KING SALMON SUBSISTENCE HARVESTS IN THE YUKON RIVER DRAINAGE

A Report to the Alaska Board of Fisheries

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By

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INTRODUCTION

The Yukon Area includes all waters of the Yukon River drainage in Alaska and all coastal waters from Point Romanof near Kotlik southward to Naskonat Peninsula (Figure 1). Important subsistence and commercial fisheries include salmon and herring. Other marine and freshwater finfish are harvested primarily for subsistence use.

Description of Area and District Boundaries

The Yukon River is the largest river in Alaska, draining approximately 35 percent of the state, and is the fifth largest drainage in North America. The river originates in British Columbia, Canada, within 30 miles of the Gulf of Alaska and flows over 2,300 miles to its mouth on the Bering Sea, draining an area of approximately 330,000 square miles. Excluding the greater Fairbanks area (approximately 82,000 residents), there are approximately 21,000 rural residents in the Alaskan portion of the drainage (Williams 1997), the majority of whom reside in 43 small villages scattered along the coast and major river systems. Nearly all of these people are dependent to varying degrees on fish and game resources for their livelihood.

Commercial salmon fishing may occur along the entire 1,200 mile length of the mainstem Yukon River in Alaska and the lower 225 miles of the Tanana River. The Yukon Area is divided into seven districts and ten subdistricts for management and regulatory purposes (Figure 1). The Coastal District was established in 1994 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 from the mouth to Old Paradise Village, river mile 301. The Upper Yukon Area (Districts 4, 5, and 6) is that portion of the drainage upstream of Old Paradise Village to the U.S./Canada border.

In addition, commercial, Aboriginal, sport, and domestic salmon fisheries occur in Canada, with fishery management activities conducted by the Canadian Department of Fisheries and Oceans (DFO).

Fishery Resources

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

King salmon are the largest species found in the Yukon River ranging from 2-90 pounds and averaging 20-25 pounds. Spawning populations of king salmon have been documented throughout the Yukon River drainage from the Archuelinguk River located approximately 80 miles from the mouth to as far upstream as the headwaters of the drainage in Yukon Territory and British Columbia, Canada, nearly 2,000 miles from the mouth (Figure 2). King salmon begin entering the mouth of the Yukon River soon after ice breakup during late May and early June and continue through mid-July.

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

Coho salmon enter the Yukon River from late July through September and average about seven pounds in weight. Coho salmon spawn discontinuously throughout the Alaskan portion of the drainage primarily in tributaries in the lower 500 miles of the drainage and in the Tanana River drainage. Major spawning populations of coho salmon have been documented in tributaries of the Tanana River drainage, and the Andreafsky and Anvik Rivers.

Pink salmon enter the lower river from late June to late July and average approximately 3 pounds in weight. They primarily spawn in the lower portion of the drainage, downstream of the village of Grayling, river mile 336. However, pink salmon have been caught in the mainstem Yukon River upstream as far as Ruby (river mile 601) (ADF&G 1983). During the past decade, large runs of pink salmon have occurred during even-numbered years.

Management

The overall goal of the Yukon Area research and management programs is to manage the salmon runs for sustained yield under the policies set forth by the Alaska Board of Fisheries. Management of the Yukon River salmon fishery is complex due to the inability to determine stock specific abundance and timing, overlapping multispecies salmon runs, the high efficiency of the commercial fleet, allocation issues, and the immense size of the Yukon River drainage. Based on current knowledge, it is impossible to manage individual stocks independently. Escapement levels required to produce maximum sustained yields cannot be precisely determined at this time due to the lack of an adequate database. Subsistence fishing has been designated by the Alaska State Legislature and the Alaska Board of Fisheries as the highest priority among beneficial uses of the resource. Management of the Yukon River salmon fisheries must take a conservative approach to maintain the subsistence priority, and to provide for spawning area escapements to sustain production of the resource.

SUBSISTENCE FISHERY

Subsistence fishing occurs throughout most of the Yukon Area. Subsistence fishermen operate gillnets in the main rivers and coastal marine waters. Fish wheels are also utilized by subsistence

fishermen in the upper Yukon and Tanana Rivers. Beach seines are occasionally used in tributaries near spawning grounds to catch schooling or spawning salmon. Many people who fish for commercial purposes also operate as subsistence fishermen. In order to enforce commercial salmon fishing regulations, it is necessary to place some restrictions on the subsistence fishery. However, throughout the fishing season, substantially more fishing time is allowed for subsistence than for commercial purposes.

Comprehensive annual surveys of the subsistence salmon fishery were initiated by the department in 1961. Survey methodology and technique varied from year to year historically, however, it is felt that the estimates reflect harvest trends. Since 1988, survey methods and corresponding harvest estimates are more comparable. Subsistence harvest data collected through the use of postseason household interviews, catch calendars, mail out questionnaires, and telephone interviews have been expanded for unknown fishing families or households on a community basis and expanded community harvests summed for district and total drainage estimates on an annual basis (Walker et al. 1989). Current methodology for estimating subsistence salmon harvests can be found in other reports (Bromaghin and Hamner 1993 and Borba and Hamner 1998).

Beginning in the early 1970s, subsistence salmon fishing permits have been required in three sections of the Upper Yukon Area as follows: 1) the Yukon River near the Yukon River bridge between Hess Creek and Dall River, 2) the upper portion of the Yukon River in District 5 between the upstream mouth of Twenty-Two Mile Slough and the U.S./Canada border (Figure 3), and 3) the Tanana River above the mouth of the Wood River. Beginning in 1988, subsistence salmon fishing permits have been required for the entire Tanana River drainage except for the Fairbanks Nonsubsistence Area. Households which fish in areas requiring a permit are required to obtain a permit, document their harvest, and return the permit upon expiration.

King Salmon Subsistence Harvest Trends

Historically, subsistence salmon harvests were very large. Subsistence salmon harvests declined through the 1970s (ADF&G 1985). Beginning in the early 1980s, due, in part, to a renewed interest in sled dogs, the number of dogs within the Yukon Area has increased. Coincidentally, there has been an increase in the subsistence salmon harvest. In addition, the human population along the river is increasing, which may also contribute to increased subsistence harvests.

Subsistence records indicate an increasing trend of king salmon harvested in the Yukon River since the mid-1970s (Table 1, Figures 4). The average harvests for 1975-1985, and 1986-1997 show increased harvests of king salmon in all districts of the Yukon River (Figure 5). The subsistence harvests had an overall increase of 38% during this period of time. The largest harvest of king salmon occurs in District 5.

The number of fishing households on the Yukon River increased by only 1%, based on the 5-year averages for 1988-1992 and 1993-1997 (Table 3, Figure 6). The lower Yukon River had a 7% increase in fishing households, while the upper Yukon River decreased by 4%.

The number of dogs on the Yukon River showed a 28% increase (Table 4, Figure 7) based on the 5-year averages for 1988-1992 and 1993-1997. The lower Yukon River had a 30% increase, and the upper Yukon River increased by 27%.

The Hess Creek to Dall River permit area king salmon average harvest increased by 14% based on the 5-year averages from 1988-1992 and 1993-1997 (Table 2). The majority (64%) of permit holders in this area harvest up to 50 king salmon yearly.

King salmon harvests increased 9% in the permit area above 22-Mile Slough. Fifty or fewer king salmon are harvested by the majority (69%) of permit holders in this area. The average number of fishing families in the permit area above 22-Mile Slough has decreased by 9% (Table 3) while the number of dogs increased by 35% (Table 4).

There is usually little intentional wastage of the fish taken for subsistence purposes. A major portion of salmon taken for human consumption are frozen, dried or smoked for later use. Wet weather may cause drying fish to spoil. King salmon are used primarily for human consumption. However, while chum and coho salmon are also used for human consumption, large numbers are also taken to feed sled dogs. The majority of the subsistence salmon harvest is taken in the Upper Yukon. The practice of keeping sled dogs is much more common in the Upper Yukon Area and is considered a major factor affecting the subsistence salmon harvest.

A large portion of "small salmon", specifically summer chum, fall chum and coho salmon are fed to dogs, approximately 62% of the subsistence harvest. A 1991 Department study of the use of fish to feed sled dogs found that, except for scraps from cutting fish, such as heads and back bones, king salmon are rarely fed to dogs (Andersen 1992). While it appears to be uncommon for large, whole king salmon to be harvested and processed specifically to feed dogs, portions of those fish and king salmon deemed unfit for human consumption are utilized as dog food. In addition, dogs may also be fed small ("jack") kings and those that are of questionable quality due to disease, parasites, or advanced spawning condition. During subsistence salmon surveys in 1989, 1990 and 1991, surveyors asked for the number of king salmon fed to dogs. Data from 1990 indicated that 3 king salmon were fed to dogs out of a subsistence harvest of 47,691 in Districts 1-5 (Holder and Hamner 1991). Because these data indicated king salmon were rarely utilized for dog food, an estimate of the number of king salmon used as dog food was not computed in 1991 (Bromaghin and Hamner, 1993).

1998 FISHING SEASON

The 1998 Yukon River king salmon run was very poor. King salmon escapements to all monitoring projects were below recent averages (Table 5, Figure 8). The East Fork Andreafsky River weir count of 4,011 was 19% below the average of 4,946 king salmon. The tower count of 87 kings at Kaltag River was 55% below the average of 193. Nulato River tower had a count of 1,536 kings, which was 30% below the 2,182 average. The weir at Gisasa River passed 2,273 kings and was 28% below the average of 3,157. The Canadian mainstem Yukon River escapement of 16,769 king salmon was 45% below the 1993-1997 average of 30,560 and also

below the escapement goal of 28,000 by 40%. Tanana River monitoring projects showed the same trend. The Chena River tower count of 4,423 kings was 59% below the average of 10,806. The Salcha River tower count of 4,990 king salmon was 64% below the 13,681 average passage.

