

3A97-23

1997
YUKON AREA
SUBSISTENCE, PERSONAL USE, AND COMMERCIAL
SALMON FISHERIES MANAGEMENT PLAN



Regional Information Report¹: 3A97-23

By

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May 1997

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1.0 INTRODUCTION

This management plan informs fishermen, processors, and other interested individuals of the outlook for the 1997 Yukon Area salmon runs and the management strategy for the subsistence, personal use, and commercial salmon fisheries. Chinook, sockeye, coho, pink, and chum salmon occur in the Yukon River. The Yukon River chum salmon return is made up of an earlier and more abundant summer chum salmon run and a later fall chum salmon run.

The Yukon Area includes all waters of Alaska within the Yukon River drainage and coastal waters from Point Romanof, northeast of Kotlik, to the Naskonat Peninsula. For management purposes the Yukon Area is divided into seven districts and ten subdistricts (Figure 1). Commercial fishing is allowed along the entire 1,224 miles of the Yukon River in Alaska, and in the lower 225 miles of the Tanana River. The Coastal District includes the majority of the coastal marine waters within the Yukon Area and is only open to subsistence fishing. The Lower Yukon Area, Districts 1, 2, and 3, includes coastal waters of the delta and that portion of the Yukon River drainage downstream of Old Paradise Village (river mile 301). The Upper Yukon Area, Districts 4, 5, and 6, is the Alaskan portion of the Yukon River drainage upstream of Old Paradise Village. Commercial, Aboriginal, domestic, and sport salmon fisheries also occur in Canada, with fishery management activities conducted by the Canadian Department of Fisheries and Oceans (DFO).

2.0 OUTLOOK FOR 1997

2.1 *Chinook Salmon*

Typically, the majority of the chinook salmon returning to the Yukon River are 6-year-old fish; however, 5- and 7-year-old fish make a significant contribution to the run. Spawning ground escapements in 1991, the brood year producing 6-year-old fish returning in 1997, were judged to be average to above average in magnitude. Additionally, the return of this brood year as 5-year-old fish in 1996 appeared to be above average. The 7-year-old return is expected to be weak based upon the low contribution of age-6 fish in the 1996 run. The return of 5-year-old fish in 1997 is expected to be below average to average in abundance based on the spawning escapements observed in 1992. Overall, the 1997 chinook salmon run is anticipated to be near average in strength. The commercial harvest in Alaska is expected to be 88,000 to 108,000 chinook salmon (82,000 to 100,000 fish in the Lower Yukon Area and 6,000 to 8,000 fish in the Upper Yukon Area).

2.2 *Summer Chum Salmon*

The return of 5-year-old fish in 1997 is expected to be average based on spawning escapements observed in 1992 and the contribution of 4-year-old fish in the 1996 run. A below average to average return of age-4 summer chum salmon is expected. Summer chum salmon spawning escapement to the Anvik River in 1993 was 517,000, slightly above the minimum escapement goal

of 500,000. However, escapements to other spawning areas in 1993 appeared to be below average based upon aerial surveys of Andrafsky, Nulato, and Gisasa Rivers and tower counts on the Chena and Salcha Rivers. In 1993, the Salcha River tower count was 5,563 summer chum salmon compared to an average count of 48,382 fish from 1994 through 1996. Overall, the 1997 outlook is for a below average to average summer chum salmon run. The commercial harvest is expected to be 200,000 to 600,000 fish given the uncertainties associated with run distribution and market conditions.

2.3 Fall Chum Salmon

Fall chum salmon return primarily as 4- or 5-year-old fish; although 3- and 6-year-old fish also contribute to the run. A Ricker spawner-recruit model was used to predict the returns of fall chum salmon from the 1991 to 1994 parent-years that will contribute to the 1997 run. This process resulted in a 1997 preseason projection of 750,000 fish with the following approximate age composition:

Age-3 fish	56,000 (1994 Brood Year)
Age-4 fish	423,500 (1993 Brood Year)
Age-5 fish	262,000 (1992 Brood Year)
Age-6 fish	8,500 (1991 Brood Year)

It is anticipated that the major contributor to the 1997 run will be the age-4 fish returning from the 1993 brood year. In 1993, the Yukon River drainage experienced the lowest fall chum salmon run on record of approximately 330,000 fish. No commercial fishing was permitted in the Alaskan portion of the drainage during the 1993 fall season. Additionally, severe restrictions, which included closures, were imposed on the recreational, personal use, and subsistence fisheries. Despite these efforts, the fall chum salmon escapements throughout most of the Yukon River drainage were poor in 1993.

The most favorable escapements observed in 1993 were within the Tanana River drainage. Delta River fall chum salmon escapement was 81% above its minimum goal of 11,000 fish, and was the only area within the Yukon River drainage where the estimated number of fall chum salmon spawners exceeded the minimum escapement goal. The Toklat River index area escapement of 27,800 fish was approximately 16% below its minimum goal of 33,000 fish. In the upper Yukon River drainage, above the confluence of the Tanana River, fall chum salmon escapements in 1993 were comparatively weaker relative to the goal levels. It was estimated that approximately 43,000 fall chum salmon passed the Sheenjek River sonar site. This level of passage was 33% below the minimum goal of 64,000 chum salmon. The Fishing Branch River weir estimated a passage of 28,700 fall chum salmon which was 43% below the minimum goal of 50,000 fish. Estimated escapement for the upper Yukon mainstem stock in Canada of 29,700 fall chum salmon was 42% below the 1993 rebuilding step escapement goal of 51,000 fish and 63% below the rebuilt level minimum goal of 80,000 fish.

It is anticipated that the weakness associated with the 1997 run is likely to be among returning age-4, non-Tanana River, stocks. Should the 1997 fall chum salmon run materialize as projected, the

run size would be sufficient to meet escapement and subsistence requirements, and also provide for an Alaskan commercial opportunity. However, a run of 750,000 fish would still be below average by more than 40,000 fish for all years combined and more than 200,000 fish below average for odd-numbered year returns.

2.4 Coho Salmon

Although comprehensive escapement information on Yukon River drainage coho salmon is lacking, it is known that coho salmon primarily return at age 4. Assuming average survival, results from limited escapement surveys in 1993 suggest no better than an average return of coho salmon in 1997. There are no Alaska Board of Fisheries (board) established coho salmon guideline harvest ranges within the Yukon Area. Coho salmon have a later but overlapping run timing with that of fall chum salmon. Any commercial harvest of coho salmon in 1997 will be largely dependent upon the abundance of fall chum salmon and accompanying management strategies to harvest that species.

3.0 MANAGEMENT STRATEGY FOR 1997

The overall goal of the department's program is to manage the various salmon runs for sustained yield under the policies and regulations established by the Alaska Board of Fisheries. Management of the Yukon Area commercial salmon fishery is complex due to the inability to determine stock specific run size and timing, the increasing efficiency of the commercial fleet, and allocation issues. Current escapement goals in the Yukon River drainage are based, in part, on historic escapements to key index spawning areas. In most cases, the average historic escapement level for a base period for each index area is considered a minimum escapement goal to be achieved.

Subsistence fishing occurs throughout most of the Yukon Area and has the highest priority among uses of the resource. In order to enforce commercial fishing regulations, it is necessary to place some restrictions on the subsistence fishery. For example, subsistence salmon fishing is closed in most areas for 24 hours prior to the commercial salmon season. This regulation discourages the illegal activity of subsistence caught salmon or salmon roe being sold commercially. However, substantially more fishing time is allowed throughout the fishing season for subsistence than for commercial purposes.

Primary tools used in the management of the commercial salmon fishery are guideline harvest ranges established by the board (Table 1) and emergency order authority. Emergency orders are used to open and close the commercial fishing seasons, establish fishing periods, and implement gear restrictions. The department attempts to manage the commercial fisheries so that each district's harvest is proportionally similar to their respective guideline harvest range.

3.1 New Regulation for 1997

An agenda change request to allow subsistence salmon fishing seven days per week in Subdistrict 4-A was reviewed by the Alaska Board of Fisheries in March 1997. The intent of the agenda change request was to increase subsistence fishing time for chinook salmon with drift gillnets. The board adopted a subsistence fishing regulation for Subdistrict 4-A allowing chinook salmon to be taken with drift gillnet gear only for two 48-hour periods per week during the commercial salmon fishing season up through July 14. The open subsistence fishing periods will be from 6:00 p.m. Sunday until 6:00 p.m. Tuesday and from 6:00 p.m. Wednesday until 6:00 p.m. Friday. In addition, an earlier opening date of June 10 was established for subsistence fishing for chinook salmon with drift gillnets in Subdistrict 4-A. These regulation changes will increase the subsistence chinook salmon fishing opportunities and will be beneficial to subsistence fishermen because fishing time with drift gillnets will not be dependent on the timing, frequency, and duration of commercial fishing periods. Subsistence regulations pertaining to setnet, fish wheel, and beach seine gear were not changed.

3.2 Subsistence Fishery

The department encourages fishermen to keep track of their subsistence salmon harvest on their subsistence catch calendar or subsistence fishing permit. Non-permitted fishermen, who did not receive a subsistence salmon calendar by mail, can contact the department in Emmonak or Fairbanks to have a calendar mailed to them. To encourage fishermen to return catch calendars by mail, the return postage for the 1997 calendar has already been paid by the department.

3.2.1 Districts 1, 2, and 3

In Districts 1, 2, and 3, subsistence salmon fishermen may take salmon seven days per week until 24 hours prior to the opening of the commercial salmon fishing season. Regulations also separate the subsistence and commercial fishing periods in Districts 1, 2, and 3. During the commercial season, subsistence fishing will only be allowed between commercial periods. During the commercial salmon fishing season, subsistence salmon fishing will be closed 18 hours before, during, and 12 hours following a commercial salmon fishing period.

