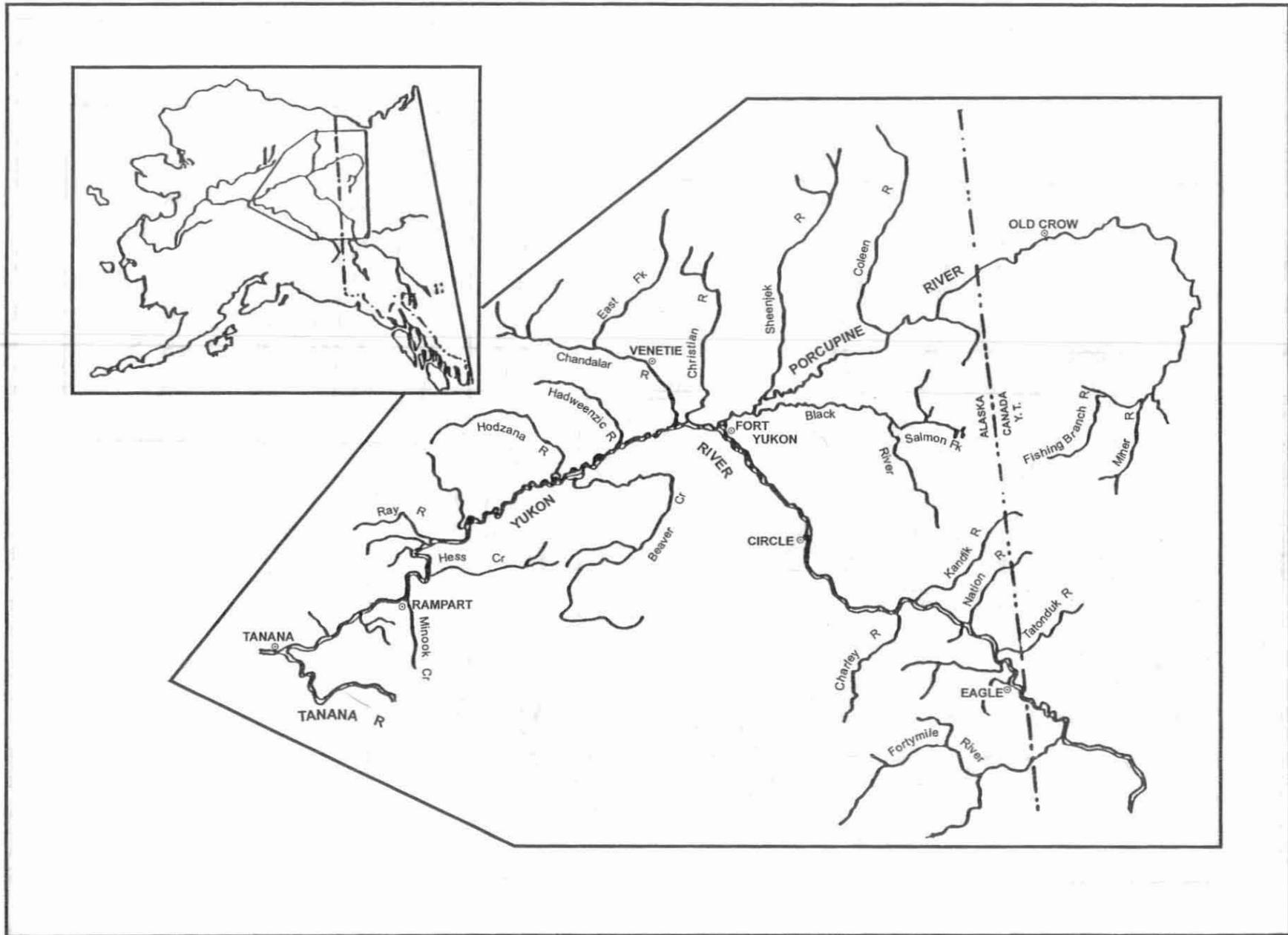
Appendix E.10. The lower Yukon River drainage.



Appendix E.11. The Koyukuk River drainage.



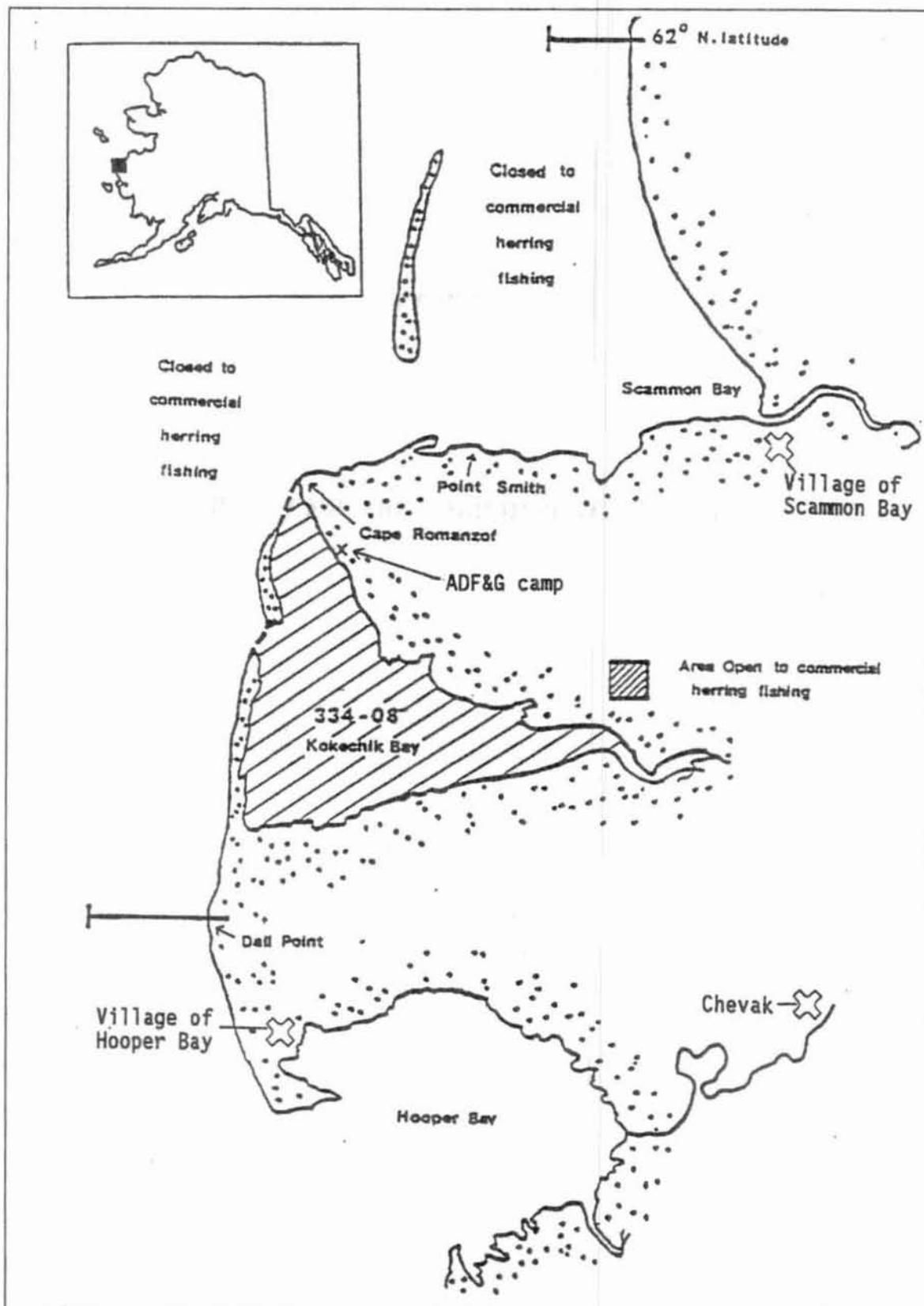
Appendix E.12. The Tanana River drainage.



Appendix E.13. The middle Yukon River and Porcupine River drainages.

APPENDIX F

CAPE ROMANZOF HERRING DISTRICT FISHERY



Appendix F.1. Map of Cape Romanzof Herring District.

Appendix F.2. Commercial herring harvest and effort data by fishing period, Cape Romanzof District, 2000.

Period	Date	Time of Fishery	Number				Harvest (st)					
			Hours Fished	Fishermen	Vessels	Landings	Bait	Roe %	Sac Roe	Sac Roe %	Total	Roe %
1	29-May	2200-2330	1.5	23	23	25	13.7	6.2	16.7	8.5	30.4	7.4
2	31-May	2230-0100	2.5	24	24	29	15.8	7.0	4.3	8.2	20.1	7.2
3	3-Jun	0000-0330	3.5	42	42	101	60.9	6.6	156.9	9.2	217.8	8.5
4	3-Jun	1130-0300	3.5	46	46	75	65.6	6.4	67.3	9.1	133.0	7.8
5	4-Jun	0100-0300	2.0	37	37	55	30.9	6.5	67.3	8.8	98.2	8.1
Total			13.0	46	46	285	187.0	6.5	312.5	9.1	499.5	8.1

Appendix F.3. List of Lower Yukon Area emergency orders pertaining to the Cape Romanzof Herring District, 2000.

E.O. NUMBER	EFFECTIVE DATE	ACTION TAKEN	COMMENTS
3-LY-H-01-00	May 29, 2000	Established a 1.5-hour commercial herring fishing period from 10:00 p.m. Monday, May 29, 2000 until 11:30 p.m. Monday, May 29, 2000. Also restricted gear to no more than 50 fathoms and one gillnet per vessel.	Commercial Test fishing on May 28 yielded herring with a roe content of 9.5%. Department test fishing samples taken on the morning of May 29 yielded herring with a roe content of 6.5%, and moderate spawn deposition was observed on spawning platforms.. The preseason mid range harvest projection was 513 short tons. Due to the efficiency of the fishing fleet, small size of vessels and short fishing time, it was warranted to restrict gear to no more than 50 fathoms and one gillnet per vessel during all periods.
3-LY-H-02-00	May 29, 2000	Established a 2.5-hour commercial herring fishing period from 10:30 p.m. Wednesday, May 31, 2000 until 1:00 a.m. Thursday, June 1, 2000. Also restricted gear to no more than 50 fathoms and one gillnet per vessel.	Approximately 31 st of herring were harvested on the evening tide of May 29. Approximately 483 st of herring remained to be harvested before the quota would be reached. Additional harvest should not impact escapement or subsistence harvest. Due to the efficiency of the fishing fleet, small size of vessels and short fishing time, it was warranted to restrict gear to no more than 50 fathoms and one gillnet per vessel during all periods.
3-LY-H-03-00	June 3, 2000	Established a 3.5-hour commercial herring fishing period from 12 Midnight, Saturday June 3, 2000 until 3:30 a.m. Saturday, June 3, 2000. Also restricted gear to no more than 50 fathoms and one gillnet per vessel.	Approximately 20 st of herring were harvested on the evening tide of June 1. The total harvest to date is approximately 51 st leaving 463 st yet to be harvested. Department test fish crews caught herring with a roe content of 8.0% on June 2. Due to the efficiency of the fishing fleet, small size of vessels and short fishing time, it was warranted to restrict gear to no more than 50 fathoms and one gillnet per vessel during all periods.
3-LY-H-04-00	June 3, 2000	Established a 3.5-hour commercial herring fishing period from 11:30 a.m. Saturday, June 3, 2000 until 3:p.m. Saturday, June 3, 2000. Also restricted gear to no more than 50 fathoms and one gillnet per vessel.	Approximately 218 st of herring were harvested on the evening tide of June 2-3. The total harvest to date is approximately 268 st leaving 245 st yet to be harvested. Due to the efficiency of the fishing fleet, small size of vessels and short fishing time, it was warranted to restrict gear to no more than 50 fathoms and one gillnet per vessel during all periods.
3-LY-H-05-00	June 4, 2000	Established a 2-hour commercial herring fishing period from 1:00 a.m. Sunday, June 4, 2000 until 3:00 a.m. Sunday, June 4,	Approximately 133 st of herring were harvested on the morning high tide of June 3. The total harvest to date is approximately 401 st leaving 112 st yet to be harvested. Due to the efficiency of the fishing

Appendix F.3. (Page 2 of 2)

E.O. NUMBER	EFFECTIVE DATE	ACTION TAKEN	COMMENTS
3-LY-H-05-00 (Continued)		2000. Also restricted gear to no more than 50 fathoms and one gillnet per vessel.	fleet, small size of vessels and short fishing time, it was warranted to restrict gear to no more than 50 fathoms and one gillnet per vessel during all periods.

