

KANEKTOK RIVER WEIR, 2002



By

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Regional Information Report<sup>1</sup> No. 3A03-21

Alaska Department of Fish and Game  
Commercial fisheries Division  
Arctic-Yukon-Kuskokwim Region  
333 Raspberry Road  
Anchorage, Alaska 99519

July 2003

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## ACKNOWLEDGMENTS

The authors would like to thank the Kanektok River 'weirdos', Roger Minton and Rob Stewart with ADF&G, Karl Jones, and Thaddeus Foster with the Native Village of Kwinhagak (NVK) for their hard work. The authors would also like to thank Andrew Corchran of the Bering Sea Fishermen's Association (BSFA) with help in the installation, Mark Lisac and his crew with the U.S. Fish and Wildlife Service (USFWS) for helping out around camp, Doug Bue with ADF&G, and Willard Church with NVK for their help in making things work.

## PROJECT SPONSORSHIP

The U.S. Fish and Wildlife Service, Office of Subsistence Management, provided \$130,000 in funding for this project through the Fisheries Resource Monitoring Program, under agreement # 701811J334.

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## ABSTRACT

A resistance-board floating weir on Kanektok River was used to estimate escapement and provide a platform for the collection of age, sex and length data for chinook, *Oncorhynchus tshawytscha*, sockeye, *O. nerka*, coho, *O. kisutch*, and chum salmon, *O. keta*. The 2002 commercial salmon harvest was 11,480 chinook, 17,802 sockeye, 26,695 coho, and 29,252 chum salmon, for a total of 85,229 fish. All harvests were being below their most recent 10-year averages. The weir was operational from July 1 until September 20. Passage at the weir was 5,335 chinook, 58,367 sockeye, 40,014 chum, and 24,883 coho salmon. The 2002 season was the first year chinook, sockeye, and chum salmon age class composition was collected. Age class composition of chinook, chum, and coho salmon harvested in the District W-4 commercial fishery were within the usual ranges. The percentage of age 1.2 sockeye salmon harvested in the District W-4 fishery was higher than usual, while the percentage of age 1.3 fish was lower.

**KEY WORDS:** Kanektok River, Kuskokwim Area, District W-4, chinook, sockeye, chum, coho, salmon Kanektok River, Dolly Varden, *Oncorhynchus tshawytscha*, *O. nerka*, *O. kisutch*, *O. Keta*, rainbow trout, whitefish

## INTRODUCTION

### *Study Area*

Kanektok River is located in Togiak National Wildlife Refuge in southwestern Alaska (Figure 1). The river originates at Kegati Lake and flows westerly for 91 mi (146 km) and empties into Kuskokwim Bay near the village of Quinhagak. The upper portion of the river is a single channel flowing primarily through mountainous area. The lower portion of the river flows through a broad fluvial plain and is braided with many side channels. The Kanektok River and its many tributaries drain approximately 500 mi<sup>2</sup> of surface area dominated by largely undisturbed tundra. The surrounding riparian vegetation is composed primarily of cottonwood, willow, and alder. The weir is located at river mile 42 (67.60 km), GPS coordinates N 59 46.057, W 161 03.616 (Figure 1).

### *Salmon Fisheries*

Present day District W-4 was established in 1960. The boundaries of District W-4 extend from the northern-most edge of the mouth of Oyak Creek to the southern-most tip of the south mouth of the Arolik River, and expand 3 mi from the coast into Kuskokwim Bay (Figure 2). Before 2001, the northern most boundary of the district was the northern most edge of Wheeling Creek (Figure 2). The northern boundary was moved by regulation to minimize the number of Kuskokwim River bound chinook and chum salmon harvested in the District W-4 commercial fishery. The Kanektok and Arolik Rivers are the main spawning streams in the district. The fishery is directed towards chinook salmon, *Oncorhynchus tshawytscha*, sockeye salmon, *O. nerka*, and coho salmon, *O. kisutch*. Chum salmon, *O. keta*, are harvested incidentally. Pink salmon *O. gorbuscha*, are the least valuable species commercially and not targeted.

In the Kuskokwim Area, permit holders have unrestricted movement between commercial fishing districts. Historically, permit holders from Quinhagak, Goodnews Bay, lower Kuskokwim River villages, and upper Kuskokwim Bay villages participate in the District W-4 commercial fishery. However, in recent years, permit holders fishing the district have primarily been from the Quinhagak area. Most permits fish the chinook and sockeye salmon directed fisheries. Commercial fishing in the district is conducted with drift gillnets in the tidal channels radiating into the bay from surrounding freshwater streams, and with gillnets set near the mouth of the Kanektok River.

Since 1960, commercial salmon harvests in District W-4 ranged from 4,186 to 302,130 fish; the historic average 117,817 fish (Appendix 1). Since 1997, the commercial fishery has been in a steady decline. From 1977 through 1996, commercial harvests averaged 166,347 fish, and the number of permits fishing averaged 279. Since 1996, the average commercial harvest has dropped to 131,810 fish, and the average number of permits has dropped to 207. The decline has been most pronounced the last two years. In 2001 and 2002, 159 and 114 permits fished the district (Appendix 2), over a 40 % decrease from the most recent 10-year average (1992-2001) of 277. In 2001 and 2002, a total of 82,322 and 85,229 fish were harvested, over a 50 % decrease from the most recent 10-year average (1992-2001) of 199,144. In the last two years, both the number of permits fishing and the total harvest were the lowest since the late seventies. The

decline in the fishery is likely attributable to the poor market value of salmon, increasing fuel prices, and other economic opportunity in the area.

Subsistence fishing for salmon occurs throughout the Kanektok River drainage. Subsistence caught salmon make an important contribution to the annual subsistence harvests of residents from Quinhagak, Goodnews, Eek, and Platinum (Burkey, et. al. 2000). The Department has quantified subsistence harvests in the Quinhagak area since 1968. Over the last 10 years, annual subsistence harvests have averaged 3,363 chinook, 1,094 sockeye, 1,184 chum, and 2,064 coho salmon (Appendix 4).

Kanektok River supports an excellent sport fishery. Both guided and non-guided sport anglers from around the world fish the drainage from mid-June to the beginning of September targeting salmon, rainbow trout, and Dolly Varden. From 1983 through 2001, the sport harvest of chinook salmon ranged from 316 to 1,910 fish, sockeye harvests from 12 to 942 fish, chum salmon harvests from 43 to 777, and coho salmon harvests from 358 to 2,448 fish (Lafferty 2003).

### *Escapement Monitoring*

Kanektok River is the primary spawning stream in District W-4. Establishing a viable method for assessing salmon escapement in the Kanektok River has been problematic since the inception of the District W-4 commercial fishery in 1960. The first attempt was a counting tower established in 1960 on the lower river near the village of Quinhagak (ADF&G 1960). The project was plagued by logistical problems, poor visibility into the water column, and difficulties with species apportionment (ADF&G 1960). In 1961, the tower was relocated to the outlet of Kegati Lake and operated through 1962 (ADF&G 1961, 1962). Although successful in providing sockeye salmon escapement information, it was abandoned after 1962 (ADF&G 1962). The next attempt was hydroacoustic sonar (1982 through 1987) but was deemed unfeasible because of budget constraints, technical obstacles, and site limitations (Schultz and Williams 1984, Huttunen 1984c, 1985c, 1986a, 1988). In 1996, a cooperative effort between the Native Village of Quinhagak (NVK), FWS, and ADF&G, and FOSM revisited the counting tower located 20 mi from the District W-4 commercial fishery. The counting tower again met with limited success (Fox 1997) despite improvements to the project in 1998 (Menard and Caole 1998). In 1999, resources were redirected towards developing a resistance board-floating weir (Burkey et al 2001). The weir was briefly operational in 2000, but technical limitations, personnel problems, and high water levels precluded the project from meeting its objectives (Linderman 2000). Also, during operation in 2000, the site determined incapable of facilitating a weir because of extensive bank erosion (Linderman 2000). In 2001, the weir was relocated approximately 20 mi upriver from the original site. The weir was successfully installed and operated albeit installation was delayed until August 10. In 2002, weir operation allowed the project to meet all of its objectives. In 2003, crews will attempt to install the weir during the last week in April when the river level is low before snowmelt and spring precipitation. The project continues as a cooperative venture between ADF&G, FOSM, BSFA, NVK, and FWS.

Salmon escapement information for the Kanektok River is scant because establishing a continuing escapement project on the Kanektok River has been problematic (Table 5).

### *Aerial Survey*

Aerial spawning ground surveys have been flown for the Kanektok River since 1962. Aerial survey escapement goals were established in 1993 and set at 5,800, 15,000, 30,500, and 25,000 fish for chinook, sockeye, chum, and coho salmon, respectively (Buklis 1993). Chinook salmon achieved their goal on thirteen of the twenty-six surveys flown since 1962, averaging 6,158 fish (Appendix 6). Sockeye salmon achieved their goal on seventeen of the twenty-six surveys flown since 1962, averaging 25,093 (Appendix 6). Chum salmon met their goal on four of the twenty-three surveys flown since 1966, averaging 19,107 (Appendix 6). Aerial surveys for coho salmon have been sporadic (Appendix 6). Poor weather conditions during September typically limit coho salmon survey.

### *Age, Sex, and Length*

Annual escapement age, sex, and length (ASL) composition information is used to develop stock-recruitment models, in turn providing information used for projecting future run sizes. Available escapement ASL information for chinook, sockeye, chum, and coho salmon is limited on the Kanektok River, because establishment of a continuous long term escapement project has been problematic. Historical summaries of existing ASL information for salmon returning to the Kanektok River can be found in DuBois and Molyneaux (2001) and DuBois and Folletti (unpublished data). The summary for chinook, sockeye, chum, and coho salmon are based on information from the 1997 Kanektok River counting tower project. Samples collected from the Kanektok River sonar project from 1984-87 (Huttunen 1984, 1985, 1986, 1988), from sport samples collected in 1991, 1993, and 1994 from a Kanektok River sport fishery creel survey conducted by ADF&G Sport Fish Division (Molyneaux and DuBois 2001), and from carcass sampling from 1992 through 1996 (MacDonald 1997), and carcass sampling from a survey trip in 1984 (Snellgrove and Bue 1984) are not included in these summaries.

Chinook salmon age and sex information has been collected from the District W-4 commercial harvest since 1990, and length information has been collected since 1995 (Dubois and Folletti unpublished). Since 1990, 62 % of the chinook salmon commercial harvested have been male, and been comprised mostly (43 %) of age-1.4 fish. Since 1995, the average seasonal mean lengths of age-1.4 fish have been 836 and 853 mm, males and females, respectively.

Sockeye salmon age and sex information has been collected from the District W-4 commercial fishery since 1990, and length information since 1995 (Dubois and Folletti unpublished). Since 1990, 51 % of the sockeye salmon commercially harvested have been male, and been comprised mostly (61 %) of age-1.3 fish. Since 1995, the average seasonal mean lengths of age-1.3 fish have been 584 mm for males and 551 mm for females.