However, during the Districts 1, 2, and 3 season, 18-hour closures before the commercial salmon fishing period may be in excess of what is necessary to ensure a separation between subsistence and commercial fishing. During the fall season, the department may, by emergency order, reduce the number of hours that subsistence fishing is closed prior to a District 1, 2, or 3 commercial fishing period from 18 hours to 12 hours. Besides providing for additional subsistence fishing time, it is believed that the proposed subsistence fishing closure of 12 hours before, during, and 12 hours following a fall season commercial fishing period would be more easily understood by subsistence fishermen.

Fishermen are also reminded that, in Districts 1, 2, and 3, regulations require fishermen to immediately remove the dorsal fin from chinook salmon taken for subsistence purposes. The sale of salmon that have had the dorsal fin removed is illegal.

3.2.2 Subdistrict 4-A

In Subdistrict 4-A, subsistence salmon fishermen may take salmon seven days per week until 24 hours prior to the opening of the commercial salmon fishing season. Regulations also separate subsistence fishing periods with setnet, fish wheel, and beach seine gear from commercial fishing periods in Subdistrict 4-A. During the commercial salmon fishing season, subsistence salmon fishing with setnet, fish wheel, and beach seine gear will open 12 hours after the closure of a commercial period and will terminate 18 hours before the start of the next scheduled commercial salmon fishing opening. In March 1997, the Alaska Board of Fisheries adopted a subsistence regulation for Subdistrict 4-A which allows chinook salmon to be taken with drift gillnet gear only for two 48-hour periods per week during the commercial salmon fishing season. The drift gillnet periods will be from 6:00 p.m. Sunday until 6:00 p.m. Tuesday and from 6:00 p.m. Wednesday until 6:00 p.m. Friday.

3.2.3 Subdistricts 4-B and 4-C

Regulations allow subsistence salmon fishing seven days per week until 24 hours prior to the opening of the Subdistricts 4-B and 4-C commercial salmon fishing season. Once the Subdistricts 4-B and 4-C commercial salmon season opens, managers will attempt to have the allowable commercial salmon fishing periods coincide with the subsistence salmon fishing schedule. During the commercial salmon season, subsistence salmon fishing time in Subdistricts 4-B and 4-C will be two 48-hour periods per week, unless altered by emergency order. Additionally, for any commercial salmon fishing closures of greater than five days in duration during the commercial salmon season, subsistence salmon fishermen may take salmon five days a week from 6:00 p.m. Sundays until 6:00 p.m. Fridays.

Subsistence salmon fishing is prohibited for 24 hours following the closure of the commercial salmon season. Beginning 24 hours after the closure of the commercial salmon season, subsistence fishermen may take salmon seven days per week.

3.2.4 District 5

In Subdistrict 5-D, unless altered by emergency order, subsistence salmon fishermen may take salmon seven days per week throughout the season. In the remainder of District 5, subsistence salmon fishermen may take salmon seven days per week until 24 hours prior to the opening of the commercial salmon season. Once the commercial salmon fishing season opens in Subdistricts 5-A, 5-B, and 5-C, subsistence salmon fishing periods will coincide with the commercial salmon fishing schedule.

During the commercial salmon season when commercial salmon fishing closures of greater than five days in duration occur, subsistence salmon fishermen may take salmon five days per week from 6:00 p.m. Tuesdays until 6:00 p.m. Sundays. Subsistence salmon fishermen may not take salmon within the 24 hours following the closure of the commercial salmon season. In Subdistrict 5-A, following the closure of the commercial salmon season, subsistence salmon fishermen may take salmon from 6:00 p.m. Tuesdays until 6:00 p.m. Sundays. In Subdistricts 5-B and 5-C, 24 hours following the commercial salmon season closure, subsistence salmon fishermen may take salmon seven days a week.

In portions of District 5, regulation requires subsistence fishermen to obtain subsistence fishing permits. Permit areas include the “Yukon River bridge area.” The Yukon River bridge area includes the Yukon River drainage from Hess Creek to the Dall River. Additionally, regulation also requires subsistence fishing permits for the Yukon River drainage from Twenty-two Mile Slough, located upstream of Fort Yukon, to the Canadian border. Subsistence fishermen may obtain a permit by contacting the department’s office in Fairbanks. Permits may be issued in person or by mail. Regulations require all permit holders to report harvest information at the end of the fishing season.

3.2.5 District 6

Regulations require salmon fishermen in District 6, the Tanana River drainage, to obtain subsistence salmon permits. Subsistence salmon fishermen can obtain a permit from the department’s office in Fairbanks. No subsistence fishing is allowed in that portion of the Tanana River drainage that is included in the Fairbanks Nonsubsistence Area. Subsistence permit holders in that portion of Subdistrict 6-B, from a point three miles upstream of the mouth of Totchaket Slough to the upper boundary of Subdistrict 6-B, are required to report to the department each week the number of salmon taken. Permit holders can report their weekly catch by calling a recording at (907) 459-7388. All Tanana River subsistence permit holders are required to report their harvest information at the end of the fishing season by returning their expired permit to the department’s office in Fairbanks.

Within the majority of Subdistricts 6-A and 6-B, unless altered by emergency order, the subsistence salmon fishing schedule is two 42-hour periods per week from 6:00 p.m. Mondays until 12 noon Wednesdays and from 6:00 p.m. Fridays until 12 noon Sundays. One exception is within the Old Minto Area where subsistence salmon fishing is allowed five days a week from 6:00 p.m. Fridays until 6:00 p.m. Wednesdays. The Old Minto Area includes that portion of the Tanana River drainage from the downstream end of Crescent Island up to a line three miles upstream from the mouth of Totchaket Slough. These subsistence salmon fishing schedules may be altered by emergency order.

3.3 Personal Use Fishery

In 1995, the Joint Board of Fish and Game adopted regulations that created the Fairbanks Nonsubsistence Area. No subsistence fishing is allowed within non-subsistence areas (Figure 2). Subdistrict 6-C falls entirely within the Fairbanks Nonsubsistence Area and will be managed

under the personal use regulations. There is a fishery harvest limit in Subdistrict 6-C of 750 chinook, 5,000 summer chum, and 5,200 fall chum and coho salmon combined. If this harvest limit is reached inseason, the Subdistrict 6-C personal use fishery will be closed.

Personal use salmon fishing permits are required in Subdistrict 6-C and can be obtained from the department's office in Fairbanks during regular office hours. Personal use permit applicants must possess a valid State of Alaska resident sport fishing license.

3.4 Commercial Fishing Reporting Requirements

All processors and buyers of salmon are required to register with the department prior to purchasing salmon in the Yukon Area. Processors and buyers in Districts 1, 2, and 3 must register with the department's office in Emmonak. Processors and buyers in Districts 4, 5, and 6 must register with the department's office in Fairbanks. Timely reporting of salmon purchases is essential for the management of these fisheries. Registered salmon buyers are required to provide a verbal report of their salmon purchases within 18 hours following the closure of a commercial fishing period. Buyers may report verbal harvest information in the Upper Yukon Area after office hours by calling a 24-hour recording at (907) 459-7388. Buyers are also required to mail or deliver fish tickets to the department within 24 hours following the closure of a commercial fishing period in the Lower Yukon Area. In the Upper Yukon Area, buyers are required to mail or deliver fish tickets to the department within 36 hours following the closure of a commercial fishing period. If there is incomplete reporting, the department may delay commercial fishing until the needed harvest reports are received. In addition, it is very important for buyers to accurately report on each fish ticket the statistical area where salmon were harvested.

Current state law requires that any fish ticket which records the purchase of salmon must include the current price paid per pound for each species of salmon purchased. In addition, a fish buyer is required to prominently post the current price paid for salmon at each location where salmon are purchased, including tenders. It is noted that the Alaska legislature passed Senate Bill 115 which repeals AS 16.05.690 (c) and 16.10.277 which require salmon prices to be reported on fish tickets and to be posted, respectively. The governor is expected to sign this bill and it is expected to become effective in late July or early August. Regulations also require commercial fishermen to report, on the fish ticket, the number of salmon harvested but not sold during commercial fishing periods. Buyers are requested to ensure this information is reported on fish tickets.

3.5 Chinook and Summer Chum Salmon Commercial Season

The 1997 chinook salmon run will be managed to achieve aerial survey escapement goals for selected streams in the Alaskan portion of the drainage and to endeavor to provide for a minimum 28,000 chinook salmon spawning escapement level in the Canadian mainstem and a harvest (all Canadian user-groups combined) within an agreed to guideline harvest range of 16,800 to 19,800 fish for Canada. The chinook salmon spawning escapement in Canada has averaged 28,000 fish during the seven-year period from 1990 through 1996. Inseason run assessment will be based on

test fisheries, main river sonar passage estimates, subsistence catch reports, age composition, and commercial harvest information.

Conservative summer chum salmon management is necessary in order to maintain and rebuild non-Anvik River stocks. The department will assess the summer chum salmon run inseason using the main river sonar project near Pilot Station, test fisheries, subsistence catch reports, age and sex composition data, and commercial harvest information. A comparison of the Anvik River sonar escapement estimate and the Pilot Station sonar passage estimate will be used, in conjunction with other escapement monitoring projects, to provide information concerning the size and sex ratio of escapements to non-Anvik River tributaries. Other escapement monitoring projects include the Kaltag River tower operated by the Alaska Cooperative Extension Service 4-H Fisheries and Bering Sea Fishermen's Association (BSFA), the Nulato River tower funded by BSFA and the department, the Andrafsky, Gisasa, and South Fork Koyukuk River weirs operated by the United States Fish and Wildlife Service (USFWS) and Clear Creek tower operated by Tanana Chiefs Conference (TCC) and BSFA.

The department will manage the early portion of the summer chum salmon run based upon the assumption that the run will be below average in size and that this run size will meet escapement and subsistence needs, as well as provide for a commercial harvest near the lower end of the guideline harvest ranges. Declining salmon markets may have a major impact on the fisheries this season. Therefore, the department will work closely with buyers and fishermen to manage the chinook and summer chum salmon fisheries by timing harvests for fish quality and market demands to the extent feasible within biological constraints.