Appendix F.4. Commercial herring fishery data, Cape Romanzof District, 1980-2000.

	1980	1981	1982	1983 a	1984	1985	1986	1987 b	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	5 Yr. Avg 1995-99
Catch (st)	611	720	657	816	1,185	1,299	1,865	1,342	1,119	926	329	526	530	371	456	541	752	879	727	533	500	686
Hours Fished	326	120	180	144	90	60	42	8	11	13	3	5	6	13	7	15	34	29.5	35	13.5	13.0	25
Percent Roe Recovery	9.8	8	9.3	9	8.6	8.3	9.2	8.9	9.1	9.33	8.4	8.8	8	9.6	9.2	10.1	10.6	10.2	9.6	9.2	9.1	10
Average Weight of Fish (Grams) f			209	226	240	240	253	297	309	310	304	343	354	373	382	365	360	359	368	365	377	363
Estimated Value (\$ millions)	0.13	0.21	0.22	0.37	0.31	0.55	1.14	1	1.02	0.49	0.15	0.21	0.16	0.11	0.12	0.33	0.64	0.19	0.13	0.13	0.06	0.28
Number of Buyers	2	4	2	3	3	2	5	9	6	6	4	2	2	2	2	2	3	3	1	1	2	2
Number of Fishermen	69	111	75	63	66	73	97	157	113	115	95	80	73	41	55	49	63	65	41	57	46	55
Number of Boats	54	82	50	57	59	69	90	152	108	110	90	79	73	41	54	49	63	65	41	57	46	55
Number of Boats with Shakers c	12	11	10	2	1	2	12	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-
% Effort by Local Fishermen d	70	81	85	92	99	91	84	53	63	87	76	96	97	95	95	98	95	95	98	98	98	97
% Harvest by Local Fishermen d	40	60	84	88	100	94	70	33	60	82	77	97	96	91	92	99	96	95	98	99	98	97
Biomass Estimate e	3,000	4,900	4,900	5,500	6,100	7,000	7,500	7,200	6,600	4,400	4,500	4,500	4,500	4,000	5,000	5,000	6,000	5,000	4,500	3,800	3,500	4,860
Exploitation Rate	20.4	14.7	13.4	14.8	19.4	18.6	24.9	18.6	17.0	21.0	7.3	11.7	11.8	9.3	9.1	10.8	12.5	17.6	16.2	14.0	14.3	14.2

a Exclusive Use Regulation into effect.

b Last year hydraulic shakers were allowed.

c Numbers of boats using shakers were estimated.

d Local fishermen described as residents of Chevak, Scammon Bay, and Hooper Bay.

e Biomass estimate is a qualitative estimate of herring abundance, except for aerial survey biomass estimate in 1987.

f Estimated by department from commercial harvest samples.

Appendix F.5. CFEC herring gear permits issued by residence, Cape Romanzof District, 2000. ^a

Residence	Gillnet Permits (G34Y)
Hooper Bay	46
Scammon Bay	22
Chevak	17
Bethel	1
Kotlik	1
Mountain Village	1

88

a Counts are for initial issues only and do not include transfers. Counts include interim use permits.

Appendix F.6. Pacific herring processors and associated data, Cape Romanzof District, 2000.

Commerical Operation (Processing location/ buying station)	Representative	Product	Processing/Tendering Vessels
NorQuest Seafoods, Inc 4225 23rd Ave. W. Seattle, WA 98119 206-281-7022	Marty Jacques	Sac Roe Herring (Frozen)	P/V Aleutian Falcon M/V Zingaro M/V Shypoke M/V Watchman M/V Cape Caution M/V American Patriot
Woodbine Alaska Fish Co. P. O. Box 757 Rio Vista, CA 94571-0757 707-374-5912	Virginia Ferrari	Sac Roe Herring (Frozen)	M/V Maverick

Appendix F.7. Test sample data collected by commercial fishermen, Cape Romanzof District, 2000.

Capture Date/Time	Mesh Size (inches)	Sample Size			% Female	Female % Gonad Maturity				% Roe	Capture Location
		Wt.(kg)	N	# Female		Green	Ripe	Spent	Partial Spawn		
28-May 0830-0930	vmg										multiple locations
	Total	23.0	73	33	45	15	82	0	0	7.3	
29-May 0830-0930	3 1/8	10.0	29	9	31	11	28	0	0	6.2	onshore, in front of Tim's camp
	3 1/8	10.0	26	8	31	0	31	0	0	6.5	onshore, in front of Tim's camp
	3 1/8	10.0	25	12	48	0	48	0	0	10.6	onshore, in front of Tim's camp
	Subtotal	30.0	80	29	36	3	97	0	0	8	
	3	10.0	26	10	38	10	35	0	0	7.1	onshore, in front of Felix Walker's Camp
	3	10.0	25	14	56	0	16	4	0	8.0	onshore, in front of ADFG camp
	3	10.0	25	5	20	0	16	4	0	3.8	onshore, in front of ADFG camp
	3	10.0	26	12	46	8	31	12	0	6.8	onshore, in front of ADFG camp
	3	10.0	25	16	64	0	60	4	0	12.5	onshore, in front of ADFG camp
	Subtotal	50.0	127	57	45	2	70	3	0	7.6	
	Total	40.0	207	86	81	5	79	1	0	7.7	
29-May 1930-2030	3	10.0	25	14	56	0	56	0	5	11.0	N of ADFG camp
	3	10.0	25	13	52	8	44	4	3	9.5	N of ADFG camp
	3	10.0	26	18	69	6	65	0	6	11.4	Pt. S of ADFG camp
	3	10.0	26	17	65	0	65	0	7	12.5	Pt. S of ADFG camp
	3	10.0	25	12	48	8	44	4	4	7.3	Pt. S of ADFG camp
	3	10.0	25	8	32	0	32	0	0	8.2	ADFG CAMP
	3	10.0	24	8	33	13	29	0	0	6.6	ADFG CAMP
	3	10.0	27	16	59	0	59	0	2	11.2	ADFG CAMP
	3	10.0	25	10	40	0	40	0	2	11.2	ADFG CAMP
	3	10.0	27	12	44	0	44	0	1	9.2	ADFG CAMP
	3	10.0	26	11	42	0	42	0	0	9.2	ADFG CAMP
	3	10.0	26	10	38	0	38	0	4	6.0	ADFG CAMP
	3	10.0	25	10	40	0	40	0	2	8.4	ADFG CAMP
	3	10.0	26	16	62	0	62	0	2	10.8	ADFG CAMP
	3	10.0	27	8	30	0	30	0	2	6.0	N of ADFG camp
	3	10.0	26	14	54	7	50	0	3	8.4	N of ADFG camp
	3	10.0	28	9	32	0	32	0	4	5.8	N of ADFG camp
	3	10.0	28	6	21	0	21	0	2	4.0	N of ADFG camp
	3	10.0	27	16	59	0	59	0	6	8.6	N of ADFG camp
	3	10.0	26	11	42	9	35	0	4	8.6	N of ADFG camp
3	10.0	27	10	37	0	37	0	4	5.8	N of ADFG camp	
3	10.0	28	15	54	0	54	0	4	9.6	N of ADFG camp	
3	10.0	28	12	43	0	43	0	5	6.8	N of ADFG camp	
Subtotal	230.0	603	276	46	1	97	1	72	8.5	N of ADFG camp	

-Continued-

Capture Date/Time	Mesh Size (inches)	Sample Size			% Female	Female % Gonad Maturity				% Roe	Capture Location
		Wt.(kg)	N	# Female		Green	Ripe	Spent	Partial Spawn		
29-May (continued)	3 1/8	10.0	26	11	42	0	100	0	0	10.0	Tims camp
	3 1/8	10.0	27	10	37	10	90	0	0	8.9	Tims camp
	3 1/8	10.0	25	5	20	0	100	0	0	4.3	Tims camp
	3 1/8	10.0	26	13	50	0	100	0	0	10.8	Tims camp
	Subtotal	40.0	104	39	38	3	97	0	0	8.5	
	Total	270.0	707	315	83	4	195	1	72	8.5	
30-May 0930-1100	3 1/8	10.0	24	10	42	10	90	0	0	8.7	Tims camp
	3 1/8	10.0	26	12	46	0	83	17	0	8.0	Tims camp
	3 1/8	10.0	26	15	58	13	87	0	0	10.7	Tims camp
	3 1/8	10.0	24	14	58	7	93	0	0	9.8	Pt N of Camp
	3 1/8	10.0	25	12	48	17	67	17	0	7.0	Pt N of Camp
	3 1/8	8.0	18	9	50	11	67	22	0	7.3	Pt N of Camp
	Total	58.0	143	72	50	10	82	8	0	8.6	
30-May 2000-2100	3	10.0	28	11	39	0	91	9	0	7.4	N of ADFG camp
	3	10.0	26	11	42	0	100	0	0	9.0	N of ADFG camp
	3	10.0	26	12	46	8	83	8	0	9.6	N of ADFG camp
	3	10.0	31	14	45	7	86	7	0	6.4	N of ADFG camp
	3	10.0	26	11	42	9	82	9	1	7.5	S of Castle Rock
	3	10.0	27	11	41	27	73	9	0	6.3	S of Castle Rock
	3	10.0	26	14	54	0	100	0	1	10.6	S of Castle Rock
	3	10.0	26	11	42	27	100	9	3	8.6	ADFG to Tims camp
		Total	20.0	216	95	44	9	67	5	5	8.2
31-May 2045-2145	3	10.0	25	9	36	0	100	0	0	8.6	Tims camp
	3	10.0	25	12	48	8	92	0	0	9.0	Tims camp
	3	10.0	26	12	46	0	100	0	0	9.0	Tims camp to ADFG
	3 1/8	9.8	25	10	40	0	100	0	0	12.0	Chevak Camp
	3	4.8	13	4	31	25	75	0	0	3.5	ADFG Camp
	3	8.2	18	9	50	11	89	0	0	6.4	ADFG Camp
	Total	52.8	132	56	42	5	95	0	0	8.1	
2-Jun 2145-2300	3	10.0	26	16	62	0	100	0	8	5.7	Tims Camp
	3	10.0	26	12	46	0	100	0	5	9.4	Tims Camp
	3	10.0	26	16	62	0	100	0	3	7.0	Tims Camp
	3	10.0	27	17	63	0	100	0	4	7.0	Tims Camp
	3	10.0	25	13	52	0	100	0	0	12.4	Pt north of ADFG
	3	10.0	25	9	36	0	100	0	0	8.3	Pt north of ADFG
	3	10.0	24	11	46	0	100	0	0	10.0	Pt north of ADFG