An estimated total of 54,000 king salmon were harvested for subsistence purposes in 1998 in the Alaskan portion of the Yukon River drainage. The king salmon harvest was slightly above the 1993-1997 average harvest of 53,531 fish (Table 1, Figure 4). The 1998 total king salmon subsistence harvest was slightly higher than average, but lower than average in some locations such as the Koyukuk River.

King salmon commercial fishing resulted in the lowest harvest since before statehood. The total Alaska commercial harvest of 43,699 king salmon was 59% below the 5-year (1993-1997) average harvest of 107,161 kings (Table 5).

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

Management of the 1998 fisheries in Canada was very conservative and with closures of all but the Aboriginal fishery. The total harvest of all fisheries in Canada of 5,819 king salmon was 69% below the average harvest of 18,523 and 35% below the low end of the guideline harvest range of 16,800 king salmon (Table 5). The aboriginal fishery harvest, which includes a test fishery, operated in 1998 because of the closure to commercial fishing was 5,405 king salmon and was 31% below the 5-year (1993-1997) average harvest of 7,790 kings.

SUBSISTENCE SALMON FISHING REGULATIONS

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 opening of the commercial salmon fishing season. During the Districts 1, 2, and 3 commercial season, subsistence fishing is allowed only between commercial periods. During the king and summer chum commercial salmon fishing season, subsistence salmon fishing is closed 18 hours before, during, and 12 hours following a commercial salmon fishing period. During the fall season, subsistence salmon fishing is closed 12 hours before, during, and 12 hours following each District 1, 2 or 3 commercial salmon fishing period.

Regulations require fishermen to immediately remove the dorsal fin from king salmon taken for subsistence purposes in Districts 1, 2, and 3. The sale of salmon that have had the dorsal fin removed is illegal.

Subdistrict 4-A

In Subdistrict 4-A, subsistence salmon fishermen may take salmon seven days per week until 24 hours prior to opening of the commercial salmon fishing season. Regulations also separate subsistence fishing periods with set gillnet, fish wheel, and beach seine gear from commercial fishing periods in Subdistrict 4-A. During the commercial salmon fishing season, subsistence salmon fishing with set gillnet, fish wheel, and beach seine gear is closed 12 hours before, during, and 12 hours following a Subdistrict 4-A commercial salmon fishing period. In March 1997, the Alaska Board of Fisheries adopted a subsistence regulation for Subdistrict 4-A which allows king 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 are 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.

Subdistricts 4-B and 4-C

Regulations allow subsistence salmon fishing seven days per week until 24 hours prior to the opening of Subdistricts 4-B and 4-C commercial salmon fishing season. Once Subdistricts 4-B and 4-C commercial salmon season opens, managers attempt to coincide allowable commercial salmon fishing periods with the subsistence salmon fishing schedule. During the commercial salmon season, subsistence salmon fishing time in Subdistricts 4-B and 4-C is 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. Sunday until 6:00 p.m. Friday.

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 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 coincide with the commercial salmon fishing schedule. Additionally, subsistence only salmon fishing periods may also be scheduled.

During the Subdistricts 5-A, 5-B and 5-C 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. Tuesday until 6:00 p.m. Sunday. Subdistricts 5-A, 5-B and 5-C, subsistence salmon fishermen may take salmon seven days a week following the closure of the commercial salmon season.

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 on their permits and to return their permits to the department at the end of the fishing season.

District 6

Regulations require salmon fishermen in District 6, the Tanana River drainage, to obtain subsistence salmon permits. No subsistence fishing is allowed in that portion of the Tanana and Yukon River drainages that are 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. The annual harvest limit for the holder of a Subdistrict 6-A or 6-B subsistence salmon fishing permit is 60 king salmon and 500 chum salmon for the period through August 15 of a year, and 2,000 chum and coho salmon for the period after August 15. Upon request, permits for additional salmon may be issued by the department. Permit holders can report their weekly catch by calling a recording phone number in Fairbanks. All Tanana River subsistence permit holders are required to report their harvest information on their permit. At the end of the fishing season, expired permits must be returned 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. Monday until 12 noon Wednesday and from 6:00 p.m. Friday until 12 noon Sunday. One exception is within the Old Minto Area where subsistence salmon fishing is allowed five days a week from 6:00 p.m. Friday until 6:00 p.m. Wednesday. 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.

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FIGURES

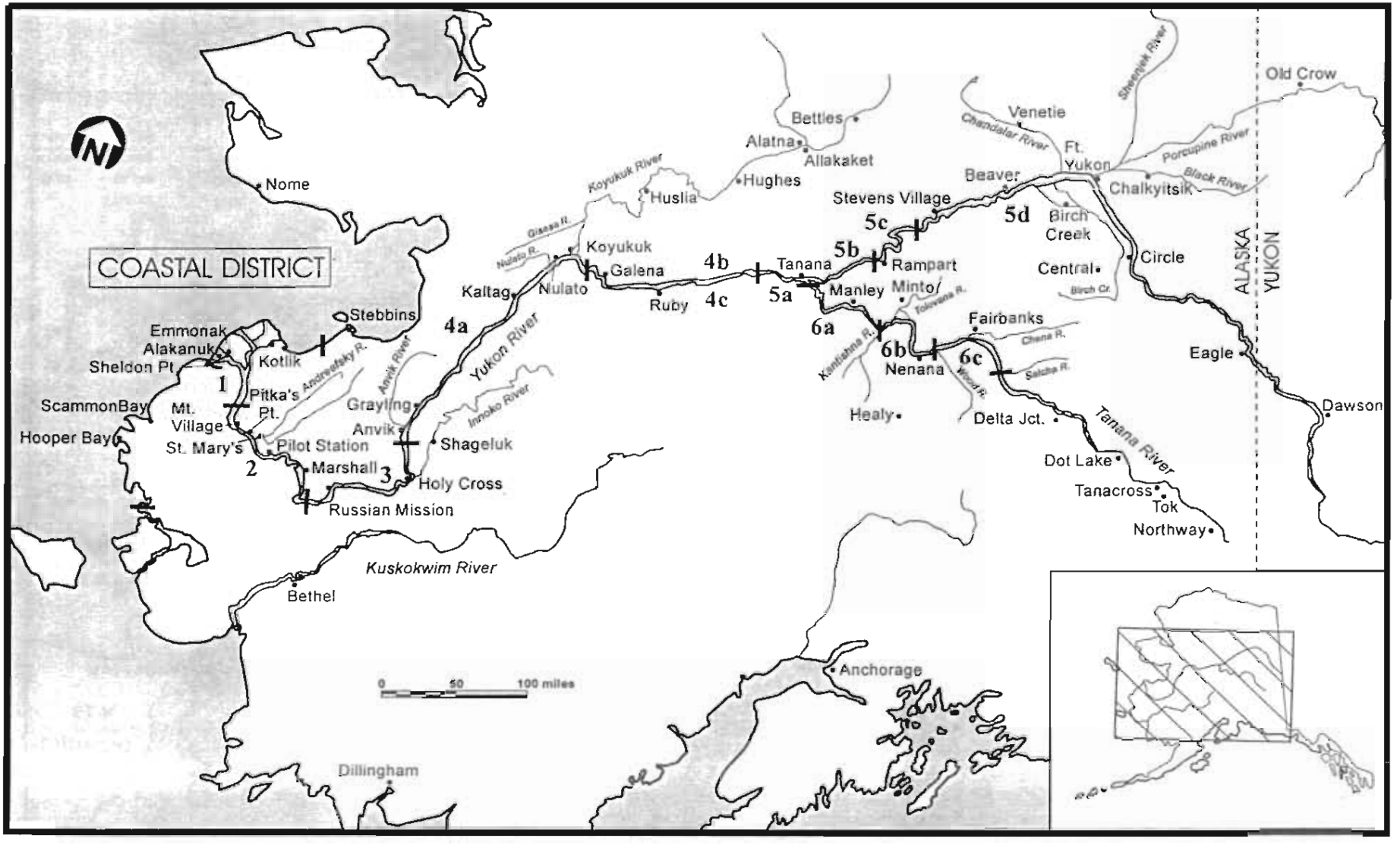


Figure 1. Map of Alaskan portion of the Yukon River drainage showing communities and fishing districts.