3.5.1 Districts 1, 2, and 3

It is anticipated that the chinook salmon directed commercial fishery will open by emergency order on a staggered basis beginning with District 1, when increasing subsistence and/or test net catches of chinook salmon have occurred over a seven- to ten-day period. This management strategy provides for passage of a portion of the early run segment through the lower river districts prior to commercial fishing. It is possible that a six-hour commercial fishing period may be established as early as June 5 in either District 1 or District 2, in an effort to spread out the chinook harvest and to target male chinook salmon early in the run. If this strategy is utilized, the subsequent fishing period may be delayed depending on the harvest during the initial period and run timing.

Directed chinook salmon commercial fishing periods with unrestricted mesh size gillnets are anticipated to be no more than 12 hours in duration. In general, fishing periods are expected to begin at 6:00 p.m. on Mondays and Thursdays in District 1 and at 6:00 p.m. Wednesdays and Sundays in District 2. Since Districts 1 and 2 have a combined guideline harvest range, the overall harvest level will determine when the directed chinook salmon fishery and commercial salmon summer season ends. It may not be possible to allow an equal amount of fishing time for each district.

The use of unrestricted mesh size gillnets usually ceases when the combined Districts 1 and 2 harvest approaches 70,000 to 85,000 chinook salmon. Typically, fishing periods with unrestricted mesh size gillnets target larger chinook salmon, which results in a higher harvest of females that are important for spawning success. Allowing a harvest above 85,000 chinook salmon will be dependent on run abundance and the harvest of chinook salmon during periods with gillnets restricted to 6-inch maximum mesh size. The chinook harvest during periods restricted to 6-inch maximum mesh size is typically composed of smaller fish and a higher proportion of males.

Six-inch maximum mesh size directed summer chum salmon fishing periods are anticipated to be 4 to 12 hours in duration. Short, summer chum salmon directed fishing periods may be scheduled based on market considerations and run assessment. In addition, short periods targeting summer chum salmon will be easier to establish between unrestricted mesh size periods and lower the harvest of chinook salmon during such periods. Because of market considerations, an effort will be made to schedule summer chum salmon directed periods as early in June as possible. Market conditions in 1996 resulted in no directed commercial fishing periods to harvest summer chum salmon in Districts 1 and 2. The combined commercial harvest for Districts 1 and 2 is expected to be 125,000 to 320,000 summer chum salmon, with actual harvest dependent on inseason run assessment and market conditions.

The timing of fishing periods in District 3 will depend on availability of buyers. The District 3 commercial harvest is expected to range between 1,800 and 2,000 chinook and 3,000 and 8,000 summer chum salmon. Because of declining market conditions, fishermen should ensure that they have a market for their fish.

The USFWS will be operating a weir on the East Fork of the Andreafsky River in 1997. Historical escapement timing information obtained from sonar and tower projects operated on this river will be used to assess the 1997 spawning escapement inseason. The department will use the assessment of the spawning escapement in the East Fork Andreafsky River to regulate the size of the area closed to commercial fishing near the mouth of the Andreafsky River.

Regulations require identification of any vessel used in Districts 1, 2, and 3 by commercial salmon fishermen. A vessel must display either the ADF&G vessel license number or the fisherman's 5-digit Commercial Fisheries Entry Commission (CFEC) permit serial number and the letter that follows. Symbols must be at least 12 inches high and 1 inch wide and be displayed on both sides of the hull or cabin.

New gillnet depth regulations for commercial fishing in Districts 1, 2, and 3 that went into effect in 1996 will remain in effect this season. Gillnets with greater than 6-inch mesh size may not be more than 45 meshes in depth. Gillnets with 6 inches or less mesh size may not be more than 50 meshes in depth.

3.5.2 District 4

In years with average returns and run timing, the first District 4 commercial fishing period should occur between June 18 and June 25. Commercial fishing periods in Subdistrict 4-A are anticipated to begin at 6:00 p.m. Sundays and 6:00 p.m. Wednesdays and be no longer than 18 hours in duration. However, the frequency and duration of Subdistrict 4-A fishing periods will be based on summer chum salmon run abundance. Management will be based, in part, on summer chum salmon spawning escapements and sex ratios monitored on the Anvik, Kaltag, Nulato, and Gisasa Rivers and Clear Creek.

It is anticipated that Subdistricts 4-B and 4-C will initially be placed on a schedule of two 48-hour periods per week beginning at 6:00 p.m. Sundays and 6:00 p.m. Wednesdays. Subdistricts 4-B and 4-C may open earlier than Subdistrict 4-A to allow harvest of earlier running chinook salmon. If subsistence salmon fishing opportunities are not sufficient to meet subsistence needs due to the commercial fishing schedule, additional subsistence only fishing time will be allowed.

Based on preseason projections, the department will manage within the chinook salmon guideline harvest range and a summer chum salmon harvest between the lower end and midpoint of the guideline harvest range. The District 4 early season will close when the targeted chinook or summer chum salmon harvest is reached.

3.5.3 Anvik River Management Area

The Anvik River may be opened to summer chum salmon commercial fishing if a surplus greater than the escapement goal minimum of 500,000 fish is available. If possible, the department intends to schedule the Anvik River commercial fishing periods to coincide with those of Subdistrict 4-A. Additional fishing periods may be allowed in the Anvik River based upon the size of the surplus available for commercial harvest. 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. Fish harvested in the Anvik River fishery will not count against the Subdistrict 4-A summer chum salmon guideline harvest range. Permit holders are reminded that all chinook salmon caught during Anvik River commercial fishing periods must be released alive.

3.5.4 District 5

The District 5 commercial salmon fishing season will open by emergency order once the chinook salmon run is distributed throughout the area. Assessment of run abundance and timing from downstream districts, along with subsistence catch reports, will be used to determine the season opening.

It is anticipated that the Subdistricts 5-A, 5-B, and 5-C fishing periods during the early season will initially be 24 or 36 hours in duration. For Subdistrict 5-D, 24- or 36-hour commercial fishing periods are anticipated. This will allow the department to better monitor and maintain the harvest

within the guideline harvest ranges. In years with average returns and run timing, the first commercial fishing period in Subdistricts 5-A, 5-B, and 5-C has occurred between June 25 and July 5, and between July 1 and July 10 in Subdistrict 5-D.

Subdistricts 5-A, 5-B, and 5-C have a guideline harvest range of 2,400 to 2,800 chinook salmon, and Subdistrict 5-D has a guideline harvest range of 300 to 500 chinook salmon. Based on the preseason projection, the department will manage the chinook salmon harvest to remain within the guideline harvest ranges.

Few summer chum salmon are present or harvested in Subdistricts 5-B, 5-C, and 5-D. The commercial harvest of summer chum salmon in District 5 will largely be a function of the management actions taken for chinook salmon.

3.5.5 District 6

Currently, the Tanana River drainage inseason salmon run strength and timing indicators are limited. These include test fish wheel catches near the village of Nenana, aerial surveys, and performance of the commercial and subsistence fisheries. In addition, chinook and summer chum salmon escapement information collected by Sport Fish Division through tagging or tower counting projects on the Chena and Salcha Rivers may be used for inseason run assessment. Test fisheries provide run timing and species composition information; however, test fisheries appear to be less useful in determining the magnitude of the run due to inter-annual variability in fish wheel location and efficiency. During the 1997 season, the Nenana test fish wheel will operate during the entire season with a "live box." No sales of salmon are expected from the test fish wheel. Due to the limited management tools available, the department will be conservative in the management of District 6. The department can exceed the upper end of the guideline harvest ranges only in years it can be determined that additional commercial fishing would not jeopardize achieving escapement goals and meeting subsistence needs.

It is anticipated that the opening of the District 6 commercial fishing season will be in early to mid-July. During the early season in District 6, there may be up to two 42-hour commercial fishing periods per week, from 6:00 p.m. Fridays until 12 noon Sundays and from 6:00 p.m. Mondays until 12 noon Wednesdays. The directed chinook salmon commercial fishery is expected to close once the midpoint of the chinook salmon guideline harvest range of 600 to 800 chinook salmon is reached. Additional commercial fishing directed at chinook salmon may be allowed if escapement monitoring projects indicate that the chinook salmon escapement goals and subsistence needs are being met. Directed summer chum salmon commercial fishing periods would occur later in July and into August. Based on preseason projections, it is anticipated that the summer chum salmon harvest will be between the lower end (400,000 fish) and the mid-point (800,000) of the guideline harvest range.

3.6 Fall Chum and Coho Salmon Commercial Season

The Board of Fisheries reviewed 5 AAC 01.249. *THE 1995 YUKON RIVER DRAINAGE FALL CHUM SALMON MANAGEMENT PLAN* during a meeting held in Anchorage, Alaska, on March 10 through 19, 1996. The board received public and advisory committee comments concerning the management plan, including proposed amendments from the Yukon River Drainage Fisheries Association (YRDFA). The board adopted a management plan, which included most of the recommendations proposed by YRDFA, which will be in effect through the 1997 season.

The current fall chum salmon management plan recommends that only at run size projections greater than 600,000 fall chum salmon can directed fall chum salmon commercial fisheries be allowed. The 1997 preseason projection of approximately 750,000 fall chum salmon suggests that an Alaskan fall chum salmon commercial harvest of up to 150,000 fall chum salmon could occur given normal distribution of healthy stocks throughout the drainage. However, because of considerations for Canadian stock rebuilding efforts¹ and the rebuilding plan in effect for Toklat River fall chum salmon stocks, the Alaskan commercial harvest will be lower than what would otherwise be allowed.

In 1997, the department will be endeavoring to deliver 78,600 fall chum salmon to the Canadian border on the mainstem Yukon River. The 78,600 fall chum salmon border passage goal includes 55,000 fall chum salmon for spawning escapement and 23,600 fall chum salmon for the low end of the Canadian guideline harvest range. The age-4 fish returning to the Canadian spawning grounds in 1997 will be returning from the poor escapement observed in the 1993 brood year. It is anticipated that one of the weaker components of the 1997 run will be from the Canadian mainstem stocks. Management strategies to increase the number of fall chum salmon delivered to the border includes a lower overall commercial exploration rate on fall chum salmon. Additionally, attempts will be made to allow the early portion of the fall chum salmon run to pass through the lower Yukon River prior to Districts 1, 2, and 3 commercial fishing activities. This would further reduce the commercial exploitation rate on the early portion of the run. It is believed that Canadian bound salmon represent a higher proportion of the fish during the early portion of the run.