-Continued-

Capture Date/Time	Mesh Size (inches)	Sample Size			% Female	Female % Gonad Maturity				% Roe	Capture Location
		Wt.(kg)	N	# Female		Green	Ripe	Spent	Partial Spawn		
2-Jun (continued)	3	10.0	24	10	42	0	100	0	1	10.0	Castle Rock
	3	10.0	25	9	36	0	100	0	0	8.3	Pt north of ADFG
	3	10.0	24	11	46	0	100	0	0	10.0	Pt north of ADFG
	3	10.0	24	10	42	0	100	0	1	10.0	Castle Rock
	3	5.0	13	9	69	0	100	0	0	14.6	Castle Rock
	3	10.0	26	17	65	6	88	6	1	12.0	Castle Rock
	3	10.0	25	10	40	0	100	0	0	7.7	Castle Rock
	3	10.0	29	15	52	20	80	0	1	8.9	Castle Rock
	3	10.0	25	15	60	0	100	0	0	12.6	Tims Camp
	3	10.0	26	8	31	0	100	0	0	6.6	Tims Camp
	3	10.0	25	11	44	0	100	0	0	9.3	Tims Camp
Subtotal		175.0	445	219	49	2	98	0	24	8.5	
2-Jun	3 1/8	10.0	25	14	56	0	100	0	4	8.8	Tims Camp
	3 1/8	10.0	25	15	60	0	100	0	4	6.9	Tims Camp
	3 1/8	10.0	25	13	52	8	92	0	2	10.2	Tims Camp
	3 1/8	10.0	24	6	25	0	100	0	2	4.6	Tims Camp
	Subtotal		40.0	99	48	48	2	98	0	12	8.5
Total		350.0	890	438	49	1	60	0	36	8.3	

Appendix F.8. Subsistence herring harvest (st) and effort data by village, Cape Romanzof, 1975-2000.a

Year	Scammon Bay		Chevak		Hooper Bay		Totals	
	Harvest	Number of Fishermen	Harvest	Number of Fishermen	Harvest	Number of Fishermen	Harvest	Number of Fishermen
1975	-	-	-	-	2.8	34	2.8	34
1976	0.7	4	0.7	9	3.0	28	4.4	41
1977	-	-	0.2	2	2.4	28	2.5	30
1978	0.7	1	-	-	3.9	29	4.5	30
1979	6.0	21	2.3	21	3.1	42	11.4	84
1980	3.1	18	3.6	20	3.7	23	10.4	61
1981	7.7	16	1.8	9	4.0	20	13.5	45
1982	3.9	15	1.9	10	4.7	18	10.5	43
1983	2.5	14	1.5	5	5.2	18	9.2	37
1984	4.3	16	2.6	7	4.2	24	11.1	47
1985	2.4	11	2.2	13	3.4	20	8.0	44
1986	2.8	17	0.7	4	2.5	19	6.0	40
1987	1.4	8	0.5	5	1.1	10	3.0	23
1988	2.0	7	1.5	6	3.6	19	7.2	32
1989	1.1	7	0.1	1	1.8	16	3.0	24
1990	1.7	5	0.6	3	5.6	24	7.9	32
1991	1.7	7	0.4	3	1.1	8	3.2	18
1992	1.2	10	0.4	4	2.5	16	4.1	30
1993	2.7	17	0.1	1	2.4	24	5.1	42
1994	1.4	9	2.0	16	3.1	23	6.5	48
1995	1.1	11	1.2	9	3.8	22	6.1	42
1996	1.0	10	0.5	4	1.7	15	3.1	29
1997	0.9	10	0.2	3	2.2	21	3.2	34
1998	0.7	7	0.1	2	0.9	7	1.7	16
1999	6.0	24	2.3	12	4.2	31	12.5	67
2000	3.9	26	1.0	10	1.3	14	6.2	50
1995-1999 Average	1.9	12	0.9	6	2.6	19	5.3	38

a Subsistence survey results are believed to reflect harvest trends, however, reported catches reflect minimum figures since all fishermen cannot be contacted. Note: Data are updated annually as new information is obtained.

Appendix F.9. Subsistence harvest of roe-on-kelp by village, Cape Romanzof District, 1993-2000.

Year	Scammon Bay		Chevak		Hooper Bay		Totals	
	Number of Fishers	Pounds Roe-on-Kelp						
1993	9	300			10	213	19	513
1994	7	104	4	135	12	417	23	656
1995	12	298	1	25	13	383	26	706
1996	7	113	2	31	9	480	18	624
1997	6	130	1	25	13	400	20	555
1998	2	420	2	105	3	60	7	585
1999	15	416	5	160	22	549	42	1,125
2000	19	644	3	155	8	220	30	1,019
1995-1999 Average	8	275	2	69	12	374	23	719

Appendix F.10. Aerial survey biomass estimates of Pacific herring, Cape Romanzof District, 2000.

Date	Flight		Survey Rating b	Spawn		Biomass (st) Estimates by Index Area a			
	No.	Hrs.		No.	Length (miles)	KOK	SCB	HPB	Total
22-May	1	0.25	4	0	0.00	0.0	0.0	-	0.0
29-May	2	1.00	4	0	0.00	24.0	194.0	0.0	218.0
3-Jun	3	0.55	3	0	0.00	291.0	121.0	-	412.0
6-Jun	4	0.33	3	0	0.00	0.0	0.0	-	0.0
9-Jun	5	0.25	4	0	0.00	0.0	0.0	-	0.0
Total		2.38		0	0.00				

a Index Areas: KOK-Kokechik Bay and offshore waters from Cape Romanzof to Hooper Bay
 SCB-Scammon Bay (Cape Romanzof to Kun River), HPB - Hooper Bay.

b Survey Rating

1=Excellent (calm, no glare)

2=Good (light ripple, uneven lighting, easy to see schools)

3=Fair (light chop, some glare or shadows, relatively easy to see schools)

4=Poor (rough seas, strong glare, difficult to see schools)

5=Unsatisfactory

Appendix F.11. Percent age composition of herring sampled from commercial harvest, Cape Romanzof District, 1980-2000. a

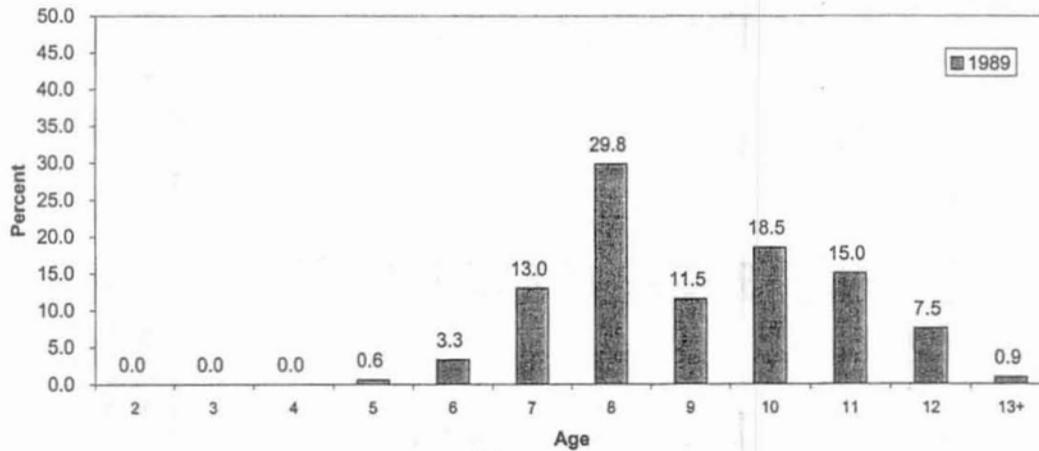
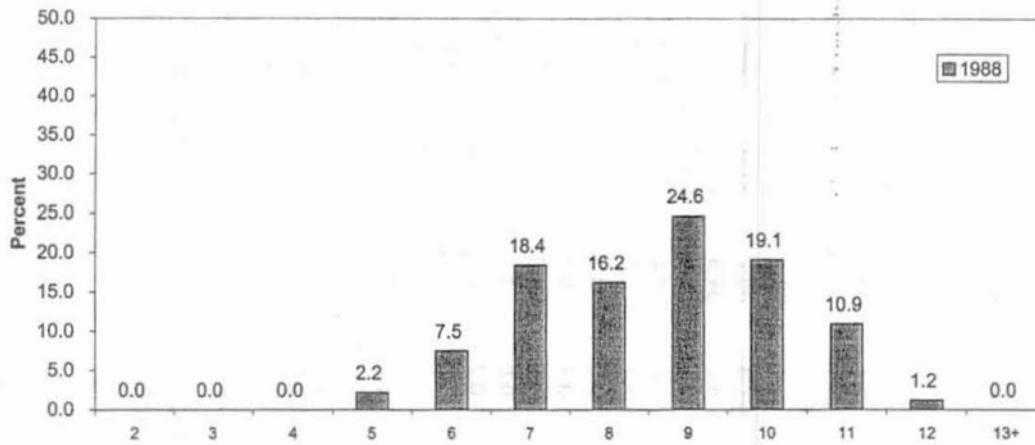
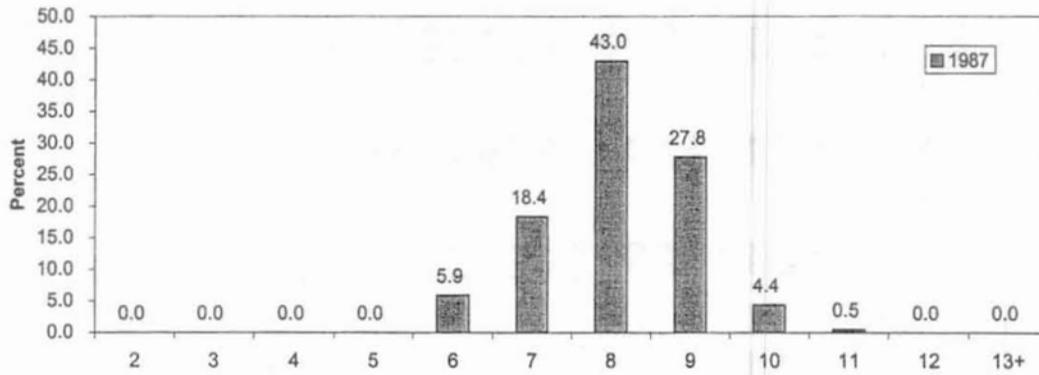
Year	Number Sampled b	Age in Years												Total c
		2	3	4	5	6	7	8	9	10	11	12	13+	
1980	374	0.0	2.4	20.1	5.1	38.0	9.9	23.0	0.5	0.3	0.5	0.3	0.0	100.1
1981	315	0.0	0.3	55.9	25.1	1.6	11.7	2.2	3.2	0.0	0.0	0.0	0.0	100.0
1982	604	0.0	0.2	13.7	66.4	13.2	1.2	3.3	1.0	1.0	0.0	0.0	0.0	100.0
1983	913	0.0	0.0	15.8	29.8	45.1	6.7	0.4	1.6	0.4	0.1	0.0	0.0	99.9
1984	543	0.0	0.0	0.6	17.3	35.2	41.3	2.9	1.7	0.6	0.4	0.2	0.0	100.2
1985	583	0.0	0.0	6.5	8.9	34.6	29.3	16.6	3.4	0.5	0.0	0.0	0.0	99.8
1986	570	0.0	0.0	0.0	3.3	3.5	30.2	29.6	29.3	3.2	0.5	0.4	0.0	100.0
1987	407	0.0	0.0	0.0	0.0	5.9	18.4	43.0	27.8	4.4	0.5	0.0	0.0	100.0
1988	414	0.0	0.0	0.0	2.2	7.5	18.4	16.2	24.6	19.1	10.9	1.2	0.0	100.1
1989	702	0.0	0.0	0.0	0.6	3.3	13.0	29.8	11.5	18.5	15.0	7.5	0.9	100.1
1990	287	0.0	0.0	0.0	0.7	9.1	10.8	21.6	23.7	9.8	13.2	7.7	3.5	100.1
1991	591	0.0	0.0	0.0	0.2	1.0	29.1	17.4	15.4	13.4	9.0	8.6	5.9	100.0
1992	401	0.0	0.0	0.0	0.0	1.0	1.0	27.7	17.5	17.5	16.7	7.5	11.1	100.0
1993	819	0.0	0.0	0.0	0.7	3.5	2.6	2.0	29.8	13.4	14.8	16.6	16.6	100.0
1994	452	0.0	0.0	0.0	0.0	4.4	6.6	4.0	6.6	29.0	16.6	14.4	18.4	100.0
1995	453	0.0	0.0	0.0	0.7	1.3	13.7	19.4	5.5	6.8	24.7	10.6	17.2	99.9
1996	588	0.0	0.0	0.0	0.0	2.9	1.0	27.4	20.6	8.3	8.3	15.6	15.9	100.0
1997	530	0.0	0.0	0.0	0.2	3.0	5.8	4.7	42.1	15.3	7.0	7.4	14.6	100.1
1998	560	0.0	0.0	0.0	0.4	0.4	10.9	21.1	3.6	34.6	14.1	4.5	10.6	100.2
1999	537	0.0	0.0	0.0	0.2	2.0	0.2	18.2	21.6	6.0	37.8	7.6	6.4	100.0
2000	575	0.0	0.0	0.0	0.2	0.2	20.4	0.8	22.4	19.3	8.1	20.8	7.7	99.9

a Data from annual Age, Size, and Sex Composition ADF&G Technical Data and RIR Reports.

b Number sampled shown are number of fish which could be aged.