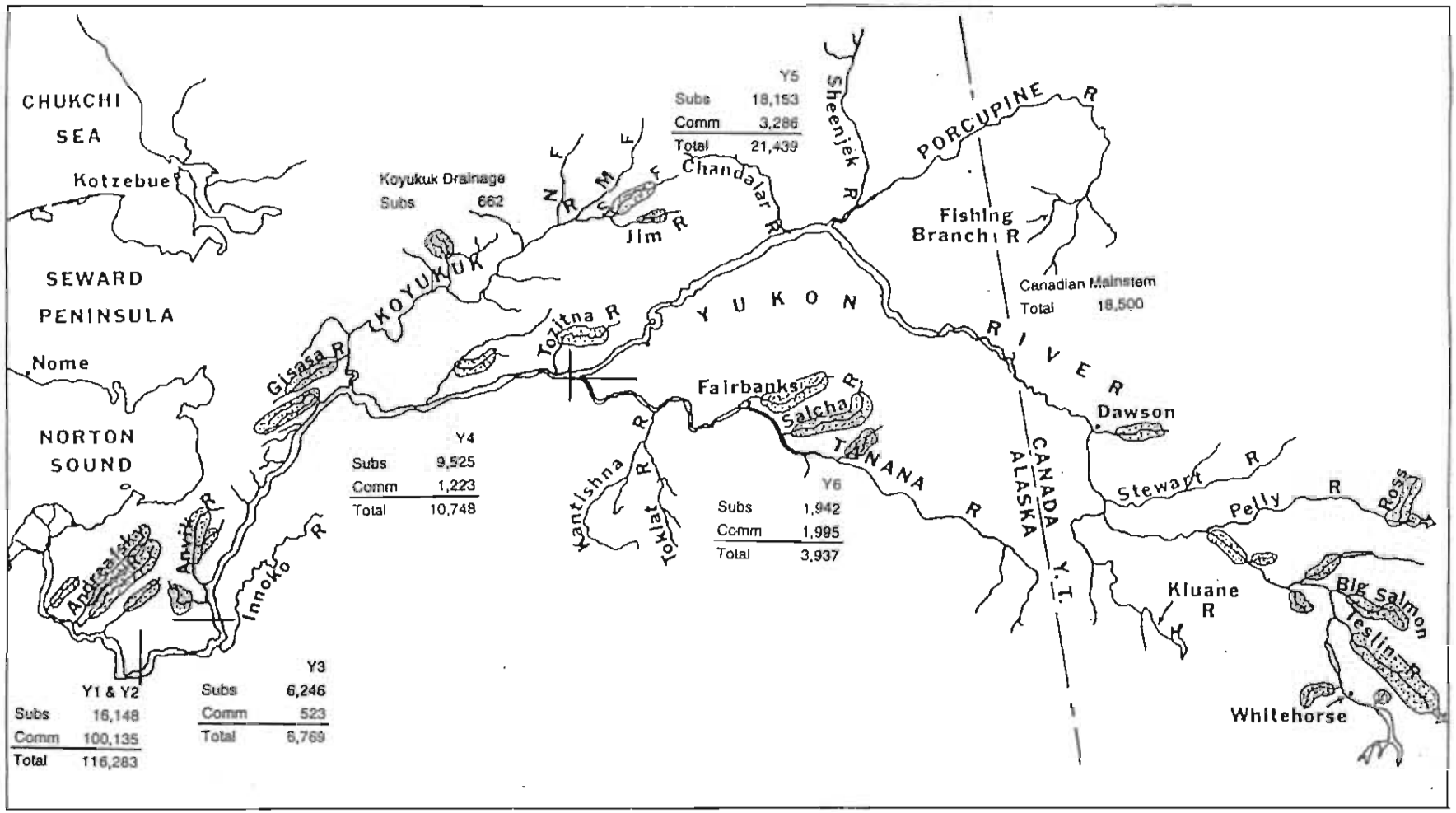


Figure 2. Major king salmon spawning areas and recent 5-year (1993-1997) average subsistence and commercial harvests, Yukon River drainage.

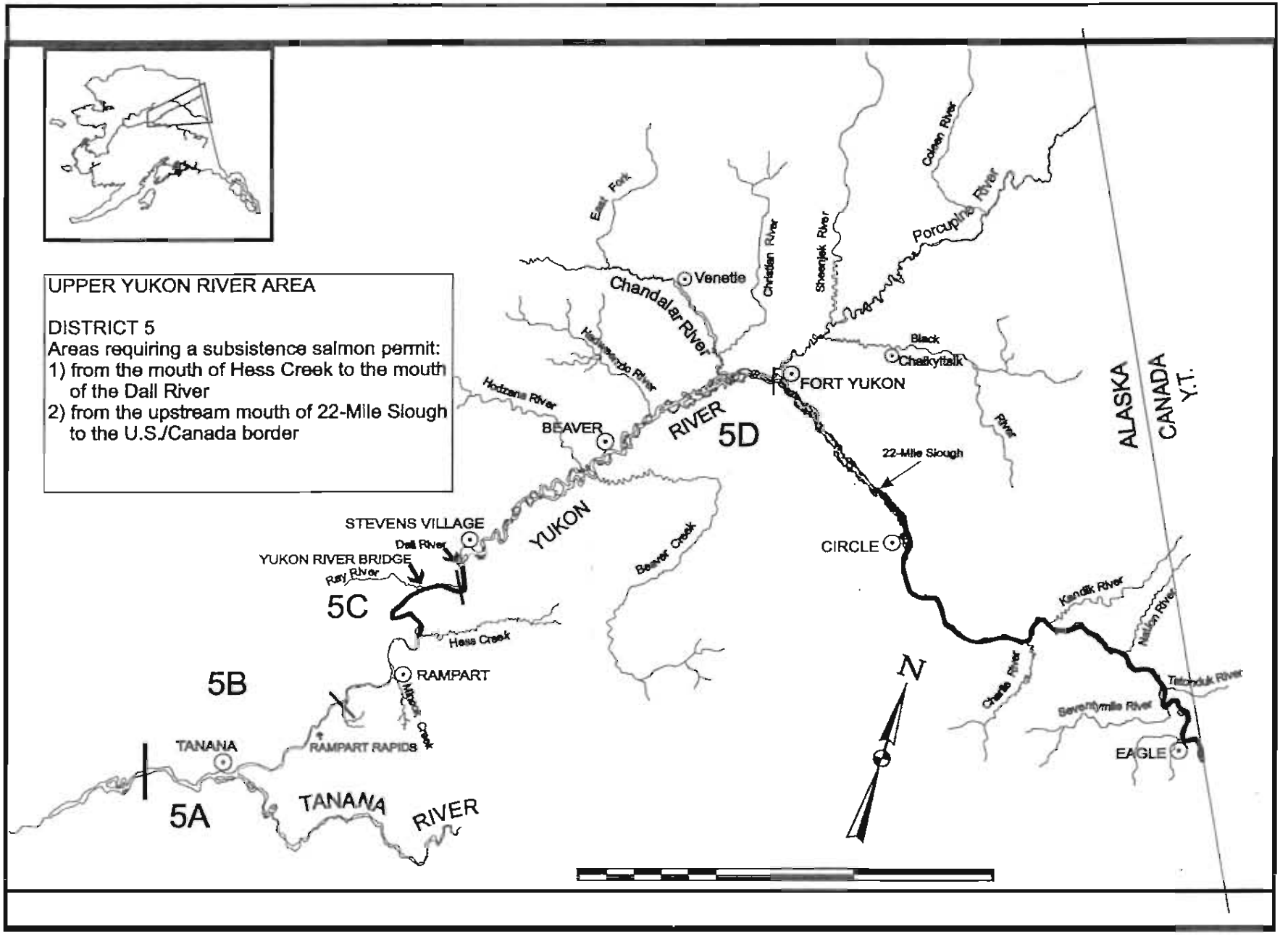


Figure 3. District 5, areas requiring a subsistence salmon permit.

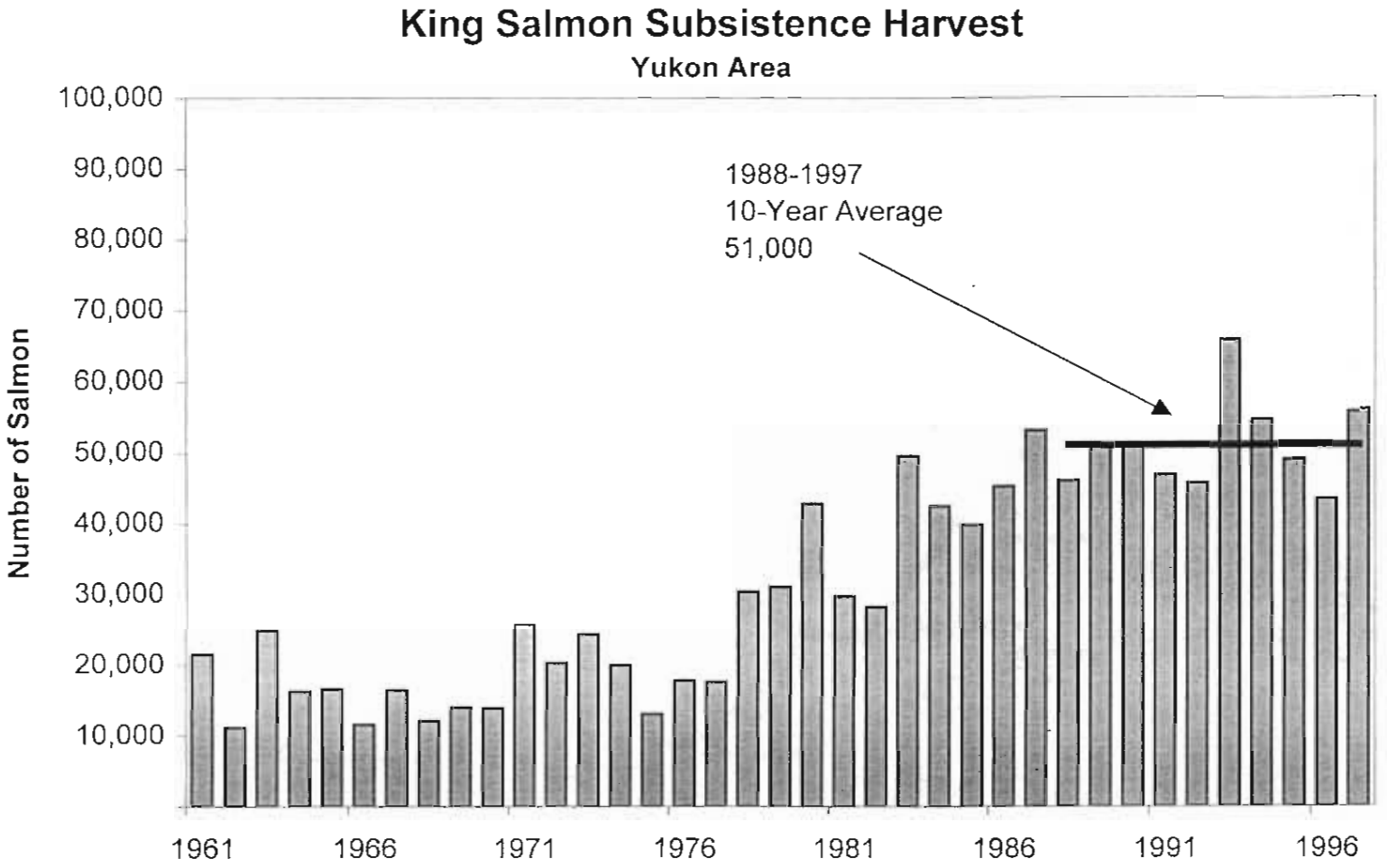
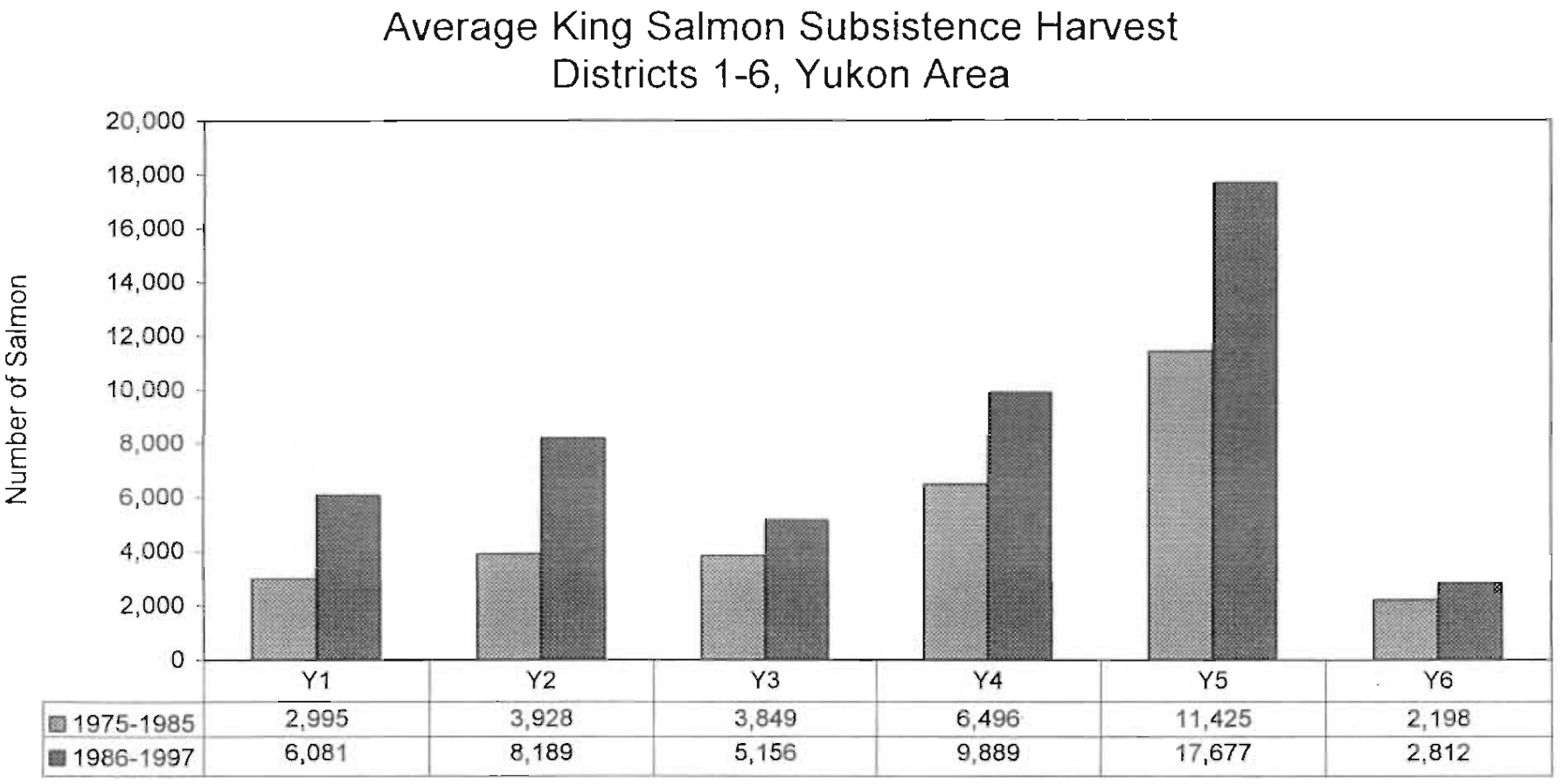