If the fall chum salmon return as projected, an Alaskan commercial harvest of up to the first quartile of each district's guideline harvest range could be expected. The combined total of the first quartile of all districts or subdistricts is approximately 135,000 fall chum salmon. As the

¹The U.S./Canada Yukon River Panel modified the Canadian mainstem fall chum salmon rebuilding plan in November 1996, because of concerns over the very poor escapements observed in 1993. The rebuilding step spawning escapement goal for 1997 was lowered from the planned 66,000 to 49,000 chum salmon, although the goal for the year 2001 remained unchanged at greater than 80,000 fish. The U.S./Canada Yukon River Panel reviewed the Canadian mainstem fall chum salmon rebuilding plan in March 1997 and once again modified the rebuilding step spawning escapement goal from 49,000 chum salmon to 55,000 chum salmon for 1997. It was stated by the department at the March 1997 Panel meeting that an additional 6,000 fall chum salmon spawned in the Canadian mainstem is not detectable by Alaskan inseason run assessment programs in the lower Yukon River.

1997 run materializes inseason, the department, using inseason management tools, may adjust the run size projection and corresponding commercial harvest upward or downward.

It should be noted that in recent years declining salmon flesh and salmon roe markets have had a major impact on the fall commercial salmon fishing season and schedule. It is anticipated that poor salmon market conditions will continue in 1997. In all districts, the department will work closely with buyers and fishermen to time harvests for fish quality and market demands to the extent feasible within biological constraints.

3.6.1 Districts 1, 2, and 3

The guideline harvest range for Districts 1, 2, and 3 is 60,000 to 220,000 fall chum salmon. The department will monitor the run inseason by using the lower Yukon River set gillnet test fishery, the Mountain Village drift gillnet test fishery, Pilot Station sonar passage estimates, and subsistence and commercial catch statistics. This information, in combination with the preseason projection, will be the basis for the initial management decisions for the Districts 1, 2, and 3 commercial fisheries. If 1997 fall chum salmon return as projected, a Districts 1, 2, and 3 commercial fall chum salmon harvest of up to 100,000 fall chum salmon could be expected. It is anticipated that the first lower Yukon River fall season commercial fishing period will occur in late July or early August. As a reminder to fishermen, regulations require District 1 commercial fishermen to register for the coastal "Set Net Only Area" prior to the opening of the fall commercial fishing season. Registration "sign-in" sheets will be available at most lower Yukon Area village post offices and at the department's field office in Emmonak.

3.6.2 District 4

District 4 fall season commercial fishing activities are only allowed in Subdistricts 4-B and 4-C. Current regulations do not provide for a commercial fall season in Subdistrict 4-A. The Subdistricts 4-B and 4-C guideline harvest range is 5,000 to 40,000 fall chum salmon. Based on the preseason projection, a commercial harvest of up to 13,750 fall chum salmon may be taken in Subdistricts 4-B and 4-C. In years with average run timing and a commercially harvestable surplus, the first commercial fishing period would normally occur in early to mid-August.

3.6.3 District 5

The upper portion of District 5, referred to as Subdistrict 5-D, is managed separately from Subdistricts 5-A, 5-B, and 5-C. Subdistricts 5-A, 5-B, and 5-C have a guideline harvest range of 4,000 to 36,000 fall chum salmon. Based on the preseason projection, a commercial harvest of up to 12,000 fall chum salmon may be taken in Subdistricts 5-A, 5-B, and 5-C. In years with average run timing and a commercially harvestable surplus, the first fall commercial fishing period would normally occur in mid-August. It is believed that the majority of the fall chum and coho salmon harvested in Subdistrict 5-A are bound for the Tanana River, particularly as the season progresses in time. In the event the Subdistricts 5-A, 5-B, and 5-C commercial fishing activities continue into

September, the status of Tanana River drainage salmon stocks will be taken into consideration in the management of the Subdistrict 5-A commercial fishery.

For Subdistrict 5-D, the Board of Fisheries established a separate guideline harvest range of 1,000 to 4,000 fall chum salmon. Based on the preseason projection, a commercial harvest of up to 1,750 fall chum salmon may be taken in Subdistrict 5-D. In years with average run timing, the first fall commercial fishing period in Subdistrict 5-D would normally occur in late August or early September.

3.6.4 District 6

Currently, there are limited Tanana River fall chum salmon run strength and timing indicators available to managers inseason. Tanana River inseason run strength indicators include test fish catches from a fish wheel located on the south bank of the Yukon River near the village of Tanana, and Tanana River test fish wheels located near the mouth of the Kantishna River and near the village of Nenana. The performance of the subsistence, personal use, and commercial fisheries are also taken into consideration.

Additionally, for the third consecutive year, the department will be conducting an upper Tanana River drainage fall chum salmon tagging study. The project provides an inseason Tanana River drainage population estimate for fall chum salmon upstream of the confluence with the Kantishna River. Although the Tanana River tagging project shows promise as an inseason run strength and timing indicator, as with any new project in the early years of operation, the data collected will have minimal use in salmon management decisions. There is limited historical information to verify if assessment levels are high, low, or normal. The utility of the Tanana River tagging project will continue to grow with each successful year of operation.

The department will initially manage the fall season in District 6 on the basis of the fall chum salmon guideline harvest ranges and the run strength and timing of the Yukon River fall chum salmon return. However, dependent on inseason Tanana River fall chum salmon run strength and timing indicators, the department does have the authority to manage District 6 for a different level within the guideline harvest range or to exceed the guideline harvest range. Due to the limited inseason run assessment tools currently available, the department will be conservative in the management of District 6 fisheries.

District 6 has a guideline harvest range of 2,750 to 20,500 fall chum salmon. Based on the preseason projection, a commercial harvest of up to 7,200 fall chum salmon may be taken in District 6. In years with average run timing and a commercially harvestable surplus, the first fall season commercial salmon fishing period would normally occur in early to mid-September.

3.6.5 Toklat River Fall Chum Salmon Rebuilding Plan

The Board of Fisheries reviewed and modified the *5 AAC 01.248. TOKLAT RIVER FALL CHUM SALMON REBUILDING MANAGEMENT PLAN* during the March 1996 meeting. The modified

plan will be in effect through the 1997 fishing season. One of the components of the Toklat River rebuilding plan is to manage for a commercial salmon harvest that is lower than the maximum harvest level allowed in those areas that harvest Toklat River bound salmon. This will allow more fish to reach the Toklat River spawning grounds to aid in the rebuilding effort.

The rebuilding plan restricts the Kantishna River subsistence salmon fishery by placing a limit on the fall chum salmon harvest. However, the department does have the authority to exceed this subsistence harvest limit if indicators suggest that the escapement goal for the Toklat River index area will be achieved. Regulations require a Kantishna River subsistence salmon fishing permit to participate in this fishery. Permits are available at the department's office in Fairbanks.

The department is anticipating operating the Toklat River sonar for the fourth consecutive year in 1997. Currently, the Toklat River escapement goal of 33,000 fall chum salmon is based on post-season ground surveys of an index area. The sonar site is located approximately 15 miles below the index area. The expectation was that managers could use the inseason sonar passage estimates to assess the escapement into the index area. However, comparing the historical sonar passage estimates with the subsequent Toklat River index fall chum salmon spawning population has provided inconsistent results that are in need of further investigation. The department is planning to conduct, if funds can be identified, a feasibility radio telemetry project in 1997 on the Toklat River. If radio telemetry proves to be feasible, a more comprehensive radio telemetry project over several years would be needed to better understand the spatial and temporal spawner distribution of Toklat River fall chum salmon.

3.6.6 Coho Salmon

Yukon River coho salmon have a slightly later but overlapping run timing with that of the fall chum salmon run which complicates the fall season management program. Fall chum salmon is the primary species of management concern during the fall season. No commercial guideline harvest ranges have been established for coho salmon. However, it is noted that the Yukon River Drainage Fisheries Association has submitted a proposal to the Alaska Board of Fisheries requesting the development of a Yukon River coho salmon management plan. The board will be reviewing this proposal in December 1997. Currently, the commercial harvest of coho salmon is a function of the timing, frequency, and duration of the periods established for the more numerous fall chum salmon. Any commercial harvest of coho salmon in 1997 will be largely dependent upon the abundance of fall chum salmon and accompanying management strategies to harvest fall chum salmon.

4.0 U.S./CANADA YUKON RIVER SALMON PANEL AND NEGOTIATIONS

Negotiations were initiated in 1985 between the U.S. and Canada regarding a Yukon River salmon treaty. The purpose of these negotiations is to develop coordinated conservation and management between the U.S. and Canada for the salmon stocks that spawn in the Yukon River drainage in Canada.

In recent years, there was realization 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 went into effect. A U.S./Canada Yukon River Panel (Panel) was formed to implement the interim Yukon River Salmon Agreement. The Panel consists of six United State representatives and six Canadian seats. The Panel also administers a Yukon River Salmon Restoration and Enhancement Fund (Fund). Both sides have to first agree on an item for the action to occur. The U.S. side of this Panel consists of four Alaskan Yukon River drainage fishermen, one Alaska State government official, and one U.S. federal government official. There is an advisory group of Alaska Yukon River drainage fishermen providing input to the U.S. side. A Joint Technical Committee (JTC) provides technical support to the Panel. The focus of the Panel is on the salmon stocks that spawn in the Canadian portion of the Yukon River drainage. The Panel makes recommendations to the management agencies in Alaska and Canada.

The interim agreement will be in place through 1997, with an option to extend if both sides desire. There are a number of issues that remain to be resolved, and negotiations will continue. The goal of the negotiations will be to reach a long-term agreement on the remaining issues and to incorporate the relevant elements of the interim agreement.