Chum salmon ASL information has been collected from the District W-4 commercial harvest since 1984 (Dubois and Folletti unpublished). Since then, chum salmon commercially harvested have been 55 % female, and comprised mostly (58 %) of age-0.3 fish. The average mean seasonal lengths of age-0.3 fish have been 585 mm and 563 mm, males and females, respectively.

Coho salmon age and sex information has been collected from the District W-4 commercial harvest since 1990, and length information has been collected since 1996 (Dubois and Folletti unpublished). Since 1990, coho salmon commercially harvested have been 52 % male, and comprised mostly (87 %) of age-2.1 fish. Since 1996, the average mean seasonal lengths of age-2.1 fish have been 592 mm males and 595 mm females.

### *Objectives*

Objectives for the Kanektok River Weir in 2001 were to:

- successfully install and operate the weir from mid-June through September,
- enumerate the daily passage of all fish species through the weir,
- describe run-timing or proportional daily passage of chinook, sockeye, chum, and coho salmon through the weir,
- collect samples from chinook, sockeye, chum, and coho salmon at the weir for age-sex-length (ASL) determination,
- enumerate carcasses of all fish species washed up on the weir,

## METHODS

### *Resistance Board Floating Weir*

Methods for the design, construction, and installation of the resistance board, floating weir largely follow those described in Tobin (1994). The approximately 250 ft (76.2 m) weir used at the Kanektok River site had three major parts: the resistance board panel section, the fixed picket section, and the substrate rail.

The 230 ft (70.1 m) resistance board panel section was constructed with both 3 ft (0.91 m) x 20 ft (6.1 m) and 4 ft (1.2 m) x 20 ft (6.1 m) floating resistance board panels made out of 18 PVC Schedule 40 pipes (1 in diameter) with 2 ft (.61 m) by 4 ft (1.2 m) resistance boards attached to the downstream edge. The resistance board panels were anchored to a substrate rail by two hooks attached to a cable running the length of the rail. The substrate rail was anchored to the stream bottom with metal stakes and duckbill anchors.

Approximately 14 ft (4.3 m) of fixed-picket weir was used on the north bank, and approximately 6 ft (1.8 m) was used on the south bank to attach the floating resistance board weir to the banks. The fixed-picket sections were made of wooden tripods (1 on the south bank, 3 on the north bank) with two horizontal metal beams attached spanning the distance of the tripod legs. The metal beams had holes placed in them to allow aluminum bar placement vertically across the front of the tripods, completing the fixed picket section.

Two passage chutes were installed on the weir, one approximately 100 ft (30.48 m) from the south bank, the other approximately 25 feet (7.62 m) from the north bank. A 10 ft (3 m) x 15 ft (4.6 m) live trap box used to collect fish for age-sex-length (ASL) sampling was installed directly upstream of the north bank passage chute. Gates were attached on both chutes to prevent fish passage.

To allow boaters and rafters to cross the weir without difficulty, two 4 ft (1.22 m) resistance board panels were modified into a boat passage gate by bending downward the downriver end of the pickets. Hard rubber sheets were placed on top of the bent pickets. The boat gate was located near mid-weir.

### *Escapement Monitoring*

To determine salmon escapement past the weir, fish passage counts were made daily from July 1 through September 20. During passage counts, the passage chute gate was opened to pass fish through the weir. Crewmembers identified and enumerated fish as they moved through the chute. Passage counts occurred regularly throughout the day, typically for 1-2 hour periods, beginning in the morning and continuing as late as light permitted. Substantial delays in fish passage occurred only at night or during ASL sampling.

### *Age, Sex, and Length*

Escapement sampling for ASL determination was conducted based on the pulse sampling design of Molyneaux and DuBois (1999). The sampling objective for chinook salmon escapement was 4-5 strata (pulses) of 210 fish each, distributed equally over the run. Objectives for sockeye and chum salmon were a minimum of 6 pulses of 210 and 200 fish each, distributed equally over their runs. The objective for coho salmon was 3 pulses of 170 fish each, distributed equally over the run. Each pulse sample was used to estimate the ASL composition of the run at a given point of time during the run. A weighted mean, based on relative fish passage during each defined pulse as the weight, was used to estimate age composition of the total season passage.

To obtain salmon for escapement ASL sampling, a gate on the live trap was opened for a period to allow a sufficient number fish to enter. The live trap gate was closed and individual salmon were removed from the trap using a dip net. To sample salmon from the commercial harvest, fish were obtained from the processor. For both escapement and harvest ASL data collection, fish were measured for length (from the mid-eye to fork-of-tail). Escapement samples were sexed by examination of external characteristics. Harvest samples were sexed by making a small incision (approx. 1 in) anterior to the anus and then checking for the presence of eggs in the body cavity. For both escapement and commercial harvest samples, scales were removed (3 scales each from chinook, and coho salmon, one scale from sockeye and chum salmon) from the left side of the fish, approximately two rows above the lateral line in an area crossed by a diagonal from the posterior insertion of the dorsal fin to the anterior insertion of the anal fin (INPFC 1963, DuBois and Molyneaux 2001). After escapement sampling was complete, fish were released upriver of the weir. Scales were arranged on gum cards in the field and sent to the Bethel office for processing. Impressions from the gum cards were made on cellulose acetate cards with a heated hydraulic press (Clutter and Whitesel 1956). Ages of the salmon were determined by examining the scale impressions (Mosher 1968), and ages were recorded in European notation (Koo 1962).

### *Aerial Surveys*

An aerial survey for chinook, sockeye, and chum salmon was flown on August 4. The survey was flown in a Cessna 185 at an altitude of 500 ft. Conditions were classified as fair. An aerial survey was not flown for coho salmon because of poor weather conditions.

## RESULTS

### *Salmon Fisheries*

The chinook salmon harvest of 11,480 fish (Table 1) in 2002 was 10 % below the 2001 harvest of 12,774 fish, and 44 % below the most recent 10-year average of 20,539 fish. The sockeye salmon harvest of 17,802 fish (Table 1) was 47 % below the 2001 harvest of 33,807 fish, and 70 % below the most recent 10-year harvest of 59,466 fish. The coho salmon harvest of 26,695 fish (Table 1) was 41 % greater than the 2001 harvest of 18,531 fish, albeit 54 % below the most recent 10-year average of 57,934 fish. The chum salmon harvest of 29,252 fish (Table 1) was 41 % greater than the 2001 harvest of 17,209 fish, although 38 % below the most recent 10-year average of 47,387 fish. The total 2001 commercial harvest of 85,229 fish (Table 1) was a 4 % increase over the 2001 harvest of 82,322 fish, and 55 % below the most recent 10-year average of 190,844 fish.

In 2002, 144 permits fished the district (Table 1), 7 % below the 159 fished in 2001, and 48% below the most recent 10-year average of 277. There were 24 commercial fishing periods in 2002 (Table 1), 17 % more than the 20 periods in 2001 and 17 % below the most recent 10-year average of 29. The 294 hours of fishing time was 22 % more than the 231 hours in 2001 and 15 % below the most recent 10-year average of 346 (Table 1).

In 2002, exvessel value of the District 4 commercial harvest was \$167,615 (Table 1), 26 % below the 2001 exvessel value of \$225,789, and 73 % below the most recent 10-year average of \$624,428. Chinook salmon was the most valuable species, providing 33 % of the fishery's value. Coho salmon were second, providing 28 % of the fishery's value, and sockeye and chum salmon were the third and fourth, providing 24 % and 14 % of the fisheries' value, respectively.

The estimated 2001 subsistence harvest was 2,475 chinook, 855 sockeye, 1,839 chum, and 1,099 coho salmon (Table 1). Harvests for all species were below both their most recent 10-year and historic averages. No sport fish harvest information for 2002 was available at the time of this writing.

### *Escapement Monitoring*

Total fish passage at the weir from July 1 until September 20 was 5,335 chinook, 58,367 sockeye, 42,014 chum, and 24,883 coho salmon (Table 2), 15,681 Dolly Varden, 221 white fish, and 346 rainbow trout. Daily and cumulative counts for each species are in Tables 3 and 4. Partial counts were recorded from September 7 through September 16 as a result of the boat passage and sections of the weir being submerged because of high water level and debris load. Estimates were not made on these days because crewmembers did not observe any fish passing the weir at the breached areas, nor did daily passage counts appear unusually low. Daily and cumulative salmon carcass counts on the weir are found in Table 5.

## *Age, Sex, and Length*

### **Escapement**

Little information exists on the age, sex, and length composition of the chinook, sockeye, chum, and coho salmon escapement in the Kanektok River. Therefore, it is difficult to make interpretation or draw conclusions on age, sex, and length composition of salmon escapement in the Kanektok River in 2003. A summary of the age, sex, and length composition of the 2003 escapement can be found in Tables 6 through 13.

### **Commercial**

**Chinook:** A total of 436 fish, collected over 3 pulses, were sampled for ASL determination. The relative age class abundances and length frequencies were within the usual ranges (Tables 14 and 15).

**Sockeye Salmon:** A total of 307 fish, collected from 3 pulses were sampled for ASL determination. Age 1.2 fish comprised 49.7 % of the commercial harvest, 22.9 % greater than the overall total (Table 16). Age 1.3 fish comprised 38.0 % of the commercial harvest, 22.6 % below the overall total (Table 16). The relative length frequencies of the age classes were within usual ranges (Table 17).

**Chum Salmon:** A total of 449 fish, collected over 3 pulses, were sampled for ASL determination. The relative age class abundances and length frequencies were within the usual ranges (Tables 18 and 19).

**Coho Salmon:** A total of 460 fish, collected over 3 pulses, were sampled for ASL determination. The relative age class abundances and length frequencies were within the usual ranges (Tables 20 and 21).

### *Aerial Survey*

An aerial survey was flown on August 2; however, the survey information was lost because of equipment malfunction.

## **DISCUSSION AND RECOMENDATIONS**

Weir installation was attempted in early May 2002, however river ice prevented crews from reaching the weir site until May 5. By that time, record-breaking precipitation in the area resulted in unseasonably high river discharge, delaying installation until early July. In 2003, the Department will seek permission from the Togiak National Wildlife Refuge to use helicopters to transport crew and equipment to the weir site. The tentative plan is to install the weir approximately April 15, during winter base-flow, well in advance of increased water discharge

caused by snowmelt and spring precipitation. After installation, the weir will remain inoperative (resistance boards on the panels will be rigged so the panels sit on the river substrate, the passage chutes will not be installed, and approximately 30 ft of weir on the south bank will not be installed) until approximately June 15. At that time, attempts will be made to have the weir operational as soon as possible.