Figure 4. King salmon subsistence harvest, Yukon Area, 1961-1997.



	Y1	Y2	Y3	Y4	Y5	Y6
1975-1985	2,995	3,928	3,849	6,496	11,425	2,198
1986-1997	6,081	8,189	5,156	9,889	17,677	2,812

Figure 5. King salmon subsistence harvest, by district, averages, 1975-1985, 1986-1997.

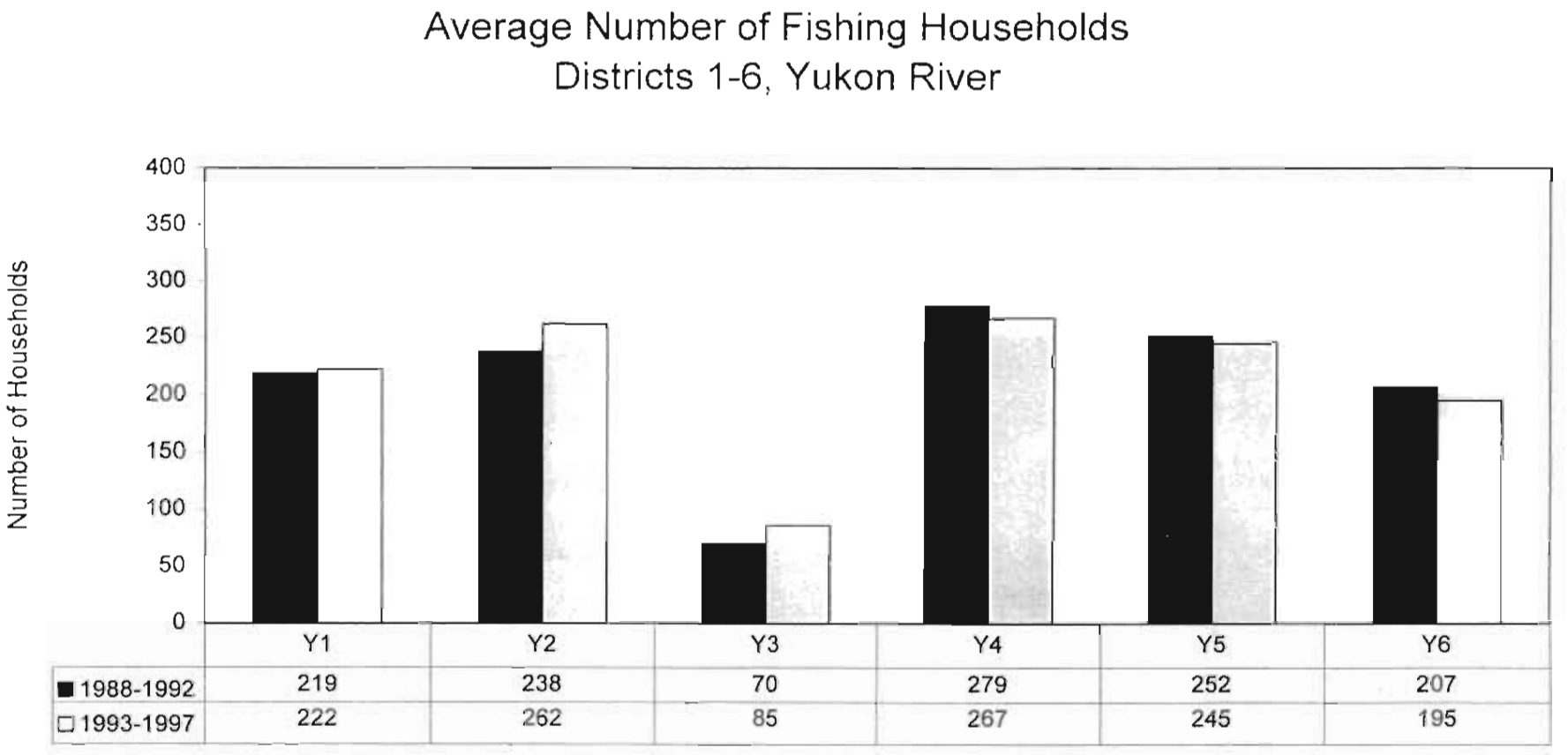


Figure 6. Fishing households, Yukon Area, by district, 5-year averages, 1988-1997.