The Panel held its inaugural meeting in Whitehorse, Yukon Territory, in April 1996. The Panel proceeded to address the work of jointly improving salmon stocks of common concern on the Yukon River. The Panel agreed to the first six years of a rebuilding plan for Canadian mainstem chinook salmon stocks. The term "rebuilding" means building spawning escapements back up to prior levels in planned steps over a number of years. Recognizing the desirability of rebuilding stocks, the parties 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 is to endeavor to deliver between 44,800 to 47,800 chinook salmon to the Canadian mainstem Yukon River. The Canadian contribution to this effort is 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 12-year rebuilding plan was agreed upon during the negotiation process beginning with the 1990 season. The objective of this plan is to rebuild the stock by achieving a spawning escapement of 80,000 or more fall chum salmon for all brood years in the cycle by the year 2001. The U.S. contribution to this effort is to endeavor to deliver to the Canadian border on the mainstem Yukon River an agreed to number of fall chum salmon. The Canadian contribution to this effort is 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.

Given the prospect of a poor 1997 fall chum salmon return, the Panel began discussions on how to deal with this challenge at the November 1996 meeting of the Panel in Anchorage. As assigned, the Joint Technical Committee provided several options for consideration. At the

March 1997 meeting in Whitehorse, the Panel agreed to a rebuilding step spawning escapement goal of 55,000 fall chum salmon for the Canadian mainstem Yukon River for 1997.

A key component of the interim agreement is a Yukon River Salmon Restoration and Enhancement Fund administered by the Panel to address the restoration and enhancement of Canadian origin salmon stocks. In March 1997, the Panel agreed to fund several projects that are intended to restore and increase salmon production on the river. A call for proposals will be sent out this summer for projects proposed for 1998. The Panel will meet in the spring of 1998 to determine which projects to fund.

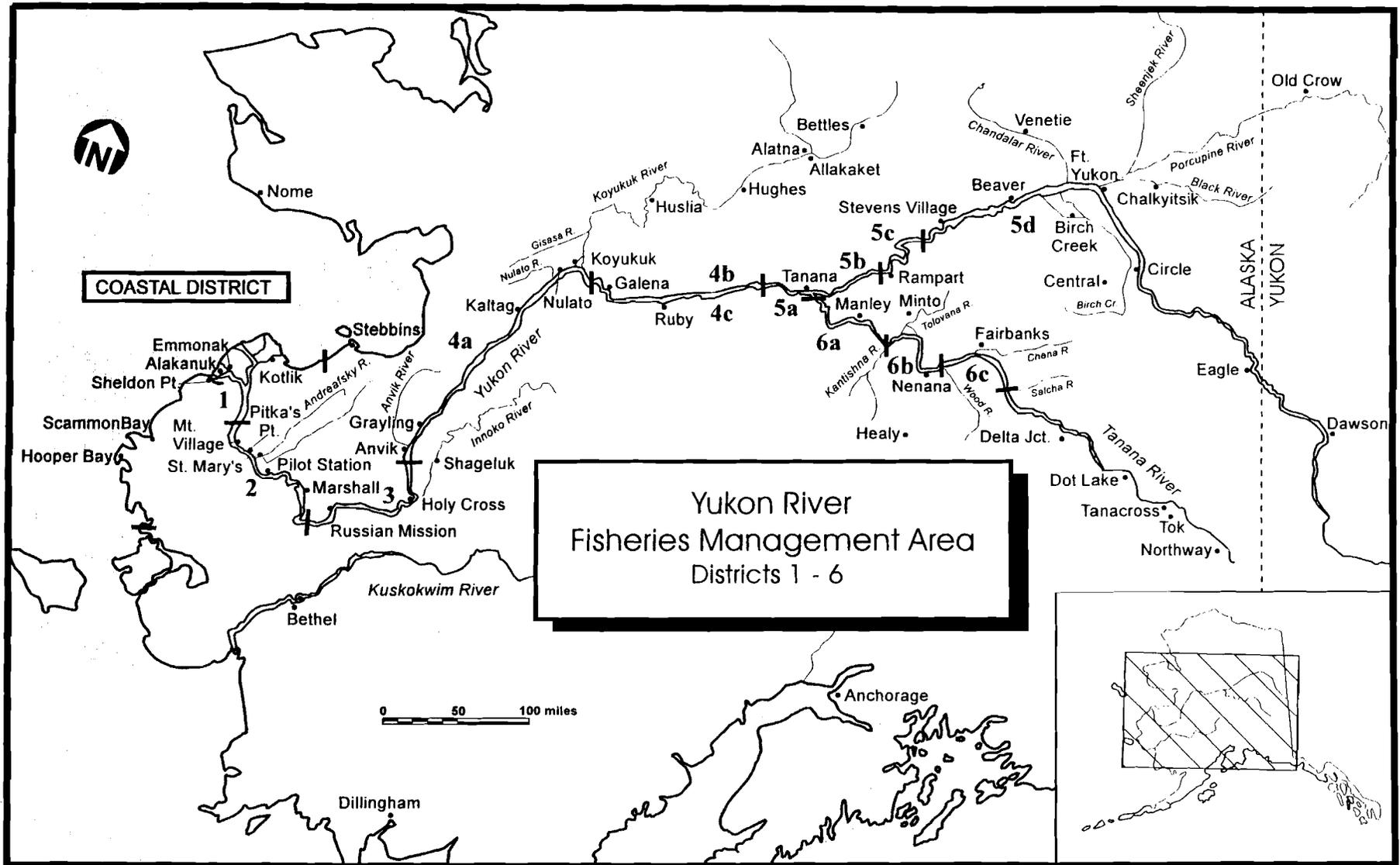


Figure 1. Map of the Alaskan portion of the Yukon River drainage showing communities and fishing districts, 1997.

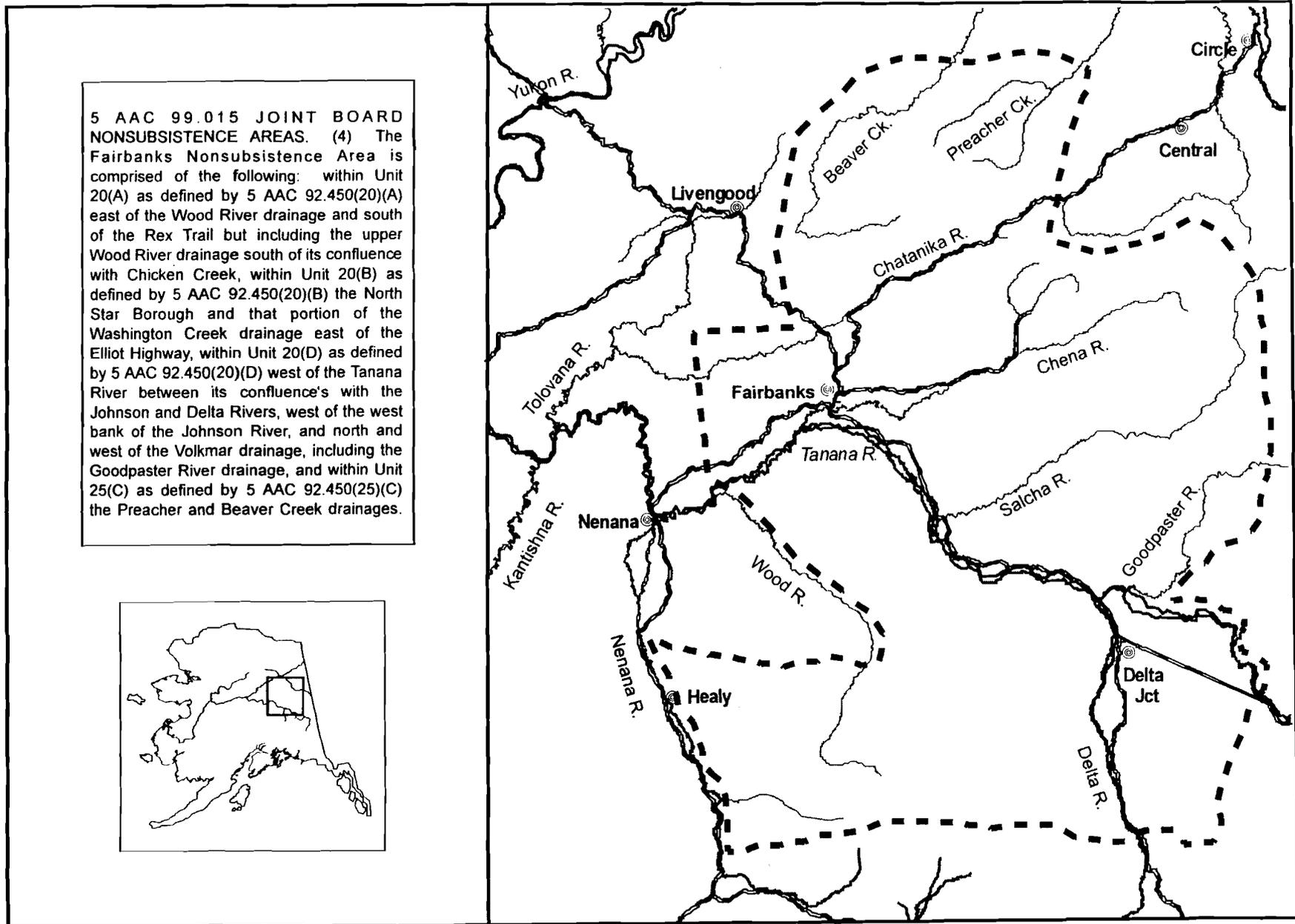


Figure 2. The Fairbanks Nonsubsistence Area, 1997.

Table 1. Guideline harvest ranges and mid-points for Alaskan commercial harvest of chinook, summer and fall chum salmon, Yukon Area, 1997.

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
5A,B,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
5	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
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
5A,B,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

a Or the equivalent roe poundage of 61,000 to 183,000 pounds or some combination of fish and pounds of roe.

Table 2. The Yukon River drainage fall chum salmon management plan, 1997.