Despite the delay in operation, the project did allow nearly complete enumeration of chinook, sockeye, and chum salmon escapement, and Dolly Varden migration, past the weir. This year marks the second year of nearly complete escapement counts for all salmon species (note in 1997 the project operated as a counting tower and was in operation from June 11 until August 21). In the absence of historical run timing information for comparison, it is difficult to estimate what percentage of the chinook, sockeye, and chum salmon escapements passed the weir prior to operation.

Chinook salmon escapement in 2002 was substantially lower than recorded in 1997. In 1997 the project was operated as a counting tower. The counting tower was located approximately 20 mi down river from the present location of the weir. It is likely, as a result of the distance of the weir in the Kanektok River, a substantial number of chinook salmon spawn below the weir. In addition, the delay in installation undoubtedly resulted in chinook salmon passing the weir site prior to operation. In 2003, the Department will begin the planning stage of an in-river radio telemetry project to examine the number of chinook salmon spawning below the weir. The target date to begin this project is 2004. This, in conjunction with earlier operation of the weir, will allow the Department to better understand the spawning populations of chinook salmon in the Kanektok River. The tagging project could be expanded in future years to examine the number of chum and coho salmon that spawn below the weir. Note that the chum salmon escapement in 2002 was lower in 1997. Sockeye salmon escapement in 2002 was likewise lower than recorded in 1997. Most of the sockeye salmon escapement in the Kanektok River likely spawn in the lakes associated with the drainage. The number of sockeye salmon spawning below the weir is probably low. The daily passages of sockeye salmon within four days after operation were in the thousands, indicating a substantial number passed the site prior to operation. Earlier operational dates, as well as expanding the sockeye salmon escapement database, will increase our understanding of their population in the Kanektok River.

Operation of the weir served as a platform for the collection of ASL information from the salmon escapement. This year was the second year escapement ASL information was collected from chinook, sockeye, chum, and coho salmon.

During the season most problems were solved with relatively minor adjustments. The trapping of sockeye for ASL sampling proved to be difficult. Sockeye were reluctant to enter the trap once other fish present inside the trap or when the doors on the trap were set (two rear doors of the trap held open only several inches that funneled fish in but leaving a small awkward opening preventing fish from swimming out). This problem was initially dealt with by physically "working" the trap, which was marginal in success and time consuming. The final solution was utilizing a beach seine to capture sockeye behind the weir. This technique was successful in allowing the crew to obtain complete ASL samples for sockeye. A high water event late in the season resulted in increased turbidity, making it difficult to identify fish during passage counts.

This difficulty was remedied by placing an aluminum panel across the bottom portion of the opening to the fish trap. This forced the fish to swim up and over the panel bringing fish closer to the surface allowing them to be seen. The increased depth and volume of the river created substantial flow over the top the boat gates, potentially allowing fish to pass at that section. Boat gates consist of two modified panels having only three settings on the cable used to adjust the angle of the resistance boards. More studs on the cables would give greater range of adjustment allowing the boat gate panels to be set for various river conditions.

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Table 1. Summary of the commercial harvest, number of permits fished, fishing time, and exvessel value, District W-4, and the Quinhagak area subsistence harvest, 2002.

<b>Commercial Harvest</b>					
	Chinook	Sockeye	Chum	Coho	Total
2002	11,480	17,802	29,252	26,695	85,229
10-year avg (92-01)	20,539	59,466	47,387	57,934	190,844
Historical avg	15,848	24,270	33,487	34,259	117,817

<b>Effort</b>			
	Permits Fished	Hours	Openings
2002	144	294	24
10-year avg (92-01)	277	346	29
Historical avg	235	400	28

<b>Exvessel Value</b>					
	Chinook	Sockeye	Chum	Coho	Total
2002	\$56,316	\$40,325	\$23,321	\$47,653	\$167,615
10-year avg (92-01)	142,128	227,465	64,406	187,742	\$624,428

<b>Subsistence Harvest</b>				
	Chinook	Sockeye	Chum	Coho
2002	2,475	855	1,839	1,099
10-year avg (92-01)	3,363	1,028	1,275	2,072

Table 2. Summary of salmon escapement, aerial survey counts, and exploitation, Kanektok River, 2002.

Escapement		Chinook	Sockeye	Chum	Coho
2002		5,335	58,367	40,014	24,883
Aerial Survey		Chinook	Sockeye	Chum	Coho
2002		N/A	N/A	N/A	N/A
	Escapement Goal	1,600	5,000	4,000	2,000
Exploitation <sup>A</sup>		Chinook	Sockeye	Chum	Coho
2002		60	23	41	51

<sup>A</sup> Determined from the commercial and subsistence harvest only.

Table 3. Daily and cumulative salmon passage through the Kanektok River weir, 2002.

Date	Chinook		Sockeye		Chum		Coho		Pink	
	Daily	Cummul.	Daily	Cummul.	Daily	Cummul.	Daily	Cummul.	Daily	Cummul.
1-Jul	35	35	222	222	162	162	0	0	1	1
2-Jul	47	82	1,128	1,350	759	921	0	0	2	3
3-Jul	25	107	603	1,953	595	1,516	0	0	7	10
4-Jul	90	197	1,457	3,410	682	2,198	0	0	20	30
5-Jul	192	389	3,152	6,562	957	3,155	0	0	96	126
6-Jul	90	479	1,326	7,888	655	3,810	0	0	67	193
7-Jul	113	592	1,928	9,816	1,374	5,184	0	0	96	289
8-Jul	159	751	2,008	11,824	994	6,178	0	0	139	428
9-Jul	60	811	1,605	13,429	845	7,023	0	0	135	563
10-Jul	233	1,044	2,404	15,833	922	7,945	0	0	109	672
11-Jul	223	1,267	2,645	18,478	1,565	9,510	0	0	218	890
12-Jul	162	1,429	1,686	20,164	1,843	11,353	0	0	244	1,134
13-Jul	263	1,692	2,292	22,456	1,531	12,884	0	0	376	1,510
14-Jul	150	1,842	2,303	24,759	1,185	14,069	0	0	691	2,201
15-Jul	276	2,118	2,083	26,842	1,785	15,854	0	0	916	3,117
16-Jul	107	2,225	1,388	28,230	1,693	17,547	0	0	713	3,830
17-Jul	359	2,584	3,186	31,416	2,104	19,651	0	0	1,413	5,243
18-Jul	350	2,934	2,509	33,925	2,600	22,251	0	0	2,822	8,065
19-Jul	206	3,140	1,217	35,142	1,945	24,196	0	0	3,059	11,124
20-Jul	300	3,440	1,678	36,820	1,491	25,687	0	0	2,489	13,613
21-Jul	103	3,543	1,402	38,222	1,294	26,981	0	0	1,776	15,389
22-Jul	280	3,823	2,775	40,997	1,735	28,716	0	0	2,615	18,004
23-Jul	194	4,017	2,184	43,181	2,141	30,857	0	0	4,291	22,295
24-Jul	201	4,218	1,789	44,970	1,372	32,229	0	0	8,111	30,406
25-Jul	80	4,298	1,474	46,444	765	32,994	0	0	3,368	33,774
26-Jul	118	4,416	1,149	47,593	720	33,714	0	0	1,893	35,667
27-Jul	75	4,491	926	48,519	849	34,563	1	1	2,793	38,460
28-Jul	116	4,607	1,407	49,926	952	35,515	22	23	3,431	41,891
29-Jul	91	4,698	1,135	51,061	699	36,214	15	38	2,703	44,594
30-Jul	76	4,765	952	52,013	889	37,103	10	48	4,760	49,354
31-Jul	87	4,852	1,221	53,234	753	37,856	49	97	5,781	55,135
1-Aug	103	4,955	1,131	54,365	727	38,583	100	197	6,811	61,946
2-Aug	30	4,985	446	54,811	479	39,062	97	294	3,074	65,020
3-Aug	72	5,057	700	55,511	567	39,629	178	472	4,490	69,510
4-Aug	58	5,115	557	56,068	569	40,198	182	654	3,952	73,462
5-Aug	28	5,143	470	56,538	396	40,594	226	880	3,298	76,760
6-Aug	25	5,168	208	56,746	228	40,822	116	996	1,785	78,545
7-Aug	18	5,186	199	56,945	170	40,992	134	1,130	1,186	79,731
8-Aug	26	5,212	154	57,099	184	41,176	110	1,240	994	80,725
9-Aug	17	5,229	153	57,252	149	41,325	97	1,337	851	81,576

continued

Table 3 continued (page 2 of 2)

Date	Chinook		Sockeye		Chum		Coho		Pink	
	Daily	Cummul.	Daily	Cummul.	Daily	Cummul.	Daily	Cummul.	Daily	Cummul.
10-Aug	10	5,239	120	57,372	121	41,446	112	1,449	843	82,419
11-Aug	9	5,248	94	57,466	78	41,524	123	1,572	490	82,909
12-Aug	2	5,250	43	57,509	48	41,572	83	1,655	283	83,192
13-Aug	17	5,267	194	57,703	107	41,679	435	2,090	954	84,146
14-Aug	7	5,274	66	57,769	32	41,711	123	2,213	345	84,491
15-Aug	4	5,279	93	57,862	78	41,789	378	2,591	571	85,062
16-Aug	8	5,287	77	57,939	41	41,830	493	3,084	343	85,405
17-Aug	11	5,298	52	57,991	46	41,876	918	4,002	394	85,799
18-Aug	6	5,304	28	58,019	21	41,897	466	4,468	219	86,018
19-Aug	6	5,310	30	58,049	21	41,918	765	5,233	236	86,254
20-Aug	7	5,317	28	58,077	24	41,942	1,018	6,251	154	86,408
21-Aug	3	5,320	18	58,095	17	41,959	1,017	7,268	144	86,552
22-Aug	4	5,324	43	58,138	11	41,970	845	8,113	130	86,682
23-Aug	3	5,327	26	58,164	10	41,980	827	8,940	90	86,772
24-Aug	1	5,328	22	58,186	8	41,988	816	9,756	79	86,851
25-Aug	1	5,329	24	58,210	0	41,988	575	10,331	42	86,893
26-Aug	0	5,329	18	58,228	1	41,989	399	10,730	19	86,912
27-Aug	0	5,329	16	58,244	4	41,993	411	11,141	16	86,928
28-Aug	1	5,330	7	58,251	2	41,995	427	11,568	27	86,955
29-Aug	0	5,330	9	58,260	2	41,997	499	12,067	13	86,968
30-Aug	2	5,332	10	58,270	1	41,998	233	12,300	12	86,980
31-Aug	0	5,332	20	58,290	1	41,999	969	13,269	10	86,990
1-Sep	2	5,334	16	58,306	1	42,000	920	14,189	7	86,997
2-Sep	0	5,334	11	58,317	2	42,002	581	14,770	13	87,010
3-Sep	0	5,334	3	58,320	1	42,003	461	15,231	5	87,015
4-Sep	1	5,335	13	58,333	2	42,005	869	16,100	3	87,018
5-Sep	0	5,335	5	58,338	1	42,006	779	16,879	4	87,022
6-Sep	0	5,335	5	58,343	1	42,007	1,151	18,030	6	87,028
7-Sep	0	5,335	0	58,343	0	42,007	1,467	19,497	0	87,028
8-Sep	0	5,335	0	58,343	1	42,008	735	20,232	0	87,028
9-Sep	0	5,335	5	58,348	3	42,011	563	20,795	0	87,028
10-Sep	0	5,335	3	58,351	0	42,011	324	21,119	0	87,028
11-Sep	0	5,335	2	58,353	0	42,011	412	21,531	1	87,029
12-Sep	0	5,335	0	58,353	0	42,011	760	22,291	0	87,029
13-Sep	0	5,335	0	58,353	0	42,011	590	22,881	1	87,030
14-Sep	0	5,335	1	58,354	0	42,011	449	23,330	0	87,030
15-Sep	0	5,335	1	58,355	0	42,011	419	23,749	1	87,031
16-Sep	0	5,335	5	58,360	0	42,011	439	24,188	4	87,035
17-Sep	0	5,335	0	58,360	0	42,011	129	24,317	1	87,036
18-Sep	0	5,335	6	58,366	3	42,014	311	24,628	0	87,036
19-Sep	0	5,335	1	58,367	0	42,014	188	24,816	0	87,036
20-Sep	0	5,335	0	58,367	0	42,014	67	24,883	0	87,036

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

<sup>a</sup> Partial counts - a hole in the weir was found at 11:00. Hole was repaired by 14:00.