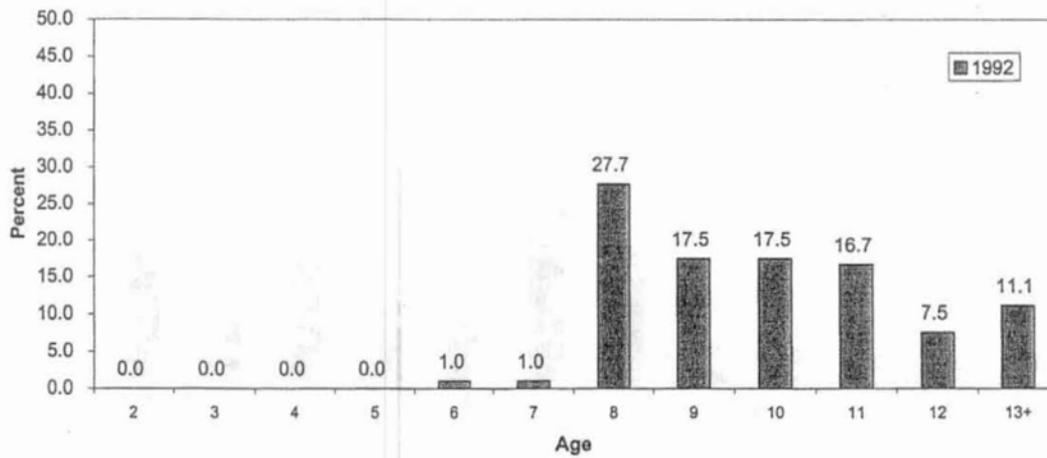
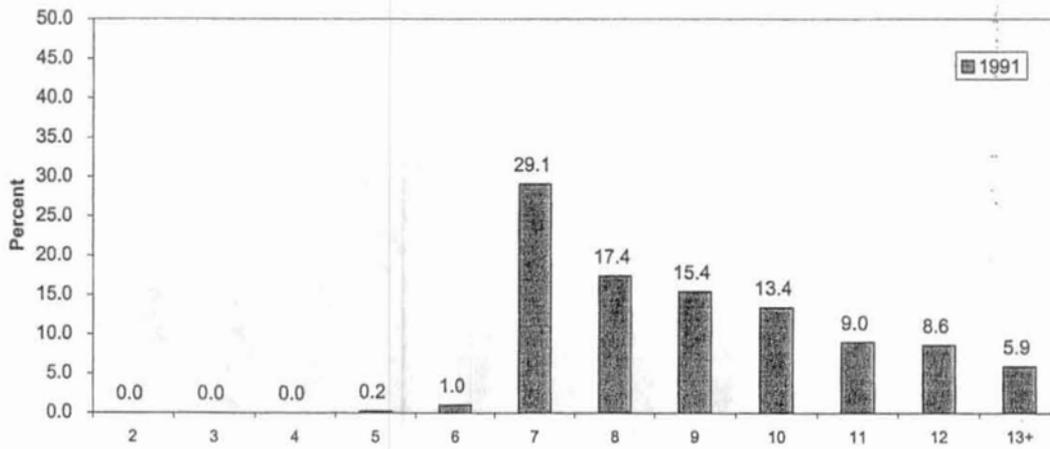
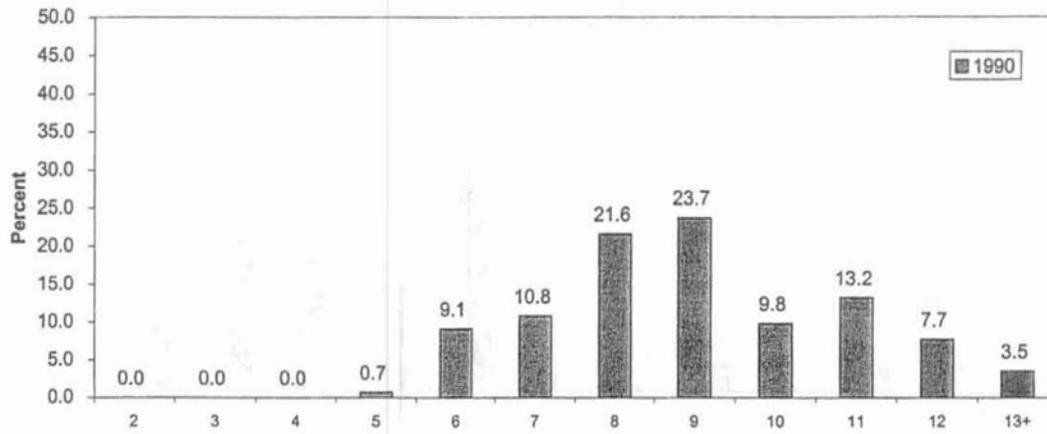
c Totals may not equal 100% due to rounding errors.

Age Composition of Commercial Herring Harvest



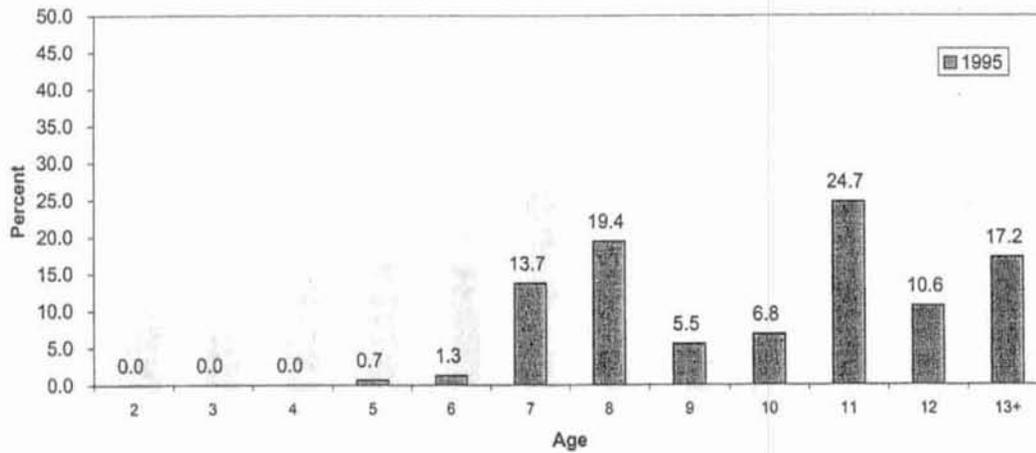
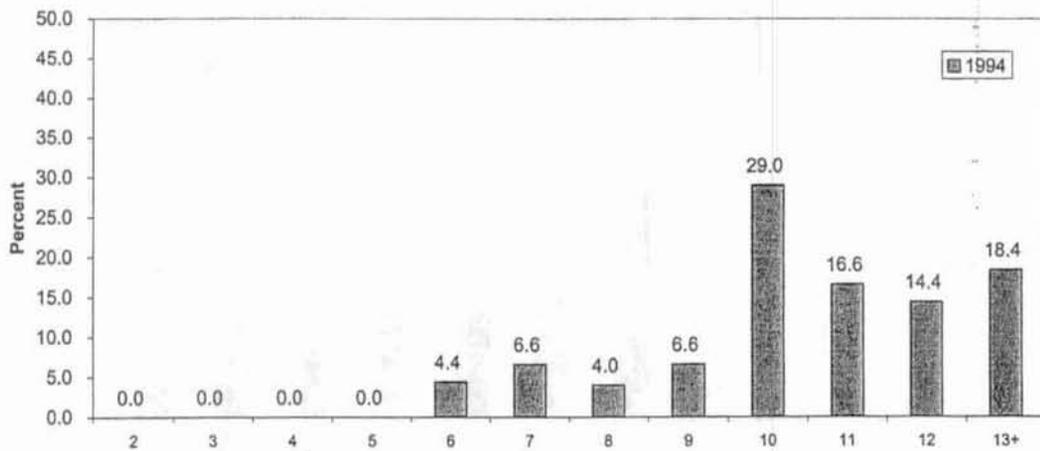
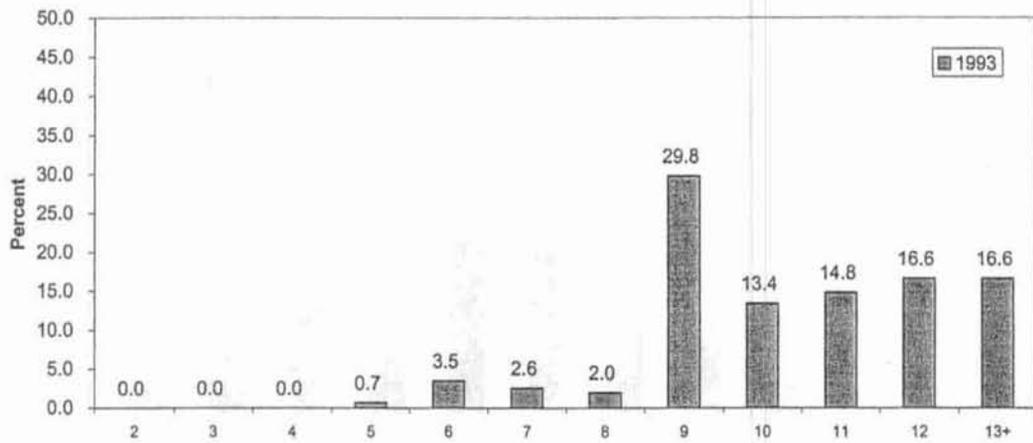
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Age Composition of Commercial Herring Harvest