Run Size Estimate <i>b</i> (Point Estimate)	Recommended Management Action <i>a</i> Fall Chum Salmon Directed Fisheries				Targeted Drainagewide Escapement
	Commercial	Personal Use	Sport	Subsistence	
350,000 or Less	Closure	Closure	Closure	Closure <i>c</i>	350,000
350,001 to 450,000	Closure	Closure	Closure	Restrictions <i>d</i>	350,000
450,001 to 550,000	Closure	Closure	Closure	Restrictions <i>d</i>	375,000
550,001 to 600,000	Closure	Closure <i>e</i>	Closure <i>e</i>	Restrictions <i>d</i>	400,000
Greater Than 600,000	Commercial Fishing Considered <i>f</i>	Normal Fishing Schedules	Retention Allowed	Normal Fishing Schedules	400,000 or More

a Considerations for the Toklat River and Canadian Mainstem rebuilding plans may require more restrictive management actions.

b The department will use the best available data including preseason projections, mainstem river sonar passage estimates, test fisheries indices, subsistence and commercial fishing reports, and passage estimates from escapement monitoring projects to assess the run size.

c The department may, by emergency order, allow subsistence chum salmon directed fisheries in areas that indicator(s) suggest that the escapement goal(s) in that area will be achieved.

d The department may, by emergency order, allow a less restrictive or a normal subsistence fishing schedule in areas that indicator(s) suggest that the escapement goal(s) in that area will be achieved.

e The department may, by emergency order, allow personal use and sport fishing in areas that have normal subsistence fishing schedules and indicator(s) that suggest the escapement goal(s) in that area will be achieved.

f The department may, by emergency order, allow commercial fishing in areas that have normal subsistence fishing schedules and indicator(s) that suggest the escapement goal(s) in that area will be achieved.

A commercial harvestable surplus of at least 50,000 fall chum salmon (consistent with the Toklat River Rebuilding Plan) is needed to provide for an orderly drainagewide commercial fishery. Harvest will be distributed by district or subdistrict proportional to the guideline harvest range established in 5 AAC 05.365.

The department shall distribute the harvest at levels below the low end of the guideline harvest range by district or subdistrict proportional to the mid-point of the guideline harvest range.

5 AAC 05.365. (4) manage the commercial fishery during the fall chum salmon season for a guideline harvest range of 72,750 to 320,000 chum salmon, distributed as follows:

- (A) Districts 1, 2 and 3: 60,000 to 220,000 chums;
- (B) Subdistricts 4-B and 4-C: 5,000 to 40,000 chums;
- (C) Subdistricts 5-A, 5-B, and 5-C: 4,000 to 36,000 chums;
- (D) Subdistrict 5-D: 1,000 to 4,000 chums;
- (E) District 6: 2,750 to 20,500 chums.

Appendix A

Historical Commercial Harvest and Escapement Information

Appendix A.1. Commercial chinook salmon sales and estimated harvest by area, district, and country, Yukon River drainage, 1961-1996

Year	Lower Yukon Area ^b				Upper Yukon Area ^a									Total Estimated Harvest ^c	Canad Total	Grand Total			
	District 1	District 2	District 3	Subtotal	District 4			District 5			District 6						Subtotal		
					Number	Roe	Harvest ^c	Number	Roe	Harvest ^c	Number	Roe	Harvest ^c				Number	Roe	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	3,208	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	85,042	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	56,981	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	5,385	-	5,385	981	-	981	7,453	-	7,453	123,644	8,640	132,284
1983	95,457	43,229	4,106	142,792	601	-	601	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	46,365	2,588	140,964	664	-	664	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 ^e	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	686	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	1,820	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
5 Yr Ave.																			
1986-19	59,713	38,131	1,739	99,583	2,302	-	2,303	3,313	-	3,316	1,710	-	1,789	7,325	-	7,408	106,990	11,198	118,189
5 Yr Ave.																			
1991-19	63,635	39,568	1,356	104,559	1,585	1,277	2,099	3,530	16	3,535	1,233	2,059	1,725	6,348	3,352	7,359	111,918	11,061	122,979

^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.

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

^f Includes the illegal sales of 3,211 chinook salmon.

^g Includes the illegal sales of 1,101 chinook salmon.

^h 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 1,218 chinook salmon in District 1, and 207 chinook salmon in District 2.

Appendix A.2. Commercial summer chum salmon sales and estimated harvest by area and district, Yukon River drainage in Alaska, 1967-1996.

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
1967	9,453	1,425	57	10,935	-	-	-	-	-	-	-	-	-	0	0	0	10,935
1968	12,995	1,407	68	14,470	-	-	-	-	-	-	-	-	-	0	0	0	14,470
1969	56,886	5,080	-	61,966	-	-	-	-	-	-	-	-	-	0	0	0	61,966
1970	117,357	19,649	-	137,006	-	-	-	-	-	-	-	-	-	0	0	0	137,006
1971	93,928	6,112	50	100,090	-	-	-	-	-	-	-	-	-	0	0	0	100,090
1972	114,234	20,907	527	135,668	-	-	-	-	-	-	-	-	-	0	0	0	135,668
1973	221,644	63,402	463	285,509	-	-	-	-	-	-	-	-	-	0	0	0	285,509
1974 ^d	466,004	74,152	1,721	541,877	27,866	-	27,866	6,831	-	6,831	13,318	-	13,318	48,015	0	48,015	589,892
1975	418,323	99,139	-	517,462	165,054	-	165,054	12,997	-	12,997	14,782	-	14,782	192,833	0	192,833	710,295
1976	273,204	99,190	9,802	382,196	211,307	-	211,307	774	-	774	6,617	-	6,617	218,698	0	218,698	600,894
1977	250,652	105,679	3,412	359,743	169,541	-	169,541	1,274	-	1,274	4,317	-	4,317	175,132	0	175,132	534,875
1978	393,785	227,548	27,003	648,336	364,184	16,920	381,104	4,892	605	5,497	34,814	8,236	43,050	403,890	25,761	429,651	1,077,987
1979	369,934	172,838	40,015	582,787	169,430	35,317	204,747	8,608	1,009	9,617	18,491	3,891	22,382	196,529	40,217	236,746	819,533
1980	391,252	308,704	44,782	744,738	147,560	135,824	283,384	456	-	456	35,855	3,282	39,137	183,871	139,106	322,977	1,067,715
1981	507,158	351,878	54,471	913,507	59,718	187,032	330,445	1,236	49	1,285	32,477	1,987	34,464	93,431	189,068	366,194	1,279,701
1982	249,516	182,344	4,086	435,946	3,647	151,281	257,719	213	21	234	21,597	1,517	23,114	25,457	152,819	281,067	717,013
1983	451,164	248,092	14,600	713,856	6,672	148,125	255,388	42	1,856	1,898	24,309	18	24,327	31,023	149,999	281,613	995,469
1984	292,676	236,931	1,087	530,694	1,009	166,842	278,070	645	47	692	56,249	335	56,584	57,903	167,224	335,346	866,040
1985	247,486	188,099	1,792	437,377	12,007	247,085	427,483	700	-	700	66,913	1,540	68,453	79,620	248,625	496,636	934,013
1986	381,127	288,427	442	669,996	300	269,545	465,535	690	-	690	50,483	2,146	52,629	51,473	271,691	518,854	1,188,850
1987	222,898	174,876	3,501	401,275	29,991	121,474	209,800	362	44	406	10,610	450	11,060	40,963	121,968	221,266	622,541
1988	645,322	424,461	13,965	1,083,748	24,051	254,526	490,074	722	363	1,085	40,129	1,646	41,775	64,902	256,535	532,934	1,616,682
1989	544,373 ^f	343,032	7,578	894,983	18,554	283,305	510,244	154	373	527	42,115	4,871	46,986	60,823	288,549	557,757	1,452,740
1990	146,725	131,755	643	279,123	12,364	105,723	222,550	11	594	671	11,127 ^g	3,059	14,833	23,502	109,376	238,054	517,177
1991	140,470 ^h	175,149	8,912	324,531	6,381	137,232	309,644	4	28	35	18,197	4,716	23,892	24,582	141,976	333,571	658,102
1992 ⁱ	177,329	147,129	65	324,523	2,659	110,809	211,396	102	295	430	5,029	1,892	7,228	7,790	112,996	219,054	543,577
1993	73,659	19,332	463	93,454	27	22,447	42,957	0	0	0	3,041	515	3,705	3,068	22,962	46,662	140,116
1994	42,332	12,869	35	55,238	3,611	89,717	171,607	229	212	464	21,208	7,828	31,434	25,048	97,757	203,505	258,741
1995	142,266	83,817	0	226,083	8,873	281,074	554,587	107	188	316	24,711	9,475	37,428	33,691	290,737	592,331	818,414
1996	92,506	30,727	1,534 ^j	124,767	0	295,190	510,240	0	302	336	22,360	18,332	46,890	22,360	313,824	557,466	682,233
5 Yr Ave. 1986-1999	388,089	272,510	5,226	665,825	17,052	206,915	379,641	388	275	676	30,893	2,434	33,457	48,333	209,624	413,773	1,079,598
5 Yr Ave. 1991-1999	115,211	87,659	1,895	204,765	4,310	128,256	258,038	88	145	249	14,437	4,885	20,737	18,836	133,286	279,025	483,790

^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. 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.

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

^g 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.

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

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

^j In 1996, 935 pounds of summer chum roe were sold with an estimated harvest of 1,534 fish in District 3.