Table 4. Daily and cumulative passage of Dolly Varden, whitefish, and Rainbow Trout through the Kanektok River weir, 2002.

Date	Dolly Varden		Whitefish		Rainbow Trout	
	Daily	Cum	Daily	Cum	Daily	Cum
1-Jul	7	7	0	0	6	6
2-Jul	18	25	0	0	17	23
3-Jul	6	31	1	1	4	27
4-Jul	5	36	1	2	6	33
5-Jul	12	48	1	3	16	49
6-Jul	10	58	2	5	2	51
7-Jul	6	64	0	5	4	55
8-Jul	21	85	3	8	8	63
9-Jul	53	138	1	9	7	70
10-Jul	128	266	1	10	10	80
11-Jul	177	443	5	15	11	91
12-Jul	543	986	1	16	1	92
13-Jul	418	1,404	2	18	4	96
14-Jul	551	1,955	1	19	5	101
15-Jul	993	2,948	2	21	12	113
16-Jul	700	3,648	1	22	7	120
17-Jul	1,623	5,271	13	35	15	135
18-Jul	2,245	7,516	20	55	28	163
19-Jul	1,071	8,587	4	59	12	175
20-Jul	893	9,480	3	62	38	213
21-Jul	431	9,911	2	64	7	220
22-Jul	848	10,759	8	72	22	242
23-Jul	771	11,530	11	83	6	248
24-Jul	770	12,300	13	96	21	269
25-Jul	271	12,571	22	118	22	291
26-Jul	178	12,749	5	123	5	296
27-Jul	253	13,009	0	123	5	301
28-Jul	128	13,137	3	126	2	303
29-Jul	94	13,231	6	132	3	306
30-Jul	175	13,406	2	134	1	307
31-Jul	242	13,648	6	140	5	312
1-Aug	154	13,802	3	143	0	312
2-Aug	90	13,892	3	146	0	312
3-Aug	263	14,155	6	152	10	322
4-Aug	109	14,264	5	157	1	323
5-Aug	48	14,312	2	159	3	326
6-Aug	24	14,336	5	164	2	328
7-Aug	10	14,346	7	171	2	330
8-Aug	15	14,361	8	179	4	334
9-Aug	7	14,368	4	183	0	334

continued

Table 4 continued (page 2 of 2)

Date	Dolly Varden		Whitefish		Rainbow Trout	
	Daily	Cum	Daily	Cum	Daily	Cum
10-Aug	1	14,369	2	185	0	334
11-Aug	5	14,374	2	187	0	334
12-Aug	12	14,386	3	190	0	334
13-Aug	26	14,412	3	193	1	335
14-Aug	46	14,458	0	193	0	335
15-Aug	76	14,534	0	193	1	336
16-Aug	91	14,625	0	193	0	336
17-Aug	138	14,763	6	199	1	337
18-Aug	157	14,920	0	199	1	338
19-Aug	107	15,027	3	202	0	338
20-Aug	46	15,073	1	203	1	339
21-Aug	24	15,097	1	204	1	340
22-Aug	8	15,105	1	205	0	340
23-Aug	62	15,167	0	205	0	340
24-Aug	32	15,199	2	207	1	341
25-Aug	32	15,231	0	207	0	341
26-Aug	23	15,254	2	209	0	341
27-Aug	51	15,305	0	209	0	341
28-Aug	6	15,311	1	210	0	341
29-Aug	25	15,336	0	210	1	342
30-Aug	2	15,338	0	210	0	342
31-Aug	15	15,353	0	210	1	343
1-Sep	18	15,371	0	210	0	343
2-Sep	27	15,398	1	211	0	343
3-Sep	5	15,403	1	212	0	343
4-Sep	88	15,491	6	218	1	344
5-Sep	13	15,504	1	219	1	345
6-Sep	86	15,590	0	219	0	345
7-Sep*	28	15,618	0	219	0	345
8-Sep*	12	15,630	0	219	0	345
9-Sep*	27	15,657	0	219	0	345
10-Sep*	7	15,664	0	219	0	345
11-Sep*	2	15,666	0	219	0	345
12-Sep*	3	15,669	0	219	0	345
13-Sep*	3	15,672	0	219	0	345
14-Sep*	0	15,672	0	219	0	345
15-Sep*	4	15,676	1	220	1	346
16-Sep*	3	15,679	1	221	0	346
17-Sep	1	15,680	0	221	0	346
18-Sep	1	15,681	0	221	0	346

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

Table 5. Daily and cumulative count of carcasses washed up on the Kanektok River weir, 2002.

	Chinook		Sockeye		Chum		Coho	
	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
2-Jul	0	0	0	0	0	0	0	0
3-Jul	0	0	0	0	3	3	0	0
4-Jul	0	0	0	0	3	6	0	0
5-Jul	0	0	0	0	21	27	0	0
6-Jul	0	0	0	0	16	43	0	0
7-Jul	0	0	0	0	1	44	0	0
8-Jul	0	0	0	0	10	54	0	0
9-Jul	0	0	2	2	4	58	0	0
10-Jul	0	0	3	5	5	63	0	0
11-Jul	0	0	1	6	18	81	0	0
12-Jul	0	0	4	10	33	114	0	0
13-Jul	0	0	0	10	4	118	0	0
14-Jul	0	0	2	12	36	154	0	0
15-Jul	0	0	0	12	77	231	0	0
16-Jul	0	0	30	42	101	332	0	0
17-Jul	0	0	12	54	104	436	0	0
18-Jul	0	0	1	55	85	521	0	0
19-Jul	0	0	33	88	149	670	0	0
20-Jul	1	1	1	89	79	749	0	0
21-Jul	4	5	1	90	183	932	0	0
22-Jul	1	6	4	94	248	1180	0	0
23-Jul	0	6	0	94	233	1413	0	0
24-Jul	4	10	0	94	202	1615	0	0
25-Jul	3	13	0	94	294	1909	0	0
26-Jul	6	19	0	94	377	2286	0	0
27-Jul	14	33	2	96	340	2626	0	0
28-Jul	14	47	1	97	370	2996	0	0
29-Jul	33	80	3	100	358	3354	0	0
30-Jul	41	121	8	108	422	3776	0	0
31-Jul	66	187	11	119	430	4206	0	0
1-Aug	55	242	1	120	406	4612	0	0
2-Aug	54	296	5	125	395	5007	0	0
3-Aug	71	367	7	132	352	5359	0	0
4-Aug	83	450	11	143	280	5639	0	0
5-Aug	54	504	15	158	338	5977	0	0
6-Aug	60	564	14	172	186	6163	0	0
7-Aug	85	649	13	185	249	6412	0	0
8-Aug	51	700	19	204	242	6654	0	0
9-Aug	31	731	12	216	142	6796	0	0
10-Aug	35	766	23	239	177	6973	0	0

continued

Table 5. continued (2 of 2).

	Chinook		Sockeye		Chum		Coho	
	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
11-Aug	33	799	19	258	133	7106	1	1
12-Aug	42	841	25	283	180	7286	0	1
13-Aug	36	877	23	306	86	7372	0	1
14-Aug	17	894	33	339	80	7452	0	1
15-Aug	24	918	31	370	81	7533	0	1
16-Aug	13	931	35	405	83	7616	1	2
17-Aug	17	948	26	431	63	7679	1	3
18-Aug	9	957	25	456	56	7735	0	3
19-Aug	15	972	41	497	75	7810	2	5
20-Aug	4	976	39	536	87	7897	0	5
21-Aug	9	985	23	559	53	7950	0	5
22-Aug	19	1004	33	592	56	8006	1	6
23-Aug	1	1005	32	624	29	8035	1	7
24-Aug	1	1006	29	653	20	8055	2	9
25-Aug	0	1006	26	679	7	8062	2	11
26-Aug	0	1006	18	697	7	8069	1	12
27-Aug	0	1006	32	729	6	8075	0	12
28-Aug	0	1006	29	758	8	8083	2	14
29-Aug	0	1006	17	775	3	8086	0	14
30-Aug	1	1007	17	792	2	8088	0	14
31-Aug	1	1008	12	804	4	8092	0	14
1-Sep	3	1011	5	809	2	8094	1	15
2-Sep	0	1011	9	818	3	8097	0	15
3-Sep	0	1011	9	827	7	8104	1	16
4-Sep	0	1011	8	835	1	8105	0	16
5-Sep	0	1011	1	836	1	8106	1	17
6-Sep	2	1013	5	841	0	8106	3	20
7-Sep	1	1014	5	846	3	8109	1	21
8-Sep	0	1014	3	849	2	8111	0	21
9-Sep	0	1014	2	851	0	8111	0	21
10-Sep	0	1014	3	854	0	8111	1	22
11-Sep	0	1014	4	858	0	8111	5	27
12-Sep	0	1014	2	860	0	8111	0	27
13-Sep	0	1014	1	861	0	8111	0	27
14-Sep	0	1014	0	861	0	8111	1	28
15-Sep	0	1014	0	861	0	8111	0	28
16-Sep	0	1014	5	866	0	8111	1	29
17-Sep	0	1014	1	867	0	8111	3	32
18-Sep	0	1014	3	870	0	8111	6	38
19-Sep	0	1014	2	872	0	8111	8	46

Table 6. The age and sex composition of the chinook salmon escapement at the Kanektok River weir, 2002.