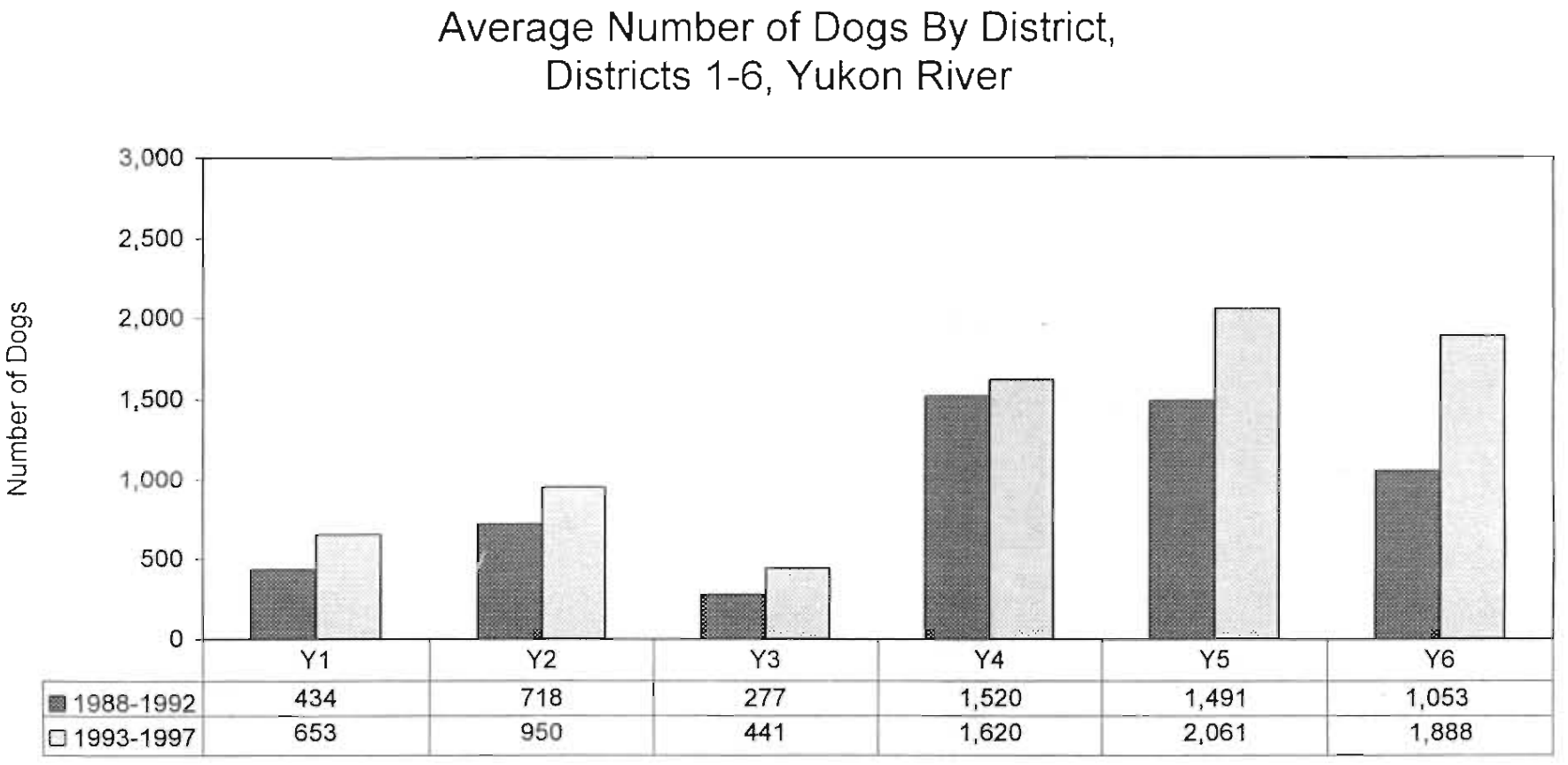


Figure 7. Dogs, Yukon Area, by district, 5-year averages, 1988-1997.

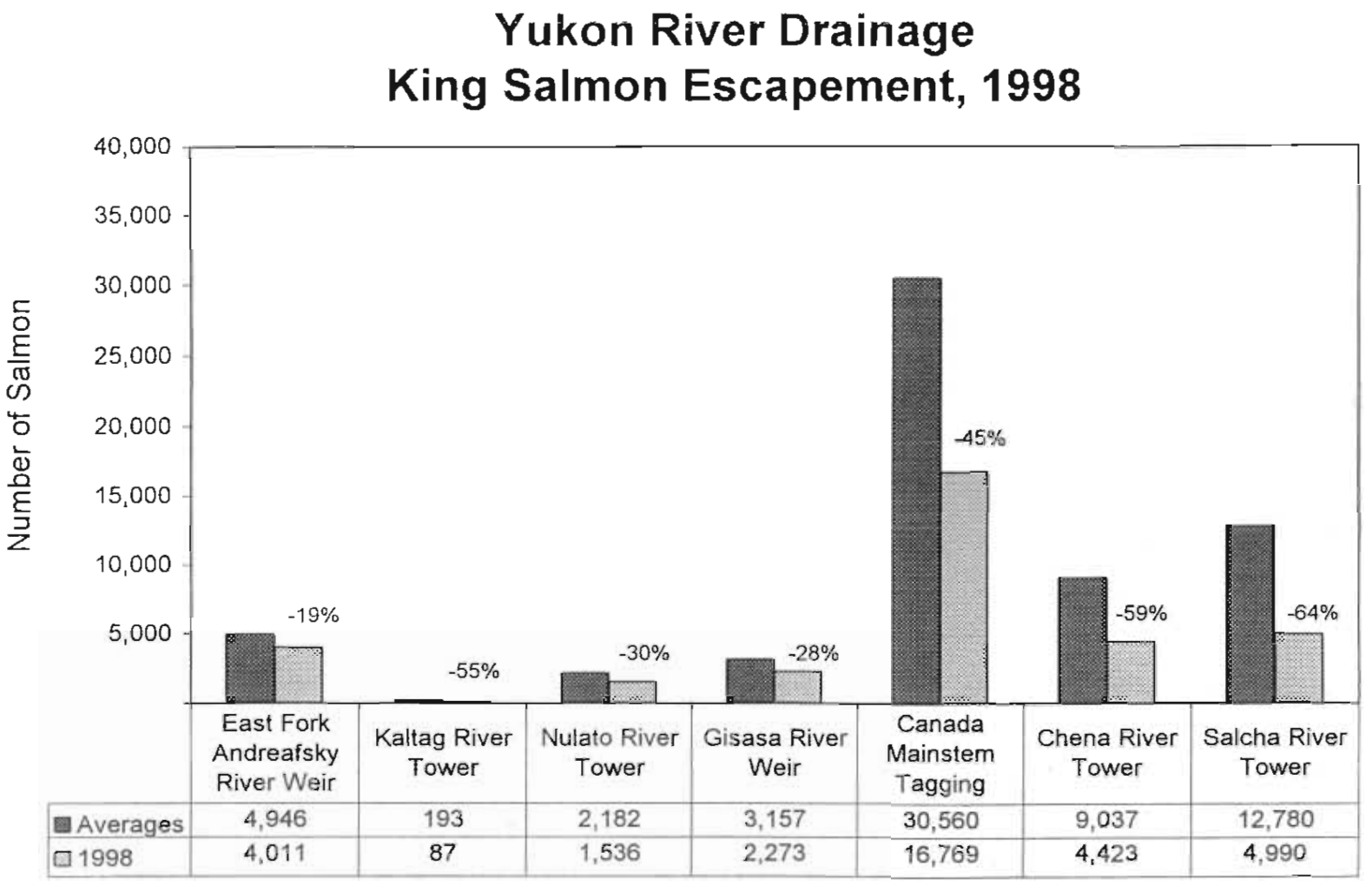


Figure 8. King salmon selected escapements, Yukon Area, 1998.

TABLES

Table 1. Estimated Yukon River chinook salmon subsistence harvest in numbers of fish by village, 1975-1997. a

Village	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
Sheldon Pt.	108	122	302	546	91	427	163	79	1,021	802	143	592	1,173
Alakanuk	130	363	213	1,125	893	1,595	423	336	1,582	1,028	517	1,027	1,180
Emmonak	55	398	62	2,738	1,362	1,175	1,021	1,328	2,436	2,099	1,382	1,754	2,518
Kotlik	204	472	173	837	533	472	675	568	1,224	695	1,029	1,902	2,407
Retained From Commercial													
Mouth to Anuk River Subtotal	497	1,355	750	5,246	2,879	3,669	2,282	2,311	6,263	4,624	3,071	5,275	7,278
Mt. Village	394	397	172	817	1,025	843	811	218	1,875	1,217	672	1,367	2,252
Pitkas Pt./St. Marys	438	1,273	576	1,314	1,718	1,297	1,380	985	2,432	2,663	778	1,717	2,457
Pilot Station	107	502	556	1,027	804	433	399	428	2,703	1,116	896	1,452	2,593
Marshall	436	694	364	806	721	1,101	990	478	2,055	2,176	1,122	1,947	2,564
Retained From Commercial													
Anuk River to Owl Slough Subtotal	1,375	2,866	1,668	3,964	4,268	3,674	3,580	2,109	9,065	7,172	3,468	6,483	9,866
Russian Mission	2,098	1,328	639	1,498	1,476	1,660	1,689	1,628	2,634	1,938	974	1,747	2,036
Holy Cross	2,792	1,492	1,920	2,404	1,787	3,123	2,312	1,731	2,276	2,456	2,368	2,505	2,625
Shageluk-Innoko River		11			62	35	10					53	47
Retained From Commercial													
Owl Slough to Bonasila R. Subtotal	4,890	2,831	2,559	3,902	3,325	4,818	4,011	3,359	4,910	4,394	3,342	4,305	4,708
Lower Yukon Total	6,762	7,052	4,977	13,112	10,472	12,161	9,873	7,779	20,238	16,190	9,881	16,063	21,852
Anvik	83	84	67	180	261	161	191	354	744	576	405	959	428
Grayling	100	117	149	292	391	3,664	222	294	951	879	903	1,837	1,322
Kaltag	192	57	216	127	435	694	179	344	652	487	669	1,080	1,117
Nulato	1,119	968	1,531	1,354	1,245	2,297	1,117	811	1,135	966	1,063	1,835	1,573
Koyukuk	50	437	752	518	495	699	541	493	966	1,009	194	569	609
Galena	1,294	435	1,155	945	1,591	1,205	570	735	1,477	1,226	1,329	1,046	1,270
Ruby/Kokrines	912	1,959	736	1,539	2,221	1,736	964	1,168	2,346	1,107	1,657	1,263	927
Retained From Commercial													
Bonasila R. to Illinois Cr. Subtotal	3,750	4,057	4,606	4,955	6,639	10,456	3,784	4,199	8,271	6,250	6,220	8,589	7,246
Huslia	23	21	50	132	146	154	61	125	459	169	144	82	182
Hughes	25	155	72	216	180	226	402	479	318	856	778	296	177
Allakaket/Alatna b	151	231	173	246	238	217	185	274	706	375	283	563	309
Bettles													
Koyukuk River Subtotal	199	407	295	594	564	597	648	878	1,483	1,400	1,205	941	668
District 4 Subtotal	3,949	4,464	4,901	5,549	7,203	11,053	4,432	5,077	9,754	7,650	7,425	9,530	7,914

-Continued-

Table 1. (page 2 of 4)