Appendix A.3. Commercial fall chum salmon sales and estimated harvest by area, district, and country, Yukon River drainage, 1961-1996

Year	Upper Yukon Area ^a																Total Estimated Harvest	Canad Total	Grand Total
	Lower Yukon Area ^b				District 4		District 5			District 6			Subtotal						
	District 1	District 2	District 3	Subtotal	Numbers	Estimated Roe Harvest ^c	Numbers	Estimated Roe Harvest ^c	Numbers	Estimated Roe Harvest ^c	Numbers	Estimated Roe Harvest ^c	Numbers	Estimated Roe Harvest ^c	Estimated Harvest				
1961	42,461	-	-	42,461	-	-	-	-	-	-	-	-	0	0	0	42,461	3,276	45,737	
1962	53,116	-	-	53,116	-	-	-	-	-	-	-	-	0	0	0	53,116	936	54,052	
1963	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	-	2,196	2,196	
1964	8,347	-	-	8,347	-	-	-	-	-	-	-	-	0	0	0	8,347	1,929	10,276	
1965	22,936	-	-	22,936	-	-	-	-	-	-	-	-	381	0	381	23,317	2,071	25,388	
1966	69,836	-	1,209	71,045	-	-	-	-	-	-	-	-	0	0	0	71,045	3,157	74,202	
1967	38,451	-	1,823	40,274	-	-	-	-	-	-	-	-	0	0	0	40,274	3,343	43,617	
1968	49,857	-	3,068	52,925	-	-	-	-	-	-	-	-	0	0	0	52,925	453	53,378	
1969	128,866	-	1,722	130,588	-	-	-	-	-	-	-	-	722	0	722	131,310	2,279	133,589	
1970	200,306	4,858	3,285	208,449	-	-	-	-	-	-	-	-	1,146	0	1,146	209,595	2,479	212,074	
1971	188,533	-	-	188,533	-	-	-	-	-	-	-	-	1,061	0	1,061	189,594	1,761	191,355	
1972	136,711	12,898	1,313	150,922	-	-	-	-	-	-	-	-	1,254	0	1,254	152,176	2,532	154,708	
1973	173,783	45,304	-	219,087	-	-	-	-	-	-	-	-	13,003	0	13,003	232,090	2,806	234,896	
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	2,544	292,320			
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	2,500	277,509			
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	1,000	157,390			
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	3,990	261,976			
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	3,356	250,367
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	9,084	387,496
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	94,221	298,450	9,000	307,450	
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	15,260	492,996
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	11,312	236,304
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	25,990	333,652
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	22,932	233,492
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	35,746	306,015
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	11,464	151,483
1987	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40,591	40,591
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	30,263	166,810
1989	74,235	97,556	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	17,549	298,504
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	27,537	161,715
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	31,404	285,622
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	18,576	37,598
1993	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7,762	7,762
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	30,035	38,034
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	39,012	322,069
1996	33,629	29,651	0	63,280	2,918	0	2,918	11,878	8,498	21,856	10,266	6,173	17,574	25,062	14,671	42,350	105,630	20,069	125,699
5 Yr. Ave. 1986-199	40,749	43,557	4,786	89,093	6,894	1,436	8,495	13,007	1,088	14,123	23,202	3,375	26,628	43,103	5,899	49,247	138,340	25,481	163,821
5 Yr. Ave. 1991-199	27,814	38,692	1,643	68,348	1,332	1,148	2,964	8,153	4,488	13,155	22,354	5,959	28,391	31,839	11,596	44,511	112,859	25,358	138,217

^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.4. Commercial coho salmon sales and estimated harvest by area and district, Yukon River drainage in Alaska, 1961-1996.

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	Estimated Roe	Estimated Harvest ^c	Number	Estimated Roe	Estimated Harvest ^c	Number	Estimated Roe	Estimated Harvest ^c		Number	Estimated 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	1,288	-	1,288	38,863
1978	16,460	5,835	758	23,053	32	-	32	1	-	1	3,066	-	3,066	3,099	-	3,099	28,152
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	1,258	-	1,258	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
5 Yr Ave.																	
1986-199	19,200	22,152	1,424	42,776	1	0	1	18	0	18	8,409	-	9,060	8,429	-	9,080	51,855
5 Yr Ave.																	
1991-199	15,144	11,877	381	27,402	3	-	3	0	0	0	3,754	2,759	5,821	3,757	2,759	5,824	33,226

^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.5. Chinook salmon escapement counts for selected spawning areas in the Alaskan portion of the Yukon River drainage, 1961-1996. ^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	River	Index Area	River	Index Area	
	Aerial	Tower or Weir	Aerial ^b	Aerial ^b	Aerial ^c	Aerial	Tower			Population Estimate ^m	Aerial	Aerial ^d	Population Estimate ^m	Aerial
1961	1,003		1,226		376	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						6 ^g			1,882	
1971	1,904		1,682							193 ^{g,h}			158 ^g	
1972	798		582 ^g	1,198						138 ^{g,h}			1,193	
1973	825		788	613						21 ^g			391	
1974			285	471 ^g	55	23 ^g		161		1,016 ^h	959 ^h		1,857	
1975	993		301	730	123	81		385		316 ^h	262 ^h		1,055	
1976	818		643	1,053	471	177		332		531	496		1,641	
1977	2,008		1,499	1,371	286	201		255		563			1,202	
1978	2,487		1,062	1,324	498	422		45 ^g		1,726			3,499	
1979	1,180		1,134	1,484	1,093	414		484		1,159 ^g			4,789	
1980	958 ^g		1,500	1,330	1,192	954	369 ^g	951		2,541			6,757	
1981	2,146 ^g		231 ^g	807 ^g	577 ^g		791			600 ^g			1,237	
1982	1,274		851					421		2,073			2,534	
1983			653 ^g	376 ^g	526	480		572		2,553	2,336		1,961	
1984	1,573 ^g		1,993	641 ^g	574 ^g					501	494		1,031	
1985	1,617		2,248	1,051	720	1,600	1,180	735		2,553	2,262		2,035	
1986	1,954	1,530 ^k	3,158	1,118	918	1,452	1,522	1,346	9,065	2,031	1,935		3,368	
1987	1,608	2,011 ^k	3,281	1,174	879	1,145	493	731	6,404	1,312	1,209	4,771	1,898	
1988	1,020	1,339 ^k	1,448	1,805	1,449	1,061	714	797	3,346	1,966	1,760	4,562	2,761	
1989	1,399		1,089	442 ^g	212 ^g				2,666	1,280	1,185	3,294	2,333	
1990	2,503		1,545	2,347	1,595	568	430 ^{g,n}	884 ^g	5,603	1,436	1,402	10,728	3,744	
1991	1,938		2,544	875 ^g	625 ^g	767	1,253	1,690	3,025	1,277 ^g	1,277 ^g	5,608	2,212 ^g	
1992	1,030 ^g		2,002 ^g	1,536	931	348	231	910	5,230	825 ^g	799 ^g	7,862	1,484 ^g	
1993	5,855		2,765	1,720	1,526	1,844	1,181	1,573	12,241 ^k	2,943	2,660	10,007 ^k	3,636	
1994	300	7,801 ^{p,r}	213 ^g		913 ^g	843	952	1,795 ^r	2,775	2,888 ^r	11,881 ^k	1,570	18,404 ^k	
1995	1,635	5,841 ^p	1,108	1,996	1,147	968	681	1,412	410	4,023	9,680	3,575	13,643 ^k	
1996 ^s		2,955 ^p	624	839	709		100 ⁿ	756		1,952	6,833	2,233	2,112	7,958
E.O. ^t	>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 tower 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 A.6. Chinook salmon escapement counts for selected spawning areas in the Canadian portion of the Yukon River drainage, 1991-1996.

Year	Tincup Creek ^a	Tatchum River ^{a,b}	Little Salmon River ^a	Big Salmon River ^{a,c}	Nisutlin River ^{a,d}	Ross River ^{a,f}	Wolf River ^a	Whitehorse Fishway ^h	Canada Mainstem Tagging Estimate ^j	Canadian Mainstem Border Passage Estimate	Harvest
1961								1,068			
1962								1,500			
1963								483			
1964								595			
1965								903			
1966		7 ^k						563			
1967								533			
1968			173 ^k	857 ^k	407 ^k	104 ^k		414			
1969			120	286	105			334			
1970		100		670	615		71 ^k	625			
1971		130	275	275	650		750	856			
1972		80	126	415	237		13	391			
1973		99	27 ^k	75 ^k	36 ^k			224			
1974		192		70 ^k	48 ^k			273			
1975		175		153 ^k	249		40 ^k	313			
1976		52		86 ^k	102			121			
1977		150	408	316 ^k	77			277			
1978		200	330	524	375			725			
1979		150	489 ^k	632	713		183 ^k	1,184			
1980		222	286 ^k	1,436	975		377	1,383			
1981		133	670	2,411	1,626	949	395	1,555			
1982		73	403	758	578	155	104	473	19,790	36,598	16,808
1983	100	264	101 ^k	540	701	43 ^{k,n}	95	905	28,989	47,741	18,752
1984	150	153	434	1,044	832	151 ^k	124	1,042	27,616 ^m	43,911	16,295
1985	210	190	255	801	409	23 ^k	110	508	10,730	29,881	19,151
1986	228	155	54 ^k	745	459 ^k	72 ⁿ	109	557	16,415	36,479	20,064
1987	100	159	468	891	183	180 ^k	35	327	13,260	30,823	17,563
1988	204	152	368	765	267	242	66	405	23,118	44,445	21,327
1989	88	100	862	1,662	695	433 ^p	146	549	25,201	42,620	17,419
1990	83	643	665	1,806	652	457 ^k	188	1,407	37,699	56,679	18,980
1991			326	1,040		250	201 ^r	1,266	20,743	41,187	20,444
1992	73	106	494	617	241	423	110 ^r	758	25,382	43,185	17,803
1993		183	184	572	339	400	168 ^r	668	28,558	45,027	16,469
1994	101 ^k	477	726	1,764	389	506	393 ^f	1,577 ^t	25,890	46,680	20,790
1995	121	397	781	1,314	274	253 ^k	229 ^r	2,103	32,262	52,353	20,091
1996 ^s	150	423	1,150	2,565	719	102 ^k	705 ^r	2,958	27,934	47,660	19,523
E.O.									33,000-43,000 ^q		

continued

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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. Latest table revisions 31-Oct-96.
- ^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.
- ^e Big Timber Creek to Lewis Lake.
- ^f Wolf Lake to Red River.
- ^g Includes 50, 92, 292, 506, 243, 288, 879, 757, and 422 fin-clipped hatchery-origin salmon in 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995 and 1996 respectively. Note that the 1994 count is presently under review because a number of fin-clipped fish were double counted.
- ^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 to the 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 28,000 salmon.
- ^r Counts are for Wolf Lake to Fish Lake outlet.
- ^s Data are preliminary.
- ^t Under review; a number of fin-clipped fish were double-counted.