Sample Dates (Stratum Dates)	Sample Size	Sex	1.1		1.2		1.3		1.4		1.5		Total	
			Esc.	%	Esc.	%	Esc.	%	Esc.	%	Esc.	%	Esc.	%
7/3 - 4, 6 - 7 (7/1 - 8)	60	M	13	1.7	113	15.0	188	25.0	112	15.0	0	0.0	426	56.7
		F	0	0.0	0	0.0	37	5.0	238	31.7	50	6.7	325	43.3
		Subtotal	13	1.7	113	15.0	225	30.0	350	46.7	50	6.7	751	100.0
7/9 - 14 (7.9 - 15)	50	M	28	2.0	363	26.5	251	18.4	251	18.4	0	0.0	893	65.3
		F	0	0.0	0	0.0	28	2.0	335	24.5	112	8.2	474	34.7
		Subtotal	28	2.0	363	26.5	279	20.4	586	42.9	112	8.2	1,367	100.0
7/16 - 17, 19 - 20, 22 (7/16 - 23)	42	M	45	2.4	452	23.8	498	26.2	181	9.5	0	0.0	1,176	61.9
		F	0	0.0	0	0.0	45	2.4	633	33.4	45	2.4	723	38.1
		Subtotal	45	2.4	452	23.8	543	28.6	814	42.9	45	2.4	1,899	100.0
7/24 - 26, 30 - 8/1 (7/24 - 9/20)	36	M	37	2.8	295	22.2	295	22.2	184	13.9	37	2.8	847	63.9
		F	0	0.0	0	0.0	0	0.0	369	27.8	110	8.3	479	36.1
		Subtotal	37	2.8	295	22.2	295	22.2	553	41.7	147	11.1	1,326	100.0
Season	188	M	122	2.3	1222	22.9	1,231	23.0	729	13.6	37	0.7	3,341	62.5
		F	0	0.0	0	0.0	111	2.1	1,574	29.5	317	5.9	2,002	37.5
		Total	122	2.3	1222	22.9	1,342	25.0	1,303	43.1	354	6.6	5,343	100.0

Table 7. The mean length of the chinook salmon escapement at the Kanektok River weir, 2002.

Sample Dates (Stratum Dates)	Sex	Age Class					
		1.1	1.2	1.3	1.4	1.5	
7/3 - 4, 6, 7 (7/1 - 8)	M	Mean Length (mm)	419	532	684	759	
		Std. Error	-	14	11	21	
		Range	419- 419	440-593	612-778	676-849	
		Sample Size	1	9	15	9	0
	F	Mean Length (mm)			745	832	871
		Std. Error			27	12	37
		Range			714-798	744-930	780-956
		Sample Size	0	0	3	19	4
7/9 - 14 (7/9 - 15)	M	Mean Length (mm)	422	509	659	771	
		Std. Error	-	13	18	35	
		Range	402- 422	430-570	593-764	578-906	
		Sample Size	1	13	9	9	0
	F	Mean Length (mm)			722	849	887
		Std. Error			-	19	43
		Range			722-722	745-990	770-980
		Sample Size	0	0	1	12	4
7/16 - 17, 19, 20, 22 (7/16 - 23)	M	Mean Length (mm)	390	488	635	902	
		Std. Error	-	12	13	30	
		Range	390- 390	412-540	577-698	854-990	
		Sample Size	1	10	11	4	0
	F	Mean Length (mm)			759	833	867
		Std. Error			-	14	-
		Range			759-759	722-915	867-867
		Sample Size	0	0	1	14	1
7/24 - 8/1 (7/24 - 9/20)	M	Mean Length (mm)	470	534	666	797	759
		Std. Error	-	18	36	23	-
		Range	470- 470	450-592	505-815	747-869	759-759
		Sample Size	1	8	8	5	1
	F	Mean Length (mm)	0			838	889
		Std. Error				15	13
		Range				744-892	864-910
		Sample Size		0	0	10	3
Season	M	Mean Length (mm)	424	510	655	808	759
		Range	390- 470	412-593	505-815	578-990	759-759
		Sample Size	4	40	43	27	1
	F	Mean Length (mm)			745	837	882
		Range			714-798	722-990	770-980
		Sample Size	0	0	5	55	12

Table 8. The age and sex composition of the sockeye salmon escapement at the Kanektok River weir, 2002.

Sample Dates (Stratum Dates)	Sample Size	Sex	Age Class													
			0.3		1.2		1.3		2.2		1.4		2.3		Total	
			Esc.	%	Esc.	%	Esc.	%	Esc.	%	Esc.	%	Esc.	%	Esc.	%
7/3 - 4, 6 - 7 (7/1 - 8)	81	M	146	1.2	1,606	13.6	3,795	32.1	146	1.2	584	5.0	438	3.7	6,861	58.0
		F	0	0.0	876	7.4	3,066	25.9	0	0.0	146	1.2	438	3.7	4,963	42.0
		Subtotal	146	1.2	2,482	21.0	6,861	58.0	146	1.2	730	6.2	876	7.4	11,824	100.0
7/9 - 14 (7/9 - 15)	136	M	110	0.7	1,988	13.2	2,540	16.9	0	0.0	221	1.5	552	3.7	5,411	36.0
		F	0	0.0	4,527	30.2	4,196	28.0	110	0.7	221	1.4	552	3.7	9,607	64.0
		Subtotal	110	0.7	6,515	43.4	6,736	44.9	110	0.7	442	2.9	1,104	7.4	15,018	100.0
7/16 - 17, 19 (7/16 - 20)	70	M	0	0.0	2,993	30.0	713	7.1	143	1.4	143	1.4	143	1.4	4,134	41.4
		F	0	0.0	3,849	38.6	1,995	20.0	0	0.0	0	0.0	0	0.0	5,844	58.6
		Subtotal	0	0.0	6,842	68.6	2,708	27.1	143	1.4	143	1.4	143	1.4	9,978	100.0
7/21 - 27 (7/21 - 28)	223	M	59	0.4	4,408	33.6	882	6.7	59	0.5	0	0.0	176	1.3	5,583	42.6
		F	0	0.0	5,759	44.0	1,704	13.0	59	0.4	0	0.0	0	0.0	7,523	57.4
		Subtotal	59	0.4	10,167	77.6	2,586	19.7	118	0.9	0	0.0	176	1.3	13,106	100.0
7/30 - 8/1, 3 (7/29 - 9/20)	153	M	0	0.0	2,041	24.2	552	6.5	0	0.0	0	0.0	110	1.3	2,703	32.0
		F	0	0.0	4,745	56.2	827	9.8	110	1.3	55	0.7	0	0.0	5,738	68.0
		Subtotal	0	0.0	6,786	80.4	1,379	16.3	110	1.3	55	0.7	110	1.3	8,441	100.0
Season	663	M	315	0.5	13,036	22.3	8,481	14.5	347	0.6	947	1.6	1,419	2.4	24,692	42.3
		F	0	0.0	19,756	33.9	11,789	20.2	280	0.5	422	0.7	990	1.7	33,675	57.7
		Total	315	0.5	32,792	56.2	20,270	34.7	627	1.1	1,369	2.3	2,409	4.1	58,367	100.0

Table 9. The mean length of the sockeye salmon escapement at the Kanektok River weir, 2002.

Sample Dates (Stratum Dates)	Sex		Age Class					
			0.3	1.2	1.3	2.2	1.4	2.3
7/3 - 4, 6 - 7 (7/1 - 8)	M	Mean Length (mm)	660	528	584	592	601	576
		Std. Error	-	8	4	-	19	21
		Range	660-660	500-590	544-623	592-592	561-635	537-610
		Sample Size	1	11	26	1	4	3
	F	Mean Length		532	574		626	537
		Std. Error		15	10		-	19
		Range		504-601	492-676		626-626	513-575
		Sample Size	0	6	21	0	1	3
7/9 - 14 (7/9 - 15)	M	Mean Length (mm)	623	524	566		607	585
		Std. Error	-	7	10		13	9
		Range	623-623	437-572	398-625		594-620	569-620
		Sample Size	1	18	23	0	2	5
	F	Mean Length		502	545	500	548	558
		Std. Error		4	5	-	23	13
		Range		423-555	460-630	500-500	525-570	528-598
		Sample Size	0	41	38	1	2	5
7/16 - 17, 19 (7/16 - 20)	M	Mean Length (mm)		525	584	531	589	603
		Std. Error		6	21	-	-	-
		Range		474-588	508-629	531-531	589-589	603-603
		Sample Size	0	21	5	1	1	1
	F	Mean Length (mm)		504	545			
		Std. Error		7	7			
		Range		412-609	519-602			
		Sample Size	0	27	14	0	0	0
7/21 - 27 (7/21 - 28)	M	Mean Length (mm)	573	527	556	557		553
		Std. Error	-	3	8	-		11
		Range	573-573	457-623	518-606	557-557		537-575
		Sample Size	1	75	15	1	0	3
	F	Mean Length (mm)		501	525	451		
		Std. Error		2	5	-		
		Range		451-584	446-572	451-451		
		Sample Size	0	98	29	1	0	0
7/30 - 8/1, 3 (7/29 - 9/20)	M	Mean Length (mm)		519	545			584
		Std. Error		5	14			9
		Range		434-566	488-612			575-593
		Sample Size	0	37	10	0	0	2
	F	Mean Length (mm)		494	530	497	581	
		Std. Error		2	9	20	-	
		Range		432-575	461-601	477-517	581-581	
		Sample Size	0	86	15	2	1	0

continued

Table 9 continued (2 of 2)

Sample Dates (Stratum Dates)	Sex	Age Class						
		0.3	1.2	1.3	2.2	1.4	2.3	
Season	M	Mean Length (mm)	631	525	573	561	600	580
		Range	573-660	434-623	398-629	531-592	561-635	537-620
		Sample Size	3	162	79	3	7	14
	F	Mean Length (mm)		502	548	489	579	549
		Range		412-609	446-676	451-517	525-626	513-598
		Sample Size	0	258	117	4	4	8

Table 10. The age and sex of the chum salmon escapement at the Kanctok River weir, 2002.