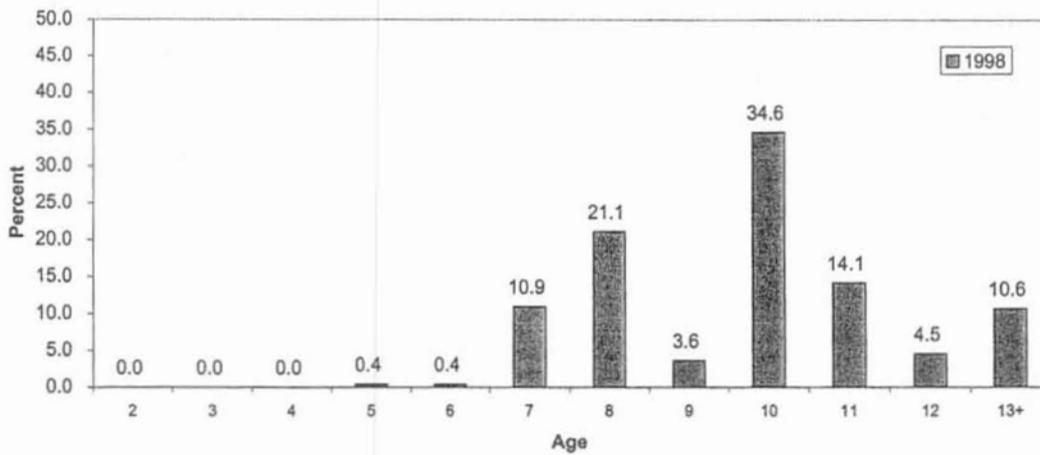
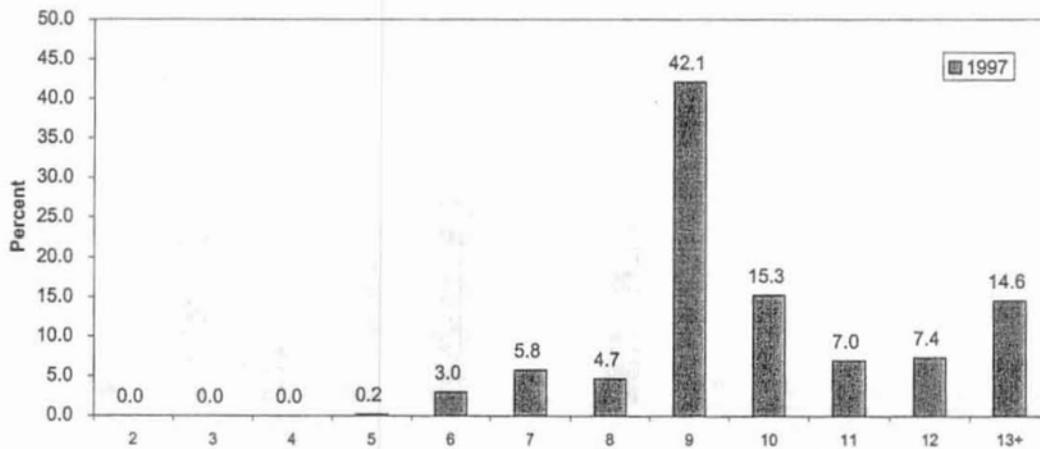
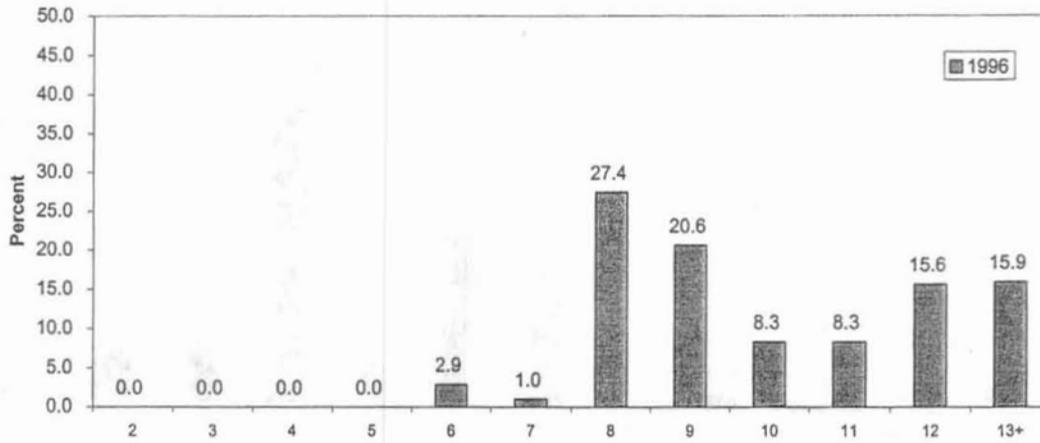
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Age Composition of Commercial Herring Harvest



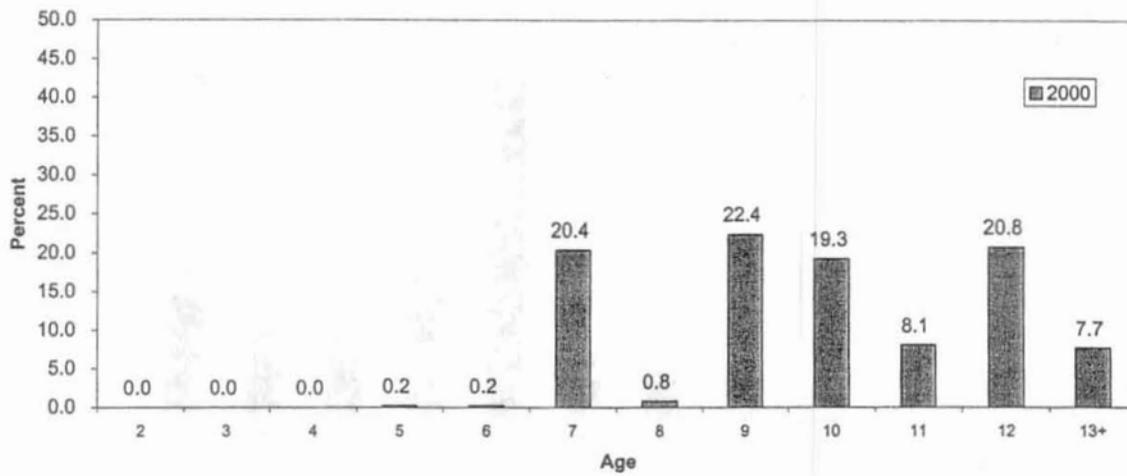
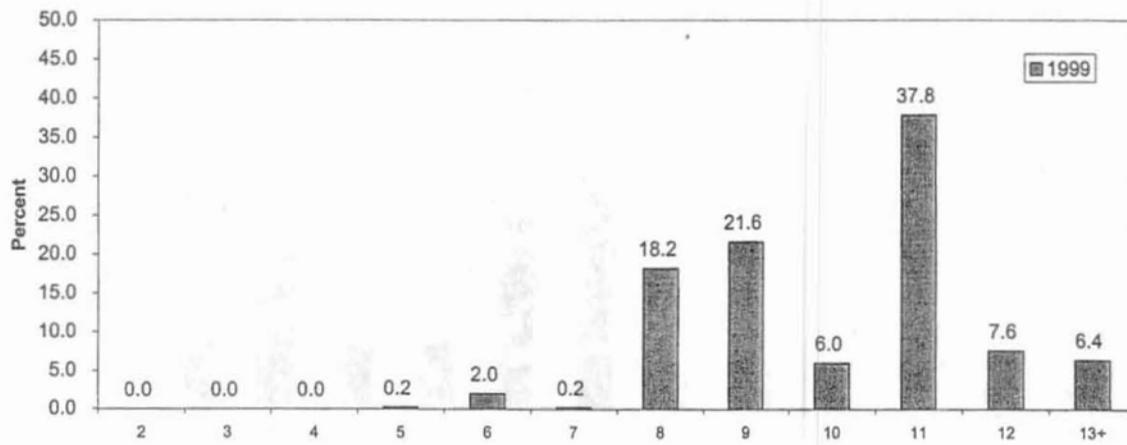
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Age Composition of Commercial Herring Harvest



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Age Composition of Commercial Herring Harvest



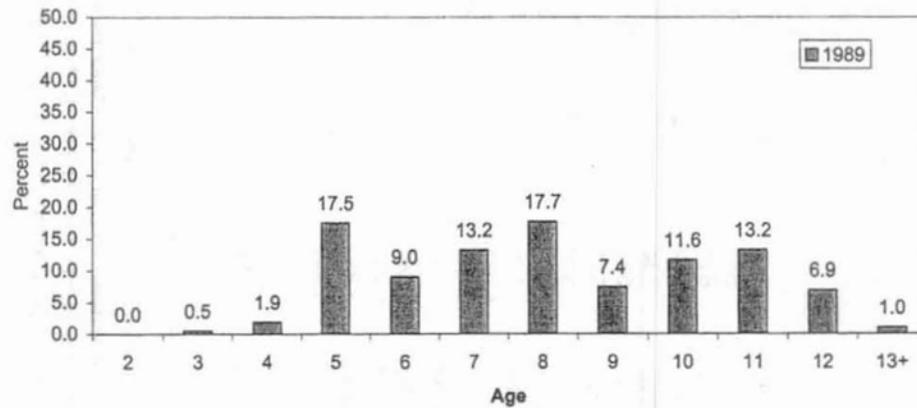
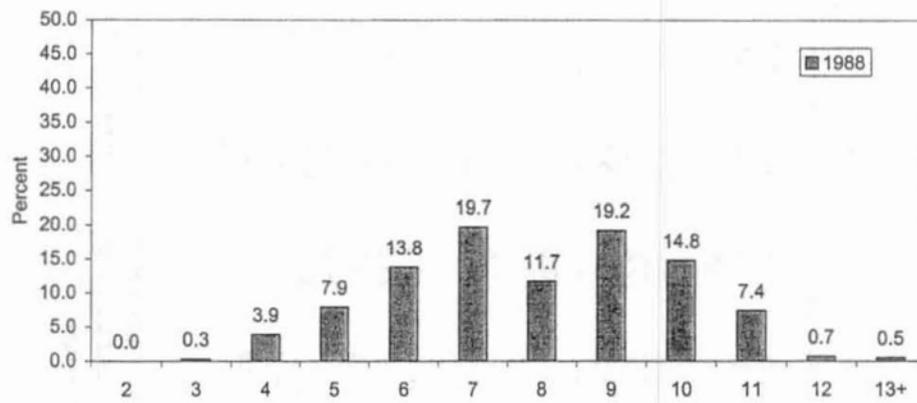
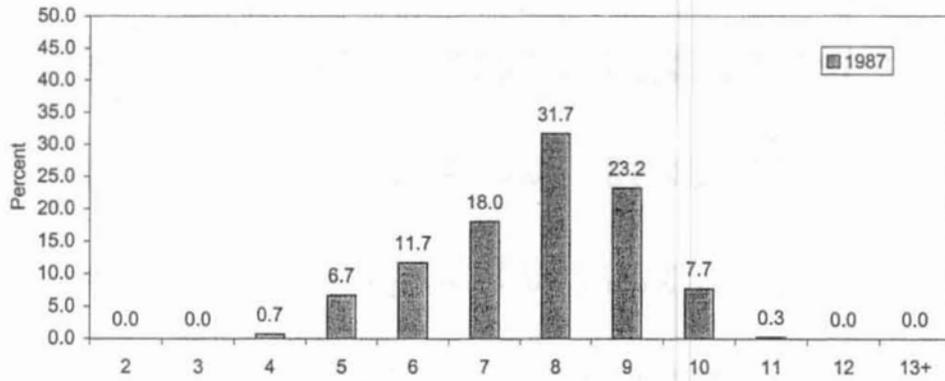
Appendix F.13. Percent age composition of herring sampled from variable mesh gillnet catches, Cape Romanzof District, 1980-2000. a, b