Village	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
Tanana	80	1,338	858	1,851	1,604	5,711	2,517	2,230	5,547	2,682	1,248	1,672	4,021
Rampart	517	581	1,194	987	1,820	1,169	488	887	1,070	876	1,302	1,700	2,815
Fairbanks (permits) d e								1,935	2,672	2,499	1,865	1,762	613
Stevens Village	362	643	1,252	3,178	2,194	3,962	2,387	1,810	2,531	2,177	2,763	2,839	2,076
Birch Creek													
Beaver	168	188	299	558	394	506	552	250	220	553	506	708	466
Ft. Yukon	215	1,158	1,051	2,642	1,922	2,527	2,794	1,894	1,887	3,608	2,900	3,083	3,950
Circle/Central (permits) e	15	528	304	212	1,175	769	728	969	648	545	2,259	2,233	1,614
Eagle (permits) e	20	633	1,171	963	2,888	2,880	3,782	2,864	2,183	1,998	2,247	1,915	1,988
Other (permits) e, f													
Retained From Commercial													
Illinois Cr. to U.S. Can. Border													
Subtotal	1,377	5,069	6,129	10,391	11,997	17,524	13,248	12,839	16,758	14,938	15,090	15,912	17,543
Venetie				14	0	160	52	20	22	51		32	13
Chalkyitsik												0	0
Chandalar/Black Rivers													
Subtotal				14	0	160	52	20	22	51		32	13
District 5 Subtotal	1,377	5,069	6,129	10,405	11,997	17,684	13,300	12,859	16,780	14,989	15,090	15,944	17,556
Manley g	71	228		298	269	410	367	386	990	282	744	621	40
Minto g				0	0	354	344	411	275	440	1,386	350	374
Nenana g	533	686		807	800	771	974	1,195	966	2,556	4,919	2,093	3,151
Fairbanks (permits) e, h	32	31		126	264	291	400	451	475	321	326	637	531
Other g, i													
Retained From Commercial													
Tanana River													
Subtotal	636	945	0	1,231	1,333	1,826	2,085	2,443	2,706	3,599	7,375	3,701	4,096
Upper Yukon Total	5,962	10,478	11,030	17,185	20,533	30,563	19,817	20,379	29,240	26,238	29,890	29,175	29,566
Alaska Total	12,724	17,530	16,007	30,297	31,005	42,724	29,690	28,158	49,478	42,428	39,771	45,238	51,418

Table 1. (page 3 of 4)

Village	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1988-92 Average	1993-97 Average	1975-85 Average	1986-97 Average
Sheldon Pt.	302	165	755	445	388	561	606	459	450	970	411	609	346	572
Alakanuk	738	820	871	1,044	623	2,562	1,045	1,191	662	2,058	819	1,504	746	1,152
Emmonak	1,786	1,598	1,873	1,311	2,336	4,372	2,384	1,711	702	3,080	1,781	2,450	1,278	2,119
Kotlik	1,112	1,982	3,119	3,125	1,794	2,913	2,505	2,599	1,832	1,442	2,226	2,258	626	2,226
Retained From Commercial						15	114					26		
Mouth to Anuk River Subtotal	3,938	4,565	6,619	5,925	5,141	10,423	6,654	5,960	3,646	7,550	5,238	6,847	2,995	6,081
Mt. Village	740	2,001	1,792	1,171	1,249	3,217	1,511	1,542	1,315	2,081	1,391	1,933	767	1,687
Pitkas Pt./St. Marys	1,378	2,184	2,476	2,488	2,604	3,043	3,191	2,590	2,528	3,385	2,226	2,947	1,350	2,503
Pilot Station	674	1,498	3,786	2,681	1,818	2,661	1,977	1,614	1,811	2,373	2,091	2,087	816	2,078
Marshall	1,031	1,464	1,492	1,277	1,403	2,592	2,277	3,291	2,126	1,511	1,333	2,359	995	1,915
Retained From Commercial						3	78					16		
Anuk River to Owl Slough Subtotal	3,823	7,147	9,546	7,617	7,074	11,516	9,034	9,037	7,780	9,350	7,600	9,343	3,928	8,189
Russian Mission	1,850	2,367	1,694	1,349	1,282	3,273	1,793	2,450	2,709	1,459	1,708	2,337	1,597	2,001
Holy Cross	2,593	2,379	2,337	1,649	3,491	3,191	4,040	2,808	3,953	3,472	2,490	3,493	2,242	2,920
Shageluk-Innoko River	104	32	62	189	218	128	291	161	121	1,380	121	416	11	232
Retained From Commercial						10	25							
Owl Slough to Bonasila R. Subtotal	4,547	4,778	4,093	3,187	4,991	6,602	6,149	5,419	6,783	6,311	4,319	6,253	3,849	5,156
Lower Yukon Total	12,308	16,490	20,258	16,729	17,206	28,541	21,837	20,416	18,209	23,211	16,598	22,443	10,772	19,427
Anvik	211	418	481	619	389	663	424	450	768	951	424	651	282	563
Grayling	1,571	1,082	144	874	1,074	1,045	1,843	1,340	1,036	2,391	949	1,531	724	1,297
Kaltag	1,168	1,306	2,244	1,866	1,084	1,260	1,653	1,890	994	1,036	1,534	1,367	368	1,392
Nulato	1,986	2,079	2,788	2,500	1,596	1,660	1,735	1,533	1,461	1,576	2,190	1,593	1,237	1,860
Koyukuk	711	1,003	876	885	510	853	589	146	402	851	797	568	559	667
Galena	1,982	1,374	3,134	2,574	1,870	1,732	1,834	1,336	2,770	2,350	2,187	2,004	1,087	1,939
Ruby/Kokrines	1,402	1,016	811	971	498	3,263	1,539	1,435	557	2,260	940	1,811	1,486	1,329
Retained From Commercial						978	203					236		
Bonasila R. to Illinois Cr. Subtotal	9,031	8,278	10,478	10,289	7,021	11,454	9,820	8,130	7,988	11,415	9,019	9,761	5,744	9,145
Huslia	89	177	198	198	751	232	239	932	67	57	283	305	135	267
Hughes	29	181	90	146	29	88	107 c	77	54	34	95	72	337	109
Allakaket/Alatna b	366	438	356	451	437	139	364 c	331	84	461	410	276	280	358
Bettles		0	0	16	53	1	0	4	0	39	14	9	0	9
Koyukuk River Subtotal	484	796	644	811	1,270	460	710	1,344	205	591	801	662	752	744
District 4 Subtotal	9,515	9,074	11,122	11,100	8,291	11,914	10,530	9,474	8,193	12,006	9,820	10,423	6,496	9,889

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Table 1. (page 4 of 4)

Village	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1988-92 Average	1993-97 Average	1975-85 Average	1986-97 Average
Tanana	3,537	3,008	2,284	2,483	2,477	3,362	2,999	2,398	2,741	3,596	2,758	3,019	2,333	2,882
Rampart	3,145	3,177	1,481	988	2,802	1,956	1,354	1,461	1,751	2,203	2,319	1,745	990	2,069
Fairbanks (permits) d e	0	200	420	982	1,394	1,514	1,920	1,447	1,166	955	599	1,400	816	1,031
Stevens Village	2,845	3,101	1,295	2,035	1,887	1,754	2,814	2,674	681	2,070	2,233	1,999	2,114	2,173
Birch Creek	0 b	0		196	44	0	119	93	0	373	48	117	0	69
Beaver	940	1,694	721	713	1,564	1,557	850	1,021	886	1,859	1,126	1,235	381	1,082
Ft. Yukon	2,245	4,898	4,051	5,585	4,122	6,361	4,727	3,132	4,957	3,145	4,160	4,464	2,054	4,188
Circle/Central (permits) e	2,034	1,785	1,951	1,871	1,752	955	1,617	1,316	1,912	1,237	1,879	1,407	741	1,690
Eagle (permits) e	2,333	2,385	1,742	1,193	1,040	753	1,234	1,886	1,092	1,534	1,739	1,300	1,966	1,591
Other (permits) e, f			615	374	571	437	602	1,004	377	763	312	637	0	395
Retained From Commercial						746	868					323		
Illinois Cr. to U.S. Can. Border Subtotal	17,079	20,248	14,560	16,420	17,653	19,395	19,104	16,432	16,563	17,735	17,192	17,646	11,396	17,304
Venetie	121	88	29	9	35	2,716	524	434	134	314	56	824	29	371
Chalkyitsik	0	0	0	0	3	0	0	0	30	0	1	6	0	3
Chandalar/Black Rivers Subtotal	121	88	29	9	38	2,716	524	434	164	314	57	830	29	374
District 5 Subtotal	17,200	20,336	14,589	16,429	17,691	22,111	19,628	16,866	15,727	18,049	17,249	18,476	11,425	17,677
Manley g	572	992	1169	401	551	238	480	335	134	242	737	286	368	481
Minto g	466	366	100	134	142	468	316	535	523	1208	242	610	292	415
Nenana g	3,846	1,188	1,265	1,599	1,267	693	759	607	423	1,082	1,833	713	1,292	1,498
Fairbanks (permits) e, h	0	0	84	378	402	273	775	285	97	176	173	321	247	303
Other g, i	0	0	0	3	76	0	40	17	0	4	16	12	0	12
Retained From Commercial						1,037	198					247		
Tanana River Subtotal	4,884	2,546	2,618	2,515	2,438	2,709	2,568	1,779	1,177	2,712	3,000	2,189	2,198	2,812
Upper Yukon Total	31,599	31,956	28,329 k	30,044 k	28,420 k	36,734 k	32,726 k	28,119 k	25,097 k	32,767 k	30,070	31,089	20,120	30,378
Alaska Total	43,907	48,446	48,587	46,773	45,626	65,275	54,563	48,535	43,306	55,978	46,668	53,531	30,892	49,804

a 1961-1987 data available from 1981 Yukon Area Annual Management Report. Beginning in 1988 subsistence salmon harvest estimates have been generated from a stratified random sample of village households.

b Alatna combined with Allakaket.

c Due to flooding in 1994, Hughes, Allakaket and Alatna were not surveyed. The chinook harvest was estimated using the 5-year average for 1989 - 1993.

d Catches by Fairbanks subsistence permit holders that fished in District 5 near the Yukon River bridge crossing.