Sample Dates (Stratum Dates)	Sample Size	Sex	Age Class									
			0.2		0.3		0.4		0.5		Total	
			Esc.	%	Esc.	%	Esc.	%	Esc.	%	Esc.	%
7/3 - 4 (7/1 - 5)	152	M	0	0.0	561	17.8	1,100	34.9	21	0.7	1,681	53.3
		F	0	0.0	394	12.5	1,038	32.9	41	1.5	1,474	46.7
		Subtotal	0	0.0	955	30.3	2,138	67.8	62	2.0	3,155	100.0
7/6 - 7, 9 - 11 (7/6 - 13)	204	M	0	0.0	1,192	12.3	3,768	38.7	239	2.4	5,198	53.4
		F	48	0.5	1,336	13.7	3,004	30.9	143	1.5	4,531	46.6
		Subtotal	48	0.5	2,528	26.0	6,772	69.6	382	3.9	9,729	100.0
7/16 - 17, 19 (7/14 - 20)	131	M	0	0.0	2,150	16.8	2,345	18.3	0	0.0	4,496	35.1
		F	0	0.0	3,030	23.7	5,180	40.5	98	0.8	8,307	64.9
		Subtotal	0	0.0	5,180	40.5	7,525	58.8	98	0.8	12,803	100.0
7/22, 24 - 27 (7/21 - 28)	154	M	128	1.3	1,978	20.1	1,851	18.8	64	0.6	4,021	40.9
		F	191	1.9	3,829	39.0	1,787	18.2	0	0.0	5,807	59.1
		Subtotal	319	3.2	5,807	59.1	3,638	37.0	64	0.6	9,828	100.0
7/30 - 8/1, 3 (7/29 - 9/20)	97	M	201	3.1	1,407	21.7	871	13.4	0	0.0	2,479	38.1
		F	469	7.2	2,211	34.0	1,340	20.6	0	0.0	4,020	61.9
		Subtotal	670	10.3	3,618	55.7	2,211	34.0	0	0.0	6,499	100.0
Season	738	M	329	0.8	7,288	17.4	9,935	23.6	323	0.7	17,875	42.5
		F	708	1.7	10,800	25.7	12,349	29.4	282	0.7	24,139	57.5
		Total	1,037	2.5	18,088	43.1	22,284	53.0	605	1.4	42,014	100.0

Table 11. The mean length of the chum salmon escapement at the Kanektok River weir, 2002.

Sample Dates (Stratum Dates)	Sex	Age Class				
		0.2	0.3	0.4	0.5	
7/3 - 4 (7/1 - 5)	M	Mean Length (mm)		604	631	632
		Std. Error		5	4	-
		Range		549- 658	519- 698	632- 632
		Sample Size	0	27	53	1
	F	Mean Length (mm)		591	593	594
		Std. Error		7	4	10
		Range		520- 658	533- 685	584- 604
		Sample Size	0	19	50	2
7/6 - 7, 9 - 11 (7/6 - 13)	M	Mean Length (mm)		595	622	624
		Std. Error		7	3	13
		Range		483- 652	565- 689	590- 670
		Sample Size	0	25	79	5
	F	Mean Length (mm)	540	569	583	594
		Std. Error		4	3	22
		Range	540- 540	528- 613	518- 626	550- 622
		Sample Size	1	28	63	3
7/16 - 17, 19 (7/14 - 20)	M	Mean Length (mm)		586	610	
		Std. Error		6	6	
		Range		517- 629	565- 681	
		Sample Size	0	22	24	0
	F	Mean Length (mm)		548	573	596
		Std. Error		5	4	-
		Range		498- 592	511- 633	596- 596
		Sample Size	0	31	53	1
7/22, 24 - 27 (7/21 - 28)	M	Mean Length (mm)	585	592	605	635
		Std. Error	6	6	6	-
		Range	579- 590	518- 665	550- 679	635- 635
		Sample Size	2	31	29	1
	F	Mean Length (mm)	556	568	582	
		Std. Error	20	3	5	
		Range	517- 583	504- 614	521- 634	
		Sample Size	3	60	28	0
7/30 - 8/1, 3 (7/29 - 9/20)	M	Mean Length (mm)	577	583	602	
		Std. Error	21	6	8	
		Range	541- 615	545- 641	553- 638	
		Sample Size	3	21	13	0
	F	Mean Length (mm)	540	559	555	
		Std. Error	5	4	4	
		Range	525- 562	510- 603	527- 603	
		Sample Size	7	33	20	0

continued

Table 11 continued (page 2 of 2)

Sample Dates (Stratum Dates)	Sex		Age Class			
			0.2	0.3	0.4	0.5
Season	M	Mean Length (mm)	580	590	615	627
		Range	541-615	483-665	519-698	590-670
		Sample Size	5	126	198	7
	F	Mean Length (mm)	545	562	576	595
		Range	517-583	498-658	511-685	550-622
		Sample Size	11	171	214	6

Table 12. The age and sex of the coho salmon escapement at the Kanektok River weir, 2002.

Sample Dates (Stratum Dates)	Sample Size	Sex	Age Class									
			1.1		2.1		2.2		3.1		Total	
			Esc.	%	Esc.	%	Esc.	%	Esc.	%	Esc.	%
8/14 - 16, 18 (7/1 - 8/21)	151	M	96	1.3	3,899	53.6	0	0.0	433	6.0	4,428	60.9
		F	0	0.0	2,599	35.8	0	0.0	241	3.3	2,840	39.1
		Subtotal	96	1.3	6,498	89.4	0	0.0	674	9.3	7,268	100.0
8/25 - 26, 28 (8/22 - 9/4)	130	M	0	0.0	4,959	56.1	0	0.0	0	0.0	4,960	56.2
		F	136	1.5	3,601	40.8	0	0.0	136	1.5	3,872	43.8
		Subtotal	136	1.5	8,560	96.9	0	0.0	136	1.5	8,832	100.0
9/11 - 16 (9/5 - 20)	159	M	111	1.3	4,198	47.8	0	0.0	111	1.2	4,419	50.3
		F	55	0.6	3,756	42.8	0	0.0	552	6.3	4,364	49.7
		Subtotal	166	1.9	7,954	90.6	0	0.0	663	7.5	8,783	100.0
Season	440	M	207	0.8	13,057	52.5	0	0.0	544	2.2	13,807	55.5
		F	191	0.8	9,956	40	0	0.0	929	3.7	11,076	44.5
		Total	398	1.6	23,013	92.5	0	0.0	1,473	5.9	24,883	100.0

Table 13. The mean length of coho salmon escapement at the Kanektok River weir, 2002.

Sample Dates (Stratum Dates)	Sex		Age Class		
			1.1	2.1	3.1
8/14 - 16, 18 (7/1 - 8/21)	M	Mean Length (mm)	619	563	576
		Std. Error	36	7	21
		Range	583- 654	401- 659	460- 638
		Sample Size	2	81	9
	F	Mean Length (mm)		571	579
		Std. Error		6	19
		Range		440- 635	526- 641
		Sample Size	0	54	5
8/25 - 26, 28 (8/22 - 9/4)	M	Mean Length (mm)		583	
		Std. Error		6	
		Range		455- 664	
		Sample Size	0	73	0
	F	Mean Length (mm)	515	600	548
		Std. Error	50	4	6
		Range	465- 565	495- 665	542- 553
		Sample Size	2	53	2
9/11 - 16 (9/5 - 20)	M	Mean Length (mm)	595	606	628
		Std. Error	38	5	55
		Range	557- 633	463- 672	573- 683
		Sample Size	2	76	2
	F	Mean Length (mm)	573	599	615
		Std. Error	-	4	10
		Range	573- 573	432- 659	553- 667
		Sample Size	1	68	10
Season	M	Mean Length (mm)	606	585	586
		Range	557- 654	401- 672	460- 683
		Sample Size	4	230	11
	F	Mean Length (mm)	532	592	596
		Range	465- 573	432- 665	526- 667
		Sample Size	3	175	17

Table 14. The age and sex composition of chinook salmon harvested in the District W-4 commercial fishery, 2002.

Sample Dates (Stratum Dates)	Sample Size	Sex	1.1		1.2		1.3		1.4		1.5		Total	
			Catch	%	Catch	%	Catch	%	Catch	%	Catch	%	Catch	%
6/14 (6/14, 17)	105	M	0	0.0	1,266	33.3	1,049	27.6	760	20.0	109	2.9	3,182	83.8
		F	0	0.0	36	1.0	36	1.0	506	13.3	36	0.9	615	16.2
		Subtotal	0	0.0	1,302	34.3	1,085	28.6	1,266	33.3	145	3.8	3,797	100.0
6/20 (6/20, 26)	162	M	19	0.6	909	29.0	851	27.2	638	20.4	97	3.1	2,515	80.2
		F	0	0.0	0	0.0	39	1.2	484	15.4	96	3.1	619	19.8
		Subtotal	19	0.6	909	29.0	890	28.4	1,122	35.8	193	6.2	3,134	100.0
7/1 (7/3 - 8/26)	169	M	93	2.0	1,267	27.7	1,051	23.0	680	14.9	31	0.7	3,121	68.2
		F	0	0.0	62	1.4	154	3.4	1,112	24.3	123	2.7	1,452	31.8
		Subtotal	93	2.0	1,329	29.1	1,205	26.4	1,792	39.2	154	3.4	4,573	100.0
Season	436	M	112	1.0	3,442	29.9	2,951	25.6	2,078	18.0	236	2.1	8,818	76.7
		F	0	0.0	98	0.9	229	2.0	2,102	18.3	257	2.2	2,686	23.3
		Total	112	1.0	3,540	30.8	3,180	27.6	4,180	36.3	493	4.3	11,504	100.0

Table 15. The mean length of chinook salmon harvested in the District W-4 commercial fishery, 2002.

Sample Dates (Stratum Dates)	Sex		Age Class				
			1.1	1.2	1.3	1.4	1.5
6/14 (6/14, 17)	M	Mean Length (mm)		535	653	797	942
		Std. Error		8	15	17	30
		Range		469- 704	482- 792	668- 960	882- 979
		Sample Size	0	35	29	21	3
	F	Mean Length (mm)		518	728	824	850
		Std. Error		-	-	10	-
		Range		518- 518	728- 728	759- 888	850- 850
		Sample Size	0	1	1	14	1
6/20 (6/20, 26)	M	Mean Length (mm)	364	536	673	822	912
		Std. Error	-	8	12	13	29
		Range	364- 364	422- 629	510- 837	697- 975	822- 985
		Sample Size	1	47	44	33	5
	F	Mean Length (mm)			784	851	890
		Std. Error			127	9	24
		Range			657- 911	768- 942	832- 952
		Sample Size	0	0	2	25	5
7/1 (7/3 - 8/26)	M	Mean Length (mm)	361	530	662	766	603
		Std. Error	16	13	17	31	-
		Range	344- 394	381- 779	442- 932	460- 972	603- 603
		Sample Size	3	41	34	22	1
	F	Mean Length (mm)		529	857	824	868
		Std. Error		22	20	8	14
		Range		507- 550	780-894	698- 923	830- 897
		Sample Size	0	2	5	36	4
Season	M	Mean Length (mm)	362	533	660	794	885
		Range	344- 394	381- 779	471- 932	460- 975	603- 985
		Sample Size	4	123	107	76	9
	F	Mean Length (mm)		525	824	830	874
		Range		507- 550	657-911	698- 942	830- 952
		Sample Size	0	3	8	75	10

Table 16. The age and sex composition of the sockeye salmon harvest from the District 4 commercial fishery, 2002.