Appendix A.7. Summer chum salmon escapement counts for selected spawning areas in the Alaskan portion of the Yukon River drainage, 1973-1996. ^a

Year	Andreafsky River		Anvik River		Rodo River	Kallag Creek	Nulato River			Gisasa River		Hogatza River		Tozitna River	Chena River		Salcha River			
	East Fork	West Fork	Tower & Aerial ^b	Sonar	Aerial	Tower	South Fork	North Fork ^h	Mainstem	Aerial	Weir	Clear & Caribou Cr.	Clear Creek	Aerial	Aerial	Tower	Aerial	Tower		
	Sonar, Tower, or Weir	Counts					Aerial	Aerial				Aerial	Aerial						Aerial	Aerial
1973	10,149 ^d		51,835	249,015													79 ^d	290		
1974	3,215 ^d		33,578	411,133			16,137		29,016	29,334		22,022			1,823	4,349		3,510		
1975	223,485		235,954	900,967			25,335		51,215	87,280		56,904		22,355	3,512	1,670		7,573		
1976	105,347		118,420	511,475			38,258		9,230 ^d	30,771		21,342		20,744	725 ^d	685		6,484		
1977	112,722		63,120	358,771			16,118		11,385	58,275		2,204 ^d		10,734	761 ^d	610		677 ^d		
1978	127,050		57,321	307,270			17,845		12,821	41,659		9,280 ^d		5,102	2,262	1,609		5,405		
1979	66,471		43,391		280,537				1,506	35,598		10,962		14,221		1,025 ^d		3,060		
1980	36,823 ^d		114,759		492,676				3,702 ^d	11,244 ^d		10,388		19,786		580	338	4,140		
1981	81,555	147,312 ^f			1,486,182				14,348								3,500	8,500		
1982	7,501 ^d	181,352 ^f	7,267 ^d		444,581							334 ^d		4,984 ^d	874	1,509		3,756		
1983		110,608 ^f			362,912				1,263 ^d	19,749		2,356 ^d		28,141	1,604	1,097		716 ^d		
1984	95,200 ^d	70,125 ^f	238,565		891,028									184 ^d		1,861		9,810		
1985	66,146		52,750		1,080,243	24,576		10,494	19,344			13,232		22,566	1,030	1,005		3,178		
1986	83,931	167,614 ^g	99,373		1,189,602			16,848	47,417			12,114			1,778	1,509		8,028		
1987	6,687 ^d	45,221 ^g	35,535		455,876			4,094	7,163			2,123		5,669 ^d		333		3,657		
1988	43,056	68,937 ^g	45,432		1,125,449	13,872		15,132	26,951			9,284		6,890		2,983	432	2,889 ^d		
1989	21,460 ^d				636,906												714 ^d	1,574 ^d		
1990	11,519 ^d		20,426 ^d		403,627	1,941 ^d		3,196 ^d	1,419 ^d			450 ^d		2,177 ^d	36	245 ^d		450 ^d		
1991	31,886		46,657		847,772	3,977		13,150	12,491			7,003		9,947	93	115 ^d		154 ^d		
1992	11,308 ^d		37,808 ^d		775,626	4,465		5,322	12,358			9,300		2,986	794	848 ^d		3,222		
1993	10,935 ^d		9,111 ^d		517,409	7,867		5,486	7,698			1,581			970	168	5,487	212	5,563	
1994		200,981 ^{j,k}			1,124,689			47,295				148,762 ^k	6,827	51,116 ^k	8,247 ^m		1,137	9,984	4,916	39,450
1995		172,148 ^{j,k}			1,339,418	12,849	77,193	10,875	29,949	236,890	6,458	136,886		116,735	4,985	185 ^d	3,519 ^k	934 ^d	30,784	
1996 ^q		108,856 ^{j,k}			933,240	4,380	51,284	8,490 ^{d,h}		129,694		157,589		27,090 ^m	101,250	2,310	2,061	12,810	9,722	74,827
E.O. ⁿ	>109,000		>116,000		>500,000					>53,000 ^o				>17,000 ^p					>3,500	

continued

- ^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.

Appendix A.8.

Fall chum salmon escapement counts for selected spawning areas in Alaskan and Canadian portions of the Yukon River drainage, 1971-1996.

Year	Alaska				Canada					
	Toklat River ^b	Delta River ^c	Chandalar River ^d	Sheenjek River ^d	Fishing Branch River ^{f,g}	Mainstem Yukon River Index ^{g,h}	Koidern River ^g	Kluane River ^{g,j}	Teslin River ^{g,k}	Mainstem Tagging Estimate ^m
1971					312,800					
1972		5,384			35,125 ^h			198 ^{p,r}		
1973		10,469			15,989 ^s	383		2,500		
1974	41,798	5,915		89,966 ^t	32,525 ^s			400		
1975	92,265	3,734 ^v		173,371 ^t	353,282 ^s	7,671		362 ^r		
1976	52,891	6,312 ^v		26,354 ^t	36,584			20		
1977	34,887	16,876 ^v		45,544 ^t	88,400			3,555		
1978	37,001	11,136		32,449 ^t	40,800			0 ^r		
1979	158,336	8,355		91,372 ^t	119,898			4,640 ^r		
1980	26,346	5,137		28,933 ^t	55,268			3,150		
1981	15,623	23,508		74,560	57,386 ^w			25,806		
1982	3,624	4,235		31,421	15,901	1,020 ^x		5,378		31,958
1983	21,869	7,705		49,392	27,200	7,560		8,578 ^r		90,875
1984	16,758	12,411		27,130	15,150	2,800 ^y	1,300	7,200	200	56,633 ^z
1985	22,750	17,276 ^v		152,768	56,016 ^s	10,760	1,195	7,538	356	62,010
1986	17,976	6,703 ^v	59,313	84,207 ^{aa}	31,723 ^s	825	14	16,686	213	87,940
1987	22,117	21,180	52,416	153,267 ^{aa}	48,956 ^s	6,115	50	12,000		80,776
1988	13,436	18,024	33,619	45,206 ^{aa}	23,597 ^s	1,550	0	6,950	140	36,786
1989	30,421	21,342 ^v	69,161	99,116 ^{aa}	43,834 ^s	5,320	40	3,050	210 ^p	35,750
1990	34,739	8,992 ^v	78,631	77,750 ^{aa}	35,000 ^{ab}	3,651	1	4,683	739	51,755
1991	13,487	32,905 ^v		86,496 ^{ac}	37,733 ^s	2,426	53	11,675	468	78,461
1992	14,070	8,893 ^v		78,808 ^{ac}	22,517 ^s	4,438	4	3,339	450	49,082
1993	27,838	19,857		42,922 ^{ac}	28,707 ^s	2,620	0	4,610	555	29,743
1994	76,057	23,777 ^v		153,000 ^{ac,ad}	65,247 ^s	1,429 ^p	20 ^p	10,734	209 ^p	98,358
1995	54,513 ^{ah}	20,587	280,999	235,000 ^{ac}	51,971 ^{s,aj}	4,701	0	16,456	633	158,092
1996 ^{ad}	15,900	12,328	203,683	247,965 ^{ac}	77,278 ^s	4,977	0	14,431	315	122,688
E.O. ^{af}	>33,000	>11,000		>64,000	50,000-120,000					>80,000

continued

- ^a Latest table revision November 6, 1996.
- ^b 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.
- ^c Estimates are a total spawner abundance, generally from using spawner abundance curves and streamlife data.
- ^d Side-scan sonar estimate 1986-1990, split beam sonar estimate 1995-1996.
- ^f 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.
- ^g Aerial survey count unless otherwise indicated.
- ^h Tatchun Creek to Fort Selkirk.
- ^j Duke River to end of spawning sloughs below Swede Johnston Creek.
- ^k Boswell Creek area (5 km below to 5 km above confluence).
- ^m Excludes Fishing Branch River escapement (estimated border passage minus Canadian removal).
- ⁿ 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.
- ^p Incomplete and/or poor survey conditions resulting in minimal or inaccurate counts.
- ^r Foot survey.
- ^s Weir count.
- ^t Total escapement estimate using sonar to aerial survey expansion factor of 2.22.
- ^v Population estimate from replicate foot surveys and stream life data.
- ^w 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.
- ^x Boat survey.
- ^y Total index area not surveyed. Survey included the mainstem Yukon River between Yukon Crossing to 30 km below Fort Selkirk.
- ^z Escapement estimate based on mark-recapture program unavailable. Estimate based on assumed average exploitation rate.
- ^{aa} Expanded estimates for period approximateing second week August through middle fourth week September, using Chandalar River run timing data.
- ^{ab} 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.
- ^{ac} Total abundance estimate are for the period approximateing second week August through middle fourth week of September. Comparative escapement estimates prior to 1986 are considered more conservative; approximating the pperiod of end of August through middle week of September.
- ^{ad} Data are preliminary.
- ^{af} Interim escapement objective.
- ^{ag} Based on escapement estimates for years 1974-1990.
- ^{ah} Minimal estimate because of late timing of ground surveys with respect to peak of spawning.
- ^{aj} Incomplete count due to late installation and/or early removal of project or high water events.

Appendix A.9. Coho salmon escapement counts for selected spawning areas in the Alaskan portion of the Yukon River drainage, 1972-1996.

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 ^d	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 ^j		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 ^j		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 ^j		2,677		8,826 ⁿ		11,061	1,368	428
1985				42 ^j		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			142	192 ^{n,s}	4,169	2,218	500 ⁿ	2,972 ^k	20,100	3,625 ^{f, h}	
1996 ^t	8,034			136	0 ⁿ	2,040	2,171 ^j	201 ^j	3,668 ^{h,j}	11,975 ^x	1,025 ^f	
E.O.										>9,000 ^u		

continued

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- ^a Only peak counts presented. Survey rating is fair to good, unless otherwise noted. latest table revision: November 3, 1995.
 - ^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.
 - ^j Aerial 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.