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

f Other permit holders that fished in District 5 but did not reside in the villages listed.

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

h Catches by Fairbanks subsistence permit holders that fished in the Tanana River. Permits required beginning in 1964 for the Tanana River upstream of Wood River.

i Other permit holders that fished in District 6 but did not reside in the villages listed.

k Estimated chinook salmon carcasses available for subsistence use as a by product of commercial roe sales are documented in total utilization tables.

Table 2. Subsistence salmon harvest taken under authority of a permit in District 5, Upper Yukon Area, 1974-1997. a

Upper Yukon River (Hess Creek to Dall River) Subsistence Salmon Fishery b

Year	No. of Permits Issued	No. of Permits Returned	Number Reporting Catches c	King	Summer Chum d	Fall Chum d	Coho
1974	29	e	e	591		1,857	1,271
1975	19	e	e	727		778	70
1976	28	e	18	531		974	e
1977	38	e	e	467		2,567	e
1978	57	e	e	1,333		9,735	e
1979	65	e	41	2,194		12,374	e
1980	70	e	67	1,350		6,488	36
1981	57	e	24	1,095		12,034	e
1982	64	e	44	1,935		11,328	20
1983	68	e	46	2,672		15,059	e
1984	67	e	54	4,676		27,869	399
1985	55	e	42	2,618		21,832	33
1986	76	e	58	3,827		18,690	759
1987 f	16	e	14	1,818	2,091	7,631	6
1988	24	21	18	1,747	2,097	3,183	606
1989	26	20	13	2,483	574	1,157	309
1990 g	26	25	16	2,033	3,493	1,109	455
1991	52	46	34	2,529	1,295	3,953	20
1992	45	42	33	2,241	975	2,491	34
1993	49	47	36	3,767	492	2,915	16
1994	50	49	36	3,073	384	2,911	25
1995	59	59	39	3,253	954	2,244	59
1996	47	45	31	1,157	3,475	2,727	42
1997	44	42	28	1,588	683	491	26
1988-1992 Average	35	31	23	2,207	1,687	2,379	285
1993-1997 Average	50	48	34	2,568	1,198	2,258	34

Upper Yukon River (22 Mi Slough to U.S./Canada Border) Subsistence Salmon Fishery

Year	No. of Permits Issued	No. of Permits Returned	Number Reporting Catches c	King	Summer Chum d	Fall Chum d	Coho
1979	75	e	6	4,063		30,475	114
1980	48	e	39	3,649		18,477	6
1981	71	e	51	4,510		38,333	e
1982	60	e	61	3,833		15,432	e
1983	53	e	52	2,831		23,708	e
1984	58	e	54	2,543		21,675	17
1985	59	e	36	2,419		19,059	2
1986	40	e	52	4,148		20,701	43
1987 f	51	51	58	3,602	2,495	27,369	0
1988	58	57	50	2,783	2,134	9,078	101
1989	59	56	42	1,186	68	7,515	1
1990 g	81	75	54	3,746	1,629	14,992	206
1991	70	69	48	3,219	658	14,898	5
1992	85	79	54	2,984	409	12,009	57
1993	79	79	49	1,910	118	2,419	95
1994	79	76	51	3,093	145	12,844	30
1995	87	87	53	3,628	129	19,047	1
1996	86	84	51	3,458	526	20,861	1
1997	98	93	80	3,148	393	18,616	212
1988-1992 Average	71	67	50	2,784	980	11,698	74
1993-1997 Average	86	84	53	3,047	263	14,757	68

a Salmon harvest expanded for permits not returned (1974-1987). Beginning in 1988, reported harvest from returned permits only.
b Includes harvest from permits in Stevens Village and Rampart.
c Some fishermen reporting harvest did not have permits.
d Summer chum and fall chum salmon undifferentiated from 1974-1986.
e Information not available.
f Personal use fishery established only for fall chum salmon in 1987.
g Some fishermen may have had personal use harvest due to changes in the subsistence law. No personal use permits have been issued since 1990.

Table 3. Yukon River number of fishing households by village, 1988-1998. a

Village	1988 b	1989 c	1990 d	1991 e	1992 e	1993 e	1994 e	1995 e	1996 e	1997 e	1988-92 Average	1993-97 Average
Sheldon Pt.	16	21	12	15	16	23	18	23	24	24	16	22
Alakanuk	63	96	53	62	65	74	66	74	52	75	68	68
Emmonak	53	86	83	47	55	73	64	80	62	77	65	71
Kotlik	56	75	55	50	66	76	71	55	50	47	60	60
Personal Use Permits	17	14	18								10	0
Mouth to Anuk River Subtotal	205	292	221	174	202	246	219	232	188	223	219	222
Mt. Village	72	120	85	53	88	124	65	85	74	89	84	87
Pitkas Pt./St. Marys	59	59	61	60	64	61	88	70	85	110	61	83
Pilot Station	42	66	56	40	57	46	36	46	52	52	52	46
Marshall	38	41	40	36	52	55	45	46	46	35	41	45
Anuk River to Owl Slough Subtotal	211	286	242	189	261	286	234	247	257	286	238	262
Russian Mission	31	35	27	22	29	27	29	33	40	16	29	29
Holy Cross	28	29	33	19	31	37	49	36	39	38	28	40
Shageluk-Innoko River	18	10	12	9	17	12	12	20	16	21	13	16
Owl Slough to Bonasila R. Subtotal	77	74	72	50	77	76	90	89	95	75	70	85
Lower Yukon Total	493	652	535	413	540	608	543	568	540	584	527	569
Anvik	15	16	14	20	20	17	15	17	20	17	17	17
Grayling	26	29	9	27	25	26	30	38	35	46	23	35
Kaltag	32	27	39	26	34	31	35	33	40	34	32	35
Nulato	40	32	55	39	38	28	56	49	51	40	41	45
Koyukuk	18	16	12	17	13	19	16	4	10	16	15	13
Galena	64	54	100	47	53	62	54	54	71	45	64	57
Ruby/Kokrines	30	32	45	20	16	19	23	21	8	19	29	18
Bonasila R. to Illinois Cr. Subtotal	225	206	274	196	199	202	229	216	235	217	220	220
Huslia	25	19	15	16	33	15	14	35	10	5	22	16
Hughes	15	10	10	8	7	8	9	9	5	7	10	8
Allakaket/Alatna	25	29	19	26	29	15	24	18	20	23	26	20
Bettles		3		3	5	3	3	7	2	3	2	4
Koyukuk River Subtotal	65	61	44	53	74	41	50	69	37	38	59	47
District 4 Subtotal	290	267	318	249	273	243	279	285	272	255	279	267

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Table 3. (page 2 of 2)

Village	1988 b	1989 c	1990 d	1991 e	1992 e	1993 e	1994 e	1995 e	1996 e	1997 e	1988-92 Average	1993-97 Average
Tanana	60	43	42	34	45	34	45	32	55	36	45	40
Rampart	13	15	15	11	18	16	14	18	13	10	14	14
Fairbanks (permits)	39	36	48	26	29	30	29	31	30	25	36	29
Stevens Village	18	19	16	9	10	16	20	20	7	14	14	15
Birch Creek		0		2	1	0	3	2	1	3	1	2
Beaver	13	19	11	10	10	12	12	10	13	14	13	12
Ft. Yukon	52	67	41	46	61	60	77	52	69	31	53	58
Circle/Central (permits)	22	19	21	17	23	16	19	13	13	14	20	15
Eagle (permits)	51	38	35	27	23	25	27	32	32	35	35	30
Other (permits)				4	8	5	7	9	5	11	2	7
Illinois Cr. to U.S. Can. Border Subtotal	268	256	229	186	228	214	253	219	238	193	233	223
Venetie	8	26	13	7	7	28	28	13	6	6	12	16
Chalkyitsik	15	5	6	3	4	4	7	6	4	4	7	5
Chandalar/Black Rivers Subtotal	23	31	19	10	11	32	35	19	10	10	19	21
District 5 Subtotal	291	287	248	196	239	246	288	238	248	203	252	245
Manley	18	21	28	23	19	16	23	19	16	14	22	18
Minto	19	14	17	13	13	11	33	28	33	36	15	28
Nenana	79	38	34	35	31	23	26	38	32	30	43	30
Fairbanks (permits)	114	127	120	108	102	87	118	106	94	92	114	99
Kantishna		6									1	
Delta Juction				15	4	3	4	4	5	3	4	4
Healy		6	3	4	6	2	3	4	4	5	4	4
Other Permits				11	5	7	7	14	13	24	3	13
Tanana River Subtotal	230	212	202	209	180	149	214	213	197	204	207	195
Upper Yukon Total	811	766	768	654	692	638	781	736	717	662	738	707
Alaska Total	1,304	1,418	1,303	1,067	1,232	1,246	1,324	1,304	1,257	1,246	1,265	1,275

a 1961-1981 data available from 1981 Yukon Area Annual Management Report. Beginning in 1988 subsistence salmon harvest estimates have been generated from a stratified random sample of village households.

b Subsistence catch data collected and expanded by Subsistence Division; personal use data collected by Commercial Fisheries Division. Number of dogs and gear data not expanded.

c Data collected by Commercial Fisheries Division. Catch data and number of fishing households are expanded. Number of dogs and gear data are actual reported numbers in surveyed hous Number of dogs and gear data are actual reported numbers in surveyed households.

d Data collected by Commercial Fisheries Division. Catch data, number of fishing households and number of dogs are expanded. Gear data is the estimated number used by fishing households.

e Data collected by Commercial Fisheries Division. Survey data is expanded for number of fishing households, number of dogs, and catch data. Permit data is unexpanded, the number of dogs is based on pmits issued while the number of fishing households and their catch is based on returned permits. Gear data represents the principal the principal gear types used by fishing households with exceptions of other gear types not listed.