Sample Dates (Stratum Dates)	Sample Size	Sex	Age Class										Total	
			0.2	0.3	1.2	0.4	1.3	2.2	1.4	2.3	Catch	%		
			Catch %	Catch %	Catch %	Catch %	Catch %	Catch %	Catch %	Catch %	Catch %	Catch	%	
7/1 (6/14,17,20, 26, 7/1,3)	109	M	57	0	1,379	0	1,666	0	115	173	3,389	54.1		
		F	0	57	689	57	1,723	57	115	172	2,872	45.9		
		Subtotal	57	57	2,068	57	3,389	57	230	345	6,261	100.0		
7/8 (7/5,8,10,12,15)	139	M	208	0	3,180	0	1,382	208	69	138	5,184	54.0		
		F	138	0	2,419	0	1,452	207	69	138	4,424	46.0		
		Subtotal	346	0	5,599	0	2,834	415	138	276	9,608	100.0		
8/1 (7/17,19, 8/1,5,7,9,12, 14,16,21,23,26)	59	M	68	0	444	0	444	68	0	34	1,059	52.5		
		19 F	0	0	786	0	137	0	0	34	957	47.5		
		Subtotal	68	0	1,230	0	581	68	0	68	2,016	100.0		
Season	307	M	333	0	5,002	0	3,492	276	184	345	9,632	53.9		
		F	138	57	3,895	57	3,312	265	184	344	8,253	46.1		
		Total	471	57	8,897	57	6,804	541	368	689	17,885	100.0		

Table 17. The mean length of the sockeye salmon harvested in the District W-4 commercial fishery, 2002.

Sample Dates (Stratum Dates)	Sex		Age Class							
			0.2	0.3	1.2	0.4	1.3	2.2	1.4	2.3
7/1 (6/14,17,20, 26,7/1,3)	M	Mean Length (mm)	510		507		569		600	554
		Std. Error	-		4		7		22	10
		Range	510- 510		468- 532		473- 621		578- 622	540- 573
		Sample Size	1	0	24	0	29	0	2	3
	F	Mean Length		532	490	560	539	499	572	547
		Std. Error		-	11	-	6	-	18	2
		Range		532- 532	404- 555	560- 560	473- 611	499- 499	554- 590	542- 550
		Sample Size		0	1	12	1	30	1	2
7/8 (7/5,8,10,12,15)	M	Mean Length (mm)	540		514		570	536	532	572
		Std. Error	17		4		6	6	-	53
		Range	507- 557		427- 588		517- 620	525- 542	532- 532	519- 625
		Sample Size	3	0	46	0	20	3	1	2
	F	Mean Length	509		505		547	509	522	527
		Std. Error	15		5		7	18	-	22
		Range	494- 524		460- 589		490- 591	484- 543	522- 522	505- 549
		Sample Size	2	0	35	0	21	3	1	2
8/1 (7/17,19,8/1,5,7,9,12, 14,16,21,23,26)	M	Mean Length (mm)	504		517		565	526		584
		Std. Error	69		7		8	26		-
		Range	435- 572		474- 556		524- 611	500- 551		584- 584
		Sample Size	2	0	13	0	13	2	0	1
	F	Mean Length			503		534			541
		Std. Error			5		20			-
		Range			467- 553		493- 574			541- 541
		Sample Size		0	0	23	0	4	0	0
Season	M	Mean Length (mm)	527		512		569	533	574	564
		Range	435- 572		427- 588		473- 621	500- 551	532- 622	519- 625
		Sample Size	6	0	83	0	62	5	3	6
	F	Mean Length	509	532	502	560	542	507	553	538
		Range	494- 524	532- 532	404- 589	560- 560	473- 611	484- 543	522- 590	505- 550
		Sample Size	2	1	70	1	55	4	3	6

Table 18. The age and sex of the chum salmon harvested in the District W-4 commercial fishery, 2002.

Sample Dates (Stratum Dates)	Sample Size	Sex	Age Class									
			0.2		0.3		0.4		0.5		Total	
			Catch	%	Catch	%	Catch	%	Catch	%	Catch	%
7/8 (6/14,17,20,26,7/1, 3,5,8,10)	178	M	386	1.7	4,895	21.3	2,447	10.7	515	2.2	8,244	36.0
		F	129	0.5	7,858	34.3	6,570	28.6	129	0.6	14,686	64.0
		Subtotal	515	2.2	12,753	55.6	9,017	39.3	644	2.8	22,930	100.0
7/17 (7/12,15,17,19)	178	M	159	2.8	1,270	22.5	603	10.7	0	0.0	2,032	36.0
		F	285	5.1	2,286	40.4	1,048	18.5	0	0.0	3,619	64.0
		Subtotal	444	7.9	3,556	62.9	1,651	29.2	0	0.0	5,651	100.0
8/1 (8/1,5,7,9,12,14,16, 19,21,23,26)	93	M	109	14.0	143	18.3	92	11.8	8	1.1	352	45.2
		F	109	14.0	268	34.4	51	6.5	0	0.0	428	54.8
		Subtotal	218	28.0	411	52.7	143	18.3	8	1.1	780	100.0
Season	449	M	654	2.2	6,308	21.5	3,143	10.7	523	1.8	10,629	36.2
		F	524	1.8	10,412	35.4	7,668	26.1	129	0.4	18,732	63.8
		Total	1,178	4.0	16,720	56.9	10,811	36.8	652	2.2	29,361	100.0

Table 19. The mean length of chum salmon harvested in the District W-4 commercial fishery, 2002.

Sample Dates (Stratum Dates)	Sex	Age Class				
		0.2	0.3	0.4	0.5	
7/8 (6/14,17,20,26,7/1, 3,5,8,10)	M	Mean Length (mm)	550	592	598	609
		Std. Error	19	4	5	9
		Range	515- 582	549- 650	561- 632	583- 623
		Sample Size	3	38	19	4
	F	Mean Length (mm)	526	568	576	594
		Std. Error	-	3	4	-
		Range	526- 526	512- 624	520- 659	594- 594
		Sample Size	1	61	51	1
7/17 (7/12,15,17,19)	M	Mean Length (mm)	553	579	607	
		Std. Error	16	4	6	
		Range	503- 595	529- 622	558- 648	
		Sample Size	5	40	19	0
	F	Mean Length (mm)	540	558	567	
		Std. Error	9	3	4	
		Range	502- 569	446- 604	506- 606	
		Sample Size	9	72	33	0
8/1 (8/1,5,7,9,12,14,16, 19,21,23,26)	M	Mean Length (mm)	544	581	622	589
		Std. Error	7	7	9	-
		Range	499- 580	525- 632	576- 682	589- 589
		Sample Size	13	17	11	1
	F	Mean Length (mm)	544	561	570	
		Std. Error	5	5	15	
		Range	517- 577	504- 606	519- 627	
		Sample Size	13	32	6	0
Season	M	Mean Length (mm)	550	589	601	608
		Range	499- 595	525- 650	558- 682	583- 623
		Sample Size	21	95	49	5
	F	Mean Length (mm)	538	565	575	594
		Range	502- 577	446- 624	506- 659	594- 594
		Sample Size	23	165	90	1

Table 20. The age and sex composition of the coho salmon harvested in the District W-4 commercial fishery, 2002.

Sample Dates (Stratum Dates)	Sample Size	Sex	Age Class							
			1.1		2.1		3.1		Total	
			Catch	%	Catch	%	Catch	%	Catch	%
8/7 (6/14 - 8/9)	150	M	47	0.7	3,783	54.0	421	6.0	4,250	60.7
		F	0	0.0	2,476	35.3	280	4.0	2,756	39.3
		Subtotal	47	0.7	6,259	89.3	701	10.0	7,006	100.0
8/14 (8/12, 14, 16)	159	M	66	0.7	4,196	40.2	656	6.3	4,917	47.2
		F	65	0.6	4,918	47.2	524	5.0	5,508	52.8
		Subtotal	131	1.3	9,114	87.4	1,180	11.3	10,425	100.0
8/23 (8/19, 21, 23, 26)	151	M	61	0.7	3,804	41.0	245	2.7	4,111	44.4
		F	123	1.3	4,601	49.7	430	4.6	5,153	55.6
		Subtotal	184	2.0	8,405	90.7	675	7.3	9,264	100.0
Season	460	M	174	0.7	11,783	44.2	1,322	5.0	13,278	49.7
		F	188	0.7	11,994	44.9	1,234	4.6	13,417	50.3
		Total	362	1.4	23,777	89.1	2,556	9.6	26,695	100.0

Figure 21. The mean length of the coho salmon harvested in the District W-4 commercial fishery, 2002.

Sample Dates (Stratum Dates)	Sex		Age Class		
			1.1	2.1	3.1
8/7 (6/14 - 8/9)	M	Mean Length (mm)	520	572	579
		Std. Error	-	9	15
		Range	520- 520	684	520- 651
		Sample Size	1	81	9
	F	Mean Length (mm)		591	577
		Std. Error		4	10
		Range		506- 652	546- 610
		Sample Size	0	53	6
8/14 (8/12, 14, 16)	M	Mean Length (mm)	596	605	612
		Std. Error	-	6	13
		Range	596- 596	466- 680	549- 676
		Sample Size	1	64	10
	F	Mean Length (mm)	588	611	607
		Std. Error	-	3	6
		Range	588- 588	520- 658	580- 630
		Sample Size	1	75	8
8/23 (8/19, 21, 23, 26)	M	Mean Length (mm)	599	606	632
		Std. Error	-	6	7
		Range	599- 599	404- 675	620- 653
		Sample Size	1	62	4
	F	Mean Length (mm)	599	600	615
		Std. Error	5	4	6
		Range	594- 603	456- 670	596- 642
		Sample Size	2	75	7
Season	M	Mean Length (mm)	577	595	605
		Range	520- 599	466- 684	520- 676
		Sample Size	3	207	23
	F	Mean Length (mm)	595	603	603
		Range	588- 603	456- 670	546- 642
		Sample Size	3	203	21

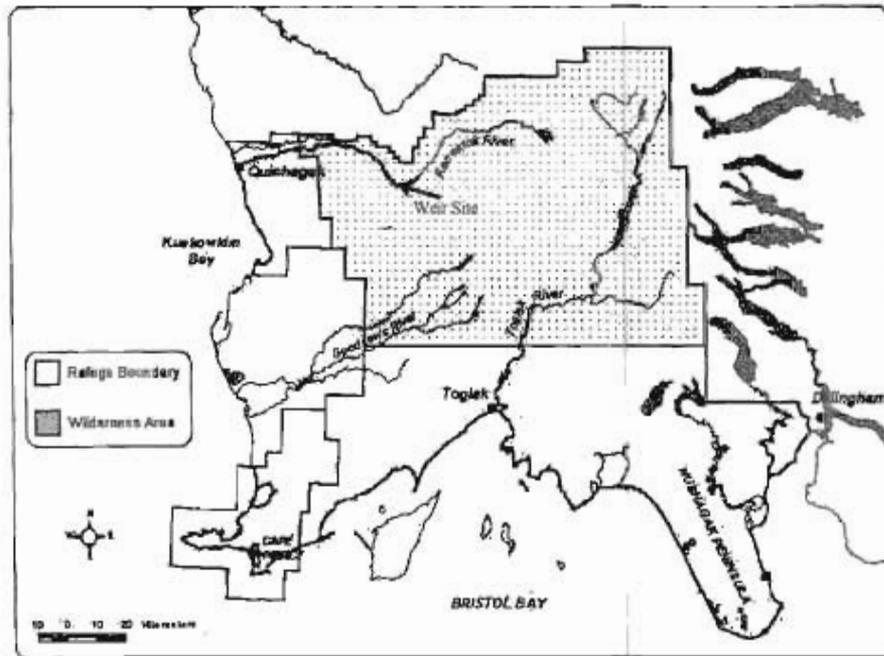


Figure 1. Kanektok River drainage and weir location.