Year	Number Sampled c	Age in Years												Total d
		2	3	4	5	6	7	8	9	10	11	12	13+	
1980	447	0.4	19.2	17.0	2.0	27.3	6.9	25.3	0.4	0.4	0.4	0.4	0.0	99.7
1981	589	0.0	7.8	55.3	13.2	1.5	10.4	4.8	6.3	0.2	0.0	0.3	0.2	100.0
1982	611	0.7	7.5	20.3	39.3	9.5	1.8	7.4	7.2	5.6	0.7	0.0	0.2	100.2
1983	829	0.0	0.6	21.2	25.2	39.8	5.3	1.4	3.9	1.9	0.5	0.1	0.0	99.9
1984	735	0.0	1.5	5.7	26.9	19.3	36.1	4.8	3.5	1.6	0.3	0.3	0.0	100.0
1985	531	0.0	1.7	21.8	6.4	22.8	16.9	26.2	2.8	0.8	0.6	0.0	0.0	100.0
1986	511	0.0	0.0	4.9	18.2	7.0	25.4	20.7	20.4	2.5	0.6	0.2	0.0	99.9
1987	690	0.0	0.0	0.7	6.7	11.7	18.0	31.7	23.2	7.7	0.3	0.0	0.0	100.0
1988	608	0.0	0.3	3.9	7.9	13.8	19.7	11.7	19.2	14.8	7.4	0.7	0.5	99.9
1989	378	0.0	0.5	1.9	17.5	9.0	13.2	17.7	7.4	11.6	13.2	6.9	1.0	99.9
1990	1,011	0.0	1.0	4.7	3.6	24.6	11.2	12.7	17.5	7.7	9.4	5.3	2.3	100.0
1991	1,152	0.0	0.1	3.0	3.9	3.0	29.3	13.9	15.0	13.4	7.3	6.3	4.8	100.0
1992	994	0.0	0.0	6.4	4.6	4.7	2.0	19.4	12.7	20.6	12.9	7.7	8.8	99.8
1993	1,263	0.0	0.7	2.3	16.9	10.5	5.8	3.9	20.0	10.1	13.6	8.4	7.9	100.1
1994	1,246	0.0	0.0	3.1	2.9	23.8	13.6	5.1	4.7	17.1	9.1	9.3	11.2	99.9
1995	1,398	0.0	0.1	5.4	8.4	2.1	24.4	14.7	5.0	5.3	18.5	7.1	9.0	100.0
1996	1,083	0.0	1.1	1.6	11.6	14.9	3.5	30.9	15.0	5.4	4.0	8.0	4.1	100.1
1997	1,312	0.0	0.6	21.6	1.7	11.5	13.0	2.7	28.4	10.0	3.0	2.4	5.4	100.3
1998	1,262	0.0	0.3	1.7	20.0	2.3	18.8	18.2	2.9	21.2	8.4	2.7	3.5	100.0
1999	846	0.0	0.4	1.9	0.9	18.1	0.8	18.9	17.7	6.4	25.5	5.4	3.9	99.9
2000	738	0.0	0.1	15.7	10.1	2.5	23.8	1.9	13.5	11.9	4.4	12.6	3.4	99.9

- a Data from annual Age, Size, and Sex Composition ADF&G Technical Data and RIR Reports.
- b Variable mesh test gill net samples include Kokechik Bay and Scammon Bay fish sampled combined.
- c Number sampled shown are number of fish which could be aged.
- d Totals may not equal 100% due to rounding errors.

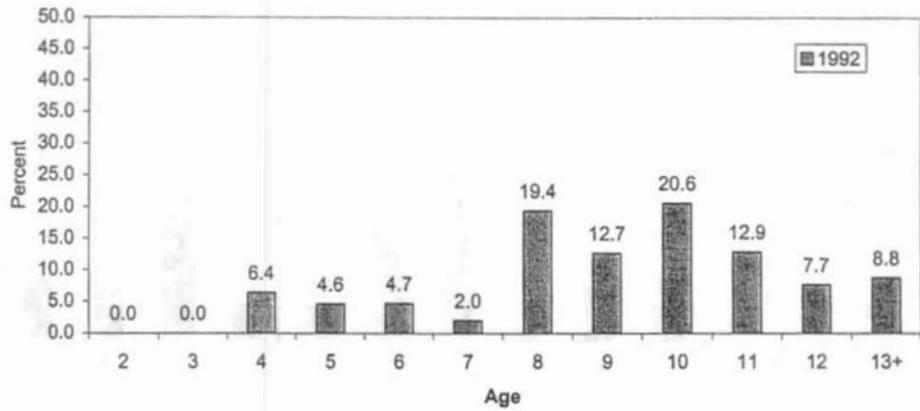
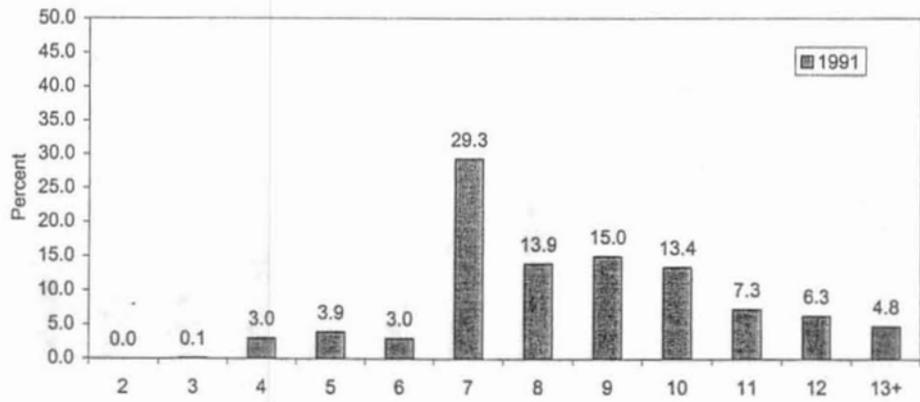
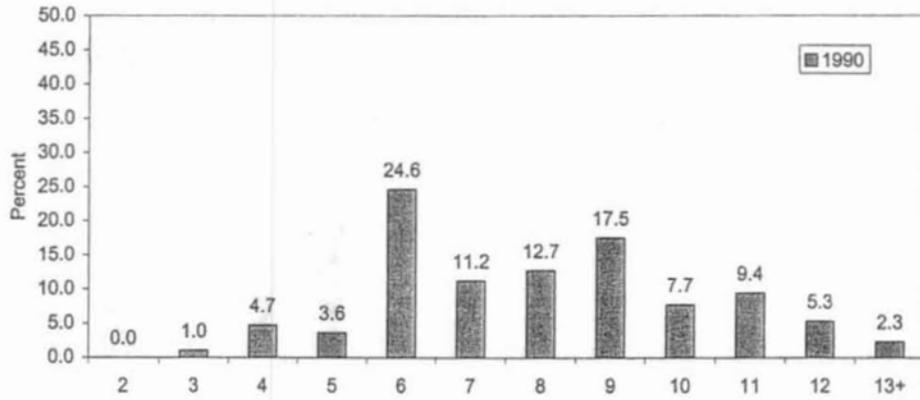
Appendix F.14. Age composition of Pacific herring sampled from variable mesh gillnet catches, Cape Romanzof District, 1987-2000.

Age Composition of Variable Test Gillnet Catch



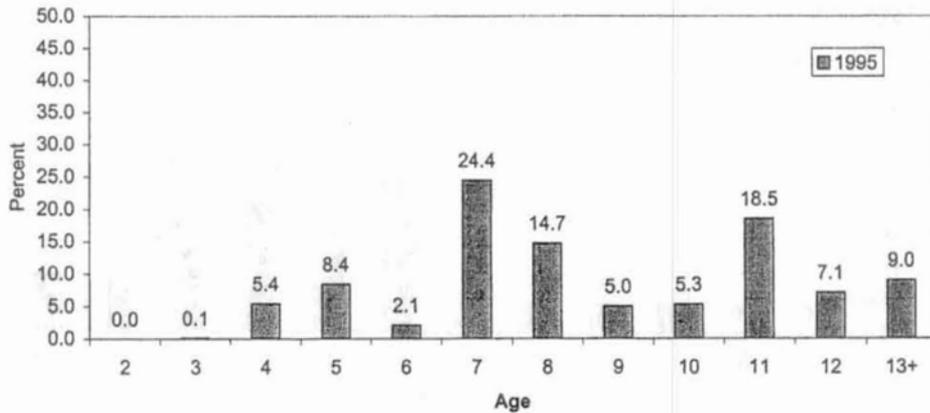
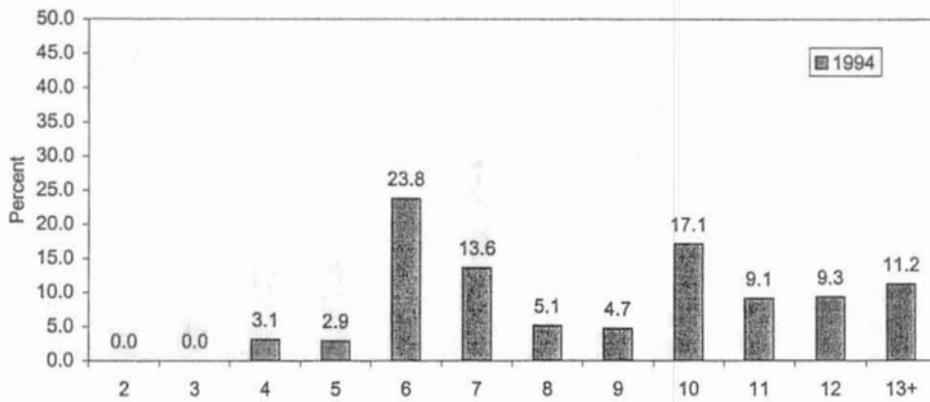
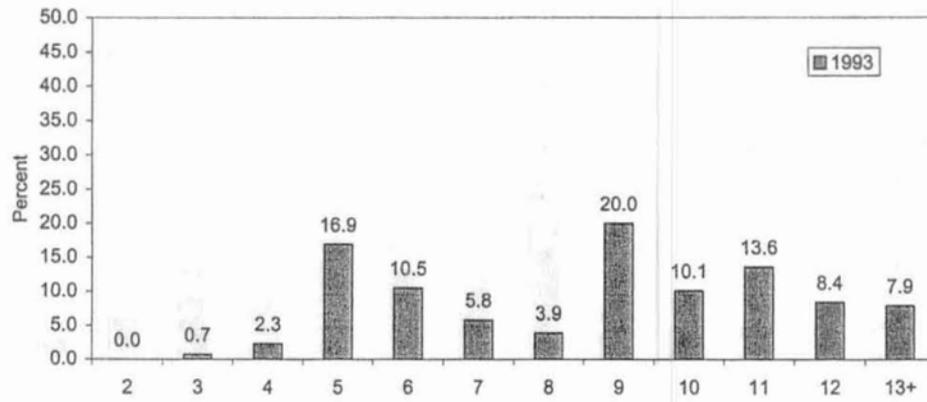
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Age Composition of Variable Test Gillnet Catch



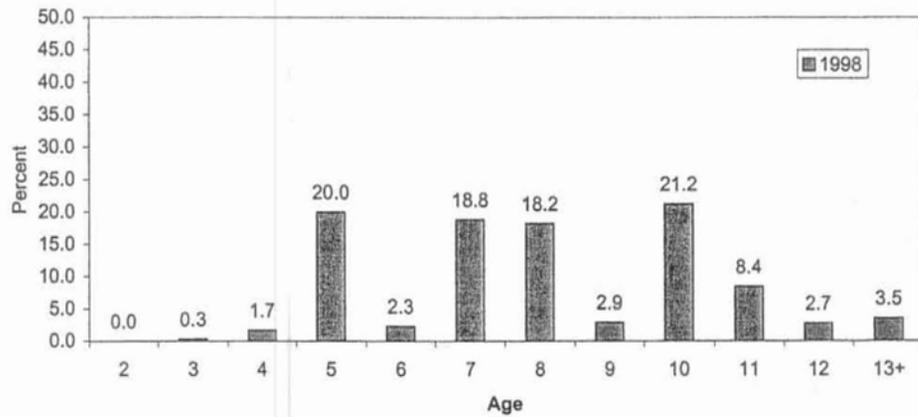
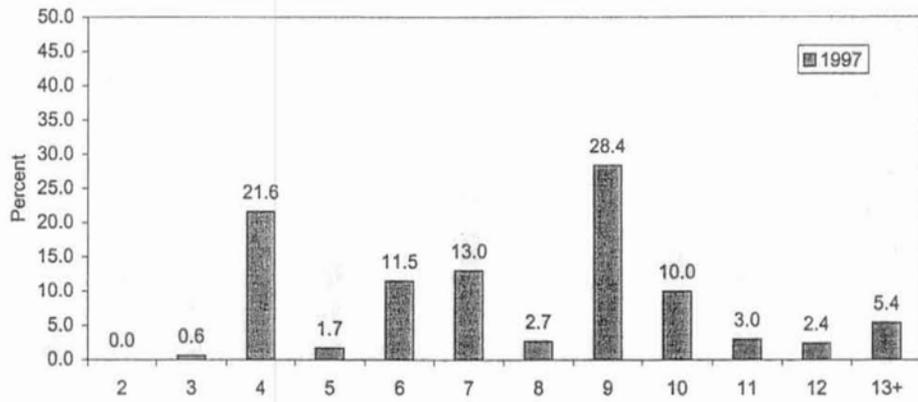
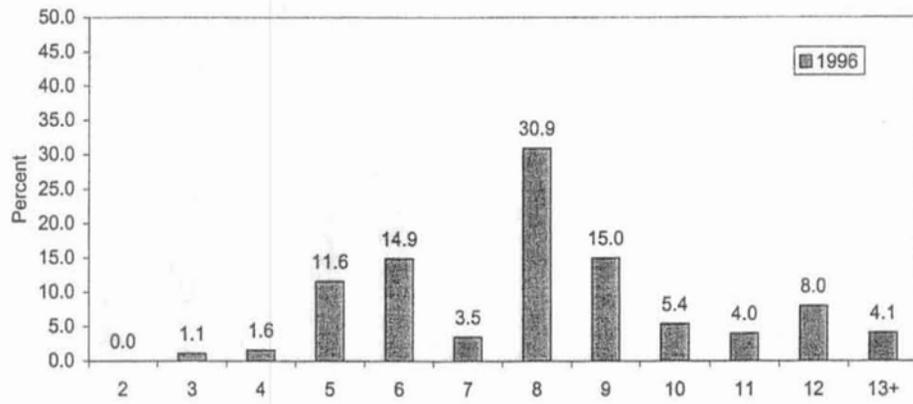
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Age Composition of Variable Test Gillnet Catch