Table 4. Yukon River number of dogs by village, 1988-1998. a

Village	1988 b	1989 c	1990 d	1991 e	1992 e	1993 e	1994 e	1995 e	1996 e	1997 e	1988-92 Average	1993-97 Average
Sheldon Pt.	26	23	37	35	42	38	45	27	85	46	33	48
Alakanuk	166	80	93	113	155	148	200	137	187	182	121	171
Emmonak	104	48	97	60	231	248	278	122	178	171	108	199
Kotlik	191	111	228	141	189	256	296	105	232	284	172	235
Personal Use Permits	-	-	0									
Mouth to Anuk River Subtotal	487	262	455	349	617	690	819	391	682	683	434	653
Mt. Village	210	75	189	89	323	262	206	152	260	428	177	262
Pitkas Pt./St. Marys	242	159	172	198	265	207	322	153	248	76	207	201
Pilot Station	133	22	71	107	139	106	156	141	117	101	94	124
Marshall	304	157	343	149	244	305	390	231	419	203	239	310
										267		
Anuk River to Owl Slough Subtotal	889	413	775	543	971	880	1,074	677	1,044	1,075	718	950
Russian Mission	162	57	142	55	284	152	171	147	201	222	140	179
Holy Cross	69	51	49	49	111	190	138	89	99	137	66	131
Shageluk-Innoko River	98	24	81	41	112	105	104	106	213	133	71	132
Owl Slough to Bonasila R. Subtotal	329	132	272	145	507	447	413	342	513	492	277	441
Lower Yukon Total	1,705	807	1,502	1,037	2,095	2,017	2,306	1,410	2,239	2,250	1,429	2,044
Anvik	73	75	137	180	187	221	76	73	78	107	130	111
Grayling	243	73	44	200	239	145	258	214	148	111	160	175
Kaltag	155	123	188	170	109	137	126	146	102	65	149	115
Nulato	113	84	275	111	132	172	250	242	305	96	143	213
Koyukuk	79	57	49	56	168	80	76	54	117	79	82	81
Galena	162	137	252	272	332	289	296	350	312	272	231	304
Ruby/Kokrines	151	129	131	143	182	193	281	182	96	117	147	174
Bonasila R. to Illinois Cr. Subtotal	976	678	1,076	1,132	1,349	1,237	1,363	1,261	1,158	847	1,042	1,173
Huslia	202	179	128	255	379	191	189	209	193	108	229	177
Hughes	47	75	44	22	51	46	48	68	70	74	48	61
Allakaket/Alatna b	207	124	137	137	183	121	140	168	124	135	158	138
Bettles				114	103	50	97	103	62	45	43	71
Koyukuk River Subtotal	456	378	309	528	716	408	474	542	449	362	477	447
District 4 Subtotal	1,432	1,056	1,385	1,660	2,065	1,645	1,837	1,803	1,607	1,209	1,520	1,620

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Table 4. (page 2 of 2)

Village	1988 b	1989 c	1990 d	1991 e	1992 e	1993 e	1994 e	1995 e	1996 e	1997 e	1988-92 Average	1993-97 Average
Tanana	269	343	588	550	592	664	474	528	472	455	468	519
Rampart	10	18	100	106	181	128	75	71	46	46	83	73
Fairbanks (permits)				93	106	733	230	191	191	159	40	301
Stevens Village	101	92	73	65	70	61	87	84	67	77	80	75
Birch Creek		0		16	18	6	11	24	13	45	7	20
Beaver	47	53	14	50	45	66	61	51	47	33	42	52
Ft. Yukon	264	297	326	473	444	476	384	418	422	329	361	406
Circle/Central (permits)	60	60		133	210	107	108	93	79	106	93	99
Eagle (permits)	148	128		130	161	176	156	181	214	270	113	199
Other (permits)				28	15	15	69	30	22	34	9	34
Illinois Cr. to U.S. Can. Border Subtotal	899	991	1,101	1,644	1,842	2,432	1,655	1,671	1,573	1,554	1,295	1,777
Venetie	73	127	112	195	164	346	244	209	155	97	134	210
Chalkyitsik	83	21	73	65	63	93	90	57	67	64	61	74
Chandalar/Black Rivers Subtotal	156	148	185	260	227	439	334	266	222	161	195	284
District 5 Subtotal	1,055	1,139	1,286	1,904	2,069	2,871	1,989	1,937	1,795	1,715	1,491	2,061
Manley	178	250		497	603	507	476	468	425	399	306	455
Minto	219	98		272	221	247	539	238	316	337	162	335
Nenana	190	58		583	667	698	419	513	481	583	300	539
Fairbanks (permits)				407	617	340	702	341	226	285	205	379
Kantishna											0	
Delta Juction				16	12	0	21	1	3	2	6	5
Healy		20		120	95	65	91	90	96	108	47	90
Other Permits				87	55	0	21	72	147	184	28	85
Tanana River Subtotal	587	426	0	1,982	2,270	1,857	2,269	1,723	1,694	1,898	1,053	1,888
Upper Yukon Total	3,074	2,621	2,671	5,546	6,404	6,373	6,095	5,463	5,096	4,822	4,063	5,570
Alaska Total	4,779	3,428	4,173	6,583	8,499	8,390	8,401	6,873	7,335	7,072	5,492	7,614

a 1961-1981 data available from 1981 Yukon Area Annual Management Report. Beginning in 1988 subsistence salmon harvest estimates have been generated from a stratified random sample of village households.

b Subsistence catch data collected and expanded by Subsistence Division; personal use data collected by Commercial Fisheries Division. Number of dogs and gear data not expanded.

c Data collected by Commercial Fisheries Division. Catch data and number of fishing households are expanded. Number of dogs and gear data are actual reported numbers in surveyed housel Number of dogs and gear data are actual reported numbers in surveyed households.

d Data collected by Commercial Fisheries Division. Catch data, number of fishing households and number of dogs are expanded. Gear data is the estimated number used by fishing households.

e Data collected by Commercial Fisheries Division. Survey data is expanded for number of fishing households, number of dogs, and catch data. Permit data is unexpanded, the number of dogs is based on pmits issued while the number of fishing households and their catch is based on returned permits. Gear data represents the principal the principal gear types used by fishing households with exceptions of other gear types not listed.

Table 5. King salmon commercial harvest and escapement comparison, Yukon River, 1998.

		King Salmon Commercial Harvest a							
District/Subdistrict	Guideline Harvest Range	1993	1994	1995	1996	1997	1998	Comparison to Average	5 Year Average (1993-1997)
Y-1		49,286	62,241	76,106	56,642	66,384	25,413	-59%	62,132
Y-2		37,293	41,692	41,458	30,209	39,363	16,806	-56%	38,003
Subtotal Y1 & Y2	60,000-120,000	86,579	103,933	117,564	86,851	105,747	42,219	-58%	100,135
Y-3	1,800-2,200	1,501	1,114	0	0	0	0		523
Y-4A		0	0	0	0	0	0		0
Y-4BC		1,577	2,443	499	137	1,457	0		1,223
Subtotal Y-4	2,250-2,850	1,577	2,443	499	137	1,457	0		1,223
Y-5ABC	2,400-2,800	2,608	3,294	2,753	2,309	3,071	475	-83%	2,807
Y-5D	300-500	400	450	489	448	607	42	-91%	479
Subtotal Y-5		3,008	3,744	3,242	2,757	3,678	517	-84%	3,286
Y-6	600-800	1,445	2,606	2,747	447	2,728	963	-52%	1,995
Total Alaska	67,350-129,150	94,110	113,840	124,052	90,192	113,610	43,699	-59%	107,161
Canada b	16,800-19,800	16,469	20,790	20,091	19,546	15,717	5,819	-69%	18,523

		King Salmon Escapements							
Project	Spawning Escapement Goal	1993	1994	1995	1996	1997	1998	Comparison to Average	5 Year Average (1993-1997)
East Fork Andreafsky River Weir			7,801	5,841	2,955	3,186	4,011	-19%	4,946 d
East Fork Andreafsky River Aerial c	>1,500	5,855	N/A	1,635		1,140	1,027		N/A
West Fork Andreafsky River Aerial c	>1,400	2,765	N/A	1,108	624	1,510	N/A f		N/A
Pilot Station Sonar		N/A	N/A	240,000	N/A	224,000	122,000		N/A
Anvik River Index Aerial c	>500	1,526	N/A	1,147	709	2,690	N/A f		N/A
Kaltag River Tower			241	196	140	194	87	-55%	193 d
Nulato River Tower			1,795	1,412	756	4,766	1,536	-30%	2,182 d
Nulato River Aerial c	>1,300	3,025	1,795	1,649	N/A		1,053		N/A
Gisasa River Weir			2,888	4,023	1,952	3,764	2,273	-28%	3,157 d
Gisasa River Aerial c	>600	1,573	2,775	410		N/A	N/A f		N/A
South Fork Koyukuk River Weir					1,232	1,642	-		N/A
Beaver Creek Tower					192	315	-		N/A
Chena River Tower/MR Tagging		12,241	11,887	9,680 e	6,833 e	13,390	4,423	-59%	10,806
Chena River Index Aerial c	>1,700	2,660	1,570	3,039	2,112	3,303	N/A		N/A
Salcha River Tower/MR Tagging		10,007	18,399	13,643	7,958 e	18,396	4,990	-64%	13,681
Salcha River Index Aerial c	>2,500	3,562	11,189	3,734	4,800	N/A	N/A		N/A
Whitehorse Fishway		668	1,577	2,103	2,958	2,084	777	-59%	1,878
Canada Mainstem Tagging	>28,000	28,558	25,890	32,262	28,409	37,683	16,769	-45%	30,560

a Commercial harvest includes the estimated harvest of females to produce roe sold.
b Total harvest for all fisheries in Canadian mainstem Yukon River.
c Only aerial surveys rated good to fair are used in comparison.
d Four year average, 1994-1997.
e Mark Recapture Tagging Estimate, Tower counts are minimum/incomplete due to late installation and/or early removal of project or high water events/weather conditions.
f 1998 Aerial surveys rated poor/incomplete WF Andreafsky-1,249, Anvik-648, Gisasa-889.