Figure 2. Map of the District W-4 commercial fishery. Striped areas are closed to commercial fishing. North is at the top of the map.

Appendix I. Historic commercial salmon harvest, District W-4, 1960- 2002.

year	chinook	sockeye	coho	pink	chum	total
1960	0	5,649	3,000	0	0	8,649
1961	4,328	2,308	46	90	18,864	25,636
1962	5,526	10,313	0	4,340	45,707	65,886
1963	6,555	0	0	0	0	6,555
1964	4,081	13,422	379	939	707	19,528
1965	2,976	1,886	0	0	4,242	9,104
1966	278	1,030	0	268	2,610	4,186
1967	0	652	1926	0	8,087	10,665
1968	8,879	5,884	21,511	75,818	19,497	131,589
1969	16,802	3,784	15,077	953	38,206	74,822
1970	18,269	5,393	16,850	15,195	46,556	102,263
1971	4,185	3,118	2,982	13	30,208	40,506
1972	15,880	3,286	376	1,878	17,247	38,667
1973	14,993	2,783	16,515	277	19,680	54,248
1974	8,704	19,510	10,979	43,642	15,298	98,133
1975	3,928	8,584	10,742	486	35,233	58,973
1976	14,110	6,090	13,777	31,412	43,659	109,048
1977	19,090	5,519	9,028	202	43,707	77,546
1978	12,335	7,589	20,114	47,033	24,798	111,869
1979	11,144	18,828	47,525	295	25,995	103,787
1980	10,387	13,221	62,610	21,671	65,984	173,873
1981	24,524	17,292	47,551	160	53,334	142,861
1982	22,106	25,685	73,652	11,838	34,346	167,627
1983	46,385	10,263	32,442	168	23,090	112,348
1984	33,663	17,255	132,151	16,249	50,422	249,740
1985	30,401	7,876	29,992	28	20,418	88,715
1986	22,835	21,484	57,544	8,700	29,700	140,263
1987	26,022	6,489	50,070	66	8,557	91,204
1988	13,883	21,556	68,605	21,310	29,220	154,574
1989	20,820	20,582	44,607	273	39,395	125,677
1990	27,644	83,681	26,926	12,056	47,717	198,024
1991	9,480	53,657	42,571	115	54,493	160,316
1992	17,197	60,929	86,404	64,217	73,383	302,130
1993	15,784	80,934	55,817	7	40,943	193,485

continued

Appendix 1 continued (page 2 of 2)

year	chinook	sockeye	coho	pink	chum	total
1994	8,564	72,314	83,912	35,904	61,301	261,995
1995	38,584	68,194	66,203	186	81,462	254,629
1996	14,165	57,665	118,718	20	83,005	273,573
1997	35,510	69,562	32,862	5	38,445	176,384
1998	23,158	41,382	80,183	2,217	45,095	192,035
1999	18,426	41,315	6,184	0	38,091	104,016
2000	21,229	68,557	30,529	3	30,553	150,871
2001	12,775	33,807	18,531	0	17,209	82,322
2002	11,480	17,802	26,695	0	29,252	85,229
10-Year Avg.	20,539	59,466	57,934	19,749 <sup>a</sup>	50,949	199,144
Historic Avg	15,848	24,270	34,259	9,953	33,487	117,817

a Average of even years only

Appendix 2. The number of permits fished and fishing time,  
District W-4, 1970-2002.

year	number of periods	number of hours fished	number of permits fished
1970	14	1,494	88
1971	6	630	61
1972	16	192	107
1973	28	504	109
1974	30	360	196
1975	24	288	127
1976	27	324	181
1977	27	324	258
1978	37	444	200
1979	36	432	206
1980	36	432	169
1981	33	396	186
1982	34	408	177
1983	28	318	226
1984	33	396	263
1985	23	276	300
1986	29	348	324
1987	19	216	310
1988	32	384	288
1989	29	348	227
1990	30	444	390
1991	31	372	346
1992	34	420	349
1993	32	384	409
1994	32	384	308
1995	35	414	382
1996	27	298	218
1997	31	372	289
1998	34	408	203
1999	19	228	218
2000	27	324	230
2001	20	231	159
2002	24	294	114
10-year avg.	29	346	277
historic avg.	28	400	235

Appendix 3. Exvessel value of the District W-4 commercial harvest, 1990-2002

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

Appendix 4. Historic subsistence harvest, Quinhagak Area, 1967-2001

Year	Chinook	Sockeye	Chum	Coho
1967	1,349			
1968	2,756			
1969				
1970				
1971				
1972				
1973				
1974				
1975				
1976				
1977	2,012			
1978	2,328			
1979	1,420			
1980	1,940			
1981	2,562			
1982	2,402			
1983	2,542			
1984	3,109			
1985	2,341	106	901	67
1986	2,682	423	808	41
1987	3,663	1,067	1,084	125
1988	3,690	1,261	1,065	4,317
1989	3,542	633	1,568	3,787
1990	6,013	1,951	3,234	4,174
1991	3,693	1,772	1,593	3,232
1992	3,447	1,264	1,833	2,958
1993	3,368	1,082	1,008	2,152
1994	3,995	1,000	1,452	2,739
1995	2,746	573	686	2,561
1996	3,075	400	930	1,467
1997	3,433	556	600	1,264
1998	4,041	1,490	1,448	1,702
1999	3,167	1,639	1,810	2,021
2000	3,106	1,341	912	1,088
2001	2,923	914	747	1,525
2002	2,475	855	1,839	1,099
10-year avg.	3,363	1,094	1,184	2,064
Historic avg.	3,013	1,028	1,275	2,072

Appendix 5. Salmon escapement, Kanektok River escapement project, 1996-2002

Year	Dates of Operation	Chinook	Sockeye	Chum	Coho	Pink <sup>a</sup>
1996	July 2-13; 20-25	6,827 <sup>b</sup>	71,637 <sup>b</sup>	70,617 <sup>b</sup>	<sup>b</sup>	<sup>b</sup>
1997	June 11- Aug. 21	16,731	96,348	51,180	23,172 <sup>b</sup>	7,872 <sup>b</sup>
1998	July 23- Aug. 17	<sup>b</sup>	<sup>b</sup>	<sup>b</sup>	<sup>b</sup>	<sup>b</sup>
1999		Not operational				
2000		Not operational				
2001 <sup>c</sup>	Aug. 10-Oct 3	132 <sup>b</sup>	739 <sup>b</sup>	1,056 <sup>b</sup>	35,650	19 <sup>b</sup>
2002 <sup>c</sup>	July 1- Sept. 20	5,335	58,367	42,014	24,883	87,036 <sup>d</sup>

<sup>a</sup> Smaller size pink salmon can pass through the Kanektok River weir.

<sup>b</sup> No counts or incomplete counts as project was not operated during significant portion of species migration.

<sup>c</sup> Project was operated as a resistance board, floating weir.

Appendix 6. Aerial surveys estimates, Kanektok River, 1962-2000a.

Year	SPECIES			
	Chinook	Sockeye	Coho	Chum
1962	935	43,108	NA	NA
1963	NA	NA	NA	NA
1964	NA	NA	NA	NA
1965	NA	NA	NA	NA
1966	3,718	NA	NA	28,800
1967	NA	NA	NA	NA
1968	4,170	8,000	NA	14,000
1969	NA	NA	NA	NA
1970	3,112	11,375	NA	NA
1971	NA	NA	NA	NA
1972	NA	NA	NA	NA
1973	814	NA	NA	NA
1974	NA	NA	NA	NA
1975	NA	6,018	NA	NA
1976	NA	22,936	NA	8,697
1977	5,787	7,244	NA	32,157
1978 b	19,180	44,215	NA	229,290
1979	NA	NA	NA	NA
1980	NA	NA	NA	NA
1981 c	6,172	113,931	69,325	25,950
1982 d	15,900	49,175	NA	71,840
1983	8,142	55,940	NA	NA
1984 e	8,890	2,340	NA	9,360
1985	12,182	30,840	46,830	53,060
1986	13,465	16,270	NA	14,385
1987	3,643	14,940	NA	16,790
1988	4,223	51,753	20,056	9,420
1989	11,180	30,440	NA	20,583
1990	7,914	14,735	NA	6,270
1991 d	2,563	32,082	NA	2,475
1992 f	2,100	44,436	4,330	19,052
1993	3,856	14,955	NA	25,675
1994	4,670	23,128	NA	1,285
1995	7,386	30,090	NA	10,000
1996	NA	NA	NA	NA
1997 h	NA	NA	NA	NA
1998	6,107	22,020	23,656	7,040

continued

Appendix 5 (page 2 of 2)

Year	SPECIES			
	Chinook	Sockeye	Coho	Chum
1999 <sup>i</sup>	8,080	27,100	5,192	3,270
2000	1,118	11,670	10,120	10,000
2001	6,483	38,610	NA	11,440
2002	NA	NA	NA	NA
OBJECTIVE:	5,800	15,000	25,000	30,500

- a Aerial surveys are those rated fair or good surveys obtained between 20 July and 5 August for chinook and sockeye salmon, 20-31 July for chum salmon, and 20 August and 5 September for coho salmon. Some surveys, which do not meet these criteria, may be referenced in this table; text are footnoted.
- b Chum salmon count excluded from escapement objective calculation due to exceptional magnitude.
- c Poor survey for chinook, sockeye, chum salmon.
- d Late survey for chinook, sockeye salmon (after 5 August).
- e Poor coho survey.
- f Some chum may have been sockeye.
- g Chum count not at peak, estimate made during chinook survey.
- h Chinook, chum and sockeye numbers from 2 August. Chum not at peak. Coho survey on October 1, not at peak.
- i Survey occurred before peak for chinook, sockeye and chum salmon (July 14).