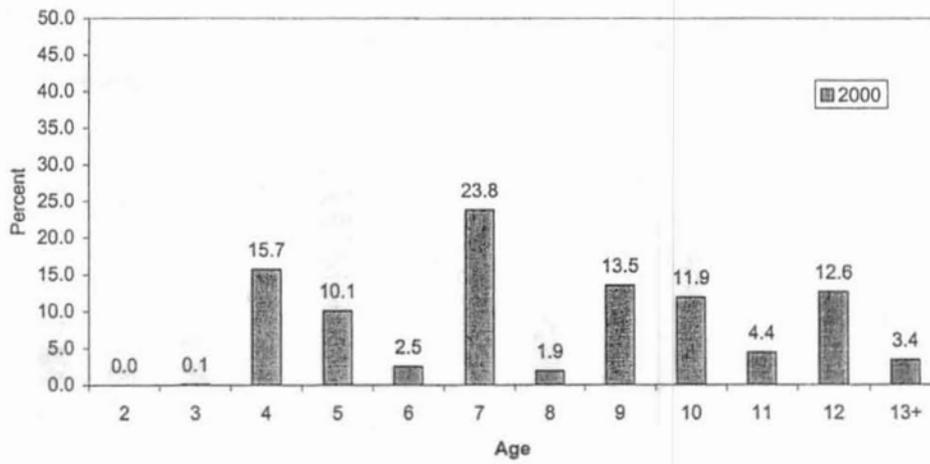
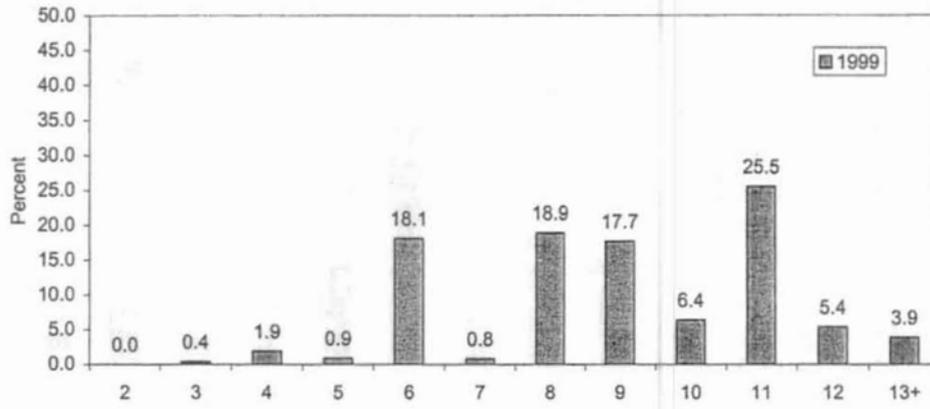
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Age Composition of Variable Test Gillnet Catch



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Age Composition of Variable Test Gillnet Catch



Appendix F.15. Herring spawn weight, cumulative weight and related data from artificial substrate, Cape Romanzof, 2000.

Date	Time	Platforms 1-25					Platforms 26-40					Combined Sections			
		Daily Weight (1g)	Cum. Weight (g)	Daily Prop	Cum. Prop	Platforms Not Visited	Daily Weight (1g)	Cum. Weight (g)	Daily Prop	Cum. Prop	Platforms Not Visited	Daily Weight (g)	Cum. Weight (g)	Daily Proportion	Cum. Proportion
10-May															
11-May															
12-May															
13-May															
14-May															
15-May															
16-May	a														
17-May	b	0.0	0.0	0.000	0.000	1-19	0.0	0.000	0.000			0.0	0.0	0.000	0.000
18-May		0.0	0.0	0.000	0.000	1, 2	0.0	0.000	0.000			0.0	0.0	0.000	0.000
19-May		0.0	0.0	0.000	0.000	1, 2	0.0	0.000	0.000			0.0	0.0	0.000	0.000
20-May	10:45	0.0	0.0	0.000	0.000	1, 2	0.0	0.000	0.000			0.0	0.0	0.000	0.000
21-May	11:00	0.0	0.0	0.000	0.000	1, 2	0.0	0.000	0.000			0.0	0.0	0.000	0.000
22-May	12:20	0.0	0.0	0.000	0.000		0.0	0.000	0.000			0.0	0.0	0.000	0.000
23-May		0.0	0.0	0.000	0.000		0.0	0.000	0.000			0.0	0.0	0.000	0.000
24-May		0.0	0.0	0.000	0.000	2-6,8-11,13-15,18	0.0	0.000	0.000	31, 32, 38		0.0	0.0	0.000	0.000
25-May		0.0	0.0	0.000	0.000	2,3,5,6,8-11,13,22	0.0	0.000	0.000	36		0.0	0.0	0.000	0.000
26-May		0.0	0.0	0.000	0.000	2-5,10,16	0.0	0.000	0.000			0.0	0.0	0.000	0.000
27-May		0.0	0.0	0.000	0.000		0.0	0.000	0.000			0.0	0.0	0.000	0.000
28-May	16:05	0.0	0.0	0.000	0.000		0.0	0.000	0.000			0.0	0.0	0.000	0.000
29-May	15:33	1651.0	1,651.0	0.307	0.307		267.0	267.0	0.087	0.087		1,918.0	1,918.0	0.227	0.227
30-May	16:44	0.0	1,651.0	0.000	0.307		0.0	267.0	0.000	0.087		0.0	1,918.0	0.000	0.227
31-May	17:30	0.0	1,651.0	0.000	0.307		0.0	267.0	0.000	0.087		0.0	1,918.0	0.000	0.227
01-Jun	19:00	0.0	1,651.0	0.000	0.307		0.0	267.0	0.000	0.087		0.0	1,918.0	0.000	0.227
02-Jun	07:20	0.0	1,651.0	0.000	0.307		0.0	267.0	0.000	0.087		0.0	1,918.0	0.000	0.227
03-Jun	08:10	0.0	1,651.0	0.000	0.307		0.0	267.0	0.000	0.087	31,33,36,40	0.0	1,918.0	0.000	0.227
04-Jun	10:00	729.0	2,380.0	0.136	0.443	1,3,4,6,8-13,15,18	143.0	410.0	0.046	0.133	30,31,32,38	872.0	2,790.0	0.103	0.330
05-Jun	10:10	1,716.0	4,096.0	0.319	0.762		1,540.0	1,950.0	0.500	0.633		3,256.0	6,046.0	0.385	0.715
06-Jun	10:30	724.0	4,820.0	0.135	0.897		538.0	2,488.0	0.175	0.808		1,262.0	7,308.0	0.149	0.864
07-Jun	11:20	554.0	5,374.0	0.103	1.000		593.0	3,081.0	0.192	1.000		1,147.0	8,455.0	0.136	1.000
08-Jun	13:00	0.0	5,374.0	0.000	1.000		0.0	3,081.0	0.000	1.000		0.0	8,455.0	0.000	1.000
09-Jun															
10-Jun															
11-Jun															
12-Jun															
13-Jun															
14-Jun															
15-Jun															
16-Jun															

a Spawn deposition platforms 20 - 40 were put in place today.
 b Spawn deposition platforms 3 - 19 were put in place today. Platforms 1 and 2 not in due to ice covering the beach.

Appendix F.16. Historical herring spawn deposition weight data from artificial substrate study, Cape Romanzof District, 1992-2000.

Year	Herring Spawn Weight in Grams		
	Platforms 1-25	Platforms 26-40	Total
1992	1,782	688	2,470
1993	1,718	1,736	3,454
1994	2,799	1,257	4,056
1995	3,111	1,874	4,985
1996	3,933	1,666	5,599
1997 a	-	-	-
1998	3,152	234	3,386
1999	2,206	2,238	4,444
2000	5,374	3,081	8,455
1994-1996, 1998-1999 Average	3,040	1,454	4,494

a Due to high winds and heavy wave action in 1997, the project was not successful.

APPENDIX G

YUKON AREA FRESHWATER FISHERIES

Appendix G.1. Estimated or reported subsistence harvest of pink salmon and other select miscellaneous fish species by surveyed villages, Yukon Area, 2000.

Community	Estimated Subsistence Harvest with Corresponding Confidence Intervals (CI) (Expanded to Estimate Survey Village Harvest)												Reported Harvest of Miscellaneous Fish Species, (Not Expanded)						
	Total Households	Households Contacted ^b	Whitefish ^a						Pike		Sheefish		Burbot	Lamprey	Tomcod	Grayling	Sucker	Arctic Char	Blackfish
			Pink Salmon		Large Whitefish		Small Whitefish		Estimated Total	CI(95%) (+/-)	Estimated Total	CI(95%) (+/-)							
Hooper Bay	218	47	902	437	193	300	4,566	3,103	21	23	4	5	0	0	724	0	2	0	1,000
Scammon Bay	89	24	96	103	0	0	2,766	1,133	1,017	1,078	0	0	10	0	2,288	0	0	20	22,450
Coastal District	307	71	998	449	193	300	7,332	3,303	1,038	1,078	4	5	10	0	3,012	0	2	20	23,450
Sheldon's Point	38	29	0	0	115	76	94	38	0	0	78	68	0	0	0	0	0	0	0
Alakanuk	152	32	38	42	0	0	275	488	0	0	111	74	10	0	0	0	0	0	0
Emmonak	198	83	0	0	959	428	1,081	825	259	239	1,039	392	124	100	595	0	0	1	2,960
Kotlik	94	30	263	306	1,061	676	158	75	255	247	552	344	52	0	300	0	0	0	3,150
District 1	482	174	301	309	2,135	804	1,608	962	514	344	1,780	531	186	100	895	0	0	1	6,110
Mountain Village	170	59	61	52	706	441	658	624	297	269	414	278	115	0	0	24	0	1	0
Pitkas Point	27	22	114	80	1,160	418	0	0	108	58	524	250	161	0	0	0	0	0	0
St. Mary's	148	51	54	78	540	364	1,318	1,371	2,997	5,290	761	869	121	0	0	0	0	3	0
Pilot Station	111	55	6	6	1,696	530	1,846	1,087	304	131	264	108	149	485	0	20	0	4	20,600
Marshall	86	30	0	0	2,647	1,499	3,090	3,748	695	673	593	234	1,205	0	0	0	0	0	8,750
District 2	542	217	235	124	6,749	1,740	6,912	4,183	4,401	5,342	2,556	981	1,751	485	0	44	0	23	29,350
Russian Mission	68	21	8	0	616	477	415	351	1,491	1,625	366	392	42	200	0	0	0	0	0
Holy Cross	62	26	20	0	0	0	188	132	0	0	36	4	5	0	0	0	0	5	0
Shageluk	40	26	0	0	0	0	613	488	10	14	0	0	0	0	0	0	0	0	0
District 3	170	73	28	0	616	477	1,216	615	1,501	1,625	402	392	47	200	0	0	0	5	0
Anvik	41	16	30	24	0	0	42	32	35	33	33	37	0	0	0	0	0	0	0
Grayling	48	23	0	0	63	45	539	298	12	8	498	234	0	0	0	2	0	0	0
Kaltag	62	25	0	0	0	0	488	594	129	89	136	134	0	0	0	0	0	0	0
Nulato	101	30	0	0	0	0	422	371	0	0	0	0	0	0	0	0	0	0	0
Koyukuk	42	10	0	0	0	0	420	119	0	0	113	127	0	0	0	0	0	0	0
Galena	216	58	0	0	1,476	1,188	783	571	198	108	221	132	108	0	0	27	5	0	0
Ruby	77	26	1	0	150	0	537	31	25	8	38	3	26	0	0	22	10	0	0
Huslia	96	15	0	0	179	230	120	192	202	189	18	16	10	1	0	29	0	0	0
Hughes	24	17	0	0	4,257	1,678	1,501	1,697	57	17	105	27	1	0	0	40	0	0	0
Attakaket	62	21	0	0	1,490	728	1,100	0	131	14	178	140	10	0	0	24	351	0	0
Alatna	7	7	0	0	102	0	0	0	10	0	0	0	0	0	0	25	0	0	0
Bettles	30	19	0	0	17	21	0	0	206	191	17	21	0	0	0	67	0	22	0
District 4	806	267	31	24	7,734	2,194	5,952	1,959	1,005	306	1,357	359	155	1	0	236	366	22	0
Tanana	121	44	0	0	1,441	1,468	1,910	1,491	28	30	351	250	30	0	0	5	0	0	0
Rampart	28	15	0	0	270	235	0	0	4	4	21	27	0	0	0	20	0	0	0
Stevens Village	42	16	0	0	20	0	0	0	1	1	0	0	0	0	0	0	0	0	0
Birch Creek	15	12	0	0	131	53	0	0	80	41	84	67	0	0	0	0	0	0	0
Beaver	37	23	0	0	0	0	3	3	3	4	0	0	0	0	0	1	0	0	0
Fort Yukon	169	26	0	0	64	59	835	965	549	458	26	24	20	0	0	20	0	0	0
Venetie	60	14	0	0	0	0	171	216	30	34	0	0	0	0	0	30	0	0	0
Chalkyitsik	41	12	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0
District 5	513	162	0	0	1,926	1,489	2,919	1,789	715	463	482	262	50	0	0	76	0	0	0
Survey Totals	2,820	964	1,593	559	19,353	3,320	25,939	6,063	9,174	5,724	6,581	1,263	2,199	786	3,907	356	368	71	58,910

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

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

Appendix G.2. Reported subsistence and personal use freshwater finfish harvested under the authority of a permit, listed by permit area, Yukon Area, 2000. a

Permit Fishing Area	Permit b			Percent Returned	Number of Permits Returned that Fished						
	Type	Issued	Returned			Whitefish	Sheefish	Burbot	Pike	Suckers	Grayling
Subsistence Use											
Yukon River near Haul Road Bridge	SY	54	52	96%	33	23	11	0	3	0	0
Yukon River near c Circle and Eagle	SE	121	118	98%	47	320	10	9	42	383	477
Tanana River Subdistrict 6A	SA	20	20	100%	10	27	5	6	38	0	0
Tanana River Subdistrict 6B	SB	81	79	98%	33	1,118	2	36	60	203	8
Tanana River Upstream of Subdistrict 6C	SU	41	36	88%	16	1,542	0	32	165	89	30
Kantishna River Subdistrict 6A	SK	4	4	100%	2	12	0	0	27	3	0
Tolovana River Pike Subdistrict 6B	ST	34	29	85%	13	163	57	12	352	61	6
Subsistence Permit Subtotals		355	338	95%	154	3,205	85	95	687	739	521
Personal Use											
Tanana River Subdistrict 6C	PC	70	69	99%	16	0	0	0	0	0	0
Tanana River Whitefish Upstream of Subdistrict 6C	PW	3	2	67%	0	0	0	0	0	0	0
Personal Use Permit Subtotals		73	71	97%	16	0	0	0	0	0	0
Permit Totals		428 d	409	96%	170 e	3,205	85	95	687	739	521

a Includes 2000 permit information received as of May 23, 2001.

b Includes 37 households that were issued permits for more than one different area, includes 23 Minto households who were issued Tolovana River drainage (ST) pike permits.

c Includes one household that was issued a subsistence permit for whitefish and sucker in Birch Creek, the permit was returned and was not utilized.

d Includes one households that fished in two different permit areas.

Appendix G.3. Commercial freshwater finfish harvest, Lower Yukon Area, 1978-2000.

Year	Sheefish		Whitefish		Burbot		Pike	Lamprey	Blackfish
	Number	Pounds	Number	Pounds	Number	Pounds	Pounds	Pounds	Pounds
1978	0	0	19	87	0	0	0	0	0
1979	5	39	23	55	0	0	0	0	0
1980	283	2,265	78	250	0	0	0	0	293
1981	299	2,812	779	2,875	0	0	9	0	0
1982	754	6,161	1,633	6,214	102	482	0	0	0
1983	395	2,692	163	648	0	0	0	0	0
1984	94	762	794	2,362	0	0	0	0	0
1985	358	3,081	1,514	4,586	0	0	0	0	0
1986	0	0	1,533	5,845	0	0	0	80	0
1987	0	0	2,144	7,564	0	0	0	0	0
1988	0	0	696	2,171	0	0	0	0	0
1989	0	0	0	0	0	0	0	0	0
1990	0	0	180	260	0	0	0	0	0
1991	0	0	0	0	0	0	0	0	0
1992	0	0	95	640	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0
1994	0	0	157	471	0	0	0	0	0
1995	0	0	0	0	0	0	0	0	0
1996	0	0	0	0	0	0	0	0	0
1997	0	0	0	0	0	0	0	0	0
1998	0	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0
1995-1999 Average	0	0	0	0	0	0	0	0	0

Appendix G.4. Commercial freshwater finfish harvest, Upper Yukon Area, 1971-2000. ^a

Year	Healy Lake		Lake Minchumina		Tanana River				Yukon River			
	Whitefish		Whitefish		Burbot		Whitefish		Burbot		Whitefish	
	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
1971			3,277	9,831	0	0	0	0	0	0	0	0
1972	2,605	3,950	718	2,154	0	0	0	0	0	0	0	0
1973	2,187	3,915	1,697	5,037	0	0	0	0	0	0	0	0
1974	1,885	3,390	854	2,562	0	0	0	0	0	0	0	0
1975	1,357	2,375	0	0	0	0	0	0	0	0	0	0
1976	1,440	2,625	0	0	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0	0	0	0	0
1979	1,336	2,306	0	0	0	0	0	0	0	0	0	0
1980	^b	^b	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	76	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	72	0	0	0	0	0
1987	0	0	0	0	0	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	837	0	0	0	0	0
1989	0	0	0	0	0	0	0	0	1	0	0	2,070
1990	0	0	0	0	1	0	809	0	0	0	985	2,078
1991	0	0	0	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	921	1,400	0	0	0	0
1995	0	0	0	0	0	0	0	0	0	0	0	0
1996	0	0	0	0	0	0	0	0	0	0	0	0
1997	0	0	0	0	0	0	908	1,160	0	0	0	0
1998	0	0	0	0	0	0	0	0 ^c	0	0	0	0
1999	0	0	0	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0	0	0	0
1995-1999												
Average	0	0	0	0	0	0	182	232	0	0	0	0

a Numbers reflect fish harvested with the intent of commercial sale.

b Information not available.

c Requests for commercial whitefish fishing permits were denied because of the additional pressure placed on non-salmon species during poor salmon runs.

Appendix G.5. Freshwater finfish sales during the commercial salmon fishing season by district, Upper Yukon Area, 1988-2000.

Year	District 4		District 5				District 6	
	Whitefish		Whitefish		Sheefish		Whitefish	
	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
1988	170	977	1,432	1,497	94	689	205	208
1989	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0
1992	2,635	2,455	1,864	1,379 ^a	0	0	199	499
1993	0	0	59	48	0	0	140	300
1994	1	4	108	215	0	0	209	433
1995	0	0	95	95	0	0	183	387
1996	0	0	22	66	0	0	103	292
1997	0	0	270	301	0	0	4	8
1998	0	0	116	88	0	0	0	0
1999	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0
1995-1999 Average	0	0	101	110	0	0	58	137

a The sale of 950 pounds of the total 1,379 pounds of whitefish sold did not include number of fish. Used the average weight (.74 lbs.) to estimate number of fish.

APPENDIX H

NORTHERN AREA

Appendix H.1. Commercial freshwater finfish harvest, Colville River, Northern Area, 1964-2000. ^a

Year	Broad Whitefish	Humpback Whitefish	Arctic Cisco ("kaktok")	Least Cisco ("herring")
1964	2,951 ^b	-	16,000	9,000
1965	3,000 ^b	-	50,000	-
1966	2,500 ^b	-	40,000	-
1967	-	-	-	-
1968	3,130	-	42,055	18,180
1969	-	-	-	-
1970	2,080 ^b	-	19,602	25,930
1971	3,815	132	38,016	22,713
1972	3,850	1,497	37,333	13,283
1973	2,161	-	71,569	25,188
1974	3,117	2,316	35,601	13,813
1975	2,201	1,946	28,291	20,778
1976	2,172	1,815	31,659	34,620
1977	443	1,431	31,796	14,961
1978 ^c	20	1,102	17,292	21,589
1979	0	1,831	8,684	24,984
1980	0	4,231	14,657	31,459
1981	1,035	469	38,206	16,584
1982	1,662	201	15,067	25,746
1983	0	408	18,162	35,322
1984	789	179	27,686	13,076
1985	401	191	23,679	17,595
1986	0	18	29,895	9,444
1987	5	1,989	24,769	10,922
1988	429	6,733	10,287	23,910
1989	71	6,575	17,877	23,303
1990	0	5,694	19,374	21,003
1991	0	1,240	13,805	5,697
1992	126	5,209	20,939	6,962
1993	20	5,339	31,310	6,037
1994	-	6,056 ^d	8,958	10,176
1995 ^f	-	6,000 ^g	14,824	-
1996	-	4,127 ^g	9,076	-
1997	-	4,760 ^g	9,403	-
1998	-	7,105 ^g	5,648	-
1999	-	6,170 ^g	7,095	-
2000 ^h	-	6,569 ^g	2,809	-
1995-1999 Average	-	5,632	9,209	-

a Except as otherwise indicated, numbers reflect fish harvested with the intent of commercial sale. Dashes indicate information is not available.

b Includes small numbers of humpback whitefish.

c Reported harvest of 1 chinook, 2 sockeye, 9 chum, and 118 pink salmon.

d Humpback whitefish includes undetermined amounts of broad whitefish.

f From 1964 to 1994, the commercial harvest was based on a daily catch report. Catch reports were returned to the department following the fishing season. All fish reported on the catch report were harvested with the intent to sell. Fish tickets were often not generated at time of sale. Since 1995, the commercial harvest is based on fish ticket information.

g Humpback whitefish includes undetermined amounts of broad whitefish and least cisco.

h Preliminary information.